EDUCATION AND TRAINING FOR RURAL TRANSFORMATION

EDUCATION AND TRAINING FOR RURAL TRANSFORMATION

Skills, Jobs, Food and Green Future to Combat Poverty

AHMED, Manzoor

WANG, Li

KHAN, Qutub

MENG, Hongwei

SAGE www.sagepublications.com

Los Angeles • London • New Delhi • Singapore • Washington DC

First published in 2016 by

SAGE Publications India Pvt Ltd
B1/I-1 Mohan Cooperative Industrial Area
Mathura Road, New Delhi 110 044, India
www.sagepub.in

SAGE Publications Inc
2455 Teller Road
Thousand Oaks, California 91320, USA

SAGE Publications Ltd
1 Oliver's Yard, 55 City Road
London EC1Y 1SP, United Kingdom

SAGE Publications Asia-Pacific Pte Ltd
3 Church Street
#10-04 Samsung Hub
Singapore 049483

United Nations Educational, Scientific and Cultural Organization
International Research and Training Centre for Rural Education

UNESCO International Research and Training Centre for Rural Education (INRULED), located at Beijing Normal University
No. 19 Xinjiekouwai Street
Beijing 100875, China

Published by Vivek Mehra for SAGE Publications India Pvt Ltd, typeset in 10/14 Myriad Pro by RECTO Graphics, Delhi, and printed at xxxxxxxx.

Library of Congress Cataloging-in-Publication Data Available

ISBN: 978-93-515-0900-4 (PB)

The SAGE Team: Supriya Das, Isha Sachdeva

ACKNOWLEDGEMENTS

The present report could have not been possible without the support and professional, technical and financial inputs of the Beijing Normal University, China; especially, Professor Dong Qi, Executive Vice President of Beijing Normal University and Director of UNESCO International Research and Training Centre for Rural Education (INRULED); and the Chinese National Commission for UNESCO, especially Dr Du Yue, Secretary-General of the Chinese National Commission for UNESCO. We express our deep appreciation for their generous support and encouragement for the work that resulted in this report.

A large number of people contributed to the preparation of this publication. Special thanks are due to Dr Manzoor Ahmed (Bangladesh) and Professor Qutub Khan (India) as the principal contributors of the report.

Special appreciation is extended to INRULED long-term colleagues and friends, in particular, Prof. Greg Shaw (Australia), Mr Andreas Schleicher (OECD Paris), Professor Darol Cavanagh (Australia), Dr Salehuddin Ahmed (Bangladesh), Dr Min Bista (UNESCO Beijing) and Ms Ann Herbert (ILO Beijing), whose wisdom and insight helped guide our thinking as to the content, focus and presentation of the report. Their help and advice in preparing and reviewing parts of the report under severe time constraints were invaluable. We also thank Mr Imran Khan and Mr. Nitas Iftekhar, colleagues in India, for their valuable comments and suggestions.

We are grateful to the Chinese team members, especially Dr Meng Hongwei, Professor Zhou Nanzhao, Professor Li Xiaoxi, Professor Wang Qiang, Mr Jing Min, Professor Lan Jian and Professor Liu Yonggong for their observations, judgement and important contribution to the contents. I also wish to acknowledge our debt to the people who have helped by providing various relevant documents, which enriched this report.

This report relied upon truly impressive inputs from the staff of the UNESCO International Research and Training Centre for Rural Education (INRULED), especially Miss Zhang Dian, Mr Francesco Valente, Mr. Ren Chao, Mr Chandu Chandrakar, Mr Ren Jianpeng, Miss Zhang Wen, Dr Xiao Shuzhen and Miss Zhang Liwei. They provided unfailing administrative and technical support throughout the preparation of this report.

Work carried out by Mr Sheikh Asaduzzaman, Publication Officer of the International Union for Conservation of Nature, Bangladesh office, in preparing the layout of the report; and Mr Guo Xingju, the Beijing Normal University Publishing Group, China, for turning it into a well-finished product deserve special recognition.

WANG, Li
Deputy Director
UNESCO International Research and Training Centre for Rural Education (INRULED)
Beijing, China
May 2012

Contents

CHAPTER 4

Skills and Jobs for a Green Future

CHAPTER 5

Roles, Responsibilities and Challenges: A Framework for Policy and Action

ANNEXURES

Good Practices, Measurement of Skills, Statistical Tables

List of Tables, Figures and Boxes

Tables

Figures

Boxes

FOREWORD

Our world is grappling with a major paradox: the enormous unmet needs of people alongside significant untapped human resources. Some 3 billion people today live on less than US$ 2.5 per day, and are, therefore, unable to meet their basic needs. Until all of them have enough food, adequate clothing, housing, education, medical care and other essential goods and services, we cannot talk of a "dearth" of work.

Poverty remains largely a rural problem. In less developed countries, where 85 percent of people live, over half are rural—and by 2050, this will be the case for some 2.6 billion people in developing countries. As many as 70 percent of young people in Sub-Saharan Africa and South Asia live in rural areas. Most are employed in the informal economy in low-paying and undefined jobs, with little systematic skills development.

In the past few years, new sources of vulnerability for the poor, especially in the rural areas, have arisen, including the recent economic crisis that originated in the financial markets of the West but is affecting poor people everywhere, the growing gaps between supply and demand for jobs and employment for young people, threats to food security, and man-made and natural disasters, including the effects of climate change. These hazards affect disproportionately rural people, because more of them are poor.

Policies and programmes for education, training, skills development and the creation of jobs, therefore, cannot ignore the special conditions and contexts of rural people. Moreover, urbanisation is building new patterns of economic, ecological and social interaction between urban and rural areas. The phenomenon of rural–urban migration, for example, is both a problem and an opportunity. A well-designed transformational process that builds skills and capacities and applies an ecological perspective can be positive and mutually beneficial for both urban and rural people.

Technical and vocational education and training and skills development, together with basic and adult education, are vitally important for building a sustainable future based on youth employment, poverty reduction, social inclusion in rural communities and respect for the environment. Maximising the contributions of skills development to social and economic progress requires that a broad vision be developed, encompassing a multiplicity of purposes, providers, settings and learners. Formal TVET is only a part of the full picture. Skills development, wherever and however it occurs, must be made visible, appreciated, supported and given due attention in policy and action. At the same time, TVET by itself does not create jobs or alleviate poverty; decision-makers must put in place the right policies and condition to promote equity and reduce poverty.

The International Research and Training Centre for Rural Education (UNESCO-INRULED), located in Beijing Normal University and established with the sponsorship of the Government of the People's Republic of China and UNESCO, promotes sustainable development in rural areas through educational research, training and extension activities. In 2009, the UNESCO-INRULED Board decided to examine closely the issues of skills development within its broad mission of exploring concepts, policy and practices in education for rural transformation.

This study brings the perspective of the rural disadvantage to these questions. It takes on the issue of skills development, and its translation into jobs and reduction of poverty, from the point of view of rural people. The emphasis specifically is on education, training and capacity building for rural transformation.

The report attempts to lay out the rationale and concept of rural transformation in the context of poverty reduction as a national development priority. It takes into account emerging issues that have become prominent, like food security, the green economy and increased urgency of jobs and employment in combating poverty, especially in rural areas.

I am confident that the UNESCO-INRULED report will be an important contribution to defining, developing and committing ourselves to policies and needs-based actions to enhance skills and capabilities of all people, especially those in rural areas.

Qian Tang, Ph.D.
Assistant Director-General for Education
UNESCO

January 2016

EDUCATION AND TRAINING FOR RURAL TRANSFORMATION

Overview

Challenges and Policy Implications

This overview recapitulates the main arguments and messages of the study and presents recommendations about the future national, regional and international actions and UNESCO/INRULED role in education and skills development for rural transformation. The policy relevant summation, conclusions and recommendations are shown in italic. The key points are highlighted in the side notes.

A tipping point in world population was reached in 2011. Of the seven billion people on the planet, the city dwellers surpassed the rural people for the first time in human history in 2011 (Population Reference Bureau: 2011). While half of the world's population now is urban, in Sub-Saharan Africa, India and China the range of the rural proportions are from 55 to 70 percent. By 2050, there will still be 45 percent in India and the 50 least developed countries and a full one-third in the developing regions as a whole. In absolute numbers, one-third of the population of the developing countries, who will live in rural areas and will depend on rural economy and livelihood in 2050, will add up to 2.6 billion.

The basic premise of this report is that poor rural people find it very difficult to manage the multiple risks they face arising from their personal and household circumstances, the natural and climatic hazards, and economic and development situations at the national and global levels. The rural poor, the majority of the poor in most countries, therefore, cannot seize the opportunities that may exist or arise for them in agriculture and the non-farm economy alike. Moreover, the overarching global and national challenges of fighting poverty and building the sustainable future cannot be met unless the problems facing the rural majority in the developing countries are effectively addressed.

1. Rural Transformation and Skills Development

A report published in 2003 by INRULED titled "Education for Rural Transformation: Towards a Policy Framework" made a plea for rethinking education in rural areas and rural people with a focus on "rural transformation."

The term rural transformation—rather than rural development, rural change or rural education—was used advisedly to convey a vision of pro active and positive process of change and development of rural communities in the context of national and global changes. Education was seen as a key instrument for shaping and fulfilling the goal of rural transformation.

The report focused on the links between education and rural transformation. It underscored the inexorable forces of change rural communities faced and how education, by equipping people with appropriate knowledge, skills and fostering of human dignity, could expand their choices and capabilities to exercise these choices.

Development and transformation

A transformative view of rural change is not a denial of the general notion of rural development. Rural transformation is all about seeking to improve the living condition of the farmer, the artisan, the tenant farmer and the landless in the countryside. It is about enabling specific groups of people—rural women and youth and the disadvantaged segments of the population—to gain for themselves and their children more of what they wanted and needed. It subsumes the core ideas of rural development concerned with improving the well-being of rural people by enhancing their productive capacities, expanding their choices in life and reversing public policies that discriminated against the rural poor.

The report points out that the notion of transformation is consistent with the rural development literature that emphasises agrarian change, integrated national development without marginalising rural people and the rural economy, and the interconnected political economy issues of national and rural development.

It is affirmed that the linear and dichotomous view of development in general and rural development in the form of a movement from agriculture to industry, non-market to market, rural to urban, family work to wage labour and human to mechanical labour has to be abandoned in favour of a heterogeneous, multi dimensional and transformative view of national and rural development comprising potentially beneficial mutual interaction between the rural and the broader national reality.

In the least developed countries, 45 percent of the population and in developing countries as a whole one-third of the people will still be rural residents in 2050. These numbers add up to 2.6 billion people.

The overarching global and national challenges of fighting poverty and building the sustainable future cannot be met unless the problems facing the rural majority in the developing countries are effectively addressed.

A transformative view of rural change is not a denial of the general notion of rural development... the linear and dichotomous view of development must be abandoned in favour of a heterogeneous, multidimensional and transformative view of national and rural development.

The focus on rural transformation called for recognising new dimensions in the criteria for judging quality and relevance of educational activities.

The rapidly changing rural scene and the dynamics of rural–urban interaction required flexibility and creativity in educational programmes.

In the decade since the UNESCO/INRULED study, the urgency has heightened further for paying attention to rural transformation and making education the vehicle for this transformation. New sources of vulnerability for the poor, especially for the poor people in the rural areas, have arisen. This is graphically illustrated by the recent economic crisis originating in the financial markets of the West but affecting poor people everywhere: new threats to food security of people and man-made and natural disasters including effects of climate change endangering life and livelihood of millions. These hazards affect disproportionately the rural people, because more of the poor are them.

The UN General Assembly's review in September 2010 of progress towards 2015 MDG had concluded that many of the MDG goals including those for education, that envisioned a new future for humanity in the 21st century, could not be fully achieved. A reason for this was the fact that a large proportion of the rural people in the developing world remained deprived educationally, missing the opportunity to acquire the skills and knowledge to develop their capabilities and expand their choices in life.

The structural challenge

The dominant development model based on unlimited consumption and the concomitant rapid urbanisation creates a structural vulnerability for global and national economies. This is manifested in diminishing share in GNP of agriculture and rural production in China and India and other developing countries, while more than half of the economically active people remained dependent for their livelihood and well-being on agriculture.

An even larger structural challenge lies in the economic development goals and aspirations of China and India and the rest of the developing world. These are premised on the consumption habits and patterns of North America and Europe, dependent on ravaging the non-renewable resources of the planet. This is unsustainable and would lead to the collapse of the system of natural and biological balance of resources of the planet. Rural transformation, even if it is not fully recognised yet, has to be the epicentre of a tectonic shift in thinking and action. But this shift in vision and action would not happen by natural force like the physical tectonic shift. People and nations have to will it and work for it.

The focus on rural transformation called for recognising new dimensions in the criteria for judging quality and relevance of educational activities. The rapidly changing rural scene and the dynamics of rural–urban interaction required flexibility and creativity in educational programmes, not often found in the conventional formal system.

The concerns and priorities of rural people and the transforming rural communities needed to figure specifically and prominently in the educational responses to the contextual trends and influences that have a bearing on national education systems. For example, the human rights perspective, human development imperatives of education, effects of the new information technology and the crucial importance of pursuing sustainable development objectives needed to be assessed from the point of view of advancing rural transformation.

Skills and capacity building

The Education for All initiative launched in Jomtien, Thailand in 1990 and the subsequent Dakar Framework in 2000 and its six goals have influenced policy-making and programme strategies in developing countries.

The Dakar EFA Goal 3 was: *Ensuring that the learning needs of all young people and adults are met through equitable access to appropriate learning and life skills programmes.*

Dakar Goal 4 was: *Achieving a 50 percent improvement in levels of adult literacy by 2015, especially for women, and equitable access to basic and continuing education for all adults.*

The life-skills and lifelong learning goal is not quantified; it actually refers to learning content and learning objectives—the learners should be able to acquire the values, attitudes and skills which would serve them throughout life and the learning process would continue throughout life. The adult literacy goal, which had a quantified target, on the other hand, emphasised the mechanics of literacy skills, equipping learners with literacy as an instrument. Having acquired this instrument, the learners may continue to participate in education. The two goals appear to have been seen as parallel sets of objectives and activities without the mutually supportive and energising interaction required to pursue the Education for All rationale. The weakness in coherence in definitions and concepts of adult learning, skills development and lifelong learning and their relationships appears to have had adverse consequences in many countries (Ahmed: 2009).

UNESCO-INRULED decided to examine closely the issues of skills development within its broad mission of exploring concepts, policy and practices in education for rural transformation. The confluence of global forces and national situations, especially in the poorer countries and regions of the world prompted UNESCO-INRULED to take this decision. These forces and factors include persistent and growing gaps between supply and demand for jobs and employment for young people, growing vulnerabilities and risks for poor people, threats to food security and the urgency of building a sustainable green future.

2. Education and Skills to Combat Rural Poverty

A paradox

A paradox of a global proportion prevails today, which is the persistence of enormous unmet needs of people and, at the same time, the huge wastage of untapped human resources. There are approximately three billion people with unmet basic needs living on incomes of less than US$ 2.50 a day. These billions lack the minimum requirements for a normal life. There cannot be a dearth of work until these people have adequate food, clothes, homes, education, medical care and other essentials of life. But the national and global economic systems fail to harness the technological and organisational resources, and most importantly, the human resources, to meet the unfulfilled human needs. Over 200 million people in the world today, who are willing and able to work, are estimated to be unemployed, and probably more than a billion are involuntarily underemployed (Jacobs: 2011).

The unemployment and under-employment of over a billion people is the greatest single direct obstacle to halving absolute poverty by the year 2015—the overarching MDG goal. There is a massive mismatch between work to be done and people who need jobs. This gap has to be bridged by skills development and policies and actions to use the skills in decent jobs that are socially beneficial and personally rewarding.

Education, skills and pathways out of rural poverty

Understanding the role of skills development in combating rural poverty requires a better grasp of the pathways out of poverty for rural people. Indeed this is the central question in the context of rural transformation. This question has been a concern to policy-makers, practitioners and researchers at national and international levels for some time.

A special evaluation study in three countries—China, Malaysia and Vietnam—by the Asian Development Bank attempted to answer the questions: How do poor households in rural areas rise out of poverty? How effective are certain poverty reduction interventions? What are some lessons for the future? (ADB: 2006). Substantial reduction of rural poverty was found in all of the project areas, in line with general poverty reduction and economic growth in the three countries. However, it was found that vulnerabilities and risks arising from unpredictable and not infrequent man-made and natural emergencies, which rural households faced, kept them in or pushed them back into poverty.

The weakness in coherence in definitions and concepts of adult learning, skills development and lifelong learning and their relationships remain widely prevalent with adverse consequences in many countries.

There is a massive mismatch between work to be done and people who need jobs. This gap has to be bridged by skills development and policies and actions to use the skills in decent jobs.

Understanding the role of skills development in combating rural poverty requires a better grasp of the pathways out of poverty for rural people.

Major vulnerabilities included (i) serious or chronic illness of primary wage-earner or other family members, (ii) natural disasters such as cyclone and flood that disrupted life and destroyed temporarily or permanently livelihoods and occupations and (iii) large investment losses due to market fluctuations, epidemic outbreaks of animal disease, or natural disasters.

In the specific cases studied in this report, constraints identified in the poverty reduction interventions were: (i) isolated investments in upgrading rural roads in remote and poorly endowed regions without linking these or assessing fully the ancillary economic and ecological factors (ii) add-on components satisfying ADB's pro-poor conditions, such as HIV/AIDS or gender-related actions, without sufficient demand from clients and (iii) household and geographic targeting used in investment projects that did not tackle the key causes of poverty, but assumed that funds flowing into poor regions, or intended benefits for socio-economic groups, would automatically lead to poverty reduction.

The solutions to the problems of rural poverty often in fact did not lie within the rural communities themselves or within the defined scope of the poverty reduction interventions.

The solutions to the problems noted in fact did not lie within the rural communities in the poor regions themselves or within the defined scope of the interventions. Longer term and broader interventions within a larger regional framework were considered necessary. Coordinated infrastructure development, improvement of social services, investments focused on job creation, availability of credit under appropriate terms, safety nets to reduce vulnerability of households, and education, training and appropriate skill formation activities as well as support to orderly migration of workers to locations with better job prospects were seen as the appropriate interventions. All these needed to be carried out with a coordinated approach.

It is noteworthy that the limited and non-sustained poverty reduction outcomes were observed in the three countries in periods when they enjoyed high aggregate economic growth at the national level and the countries were regarded as success cases in economic development and poverty reduction. It can be reasonably surmised that in the context of less robust national economic growth, the constraints encountered would be greater and the outcomes would be even less positive.

Relative roles of agriculture and non-farm activities

Logically, the pathways out of poverty for rural people have to be strongly connected to productivity increases and expansion of employment in the rural economy through farming activities, rural non-farm enterprises or via rural–urban migration. Literature on rural poverty supports the view that agricultural growth has historically had an important role in poverty reduction in many countries (e.g., Ravallion: 2004; Besley and Cord: 2006).

The pathways out of poverty for rural people have to be strongly connected to productivity increases and expansion of employment in the rural economy through farming activities, rural non-farm enterprises and via rural–urban migration.

With more open trade and market development within and among countries for agricultural products, slowing of population growth and the growth of non-farm economic activities, the overall economic growth and poverty reduction is no longer dominated by the agriculture sector. Overall in developing countries, non-farm output now accounts for roughly half of rural income. Despite the fact that some non-farm activities are characterised by low productivity and low earning, many have a greater potential for enhancing rural income and employment than farming activities.

The question is not whether the emphasis should be on agriculture or non-farm activities, but what the pragmatic and dynamic combination should be and what may be the relative balance of intersectoral transitions and importance of rural–urban migration. The answer for any given country depends both on its factor endowments as well as its policy and institutional environment (McCulloch *et al.*: 2007).

A sample of analytical evidence from Sub-Saharan Africa and Asia sheds light on the connection between educations, skills and jobs, on the one hand and the economic and political policy directions for fighting rural poverty on the other. The obstacles that had to be overcome for success in fighting poverty were of several kinds:

- Poor natural resource endowment—shortage of farmland, shortage of water and inhospitable climatic and ecological condition for improving agricultural productivity, both with smallholders or moving into larger commercial production.
- Infrastructure deficiency—poor roads, inadequate irrigation and water supply, insufficient energy and power, and insufficient investments for these purposes.
- Institutional deficiencies of several types—lack of credit in accessible terms for the poor, political and bureaucratic obstacles to labour mobility, absence of social safety net, such as health care and child and old-age benefits, insurance against catastrophe, protection against natural disasters, other vulnerabilities, poor civic governance in general.
- Socio-cultural obstacles—language and ethnicity as obstacle to labour mobility or accessing economic opportunities.
- Human development deficiencies—poor quality of primary education that does not ensure basic literacy and numeracy skills for many children, particularly the poor; lack of secondary general education and appropriate skills development; and scarce tertiary education that could bring technical know-how and support technology adaptation in rural areas.

Not mentioned in this enumeration based on the country data are insufficient non-formal and informal skill development and insufficient general adult and lifelong learning opportunities. Also not specifically mentioned are commonly observed phenomena, such as, corruption that seriously undermined sound and promising projects, improper political patronage and interference, and clans and tribes rivalries affecting project efficiency. The research design and the researchers; judgement about the socio-cultural constraints appear to have led to this neglect.

Four general comments are pertinent about overcoming constraints to policies that promoted land and labour productivity in rural areas.

First, the solutions to some of the major problems did not lie in specific interventions within the rural community or the locality, such as those about social safety net and credit policy, and bureaucratic and legal barriers to labour mobility and labour market flexibility. The problems of farmland shortage and population pressure also required regional or even national strategies much beyond the boundaries of the rural localities.

Second, macroeconomic conditions and policies that were effective in promoting aggregate economic growth served as a positive backdrop for implementing poverty reduction actions; and the opposite in the case of slow growth.

Third, good quality primary and secondary general education was important for helping young people from poor households take advantage of better paying and higher productivity non-farm employment opportunities. This was necessary for participating in occupation-specific skill training or gaining entry-level spots in firms for on-the-job or in-house training. The corollary to this condition was that education and training were not particularly a requirement for low-productivity, low-wage and low-skill jobs in the informal sector.

Good quality primary and secondary general education was important for helping young people from poor households take advantage of better paying and higher productivity non-farm employment opportunities.

Finally, different kinds of constraints, education and training for skills development being a major one, point to the importance of finding ways of bridging various gaps between concepts and practices. These gaps are primarily between poverty reduction strategies and actions, on the one hand, and generation of skills and jobs, on the other. It is a problem of bringing the two areas of policy and strategy discussion, which have continued somewhat in parallel, into one universe of discourse. The links, sometimes rhetorically recognised, need to be clarified and sharpened. The implications for policy and coordinated action that addresses the interfaces of skills, employment and poverty reduction among rural people need to be spelled out and acted upon.

Jobs and escaping rural poverty—state of the discourse

It is clear that many rural people will need to move from traditional agriculture-based occupations to non-farm activities and many will need to move in search of jobs to towns and cities. Many will need skills that are different from those of their parents and these needs keep changing at a faster pace than before. But how exactly are skills turned into gainful and rewarding jobs? And how and what kind of employment creation can lift people out of poverty in rural areas?

It is clear that many rural people will need to move from traditional agriculture-based occupations to non-farm activities and many will need to move in search of jobs to towns and cities.

The International Labour Organisation (ILO) proposed the adaptation and application for rural economic activities its Global Employment Agenda (GEA) and the related Decent Work Agenda (DWA) as the framework for shaping policies and actions to reduce poverty by generating more and better jobs. ILO advocates the integration of economic and social objectives, and a well-orchestrated combination of measures in the areas of employment promotion, rights at work, social protection and social dialogue. It argues that expanding "decent work" for rural people opened the avenue out of poverty (ILO: 2003).

The 10 core elements of GEA are:

- Promoting trade and investment for productive employment and market access for developing countries.
- Supporting technological change for higher productivity and job creation and improved standards of living.
- Promoting sustainable development for sustainable livelihoods.
- Macroeconomic policy for growth and employment moving towards policy integration.
- Encouraging decent employment through entrepreneurship.
- Enhancing employability by improving knowledge and skills.
- Active labour market policies for employment, job security, equity and poverty reduction.
- Looking upon social protection as a productive factor.
- Occupational safety and health: synergies between security and productivity.
- Productive employment for poverty reduction and development.

The concept of decent work emphasises shaping of policies and actions to reduce poverty by generating more and better jobs. It calls for the integration of economic and social objectives and for a well-orchestrated combination of measures in the areas of employment promotion, rights at work, social protection and social dialogue. Decent work is thus a productive factor, and social policies based on decent work have a dynamic role to play in promoting a healthy economy and a just society.

The insight underlying GEA and the decent work concept is that employment is the missing link between growth and poverty reduction. It also emphasises that sustainable poverty reduction requires simultaneously social transfers, investments in social and physical infrastructure and good labour market performance. These constitute key policy orientations for any country to succeed in reducing poverty in rural areas (ILO: 2003 and 2008).

Employment is the missing link between growth and poverty reduction.... sustainable poverty reduction requires simultaneously social transfers, investments in social and physical infrastructure and good labour market performance. These constitute key policy orientations for any country to succeed in reducing poverty in rural areas.

How realistic are the premises and promises of GEA and decent work for rural people? More and better jobs are expected to improve agricultural productivity and benefit farm households by raising incomes and food security, in both urban and rural households. The benefits would accrue from higher wages, lowered food prices, increased demand for consumer and intermediate goods and services, rise in returns to labour and capital and improved overall efficiency of markets (ILO: 2008, p.14).

In reality, the gap in many countries has widened between urban and rural livelihoods. The positive effects mentioned may be experienced mainly in suburban perimeters and along main trunk roads. The increases in commodity prices fail to reach the very small producer, who faces rising costs for inputs,

but receives a shrinking portion of the market value of his or her crops. Nor do agricultural workers often see higher commodity prices translated into fuller wage packets.

Rural labour market

Rural labour markets are dominated by unskilled labour where workers are with little formal education or training. The prevalence of casual labour and child labour contributes to low productivity, low wages and weak bargaining capacity of workers. Labour market governance and institutions are usually weak in rural areas and have little capacity to directly address factors determining supply or demand for labour.

With a total of over 1 billion people employed in the agriculture sector in the world, it is the second greatest source of employment worldwide after services, but agricultural workers enjoy a disproportionately low share of national income. It is noteworthy that with close to 90 percent of rural employment in developing countries in agriculture and farm-related work, the sector was the source of less than two-thirds of the total rural income. This disproportion is a manifestation, in a way an explanation, of the low income and poverty of rural people.

In short, although agriculture is still the predominant source of livelihood for rural women and men, agriculture alone cannot alleviate rural poverty. In all rural communities, the promotion of sustainable off-farm enterprises is necessary to generate more and better jobs. The weight of research and evidence points to the importance of non-farm enterprises as a driver of rural development, income growth and poverty reduction.

Addressing extreme poverty and social exclusion

Extreme poverty of a proportion of rural people places them under special vulnerability. The first Millennium Development Goal is to halve the number of people living in extreme poverty by 2015. It is now expected that the global poverty rate will fall below 15 percent, well under the 23 percent target for 2015. This global trend, however, mainly reflects rapid growth in East Asia, especially China. Success in bringing the proportion of humanity living in extreme poverty to below 15 percent would still leave 900 million people living on less than US$ 1.25 a day (UN: 2011).

The initiatives to address the situation of the extreme poor, such as the ultra-poor initiative in Bangladesh and the rural employment guarantee programme in India, appear to have not given due attention to the linkages between assistance to address extreme poverty and vulnerability and human capital development, especially building skills and capacities of the participant families, except as specific orientation type of activities in the former case. There has been no attention to educational needs of children except for exhortation to enrol in primary school. The school did not function effectively in the first place in the concerned communities and the majority of children of the poor, who enrolled, dropped out before completing primary education.

The situation of extreme poverty also raises the general question of social exclusion of segments of the population, especially in the rural areas, from benefits of development and how social protection can be extended to them. Social exclusion and poverty are intimately linked and are largely coexistent. Focusing on social exclusion is necessary in policy-making and planning for effective and sustainable action to combat the multidimensional causes and consequences of extreme poverty and vulnerability of people.

However, the normative assumptions about exclusion and inclusion, as negative and positive phenomena, may distract attention from how exclusion actually works in specific contexts. The theoretical formulation may ignore the agency of poor people in taking action to help them, looking at them as powerless victims. The term originated in the industrial countries where relatively small minorities are affected by the exclusionary

Rural labour markets are dominated by unskilled labour where workers are with little formal education or training. The prevalence of casual labour and child labour contributes to low productivity, low wages and weak bargaining capacity of workers.

In all rural communities, the promotion of sustainable off-farm enterprises is necessary to generate more and better jobs.

In rural areas of many developing countries, the "marginalised" may even be the majority in some situations. Inclusion and exclusion, therefore, need to be considered in terms of structural changes, rather than correcting aberrations within existing structures which affect small numbers.

In the context of poverty reduction and rural transformation, the generic skills development issues have to be examined in relation to the goal of a broader and multifaceted rural transformation.

This challenges the MDG and EFA premise that the completion of primary education will contribute to realising the goal of cutting in half by 2015 the number of people living in dire poverty.

It is not uncommon for children to take 8 to 12 years of schooling to acquire basic skills of literacy and numeracy at a functional level.

conditions. When applied to developing countries, the assumptions and the logic may get distorted. In many developing countries, especially in rural areas, the "marginalised" constitute large numbers, even the majority in some situations. Inclusion and exclusion, therefore, need to be considered in terms of structural changes, rather than correcting aberrations within existing structures which affect small numbers (ILO: 2008, ibid.).

The nature of skills development

Skills development cannot be equated with formal technical and vocational education and training (TVET) alone. It comprises capacities acquired through all levels of education and training, occurring in formal, non-formal and on-the-job settings. It enables individuals in all sectors of the economy to become fully and productively engaged in livelihoods and to have the capacity to further enhance and adapt their skills to meet the changing demands and opportunities in the economy and labour market. Skills development should not be characterised by the source of education or training itself, but by the capacities that are acquired through this process (Palmer: 2005).

The broader concept of skills development has several important operational and practical connotations:

First, skills development is not an isolated and self-contained area of activity. There are critical connections with the general education system including basic, secondary and tertiary stages, and non-formal and informal education, which influence the characteristics and outcomes of the skills programmes. In this regard, it is a part of the Education for All (EFA) initiatives which have shaped educational priorities and plans in developing countries.

Second, skills development is not confined to institutionalised formal training labelled as technical and vocational education and training (TVET). There is a wide range of modalities of delivery, organisational and institutional mechanisms, locus of responsibility, and diversity of objectives and clientele for skills development programmes.

Third, skills development is broader than skills related to economic production or earning a wage. It extends to organisational and management skills, especially in relation to self-employment; life skills that makes an effective and responsible worker who derives pride and satisfaction from work; and civic and family life skills that enhance an individual's performance as a worker and as a person.

Fourth, in the context of poverty reduction and rural transformation, the generic skills development issues have to be examined in relation to the goal of a broader and multifaceted rural transformation. The implications of a broad view extend beyond purely rural to national development goals and priorities.

Education and skills development

Rural transformation and skills and capacity building for it are not objectives exogenous to basic education. Specific occupational and employment-related skills are generally acquired at the post-primary or even post-secondary stage. The presumption is that young people bring basic educational competencies, knowledge and proficiencies that they acquire from primary, lower secondary or secondary education, to skill training courses.

Achieving basic competencies

It is not uncommon for children to take 8 to 12 years of schooling to acquire basic skills of literacy and numeracy at a functional level. A large proportion of children in many developing countries, especially in the rural areas, never reach this stage. This situation challenges the MDG and EFA premise that the completion of primary education will contribute to realising the goal of cutting in half by 2015 the number of people living in dire poverty worldwide.

Second level education and skills

The skill requirements of rural jobs continue to rise along with required general education levels of workers. The question of the linkage between post-primary/secondary education and skills development are framed by two related concerns—how

secondary education, lower and higher stages of it, contribute to conventional vocational and technical training as well as to emerging non-conventional skills development needs; and to what extent and how secondary education itself can become "vocationalised" and complement conventional TVET? (McGarth: 2007).

The position of the World Bank, based on substantial analytical work, is that effective teaching in primary and secondary schools of language, maths and science is a better vocational preparation than making schools technical or vocational. However, the Bank's lending and technical assistance have not been fully consistent with this policy recommendation. Many countries also appear to have opted for a mixed approach with a degree of "vocationalisation" in the mainstream general secondary education, adopting variations of European models, despite major contextual differences (King: 2007). Ensuring adequate basic competencies of young people in languages, math and science for their later success in the world of work, irrespective of occupations, remains a challenge in most developing countries.

Many developing countries are seriously constrained by demographic pressures and financial limitations. In Sub-Saharan Africa, for instance, labour force is projected to grow between 2 and 3 percent or more a year at least in the near future (UNDP: 2011). Despite some movement away from agriculture, most of the labour force, ranging between 80 and 90 percent, is working in the informal sector, much of it at low levels of productivity and earning.

For a significant proportion of this majority group, adequate and easy access to secondary education and vocational education and training (VET), in varying combinations of general and vocational education or in separate programmes of acceptable quality, is necessary, but lacking seriously. In developing countries excluding China, almost half of the children of secondary school age are not enrolled in school. In most cases, it is even less for girls, except in Latin America and the Caribbean. The proportion of the secondary level students in technical and vocational education varies regionally, but is the lowest in South Asia and Sub-Saharan Africa.

Non-formal, adult and lifelong learning

The Global Monitoring Report team found goal 3 related to meeting *the learning needs of all young people and adults through equitable access to appropriate learning and life skills programmes* as the hardest to define and measure, because of the character and multiple dimensions of this area of learning needs (UNESCO-GMR: 2011).

There is clearly a need for special attention to rural areas in addressing skills development for poor people. This must be linked to a renewed understanding of the importance of agricultural development in general and non-farm development in rura l areas. There is a parallel challenge of skills development for the informal economy, the major source of employment and income in both rural and urban people in developing countries. There needs to be a focus on the ways of combining education and training with the devising of ways for effective entry into the labour market in rural and informal economy contexts. Alternative paths and second and recurrent opportunities for acquiring general education competencies separately or in combination with occupational skills need to be expanded.

Tertiary education and rural skills development

Higher agricultural education is expected to support development of skills and employment and contribute more broadly to poverty reduction and economic development among rural people. Two pertinent questions arise: how well are tertiary level academic institutions in agriculture playing the expected role? Second, is tertiary education contribution to rural development, especially of a broader transformative nature, confined to higher agricultural education? Poor quality training of agricultural professionals, technicians and producers has been identified as part of the global food security problem as well as the broader issues of poverty alleviation and development in rural areas.

Adequate and easy access to secondary education and vocational education and training (TVET), in varying combinations of general and vocational education or in separate programmes of acceptable quality is necessary for the new entrants to the work force, but these are lacking seriously.

The development of human resources in agriculture, technology and other developmental priorities for rural areas is often not a high priority in the overall development plans of countries.

The development of human resources in agriculture, technology and other developmental concerns for rural areas is often not a high priority in the overall development plans of countries. The Chinese Government has three new policy measures in place in order to overcome inequities in access—(i) to invest more money in the less developed regions to expand tertiary education opportunities for ethnic minorities and students from poor families, (ii) to allow poor students to take loans from their hometown local authorities for higher education and (iii) to expand technical and vocational education to complement standard tertiary opportunities in the country.

Similarly, the Mexican Jóvenes con Oportunidades offers youth in school a savings account in which they accumulate points during grades 9 to 12. The money can be tapped upon the completion of 12th grade for further study, opening a business, improving housing, or buying health insurance. The programme thus provides incentives for children to graduate from secondary school and facilitates their continuing on to higher education.

TVET to skill development—the spectrum of skills

A broad vision of education, training and skills

Education and training—purveyor of knowledge, skills, confidence and hope to the participants—need to generate the energy and creativity among rural people to face up to the complex world around them fraught with risks and possibilities. Attempts to gauge the effects of education on rural development have to view education, broadly defined to subsume formal and non-formal modes as well as training and skills acquisition, as means for gaining knowledge, transforming attitudes and acquiring skills.

The spectrum of skills

There is general agreement that literacy and numeracy skills alone are quite inadequate for success in productive and occupational roles. These skills need to be accompanied by the acquisition of appropriate attitudes, knowledge and skills relating to vocations and income-generation, as well as management, entrepreneurship and social, political and cultural life. By the same token, technical and vocational skills, narrowly and specifically defined and taught to carry out certain occupational tasks, are not often enough even for the particular task, not to speak of adapting to the changing and evolving nature of occupations and job markets.

Skills within the rural transformation framework

The themes of moving from institutional TVET to development of skills in multiple modalities, and looking at the scope of skills development as a wide spectrum, are totally consistent with the transformative view of rural development. This view calls for three kinds of change in the way skills development strategies and programmes are conceptualised and planned (WGICSD: 2007).

First, there has to be a greater emphasis, in objectives and content of programmes, on agriculture-related and rural development skills within TVET and broader skills development activities. TVET provision itself has to be made transformative by linking it to rural economic regeneration and also to inter-sectoral and geographical mobility of labour.

Second, rural skills interventions have to be specifically incorporated in poverty reduction strategies. Reforms of TVET need to incorporate diverse capacity building of the poor, provisions beyond formal institutions, better functioning of decentralised governance and involvement of NGOs, civil society and the private sector in skills development.

Third, the essential corollary of rural transformation is the broadening of the EFA agenda to include skills and capacity building for rural youth and adults. The targets and strategies regarding EFA goal 3, skills development of youth and adults, have remained problematic with difficulties both in defining indicators of progress and recording or demonstrating progress.

In short, skills development for rural transformation with a focus on combating rural poverty has to be premised on the development of capacity for learning, innovation and productivity of rural people. Skills have to be regarded as more than narrow technical competencies, encompassing capabilities in communication, teamwork, creative skills and interpersonal behaviour. Moreover, education, training and skills development have to be planned and implemented, not in isolation, but within a comprehensive approach for poverty reduction, identifying the right pathways out of rural poverty.

Skill needs in rural areas

The discussion of education and skills development issues—how they relate to each other, the nature of skills and their development, and placing skills within the framework of rural transformation—still begs the question what skills are relevant and necessary when the goal is lifting people out of poverty and contributing to transformative change in rural areas.

Typologies of skills and learning needs in rural areas, with large proportions of the people in poverty and under-development have been attempted to be developed. The taxonomy has been derived from analyses of interconnections and interplay of the sociological, cultural, economic and educational dimensions of poverty. One approach is to look at it from the point of view of areas of capacities that need to be developed, such as basic tools of learning, skills related to quality of life improvement, productivity skills and skills related to organisation, attitudes and values.

Another way of constructing a typology of learning needs is to focus on occupational categories and people who may be engaged in these. Major rural occupational categories include, (i) persons directly engaged in agriculture; (ii) persons engaged in off-farm commercial activities and (iii) general services personnel—rural administrators, planners and technical experts. Types of learning needs at various levels of sophistication and specialisation for these groups are listed here:

- *Farm planning and management, rational decision-making, record-keeping and revenue computations; use of credit.*
- *Application of new inputs, varieties, improved farm practices.*
- *Storage, processing and food preservation.*
- *Supplementary skills for farm maintenance and improvement, and sideline jobs for extra income.*
- *Knowledge of government services, policies, programmes and targets.*
- *Knowledge and skills for family improvement (e.g, health, hygiene nutrition, home economics, child care, family planning).*
- *Civic skills (e.g, knowledge of how cooperatives, local government, national government function).*
- *New and improved technical skills applicable to particular goods and services.*
- *Quality control.*
- *Technical knowledge of goods handled efficiently to advise customers on their use, maintenance, etc.*
- *Management skills (business planning, record-keeping and cost accounting, procurement and inventory control, market analysis and sales methods, customer–employee relations, knowledge of government services, tax regulations, use of credit).*
- *General skills for administration, planning, implementation, information flows, promotional activities.*
- *Technical and management skills applying to particular specialties.*
- *Leadership skills for generating community enthusiasm and collective action, staff team work and support from higher echelons (Coombs and Ahmed: 1974).*

Life skills

Besides general competencies (such as literacy, numeracy and reasoning skills imparted through basic general education) and production and vocational skills, another category described as life skills has come to the fore as important, especially for people in social and economic disadvantage,

Skills development for rural transformation with a focus on combating rural poverty has to be premised on the development of capacity for learning, innovation and productivity of rural people.

Education, training and skills development have to be planned and implemented, not in isolation, but within a comprehensive approach for poverty reduction, identifying the right pathways out of rural poverty.

Life skills are important for functioning effectively as a person and as a member of family, community and society, and have a particular relevance for people struggling to overcome disadvantage and discrimination.

A learning community cannot become a reality unless learning itself becomes continuous and lifelong.

For non-literates, continuing education would mean functional literacy combined with a series of demand-based learning activities.

The sustainable livelihood approach (SLA) can be the bridge in bringing the diverse assets which have to be brought together to make a difference in the life of rural people.

Five types of asset were identified: human capital, social capital or support derived from belonging to social groups, natural or ecological capital, physical capital and financial capital.

as the rural poor are. Life skills are important for functioning as a person and as a member of family, community and society effectively, and have a particular relevance for people struggling to overcome disadvantage and discrimination.

Conceptualised in the context of HIV/AIDS crisis, life skills were seen as adaptive and positive behaviour that enables individuals to deal effectively with the demands and challenges of everyday life. In particular, life skills are regarded as a group of psychosocial competencies and interpersonal skills, and are grouped into three broad categories: (i) communication and interpersonal skills, (ii) decision-making and critical thinking skills and (iii) coping and self-management skills (UNICEF: 2005).

Learning community and lifelong learning

The rural communities require the entire gamut of educational and training services—early childhood care and development, quality primary education for all children, second chance basic education for adolescents, literacy and continuing education programmes for youths and adults, vocational skill development, and knowledge and information for improving the quality of life. This wide-ranging need cannot be met by piecemeal learning and skills development provisions. This is where the concept of the "learning community" assumes a special significance.

A learning community cannot become a reality unless learning itself becomes continuous and lifelong. Within the broad context of the learning society, it means providing every individual with the conditions for continuous learning for improving his/her lot. Depending upon where one is positioned in the ladder of learning, it may mean different things to different individuals.

For non-literates, continuing education would mean functional literacy combined with a series of demand-based learning activities. For a farmer, it may mean the acquisition of farming and farm management techniques. For a semi-literate rural woman who has been "pushed out" at the primary education stage, it may mean the facility to learn a new skill that would enable her to enhance the level of living of her family (UNESCO-INRULED: 2003).

Bridging skills, jobs and poverty reduction—the sustainable livelihood approach

Rural households attempt to adopt livelihood strategies that respond to varying combinations of human, social, natural, physical and financial capital to which they may have limited or little access. Skills and capacities of people, specific and generic, and education and training opportunities constitute a critical asset but have to be put to work in combination with other key assets to change the situation of the rural poor.

Households require a range of assets to achieve positive livelihood outcomes; no single category of assets on its own is sufficient to yield the many and varied outcomes that people seek. The different forms of assets, including skills and capacities of people, have to be brought to bear in a coordinated way on the endeavour of fighting rural poverty and contributing to rural transformation. The sustainable livelihood approach (SLA) can be the bridge in bringing the diverse assets together to make a difference in the life of rural people.

In the articulation of concept of Sustainable Livelihood Approach, the focus is on understanding and addressing the vulnerabilities of poor people. Five types of asset were identified: (i) human, (ii) capital, (iii) social capital or support derived from belonging to social groups, (iv) natural or ecological capital and (v) physical capital and financial capital. Particularly relevant is the organisational and institutional environment within which poor people attempted to make use of assets of different types in working out a livelihood strategy for them.

SLA's aim is to show the complex range of assets and activities on which people depend for their livelihoods, and to recognise the importance to poor people of assets much of which they do not own. SLA can, its

advocates argue, provide a framework for considering the whole range of policy issues relevant to the poor, such as, access to health and education as well as to finance, markets and personal security. Sustainability and continuity of change necessary to be brought about could be promoted through participatory approach, being responsive to changing circumstances, and working at multiple levels from national to local, in partnership with public and private sector (Norton and Foster: 2000).

Cross-cutting concerns—youth, gender, migration

Youth—a neglected agenda

The United Nations defines youth as individuals aged between 15 and 24. The 2007 World Development Report about "the next generation" extends the age-range downward to 12. However, distinguishing between who is rural and who is urban is complex, particularly for young people who have a tendency to be more mobile than older people (World Bank: 2006).

With a few exceptions (like in South Africa), youth as a group is mostly not a policy priority. Youth, especially in rural areas, do not constitute an organised and vocal constituency with the economic and social clout and lobbying power (Bennell: 2007, p.3).

Skills development for youth

The greatest contribution to improving the future employment and livelihood prospects of disadvantaged children and youth in rural areas, as in urban areas, is to make sure that they stay in school and become at least functionally literate and numerate. Expanding quality education opportunities for girls is another priority. Typically, training services for youth are fragmented, without a coherent policy framework, such as policy attention in South Africa or the countrywide rural training and business support organisation, SENAR, in Brazil. The key challenges in providing high-quality training and extension services for rural youth are low educational levels; poor learning outcomes in the education system, scattered populations, low effective demand (from both the self-employed and employers); and limited scope for cost-recovery (Bennell: 2007, p.8).

Engendering skills and Jobs

At the heart of reducing unemployment and eradicating absolute poverty in the developing countries lies the economic empowerment of women who are the majority of population and continue to be disadvantaged for historical and contemporary reasons. Girls and women are often in "double jeopardy," because they are already part of the poor and otherwise disadvantaged groups of society along with the disadvantaged males, and because they are females.

Rural girls and women do not have sufficient access to vocational training and skills development services and their overall low enrolment in education constraints seriously their prospects for better paying wage employment and occupational skill training. Young women and girls are often directed towards stereotyped training and occupations (Bennell: 1999; Mayoux: 2005). Women continue to be under-represented in formal business training programmes and longer term career development opportunities.

Women's poverty is a function of who has control over assets (including financial assets) and how decisions are made within the household. In many countries, rural women face obstacles to migrating or from accessing gainful and rewarding employment in a variety of ways—prevailing male-dominated social norms, low access to assets, lack of education and lack of time and energy being burdened by household responsibilities, not shared by male members of the family (IFAD: 2011).

Achieving gender equality requires challenging and changing many of the existing social institutions and their norms in order to address interlocking deprivations which result in poverty for rural women and more general poverty. There are many cases where

SLA can provide a framework for considering the whole range of policy issues relevant to the poor, such as access to health and education as well as to finance, markets and personal security.

Youth, especially in rural areas, do not constitute an organised and vocal constituency with the economic, political and social clout and lobbying power...Typically, training services for youth are fragmented, without a coherent policy framework.

Rural girls and women do not have sufficient access to vocational training and skills development services and their overall low enrolment in education constraints seriously their prospects for better paying wage employment and occupational skill training.

Migration in search of work is an essential and important feature of both rural transformation and accelerating urbanisation.

Orderly migration with well-considered policy measures and planned action at both the sending and receiving ends of migration can turn it into a positive force in reduction of poverty and rural transformation.

The first of the eight Millennium Development Goals is to reduce by half the proportion of people suffering hunger by 2015. Despite some progress, achievement of this goal remains uncertain.

governments have taken important initiatives to change norms and institutions contributing to poverty through gender inequalities. The overarching concern is to make these initiatives work, given that the obstacles and constraints are often daunting.

In many developing countries gender discrimination in labour markets has led to a "feminisation of bad jobs" in agriculture and beyond (Jütting and Morrison: 2009). Reversing this trend to the extent it prevails calls for macro-level policy and local level actions both in building skills and capacities for productive and gainful work and creating the enabling environment for this to happen.

Rural out-migration and skills development

The acceleration of migration of people out of rural areas of developing countries into urban areas is a defining feature of demographic, economic and social changes with profound implications for national development, poverty reduction and rural transformation.

It is estimated that there are 200 million temporary and seasonal migrants in India, and 120 million internal migrants in China. Most migration, and especially labour mobility of the poor, takes place within and between neighbouring developing countries. For example, several African countries simultaneously serve as both source and hosts to large numbers of migrants (Lucas: 2005b). Sixty percent of the world's migrants currently reside in the more developed regions, with 40 percent living in the less developed regions (UN: 2002). South-north migration has important implications for development and poverty reduction in developing countries. But it is dwarfed by rural–urban migration within developing countries themselves or among neighbouring developing countries.

Micro-studies or village level studies have shown a spectrum of temporary migration including seasonal migration, circular migration and commuting. They are all forms of short-term migration. Migration in search of work is an essential and important feature of both rural transformation and accelerating urbanisation.

Orderly migration with well-considered policy measures and planned action at both the sending and receiving ends of migration can turn migration into a major positive force in reduction of poverty and rural transformation. These measures relate to building the human and personal capital assets—appropriate and effective education and training for new opportunities for gainful work both in the rural areas and outside within the country and abroad—and appropriate integrated development planning with a territorial perspective that links rural, peri-urban and urban areas and smaller and larger hubs of growth.

3. Skills and Jobs for Food Security

There is a potential crisis in the making in respect of global food security which may be far more serious than what has been experienced recently in 2006–2008. The challenge remains to produce and supply enough safe and nutritious food in a sustainable way for a growing global population, which is projected to reach nine billion by 2050.

Food security is achieved "when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life" (FAO: 1996). It has three interconnected elements—availability of access to and utilisation of food.

Fighting hunger in the world

The first of the eight Millennium Development Goals adopted in 2000 is to reduce by half the proportion of people suffering hunger by 2015. Despite some progress in the last decade, achievement of this goal remains uncertain. The progress has been particularly slow in South Asia and Sub-Saharan Africa. In both regions, there has been a reduction in the percentages affected by shortage of food, but because of high population growth, the absolute numbers of hungry people continue to go up.

A food price inflation has been witnessed in recent years, which appears to reflect a secular trend, and if allowed to go on unchecked, will push many millions more of already vulnerable people over the edge into starvation. The estimate is that an additional 100 million people have been placed in danger by the recent (2006–2008) food price upsurge (Government of Ireland: 2008).

Food security in Sub-Saharan Africa

Climate change and depletion of natural resources will continue to have a major negative impact on food production in vulnerable areas of Sub-Saharan Africa. African agriculture, feeding the population and providing livelihood and employment for the large majority of the people nationwide, and in overwhelming proportions in rural areas, operate largely as smallholdings. The prospects for farm workers without land ownership and off-farm rural employment also ride heavily on the shoulders of the smallholders' ability to multiply farm productivity and generate the wealth to create economic opportunities for all rural people.

It has been argued that large-scale commercial agriculture can be a driver of agricultural growth and can make an important contribution to ensuring food security and reducing poverty in Africa. However, its impact on the poor has to be carefully assessed and a pragmatic approach has to be taken in specific contexts.

Food security in China

China's tumultuous history has had its fair share of droughts and famines. More than 5,000 years of farming also has left its soil depleted, more dependent on technology and agro-chemicals to boost production. Meeting the food demands of 1.3 billion people is a challenge with many ramifications.

The income and livelihood of the vast majority of farmers in China has changed radically in the last three decades. Poverty in rural China has decreased very substantially. Researchers attribute China's success in increasing agricultural productivity and farmer's income to three major factors, (i) investment in inputs; (ii) investment in adopting relevant technology and (iii) institutional changes to facilitate effective use of the inputs and the technology (Fan: 1991, 1999; Lin: 1987, 1992a; Yu and Zhao: 2009).

Human capital

The physical and technical inputs and the institutional changes—the essence of the Green Revolution—have made modern agriculture more complicated than the traditional system of the past. Human capital development, important as for the green revolution, is even more vital for post-green revolution agricultural development.

Some researchers have suggested that the full potential of the technological and physical investments and the reforms in institutions many have not been realised fully in China because of inadequate investment and efforts in developing the necessary human resources (Xu and Jeffery: 1998; Fan: 1999).

Some conclusions have emerged from the review of the Chinese agricultural development experience:

- *The potential for exploiting the benefits of technology like hybrid seeds is not fully realised due to the increasing complexity of managing production for which investments are needed in developing the skills and knowledge of farmers.*
- *There appears to be a slowing down in productivity and efficiency growth as realising the benefits of technological and other inputs and the management functions become more complex. This complexity calls for greater attention to skills and capacity development of farmers and workers in complementary rural production and services.*
- *Regional disparities in agricultural development and food production, including adoption and adaptation of technologies and management and institutional reforms persist, especially between Western and Eastern China; this persistent disparity calls for scrutiny of policy initiatives taken in this*

African agriculture, feeding the population and providing livelihood and employment for the large majority, operates largely as smallholdings.

Meeting the food demands of 1.3 billion people of China is a challenge with many ramifications.... Regional disparities in agricultural development and food production, including adoption and adaptation of technologies and management and institutional reforms persist.

In India and South Asia, malnutrition levels are surprisingly high even in rich income quintiles... The "agency of women," their status in family and society and role in decision-making, is linked to positive outcomes.

Education and skills are constraints in the development of new non-farm sector opportunities in India. Half the people engaged in agriculture are still illiterate and only 5 percent have completed higher secondary education.

Comprehensive social protection programmes are required, given prevailing high inequality and risks faced by vulnerable groups.

Small farms need help with access to extension services and better water management to increase their productivity, especially in rain-fed and dry land areas, where food insecurity is greater.

respect and their implementation.

- *Human capital development including specific skills and capacities and general basic and tertiary education and research needs to be considered as essential components in the formulation of policy and programmes for food security and agricultural development.*

Food security in India

After remaining in food deficit for about two decades after independence, India became largely self-sufficient in food grain production. Food grain production in the country increased from about 50 million tonnes in 1950–1951 to around 240 million tonnes in 2008–2009 recording an annual growth rate of about 2.5 percent per annum.

The data for India and South Asia show that malnutrition levels are surprisingly high even in rich income quintiles, though there is an overall correlation between income and malnutrition. The regional experiences in India highlight differences in basic health care provisions, improvement in child care and health status of women as factors that explain differences in malnutrition across states. The "agency of women," their status in family and society and role in decision-making, is linked to positive outcomes.

Rural non-farm sector in India

With 55 percent workers in India in the agricultural sector, the avenues for improvement in income and employment have to be found in the rural non-farm sector. India currently produces about 50 million tonnes of fruits and 90 million tonnes of vegetables. Only 2 percent of these fruits and vegetables are processed, as against 23 percent in China, 78 percent in the Philippines and 83 percent in Malaysia (Rao: 2005; Dev and Sharma: 2010).

Education and skills are constraints in the development of new non-farm sector opportunities. Half the people engaged in agriculture are still illiterate and only 5 percent have completed higher secondary education according to data for 2004–2005.

Some contrasts in policy emphases in India and China with regard to structural transformation in rural areas in creating off-farm employment opportunities are noteworthy. The State's role has been decisive in building up the physical and social infrastructure including land reforms and basic education development in rural areas (ibid.).

Social protection measures

Comprehensive social protection programmes are required to address the problems of access to food and malnutrition, given prevailing high inequality and risks faced by vulnerable groups. The current major social protection schemes for the poor in India fall into two broad categories: (i) food transfer like public distribution system (PDS) and providing supplementary nutrition and (ii) guaranteeing employment for the poor.

India's efforts to achieve food security, combating poverty and expanding gainful employment in rural areas have generated experience and lessons which point to priorities in intervention strategies for the government at different levels and other actors including communities, NGOs and the private sector. The interventions must include components of skills and capacity building, knowledge and technology, and changes in institutional and management mechanisms. Some of the action areas in these categories are:

- *Small farms need help with access to extension services and better water management to increase their productivity, especially in rain-fed and dry land areas, where food insecurity is greater.*
- *Local knowledge and local seeds should be encouraged to generate higher incomes for small farmers and protect the environment.*
- *Home-grown food should be encouraged to enhance food security and nutrition and setting aside cash for essential non-food expenses such as health and education.*
- *Sustainable agriculture in the ecological conditions of tribal areas merit special attention.*
- *Producers' cooperatives should be encouraged to*

realise economies of scale in buying inputs and marketing outputs, reducing middlemen's high mark-up.

- *Promoting the use of information technology for production and marketing, such as mobile phones, information kiosks and community radio.*
- *Organisational and institutional efficiency for major nutrition interventions, such as Integrated Child Development Services (ICDS) and mid-day school meal. Essential micro-nutrients such as Vitamin A and salt iodisation can be made part of the existing programmes mass-targeted at children. (Dev and Sharma: 2010).*

Food and nutrition security based on a rights-based approach has to be an inter-sectoral effort and requires social participation in policy-making and implementation. It also requires creating a consensus among different views and implemented through decentralised planning and management within the state and local government systems. It is necessary to review and update the rural and agricultural agendas, strengthening the links between access to adequate and healthy food with consumption and production, and the role of family farming.

Food security in Bangladesh

Bangladesh has made important gains in the last two decades in economic and social indicators, including reducing the prevalence of poverty and child malnutrition. Despite these improvements, Bangladesh remains a food insecure country, with improvements needed in food access and utilisation in particular.

A Bangladesh Country Investment Plan (CIP) for Agriculture, Food Security and Nutrition has been developed through involvement of researchers and wide consultation and endorsed by the government in 2010. The CIP is designed as a set of investment programmes to fill gaps, scale up current positive interventions and develop new programmes as prioritised by the government.

Components for Bangladesh Investment Plan for Food and Security Nutrition relate to food availability, food access and food utilisation.

Food availability

The main priorities under the food availability component and the areas of programme activities listed focused on:

- Sustaining the availability of key food crops increasingly confronted by considerable challenges including climate change (climatic shocks, increased salinity and sea level rising, floods) decreasing natural resources (scarce water during the dry season, land disappearing at an annual rate of one percent) and the continuing population pressure.
- Improving nutrition status through food production diversification. The need to diversify crop production will shape programme priorities, in particular, in extension, research activities and the development and adoption of improved seeds.
- Increasing purchasing power and rural employment to enhance access to food through improved value-added agro-processing, access to markets and the development of rural businesses.

Components for Bangladesh Investment Plan for Food and Nutrition Security relate to food availability, food access and food utilisation....

Food access

Under the component of food access, the priorities are two-fold:

- Different approaches to enhance food access in normal years and in times of unusual conditions such as externally induced market volatility and natural disasters are needed to mitigate food security.
- Safety net activities (food distribution, cash transfers) are being financed by the Government.

Food utilisation

Under Component 3 concerned with food utilisation. Two priorities have been identified:

- Improving substantially the nutrition status of malnourished population, especially the most vulnerable groups, such as children under 2 and pregnant and lactating women.
- Ensuring food safety. It is an essential public health function. Food and waterborne diarrhoeal diseases are leading causes of illness and death and cause great human suffering and economic losses.

Capacity building

Important gaps have been identified in Bangladesh which may put at risk the investment plan for food and nutrition security. These include skill gaps, limited implementation capacities and the low operating capacity and result orientation of people and institutions. To overcome this obstacle, a key element in all of the major programme components has to be the enhancement of capacities at various levels, from government institutions to the grassroots level, by strengthening workers, producers, administrators and community organisers in accessing knowledge and developing skills.

Gaps identified in Bangladesh putting at risk the investment plan for food and nutrition security include skill gaps, limited implementation capacities and the low operating capacity and result orientation of concerned people and institutions.

Sustainable agricultural intensification

Agriculture will continue to play a central role in tackling the problem of food insecurity. Maintaining and increasing global food production, ensuring food availability, are clearly dependent on agricultural productivity gain. It is also the major, and in many cases the primary, means for the poor to earn an income and have adequate access to food.

Agriculture remains the major, and in many cases the primary, means for the poor to earn an income and have adequate access to food...

Sustainable agricultural intensification

An agenda for sustainable agricultural intensification has been emerging and various sustainable intensification practices are being taken up by a growing number of farmers. The agenda requires that farmers, especially smallholders, develop their own practices, capitalising on their local knowledge as well as scientific research to address their specific problems. A combination of a systemic approach, adaptation to the local context and linking farmers' and scientists' knowledge are the key to the emerging agenda.

Developing smallholder farmers' skills to combine their experience and knowledge with science-based approaches requires strengthening agricultural education, research and advisory services. It also calls for greater collaboration, innovation and problem-solving among smallholders, researchers and service providers (IFAD: 2010).

Developing smallholder farmers' skills to combine their experience and knowledge with science-based approaches requires strengthening agricultural education, research and advisory services.

Apart from the issues of intensifying sustainable agriculture, there are other obstacles to achieving food security.

Competing demands of biofuels and food

Biofuel production, mainly because of the US government support for ethanol production, has pushed up feedstock prices. Energy and agricultural prices have become much more interdependent with industrialised farming, more processing and increased transport, as well as the emergence of the biofuels industry (particularly for maize, oilseeds and sugar feed stocks; OECD–FAO: 2009).

Food losses and wastes

The efforts to increase food production must go hand in hand with reduction of losses and waste of what is produced at various stages of production, distribution and consumption. Loss and wastes of food and preventing and reducing such losses have not received due attention, although up to a third of the food produced may be lost before it is consumed. The various stages at which losses and wastes occur are related to the components of food security, namely the availability of access to and consumption of food to maximise the nutritional outcomes.

Interdisciplinary approach

The multiple dimensions and a systemic approach to food security call for an interdisciplinary perspective in understanding and addressing problems.

There is obviously no silver bullet solution to the multifaceted challenge of ensuring food security for the world's growing population. Bringing an interdisciplinary

perspective to bear on a set of workable pragmatic actions, with a 2050 time horizon, suggests blocks of strategic actions for moving towards greater food security and still keeping the planet safe and healthy, as listed below (Clay: 2010).

- *Harnessing the science of genetics: Ten crops account for nearly 90 percent of all calories. Only two are on track to double production by 2050. Genetics (e.g., traditional plant breeding, hybrids, genetic engineering) cannot be left off the table. It is necessary to be open-minded about the technologies with an eye on unacceptable ancillary impacts and focus on the results desired.*
- *Adopting and adapting better farming practices: The best producers globally are 100 times better than the worst. The best countries are 10 times better than the worst. To achieve global food security and maintain the planet, far more can be gained in producing food and reducing environmental impacts by pushing the middle and the bottom performing farmers and their practices to a better performance level.*
- *Optimising technology: All inputs (water, fertiliser, pesticides and energy) must be used more efficiently. An achievable goal can be to triple or quadruple the efficiency of input use in many situations.*
- *Bringing back to use degraded land: Of the 4.9 billion hectares of land used for agricultural purposes worldwide, close to one-third is suited to annual or permanent crops; over two-thirds are allocated to permanent meadows or pasture. Instead of expanding cultivable land into new areas to farm, it is possible and necessary to rehabilitate degraded or under-performing lands applying technology and science, skills and knowledge of people and better management. Total degraded land, depending on criteria applied, is estimated to be between 200 million to 2 billion hectares. Rehabilitation of even a small proportion for agriculture can make a big difference. The goal of 100 million hectares rehabilitated by 2030 and 250 million by 2050 is considered feasible, if this is given priority.*
- *Land tenure and property right: Farmers will not plant a tree or invest in sustainability if they do not own the land. It is necessary to pursue strategies that address these issues.*
- *Preventing and managing losses and wastes of food: Globally as much as 30 to 40 percent of all food produced is wasted. The goal should be to cut waste in half in both developing and developed countries. It is necessary to invest substantially in reducing post-harvest losses and food waste including development of skills, creation of jobs and enhancement of management capacities.*
- *Balanced consumption: A billion people don't have enough food while another billion eat too much. A reasonable goal would be not only to freeze these figures, so they do not increase, but to reverse these, ideally cutting each by half by 2030.*
- *Enhancing viability of food production with carbon trading: Developing and participating in carbon markets that allow food producers to sell the carbon credits under international climate protocols, will make food production more sustainable and profitable (see below).*

There is no silver bullet for solving the multifaceted challenges of ensuring food security for the world's growing population. An interdisciplinary approach, with a 2050 time horizon, suggests blocks of strategic actions...

...harnessing the science of genetics, adopting better farming practices, optimising technology, bringing back to use degraded land, improving land tenure and property rights, preventing losses and wastes of food, balanced consumption and using the potential of carbon trading.

Skill and capacity needs for food security and agricultural development

Many of the areas of skills and capacities, while dependent on prerequisites of varying levels of formal education and training, need to be further developed, maintained and effectively put to use through a range of non-formal education and capacity-building unities.

Learning, knowledge and skills network within the framework of lifelong learning

The argument for a central position of the knowledge network and lifelong learning in the national development agenda is well recognised. This challenge in fulfilling development priorities and aspiration of societies has to find a place in the curriculum, learning objectives and educational methodology, and in expanding learning opportunities for all in both rural and urban areas (Ahmed: 2009).

The developing world, particularly South Asia

South Asia and Sub-Saharan Africa have a high concentration of adult and youth illiterates, especially among women and marginalised groups. Effective programmes to fight poverty have to link literacy skills, production skills, quality of life components and ancillary support.

The multipurpose community learning centres with community ownership are effective when they become the base for offering a menu of relevant training and knowledge dissemination and for link-up with ancillary support.

A policy of affirmative action has to be followed to identify and serve the disadvantaged and marginalised sections of the population with activities that address their specific needs.

Gender issues need to be addressed both in respect of management structures as well as the pedagogical process.

and Sub-Saharan Africa, has a high concentration of adult and youth illiterates, especially among women and marginalised groups. Structural shifts in the economy from farming to non-farm activities, manufacturing and services and the need to acquire and upgrade skills for the competitive and rapidly changing labour market need to be key considerations in shaping social and individual goals for adult and continuing learning.

A multi-pronged approach to promote "critical literacy" and combat poverty

Effective programmes to fight poverty have to link literacy skills, production skills, quality of life components and ancillary support. Skill training can lead to better earning only with ancillary support and creation of necessary conditions, such as access to credit, management advice, market information and links with potential employers.

Networks of community learning centres as the vehicle

The multipurpose community learning centres with community ownership, as seen in many countries, are effective when they become the base for offering a menu of relevant training and knowledge dissemination and for link-up with ancillary support.

Affirmative action in education to address inequality

A policy of affirmative action has to be followed to identify and serve the disadvantaged and marginalised sections of the population with activities that address their specific needs. An overarching strategic principle for adult and lifelong learning has to be to design programmes and set priorities to play a role in overcoming the inequalities in learning opportunities.

High priority to overcoming gender injustice and disparity

Patriarchal values and culture continue to dominate causing many forms of overt and subtle gender injustice and discrimination. Gender issues need to be addressed both in respect of management structures as well as pedagogical aspects. Special attention is needed to ensure that a higher proportion of women than at present are in management, supervisory roles and as trainers.

Disadvantaged and neglected groups

Ethnic and linguistic minorities, indigenous people, the ultra-poor and people with disabilities and special needs continue largely to be outside most education and training programmes and are difficult to reach. In addition to making all mainstream programmes more inclusive, specialised and more directly targeted projects would be required for these groups. Mobilisation and awareness raising efforts need to be directed specifically to overcoming traditional attitudes regarding gender, disabilities and ethnic, cultural and religious differences.

Turning skills into jobs for food security

The mismatch between skills and jobs, how demand and supply of skills and jobs relate to each other, is a ubiquitous and complex question. Development of skills does not by itself create the jobs where the skills would be used and, jobs do not necessarily prompt or cause efficient development of appropriate and relevant skills.

In making the right choices regarding change in specific national and local contexts the sustainable livelihood approach (SLA) mentioned earlier (see Chapter 2) would be a useful framework.

4. Skills and Jobs for a Green Future

Climate change affects the poor disproportionately and has far-reaching consequences for agricultural and rural development. As a major source of greenhouse gas (GHG) emissions, agriculture also has huge potential to reduce emissions through reduced deforestation and changes in land use and agricultural practices.

Effects of climate change make poor people the first victims and the greatest sufferers of environmental degradation. The rural poor are more vulnerable than others to environmental hazards and environment-related conflicts of interest and least able to cope with them when they occur. They also tend to be most dependent on the natural environment and direct use of natural resources, and are, therefore, most severely affected by environmental degradation and lack of access to natural resources.

On an operational level, the concept and practice of sustainable development must be focused on the fight against poverty, especially rural poverty in developing countries, given its preponderance in these countries. The discourse on sustainable development and ways of enhancing skills and capacities of people points to at least three key concerns. These merit attention in shaping an integrated approach in education, training and relevant supportive strategies. These three concerns are: (i) social marginalisation and disparity and claiming a stake for all in economic and social development, (ii) coping with the feminisation of poverty and (iii) promoting sustainable production and consumption for all, not just the poor, in the context of poverty reduction (Ahmed: 2010).

The high reliance on agricultural production, for both food and income, of rural people in developing countries intensify the negative effects of climate change. The change in the patterns of the monsoon due to increases in global temperature will have detrimental effects on agricultural production and people's livelihood. Countries such as Brazil and Egypt will be affected by decreasing precipitation, putting pressure on dwindling water resources, thus inhibiting agricultural production. Many countries such as Bangladesh, Brazil and the Philippines already suffer from droughts and floods simultaneously, in different parts of the country or at different times of the year; these effects are likely to be further aggravated by climate change. Competition between land use for food and biofuel production has consequences for food security and employment pattern, which calls for careful balancing.

An investigation carried out by ILO and European Centre for the Development of Vocational Training (Cedefop) in 21 less and more developed countries examined level of awareness and national positions about climate change impact and priorities. The countries represented 60 percent of the world population and about the same proportion of global GDP and were responsible for about half of global CO_2 emissions.

Nationals study teams in the 21 countries focused on general issues of the green economy, rather than the rural economy and the agriculture sector. A number of points, highlighted by these statements, merits attention.

- *The majority of the people living in the rural areas, dependent on agriculture for employment and livelihood, will bear the brunt of the negative consequences of climate change. Yet the recognition of the impact on agriculture and rural people are uneven at best, and barely noted, in some cases. There is a focus on carbon emissions as the problem, which is ultimately a major source of the problem and the solution. But this appears to have distracted attention from the real and immediate impact on lives of hundreds of millions of people by the proximate effects of climate change manifested in pressure on land and water and weather volatility.*
- *Both the numbers in the workforce and the place of the rural economy within the national economy in the developing countries, albeit it is changing, offer possibilities that remain unexplored for adaptation to climate change, mitigation of the consequences, and indeed the possibilities of preventing some of the negative effects.*
- *In many instances, even when the impacts and the need for action are recognised and policy and goals for transition to the green economy are stated, actual progress in implementation and the political will and social mobilisation of support are insufficient. Capacities and relevant skills for the transition to the green economy at different levels, overall and particularly in the rural communities, are a major constraint in most countries.*

Development of skills does not by itself create jobs, and jobs do not necessarily prompt development of appropriate skills.

Effects of climate change make poor people the first victims and the greatest sufferers of environmental degradation.

The concept and practice of sustainable development must be focused on the fight against rural poverty in developing countries.

Three key elements in sustainable development and enhancing skills and capacities of people must receive attention: (i) claiming a stake for the marginalised in development; (ii) coping with feminisation of poverty and (iii) sustainable production and consumption for all, not just for the poor.

Sustainability issues in agriculture and rural economy

Agriculture is the main user of land and water, a major source of greenhouse gas emissions (GHG), the main cause of human-induced conversion of natural ecosystems and the loss of biodiversity.

Agriculture is also the entry point for interventions in environmental protection. The "environmental footprint" of agriculture means many avenues for environmental action.

Transition to a greener economy focusing on agriculture and rural areas has to be part of broader long-term structural change in the economy.

Transition to green economy requires an integrated view of urban and rural areas, with special attention to agriculture and related activities, rural areas and rural people, since they are the ones most affected and they also can contribute to the solutions.

There is a general agreement, at least rhetorically, since the Rio Earth Summit in 1992, that the agriculture and environment agendas are inseparable. The web of interconnection between the degradation of natural resources, undermining of agricultural production, continuing unsustainable use of natural resources, and increased vulnerability to risk of people requires that an integrated view is taken of agricultural and rural development and responses to climate change.

Agriculture is the main user of land and water, a major source of greenhouse gas emissions (GHG), the main cause of human-induced conversion of natural ecosystems and the loss of biodiversity. The sector with the highest worldwide greenhouse gas emissions, which threaten the temperature balance of the planet, is energy generation. It releases over a quarter of total emissions (26 percent), followed by manufacturing at 19 percent. Agriculture accounts for around 14 percent emissions globally, but combined with forestry (17 percent), they add up to almost one-third of total global emissions (International Energy Agency: 2008).

In developing countries, agriculture is also the entry point for interventions in environmental protection. The large "environmental footprint" of agriculture also means that there are many avenues for environmental action in this area. Long-term support and capacity building to improve natural resource management and coping with increased climate risks have to be a priority. Strategies and actions have to give due importance to agriculture and forestry in adapting to climate change and mitigating their negative effects (World Bank: 2008, p.199).

Adapting to and mitigating the effects

Even if emissions of GHG are stabilised at current levels or reduced somewhat, adaptation of agricultural practices is urgent because the developing countries are already subject to many adverse effects in varying degree.

Farmers in many countries are already adapting and are ready to do so, when the support and incentives are available. A survey of practices in 11 African countries show that farmers are planting different varieties of the same crop, changing the planting calendar and modifying practices to adapt to a shorter growing season.

Developing countries are responsible for about 80 percent of global emissions of GHG from agriculture in contrast to emissions from fossil fuel use and industry, for which the richer countries bear the main burden of responsibility. Agriculture in developing countries is also a major contributor to reduction in natural carbon sequestration or storage (thus reducing emissions) in soil, pastures and forests (World Bank: 2008, "Focus F").

Broader economic and social adjustments

Transition to a greener economy focusing on agriculture and rural areas has to be part of broader long-term structural change in the economy. Socially responsible restructuring measures have to be adopted which do not punish further the poor and the disadvantaged in rural and urban areas. The costs of adjustments and how these are shared recognising prevailing inequalities and disparities have to be examined and public understanding and consensus has to be developed about policies.

Green transition and stages of development

There is a strong relationship between the stages of development and the progress of green structural change as illustrated by the scope and pace of transition to the green economy among countries (ILO: 2011b; Table 4.1).

In short, the priority for transition to a green economy is to combat climate change and environmental degradation and remove their negative environmental, economic and social impacts. This transition requires an integrated view of urban and rural areas, with a special attention to agriculture and related economic activities, rural areas and rural people, if only because they constitute the majority who are affected and they

also can contribute to the solutions. Many developing countries, in spite of having formulated policies, laws and regulations, falter in implementation and fall short in developing skills and capacities that are demanded by the green economy and green employment.

Broadly speaking, the changing natural environment imposes greater demands on adaptation and the built environment creates a strong demand for mitigation measures. As the changing physical environment tends to loom larger in developing countries, especially in the rural areas, the relative importance of adaptation skills is correspondingly greater there than in the developed world (ILO: 2011b, p.12).

Promoting the second generation green revolution

A major challenge is how the original green (meaning agricultural) revolution begun in the 1960s can be turned green in terms of environmental sustainability. Supported by macro policies for greening agriculture and rural and national economies, research and knowledge dissemination, and skills and capacity building, have to be directed to exploring the elements of a second generation "green" revolution and applying these in broad-ranging rural transformation in developing countries.

Promoting skills and jobs for the green rural transformation

What are "green skills"? *A body of literature has developed on defining and determining green jobs and green skills. The following is a list that enumerates essential skills necessary for green jobs mentioned in the country cases in the skills for green jobs study.*

- *Strategic and leadership skills to enable policy -makers and business executives to set the right incentives and create conditions conducive to cleaner production, transportation, marketing, etc.;*
- *Adaptability and transferability of skills to enable workers to learn and apply the new technologies and processes required to green their jobs;*
- *Environmental awareness and willingness to learn about sustainable development;*
- *Coordination, management and business skills to facilitate holistic and interdisciplinary approaches incorporating economic, social and ecological objectives;*
- *Systems and risk analysis skills to assess, interpret and understand both the need for change and the measures required;*
- *Entrepreneurial skills to seize the opportunities of low-carbon technologies;*
- *Innovation skills to identify opportunities and create new strategies to respond to green challenges;*
- *Communication and negotiation skills to discuss conflicting interests in complex contexts;*
- *Marketing skills to promote greener products and services;*
- *Consulting skills to advise consumers about green solutions and to spread the use of green technologies; and*
- *Networking, IT and language skills to perform in global markets (ILO: 2011b, p.107).*

Core, generic and portable skills

In addition to essential skills mentioned above, certain core skills at a basic level are central in coping with changing economies. These include knowing how to learn, how to work in teams and how to communicate effectively, which need to be learned at a young age through participation in good quality basic general education. Language skills are critically important in accessing knowledge related to environmental change. These basic knowledge and skills can be considered as "portable skills" which are useful whatever occupation one enters or whatever further training or education one moves into (ibid.; see Chapter 5).

In addition to specific skills related to "green" jobs, core skills at a basic level are central in coping with changing economies—knowing how to learn, how to work in teams and how to communicate effectively, which are learned at a young age. These "portable skills" are useful in whatever occupation one enters or whatever further training or education one moves into.

Policy challenge in relating environment and skills issues

The coordination of skills policies and environmental policies is a critical issue in the transition to green economy and employment. Coherence of policies and the links between related policy arenas have many facets and are highly contextual.

Many developing countries have attempted to articulate environmental policies and have grappled with policy priorities and strategies in skills development, but the two often have continued on parallel tracks.

Three policy-related difficulties confront countries in moving to a low-carbon economy: (i) lack of enforcement of environmental regulations already adopted (ii) limited awareness and capacities of policy-makers to integrate skills into responses to environmental risks and (iii) mechanisms for identifying and monitoring skills leave out environment agencies; education and training agencies also are not involved in developing environmental policies.

Responses from the developing countries on policy development in respect of the challenges of climate change, job creation and link between the two, fall into three categories:

- *Sound and comprehensive policies* in countries where policies for the environment and/or skills are internally sound and comprehensive but not always well aligned. A number of countries have been relatively successful in developing sound environmental policies, but without fully coordinated skills policy measures to accompany them. Thus an overall coherent and holistic approach is lacking.
- *Fragmented policies* in countries where policies for both the environment and skills are weak and not well aligned. The countries that belong to this group have developed a number of environmental and skill policy initiatives, but in the absence of a general coordinating framework have not achieved policy coherence between the two; and
- *Policies under development* in countries that do not quite have either a well-developed environmental policy or skills development policy for a greener economy. The majority of developing countries fall into this group, as determined by country case information analysed in the ILO study. International initiatives in the environmental field have been of benefit to the countries in considering strategies, but they generally lack implementation mechanisms, including implementation of skills development to improve the capacity for greening the economy. Their policies and plans reflect weaknesses both in environment and skills areas and in links between the two.

In short, among the developing countries, most have attempted to articulate environmental policies and many have grappled with policy priorities and strategies in skills development, but the two often have continued on parallel tracks without an intersection of the two.

Overall, three broad policy-related difficulties confronting countries in their attempts to move to a low-carbon economy can be identified.

Lack of enforcement of environmental regulations, sometimes with related legislation, already adopted. Weak enforcement of environmental laws and consequently lax implementation reduces the demand for the new skills needed to comply with them.

Limited awareness and capacities of policy-makers to integrate a skill dimension into policy responses to manage environmental risks. Most of the documentation on adaptation and mitigation measures, policies, strategies, action plans and programmes initiated in response to climate change and environmental degradation refers only very briefly to the skills implications of these measures, and mostly lack any skills response component.

Mechanisms established for identifying, monitoring, anticipating and providing skills do not usually include representation from environment ministries. Similarly, ministries, agencies and institutions concerned with education and training are mostly not involved in developing environmental policies (ILO: 2011b).

The informal economy

The large size of the informal economy in developing countries indicates that measures to restructure the economy and skills training mainly in the organised sectors may leave large proportions of the people, especially in rural areas, without access to the skills development and new job opportunities. The organised sectors of the economy lend themselves to policy and regulatory interventions somewhat more easily than the dispersed informal economic activities. Quantitative estimates are hard to come by, but it can be reasonably assumed that there is large overlap between informal sector work and rural employment.

Some specific measures in agriculture, forestry and livestock

Restructuring in agriculture is happening in a great variety of ways. Most of the country case studies

indicate that many farmers are repositioning themselves both within the sector and in other sectors, prompted by the inability to make enough profit to live on from agriculture, the development of machinery and technology, and climate change.

Enhancing effectiveness of skill training

Most countries agree, according to country cases in the ILO study, that short, intensive vocational training courses, tailored to the specific needs of employers, are the most effective way of delivering retraining for specific new job opportunities. Such re-training has to occur locally, in rural areas, if this is where the jobs are. Ideally, it should not detach participants from existing work or from the job market (ILO: 2011b).

Anticipating and projecting green skills and green jobs

A standard and agreed definition and statistically countable categories of green jobs and related skills do not exist. This creates difficulties in measuring green jobs and skills and placing these into occupational and industrial classification systems. Countries which have developed and established systems for the identification of skill needs and collect labour market information through labour market information systems (LMIS) enjoy a head-start (ILO: 2011b).

Some specialised green skills

The International Standard Classification of Occupations (ISCO), last updated in 2008, classifies skill specialisation in terms of four conceptual areas: (i) the field of knowledge required, (ii) the tools and machinery used, (iii) the materials worked on or with; and (iv) the kind of goods and services produced (Greenwood: 2008). Whether entirely new occupational categories need to emerge or some re-definition of the character or features of existing occupations will suffice depend on the degree of change in the skill composition of occupations when economies go through the green transition.

Recent research including the ILO study, particularly the country cases, suggests some new combination of specialised skills which need to be given attention in promoting the green transition especially in the context of rural transformation.

Carbon financing specialists

Flexible mechanisms introduced in the Kyoto Protocol included international carbon trading, which led to a number of new green occupations. This specialised skill is particularly important for the rural economy and the agricultural sector where major potentials exit for carbon sequestration in forests and land making new rural economic activities potentially viable.

Researchers at university level

Crop varieties have to be developed and introduced that can withstand the vagaries of climate change. Demand for soil scientists, plant and animal breeders, and pathologists will rise. Most researchers in agriculture have to be multidisciplinary. The scientists have to be supported by agricultural technicians for field level experimentation and trial of crop diversification and the application of improved machinery to reduce energy consumption and GHG emissions.

Irrigation specialists

They will be in demand to identify appropriate irrigation technologies that improve water conservation, conduct market studies to ensure the technologies are applied effectively and impart skills in using and maintaining the technology to end users. This is particularly important as climate change and variability increase water scarcity.

Agricultural meteorology is a new occupation created in response to increasing weather variability. These professionals apply meteorological information to enhance crop yields and reduce crop losses caused by adverse weather.

Eco-adviser in agriculture for sustainable development and eco-certification is another emerging occupation. These experts advise farms of all sizes from agribusinesses to smallholders in sustainable practices and existing certification mechanisms and standards.

Restructuring the economy in the organised sectors leaves large proportions of the people, in rural areas without access to skills development and new job opportunities. There is large overlap between informal sector work and rural employment.

Renewable energy specialists

This sector represents the most dynamic labour market segment for newly emerging green occupations, such as renewable energy engineers, consultants, auditors, quality controllers and installation and maintenance technicians.

Education and training specialists

The education and training sector is of critical importance in the green transition, disseminating basic knowledge about environmental changes and influencing the behaviour of people in matters of environmental sustainability. Teaching and training personnel in all education systems and at all levels need command of the necessary skills and methods to impart environmental knowledge, to create awareness and to react flexibly to ever-changing labour market needs. But developing countries have insufficient numbers of well-trained teachers and trainers to satisfy the need to update the skills of large and growing workforces, including a need to incorporate environmental course content and update curricula in primary, secondary, tertiary and adult education training.

Programmes and strategies for skills development can be effective, when they are nested in a supportive environment of broader development goals and policy which are consistent with the aims of rural transformation and rural poverty reduction.

5. Roles and Responsibilities: A Framework for Action

It is clear that skills development is a critical component of the total effort to bring about rural transformation, but it is not sufficient by itself. The programmes and strategies for skills development can be effective, when they are nested in a supportive environment of broader development goals and policy which accord a high priority to and are consistent with the aims of rural transformation and rural poverty reduction.

Countries which have gone further in reducing poverty and improving well-being of their people are those where labour force has moved from agriculture to diversified economic activities in manufacturing and services.

The premises underlying goals of rural transformation and poverty reduction logically direct attention to a number of contextual factors intimately intertwined with these goals, such as structural changes in the economy which are consistent with rural transformation objectives, a regional planning and development perspective, environment for economic activities, expanded opportunities for enterprises in rural areas, social protection and safety net policies and governance issues.

Structural change in economies

Historically, economic development has meant structural change in national economies of countries in terms of the contribution of the major sectors of the economy (agriculture, industries and services) to the total productive output of the country (GDP) and the proportion of the working population employed in the major sectors. Countries which have gone further in reducing poverty and improving the well-being of their people are those where the labour force has moved from agriculture to more diversified economic activities in agricultural processing, manufacturing and services. There has been a spatial or geographical change manifested in urbanisation and increase in job opportunities in towns and cities away from villages, as well as, a sectoral movement of workers away from farming to off-farm, manufacturing and services activities (McMillan and Rodrik: 2011).

The implications of the shifts in the structure of the economy, especially relevant from the point of view of the rural transformation goal, are that:

- *A progressive and relatively rapid decrease can happen in the proportions and total numbers of the workforce in agriculture, while improving at the same time total output from agriculture, thus increasing productivity dramatically per unit of labour input as well as per unit of finite and scarce land.*
- *There can be a movement of the work force in rural areas from farming to off-farm, manufacturing and services activities, with creation of some of these economic opportunities in rural areas themselves, in a context of overall expansion of these non-agricultural activities within countries and beyond the borders of countries, in the era of globalisation.*
- *Increases can occur in mobility of working people*

and those eligible for work in rural areas both spatially and sectorally. Spatial mobility of workers may be within rural areas, to peri-urban areas, rural hubs and small towns, and larger cities, with some of the movements in the reverse direction. Sectoral mobility may be from farming to off-farm processing, services related to modernising and diversifying agriculture, livestock, forestry and infrastructure building, and expansion of some of the urban services to rural areas.

One area of sectoral expansion possibility is education and skills development with expanded scope and variety of education and skills development activities in rural areas, small towns and rural hubs (central rural locations where services and infrastructures are located to serve a group of rural communities).

Rural–urban linkages and regional development planning

Rural and urban areas are in reality interconnected through a constant movement of people, goods, capital, ideas and information. The complex web of flows and exchanges has made rural and urban areas dependent on each other. The trend is accelerating in many parts of the developing world as a result of better transport and communications, rural–urban and return migration, the dissemination of urban norms and values in the rural areas, and the spread of urban economic activities in the rural areas (rural industrialisation and spread of basic amenities) and of rural economic activities in the urban areas (such as urban agriculture).

The persistent and growing disparities in the levels of income, economic opportunities and quality of life between the rural majority and the urban minority have lent a new urgency to an integrated approach. Economic liberalisation and opening of the global market have given an added impetus to look at the urban–rural connections in a new light. A deliberate blurring of the urban–rural distinction is being taken up as policy objective with supportive policies and strategies (ESCAP: 2001).

Governance across and beyond the rural–urban boundary

If well managed, the interactions between towns and countryside can be the basis for a balanced regional development that is economically, socially and environmentally sustainable. The participatory, decentralised and area-based approach that is a prerequisite for integrated urban–rural planning logically accords the local government system a key role in facilitating positive interactions in the process.

In short, understanding rural–urban linkages, creating mechanisms for planning and implementing the plans matter because they provide the basis for measures that can improve both urban and rural livelihoods and environments. Ignoring them means that important opportunities will be lost, and in many cases it will contribute to or perpetuate poor and marginal people's hardship. There are urban initiatives that can reduce ecological damage to rural areas and help support regional development. Such initiatives are unlikely when separate and uncoordinated urban and rural development is the norm (DANIDA: 2000).

Social protection and safety nets

A significant proportion of rural people in developing countries, whether they are engaged in agriculture or off-farm activities, face natural or man-made emergencies and/or are in a state of chronic hunger and deprivation which they cannot handle without assistance from the State. They need support to respond to the high level of risk and vulnerability and overcome the negative impact on livelihood. Assistance is necessary not just to provide relief and protect the well-being of people, but to help them move out of the vulnerability and restore their productive capacities. Ideally, the protection measures can be an investment in people which can produce longer term payoffs and prevent the inter-generational transmission of poverty.

Vulnerability and the lack of social protection are manifestations of poverty and social exclusion of rural people. They are also obstacles to the development of

One area of sectoral expansion is education and skills development with expanded scope and variety of programmes in rural areas, small towns and rural hubs.

Persistent and growing disparities in income, economic opportunities and quality of life between the rural majority and the urban minority make integrated approach especially urgent.

Vulnerability and the lack of social protection are manifestations of poverty and social exclusion of rural people. They are also obstacles to the development of capabilities and skills of young people and are hurdles to the access to productive employment.

capabilities and skills development of young people and, therefore, are hurdles to the access to productive employment.

Another common description of social protection is social safety net—a net that prevents individuals and families from falling below defined levels of basic well-being. Social safety nets specifically emphasise non-contributory transfers targeting the poor and vulnerable in order to protect them from risks and severe poverty.

In short, safety nets for social protection have four main objectives: (i) they aim to reduce poverty and inequality through the redistribution of resources, (ii) they function as insurance and help improve households' risk management capacity, (iii) they are expected to enable households to invest in human and physical capital, which advances long-term economic opportunities and (iv) they can mitigate the negative consequences of difficult but needed socio-economic reforms (World Bank: 2011).

Main types of social safety net interventions are:

- *Unconditional transfers in cash and in kind: Unconditional, but usually means-tested, cash transfers aim to lift poor and vulnerable households out of poverty or protect them from falling into poverty due to a crisis or some economic reform measures.*
- *Income-generating programmes: Workfare (or public work) typically employs low-skilled workers in labour-intensive jobs constructing or maintaining public infrastructure projects. If well-designed, these programmes can make public spending more cost-effective. The participants may be paid in cash (cash for work) or in-kind (food for work).*
- *Programmes promoting and protecting human capital: They have two explicit goals—to reduce current poverty and to promote investments by the poor in their human capital in order to increase the standards of living in the future. To encourage investments in education, they require that households enrol their children in school and that the majority of children attend regularly classes.*

There is no single blueprint for social protection and application of safety nets. Main types of social safety net interventions are: unconditional transfers in cash and kind, income-generating programmes and programmes promoting and protecting human capital.

Experience of social protection measures in developing countries illustrates the scope and pattern of these measures.

Labour market intervention

Rural labour markets are often characterised by oversupply of labour, limited employment opportunities and poor transport and communication that restrict movement of labour. Rural employment schemes have been used in several countries to address this problem, as in India, which aim to create employment opportunities through public works to build physical infrastructure.

Assisting the ultra-poor

Poverty and exclusion in rural communities, as multidimensional phenomena, call for multifaceted interventions. One example of a multidimensional social-assistance programme is the "Challenging the Frontiers of Poverty Reduction—Targeting the Ultra Poor" (CFPR-TUP) programme of BRAC, a large Bangladesh development NGO.

Health and safety of workers

ILO estimates that up to 170,000 agricultural workers are killed each year and millions are seriously injured in accidents involving agricultural machinery, pesticides and other agrochemicals. Protecting rural workers from hazards in work place must be an important element of social protection.

There is no single blueprint for social protection and application of safety nets. No one instrument can provide a magic bullet. The options are diverse and policy-makers have choices, as seen above. Policies, objectives and a combination of programme actions need to be designed by focusing on dominant problems and feasibility of effective implementation. There are regional patterns which have evolved over time which provide useful lessons about options and their efficacy in different contexts. In Latin America the emphasis has been on support to human capital building through conditional cash transfers and social pensions. In South Asia and Africa, the focus is on more immediate

vulnerabilities of people through a variety of social protection interventions aiming at food security of households and a minimum income protection through public works (Hickey: 2007).

Role of microcredit and social business

Microcredit

Microcredit refers to very small loans given to poor people to help them start an economic activity that can provide gainful employment and an income to the creditor and thus, if the activity is sufficiently profitable, lift the creditor out of poverty. Microcredit institutions fill the gap between private moneylenders and commercial banks by offering small collateral-free loans to the poor, the large majority of whom are poor rural women; thus generating employment and income for them. Equally significant is the spurring of entrepreneurship, change in gender attitudes and expansion of choices in life for poor people (Yunus: 2003).

The key lesson from microcredit experience is that it provides a critical ingredient for poverty reduction by allowing poor people, especially women, access to credit. However, the goal of lifting poor families sustainably above the poverty line can happen on a substantial scale when access to microcredit is complemented by skills and capacity development and basic services such as health care.

Social Business

The concept of social business, which is gaining acceptance as a way of combining entrepreneurship and altruistic spirit of people, can be regarded as an important complement to microcredit in the arsenal of fighting poverty, creating employment and income opportunities, while meeting specific social needs.

In simple terms, a social business is a no-loss, no-dividend company dedicated entirely to achieving a social goal. In social business, the investor gets his/her investment money back over time, but does not receive dividend beyond that amount. The Grameen Bank is a prime example of social business, with the Grameen borrowers themselves being its shareholders. A social business can also be mainly a profit-making enterprise, as long as it is owned collectively by the poor for their benefit and profit maximisation does not undermine social objectives (Yunus: 2010).

The seven principles of social business, as articulated by its proponents, are :

- *The business objective will be to overcome poverty, or one or more problems (such as education, health, technology access and environment) which threaten people and society; not profit maximisation.*
- *Financial and economic sustainability have to be ensured.*
- *Investors get back their investment amount only. No dividend is given beyond investment money.*
- *When investment amount is paid back, company profit stays with the company for expansion and improvement of the business.*
- *The business must be environmentally conscious.*
- *Workforce gets market wage with better working conditions.*
- *It has to be done with joy (Yunus: 2010).*

A creative combination of microcredit, as well as capital from the financial market, especially for small- and medium-sized enterprises, and social business enterprises are emerging in many parts of the world. Social needs, especially of the disadvantaged people, in areas as health care, education, renewable energy, waste management, food and nutrition, housing and water and sanitation, are the concerns of social businesses. They are demonstrating ways of creating employment and generating income for rural people. They are doing so, while introducing new technologies and mobilising people's energy and creativity to address critical needs of society.

Microcredit fills the gap between private moneylenders and commercial banks by offering small collateral-free loans to the poor, mostly rural women; generates employment and income for them; spurs entrepreneurship; changes gender attitudes and expands choices in life for poor people.

A social business is a no-loss, no-dividend company dedicated to achieving a social goal. It can also be profit-making, if it is owned collectively by the poor and profit maximisation does not undermine social objectives.

Priorities in education and skills development for rural transformation

In human life cycle, childhood, adolescence and early youth are when people develop capacities to prepare themselves for the world of work and for life.

In human life cycle, childhood, adolescence and early youth are the stages when people acquire knowledge and skills and develop capacities that prepare them for the world of work and for roles and responsibilities as citizens, members of their communities, members of their families, and fulfilment as a person. The learning process turns the population into human resources and can permit the rural areas of developing countries to enjoy the benefits of the demographic dividend—the premium from a youthful work force and relatively low dependency ratio of post-working age population.

The potentially virtuous outcomes depend on what is done to overcome the neglect of education and skills development for rural people.

The potentially virtuous outcomes depend on what is done to overcome the neglect of the education and skills development provisions for rural people. The needs consist of various stages and types ranging from early childhood development and basic education, secondary and tertiary general education, vocational and technical skills development and lifelong learning opportunities.

Priority areas of action to expand basic education with equity and quality—more schools and classrooms in rural areas...completing basic education by girls...school-feeding...early childhood development and preschool... alternatives for working children...illiterate adults and parents...remote residents...nomadic people...refugees and the internally displaced...people with disabilities.

Basic education

Basic education, as it is generally understood, includes early childhood development and preschool, formal and non-formal equivalent of primary education, and literacy and continuing adult education programmes. Given that large urban–rural disparities continue in many developing countries regarding basic education services, expanding and improving these services are an obvious priority. Some 70 million children of primary school age, mostly from rural areas are still not at school (UNESCO-GMR: 2010).

The FAO-UNESCO Education for Rural People partnership project has emphasised priority areas of action to expand the provision of basic education with greater equity and improved quality, as indicated below.

- *Constructing more primary schools and classrooms in rural areas where facilities are still not within a reasonable distance from children's home.*
- *Making primary education compulsory and universal effectively: Even though the law and the obligations have been stated officially, in many instances the measures to enforce the law and create the conditions for doing so are lacking, even though this is a prerequisite for achieving EFA.*
- *Increasing school enrolment and completion of basic education of girls: Progress has been made in respect of initial enrolment, though even this is a significant problem in many countries; but dropout and the failure to complete the stage with acceptable learning achievement, thus leading to "silent exclusion" are serious and not fully quantified problems in many more countries.*
- *School-feeding programmes: A full school day with the child alert and engaged in learning requires a mid-day meal, as has been demonstrated in many countries.*
- *Early childhood development and preschool programme: Which is essential to ensure that the child is physically and mentally ready to learn and participate in school, especially for children affected by socio-economic disadvantages.*
- *Working children: Extreme poverty forcing children to engage in child labour, is a major obstacle to these children's participation in both urban slums and in rural areas; alternative and flexible approaches are required to address this situation.*
- *Illiterate adults and parents: A problem in itself, but also a serious hurdle to children's basic education when illiterate parents cannot provide the supportive environment and guidance to their children.*
- *Remote rural people: Geographical and communication barriers often coincide with ecological and economic disadvantage, leading to poor or non-existent basic services, unless special steps and strategies are adopted to reach out to the unserved people.*
- *Nomadic peoples: Educational services for itinerant people, not living in a settled community, but mostly dependent on rural habitat and livelihood, need educational services, which have to be adapted in delivery and content for their special circumstances.*

- *Refugees and internally displaced people: Conflicts and emergencies of different kinds affect significant numbers in many parts of the world; the phases of emergencies, rehabilitation and restoration of more normal conditions place special demands on educational services.*
- *Children and adults with disabilities: A significant proportion of the population need to be identified and their circumstances and characteristics assessed, who need special services which are preferably offered within the mainstream system, and when necessary, through special provisions (Acker and Gasperini: 2009; Lakin and Gasperini: 2003, pp.77–174).*

Secondary and vocational Education

As primary education becomes universal, the urgency has increased for meeting the expanding demand for secondary education, especially in the rural areas. In gross terms, 40 percent of the children in developing countries did not enrol in secondary schools in mid-2000s. The proportions are about sixty percent in Sub-Saharan Africa and 50 percent in South Asia (UNESCO-GMR: 2010).

It is now widely accepted that general primary and secondary education is the foundation upon which young people, whether they live in cities or rural villages, will build their livelihoods and acquire the vocational and technical knowledge and skills that they need to take advantage of the new opportunities. Quality general secondary education is necessary to equip rural youth with generic skills and competencies essential for taking advantage of job-specific vocational and technical training opportunities in a changing and globalising labour market. It is also necessary not to foreclose for rural youth the possibilities of further education, seeking opportunities in urban and peri-urban labour market, or venturing into entrepreneurship.

Should rural high schools be different from those in cities in respect of the curricular content and learning objectives? It is a question, as discussed in Chapter 2, of a pragmatic balance between general and generic competencies for young people through post-basic general education and different levels of specialised technical and occupational skills separately or in combination with general education.

The special features of the rural economy, characterised by informality and a work force with relatively low level of formal education attainment, call for approaches that are geared to these rural circumstances. An effective approach to meeting skills needs of practicing farmers through what has come to be known as the Farmer Field School, advocated by FAO, has been adopted in several developing countries. Effective techniques for off-farm skills development for young people in rural areas continue to be a major challenge. Brazil, a pioneer in organised apprenticeship as a major skills development method, has also developed and applied widely an apprenticeship programme for the rural areas known as SENAR, which has broad relevance in developing countries.

The need for breaking away from livelihood dependence on farming, opening the door for new opportunities for rural youth and increasing their chances for transition to tertiary education have appropriately resulted in attention to the development of primary and general secondary education. In this process, arguably, the need to improve the labour market relevance of vocational education and training in the rural economy have received inadequate attention tension has arisen in striking a balance between developing generic competencies and occupation-related skills, development that does not unjustly limit life prospects for young people in rural areas.

Tertiary education from a rural perspective

Given the multiple dimensions of rural transformation and the broad range of knowledge, research and capacity building needs for this purpose, the contribution of higher education in this respect cannot be confined to higher agricultural education (HAE) alone. Universities are well positioned to use their resources to assist the public and private

Quality general secondary education is necessary to equip rural youth with generic skills and competencies essential for taking advantage of job-specific vocational and technical training in a changing and globalising labour market.

A pragmatic balance has to be struck between general and generic competencies for young people through post-basic general education and different specialised technical and occupational skills—separately or in combination with general education.

Universities are well positioned to use their resources to assist public and private sectors to develop strategies to address problems of rural development.

The variety of roles of agricultural universities and other institutions of higher learning can be—academic programmes relevant to present and emerging needs of rural transformation... preparing professional and technical personnel including teachers and trainers... research and extension services... designing and implementing higher level and leadership training...technical assistance... technology adaptation.

Multipurpose community learning centres with community ownership, brought together into networks for technical support, can be a vehicle for learning with impact on poverty; also can be building blocks for lifelong learning in the learning society.

sectors to develop strategies to address the problems of rural development. These resources include a range of educational programmes which contribute to the development of the country's human and physical capital. These also include the universities ability to coordinate and support research that improves the understanding of economic and community development issues, problems and opportunities.

The variety of roles that universities and other institutions of higher learning including higher agricultural institutions can play includes:

- *Education: Academic programmes that are relevant to present and emerging needs of higher level professional and technical personnel for rural transformation, including the teachers and trainers of middle-level institutions, who absorb a large proportion of the higher education graduates.*
- *Research and extension services: Undertaking research on current trends, issues and challenges in rural development; providing agricultural extension services to farmers; need-based information services related to skills development, vocational training, employment, entrepreneurship, marketing of rural products and value-added services like identification of user groups, innovators and entrepreneurs in various functional areas.*
- *Training: Contributing to design and implementation of capacity building and leadership development for middle-level institutions; promotion of new livelihoods patterns and supporting vocational and entrepreneurship skills development.*
- *Technical assistance: In such areas, as designing curriculum and learning content of middle-level institutions that are need-based and demand-driven; assisting local governments, industry councils and workers' organisations in such areas as establishing quality criteria and standards; assessment, monitoring and evaluation of skills development; assessing market demands and emerging trends and social protection and safety nets.*
- *Technology development: Identification and propagation of indigenous/local technologies, technology transfer, improvement of rural products through intermediate technologies, etc.*

Lifelong learning and building the learning society/ community

The concept of lifelong learning, leading to the creation of a "learning society," has been visualised and written about for several decades now. As discussed in Chapters 2 and 5, addressing the learning needs of the members of the rural community involves the entire gamut of educational services. The principal components of lifelong learning include the early childhood care and training of parents, mainstream and alternative primary school, second chance non-formal basic education, secondary general education, vocational and technical training, participation in extension services programmes, opportunities to participate in or interact with tertiary education programmes and institutions, adult literacy and continuing education, and access to library and reading room and community multimedia centre.

The community learning centre (CLC), or continuing education centre (CEC) as it is called in India, can be an institutional base for lifelong learning, if it is designed and supported by national and local authorities to play this role. These also can represent a concrete form of decentralisation, when these centres have a high level of community participation in designing learning activities and their management. Where the local government institution is well developed, it can be involved in planning activities, management and mobilising resources for the centres. To function effectively a community-based centre must have technical support in designing programmes, training personnel and evaluating the effectiveness of activities.

In short, multipurpose community learning centres with community ownership can be an effective base for offering relevant training and knowledge dissemination and for link-up with ancillary support. These, brought together into national or regional networks for technical support, can be a vehicle for education and learning opportunities which have an impact on

poverty, and also become the building blocks for life-long learning in the learning society (Ahmed: 2009).

Turning skills into jobs

That skills are at the core of improving individuals' employment prospects, increasing productivity and growth in rural areas and enhancing workers' income is a basic premise underlying this report. But skills do not automatically or necessarily turn into gainful employment. The probing of the issues of skills development cannot ignore how skills lead to or may not lead to jobs. Insufficient demand for workers as well as mismatches between skills and available jobs while jobs remain unfilled are persistent problems manifested in high unemployment rates, especially among young people.

The steps for linking skills and jobs are generic problems of the economy and the employment market which also affect rural areas and rural workers. While efforts have been made and some successes achieved in the organised sectors of employment in the formal economy, there have been few initiatives to adapt and apply these measures in the context of the rural areas and the informal job market. Experience in general in relation to linking skills and jobs suggests a number of measures which need to be taken, with necessary adaptation for the rural context, as noted below.

- *Labour market information and matching services can work effectively when decentralised management allows regional and local offices to tailor programmes to the local job-seeking and employer communities; the central administration may retain responsibility for mobilising financial and technical resources, setting policy, and evaluations.*
- *Better outcomes can be expected in labour mobility and matching of skills and jobs with expansion of coverage of social protection of workers. This is a special problem area for the rural population, as discussed earlier. The lack of appropriate income protection systems and social insurance benefits in most developing countries, especially in rural areas, is a disincentive for workers' mobility between jobs.*
- *Employment information services work effectively when their design allows for providing incentives for both job-seekers and employers to join; integrating employment services with training and competency assessment; decentralising management and expanding the role of the private sector with clear targets; and exploiting information technologies.*
- *Job-search and placement can be facilitated through skills certification frameworks to recognise individual skills and competencies (the third step above), keeping in view current and emerging job opportunities in rural areas as well as urban areas in which the rural migrant workers can be absorbed. The skills certification system needs to include or be complemented by mechanisms for the certification or accreditation of training centres and programmes and apprenticeship schemes which cater to rural youth (World Bank: 2010).*

Skills and jobs within the sustainable livelihood framework

The linking of skills and jobs does not happen in a vacuum, isolated from all the forces at play in relation to rural transformation. As discussed in Chapter 2, the concept of the sustainable livelihood approach (SLA) points to the bridging that must occur among various key assets to bring about the outcome of poverty reduction and contributing to rural transformation. Skills and capacities of people as human capital is one asset that must be put to work in synergy with other capital assets—physical, social, natural and financial—towards achieving the defined development objectives.

As noted in Chapter 2, central to the idea of SLA is the range of assets that poor people can or should be able to draw on and bring to bear on their own effort to change their condition. Skills, knowledge and ability constitute human capital. An integrated approach is necessary in making the different assets contribute to the common objectives of turning knowledge and skills into productive work, for improving people's lives.

The generic problems of linking and matching skills and jobs are more complex in rural areas and the informal job market. Experience suggests some measures—decentralised locally adapted labour market information and matching services... expanded coverage of worker social protection... incentives for both job-seekers and employers to join in job information services.... skills certification frameworks to recognise competencies and skills equivalency.

Skills and capacities of people as human capital is one asset that must be put to work in synergy with other assets—physical, social, natural and financial—toward achieving the objectives.

The transforming society—rural, peri-urban and urban—creates demands for new kinds of jobs and old jobs with new profiles. This dynamic perspective of changing jobs, labour markets, and skills requirements must frame the interventions to match skills and jobs.

Livelihood strategies are aimed at achieving livelihood outcomes, thus focusing on the most critical concerns and anxieties of poor people—a guarantee of food and shelter, basic services such as education for children and health care, and safety and security of life and livelihood. As discussed in Chapter 2 as well as in Chapters 3 and 4, in relation to food security and the green economy, the transforming society—rural, peri-urban and urban—creates demands for new kinds of jobs and old jobs with new profiles. It also generates commensurate needs for skills development. This broader and dynamic perspective of changing jobs, labour markets and skills requirements needs to be kept in view in thinking about and planning labour market interventions and efforts to match skills and jobs.

Governance issues: creating institutions of the poor

To serve rural transformation, flexible and autonomous structures at local levels adapting to local circumstances, encouraging participatory practices, and promoting transparency in governance are particularly important.

Good governance is critical for successful efforts in skills and capacity development that can play its role in poverty reduction and rural transformation. Good governance itself is predicated upon building capacities and setting performance standards for the institutions and mechanisms of governance. In the context of rural transformation, flexible and relatively autonomous structures at local levels that adapt to local circumstances, encourage participatory practices and promote accountability and transparency in governance processes are particularly important.

Stakeholders of rural development are many and diverse. Mobilising the poor to create and participate in their own organisations and institutions needs to be nurtured.

Mobilising the poor to create and participate in their own organisations and institutions needs to be nurtured by coordinated support from many sources. Government agencies, NGOs and civil society organisations, local self-governments, banks and corporate sector each has a role to play. With time, as the institutions of the poor grow and mature, their members and empowered leaders can take charge and accelerate the processes of change. Thus, the programme for the poor becomes the programme by the poor and of the poor. The challenge is to unleash their innate capabilities to generate meaningful livelihoods, which enable them to come out of poverty.

The stakeholders of rural development are often many and diverse—members of the community—men, women and youth; central and local government officials; health workers, teachers and extension workers; national, local and international NGO representatives; representatives of international programme funding agencies; community leaders and politicians at local and national level and others. The rural poor, especially women, youth, ethnic and other minorities, and people with disabilities and special needs often have no presence or no opportunity to voice their views in the stakeholders' forum, even when the development initiative is purported to be for their benefit.

A necessary initial step, therefore, is to raise awareness on the different options for addressing the plight of the rural poor through conducting inclusive dialogue forums involving all community-level stakeholders. The major objective of the dialogue will be to engage in analytical thinking and consultations on understanding and diagnosing the roots of problems and opportunities for practical interventions that lead to transforming changes in the rural economy.

Skills for rural transformation—roles and responsibilities of stakeholders

The government or the public sector

The government or the public sector at various levels from national to local, private-sector agencies and the end-users at the community and household level need to play their roles in carrying out the activities and programmes related to skills and capacity development for rural change and development.

- *A decentralised "demand-driven" strategy can be more responsive to specific demands and potential of each locality. The local government institutions and local community organisations could establish a collaborative partnership in undertaking the responsibility for developing a local "vision" and strategy, designing/planning, allocating resources, and implementing and*

monitoring of development activities that would better cater to the local needs.

- *With a demand-driven and decentralised approach, and partnerships of stakeholders and key actors, the role of the central government would be more in the formulation of policies to facilitate the effective functioning of the roles assumed by other actors. With decentralisation, local governments will have to assume greater responsibilities and would become the focal centres for local development. Local governments have to be effectively linked with the national levels as well as with local communities (IFAD: 2007).*
- *For an integrated approach to rural development, local communities, where the beneficiaries/actors of development are, should themselves become organised to be actively involved in planning and managing development. To achieve sustainability, the challenge is to facilitate and institutionalise a process through which rural communities themselves would evolve local organisations to satisfy their own local needs (UN: 2009).*
- *The village panchayat in India and the township and village governments in China are illustrative of the local government bodies that exist in many countries. While the stated intentions and even the legal provisions for setting up the local bodies reflect ideals of authority and responsibility of citisens at the community level, in practice political power relationships, limitations of resources, and technical skills and capacities at the local level have stood as obstacles to local government bodies fulfilling their stated roles and potentials.*
- *Effective utilisation of social capital can be singled out as the key role of local communities in respect of transformative change in rural areas. As a prerequisite for accumulation and the effective mobilisation of social capital, improving and upgrading the human capital is crucial. Developing skills of the individuals in a community enhances the quality and quantity of the output of social capital through collective action of the community.*

Rural private sector

The rural private sector includes a continuum of economic agents, ranging from subsistence or smallholder farmers, rural wage-earners, livestock herders, small-scale traders and micro-entrepreneurs; to medium-sized, local private operators such as input suppliers, microfinance providers, transporters, agro-processors, commodity brokers and traders; to other, bigger market players that may or may not reside in rural areas, including local or international commodity buyers and sellers, multinational seed or fertiliser companies, commercial banks, agribusiness firms and supermarkets. Associations of farmers, herders, water users or traders also constitute an important part of the private sector (IFAD: 2007).

Promoting the role and responsibilities of the rural private sector

- *Supporting the establishment of viable backward and forward linkages between rural producers and surrounding private markets.*
- *Supporting private-sector entities (e.g., input suppliers or agro-processors) that can provide commercially viable services and markets for the rural poor.*
- *Establishing an enabling policy and institutional framework for rural private-sector development.*
- *Engaging the private sector to bring more benefits and resources to the rural poor.*

Community organisations

Community institutions, including, cooperatives, farmers'/people's companies, farmers' organisations, other types of people's associations, such as credit unions, savings societies, educational institutions and clubs are considered under the category of local community organisations.

Role and responsibilities—community organisations

- *Administering and monitoring programmes and activities of stakeholders of rural development.*
- *Facilitating training of unemployed youth and*

A necessary initial step is to raise awareness on different options for the rural poor through inclusive dialogue involving all stakeholders.

The government—the public sector—from national to local level, private-sector and others at the community and households need to play their roles.

Key public sector roles—encouraging a decentralised "demand-driven" strategy... partnership building... organising beneficiaries/actors...involving local government... utilising community social capital and further enhancing it.

Private sector role—forward and backward linkages of rural enterprises... providing commercial services and opening markets... promoting viable private sector activities in rural communities... bringing benefits and choices to rural consumers.

Community organisations role—running or monitoring rural development activities... training... literacy and adult education... organising and promoting community learning centre network.

Civil society and NGO role—organising rural people... raising public awareness... facilitating skills development activities... raising social status of VET trainees—promoting competency standards... capacity building of local organisations—research and evaluation... bringing resources and cross-national lessons by international NGOs.

adults, upgrading the skills of farmers, introduction of new technologies.

- *Raising awareness of literacy training (National Literacy Campaigns), promoting the introduction and use of appropriate technology for the rural community, helping organise short-term farming and vocational training and establishing Community Learning Centres (CLCs).*
- *Organising income generating and skills training programmes for illiterate individuals, individuals with some schooling and dropouts of the formal education system.*

Civil society and non-governmental organisations

The civil society organisations (CSOs), when organised effectively, can help the vulnerable sections of society to be empowered, to defend their right and to enhance their quality of life. They can go where the government is not adequately reaching and the areas to which the government has not paid adequate attention. Their role is not to substitute the government, but to draw attention of the responsible agencies and to help the local people to be self-reliant.

- *Administering and monitoring programmes and activities of stakeholders of rural development.*
- *Facilitating training of unemployed youth and adults, upgrading the skills of farmers, introduction of new technologies.*
- *Raising awareness of literacy training (National Literacy Campaigns), promoting the introduction and use of appropriate technology for the rural community, help organising short-term farming and vocational training and establishing Community Learning Centres (CLCs).*

Role and responsibilities—civil society and non-governmental organisations

Civil society organisations (CSOs)

- Organising rural people for self-help and being aware of rights and entitlements.
- Raising awareness about skill development plans and activities among the public.
- Facilitating the implementation of skill development programmes of all stakeholders.
- Assisting the development of competency standards.
- Assisting in course designing, examination and certification.
- Promoting lifelong learning among the public.
- Promoting dignity of labour among the public and the status of VET trainees.
- Sharing experience of learning with others.

Non-governmental organisations (NGOs)

National NGOs

- Organising literacy, post-literacy and out-of-school education programmes.
- Organising savings and credit groups.
- Organising income-generating programmes for poor people through skills training.
- Learning materials development and publication.
- Capacity building of local organisations.
- Organising seminars for awareness building among the community people.
- Monitoring grass-roots organisations and service organisations.
- Organising training, seminars, workshops, meetings, etc.
- Undertaking research and evaluation of development programmes.

International NGOs

- Providing funds in the field of education, specially non-formal education and capacity building of rural disadvantaged groups.
- Support capacity building of local community organisation and civil society bodies for playing their roles effectively in a changing scenario.
- Bringing a perspective of international and comparative experiences and lessons and work in partnership with indigenous organisations and institutions to adapt and apply the lessons.

- Promote solidarity of the disadvantaged and the agenda of human rights, human dignity and development in the context of globalisation and the shared common future of humanity.

Information and communication technology (ICT) and media

Advances in ICT have opened new frontiers, not just in delivering learning content in new ways, but also in respect of new economic opportunities and in defining profiles of jobs and skills in every economic sector. In respect of skills development, some of the obvious areas of interest are delivering content in creative ways, reaching new groups of learners at a time and place of their own choice, enriching the teaching and learning process, improving management information and upgrading teaching personnel. The potential, however, is far from being realised in most countries in general and in rural areas in particular. The "digital divide," between the rich and the poor and between urban and rural areas, is a major concern as ICT rapidly advances.

Roles and responsibilities—information and communication technology (ICT) and media

Information and communication technology (ICT)

- Connecting remote and isolated areas to urban centres at a lower cost than through conventional infrastructure.
- Improving access to the information rural people need.
- Enhancing outcomes of "development," raising awareness, empowering people with relevant information, protecting livelihoods and the environment.
- Providing citizen feedback to government—a check on bureaucratic abuse and corruption, alerts the government to citizen's needs and concerns and give citizens a sense of having a voice in society.
- Assisting people in monitoring accountability of development programmes.
- Building the learning society and the learning community—diversifying, enriching and increasing opportunities for ICT-enabled learning.

Media

- Promoting right to information—thus contributing to citizens' practice of democratic rights and responsibilities.
- Promoting quality of life, livelihood, rights and entitlements, learning about options and possibilities and exercising choices.
- Helping provide information and create demand for goods and services, encouraging local initiatives to meet rising demands.
- Assisting rural people and community members recognise their own importance in the power structure and act as a stimulus to political participation.
- Community radio—technological development has made it possible to establish local radio stations affordably as a hub of local information, communication and knowledge.

Rural trade unions and cooperatives

Trade unions, rural workers' organisations, agricultural producers' and farmers' associations show a mixed picture in respect of their development, status and effectiveness in developing countries. Where they have developed, they represent altogether hundreds of millions of rural people worldwide. A trade (or labour) union is an organisation created and run by workers to protect and promote their livelihoods and labour rights in workplaces. Their overall goals are to improve the lives and working conditions of rural people.

Role and responsibilities—rural trade unions

- Raising awareness and knowledge about the rights and entitlements of farm and rural workers.
- Raising awareness about the benefit of training, skill development plans and activities among the workers.
- Promoting skill up-gradation and lifelong

Role of information technology and media—connecting remote and isolated areas to urban centres... improving access to information of rural people... providing citizen feedback to government... involving people in monitoring and accountability... promoting right to information... source of informal education... encouraging civic and political participation... interactive communication through community radio.

Role of rural trade unions—raising awareness on worker rights and entitlements... promoting skill up-gradation and lifelong learning... promoting investment on skill development by employers... assisting the development of competency standards... improvement in the status of VET graduates.

Governance has to fit the purpose...One mega-agency in the public sector need not run all skills development programmes... Choices have to be exercised transparently about who does what and how all can contribute... Transparency, accountability and participatory ethic supports democratic development, empowerment of people and a lifelong learning approach.

Decentralisation must be made to work through initiatives and processes promoted in the context of each country's historical and political context.

Activities, results and outcomes of skills development for rural transformation have to be monitored and evaluated. Necessary adaptations need to be undertaken when the efforts are not on track.

Organisational structure of M&E will depend on the substantive elements of programmes designed to bring about rural transformation.

learning among the workers.

- Running special courses/institutes for skills development of workers.
- Promoting investment on skills development among the employers.
- Facilitating participation of workers in all relevant skills development activities.
- Assisting the development of competency standards, especially for off-farm skills.
- Facilitating improvement in the status of VET trained graduates.

To sum up this discussion of governance and management of skills development to serve the goals of rural transformation, it can be said that governance has to fit the purpose. There is no one template that can be applied, but experience of decades points to principles and general lessons which can guide action (Ahmed: 2009).

Several key principles regarding the governance and management of skills and capacity development of rural people can be underscored:

Partnerships of all actors within a common framework of policy and strategy:

It is neither necessary nor very efficient to have all or most of skills development programmes managed by one mega-agency in the public sector. Many of the activities can be carried out, within a common agreed framework, by NGOs, community organisations and the private sector, with appropriate financial incentive and technical support from the government and other sources.

Participatory choices:

There are choices to be exercised regarding who among potential providers of services does what and how all can contribute to meeting the critical and diverse learning needs of people. These choices must be made in a participatory way within an agreed overall national framework of goals and priorities, guided by consideration and consensus building at national and regional levels within countries.

The government role that facilitates optimal contribution of all actors:

The government, especially at the national level, would generally have a regulatory, facilitative and guardian of public interest role. A larger role for various non-government actors would mean that the role of national government agencies may be more at policy-level with senior technical professionals assisting in developing overall policies and priorities, creating supportive and facilitative mechanisms, providing finances and helping to mobilise resources.

Making decentralisation work:

It is a process that has to be promoted in the context of each country's historical, political and bureaucratic culture. There has to be trial and experimentatio n and systematic building of capacities of personnel at different levels for decentralisation to work effectively.

Transparency, accountability and participatory ethic:

These valued characteristics in an education or development programme also happen to be in line with the philosophy and ethics of democratic development, empowerment of people, and a lifelong learning approach. These attributes are not always consistent with the bureaucratic culture and practices in many countries and the hierarchy-based social roles and values.

Monitoring and evaluation of skills development

The activities, results and outcomes of skills development for rural transformation have to be monitored and evaluated to ensure that progress is being made and necessary adaptations are undertaken when the efforts are not on track.

The organisational structure of the M&E system will depend on the substantive elements of the programmes designed to reduce poverty and bring about rural transformation. What needs to be underscored is that a result-focused monitoring and evaluation system with specified functions and processes has to be established. It needs to be built

into the governance and management structures of all the major organisational entities which may have responsibilities for various components and elements of the rural transformation agenda.

Good governance and monitoring and evaluation

Good governance, in the sense of basic efficiency, transparency and accountability in management of resources to achieve the outcomes, is a prerequisite for success in the complex and multi-dimensional endeavour of skills and capacity development for rural transformation and poverty reduction. Adequate monitoring and evaluation is fundamental to minimisation of corruption, wastes, delays and mismanagement in this effort. Corruption and waste of public resources are major obstacles to effective implementation to large-scale public entitlement and social protection programmes which defeat the basic purposes of these initiatives in many developing countries.

To what extent are countries prepared to install an effective result-based M&E system? The authors of the result-based M&E system advocated by the World Bank suggest that an assessment of readiness of a country to adopt such a system should be the first step in developing and introducing an effective M&E system. (Mudahar and Ahmed: 2010).

A survey undertaken in selected countries to assess readiness of countries to design and build a result-focused M&E system found many obstacles. Often there are no genuine champions among the top policy- and decision-makers of the government and sectoral ministries for such a system, though many are willing to provide lip service to it. It was difficult to identify and get support for reform initiatives in public management that would create incentives for linking performance to M&E findings.

Moreover, legal and regulatory provisions for using M&E systematically in decision-making were lacking. Weak technical capacity in public agencies in M&E and management of credible information systems and inadequate training capacity in universities and research institutions to develop these capacities also were impediments. Strong political support and sustained institutional capacity building in M&E itself will be needed for introducing credible and useful M&E systems in most developing countries (Kusek and Rust: 2004).

There is general agreement about the essential sequences and steps for building a result-based monitoring and evaluation system (see Kusek and Rust: 2004). These essential elements include:

- Conducting a readiness assessment for introduction or/and strengthening of M&E systems.
- Formulation of goals and outcomes.
- Selecting outcome indicators, relevant to the goals which will be used in monitoring and evaluation.
- Deciding on responsibility, organisational mechanisms and capacities needed for carrying out monitoring and evaluation.
- Determining and constructing tools and instruments for collecting data on the indicators.
- Gathering baseline information on key indicators.
- Collecting and recording data systematically and regularly on the indicators using the appropriate tools.
- Analysing the data and reporting results of the analyse.
- Sustaining and further refining the M&E system at central, sectoral and decentralised tiers of the government (Mudahar and Ahmed: 2010, Figure 9.1).

Constructing a rural transformation index

To the extent possible, it is important to indicate trends, or desirable changes, on relevant indicators to show progress or lack of progress in respect of rural transformation. This can constitute a Rural Transformation Index (RTI).

The rural transformation indicators have to be

Adequate monitoring and evaluation is fundamental to coping with corruption, wastes, delays and mismanagement.... Corruption and waste are major obstacles to implementation of entitlement and social protection programmes.

It is important to indicate trends, or desirable changes, on relevant indicators to show progress or lack of progress. A composite value of these can constitute a Rural Transformation Index (RTI).

about rural people and rural areas, but seen within a national perspective. It can be justifiably argued that there has to be a more balanced growth and development, marked by reduction of three kinds of gaps to overcome the present disparity between the situation of the rural people and the rest in each country. These gaps to be narrowed and eliminated are:

RTI can comprise the measures for three gaps—per capita national and rural GDP, rural and national Human Development Index (HDI) and the ratios of agricultural share of GDP to national GDP and agricultural share of work force to national work force.

- The gap between per capita rural GDP and per capita national GDP;
- The gap between rural HDI and national HDI; and
- The gap between the ratio of agricultural GDP/total GDP and the ratio of agricultural employment/total employment.

If it is agreed that the reduction of these gaps, thus moving towards a balance in development and well-being of rural and urban populations, as the thrust of rural transformation, RTI can be the composite value of these three measures. RTI can indicate the present status of a country and can provide the basis for setting goals for change in various indicators in respect of rural transformation.

Data are available for the rural population by country. To construct RTI, therefore, data are needed for rural GDP, agricultural GDP and rural HDI (or at least components of HDI), to ascertain the gap between the rural and national values of these indicators. We can then take the consolidated averages of these and relate these to ranking of countries by rural population.

Approach to measurement of skills for people in rural transformation

Some of the measures of skills used at present relate to quantitative proxies for skills such as years of education or the level of qualification attained. These measures are based on the assumption that each additional year of education and different qualifications represent the same amount and quality of skills regardless of institutions and locations. Moreover, they ignore skills acquired informally and outside the education and training systems.

Increased access to education and training does not necessarily lead to better economic outcomes, as discussed earlier. In order to make skills supply relevant for the economy, information is needed about demands for skills in the first place. Distribution of employment by education/training background and by occupations provides indications regarding the match between supply and demand. Usually, census and labour force and household surveys provide this kind of information. An important challenge in this regard arises, as noted earlier, from the fact that large parts of the economy are in the informal sector.

A number of measures of economic performance and labour market and health outcomes can provide information on the links between skills and these outcomes. In respect of economic performance, measures could focus on production and productivity growth at the local level for different sectors and types of economic activities. Labour market outcomes are seen in employment, unemployment and underemployment rates and earnings.

Measures of health outcomes could be about general health and nutrition and disease burdens for specific diseases with high prevalence. Clearly, to be meaningful for the purposes of assessing the role of skills development for rural transformation, it is essential that systems are established to collect these statistics at the local level and consolidated regionally and nationally showing urban–rural breakdown.

Recognising the importance of a coordinated and strategic approach, OECD has initiated the development of a global skills strategy—a systematic, evidence-based approach to promoting in countries the formulation of sound skills policy and programme development.

Resource mobilisation and international cooperation for skills development

Under-investment in education combined with poor targeting of expenditures, especially in relation to rural needs, is a major obstacle to equitable access, quality and relevance of education and training. Increased resource mobilisation by countries themselves and its better allocation and use must be a key element of the effort to close the educational resource gap in general and to direct resources to achieving rural transformation.

At the national level in developing countries, development priorities and plans have to be looked at to re-examine the national poverty reduction strategies. The priorities in public expenditures have to be under review; how equitable allocations are and how effective is the management of budgets have to be assessed. Participation of civil society and other stakeholders should be ensured in determining priorities and in improving accountability. A greater effort has to be made to mobilise domestic resources, applying criteria of equity.

Economic and financial difficulties that have hit recently the European Union, North America and Japan pose new uncertainties about fulfilling their commitment to assistance for poor countries in supporting the MDG and EFA goals within the framework of international cooperation and solidarity. The long-standing target of devoting a minimum of 0.7 percent of GDP as international assistance appears to have receded farther for some of the largest industrialised economies.

Arguably, in difficult times, it is more important than ever to stand by each other, recognise the interdependence of economies and common interests of humanity and work together to lift all above the threshold to meet basic needs of people and ensure human dignity for all. There is no good reason for not doing so when the sacrifices called for from citizens and states in the industrial world are small by any reasonable measure.

Climate Change Funds

The mortal threat of climate change is a stark reminder of the urgent need for international partnership and cooperation. Solutions lie both in mitigation—reducing carbon emissions—and in-adaptation—helping communities cope with the current and future effects of climate change. Meeting the costs of adaptation to climate change is a major challenge for the international community.

There are several dedicated multilateral climate funds that support adaptation measures in developing countries: *(i) Least Developed Countries Fund (LDCF), (ii) Special Climate Change Fund (SCCF), (iii) Adaptation Fund (AF) established under the Kyoto Protocol and made operational in 2009, (iv) Global Climate Change Alliance (GCCA), (v) bilateral initiative of the EU and (vi) Pilot Programme for Climate Resilience (PPCR),* a World Bank administered climate loan facility, set up in 2008 to provide loans to encourage integration of climate resilience into national development planning.

The plethora of funding mechanisms has meant a lack of coordination and consolidation at the international and national levels and administrative burdens at the recipient end. Negotiations for a global Green Climate Fund (GCF) under UNFCCC have been grappling with the question of mobilising adequate finance and utilising funds equitably and effectively. The GCF is supposed to channel "a significant share of new multilateral funding for adaptation," balancing its allocations between mitigation and adaptation (Nakhooda: 2011). Besides the mechanisms and size of funding, the content of what is to be done with the funds, especially in respect of the "software" of sustainable development, need equal attention.

The countries with large proportions of the population in the category of rural poor cannot do it by themselves. Closing the resource gap for education in the poorest countries and the poorest segment of the population in these countries requires that:

Increased resource mobilisation by countries themselves and its better allocation and use must be a key element of the effort to close the resource gap in general and to direct resources to achieving rural transformation.

Public expenditures have to be reviewed for equitable allocations and effective management. Civil society and other stakeholders should participate in setting priorities and in improving accountability. More domestic resources have to be mobilised, based on equity.

In difficult times, it is more important than ever to stand by each other, work together to lift all above the threshold of basic needs and ensure human dignity for all.

Countries with large proportions of the population in the category of rural poor cannot do it by themselves...richer countries must fulfil their pledges... international and multilateral poverty reduction and climate change facilities should be re-designed to meet education and skills development needs... directing resources to improving quality and overcoming disparities in rural areas.

Climate change financing, given the synergy in objectives of enhancing skills and capacities and coping with climate vulnerabilities, should be designed and utilised for contributing to education, training and capacity building.

- *The richer countries fulfil their pledges to fill the resource gap for the poor countries; a combination of debt relief and increased aid should be provided to the least developed and other poor countries.*
- *The multilateral and international financial institutions' poverty reduction and climate change facilities should be designed to meet the resource requirements for education and skills development; resources should be directed to improving quality in this effort and overcoming disparities in rural areas.*
- *National poverty reduction strategies should be strengthened through equitable allocation and management of budgets, and greater accountability and participation of civil society organisations.*
- *National governments need to review priorities in public expenditures; and make a greater effort to mobilise domestic resources, applying criteria of equity (Oxfam and ActionAid: 1999).*

The bottom line is that there has to be a major increase in resources for rural education and skills development, with mobilisation from all sources along with better use of available resources. This increase need to occur within a re-ordering of national development priorities and strategies that recognises and aims at correcting the present disparities and imbalances between urban and rural areas.

In the diffused undefined landscape of skills development, it is almost impossible to estimate what resources are available for what purposes and how these are utilised. A systematic effort is needed at the local level to assess and estimate resource availability and needs which can be consolidated to derive an overall national and sub-national picture.

A major part of any new resources will have to be devoted to incentives for teaching personnel, and their training and supervision. Performance standards and assessment of the results of their work have to be established to justify the incentives.

Climate change financing, not only because it is a new source, but also because of the synergy in objectives and strategies of enhancing skills and capacities and coping with vulnerabilities, should be designed and utilised for education, training and capacity building. The aim should be to remove urban–rural disparities in opportunities in this respect. It has to be ensured, however, that the climate change resources for education and skills development are in fact additional and not mere replacement of "regular" external assistance and national allocations for these sectors.

National goals of poverty reduction and social equity in most developing countries call for significant increase in public resources for rural skills development. How much, precisely for what, how these should be matched or complemented with other sources are matters that have to be worked out on the basis of strategies and plans for rural transformation and skills development within that framework.

As the MDG and EFA historical milestone of 2015 is approached, progress and shortfalls are likely to be scrutinised and pathways for the future will be searched. In this scrutiny, how scarcity of resources have affected progress and how these can be overcome in the future have to be a prominent topic.

International and regional cooperation

The task of visualising rural transformation as a central component of national development and defining, designing and implementing the role of education in this effort has to be undertaken primarily in each country. In today's global village, however, there is an international dimension to every significant national endeavour.

The last decades of the 20th century has been characterised by a conscious effort to develop and articulate global views and goals on major common problems faced by humankind. These in turn have informed and influenced national goals and priorities. The EFA movement in the decade of the 1990s and its continuation in the new century represent a prime example of the interaction between global and national initiatives.

The international coalition of supporters and promoters

of EFA that has emerged in the last two decades, including international organisations, donor agencies, NGOs, professional groups, and communication and media agencies, have a special responsibility and the opportunity to move forward the ERT agenda.

UNESCO, the lead agency for education, culture and science in the United Nations system, the co-initiator of ERT and the focal point for the follow-up of EFA, is at an advantageous position to provide leadership in building a grand alliance for ERT. UNESCO can do so and help formulate the implementable action agenda in collaboration with international and national stakeholders in ERT.

The existing regional structures of cooperation and exchange in education and other relevant components of EFA should be mobilised to play their role in promoting the ERT agenda. The regional mechanisms have a special responsibility to bring out the common regional characteristics of EFA and ERT and facilitate exchange of experiences among neighbouring countries with similarities of conditions.

The contribution and comparative strengths of NGOs, national and international, in the area of education and related components of rural transformation have been discussed. NGOs, in line with their own mandates and priorities need to participate prominently at global, regional and national levels at forums for policy discourse and in carrying out activities in their respective spheres of interest as partners in the grand alliance for ERT.

UNESCO-INRULED, as the international centre with a mandate for research, education and training in rural education, and as the initiator of this report on ERT, has a special responsibility in advancing the ERT agenda. It needs to look at its academic, training and research activities in the light of ERT objectives. Its present and potential capacities and resources should be assessed and a plan for its development should be prepared with a focus on academic and research programme, advocacy and experience-sharing activities in support of the ERT agenda.

In summary, the needs and potential for regional and international cooperation in a number of areas merit special attention—sharing, learning and disseminating lessons through cooperation among countries, organisations and institutions; strengthening existing international cooperation mechanisms; and fulfilling rich countries' pledge of cooperation.

Learning from diverse experience and stages of development among countries

Diversity in development experiences and different levels of progress in skills development in the context of respective rural and national development scenario offer a special opportunity to share experiences and learn from each other. A systematic effort needs to be made through bi-lateral and multilateral channels and the channels of UNESCO and other international agencies as well as international NGOs for learning from the rich pool of country experiences.

International and national exchanges among civil society organisations

Civil society organisations and development NGOs concerned with education, rural development, poverty alleviation and sustainable development have their network and forums for promoting cooperation and sharing experiences. These efforts as well as exchanges among national NGOs and academic and research institutions within regions and across regions should be encouraged and supported. INRULED and UNESCO should consider how they can contribute to and facilitate this process.

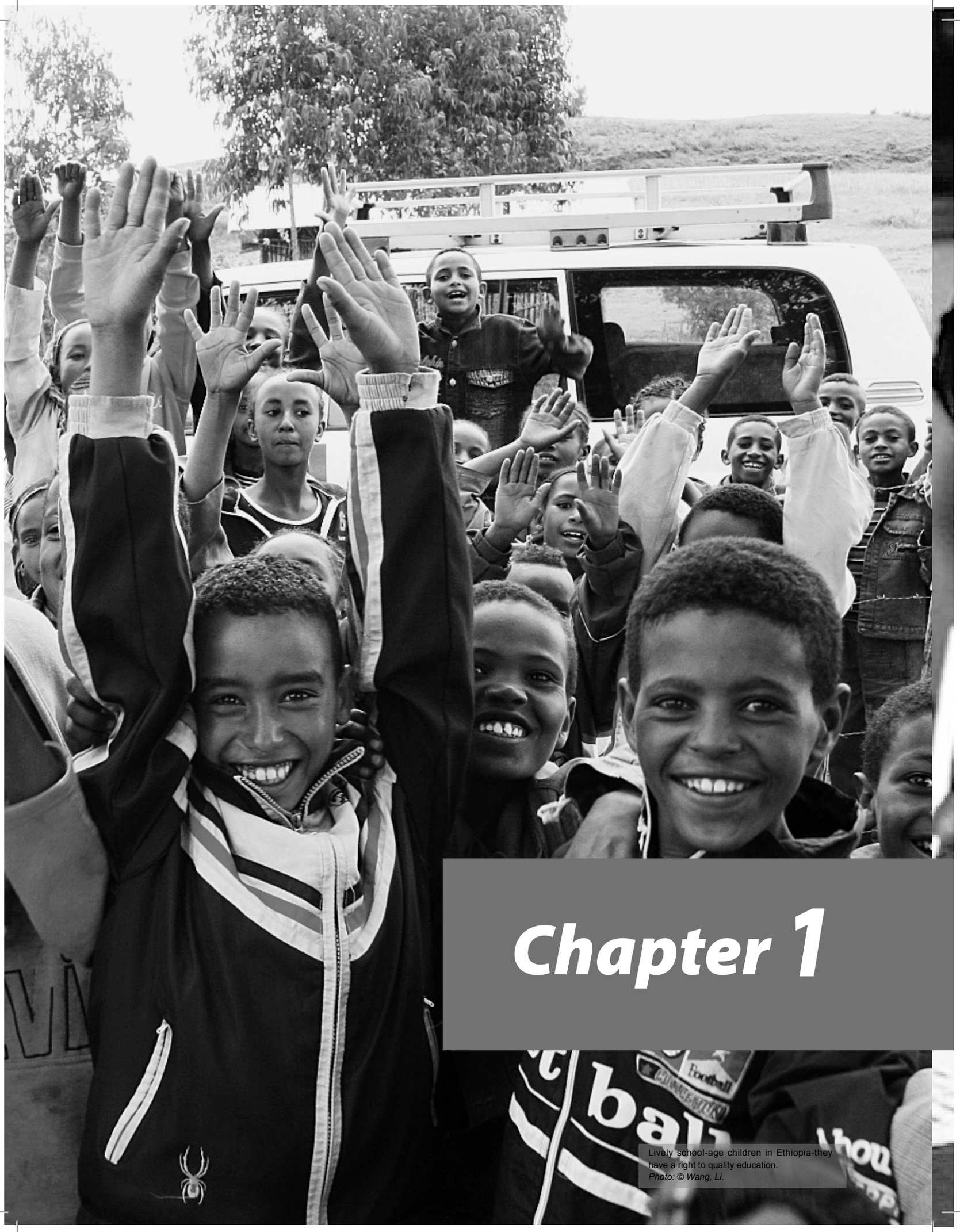
Priority to promoting cooperation and exchange through external assistance

Living up to the pledges of financial support for poverty alleviation, mitigation of and adaptation to effects of climate change and EFA by rich countries would be a vitally important expression of international cooperation and human solidarity. A small proportion of the promised resources would be well spent on promoting purposefully designed cooperation and exchange on skills development for rural transformation within regions and, when relevant, across regions, for mutual support to capacity building among countries.

The international EFA coalition has a special responsibility to move forward the ERT agenda...UNESCO can take a lead role in formulating an implementable agenda for action working with all stakeholders.

UNESCO-INRULED has a special responsibility in advancing the ERT agenda. It needs to look at its academic, training and research activities in the light of ERT objectives.

Civil society organisations and NGOs concerned with education, rural development, poverty alleviation and sustainable development in countries, regions and across regions should be encouraged and supported.



Chapter 1

Lively school-age children in Ethiopia-they have a right to quality education.
Photo: © Wang, Li.

Skills and Jobs for Rural Transformation—Why and What

Ethnic minority children at school in Gansu, China.
Photo: © Gansu Institute of Education.

Chapter 1

Skills and Jobs for Rural Transformation—Why and What

The rural societies …of the world… are undergoing a process of change unparalleled in history, whether in scale, speed or potential consequences for humanity as a whole. Such transformation is taking place in a context that is loaded with fundamental uncertainties: climate change; the impacts of growing scarcity of land and fresh water; the triple impact of the food, energy, and financial crises; and whether the human race will have the wisdom, will and capacity to engage in national and international collective action to avert disaster. Rural transformation is about human development and is not limited to the development of things…This rapid change in this context is creating conditions of enormous risk and vulnerability for rural people. At the same time whole new opportunities are emerging, linked for example to renewable energy, provision of environmental services, or food production.

"New Delhi Declaration on the Rural Transformation of Emerging Economies." International Conference on the Dynamics of Rural Transformation in Emerging Economies, New Delhi, India, 16 April, 2010. www.ruraltransformation.in

The World Education Forum (WEF) held in Dakar in April 2000 presented a framework of goals and strategies which reflected as close to a global consensus as possible on exploring and elaborating Education for All (EFA) plans and programmes in the developing world. It provided the basis for setting 2015 EFA Goals which were incorporated in the United Nations Millennium Development Goals for 2015. A decade earlier the World Conference on Education for All (WCEFA: 1990) had articulated the expanded concept of basic education as education that fulfils the basic learning needs of all. These basic learning needs "comprise both essential learning tools (such as literacy, oral expression, numeracy and problem-solving) and the basic learning content (such as knowledge, skills, values and attitudes) required by human beings to be able to survive, to develop their full capacities, to live and work in dignity, to participate fully in development, to improve the quality of their lives, to make informed decisions and to continue learning." It is very clear that rural transformation is not a goal that is exogenous to goals of education and building capacities of people or vice versa (UNESCO WCEFA and WEF and UN: 2000).

1.1 Rural People and Poverty

A tipping point in world population was reached in 2011. Of the 7 billion people on the planet, the city dwellers surpassed the rural people for the first time in human history in 2011 (Population Reference Bureau: 2011).

Much is made justifiably of the rapid pace of urbanisation of the world and the need to pay attention to the problems of the growing urban poor, providing for their basic services and livelihood and pulling them out of poverty. National development policies and strategies are being examined and re-directed in the light of the rapid urbanising scenario. The issues of sustainable development are being looked at from this perspective. So much so that the themes of rural development and the plight of the rural people, staples in development discourse until two decades ago, have almost disappeared from the main development agenda. Yet poverty is predominantly a rural phenomenon and will remain so for many decades in the future. Moreover, the galloping growth of the urban slum dwellers is intimately linked with what is happening in the rural areas.

While half of the world's population is now categorised as urban (the definitional issue is discussed below), the proportions assume altogether a different significance when the geographical distribution of poverty is considered. In the less developed countries of the world, as designated by UN, accounting for 85 percent of world's people, 55 percent of the population were rural in 2010. In the UN designated 48 least developed countries, the rural ratio was 71 percent. In Sub-Saharan Africa, India and China these proportions were high ranging from 55 to 70 percent in 2010. These proportions will change in line with the urbanisation trend, but by 2050, there will still be 45 percent of the people living in rural locations in India and the least developed countries and a full one-third in the developing regions in total (see Table 1.1). In absolute numbers, one-third of the population of the developing countries, who will live in rural areas and will depend on rural economy and livelihood in 2050, will add up to 2.6 billion.

Table 1.1 Rural Populations out of Total Populations (2010 and 2050)

Geographical Areas	Percentage in 2010	Percentage in 2050	Numbers in 2050 (million)
World	49.4	30.0	2,792
Less Developed Regions	54.7	33.0	2,619
Least Developed Countries	70.6	44.5	275
Sub-Saharan Africa	62.7	39.5	696
China	55.1	27.1	382
India	69.9	44.8	743

Source: UN Population Division. World Population Prospects, 2007 Revisions. http://esa.un.org/unup. 1 October 2011.

Why is the information about status and trend of population distribution between urban and rural areas critical for this study on the contribution of skills and jobs to fighting poverty?

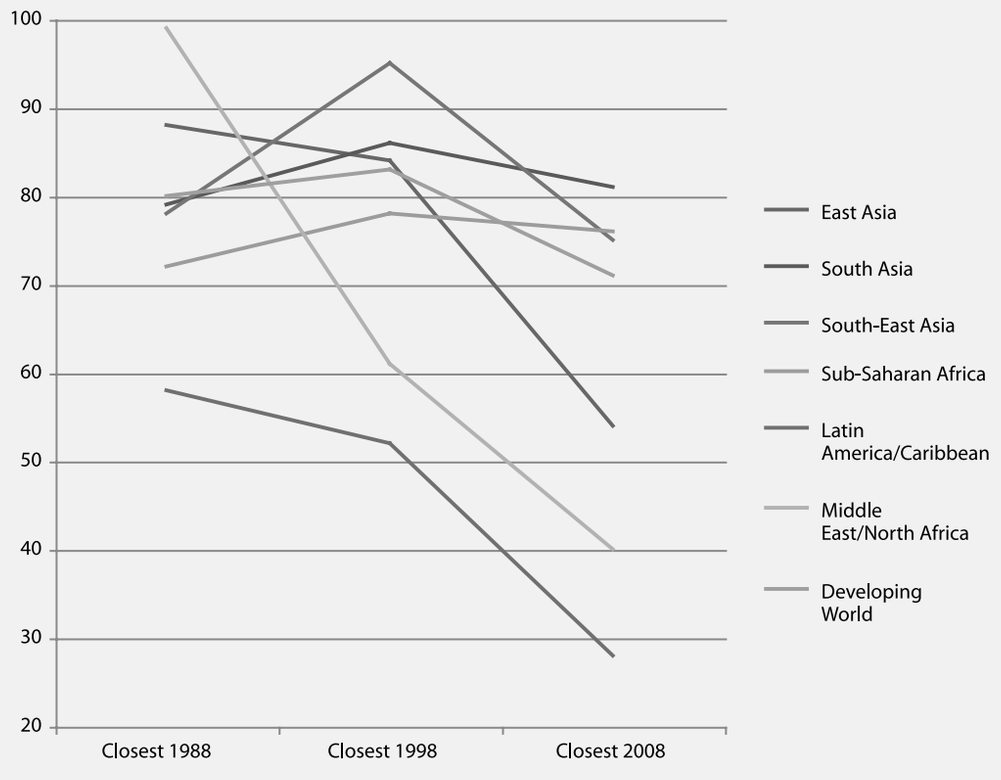
First, a lot of people, proportionately and in absolute numbers, as shown above, live in rural areas and will continue to do so in the foreseeable future. Policies, priorities and programmes for education, training, skills development and creation of jobs as key elements of the strategy for fighting poverty cannot ignore the special conditions and contexts of the rural people.

Second, there is a high coincidence of poverty and the

proportion of rural population in a country. As noted earlier, the less developed and the least developed countries, with a high ratio of rurality, by definition, are also the poorer countries in overall per capita income and in proportions of people under the "poverty line," however, this is defined in each country. As the IFAD World Poverty Report 2011 put it, "poverty remains largely a rural problem, and a majority of the world's poor will live in rural areas for many decades to come. ...Of the 1.4 billion people living in extreme poverty (surviving on the equivalent of less than US$ 1.25/day) in 2005, approximately 1 billion—around 70 percent—lived in rural areas" (p.47). They constituted 35 percent of the world's rural people. But, the remedy, as this study will attempt to show, does not lie in supporting an acceleration of urbanisation, neglecting the needs and potentials of economic and human development of rural areas and people as shown in Figure 1.1.

Third, urbanisation, which draws people out of rural areas, and builds new patterns of economic, ecological and social interaction between urban and rural areas, also creates a new dynamic of change for both urban and rural areas. The phenomenon of rural–urban migration, for example, is both a problem and an opportunity. A transformational process can be positive and mutually beneficial for urban and rural people, if a coordinated approach for economic and human resource development with a regional socio-economic and ecological development perspective can be adopted. This is considered further in the next chapter.

Figure 1.1 Rural Share of Total Poverty (Rural People as Percentage of Those Living on Less Than US$ 1.25/day)



Source: IFAD, Rural Poverty Report, 2011, Figure 2, p.47.

1.2 Rural Poverty and Vulnerability of People

The International Fund for Agricultural Development (IFAD) released its Rural Poverty Report 2011 in December 2010—its second report since the first published in 2001.

The basic premise of this report is that poor rural people find it very difficult to manage the multiple risks they face arising from their personal and household circumstances, the natural and climatic hazards, and economic and development factors at national and global levels. The rural poor, the majority in most countries, therefore, cannot seize the opportunities in agriculture and the non-farm economy alike.

The report re-iterated the familiar story. Despite massive progress in reducing poverty in some parts of the world over the past couple of decades—notably in East Asia—there are still 1.4 billion people living on less than US$ 1.25 a day, and close to 1 billion people suffering from hunger. At least 70 percent of the world's very poor people are rural, and a large proportion of the poor and hungry are children and young people. Moreover, widespread urbanisation and demographic changes will not change this situation in the near future. South Asia, with the greatest number of poor rural people, and Sub-Saharan Africa, with the highest incidence of rural poverty, are the regions worst affected by poverty and hunger, although levels of poverty vary greatly not just across regions and countries, but also within countries.

Participation in the rural non-farm economy—both wage employment and non-farm self-employment—is an important route out of poverty for growing numbers of rural people, but has remained neglected by policy-makers in many countries.

The report noted:

> Ten years into the new millennium, the challenges of addressing rural poverty, while also feeding a growing world population in a context of increasing environmental scarcities and climate change, loom large. Robust action is required now to address the many factors that perpetuate the marginalisation of rural economies. It needs to enable rural women, men and youth to harness new opportunities to participate in economic growth, and develop ways for them to better deal with this risk. Above all, this action needs to turn rural areas from backwaters into places where the youth of today will want to live and will able to fulfil their aspirations (IFAD: 2010, p.22).

The report argues for a more systemic approach to growth for rural poverty reduction and "a new approach to agricultural intensification that is both market-oriented and sustainable."

Four cross-cutting action areas are identified by IFAD:

- Improving the overall environment of rural areas with improved basic amenities and services;
- Improving capacity of poor rural people to manage many risks arising from personal circumstances, national and global factors and natural hazards;
- Strengthening individual capabilities through improved education and skills development and
- Strengthening the collective capabilities of rural people, building social capital, improving governance, promoting participatory practices and expanding their own membership-based organisations.

It can be concluded from the IFAD Rural Poverty Report that the issues raised a decade earlier still remain critical, while the magnitude and intensity of rural poverty have grown. The cross-cutting action areas proposed lent support to transformational changes, rather than a linear growth in rural areas in the face of novel dynamics of change.

The World Development Report 2008 published by World Bank spoke about three distinct worlds—the agriculture-based, the transforming and the urbanised—with a different agriculture for development agenda for each. In the agriculture-based countries, mostly Sub-Saharan Africa, agriculture-based productivity revolution in smallholder farming is seen as the strategy for reducing mass poverty and ensuring food insecurity. The transforming countries consist of most of South and East Asia and the Middle East and North Africa. For these countries, a comprehensive approach is proposed, "that pursues multiple pathways out of poverty—shifting to high value agriculture, decen-

tralising non-farm economic activity to rural areas and providing assistance to help move people out of agriculture …[through] innovative policy initiatives and strong political commitment" (p.1). In urbanised countries—most of Latin America and much of Europe and Central Asia—rural poverty can be reduced with smallholders becoming direct suppliers to modern food markets, good jobs created in agriculture and agro-industry and markets for environmental services introduced. Thus "agriculture's large environmental footprint can be reduced, farming systems made less vulnerable to climate change, and agriculture harnessed to deliver more environmental services" (World Bank: 2007, p.2).

The World Bank Report appropriately makes the point that the large majority of the poor people in the world depend on agriculture for their livelihood; and therefore, agriculture continues to be a key instrument, not only for food security, but also for reducing poverty, and promoting sustainable development. It is of paramount importance that the right strategies are devised and applied for agricultural development. The neat categorisation of the three worlds and distinct strategies for each presented in the report and used as the frame for laying out the arguments for policy direction, however, appear to be simplistic. Although rhetorically attractive in emphasising certain messages, it ignores the complexity and diversity of the country situations within each category. It, therefore, is liable to provide justification for and lend support to solutions and strategies that will not work because they ignore key aspects of the complex realities. As already noted and will become progressively clearer in this report, a transformative view needs to be taken for all the categories mentioned and "a comprehensive approach that pursues multiple pathways out of poverty" is necessary in all countries, though the components of the comprehensive approach and their packaging for each country will vary. In fact, it can be argued that strategic elements mentioned for the "transforming" countries are highly relevant for the "agriculture-based" countries, and vice versa, to a degree.

1.3 Vulnerabilities and Opportunities

The interacting concerns about the tensions between production and the environment, the urban–rural economic and social distance, regional imbalances and the overarching human development gaps were highlighted in the international conference on Dynamics of Rural Transformation in Emerging Economies, which took place on 14–16 April 2010 in New Delhi, India. Particularly under scrutiny were domestic and international dynamics that affected the rural people of India, China, Brazil and South Africa, where 25 percent of the world's population live and where most of the world's natural resources are located.

It was emphasised that the process of change in rural areas is made ever more complex by the heavy weight of legacies from the past of poverty, inequality and injustice, the dual agrarian structures of subsistence and commercialised farming, lack of rights and social marginalisation of large groups of rural people, including women and other disadvantaged populations; lack of access to health, education and other basic services for rural people; and insufficient private and public investment resources for rural areas.

It was concluded that despite the burdensome legacy, there have been impressive achievements in the emerging economies. Progress could not be uniform among and within countries, but hundreds of millions have been lifted out of poverty and food production has increased many times over since the famines of the late 1950s and early 1960s. There is greater public awareness about protecting natural resources and ecosystems, and many more young girls and boys are going to school compared to previous generations. Governments are more accountable to citizens and civil societies are more active.

The conference participants in Delhi envisioned an agenda for rural transformation that is about development of people, rather than simply the development of assets. This agenda included three policy pillars:

- Heavy investments to make inclusive, sustainable and diversified rural development happen;
- Improved governance systems, institutions and policy processes; and
- Improved efficiency and effectiveness of public policy and programmes.

The core of the rural transformation agenda is defined by the imperatives of reducing poverty and inequalities, inherited from past policies and social structures, and the new poverties, gaps and inequalities being created by the process of rapid change itself in each country and globally.

Rural change would be easy if it was only a matter of "bricks and mortar" and of spending more money, but it is widely accepted that rural transformation cannot be achieved unless it is backed up by much better governance than witnessed so far—characterised by effective institutions, social accountability and participatory policy processes.

The third pillar is about ensuring that the gap between outlays and outcomes are narrowed—allocating resources effectively and transparently and improving approaches to targeting and social control of public investments.

The rapid changes brought about by the confluence of domestic and global forces, and the need to redirect the changes in line with the rural transformation agenda, demand new knowledge, skills, and capabilities on the part of individuals, enterprises, organisations and communities, along with new and better service provision (New Delhi Conference: 2010).

1.4 Why "Rural Transformation"?

In 2001, a report published by INRULED titled "Education for Rural Transformation: Towards a Policy Framework" made a plea for rethinking education in rural areas and rural people with a focus on "rural transformation."

The term rural transformation—rather than rural development, rural change or rural education—was used advisedly to convey a vision of proactive and positive process of change and development of rural communities in the context of national and global changes in which education is seen as a key instrument for shaping and fulfilling the goal of rural transformation.

The report focused on the links between education and rural transformation, seeking to underscore the inexorable forces of change rural communities face and how education, by equipping people with appropriate knowledge, skills and fostering values of human dignity, can expand their choices and capabilities to exercise these choices.

Rural development: the changing paradigms

Policy-makers and the development community have widely used the phrase "rural development." What constitutes rural development seems to have evolved since the 1950s along with the thinking about the meaning and purposes of national development. In fact the concept of rural development has witnessed several changes over the last five decades. It has evolved along with changes in perspectives on economic development and has been closely associated with and impacted by the evolution of economic growth theories. In the 1950s, the focus of economic development was to increase gross national product (GNP).

In the early to mid-1960s, with industrialisation still viewed as the main vehicle growth of GNP growth, agriculture was seen as an engine of growth for developing countries that could increase food production and provide employment for the growing rural labour force. The focus seems to have been driven primarily by the interests of industrialisation to extract surpluses from the agriculture sector to reinforce industrialisation. The emphasis, therefore, was on agricultural intensification through higher inputs including high-yielding seed varieties, irrigation, fertilisers and pesticides (Paudyal: 2007, pp.1–16).

In the 1970s, the re-distribution of income for meeting the basic needs of all (food, health, shelter, clothing, education, safe drinking water, sanitation and so on), particularly the poor, became the prime focus of attention of policy-makers. In this paradigm of development, employment generation was given the top priority and was considered a vehicle for the equitable distribution of income in achieving the social goal of providing basic services to the poor. National governments were held responsible for the delivery of basic services to the poor making governments critical in ensuring these services. Integrated Rural Development (IRD) became the main thrust of rural development particularly in the Asia-Pacific region.

IRD or its variants, integrated area development or integrated agricultural development, became an umbrella for rural development activities with somewhat differing focuses and implementation mechanisms in countries, such as Bangladesh, India, Malaysia, Nepal, Pakistan, Philippines, Thailand and

Vietnam. The approach was designed to improve the economic and social life of the rural poor. Four major factors influenced the focus and thrust of this approach: increased concerns about the persistent and deepening of rural poverty; changing views of the concept of development itself; emergence of a more diversified rural economy in which rural non-farm enterprises play an increasingly important role; and increased recognition of the importance of reducing the non-income dimensions of poverty to achieve sustainable improvements in the socio-economic well-being of the poor (Ravallion, Chen and Sangraula: 2007, pp.667–701).

At the risk of some simplification of complex issues, it can be conclude that the IRD approach, on the whole, did not achieve the expected results. The combination of poor coordination, weak delivery of services, incompetence and corruption in the public sector and the depth and extent of rural poverty itself raised the issues of "governance failure" in coping with the seemingly intractable problems. Increasing external debt and the new neoliberal approach of structural adjustment, prescriptions of "slim government," and the persistent sectoral character of bureaucracy gave a further push to the marginalisation of rural development (Paudyal: 2007).

Subscribing to the validity of the goals of rural development and in the effort to overcome the constraints to pursuing these, in the 1990s, emphasis shifted to private sector-led growth with a reduced role of government in business and development. The government was seen as having an increased role in creating an enabling environment for the smooth functioning of the market and private sector through appropriate regulations and good governance. Likewise, the role of non-government organisations (NGOs) and civil society was emphasised in poverty alleviation and rural development.

The globally endorsed Millennium Development Goals adopted in 2000 have reinforced the concerns about non-income poverty. The paradigm of broadly defined "development" has lent new saliency to the concept of rural development. It has become essential to consider the questions—what and why as well as how of comprehensive and inclusive rural development (Ellis and Biggs: 2001). It has also become pertinent to revisit the concept of integrated rural development and re-examine the experiences in this respect.

From "development" to "transformation"

It has to be emphasised that a transformative view of rural change is not a contradiction of the general notion of rural development. Rural transformation is all about seeking to bring about improvement in the living condition of the farmer, the artisan, the tenant and the landless in the countryside. It is about enabling specific groups of people, rural women and other disadvantaged segments of the population, to gain for themselves and their children more of what they want and need. It involves helping the poorest among those who seek a livelihood in the rural areas to demand and control more of the benefits of development. It does subsume the core ideas of rural development concerned with improving the well-being of rural people by enhancing their productive capacities, expanding their choices in life and reversing public policies that discriminate against the rural poor, as underscored in an FAO and UNESCO (IIEP) joint study (2003, p.21).

The notion of transformation is consistent with rural development literature that emphasises agrarian change, integrated national development without marginalising rural people and rural economy. It recognises the political economy of national and rural development interaction. In the extensive rural development literature, the writing on rural transformation draws from the theory of social change—theory and practice informing each other in the context of global mega trends that also affect the remotest rural community.

Millions have been lifted out of dire poverty in the recent decades through rapid economic growth, especially in East Asia, in the image of the West. At the same time, there are many counter-trends, with millions of the marginalised more in danger than ever as local livelihoods, patterns of diversity and eco-systems disappear under forces of change that are seemingly out of control and beyond comprehension of the affected people. The globalising and homogenising world produces winners and losers, with the marginalised and the voiceless, who ironically are not small minorities, paying the heaviest price. This is a situation that merits to be described by the over-used term crisis—a crisis in thinking and action about development.

As Doug Reeler of Community Development Resource Association in South Africa put it, "Left alone, crises do get unconsciously resolved over time, tragically or happily or somewhere in-between. But they can also be more consciously and proactively resolved through well-led or facilitated transformative change processes" (Reeler: 2007, p.12). Reeler asserts that the real work of transformative change is facilitating new learning as well as unlearning—building appropriate and relevant skills and capacities of disadvantaged people (ibid.: 2007, p.12).

Robert Chambers and others have made the case for probing and thinking beyond a unidirectional logic of market-based globalisation as the motor of rural development and looking for ways to promote multidimensional transformation (Chambers: 2003, pp.108–126; also see Brookfield: 2008).

Researchers have noted that "heterogeneous transformative patterns" explain the reality of rural areas better and is the basis for an appropriately nuanced theoretical language (Koppel and Hawkins: 1994, p.20). Drawing on studies in Bangladesh, China, India, Indonesia, Malaysia, the Philippines and Thailand, Koppel and colleagues saw two problems—a conflation of rural with the agriculture sector and the determinism of a unidirectional process of rural transition—that contributed to a narrow perspective of rural development (Gibson *et al.*: 2010; Koppel and Hawkins: 1994, pp.20–22). They are not satisfied with the argument that the growth of non-farm work by the release of a surplus workers into a diversified non-farm sector as sufficient evidence of "development." Nor do they accept the interpretation that presents "the growth of non-farm work as a desperate attempt to stave off rural out-migration, evidence of high agrarian population growth, stagnant agricultural productivity, increased inequalities in access to land and growth of the rural landless" (Koppel and Hawkins: 1994, p.20).

Since the economic reforms of 1978, rural development in China has been characterised by three broad strategies: implementing a household responsibility system, developing township and village enterprises (TVEs) and building a new countryside. These strategies have resulted in dramatic changes in the life of rural people—their lifestyles, employment and production structures, community organisation, culture and transport accessibility (Goodman: 2008; Long *et al.*: 2010; Zhang, Rozelle and Huang: 2001). The scope, depth and dimensions of these changes cannot but be described as transformative. The remarkable outcome of this transformation is the lifting out of poverty of people, rural and urban, on a scale and in a time frame unprecedented in history. At the same time, it has created large regional imbalances in economic development, a widening of the prosperity gap between urban and rural areas, and social tensions (Cai and Smit: 1994; Long *et al.*: 2010). By one estimate, "the income gap between rural and urban residents has increased from 2.57 to 1.0 in 1978 to 3.31:1 in 2008, and this trend has strengthened since the turn of the new millennium" (Long *et al.*: p.2011 and p.1095).

Because of the magnitude of changes in traditional rural industries, the employment and consumption structures and the social structure in rural areas, the process of change is described as rural transition development (RTD). "These changes signify a transformation from previously isolated urban and rural economic structures toward more coordinated urban-rural development. Such transformation radically changes the urban-rural relationship and the relationship between agriculture and industry" (Long *et al.*: 2010, p.1096).

Long and colleagues at the Chinese Academy of Sciences attempted to apply a methodology to diagnose RTD in a given region that involved measuring the rural development level (RDL), the rural transformation level (RTL) and the urban–rural coordination level (URCL; Long *et al.*: 2010, p.1096). They concluded that:

> [Despite spectacular economic growth]…the urban-rural coordination development status in China has not improved. Rather, it has continuously deteriorated as a result of rapid industrialisation and urbanisation processes since the beginning of the 21st century, especially in eastern coastal China. More powerful measures to fuel RTD, such as strengthening financial and technological support from industry and urban areas to agriculture and rural areas, are needed to reverse the trend of agricultural deprivation (ibid., p.1104).

Today's rural economy and systems of social organisations

in rural areas in the developing world are much more diverse, complex, sophisticated and global than those of the last century and are recognised to involve multilevel, multiactor and multifaceted processes (Kennedy, Thomas and Glueck: 2001; Muilu and Rusanen: 2003; Rizov: 2004).

In short, the linear and dichotomous view of the rural identity in terms of agriculture to industry, non-market to market, rural to urban, family work to wage labour and human to mechanical labour has to be abandoned in favour of a heterogeneous and multidimensional transformation view of the rural scene in mutually beneficial interaction with the broader national reality. The concept of rural transformation embraces a positive and proactive position in theory and practice that recognises the possibilities and opportunities in diversity and complexity of rural communities, sustainable livelihood and ecology, vulnerability with resilience, interdependence of development and reshaping of socio-cultural organisations, leading to well-being and dignity of all including the rural people. Learning and building skills and capacities of people are recurrent themes in this scenario (see Box 1.1).

1.5 Heightened Relevance of Education for Rural Transformation (ERT)

The INRULED report mentioned earlier argued that goals set globally—for example, MDG and EFA by 2015—and by individual nations for education and development in the 21st century cannot be realised without giving special attention to the situation of rural populations in developing countries.

Box 1.1 Rural Development and Rural Transformation: Contrast in Perspectives

The template of contrasts will not fit neatly any real situation, but is useful as an analytical and conceptual tool that would help to think differently about rural and urban conditions and to consider a wider range of policy objectives and strategy options. It is assumed that "rural development" indicates a relatively conventional, less dynamic and more limited change in rural communities and locations, whereas "rural transformation" implies dynamic change on a broader front that emphasises the continuing interaction between urban and rural areas. These terms may not actually be used by most people in the restrictive way they are defined, but whatever terminology is preferred, it is useful to think about a continuum of change to describe circumstances and a spectrum of options and possibilities that exists. The parameters of change related to the two views of rural change are indicated below.

Parameters of change	Rural Development	Rural Transformation
Nature of change	Relatively linear, incremental, relatively limited scope	Non-linear, dynamic, multidimensional
Employment structure	Emphasis on farm to non-farm	Change in nature and structure of jobs in farm, non-farm and services activities
Labour and work	Emphasis on human to mechanical; market-determined	A mixed picture depending on context; mechanisation balanced by productivity, job creation and improvement of working conditions
Education and training	Basic general education and training with ruralised curricula	Varied education and training opportunities at all levels to widen options for rural youth in rural and urban areas
Skills development	Focused on rural occupations and specific productive skills in rural activities	Wider skill development options facilitating occupational and geographical mobility and broader life skills, personal/ social skills for changing labour markets and self-employment
Demography	Declining rural population, major one-way flow of out-migration, higher dependency ratio with greying of population	Complex mobility, both occupational and geographical, temporary and longer term; not totally one-way outward flow; mixed demographic profile with emerging scenario of interconnected rural communities, small towns, market and service hubs and larger cities
Organisations, institutions, governance	Local government with some devolution of tasks and authority focused on agriculture, local development and local services	Multiple governance structures—community, local, regional for different purposes with decentralisation to allow authority and accountability; variety of social organisations and networks for citizen participation
Development planning orientation	Separate for rural and urban; rural focused on local economy, infrastructure and services	Multiple structures for planning with strong emphasis on territorial and regional integrated planning of economy, infrastructure and services for both rural and urban populations and areas which are not fixed and permanent categories

It pointed out that breakdowns of numbers for rural areas on education indicators were often not reported—a sign of neglect of the problem—while urban–rural disparity in educational investments and in the quality of teaching and learning was widespread and persistent.

It was emphasised that in the efforts to achieve the global and national goals, the paramount need, largely neglected so far, was to adapt strategies and direct resources to the specific conditions of diverse and changing rural communities. It was essential to turn the continuing and inevitable transition of rural areas, the environment and people's life, into an active and positive force for transformation of rural communities.

The aim of the 2001 report was to initiate a dialogue and help develop a framework for policy to make education the vehicle for rural transformation. The challenge of education in serving rural transformation must become one of the main themes of the education for all effort, it was said. Not taking up this challenge was to imperil the total education for all effort, it was affirmed. It was agued by the report that the solutions to the problems of poverty and deprivation in rural areas and their spill-over into urban areas did not lie in trying to prevent urbanisation and to keep rural people confined to rural areas—which would be impossible in any event. Nor was it a realistic option to promote the mythical autarky or self-sufficiency of rural communities.

Almost a decade later, in November 2010, an international symposium on education for rural transformation, with the theme of national, international and comparative perspectives and lessons in ERT, was hosted by University of Stockholm. The concluding statement of the symposium pointed out:

> In the decade since the UNESCO/INRULED study, the urgency has heightened further for paying attention to rural transformation and making education the vehicle for this transformation. New sources of vulnerability for the poor, especially the poor people in the rural areas, have arisen… graphically illustrated by the recent economic crisis originating in the financial markets of the West but affecting poor people everywhere; new threats to food security of people; and man-made and natural disasters including effects of climate change endangering life and livelihood of millions. These hazards affect disproportionately the rural people, because more of the poor are them.

The symposium noted that the UN General Assembly's review in September 2010 of progress towards 2015 MDG had concluded that many of the MDG goals including those for education, that envisioned a new future for humanity in the 21st century, could not be fully achieved. A reason for this was the fact that a large proportion of the rural people in the developing world remained deprived educationally, missing the opportunity to acquire the skills and knowledge to develop their capabilities and expand their choices in life.

The symposium drew attention to the structural problems of the global and national economies inherent in the dominant development model of unlimited consumption. This is manifested in diminishing share in GNP of agriculture and rural production in China and India and other developing countries, while more than half of the economically active people remained dependent for their livelihood and well-being on agriculture.

An even larger structural challenge, the symposium noted, lay in the economic development goals and aspirations of China and India and the rest of the developing world. These are premised on the consumption habits and patterns of North America and Europe, dependent on ravaging the non-renewable resources of the planet. This is unsustainable and would lead to the collapse of the system of natural and biological balance of resources of the planet. The symposium asserted that rural transformation, even if it is not fully recognised yet, has to be the epicentre of a tectonic shift in thinking and action. But this shift in vision and action would not happen by natural force like the physical tectonic shift. People and nations have to will it and work for it.

The participants in Stockholm agreed that the dynamics of rural transformation in the "globalised" world of the 21st century created new educational imperatives which went beyond the traditional concerns regarding rural communities and needed special attention and looking at it with a new pair of lenses. The general conclusion from Stockholm was that in the discourse on policy and strategy and, more

importantly, in action, we did not move very much from where we were in 2001. Meanwhile, the challenges became more acute and urgent.

The conclusions from Stockholm echoed the advocacy a decade earlier for a new policy perspective for education in rural areas to make education the vehicle for rural transformation. The focus on rural transformation called for recognising new dimensions in the criteria for judging quality and relevance of educational activities. The rapidly changing rural scene and the dynamics of rural–urban interaction required flexibility and creativity in educational programmes, not often found in the conventional formal system.

The concerns and priorities of rural people and the transforming rural communities needed to figure specifically and prominently in the educational responses to the contextual trends and influences that have a bearing on national education systems. For example, the human rights perspective, human development imperatives of education, effects of the new information technology and the crucial importance of pursuing sustainable development objectives needed to be assessed from the point of view of advancing rural transformation.

The same arguments were made a decade apart that rural people and rural areas were not homogeneous in any country, not to speak of a whole region or the world. Educational activities had to respond to diverse needs of building skills and capacities for seizing economic opportunities, improving livelihood and enhancing the quality of life in diverse rural circumstances. The major educational system issues of access, equity, quality, relevance and efficiency, had to be re-examined from the point of view of the changing rural scenarios. The vitally important concept of the learning society could become real only when every village and hamlet became a learning community with lifelong opportunity for learning for all in the community.

1.6 Understanding "Rural"

Before delving into the specificities of rural transformation and development, it is necessary to reflect on the meanings of the term "rural" in the contemporary context. Varied and somewhat arbitrary definitions are used by different countries to categorise populations and geographical areas as urban or rural. A common criterion is a concentration of persons in a cluster of households with a cut-off point, for example, 5,000 in India. It may be 2,500 persons as in Mexico or 10,000 or more as in Nigeria. Other countries, Brazil and China, for example, use various characteristics such as metropolitan facilities leading to a declared legal status rather than a population number. The common features that characterise "rural communities" include the following:

- People and economic activities are much more dispersed than in urban areas;
- Livelihood is largely dependent on growing and extracting primary products; and
- Access to basic social services is rudimentary or limited because of the absence of a concentration of service recipients and policies that favour urban areas (INRULED: 2001).

For the average person, rural is a subjective concept that conjures up images of small towns, farmlands and forests. For others, rural is an objective, quantitative measure that is clearly defined. As mentioned, generally the definition of rurality includes two elements, namely, the measurement of spatial areas, and the measurement of that area's population and its characteristics. Most definitions start with population density as a foundation, and add other factors, such as commuting patterns or the total population, to fit specific needs.

The joint UNESCO-FAO study proposes defining "rural area" on the basis of the following characteristics (Atchoarena and Gasperini: 2003).

- A space where human settlement and infrastructure occupy only a small share of the landscape;
- Natural environment dominated by pastures, forests, mountains and deserts;
- Settlements of low density (about 5–10,000 persons);
- Places where most people work on farms;
- The availability of land at a relatively low cost and
- A place where activities are affected by a high transaction cost, associated with long distance from cities and poor infrastructures.

Because of national differences in the characteristics that distinguish urban from rural areas, the distinction between the urban and the rural is not yet amenable to a single definition that would be applicable to all countries. Countries have established their own definitions in line with their own need (see Box 1.2).

Box 1.2 Naming Rural and Urban Areas: The Indian Case

In the Census of India 2001, the definition of urban area adopted is as follows:

- All statutory places with a municipality, corporation, cantonment board or notified town area committee, etc.
- A place satisfying the following three criteria simultaneously:
  (I) a minimum population of 5,000;
  (II) at least 75 percent of male working population engaged in non-agricultural pursuits; and
  (III) a density of population of at least 400 per sq. km. (1,000 per sq. mile).

All population not classified as urban constitutes the rural population.

Source: Indian Population Census, 2011.

In the censuses of a large number of Sub-Saharan African countries, rural is defined by "deprivation" characteristics, rural being a landmass without access to continuous electricity, water, and certain public services. From an economic perspective, particularly, the marketers in the private sector, rural is defined as pastoral and as a mass of people who derive their income from the lands they till or use to raise their cattle and livestock. For still others, rural is not a geography; it is a mindset.

Urban–rural classification of population in internationally published statistics follows the national census definition, which differs from one country or area to another. These statistics follow the criteria that usually include any of the following: (i) size of population in a locality, (ii) population density, (iii) distance between built-up areas, (iv) predominant type of economic activity, (v) legal or administrative boundaries and (vi) urban characteristics such as specific services and facilities.

Where size is not used as a criterion, a defined locality is the most appropriate unit for classification for national purposes as well as for international comparability. If it is not possible to use the locality, the smallest administrative unit of the country is used. It has to be noted that in the face of rapid growth of urbanisation and demographic and other changes in both rural and urban areas, the categorisation of communities and people as urban or rural has to be viewed in a dynamic context.

1.7 Defining the Agenda for Education and Skills for Rural Transformation

In 2000, the Dakar Framework for Action for Education for All (EFA) set two goals related to skill development, adult learning and lifelong education.

Goal 3 was: Ensuring that the learning needs of all young people and adults are met through equitable access to appropriate learning and life skills programmes.

Dakar Goal 4 was: Achieving a 50 percent improvement in levels of adult literacy by 2015, especially for women, and equitable access to basic and continuing education for all adults.

The commentary on this goal in the Dakar Framework document mentioned that "All young people and adults must be given the opportunity to gain the knowledge and develop the values, attitudes and skills that will enable them to develop their capacities to work, to participate fully in their society, to take control of their own lives and to continue learning."

The commentary mentioned "young people and adults" but the emphasis was on youth and adolescents, who did not continue or participate in formal education. It spoke about young people, especially adolescent girls, who "face risks and threats that limit learning opportunities and challenge education systems" (UNESCO, "Expanded Commentary," Dakar Framework for Action: 2000).

Goal 4 and the related commentary indicated targets for literacy and the kind of actions that might be pursued by countries to achieve these goals, but there was no attempt to specify or quantify the goals and targets related to goal 3 on skill development.

A close reading of the two EFA Goals and their elaboration suggests an attempt to differentiate the purposes to be served by the two goals—in terms of content, objectives and learners. This attempt seems to have created an untenable dichotomy. The life skills and lifelong learning goal

is not quantified; it refers to learning content and objectives.

The adult literacy goal, on the other hand, emphasises the mechanics of literacy skills, equipping learners with literacy as an instrument. Having acquired this instrument, the learners may continue to participate in education. The somewhat narrow and restrictive view of literacy skills, and its separation as a goal from that for life skills and lifelong learning appear to have caused a lost opportunity to place literacy and adult education firmly within a common framework of lifelong learning that is purposeful for each learner (ibid.).

The above observation is not just a speculation based on semantics of the Dakar documents. The Education for All initiative proclaimed in Jomtien in 1990, and the subsequent Dakar Framework in 2000, have influenced policy-making and programme strategies in developing countries. The weakness in coherence in definitions and concepts of adult learning, skill development and lifelong learning and their relationships remain widely prevalent with adverse consequences in many countries. The tension about a segmented view of literacy and skill development and their place as components of lifelong learning is more evident in countries where access to basic education with acceptable quality remains a serious problem than in countries where major progress has been made in expanding basic education opportunities. These latter countries have had a longer experience in developing a wide array of literacy, non-formal and continuing education activities and skill development programmes which are the building blocks of lifelong learning (Ahmed: 2009).

Other writers have observed that the lack of clear quantitative targets for goal 3 and the ambiguity concerning the language of the commitment to the goal stymied monitoring of skill development through the Global Monitoring Report (GMR: 2010, p.10) mechanism of EFA (King and Palmer: 2010).

GMR 2010 examines the issue of reaching and teaching skills to the most marginalised and is critical of "a vague aspiration...[that]...has been the subject of quiet neglect" (p.76). It comments on the central importance that learning and skills play in the global knowledge-based economy, both with regard to economic growth and poverty reduction. It asserts that the global economic crisis has pushed youth and adult skills and learning, goal 3, to the centre of the EFA agenda. It promises an extensive treatment of skills, especially goal 3 of EFA, in GMR 2012.

The triad of equity, quality and efficiency

The INRULED report, looking more broadly at EFA and skill development, noted, that the overarching EFA issues identified in Jomtien and Dakar could be described as the triad of (i) access and equity, (ii) quality and relevance and (iii) efficiency and accountability. The dynamics of rural transformation in the "globalised" world of the 21st century created new educational imperatives which required that the EFA triad of equity, quality and efficiency is examined in new ways with special attention to:

- Increasing opportunities for post-primary and secondary education, with countries recognising it as a part of basic education;
- New and expanded opportunities for vocational and occupational skill development relevant to changing rural needs;
- Re-orienting and giving a higher priority in tertiary education to serving the dynamic needs of rural development;
- Revisiting national educational development priorities with a focus on overcoming the urban–rural educational disparities;
- Re-examining the purposes and content of education in the light of the 21st century realities and challenges for integrated national development, that takes into account the needs of rural populations; and
- Urban–rural digital divide and making better use of ICT for combating education, knowledge and information disparities.

Building the Learning Community

The learning needs of rural communities, it was emphasised, had grown more diverse, more complex and more demand-driven, which required a lifelong learning approach and building every community as a learning community. At a minimum, services of acceptable quality were demanded in (i) early childhood care and education, (ii)

quality primary education for all, (iii) second chance basic education for large numbers of adolescents and youth who miss or drop out from primary education, (iv) literacy and continuing education for youth and adults, (v) production, vocational and entrepreneurial skill development and (vi) skills, knowledge and information for improving the quality of life.

ERT—Developing the Agenda for Action

The report tried to ring an alarm bell. It proposed the outline for action agenda. It pointed at themes and propositions which needed urgent attention. These included:

- Closing the resource gap in education, especially in rural areas;
- Reflecting rural concerns in EFA implementation strategies;
- Redesigning educational statistics and educational management information systems to better reflect the rural realities;
- Facilitating transfer, adaptation, dissemination and use of appropriate technologies from rich to poor countries and to rural people;
- Bringing the benefits of information and communication technology to rural people;
- Moving from rhetoric to action to build the learning community in rural areas; and
- International and regional actions to articulate, build the constituencies of support, learn from each other and plan and guide follow-up activities to promote the ERT agenda.

UNESCO-INRULED decided to examine closely the issues of skill development within its broad mission of exploring concepts, policy and practices in education for rural transformation. The confluence of global forces and national situations, especially in the poorer countries and regions of the world prompted UNESCO-INRULED to take this decision. These forces and factors include persistent and growing gaps between supply and demand for jobs and employment for young people, growing vulnerabilities and risks for poor people, threats to food security and the urgency of building a sustainable green future—prompted UNESCO-INRULED to take this decision.

As noted, the Education for All (EFA) Global Monitoring Report (GMR) for 2012 devoted to skills development to be published in 2012. UNESCO is engaged in preparing a World TVET Report, as the background which will be the main document at the Third World Congress on TVET, scheduled for Shanghai in May 2012. The present study intends to complement and supplement these and other recent and new initiatives and contribute to the ongoing discourse by approaching the question of skill development and its translation into jobs and well-being of people from the point of view of rural people, more specifically, the perspective of education, training and capacity building for rural transformation.

This introductory chapter has referred extensively to the 2001 report on Education for Rural Transformation, because the aim of this study is to take off from and zoom in on the skill development issue in relation to a broad vision of rural and urban integrated development inherent in the concept of rural transformation. The intention is not to rehash old arguments and positions. Out of the ERT priorities that need "urgent attention" mentioned above, the directly and specifically pertinent item is to create "new and expanded opportunities for vocational and occupational skill development relevant to changing rural needs." Out of the suggested operational agenda for ERT the pertinent items that may be underscored are: closing the resource gap in education, especially in rural areas; reflecting rural concerns in EFA implementation strategies; facilitating transfer, adaptation, dissemination and use of appropriate technologies from rich to poor countries and to rural people; and moving from rhetoric to action to build the learning community in rural areas.

It should be emphasised, however, that focus on skills and picking out some items of the operational agenda do not mean that these can be implemented in isolation and the other items mentioned above can be ignored. The basic premise behind the idea of rural transformation is the interconnectedness of both causes and consequences and thus the need for a holistic view, even when a specific problem area is the focus. This point has been made above, and it is hoped, the implications will become clearer in the following chapters.

1.8 The Structure of the Report

This report is divided into five chapters preceded by an overview. The overview, emphasising challenges and policy implications, summarises conclusions and key messages from the report. It recapitulates policy messages and recommendations about the required national, regional and international actions and the UNESCO-INRULED role.

This introductory chapter, following the overview, lays out the rationale and concept of rural transformation based on the 2001 report, but takes into account new and emerging issues or issues which have become more prominent—such as food security, the green economy and increased urgency of jobs and employment in combating poverty, especially in rural areas. The justification for a heightened concern about skills and jobs and its place in rural transformation is presented. This chapter sets the stage for the rest of the contents of the book.

Chapter 2 is titled Education, Training and Skills to Combat Rural Poverty. This chapter spells out the broader issues of skills development and capacity building of people through, formal, non-formal and informal means. The issues of relevance and characteristics of education, training and capability needs in the context of changing paradigms of rural development are discussed. Rural occupational categories and skill needs are examined. Current premises, provisions and practices regarding skills development are considered. Attention is given to rural out-migration, the situation of youth and engendering skills and jobs as cross-cutting issues.

Chapter 3 is about skills and jobs for food security. Trends and scenario for agricultural development and food security are presented. Food and food-related skills, jobs, economics and the implications for rural transformation are considered. Conditions and policy directions for skill formation and job creation to promote food security and agricultural development of the "right" kind are summarised.

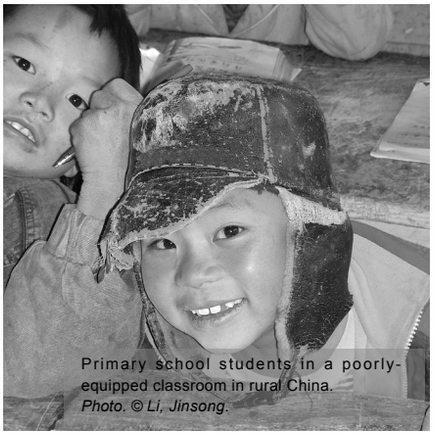
Chapter 4 deals with skills and jobs for the green future. Trends and scenario for the green economy and emerging issues are considered. Different facets of skills and jobs for the green economy and rural transformation are discussed. Conditions and policy priorities for skill formation and job creation to promote the green future are presented as the concluding part of the chapter.

Chapter 5 deals with "Skills and Jobs: Roles, Responsibilities and Policy Implications." Organisational and institutional aspects of skill development and job creation including policy development, monitoring and assessment, and management capacity for skills development itself are considered. Roles, responsibility and accountability of the national government, state/provincial/local authorities, formal education at different levels, vocational/technical training system, private sector, media, communities, and NGOs are noted. Adapting to the rural transformation imperatives is discussed.

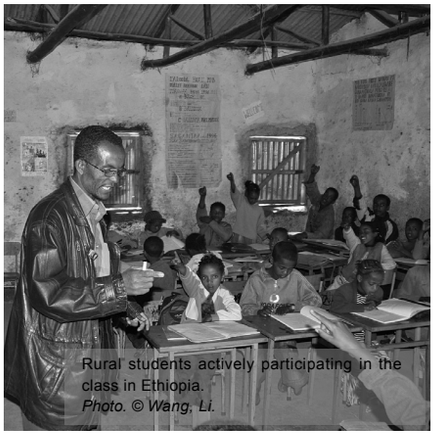
The annexures in three parts supplement the main chapters. They include a selection of case studies from China and other countries to illustrate "good practices" in skills development for rural transformation. There is a discussion of issues about measuring and monitoring skills development contributed by the OECD Skills Project Team. Finally, a series of statistical tables based on available international sources is presented to illustrate and elaborate the key points being made in this report and as a ready source of reference for relevant international statistics.

A young girl wandering outside a shabby hut in rural Ethiopia.
Photo. © Wang, Li.

Chinese students in rural area.
Photo. © Li, Jinsong.

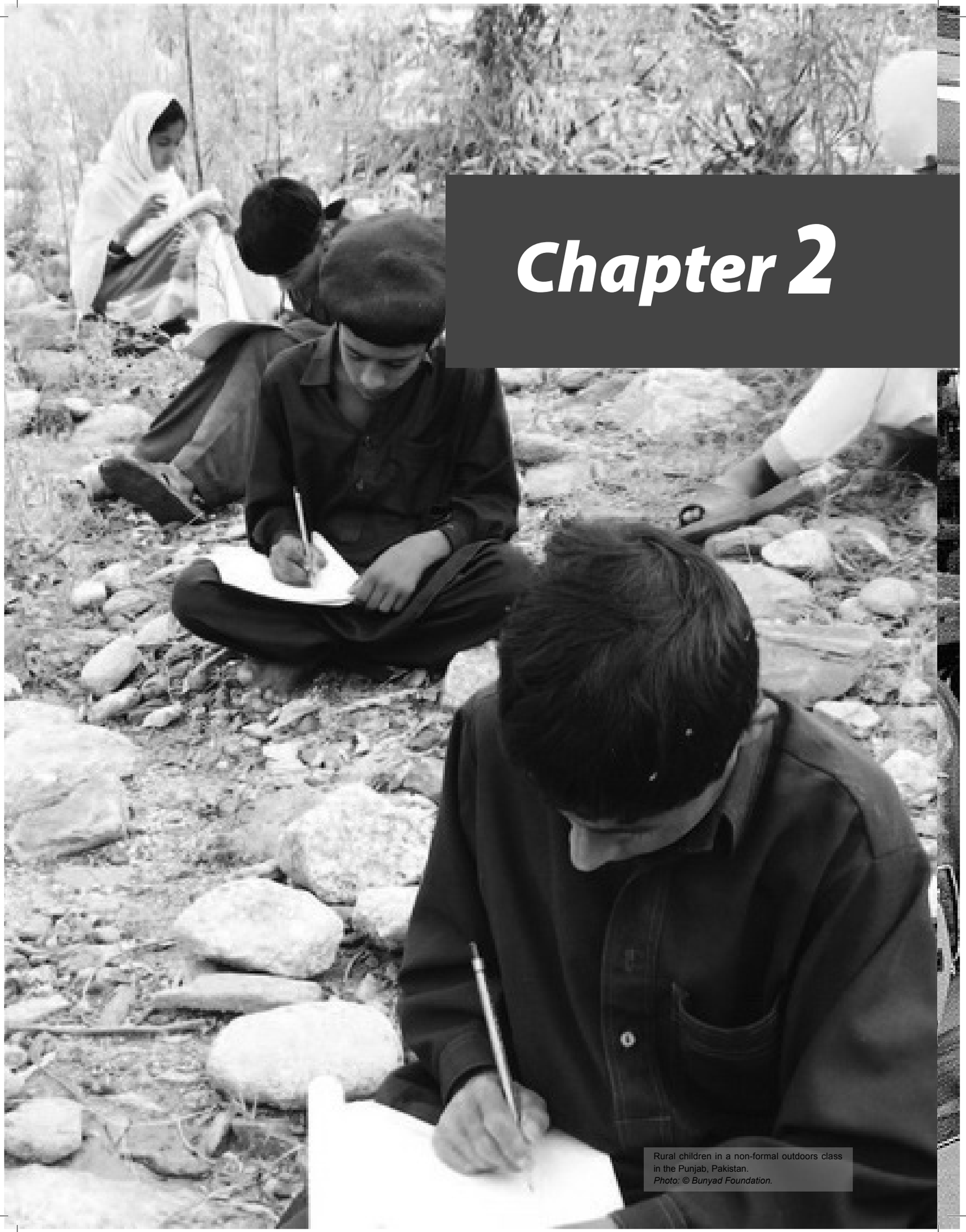


Primary school students in a poorly-equipped classroom in rural China.
Photo. © Li, Jinsong.



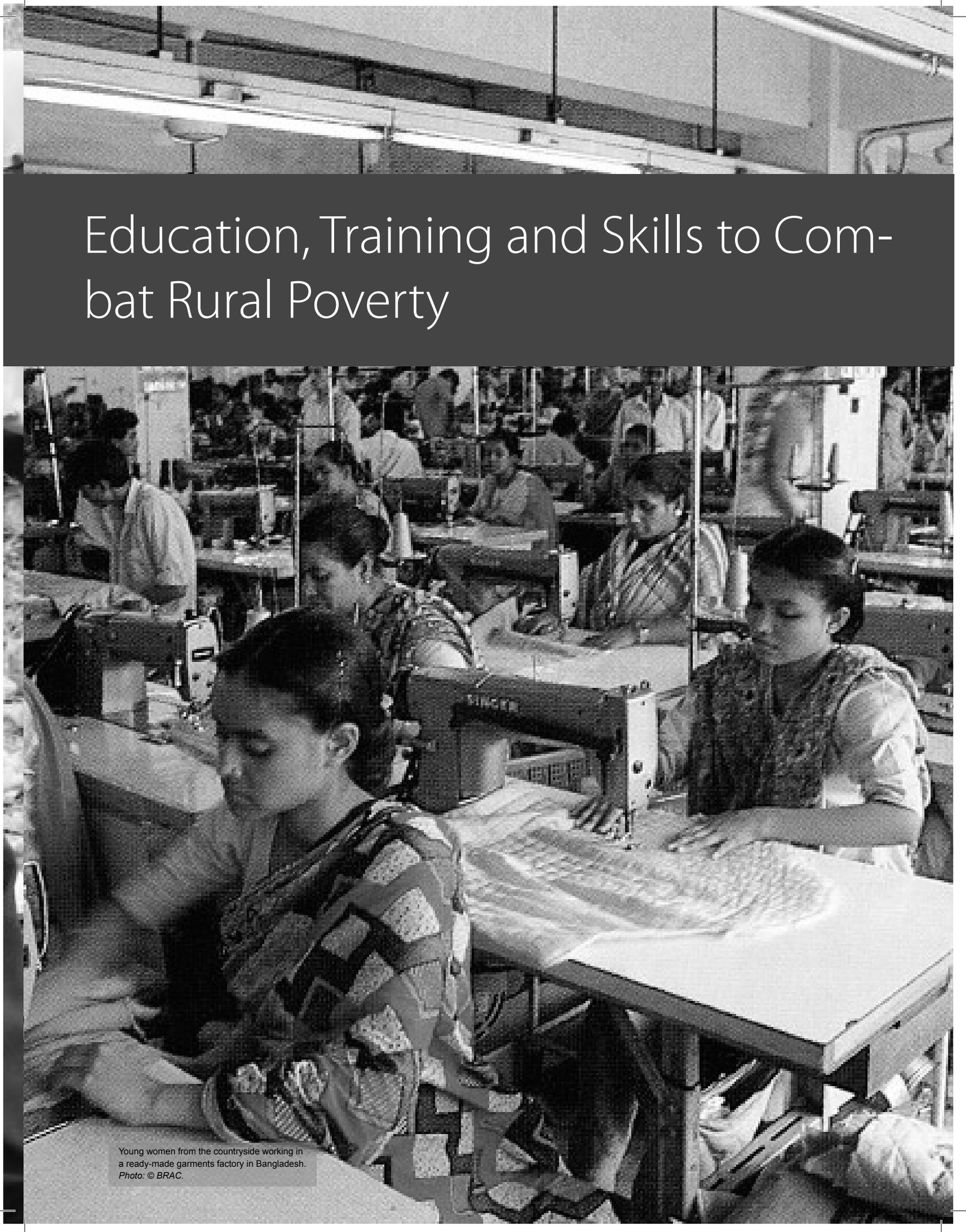
Rural students actively participating in the class in Ethiopia.
Photo. © Wang, Li.

Chapter 2

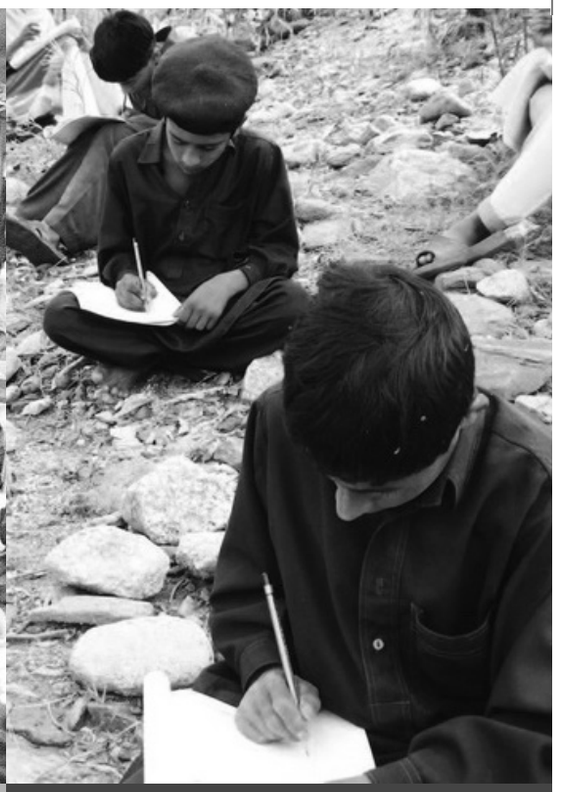


Rural children in a non-formal outdoors class in the Punjab, Pakistan.
Photo: © Bunyad Foundation.

Education, Training and Skills to Combat Rural Poverty



Young women from the countryside working in a ready-made garments factory in Bangladesh. *Photo: © BRAC.*



Chapter 2

Education, Training and Skills to Combat Rural Poverty

The rural world is changing rapidly, and young people need to be prepared to rise to the new opportunities. Agriculture is also changing, with new technologies, products, markets, and business environments. And many rural people will need to become engaged in nonfarm activities or migrate to urban areas. To seize these opportunities, all will need skills that differ from those of their parents—but education and training systems are not ready to face the challenge.

World Bank, "Focus G, Education and Skills for Rural Development", World Development Report 2008, p.222.

This chapter is in five parts. In the first part, observations are offered on the pathways out of rural poverty and the saliency of skills development and building capacities of people in following the pathways. In the second part, the state of the discourse on employment and rural poverty is presented. In the third part, skills development is defined and the relationship between education and skill training, the nature of TVET and skills development, skills in the context of rural transformation and skill needs in rural areas are discussed. The fourth part is about the challenge of bridging in concept and practice, skills development and job creation, combating rural poverty and contributing to rural transformation—making a case for the sustainable livelihood approach as the bridge. Finally, arguments are made for special attention to youth, the gender dimension and migration from rural areas as relevant cross-cutting issues.

A paradox of a global proportion prevails today, which is the persistence of enormous unmet needs of people and, at the same time, the huge wastage of untapped human resources. There are approximately three billion people with unmet basic needs living on incomes of less than US$ 2.50 a day. These billions lack the minimum requirements for a normal life. There cannot be a dearth of work until these people have adequate food, clothes, homes, education, medical care and other essentials of life. But the national and global economic systems fail to harness the technological and organisational resources, and most importantly, the human resources, to meet the unfulfilled human needs. Over 200 million people in the world today, who are willing and able to work, are estimated to be unemployed, and probably more than a billion are involuntarily underemployed (Jacobs and Slaus: 2010). The unemployment and under-employment of over a billion people is the greatest single direct obstacle on the way to halving absolute poverty by the year 2015—the overarching MDG goal. There is a massive mismatch between work to be done and people who need jobs. This gap has to be bridged by skills development and policies and actions to use the skills in decent jobs that are socially beneficial and personally rewarding.

The majority of the three billion poor and the hundreds of millions unemployed and under-employed are rural people. The key link between working age people and jobs are skills and capabilities nurtured by education, training and different institutional, non-formal and informal ways of building capabilities of people. This chapter explores the characteristics and various facets of this vital link between people and productive and rewarding jobs as the instrumentality for combating poverty among rural people.

2.1 Education, Skills and Pathways out of Rural Poverty

Understanding the role of skills development in combating rural poverty requires a better grasp of the pathways out of poverty for rural people. Indeed this is the central question in the context of rural transformation. This question has been a concern to policy makers, practitioners and researchers at national and international level for some time.

Some lessons from poverty reduction interventions

A special evaluation study of the Asian Development Bank attempted to answer the questions: How do poor households in rural areas rise out of poverty? How effective are certain poverty reduction interventions? What are some lessons for the future? (ADB: 2006, p.iii)

The study looked at experience in Vietnam, China and Malaysia, countries which have achieved very substantial rural poverty reduction and rapid economic growth in the last 2–3 decades. The study examined the dynamics of rural change in relation to large investments in rural areas in infrastructure including construction of expressways, credit, land settlement and township development projects. The seven projects financed by Asian Development Bank (and the year of their inception) were: Vietnam Rural Credit Project (1996); Vietnam Rural Infrastructure Sector Project (1997); China Chengdu Nanchong Expressway Project (1998); China Southern Yunnan Road Development Project (1999); Malaysia Sabah Land Development Project (1974); Malaysia Terengganu Tengah Township Development Project (1978); and Malaysia Second Terengganu Tengah Development Project (1982).

Substantial reduction of rural poverty was found in all of the project areas, in line with general poverty reduction

and economic growth in the three countries. However, there were variations in the degree of poverty reduction and the sustainability of positive development. Agricultural growth contributed in a major way in the early stages of exit from poverty, benefiting from relatively abundant farmland. When population growth led to shortage of farmland per capita, the role of agriculture declined dramatically. This was especially the case in many remote rural areas which remained unattractive to private investors even after improvement of rural roads and off-farm employment opportunities failed to expand. The recourse open to poor people in remote and poorly endowed regions to escape from poverty was to migrate to non-poor regions and to take low-wage and low-productivity work in non-agricultural sectors.

Most of the poor were found to have few assets other than their labour. Employing family labour in economic pursuits in every possible way was the only means of earning an income for them. Major binding constraints to employment in agriculture were: (i) shortage of farmland, (ii) scarcity of water in the dry season and (iii) other adverse farming conditions such as a harsh climate. The obstacles to self-employment in off-farm activities included lack of access to commercial credit. In respect of wage employment, local opportunities were few; migration was a possible avenue, but there were many barriers in the form of (i) government control on labour mobility, (ii) language difficulties among ethnic minorities; and (iii) lack of social connections in cities and road transportation costs and difficulties.

For the venturesome ones who took the plunge to move to cities, lack of education and skills was not a binding constraint for employment in the informal sectors such as construction and low-skill services. For formal employment, as in foreign-invested factories, however, secondary education was a precondition. In a high growth economic situation, as has been the case in the East and Southeast Asian countries, private firms provided their own training to new workers who came from rural areas.

It was found that vulnerabilities and risks arising from unpredictable and not infrequent man-made and natural emergencies, which rural households faced, kept them in or pushed them back into poverty. Major vulnerabilities included: (i) serious or chronic illness of primary wage-earner or other family members, (ii) natural disasters such as cyclone and flood that disrupted life and destroyed temporarily or permanently livelihood and occupations and (iii) large investment loss due to market fluctuations, epidemic outbreaks of animal disease, or natural disasters.

Many households could recover by themselves from a shock one time or even a second time by working harder, and reducing consumption, if they had timely access to credit with a maturity date long enough for them to re-invest and recover. These kinds of credit facility that offered emergency loans under reasonable terms did not exist. The majority of rural households relied on moneylenders applying usurious terms. The poor households found themselves forced to engage in distress sales of their assets, often the farmland or livestock.

What were the interventions that helped to improve the situation of the poor rural households? In the three countries, in the context of the public projects supported by ADB, the positive factors were: (i) public investments to promote economic growth and job creation, such as the two expressway projects in China, (ii) policies or programs to reduce barriers to labour mobility and facilitate migration, (iii) credit made readily available for most rural residents, such as the rural credit project in Vietnam and (iv) policies and programmes to reduce household vulnerability through provisions for good quality education, skill training and health services as in Malaysia.

What interventions did not work? In the case studied, these were identified as: (i) isolated investments in upgrading rural roads in remote and poorly endowed regions without linking these or assessing fully the ancillary economic and ecological factors, (ii) add-on components satisfying ADB's pro-poor conditions, such as HIV/AIDS or gender-related actions, without sufficient demand from clients and (iii) household and geographic targeting used in investment projects that did not tackle the key causes of poverty, but simply assumed that funds flowing into poor regions, or intended benefits for socio-economic groups, would automatically lead to poverty reduction.

It was found that locating projects in poor regions did not guarantee significant poverty reduction if the key causes

of poverty in the particular project areas are not given specific attention in the project. Some of these key issues in the poorly endowed regions were: (i) a serious shortage of farmland on a per capita basis, (ii) already large and rising labour surplus in the agriculture sector due to population growth and shortage of farmland and (iii) lack of off-farm employment locally to absorb the surplus labour. These constraints could not be addressed directly or mitigated by the project interventions.

It was concluded that "poverty remained largely unchanged for the segments of the population who were poor at the beginning of the project, after the projects improved rural roads or small-scale irrigation facilities, which brought only small, poorly sustained benefits to rural residents due mainly to insufficient funds to maintain the facilities after project completion" (ADB: 2006, p.111).

The solutions to the problems noted in fact did not lie within the rural communities in the poor regions themselves or within the defined scope of the interventions. Longer term and broader interventions within a larger regional framework were considered necessary. Coordinated infrastructure development, improvement of social services, investments focused on job creation, availability of credit under appropriate terms, safety nets to reduce vulnerability of households, and education, training and appropriate skill formation activities as well as support to orderly migration of workers to locations with better job prospects were seen as the appropriate interventions. All these had to be carried with a coordinated approach.

It is noteworthy that the limited and non-sustained poverty reduction outcomes were observed in the three countries in periods when they enjoyed high aggregate economic growth at the national level and the countries were regarded as success cases in economic development and poverty reduction. It can be reasonably surmised that in the context of less robust national economic growth, the constraints encountered would be greater and the outcomes would be even less positive.

Logically, the pathways out of poverty for rural people have to be strongly connected to productivity increases and expansion of employment in the rural economy through farming activities, rural non-farm enterprises or via rural–urban migration. Literature on rural poverty supports the view that agricultural growth has historically had an important role in poverty reduction in many countries (for example, Ravallion: 2004; Besley and Cord: 2006).

However, with more open trade and market development within and among countries for agricultural products, slowing of population growth, and the growth of non-farm economic activities, the overall economic growth and poverty reduction is no longer dominated by the agriculture sector. Overall in developing countries, non-farm output now accounts for roughly half of rural income. Despite the fact that some non-farm activities are characterised by low productivity and low earning, many have a greater potential for enhancing rural income and employment than farming activities. Thus, the question is not whether the emphasis should be on agriculture or non-farm activities, but what the pragmatic and dynamic combination should be and what may be the relative balance of inter-sectoral transitions and importance of rural–urban migration. The answer for any given country depends both on its factor endowments as well as its policy and institutional environment (McCulloch *et al.*: 2007).

McCulloch and colleagues, looking at empirical evidence in Indonesia from the decade of the 1990s, found that "increased engagement of farmers in rural non-farm enterprises is an important route out of rural poverty, but that most of the rural agricultural poor that exit poverty still do so while remaining rural and agricultural. Thus changes in agricultural prices, wages and productivity still play a critical role in moving people out of poverty" (McCulloch *et al.*: 2007, p.28).

A question raised in the literature is whether non-farm enterprises are mainly a low productivity supplementary activity for households undertaken to diversify their income sources and insure against shocks to their agricultural income, which are important concerns for the rural poor. Or can the rural non-farm enterprises be potentially a source of growth and poverty alleviation? The evidence suggests that they fulfil both important functions (McCulloch, *et al.*: 2007; World Bank: 2006). This is consistent with what was observed in the projects in the three countries studied by ADB, mentioned above.

The importance of a structural change in the economy with increased land and labour productivity in agriculture, increasingly important role of the non-farm activities, mobility of labour from agriculture to non-farm occupations and out of rural areas, and building up and deploying human and social capitals effectively are emphasised by analysis of panel data from nationwide household sample surveys for two decades from 1987–1988 to 2007–2008 in Bangladesh (Hossain and Bayes: 2009).

The sample of analytical evidence cited above is quite limited, but arguably can still shed light on the connection between education, skills and jobs, on the one hand and the economic and political policy directions for fighting rural poverty. In short, the obstacles that had to be overcome for success in fighting poverty were of several kinds:

- Poor natural resource endowment—shortage of farmland, shortage of water and inhospitable climatic and ecological condition for improving agricultural productivity, for smallholders and their move towards larger commercial production.
- Infrastructure deficiency—poor roads, inadequate irrigation and water supply, insufficient energy and power, insufficient investments for these purposes.
- Institutional deficiencies of several types—lack of credit in accessible terms for the poor, political and bureaucratic obstacles to labour mobility, absence of social safety net , such as health care and child and old age benefits, insurance against catastrophe, protection against natural disasters and other vulnerabilities and poor civic governance in general.
- Socio-cultural obstacles—language and ethnicity as obstacle to labour mobility or accessing economic opportunities. Not specifically mentioned are some common phenomena, such as corruption that can seriously undermine sound and promising projects, improper political patronage and interference, and clans and tribes rivalries affecting project efficiency.
- Human development deficiencies—poor quality of primary education that does not ensure basic literacy and numeracy skills for many children, particularly the poor; lack of secondary general education and appropriate skill development, and scarce tertiary education that could provide technical assistance and support technology adaptation for rural areas. Not mentioned are insufficient non-formal and informal skills development and general adult and lifelong learning opportunities.

Four general comments are pertinent about this enumeration of constraints.

First, as noted, the solutions to some of the major problems did not lie in specific interventions within the rural community or the locality, such as those about social safety net and credit policy, and bureaucratic and legal barriers to labour mobility and labour market flexibility. Similarly, the problems of farmland shortage and population pressure required regional or even national strategies much beyond the boundaries of the rural localities.

Second, macroeconomic conditions and policies that were effective in promoting aggregate economic growth served as a positive backdrop for implementing poverty reduction actions; and the opposite in the case of slow growth.

Third, good quality primary and secondary general education was important for helping young people from poor households take advantage of better paying and higher productivity non-farm employment opportunities. This was necessary for participating in occupation-specific skill training or gaining entry-level spots in firms for on-the-job or in-house training. The corollary to this condition was that education and training were not particularly a requirement for low-productivity, low-wage and low-skill jobs in the informal sector.

Finally, different kinds of constraints, skills development through education and training being one among the major constraints, point to the importance of finding ways of bridging the gap in concepts and practices between poverty reduction strategies and actions, on the one hand, and generation of skills and jobs, on the other. It is more a problem of bringing the two areas of policy and strategy discussion, which have continued somewhat in parallel, into one universe of discourse. It is not that the links have not been recognised, but this needs to be clarified and sharpened and the implications for policy and coordinated action that address the interfaces of skills, employment and poverty reduction among rural people spelled out and acted upon, as elaborated further.

2.2 Jobs and Escape from Rural Poverty—State of the Discourse

The argument has been made that rural world is changing rapidly, and that young people need to be prepared to seize the new opportunities. New technologies, products, markets and business environments are emerging in both agriculture and non-farm economic activities in rural areas. It is also clear that many rural people will need to move from traditional agriculture-based occupations to non-farm activities and many will need to move in search of job opportunities to towns and cities. Many will need skills that are different from those of their parents and these needs keep changing at a faster pace than before. But how exactly are skills turned into gainful and rewarding jobs? And how and what kind of employment creation can lift people out of poverty in rural areas?

The decent work agenda for rural people

The International Labour Conference placed on the agenda in its 97th session in 2008 a general discussion on the promotion of rural employment for poverty reduction. It comprised a stocktaking of the nature, magnitude and changing patterns of rural employment, especially in developing countries; and the development of a comprehensive strategy to promote employment and decent work in rural areas. The following discussion draws substantively from the usual tripartite deliberation representing the government, employers and organised labour that takes place at the International Labour Conference (ILO: 2008).

The agenda concerned a framework for shaping policies and actions to reduce poverty by generating more and better jobs. The discussion was about integration of economic and social objectives, a well-orchestrated combination of measures in the areas of employment promotion, rights at work, social protection and social dialogue. It was argued that expanding "decent work" for rural people opened the avenue out of poverty. The discussion was about the adaptation of the decent work agenda, which is a central element of the Global Employment Agenda (GEA), in the rural context. GEA was a general approach to promoting productive employment as the key strategy for poverty alleviation and equitable development, endorsed by ILO earlier in 2003 (ILO: 2003).

The 10 core elements of the Global Employment Agenda included supportive international and macroeconomic policy measures, such as, trade and investment for productive employment and market access for developing countries, promoting sustainable development for sustainable livelihoods, encouraging technological change for higher productivity and job creation, and policy integration for growth and employment. Other key ingredients were operational strategies at the national level related to labour market and job creation including expansion of employment through entrepreneurship, improving knowledge and skills to enhance employability, and labour market policies to promote employment security, equity and poverty reduction. The agenda also included the creation of a supportive environment through social protection measures and improved occupational safety and health (Box 2.1).

Box 2.1 The Global Employment Agenda (GEA) and Decent Work

Ten core elements of GEA

- Promoting trade and investment for productive employment and market access for developing countries.
- Promoting technological change for higher productivity and job creation and improved standards of living.
- Promoting sustainable development for sustainable livelihoods.
- Macroeconomic policy for growth and employment: a call for policy integration.
- Promoting decent employment through entrepreneurship.
- Employability by improving knowledge and skills.
- Active labour market policies for employment, security in change, equity and poverty reduction.
- Social protection as a productive factor.
- Occupational safety and health: synergies between security and productivity.
- Productive employment for poverty reduction and development.

Decent work

- The concept of decent work emphasises shaping of policies and actions to reduce poverty by generating more and better jobs. It calls for the integration of economic and social objectives and for a well-orchestrated combination of measures in the areas of employment promotion, rights at work, social protection and social dialogue. Decent work is thus a productive factor, and social policies based on decent work have a dynamic role to play in promoting a healthy economy and a just society.
- The insight underlying GEA and the decent work concept that employment is the missing link between growth and poverty reduction and the recognition that sustainable poverty reduction requires simultaneously social transfers, investments in social and physical infrastructure and good labour market performance, constitute key policy orientations for any country to succeed in reducing poverty in rural areas.

Source: ILO, 2003. The Global Employment Agenda. Geneva; ILO. 2008, pp.7–8.

The underlying premise of GEA was that employment provided the missing link between growth and poverty reduction. This meant that sustainable poverty reduction required simultaneous investments in social and physical infrastructure, good labour market policy and performance, and provisions to improve and adapt skill levels in the workforce. This generic insight was sought to be applied to the rural economy through the decent work agenda for rural areas.

Decent work in the rural context is about opportunities for women and men to obtain productive employment in conditions of freedom, equity, security and human dignity. Absence of decent work is characterised by conditions evident in many rural areas. These include limited opportunities for remunerative work that is available to certain groups at the expense of others, social and labour conditions that expose workers to risk rather than protect them from it, and a general shortage of productive work that keeps workers and their families in a cycle of poverty.

How realistic are the premises and promises of GEA and decent work for rural people? What are the obstacles to realising the potential? An empirical look at the real experience revealed gaps between theory and practice, the possibilities and the cold realities, as highlighted in the ILO report on this subject (ILO: 2008).

A discussion of the rural–urban continuum and opportunities to intervene in the rural labour market as potentially positive factors in job creation and reduction of rural poverty illustrate the complexities.

Rural–urban continuum

The economic implications of the rural–urban continuum could be the basis for a positive scenario of change both for rural and urban people. In theory:

> Agricultural growth is seen to benefit farm households directly by raising income and food security, but also to benefit both urban and rural households by promoting higher wages, lowering food prices, increasing the demand for consumer and intermediate goods and services, encouraging the development of rural-based businesses, raising the returns to labour and capital and improving the overall efficiency of markets (ILO: 2008, p.14).

In reality, the gap in many countries has widened between urban and rural livelihoods. The positive effects mentioned may be experienced mainly in suburban perimeters and along main trunk roads. The increases in commodity prices fail to reach the very small producer, who faces rising costs for inputs, but receives a shrinking portion of the market value of his or her crops. Nor do agricultural workers generally see higher commodity prices translated into fuller wage packets.

The term "labour market" suggests a unity that is absent in practice. Rather, there are multiple segmented markets for labour, demarcated by industry, crop, occupations and geographical areas. Rural economies are generally mixed, with the rural farming and non-farming populations earning their living from interdependent agricultural and non-agricultural activities. Employers compete for available labour supply during the peak farming season, whereas there are troughs of underemployment, casual labour and poor income at other times. Strong economic, social and political power imbalances between employers and workers tend to be more prevalent in rural society than in urban areas and can undermine the fair and effective functioning of rural labour markets. Labour organisation tends to be weak in rural areas, where feudal labour relations persist in many instances with few legal rights enjoyed by workers. Barriers associated with gender, ethnicity, caste or tribe can severely restrict labour mobility.

How rural labour market functions

Rural labour markets are dominated by unskilled labour where supply comes from workers with little formal education or training. The prevalence of casual labour and child labour contributes to low productivity, low wages and weak bargaining capacity. Labour market governance and institutions are usually weak in rural areas and have little capacity to directly address factors determining supply or demand for labour (ibid., p.28).

With a total of over 1 billion people employed in the agriculture sector in the world, it is the second greatest source of employment worldwide after services. It still keeps occupied the majority of the rural workforce in developing countries. Estimates on agricultural employment in general are more readily available at the international level than

statistics on rural employment. Due to national differences in defining and distinguishing urban and rural areas, the distinction between urban and rural employment is not amenable to a standard definition which is applicable to and comparable among all countries or even for countries within a region (ILO: 2008).

The general picture that emerges from available data is that with over 700 million agricultural workers, Asia accounted for more than 70 percent of the world total and Sub-Saharan Africa, with slightly under 200 million workers, had almost 20 percent (c. 2007). With 510 million and 276 million people respectively in agriculture, two countries, China and India together, represented almost 60 percent of the world's total agricultural labour force (ILO: 2008, p.28).

Within countries, as proportion of rural employment, agriculture remained the dominant source. It accounted for 63 percent of rural household income in Africa, 62 percent in Asia, 50 percent in Europe and 56 percent in Latin America in the mid-2000s (c.2005).

From another angle, the rural employment picture is that agriculture and related activities are sources of livelihood for an estimated 86 percent of rural women and men in developing countries and provide jobs for 1.3 billion smallholders and landless workers. It is noteworthy that with close to 90 percent of rural employment in developing countries in agriculture and farm-related work, the sector was the source of less than two-thirds of the total rural income. This disproportion is a manifestation, in a way an explanation, of the low income and poverty of rural people.

However, non-agricultural activities have been accounting for an increasingly larger share of total rural employment. Panel data from repeated household surveys carried out in Bangladesh, India (Tamil Nadu), the Philippines and Thailand illustrate this trend (Table 2.1). Non-farm income had contributed less than 50 percent of household income in seven out of eight instances in the 1980s. By 2003–2004, in five out of eight instances, the proportion of household income from

Table 2.1 Changes and Differences in Real Rural Household Income per Capita (PPP US$) and Its Composition (%) in Selected Countries of Asia

Country	High-potential Agricultural Areas		Marginal Agricultural Areas	
	1980s	2003–2004	1980s	2003–2004
Philippines				
Per Capita Income (PPP$)	1,065	2,364	386	1,119
Agricultural Wage (%)	13	11	30	7
Rice (%)	37	12	20	9
Non-Rice Farm Income	5	7	13	24
Non-farm (%)	45	70	36	60
Remittances (%)	15	22	13	20
Thailand				
Per Capita Income (PPP$)	2,014	4,617	959	2,543
Agricultural Wage (%)	4	6	12	5
Rice (%)	66	26	54	7
Non-Rice Farm Income	21	22	13	14
Non-farm (%)	10	47	21	74
Bangladesh				
Per Capita Income (PPP$)	634	1,018	841	1,094
Agricultural Wage (%)	14	8	11	4
Rice (%)	35	20	24	13
Non-Rice Farm Income	18	21	20	26
Non-farm (%)	33	51	55	57
Tamil Nadu (India)				
Per Capita Income (PPP$)	520	697	228	623
Agricultural Wage (%)	11	28	17	3
Rice (%)	62	50	39	22
Non-Rice Farm Income	19	19	40	49
Non-farm (%)	9	4	7	27

Source: Otsuka and Yamano (2008): "The role of rural labour markets in poverty reduction: Evidence from Asia and East Africa," a draft background paper for the World Development Report 2008. Adapted from table 6, using panel data from repeated household surveys.

non-farm activities surpassed that from agriculture. This was the case in both high potential and marginal agricultural areas in the country or the territory.

Non-farm income share in the total household income in Bangladesh increased from under 40 percent in 1987 to over 51 percent in 1999–2000 (ILO: 2008, p.34). It increased further to 53 percent by 2008 as shown in the previous section in (Box 2.2). This increase largely came from greater engagement in trade and business activities, (increase from 12.8 percent to 19.9 percent); and the growth in remittances (from 4.7 to 11.8 percent). Out-migration within the country and abroad and declining birth rates contributed to smaller average household size and thus to a faster rise in per capita income as well (Hossain *et al.*: 2003, cited in ILO: 2008, p.34).

In short, although agriculture is still the predominant source of livelihood for rural women and men, agriculture alone cannot alleviate rural poverty. In all rural communities, the promotion of sustainable off-farm enterprises is necessary to generate more and better jobs. The weight of research and evidence clearly points to the importance of non-farm enterprises as engines of rural development, income growth and poverty reduction (Mellor and Lele: 1973, pp.35–55; Foster and Rosenzweig: 2004).

Larger non-farm employment opportunities lead to a reduction in the supply of agricultural labourers, increasing wages in this sector, thus creating positive fallout on all rural workers and households. In many instances, small-scale farming is part of a diversified livelihood strategy, combining on- and off-farm wage work, service activities and remittances. Earnings from agricultural wage labour are low and volatile and opportunities for regular employment are in decline with workers increasingly engaged on a casual or temporary basis (World Bank: 2007).

Addressing extreme poverty

Extreme poverty of rural people places them under special vulnerability. One description of extreme poverty of Earth Institute at Columbia University emphasises its different facets.

> Households living in extreme poverty are chronically undernourished, unable to access health care, lacking the amenities of safe drinking water and sanitation, unable to afford education for some or all of the children, and perhaps lacking rudimentary shelter—a roof to keep the rain out of the hut, a chimney to remove the smoke from the cook stove—and basic articles of clothing like shoes. Such deprivations cost lives, by the millions, every year. Life expectancy is considerably lower and mortality

Box 2.2 Transformation of Rural Economy in Bangladesh 1988–2008: Insights from Longitudinal Surveys

- Poor households in rural areas declined from 60 to 43 percent of total during the period1987 to 2004 but increased to 47 percent in 2008. The proportion of extreme poverty decreased from 34 to 15 percent in the two decades. About 30 percent of the rural households remained chronically poor.
- Workers primarily dependent on agriculture for livelihood declined from 71 to 53 percent in two decades. Those dependent on business and services increased from 21 to 32 percent. On average, annually nearly one percent of the households migrated out of their localities.
- Upward mobility to non-poor status was experienced by a higher proportion of families than the reverse during 1987 to 2004, whereas more families moved from non-poor to poor status than the reverse from 2004 to 2007.
- Large household size and increase in number of dependents, natural disasters, health shocks such as death and disability of earning members, and litigation from land dispute were principal causes of downward economic mobility. Land ownership and accumulation of land, mobility from agriculture to non-farm occupations, accumulation and transfer of capital to non-agricultural activities, migration to cities and abroad, and accessibility to newly developed infrastructure, such as road and electricity were factors behind upward mobility.
- Expansion of non-farm activities have become the driver of rural growth; agricultural surplus is a source of capital for non-farm enterprises.
- Income from services including remittance, trading and non-crop agriculture is unequally distributed and their growing importance is contributing to worsening rural income distribution (unless mitigated by appropriate skills development and other support measures).
- Development of rural infrastructure, providing access to education and credit to poor families, and improving terms and conditions in rural markets are necessary for poverty reduction. Mobility between occupations and away from home was facilitated by expansion of rural roads, supply of micrcredit, and improvement in education.

Source: Adapted from Mahabub Hossain (2011): "Transformation of Rural Economy in Bangladesh 1988–2008: Insights from Longitudinal Surveys." PowerPoint presentation at the "Rural Development Club seminar," BRAC University, 18 October, 2011.
Also see Hossain, M. and Bayes, A. (2009):"Rural Economy & Livelihoods: Insights from Bangladesh," Dhaka: A H Development Publishing House.

rates are considerably higher in countries in which large proportions of the population live in extreme poverty (http://mvsim.wikischolars.columbia.edu/Extreme+Poverty).

The first Millennium Development Goal is to halve the number of people living in extreme poverty by 2015. It is now expected that the global poverty rate will fall below 15 percent by 2015—well under the 23 percent target. This global trend, however, mainly reflects rapid growth in Eastern Asia, especially China. Success in bringing the proportion of humanity living in extreme poverty to below 15 percent would still leave 900 million people living on less than US$ 1.25 a day (UN: 2011).

One example of a multidimensional social-assistance programme is the "Challenging the Frontiers of Poverty Reduction—Targeting the Ultra Poor" (TUP) programme of the large Bangladesh NGO, BRAC. This was launched in 2002, following BRAC staff's conclusion that their existing interventions through microcredit, livelihood projects, village organisation, basic health care and basic education—while valuable to many living in poverty—were not reaching or helping the poorest people in rural Bangladesh. TUP programme combines asset transfers through grants, rather than loans, linked to specific livelihood skills, health promotion and other specific social support for a period of two years to households in extreme poverty selected by well-defined criteria. The aim is to achieve a transformation in the situation of these households so that they "graduate" to taking advantage of mainstream poverty alleviation programmes based on microcredit, other social services, and other on-farm and off-farm economic opportunities. Legal advice on issues such as marriage and domestic violence law—particularly relevant for the many women participants in the programme, is also offered (ILO: 2008, p.77).

Impact assessment based on panel data from three rounds of survey (2002, 2005 and 2008), explored sustainability of livelihood impacts of the first phase of CFPR (2002–2006). Household income was found to be increasing over time. Income from livestock and poultry, begun with grant from the project, increased among programme participants. It was concluded that "programme impacts on income, employment, food security and asset holding were mostly sustainable in the long-run.". The programme, however, did not have a significant impact on education of children of the participant households, although in the long-run "a modest positive impact on boys' primary enrolment" was expected. Qualitative exploration reveals that determination, confidence, social network, asset management skill, and hard work of the participant women were important behind effective use of the support provided by the CFPR programme. In short, participants' incomes had grown beyond those who were "not quite poor enough" to be selected for the programme in 2002, but that they were still poor. The participants appeared to be more confident in their ability to withstand vulnerability or livelihood "crises," such as the serious illness of an income earner, or risks to the newly acquired assets, such as livestock disease or death (Das and Misha: 2010).

The Indian National Rural Employment Guarantee Act (NREGA) passed in 2005, is aimed at making available up to 100 days of employment per rural household per year on public works, at the prevailing minimum unskilled wage rate (Sjoblom and Farrington: 2007).

Implementation of the employment guarantee law, one of the largest rights-based social protection initiatives in the world, is expected to replace ad hoc schemes for assisting rural poor with a rights-based approach and can be regarded as a key element in the strategy to lift the households in extreme poverty out of their state of vulnerability. The national budget for the financial year 2006–2007 was approximately US$ 2.5 billion or 0.3 percent of GDP, and is expected to grow to over 1 percent when it becomes fully operational to reach around 40 million households living below the poverty line (ILO: 2008, p.37).

As the programme unfolds, questions are emerging about how the poor, often illiterate, households, can turn the rights to employment into action, especially when only the poorest households are expected to engage in manual work for low wages on the basis of self-targeting. Vexing questions arise in this context about the trade-off between social inclusion and social justice, when wages below prevailing farm work rates are offered and whether the types of activities funded are beneficial for the rural poor. Women are often excluded when they are less able to travel long distances to find work on offer (Sjoblom and Farrington: 2007).

The predecessor of NREGA in the state of Maharashtra, MEGS, which served as the model for the national law, illustrates the significance of the linkages and interaction between employment creation for the poor and broader economic growth. In an environment of robust economic growth, the benefits of employment guarantee under MEGS were assessed to have been largely "secondary and indirect rather than direct." It has been concluded that:

- MEGS raised agricultural wages as labourers became reluctant to accept less than the official minimum wage.
- MEGS provides insurance for rural workers against unemployment and stabilised work for rural households by providing opportunities during the agricultural off-season.
- Assets created by MEGS contributed to increasing agricultural productivity, but the benefits of this were regressive because asset locations tended to favour better-off households.
- There were concerns about exclusion, but MEGS helped enhance women's participation in paid work and their independence, when employment opportunities were locally available (ILO: 2008, p.76).

Both the ultra-poor initiative in Bangladesh and the rural employment guarantee programme in India appear to have not given due attention to the linkages between assistance to address extreme poverty and vulnerability and human capital development, especially building skills and capacities of the participant families, except as specific orientation type of activities in the former case. There has been no attention to educational needs of children except for exhortation to enrol in primary school. The school did not function effectively in the concerned communities and the majority of children of the poor, who enrolled, dropped out before completing primary education (Sjoblom and Farrington: 2007).

They also raise the general question of social exclusion of segments of the population, especially in the rural areas, from benefits of development and how social protection can be extended to them. As the Indian initiative illustrates, social protection from extreme deprivation and vulnerability is a right to which people are entitled by national constitution and laws and international covenants. Social exclusion is a concept that describes how people are left out of, or prevented from participating in processes that lead to growth, improved welfare and, ultimately, development. Social exclusion and poverty are intimately linked and are largely co-existent. Focusing on social exclusion is necessary in policy-making and planning for effective and sustainable action to combat the multi-dimensional causes and consequences of extreme poverty and vulnerability of people. As the ILO discourse on employment and rural poverty points out, it helps to (ILO: 2008, p.70):

- Contextualise poverty in social systems and structures;
- Understand how political and historical processes lead to chronic deprivation;
- Focus on causality rather than simple correlations or characteristics;
- Recognise the multidimensional nature of poverty; and
- Target social identities whose holders are prone to social exclusion.

It has been also cautioned that the normative assumptions about exclusion and inclusion, as negative and positive phenomena, may distract attention from how exclusion actually works in specific contexts. The theoretical formulation may ignore the agency of poor people in taking action to help them, looking at them as powerless victims. The term originated in the context of industrial countries where relatively small minorities are affected by the exclusionary conditions. When applied to developing countries, the assumptions and the logic may get distorted. In many developing countries, especially in rural areas, the "marginalised" constitute large numbers, even the majority in some situations. Inclusion and exclusion, therefore, need to be considered in terms of structural changes, rather than correcting aberrations within existing structures which affect small numbers (ILO: 2008, ibid.).

The conceptual origin of the notion of social exclusion in the west may explain why education and skills development of appropriate kind are not often incorporated as a key element in interventions to help the extreme poor, because the education and training structures worked with reasonable effectiveness for all in industrialised countries, whereas these are often highly discriminatory or even dysfunctional for the poor in developing countries. By

the same token, education and training alone, in isolation from broader development policy and priority shift, cannot change the plight of the deprived and the vulnerable, which is the recurrent refrain of this report.

2.3 The Nature of Skills Development

Skills development defined

A broadly agreed concept of skill development in the context of productive activities of society, relevant for this discussion of skills and poverty, is captured in the definition offered by Robert Palmer (Palmer: 2005).

> Skills development is not narrowly equated with formal technical and vocational education and training (TVET) alone, but is used more broadly to refer to the capacities acquired through all levels of education and training, occurring in formal, non-formal and on-the-job settings, which enables individuals in all areas of the economy to become fully and productively engaged in livelihoods and to have the capacity to adapt their skills to meet the changing demands and opportunities of the economy and labour market (Palmer: 2005).

Palmer adds to the definition the qualifier that skills development does not refer to the source of education or training itself, but to the capacities that are acquired through these skills. This is consistent with other formulations which emphasise "skills" as the expertise needed to perform a task or to do a job, or as a product of education, training and experience which, together with relevant knowledge is the characteristic of a competent worker (European Training Foundation: undated, p.1).

It is generally agreed that skills development of workers is fundamental to continuing employment and mobility, as well as promoting active citizenship, filling skills gaps, and generating quality jobs (Todaro and Smith: 2007). More broadly speaking, skills development is the key for improving efficiency of enterprises, employability of people and alleviation of poverty. It is also related to the question of recognition and fulfilment of the right of individuals to decent work.

The concept of skills development as presented has several important connotations:

First, skills development is not an isolated and self-contained area of activity. There are important linkages with the general education system of the country including basic, secondary and tertiary stages, and non-formal and informal education, which influence the characteristics and outcomes of the skills programmes. In this regard, it is necessary to look at skills development in the context of the Education for All (EFA) initiative which has helped shape educational priorities and plans in developing countries.

Second, skills development is not confined to institutionalised formal training labelled as technical and vocational education and training (TVET). There is a wide range of modalities of delivery, organisational and institutional mechanisms, locus of responsibility and diversity of objectives and clientele for skills development programmes. In this sense, the shift in terminology from the conventional TVET to skills development has more than semantic significance.

Third, skills development is broader than skills related to economic production or earning a wage. It extends to organisational and management skills, especially in relation to self-employment; life skills that makes one an effective and responsible worker who derives pride and satisfaction from work; and civic and family life skills that enhance an individual's performance as a worker and as a person.

Fourth, in the context of poverty reduction and rural transformation, the generic skills development issues have to be examined in relation to the broader and multi-faceted rural transformation perspective, the implications of which extend beyond purely rural to national development goals and priorities.

Education and skills development

That education contributes to higher incomes and thereby reduces misery arising out of penury is a well-accepted observation. But discourses on poverty including the now familiar "Human Development Index" and the underlying concept have significantly changed the contours of relationship between education and development. Especially pertinent for the present study is the thesis effectively articulated by Nobel Laureate Amartya Sen, interpreting poverty in terms of capability deprivation of people, has

brought the role of education into sharper focus not just in its instrumental role in alleviating poverty, but also as a core constituent of development and human well-being (Sen: 2006).

The World Conference on Education for All (WCEFA: 1990) put forward the expanded concept of basic education that embraced the basic learning needs of all—children at first level of education, youth who are out of school and adults requiring lifelong basic education opportunities. These needs are to be fulfilled through a variety of delivery modes, formal primary schooling, non-formal/alternative schooling for those with limited or no access to formal schooling, literacy programmes and informal education. These basic learning needs "comprise both essential learning tools (such as literacy, oral expression, numeracy and problem-solving) and the basic learning content (such as knowledge, skills, values and attitudes) required by human beings to be able to survive, to develop their full capacities, to live and work in dignity, to participate fully in development, to improve the quality of their lives, to make informed decisions and to continue learning." It is very clear from this formulation that rural transformation is not an objective or goal that is exogenous to basic education. On the other hand, it only makes explicit what is already contained in the definition of basic learning needs and imparts substantive content to the ideal of "living and working in dignity" and all the principles it entails (WCEFA: 1990, p.3 and p.7).

Specific occupational and employment-related skills are generally acquired at the post-primary or even post-secondary stage. The presumption is that young people bring basic educational competencies, knowledge and proficiencies that they acquire from primary, lower secondary or secondary education, to skill training courses. It is expected that the trainees have achieved basic literacy, numeracy, communication and reasoning skills, which are the tools for further learning and which make the learners in skill training courses trainable. How valid is this presumption?

Primary education and basic general competencies

It is not uncommon for children to take 8 to 12 years of schooling to acquire basic skills of literacy and numeracy at a functional level, as found in a World Bank study in Ghana and Pakistan. if a 15-year-old enrolled in school is unable to use his or her literacy skills for further learning and attainment of knowledge, as indicated by low proficiency scores in international student assessments, the education system has failed the individual" (Fasih: 2008, p.2).

The implication of this situation is that the validity of the basic premise behind the MDG goal is put to question. The premise is that the completion of primary education, along with the achievement of the other goals, will help realise the goal of cutting in half by 2015 the number of people living in poverty worldwide. The author of the outcomes study asserts that data analysed in this report indicate that just increasing the quantity of education at the lower educational levels will not raise earnings substantially, and thus not prove to be effective in helping people climb out of poverty (ibid.).

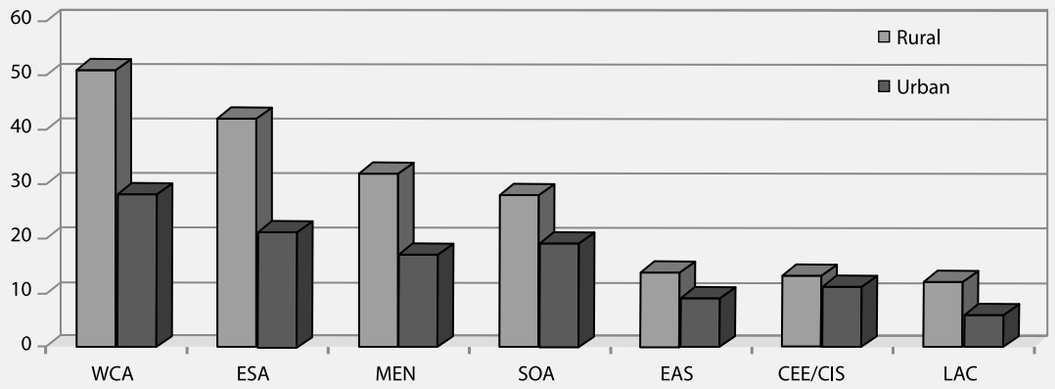
The problem underscored from data in two countries is illustrative of a much wider phenomenon. The quality of education remains very low in many countries. Millions of children are emerging from primary school with reading, writing and numeracy skills far below expected levels (GMR: 2011, p.1). The World Development Report 2007 (World Bank: 2006) suggests that employers demand strong thinking, communication and entrepreneurial skills from candidates at the entry level for jobs or for training programmes—the demands largely unmet by curricula, teaching methods and general performance of schools in developing countries.

The review carried out and the statistics reported on EFA progress leading up to the World Education Forum in Dakar 2000 and progress since then, neither highlighted nor analysed rural–urban disparities in the participation and access to primary schooling. There is a general neglect in systematically collected and assessed inter-country data indicating urban-rural differences and other aspects of disparities necessary for identifying and dealing with the range of issues connected to universalising primary education with quality. An estimate by UNICEF with data from the early years of the decade after 2000 provides an indication of the disadvantage of the rural areas in respect of exclusion from primary education (see Figure 2.1).

Another way of gauging the urban–rural gap in primary education is to look at the situation in the countries with high non-enrolment. The Global Monitoring Report for EFA shows that half the world's out-of-school children live in just fifteen countries (Figure 2.2). These are also the countries with a high ratio of rural population.

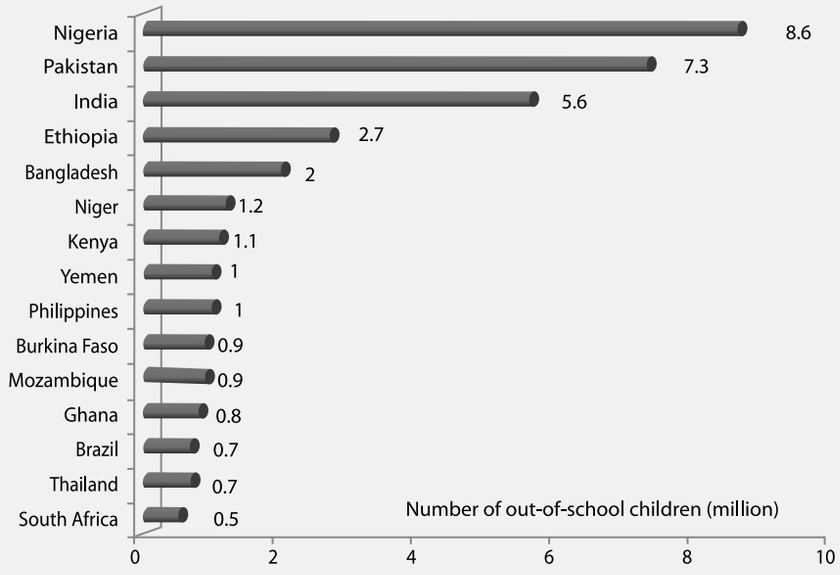
In general terms, poverty stricken rural children as well as adults, who constitute the majority of the population in developing countries, have very limited opportunities to obtain a viable basic education that would help them prepare for productive skills development and economic opportunities, and thus, "break free" from the poverty cycle. Many rural children still do not set foot into a school; many of those who do fail to complete the full primary cycle; and even among those who do complete it, many leave school barely literate. When schools exist in remote rural areas, they are often in need of repair, poorly equipped and dependent on inadequately trained and under paid personnel (Atchoarena and Gasperini: 2003, pp.390–391).

Figure 2.1 Percentage Children Out of Primary School by Area of Residence



CEE/CIS= Central Asia and East Europe, LAC= Latin America and the Caribbean, EAS= East Asia/Pacific, SOA= South Asia, MEN= Middle East/Northern Africa, ESA= Eastern/Southern Africa, WCA= Western/Central Africa
Source: UNICEF, "Progress for Children, A Report Card on Gender Parity and Primary Education," Number 2, April 2005.

Figure 2.2 Number of Children of Primary School Age out of School (Selected Countries, Millions in 2008)



Source: EFA Monitoring Report 2011.

ILO emphasised that schooling is positively and significantly associated with participation in rural non-agricultural wage employment and concluded that, "Improving basic education is essential and often a necessary condition for other programmes and policies targeted at improving skills and knowledge in rural areas and for making the most of vocational and technical training opportunities" (ILO: 2008, pp.54–55).

Second level education and skills

The skill requirements of rural jobs continue to rise along with required general education levels of workers. Although less educated rural adults fared well in the 1990s all over the globe due to positive economic trends, their prospects however are uncertain. Many rural jobs historically held by workers with limited education have been lost to changes in (i) production technology, (ii) overseas competition and (iii) changing consumer demand. Prospective employers are increasingly attracted to areas offering a concentration of well-educated and skilled workers, just as better educated youth and adults are still drawn to places—often in cities—that offer better jobs with higher salaries.

The question of the linkage between post-primary/secondary education and skills development are framed by two related concerns—how secondary education, lower and higher stages of it, contribute to conventional vocational and technical training as well as to emerging non-conventional skills development programmes; and to what extent and how secondary education itself can become "vocationalised" and complement conventional TVET?

The two concerns are linked and raise a number of interconnected questions. The questions that come up and need to be sorted out to develop workable strategies acceptable both to the employers and parents and participants themselves include: Under what conditions is vocationalisation of schooling justified and is likely to work? Should the curriculum focus be a narrow one on technical skills development or on a broader notion of vocational learning including socialisation and identity formation? Should any vocationalisation be "light"—general prevocational to provide an orientation—or should it aim to produce job-ready workers for specific occupations? Can it ever be popular and acceptable with learners and parents? Is a new skills profile for the globalised knowledge economy necessary—comprising skills, knowledge and attitudes for increasingly service sector-driven economies? How does vocationalism respond to the context of jobless growth in the formal economy, being experienced widely in many countries? Equally important, how should vocationalised post-primary education respond to the needs of the informal economy, the predominant form of economic transactions in both rural and urban areas of developing countries? (McGrath: 2007)

A huge amount of analytical work on various facets of skills development and its relationship with the broader educational systems has been undertaken by the World Bank. This is encapsulated in two important publications: Vocational and technical education and training, a World Bank policy paper (1991) and Skills development in Sub-Saharan Africa (2004). These have been influential documents which set the agenda for discussion on vocational and technical education and served as benchmarks for policy and programmatic choices, even when the prescriptions were not fully adopted and not followed in many instances.

It would be fair to say that the 1991 World Bank policy paper contributed greatly to a re-conceptualisation of the scope and range of provision for vocational and technical skills for countries and aid agencies. It and its sequel focused on Africa influenced subsequent discourse and reviews on this subject. As King summed it up,

> ...the Bank proclaimed its principal proposition about the relationship of school to skill to be that making general primary and secondary schools good in their teaching of language, maths and science is a better way of improving workforce skills than making schools technical or vocational. Hence the Bank's position on school and skill is that you do not need to make the school curriculum technical or vocational for school to contribute to skill (King: 2007).

King observes that the conclusions and implications of the two reports mentioned earlier have not been adequately incorporated in or dealt with in several reports of World Bank itself specifically concerned with the

relationship between technical and vocational education and post-primary general education or the place of skills development in the total education system. These bank documents include expanding opportunities and building competencies: A New Agenda for Secondary Education (2005), Education Sector Strategy Update (2005), World Development Report (2006) and Choices for Secondary Education and Training in Sub-Saharan Africa (2007; ibid.). It can be argued by the same token that the Bank's lending and technical assistance have not been fully consistent with the key policy recommendation it had put forward in its policy statements mentioned above. Many countries appear to have opted for a mixed approach with a degree of "vocationalisation" in the mainstream general secondary education, influenced by variations of the European models of vocational and technical training and education. The differences in labour market and overall educational development context from Europe have not deterred the countries and the outcomes, on the whole, cannot be regarded as satisfactory.

The key policy message of World Bank regarding the relationship between vocational and technical education and general second level education hinges on ensuring adequate basic competencies of young people in languages, math and science for their later success in the world of work, irrespective of occupations. Researchers and academics have regarded this as sensible, but it does pose for the countries the huge challenge of bringing about a major transformation in the way primary and secondary education systems functioned. The governments aided and abetted by external donors, decided to hedge the bet and went for the "path of least resistance" of introducing variations of vocational subjects in general secondary education. For the purposes of this report, it should be noted that the "vocationalisation" approach allowed introduction of agriculture and farm-related courses in rural schools. Whatever the merit of this initiative, which is not without its detractors, the basic problems of quality assurance and management of the general system became major obstacles to positive outcomes in many developing countries (Feller: 1996, pp.24–27).

In a large number of developing countries, especially in Sub-Saharan Africa and South Asia, the ability of the governments to deal with the changing realities in the economy and labour market needs has been seriously constrained by demographic pressures and financial constraints. In Sub-Saharan Africa, for instance, labour force is still projected to grow between 2 and 3 percent or more a year at least in near future (UNDP: 2011). Much of the economies and much of the populations in this region are still rooted in traditional activities and structures. More than half of the labour force is still engaged in rural activities. Despite some movement away from agriculture, most of the labour force, ranging between 80 and 90 percent, is working in the informal sector, much of it at low levels of productivity and earning.

For a significant proportion of this majority group, adequate and easy access to secondary education and vocational education and training (VET), in varying combinations of general and vocational education or in separate programmes of acceptable quality, is necessary, but lacking seriously. In developing countries excluding China, almost half of the children of secondary school age are not enrolled in school. In most cases, it is even less for girls, except in Latin America and the Caribbean (see Table 2.2). The proportion of the secondary level students in technical and vocational education varies regionally, but is the lowest in South Asia and Sub-Saharan Africa. This proportion has come down between 1999 and 2008 by 2 percent worldwide, while overall secondary enrolment has increased by 21 percent (Table 2.3). An effective school to work transition for the young people, which is facilitated by higher quality secondary and tertiary education and VET, could improve their employment prospects and lifetime earnings.

Non-formal, adult and lifelong learning

The Global Monitoring Report team found goal 3 related to meeting the learning needs of all young people and adults through equitable access to appropriate learning and life skills programmes as the hardest to define and measure, because of the character and multiple dimensions of this area of learning needs (UNESCO-GMR: 2005).

Low attainment in rural areas is often attributed to farm work; children miss school or drop out to help with farm or household work. But studies of child labour show that

Table 2.2 Secondary School Enrolment Ratio (Latest Year of 2005–2009)

Regions	Gross		Net	
	Male	Female	Male	Female
Africa	44	36	33	29
Sub-Saharan Africa	40	32	32	28
Asia	64	60	-	-
South Asia	56	48	-	-
Latin America & Caribbean	87	94	72	77
Middle East & North Africa	72	66	66	62
Developing Countries	64	60	54*	53*
Least Developed Countries	39	31	33	29
World	69	65	61*	60*

Source: UIS data cited in UNICEF, State of the World's Children, 2011.

Table 2.3 Share of Technical Vocational Education in Second-level Education

Major Regions	Total Secondary Enrolment (000)		Technical and Vocational Education as a Share of Secondary Enrolment (%)	
	2008	Change Since 1999 (%)	2008	Change Since 1999 (%)
World	525,146	21	11	-2
Sub-Saharan Africa	36,349	75	7	-6
Arab States	29,858	35	13	-7
Central Asia	10,913	16	15	123
East Asia and the Pacific	164,021	25	16	9
South and West Asia	130,312	33	1	-5
Latin America and the Caribbean	59,101	13	11	3
North America and Western Europe	62,333	3	13	-10
Central and Eastern Europe	32,258	-21	19	5

Source: Compiled from EFA Monitoring Report, 2011.

of the 5 to 14 year-old children not in school, 32 percent do only domestic work. Other reasons for dropping out include the inability to meet costs of attendance, distance to school, a curriculum or language incompatible with local conditions, beliefs that education is not necessary and poor school quality. Improving basic education in rural areas, whether primary education in Africa or secondary in Latin America, is essential to energise the process of rural development (UNESCO: 2010).

There is clearly a need for special attention to rural areas in addressing skills development for poor people. This must be linked to a renewed understanding of the importance of agricultural development in general and non-farm development in rural areas. There is a parallel challenge of skills development for the informal economy, the major source of employment and income for both rural and urban people in most developing countries. There needs to be a focus on the ways of combining education and training with the devising of ways for effective entry into the

labour market in rural and informal economy contexts. Alternative paths and second and recurrent opportunities for acquiring general education competencies separately or in combination with occupational skills need to be expanded (Lakin and Gasperini: 2003, pp.77–169). This point is further elaborated below.

Tertiary education and rural skills development

Generally, higher agricultural education is regarded as relevant to supporting and promoting development of skills and employment and contributing more broadly to poverty reduction and economic development among rural people. Two pertinent questions arise: how well are tertiary level academic institutions in agriculture playing the expected role? Secondly, is tertiary education contribution to rural development, especially of a broader transformative nature, confined to higher agricultural education?

Agricultural professionals and researchers

Poor quality training of agricultural professionals, technicians and producers has been identified as part of the global food security problem as well as the broader issues of poverty alleviation and development in rural areas. The development of human resources in agriculture, technology and other developmental priorities for rural areas is often not a high priority in the overall development plans of countries. As a result, curricula and teaching programmes are not necessarily relevant to the production needs and employment demands of rural areas (World Bank: 2007).

Due to the growing economic crises in the public sector of many developing countries, the situation has become even more serious in recent years. In the past, the public sector absorbed nearly all of the students who studied agriculture. This is no longer the case. Agriculture graduates and diploma holders are finding it more difficult to become gainfully employed. Governments can no longer afford to hire every graduate, and education in agriculture has not kept up with the increasingly sophisticated labour demands of the private sector. These and other factors, such as environmental degradation, rapid changes in technical knowledge and the marginalisation of rural areas, all call for changes in the current systems of education in agriculture in many countries. The new agriculture also requires more and better trained researchers and agricultural professionals. But the education and training structures are not always up to this task (World Bank: 2008, pp.222–223).

General higher education and the rural context

The transition to higher education, which is particularly difficult and expensive for rural youth, requires support. Remarkable higher education policy reforms have been introduced in an increasing number of developing countries, which offer lessons and indicate strategic directions.

The Chinese tertiary education has experienced a radical shift over the last three decades—from a largely elitist and limited access system into a diversified system with increasingly wider access, multiple providers, and multilayered programmes. In this process of growth, equal access, affordability, gender, graduate employment, quality control, and the redistribution of the best education resources have all become matters of public concern and contention (Brandenburg and Zhu: 2007, p.16).

The Chinese Government has three new policies in place in order to overcome inequities in access. One is to invest more money in the less developed regions in order to provide more tertiary education opportunities to ethnic minorities and students from poor families. The other is to allow poor students to take loans from their hometown local authorities before they get registered at colleges and universities. Many provinces in the country started to implement this policy, which intends to meet the financial needs of significant proportions of students. The third policy is to develop technical and vocational education to complement standard tertiary opportunities in the country (Brandenburg and Zhu: 2007, p.27).

Similarly, the Mexican Jóvenes con Oportunidades offers youth in school a savings account in which they accumulate points during grades 9 to 12. The money can be tapped upon the completion of 12th grade for further study, opening a business, improving housing, or buying health insurance. The program thus provides incentives for children to graduate from secondary school and facilitates their continuing on to higher education (Mexico: 2004, pp.1–6).

TVET to skill development—the spectrum of skills

It goes without saying that rural areas all over the world are changing at an accelerated pace. National governments will have to accord increasing priority in their national development plans to prepare rural people to rise to the new opportunities. New technologies, new products, new markets and new business environments are fast changing the way the agriculture sector operates. And many rural people are shifting to non-farm activities or migrating to cities in search of new employment opportunities. To seize these opportunities, rural people will need skills that differ from the conventional ones or inherited from their elders. To what extent are the education and training systems ready to face the challenge?

A broad vision of education, training and skills

Education and training—purveyor of knowledge, skills, confidence and hope to the participants—need to generate the energy and creativity among rural people to face up to the complex world around them fraught with risks and possibilities. Attempts to gauge the effects of education on rural development have to view education, broadly defined to subsume formal and non-formal modes as well as training and skills acquisition, as means for gaining knowledge, transforming attitudes and acquiring skills. Effective participation in education is expected to render a person capable of contributing to development in one or more of the following ways: the acquired knowledge in reading and writing enables and stimulates a person to receive and convey knowledge and information related to individual and community development; the attitudes imparted lead to greater motivation to participate in development processes and to motivate others to do the same; the communication skills and group discipline inherent in education foster a spirit of cooperation and team-work. In addition, education generates a variety of skills which individuals can deploy in their daily life as well as for enhancing their productivity and earnings.

The term technical and vocational education and training (TVE or TVET) is used to refer narrowly to the regular provision of vocational training at the second level of education. It has been confined traditionally to formal vocational and technical training institutions within the structure of the formal system. The term, it appears, needs to be modified as well as the range of activities included under it need to be expanded to cover some of the other kinds of skill acquisition and the sites where this happens—beyond schools, at the work place, shops or farms, formally, on the job and in formal or informal apprenticeship. "Skills development" can refer more accurately to the diverse types and sites of provisions. By the same token, post-primary or post-basic education, rather than secondary, connotes a broader and flexible relationship between general secondary education and preparation for the world of work, through curricular offerings within the secondary school, through complementary activities away from school or time-release for work place experience. Irrespective of the label used, there is a need to expand the scope, objectives and modalities of delivery of both general second level education and technical and vocational education and training, further discussed below.

The spectrum of skills

An essential change about which all are agreed is that literacy and numeracy skills alone are quite inadequate and should be accompanied by the acquisition of certain attitudes, knowledge and skills relating to vocations and income-generation, as well as management, entrepreneurship and social, political and cultural life. This conception goes much beyond what is generally found in literacy programs being implemented in many countries, confined mostly to decoding alphabetical symbols. Functional literacy puts the emphasis on the acquisition of economically and socially useful skills. It also implies the need to develop attitudes and values of the participants, necessary ingredients for making effective use of the functional skills for personal and social objectives, such as becoming a good worker, a good citizen and a responsible member of community and society.

By the same token, technical and vocational skills, narrowly and specifically defined and taught to carry out certain occupational tasks, are not often enough even for the particular task, not to speak of adapting to changing and evolving nature of occupations and job markets. Recent research (ILO: 2010 and World Bank: 2011) strongly asserts that the developing countries' transition to a knowledge-based

economy requires a new generation of educated and skilled people. Alleviation of poverty will be determined by people's ability to create, share and use knowledge effectively. A knowledge economy requires these countries to develop workers—knowledge workers and knowledge technologists—who are flexible and analytical and who can be the driving force for innovation and growth both in urban and rural contexts.

Attitudes and values are critical to the poor in their attempts to better their condition, because even the attempt may not be made without some conviction about their inherent own worth, ability and potential. They need to understand their situation and be convinced that it could be changed for the better. They need to be self-reliant and possess a sense of self-esteem. The teaching-learning approach should support the development of these values and attitudes.

> Since the poverty groups tend to be less confident in their abilities and less expressive, the learning approach should encourage them to express their point of view in a supportive atmosphere so that they can be gradually more expressive. No matter how they are, they should be treated with respect and dignity. Values and attitudes need to be supported with thinking and analytical skills (Pichayasathit: 1997, p.53).

The emphasis on practical skills and not just mere knowledge is from the perspective that the poor may take some meaningful action immediately, under their present conditions without waiting for the day when the situation will improve. If their soil is poor what may be done immediately about it? What other crops may be grown? Such questions not only need answers, but backed up with help to develop necessary skills along with the supply of other resources that may be needed. Among the attitudes and skills which need to be supported, developed and refined are those relating to cooperative action. Management and entrepreneurial skills also need to be developed. This is particularly important if the poor are to take the initiatives themselves (UNESCO-PROAP: 1998, p.47).

With regard to skills development covered within EFA, three typologies have been identified, namely: basic skills (such as literacy and numeracy), psycho-social skills (reflective, personal and interpersonal skills including problem-solving, communication and team work) and practical/functional skills (manual skills relating to specific vocations or specific changes in personal or social behaviour as in health, hygiene and nutrition; WCEFA World Declaration: 1990).

Recognising the fact that in a globalised economy, a large pool of skilled workers is indispensable, countries that have had the most rapid increases in educational attainment, as well as sustained economic growth, have upgraded education sequentially (for example, China and Republic of Korea; GMR: 2011). In the economically emerging countries of the Asia-Pacific region, skills development has enhanced significantly the efficiency and flexibility of the market: skills bottlenecks have been reduced, skilled workers are more easily absorbed into the economy, and their job mobility is improved. This has also helped to attract foreign direct investment.

Skills within the rural transformation framework

The perspective of rural transformation—multi-faceted change in rural areas as part of integrated development embracing rural and urban people—poses a special challenge for reforming TVET, or more appropriately, skill development, in relation to rural and agricultural development. The themes of moving from institutional TVET to development of skills in multiple modalities, and looking at the scope of skills development as a wide spectrum, are totally consistent with the transformative view of rural development. This view, at the least, would call for three kinds of change in the way skill development strategies and programmes are conceptualised and planned (UN: 1999, p.4).

First, there has to be a greater emphasis, in objectives and content of programmes, on agriculture-related and rural development skills within TVET and broader skills development activities. TVET provision itself has to be made transformative by making it contribute to rural economic regeneration and also facilitate inter-sectoral and geographical mobility of including orderly out-migration from rural areas, recognising that this is an essential element of the larger scenario of rural transformation (see below). Skills for rural transformation have to be seen as a sustainable

livelihood approach, encompassing all skills for rural life rather than a concentration on agriculture (see elaboration below).

Second, rural skills interventions have to be specifically incorporated in poverty reduction strategies. Poverty reduction strategies developed in many developing countries in the last two decades with the encouragement of international donors make references to TVET as a critical component of capacity building. However, it appears that these strategies often have remained within the confines of conventional TVET, rather than looking at reforms of TVET and their broadening into skills development. Such a broadened view could incorporate diverse capacity building of the poor, provisions beyond formal institutions, better functioning of decentralised governance and involvement of NGOs, civil society and the private sector in skills development (UN: 1999, p.27).

Third, the essential corollary of the broad view of rural transformation is the broadening of the EFA agenda to include skills and capacity building for rural youth and adults. As observed by many, EFA national plans have focused on achieving universal primary education, apparently presuming that the problem of the large numbers of out-of-school children and youth will disappear with rapid progress in primary education. It has not turned out that way. Moreover, as noted above, the targets and strategies regarding EFA goal 3, skills development of youth and adults, have remained problematic with difficulties both in defining indicators of progress and recording or demonstrating progress.

In short, skills development for rural transformation with a focus on combating rural poverty has to be premised on the development of capacity for learning, innovation and productivity of rural people. Skills have to be regarded as more than narrow technical competencies, encompassing capabilities in communication, teamwork, creative skills and interpersonal behaviour. Moreover, education, training and skills development have to be planned and implemented, not in isolation, but within a comprehensive approach for poverty reduction, identifying the right pathways out of rural poverty.

Skill needs in rural areas

The categories and character of skills needed for rural people are determined by the broader rural transformation imperatives and the requirements of promoting sustainable livelihoods are presented in the following section.

The discussion of education and skills development issues—how they relate, the nature of skills and their development, and placing skills within the framework of rural transformation—still begs the question what skills are relevant and necessary when the goal is lifting people out of poverty and contributing to transformative change in rural areas. At the same time, it cannot be forgotten that rural areas and circumstances of rural people are hardly homogeneous. Moreover, the transformation perspective requires that rural education and skills development are not put in wholly separate compartments from education and training in urban areas without any link and interaction. Despite the caveats, it is a practical necessity to consider categories and types of skills and capacities that need to be developed and for which provisions need to be made.

The skill and learning needs of diverse groups of learners and their categorisation in different socio-economic and geographic contexts have been considered copiously in abundantly in curriculum and education literature. Typologies of skill and learning needs in rural areas, with large proportions of the people in poverty and under-development have been attempted to be developed deriving these from analyses of interconnections and interplay of the sociological, cultural, economic and educational dimensions of poverty. An illustration of a general typology of skill and learning needs in rural areas is presented in Table 2.4.

Another way of looking at the typology of learning needs is to focus on occupational categories and people who may be engaged in these. Such a typology formulated almost four decades ago as part of an attempt to examine the role of non-formal education in attacking rural poverty, shown in Table 2.5, still remains relevant.

The skill needs of learners from rural settings—children in primary schools, adults in literacy workshops and youth pursuing non-formal education—are such that they can

Table 2.4 Skill Needs in Rural Areas—A Typology

Area of Skills and Capacities	Learning Needs
Basic tools of learning	• Skills of literacy, numeracy, communication and problem solving, to enable one to read, write, communicate through speech and writing and carrying out simple arithmetical operations as required in day to day living.
Quality of life	• Knowledge about the immediate physical and social environment what things are and how they work. • Knowledge and skills relating to health, hygiene, housing, family life, sanitation, nutrition.
Productivity skills	• Technological, managerial, entrepreneurial skills as would help in increasing productivity. • Intelligent and sustainable resource generation and utilisation skills. • Understanding of poverty—environment relationships. • Understanding/skills with respect to effective use of basic services. • Creatively responding to income earning opportunities. • Opportunities to participate in work situations.
Organisation, attitudes and values	• Being aware of one's rights as a human being, as a child, as a woman. • Understanding of how civic life is organised. • Skills of discussion, cooperative decision making for effective participation in community life and developmental activities. • Self-esteem, confidence, courage and ability to take positive decision, actions, initiatives concerning their own lives.

Source: UNESCO-PROAP: Basic Education for Empowerment of the Poor, 1998, p.92.

Table 2.5 Illustrative Rural Occupational Categories and Their Skill Needs

Groups	Type of Persons
Persons directly engaged in agriculture	• Commercial farmers • Small subsistence and semi-subsistence farm families • Landless farm workers
Persons engaged in off-farm commercial activities	• Retailers and wholesalers of farm supplies and equipment, consumer goods and other items • Suppliers of repair and maintenance services • Processors, store-keepers and shippers of agricultural commodities • Suppliers of banking and credit services • Construction and other artisans • Suppliers of general transport services • Small manufacturers
General services personnel: rural administrators, planners and technical experts	• General public administrators, broad-gauged analysts and planners at sub-national levels • Managers of cooperatives and other farm associations • Managers, planners, technicians and trainers of specific public services (e.g. agriculture,transport, irrigation, health, small industry, education, family services, local government) • Managers and other personnel of credit services

Types of learning needs at various levels of sophistication and specialisation

- Farm planning and management, rational decision-making, record-keeping and revenue computations; use of credit
- Application of new inputs, varieties, improved farm practices
- Storage, processing and food preservation
- Supplementary skills for farm maintenance and improvement, and sideline jobs for extra-income
- Knowledge of government services, policies, programmes, and targets
- Knowledge and skills for family improvement (e.g. health, nutrition, home economics, child care, family planning)
- Civic skills (e.g. knowledge of how cooperatives, local government, national government function)
- New and improved technical skills applicable to particular goods and services
- Quality control
- Technical knowledge of goods handled efficiently to advise customers on their use, maintenance, etc.
- Management skills (business planning, record-keeping and cost accounting, procurement and inventory control, market analysis and sales methods, customer-employee relations, knowledge of government services, regulations taxes, use of credit)
- General skills for administration, planning, implementation, information flows, promotional activities
- Technical and management skills applying to particular specialties
- Leadership skills for generating community enthusiasm and collective action, staff team work and support from higher echelons

Source: Philip Coombs and Manzoor Ahmed (1974): Attacking Rural Poverty: How Non-Formal Education Can Help, Washington D.C.: World Bank and University of Baltimore Press, p.17.

be effectively addressed only when the learners are made to "own" the programmes and actively participate in their own learning. But such participation cannot be ensured unless their learning and living needs are integrated not on just paper but more importantly in actual transactions. Typically, the learners from the rural poor may be more concerned about such matters as, for example, taking proper care of cattle, goat, sheep, testing soil and water for crops, raising new crops, keeping accounts of milk received and sold, understanding the calendar, making purchases for the family, reasons for frost, drought, rain, taking care of health, overcoming diseases, how to think, how not to be embarrassed in the presence of strangers, how not to be afraid of asking questions about things one does not know. The challenge is organising learning sequences around such actual life concerns and this can be met only when there is a shared perception of the core purposes of the programme among the learners, the learning mediators (teachers) and the general community (Khan and Chatterjee: 1997, p.17).

The critical skill and learning needs of rural areas are developing productivity and income-generation skills, overcoming low self-esteem, developing ability to take positive initiatives and actions on their own behalf, learning to work cooperatively, developing ability and confidence to make decisions concerning their own live, being aware of their fundamental rights and learning to exercise them. It is true that the principle of learner-centred, activity-based teaching applies to all good learning, but what is not generally appreciated is that its non-observance in practice hits hard not all but those who come from disadvantaged population groups.

Life skills

Besides general competencies (such as literacy, numeracy and reasoning skills imparted through basic general education) and production and vocational skills, another category described as life skills has come to the fore as important, especially for people in social and economic disadvantage, as the rural poor are. Life skills are important for functioning as a person and as a member of family, community and society effectively, and have a particular relevance for people struggling to overcome disadvantage and discrimination. Thus, it is with specific reference to skill and learning needs of the rural poor—basic and life empowering skills, productivity skills and attitudes and values—that education and training interventions should be planned. It should, however, be noted that these learning and skill needs vary according to nature of the learners' age-group, and motivations as shown in Box 2.3.

Learning contents

Several development ministries and departments are involved in the task of rural development like health, family welfare, rural and tribal development, youth services, child welfare in addition to education. The characteristics and the problems of the rural people and their skill needs are

Box 2.3 Overview of Life Skills and Life Skills-based Education

The conceptual basis for most of the life skills work undertaken by the United Nations and its partners is the World Health Organisation's (WHO) Skills for Health. Life skills are abilities for adaptive and positive behaviour that enable individuals to deal effectively with the demands and challenges of everyday life. In particular, life skills are a group of psycho-social competencies and interpersonal skills that help people make informed decisions, solve problems, think critically and creatively, communicate effectively, build healthy relationships, empathise with others, and cope with and manage their lives in a healthy and productive manner.

Skills for Health designates ten skills divided into three broad categories:

- Communication and interpersonal skills;
- Decision-making and critical thinking skills; and
- Coping and self-management skills.

Communication and Interpersonal Skills

- Interpersonal Communication Skills
- Negotiation/Refusal Skills
- Empathy Building
- Cooperation and Teamwork
- Advocacy Skills

Decision-Making and Critical Thinking Skills

- Decision-Making/Problem-Solving Skills
- Critical Thinking Skills

Coping and Self-Management Skills

- Skills for Increasing Personal Confidence and Abilities to Assume Control, Take Responsibility, Make a Difference, or Bring About Change
- Skills for Managing Feelings
- Skills for Managing Stress

Source: Life Skills-Based Education in South Asia, a Regional Overview Prepared for the South Asia Life Skills-Based Education Forum, October 2005, UNICEF Regional Office for South Asia.

diverse and cut across the wide range of development services and programmes. A synergistic alliance on the part of all who are concerned with development and their concerted and coordinated action is essential for the various development services to converge on concerns related to rural development and poverty alleviation. In line with these evolving synergies, Table 2.6 presents illustrations of learning content in basic services for rural areas.

While most training programmes represent the demands of the formal economy and market, attention must be paid to the fact that a large percentage of people, particularly the young, eventually settle in the informal sector of the economy. This sector calls for a very specific type of skills and learning which training programmes will have to confront (Pieck: 2000).

The learning community

The rural communities require the entire gamut of educational and training services—early childhood care and development, quality primary education for all children, second chance basic education for adolescents, literacy and continuing education programmes for youths and adults, vocational skill development, and knowledge and information for improving the quality of life. This wide-ranging need cannot be met by piecemeal learning and skills development provisions. This is where the concept of the "learning community" assumes a special significance.

Broadly speaking, the term "learning community" refers to any community where knowledge is the primary factor of production instead of capital. It may also refer to the use a certain community gives to information. A learning community creates, shares and uses knowledge for the prosperity and well-being of its people. The essential characteristics of a learning community are enumerated below as proposed by Rosa Maria Torres (Torres: undated).

Table 2.6 Learning Content for Skill Development in Basic Services

Area of Skills and Capacities / Major Area	Learning Needs / Content
Health and Hygiene	Basic awareness of facts, practices and rules of good health, common diseases, overcoming illness, cultivating good personal health habits, being aware about consequences of bad practices on general health of the community around, being aware of and effective utilisation of health services available, generating demand for access to better health services, skills of healthful living, use of traditional medicines.
Nutrition and Food	Basic awareness about balanced food and caloric intake. Learning to spend wisely on food, valuing nutritional value of food than traditional food habits, customs where they conflict with nutritional requirements, skills in preparing balanced diet, being aware of diseases caused by malnutrition and being able to take preventive care, being aware of and effective use of nutritional services available, demanding access to better nutritional support.
Farming	Being aware of modern techniques of farming, use of fertilisers to increase farm productivity and adopting new techniques, saving devices, utilising opportunities to acquire and enhance productive skills, being aware of and effective use of basic services in agriculture, cooperative functioning towards more effective implementation of new techniques.
Drinking Water and Sanitation	• Being aware about the importance of clean, safe drinking water and water-borne diseases, acquiring knowledge and skills of making water safe for drinking, keeping the sources of drinking water clean. • Being aware of the environmental hazards to community and personal hygiene of waste accumulation, scientific methods of waste disposal and waste recycling.
Cooperatives and Credits	• Being aware of what trade practices exist in the community and outside, learning to confidently participate in the trade and commerce of the community, allowing oneself not to be exploited by the middlemen, knowledge of money system, income-generating/trade and employment opportunities, enhancing productivity skills to earn and consume wisely, use of cooperatives and credit, cultivating savings habit. • Awareness about the consequences of large family size on quality of life aspects—health, nutrition, food and poverty. Gender equity, awareness and effective use of family planning and welfare services.
Family Welfare and Living In The Community	Being aware of how and who takes decision on matters that affect the life of the community, civic and social awareness. Participation in decision-making processes involving community life. Learning to live and work cooperatively. Knowledge and understanding of how others live, the dynamics of the community, interpersonal relations, understanding one's rights. Learning to exercise rights and freedom.

Source: UNESCO-PROAP (1998), pp.78–79.

- Is area-based and community-based.
- Assumes that all human communities possess learning resources, agents, institutions and networks that need to be identified, valued, developed and articulated so as to ensure the learning needs of all in the community are met.
- Sees state/government as having a key supporting role, and a specific compensatory role vis-à-vis the disadvantaged communities.
- Adopts a broad vision of education and puts learning at the centre, embracing all education, training and learning environments.
- Places great value and emphasis on intergenerational and peer learning. In particular, it highlights the educational potential of young people and of the elderly.
- Is based on the premise of solidarity, cooperation and alliances between home and school, in-school and out-of-school education, and public and private institutions.
- Accepts and encourages diversity, acknowledging that each community has its specific resources, needs and realities, and thus the need for community participation and ownership.
- Seeks to demonstrate the importance of developing learning systems generated and developed at the local level, based on cooperation and synergy of efforts.
- Focuses on groups and institutions, relationships and networks rather than on isolated individuals.
- Proposes a bottom-up, inside-out model of educational development and change that challenges the conventional "international cooperation for development" model.

A learning community cannot become a reality unless learning itself becomes continuous and lifelong. In order for this to happen, it is essential to develop a framework (matrix) containing education, training and skills development programmes catering to all the stages in the educational journey of a learner and providing learning opportunities for the entire community. What needs to be provided are vibrant, active continuing quality education and skills development activities relevant to the needs of the rural people which enable them to pass through the phases of basic literacy and post-literacy education and satisfy their demand for further learning and for seeking gainful employment (INRULED: 2001). Such a programme would also be a platform for rural transformation by creating a social environment in which knowledge and information would guide people's behaviour.

What do the concepts of lifelong learning and the goal of a learning community mean? Within the broad context of the learning society, it means providing every individual with the conditions for continuous learning for improving his/her lot. Depending upon where one is positioned in the ladder of learning, it may mean different things to different individuals. For non-literates, it would mean functional literacy combined with a series of learning programmes that would help them improve awareness, capability, skills, confidence and participation in development. For a farmer, it would mean the acquisition of farming and farm management techniques. For a semi-literate rural woman who has been "pushed out" at the primary education stage, it may mean the facility to learn a new skill that would enable her to enhance the level of living of her family or it may mean attending a short-term course on gender equity which would give her confidence to speak out against injustice (INRULED: ibid.).

It goes without saying that quality learning in rural areas takes place in a social and environmental context very different from what is encountered in urban and sub-urban areas. Rural practitioners often have few organisations to partner with the daunting transportation hurdles to overcome. Rural communities often have deeply rooted complex social structures which can either support or hinder learning. "Rural communities have many similar challenges as their urban counterparts, but they are uniquely faced with maintaining a balance between a rural environment and development pressures, providing a "stay option" for children when they reach maturity, and addressing a feeling of neglect that can come from being on the periphery of most political and economic activity" (Mihalynuk and Seifer: 2007). At the same time, rural communities are characterised by enormous strengths, including social connectedness and cohesiveness that often translate into a wonderful sense of community and camaraderie among their residents.

2.4 Bridging Skills, Jobs and Rural Poverty Reduction

Sustainable livelihood approach (SLA)

The discussion in the preceding pages has shown that rural households attempt to adopt livelihood strategies that respond to varying combinations of human, social, natural, physical and financial capital that they face. The blend of assets—land, skills and education, social networks and access to other resources, such as water, social services, infrastructure, credit or cash from remittances—as well as risks and vulnerabilities to which households are exposed are key elements in the strategies they can adopt. It has also been argued that skills and capacities of people, specific and generic, and education and training provisions as well as other non-formal and informal means of acquiring skills and capacities constitute a critical asset for rural transformation. They are a critical asset for improving livelihood outcomes for rural poor and transforming rural areas as a part of national development improving life and livelihood of all people, rural and urban. Households require a range of assets to achieve positive livelihood outcomes; no single category of assets on its own is sufficient to yield the many and varied outcomes that people seek. This is particularly true of poor households, whose access to any given category of assets tends to be limited.

The principal question that arises from the chain of logic presented is—what is the bridge that connects the different forms of assets, skills and capacities of people being one of them, so that a coordinated and integrated blend of the various assets can be brought to bear on the endeavour of fighting rural poverty and thus contributing to rural transformation? It is argued that the sustainable livelihood approach (SLA) can be the bridge in terms of clarifying concepts and providing practical guidelines.

The concept of SLA had first appeared in literature in the 1980s. The UK Department for International Development (DFID) made "sustainable livelihoods approach" a core principle of its strategy for pro-poor policy-making in its 1997 White Paper on international Development (DFID: 1997). (Initially the plural "livelihoods" was used by DFID, later both the singular and the plural forms came to be used depending on the context).

SLA was in tune with wider shifts in approaches to development through the 1980s and 1990s towards a focus on human-wellbeing and sustainability rather than only economic growth. Chambers and Conway, in their 1992 research on "sustainable livelihoods," expressed the multifaceted nature and complex set of relationships with SLA, with clarity (Chambers and Conway: 1992).

Among international agencies, besides DFID, IFAD and the Asian Development Bank have attempted to explore and elaborate the conceptual aspects and practical implication of SLA. ILO emphasised SLA in the context of emergencies and environmental sustainability, rather than a general approach for dealing with poverty and vulnerability of poor people. From the point of view of ILO's concern about linking jobs and fighting poverty, it appears that ILO could have accorded SLA a more central place in its work. References were few in World Bank agriculture and rural development materials on the sustainable livelihood approach.

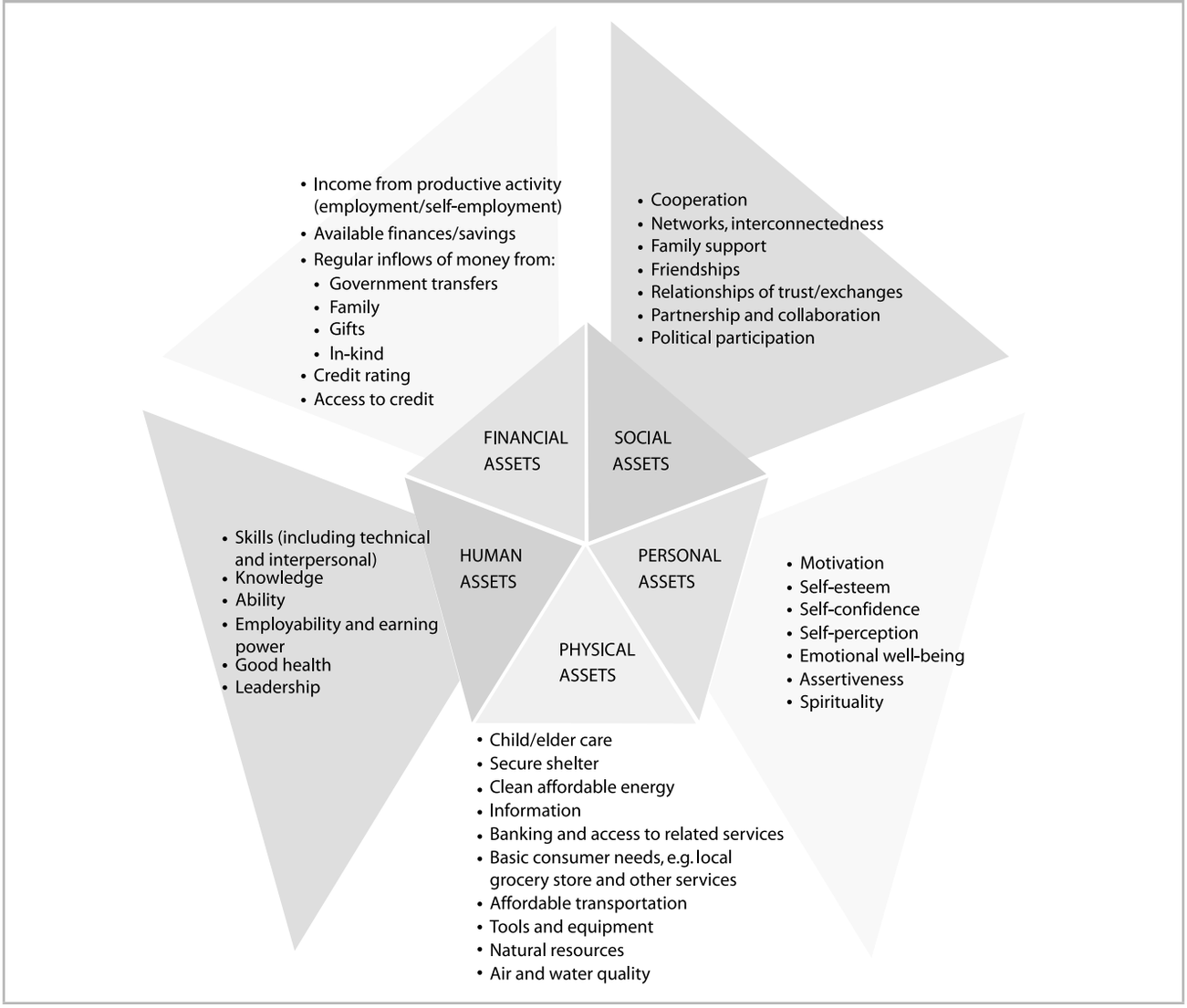
DFID, in articulating its SLA approach, emphasised understanding the vulnerabilities of poor people and the organisational and institutional environment within which poor people attempted to make use of assets of different types in working out a livelihood strategy for themselves. Five types of asset were identified: human capital, social capital or support derived from belonging to social groups, natural or ecological capital, physical capital and financial capital. SLA's aim was seen to show the complex range of assets and activities on which people depend for their livelihoods, and to recognise the importance to poor people of assets which they do not own. SLA could provide a framework for considering the whole range of policy issues relevant to the poor, access to health and education as well as to finance, markets, and personal security. Sustainability and continuity of change brought about could be promoted through participatory approach, being responsive to changing circumstances and working at multiple levels from national to local, in partnership with public and private sector (Norton and Foster: 2000).

Central to the idea of SLA is the range of assets that poor people can or should be able to draw on and bring to bear on their own effort to change their condition. An elaboration of the five types of assets, developed by DFID, is shown in Figure 2.3. Skills, knowledge and ability are high-

lighted under the human capital block. However, although not specifically mentioned, knowledge, skills and information are important in relation to the other blocks for these assets to be put to use effectively. More importantly, an integrated approach is necessary in making the different assets contribute to the common objectives of turning knowledge and skills into productive work, and productive work improving people's lives.

Following the lead of DFID, other research and operational academic organisations have engaged in examining and clarifying various aspects of SLA. Various articulations of the concept and practice of SLA have re-affirmed its value as a framework that helps in understanding the complexities of poverty and a set of principles to guide action to address and overcome poverty. One lucid formulation by the Women and Economic Development Consortium in Canada argues that the strength of the SLA framework is that it places the rural poor at the centre of a web of interrelated influences that affect how these people create a livelihood for themselves by using livelihood assets that they can access. A schematic applying system logic attempts to show the main components of SLA and how they are linked. The links are not linear and is intended to underscore the

Figure 2.3 The Five Assets Building Block



Source: J. Murray and M. Ferguson (2001): "Women in Transition out of Poverty,", Toronto, Women and Economic Development Consortium, p.17.

many factors that affect livelihoods, the way they interact and their relative importance within a particular setting. The schematic points to the systemic interaction between socio-economic context of the poor, represented by the rectangle on the left, five kinds of actual and potential livelihood assets (shown by the pentagon and mentioned above), policies, processes and institutions for harnessing the assets (the second rectangle), specific livelihood strategies in a particular setting (the next rectangle) and finally the livelihood outcomes that change life of the rural poor and their communities (see Figure 2.4). The links among the components, it has to be emphasised, are not necessarily linear and strictly sequential, as the schematic may suggest.

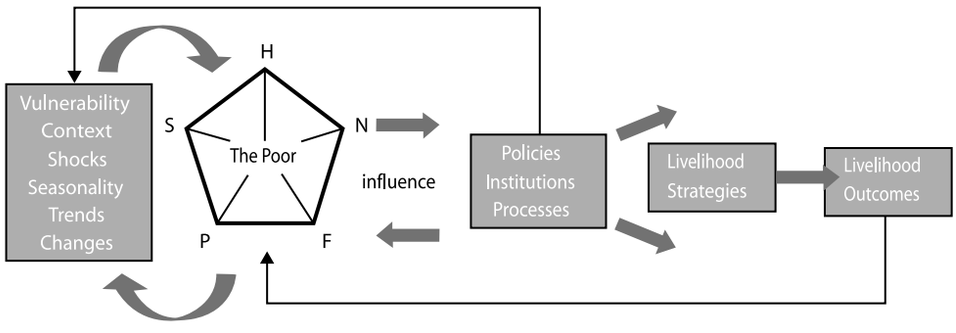
Livelihood strategies are obviously aimed at achieving livelihood outcomes, thus focusing on the most critical concern and anxiety of poor people—a guarantee of food and shelter, basic services such as education for children and health care, and safety and security of life and livelihood. SLA requires thinking out of the box, inviting stakeholders to look at contexts and relationships which can hold up or stimulate appropriate solutions. SLA encourages a shift away from the focus on project inputs and outputs and the assumed mechanical links between them. It stresses the understanding of how institutions work and linking the micro to the macro and the formal to the informal. It requires policy appraisal and policy formulation that moves from universal prescriptions to context-specific approaches that allow alternative, local perspectives to shape the policy (Serrat: 2008).

Sustainable livelihood approach has been under discussion in development literature for over two decades, adopted as a key rural poverty reduction strategy by DFID over a decade ago.

In 2002 and 2003, IFAD organised a series of workshops to encourage IFAD staff and consultants to reflect on their experience in development work and on ways for them to implement the Strategic Framework for IFAD 2002–2006. These workshops used the sustainable livelihoods approach as a means of helping participants to analyse what they already did and ways in which they, and IFAD, could enhance their positive impacts on the livelihoods of the poor. Sustainable livelihoods approach was used as a "thematic guide" for these workshops. Participants, after "recreating" the SLA framework, based on their own experience, then used it to organise and rationalise their experiences in development and clarify linkages that had not always been obvious to them before. The SLA framework proved to be a relatively intuitive, but useful tool to work with (IFAD: An IFAD Sustainable Livelihoods Framework, Policy conclusions: undated).

The IFAD workshops led to the conclusion that the "horizontal" arrangement of the original DFID framework suggests a sequential order and linearity in connections between the different elements in the framework which did not reflect fully the real world. A circular rearranging of the framework could show the greater salience of a component in a particular situation or at a specific time and its

Figure 2.4 Schematic Illustrating Major Components of SLA and Their Links from a System Perspective



Source: Murray, Janet and Mary Ferguson: (2001): Women in Transition Out of Poverty. Toronto: Women and Economic Development Consortium. January. http://www.cdnwomen.org/eng/3/3h.asp

relationships with other components. It was also suggested that SLA framework may have underplayed the agency of the poor and could place them at the centre, which could be done in a circular rearrangement (IFAD: ibid.). It is of course more than a question of graphic representation of the concept, but thinking about it "laterally," recognising the limitations of any schematic model.

Asian Development Bank supported a number of sustainable livelihood projects, such as the Tonle Sap Sustainable Livelihoods Project in Cambodia and a recent brief was prepared on the subject (Smith: 2005 and Serrat: 2008).

The resonance of SLA as a concept with the overarching development agenda of poverty reduction, green development, food security and promoting human rights and human dignity has been noted. But major international development agencies have given scant attention to SLA. Organisations, such as FAO and ILO, which, one would think, should find it appealing, have not picked it up as a major part of their rural development and rural poverty reduction strategy (see Box 2.4). Elements of it can be found in the work of various agencies, but is not the rationale for SLA that a comprehensive and integrated approach has to be pursued, rather than piecemeal actions?

Arguably, the developing countries themselves have not responded with great enthusiasm to SLA. A review of literature shows very few instances of adopting the SLA as a major initiative in many countries. Why is this so is a vital question, especially if the proposition is put forward that SLA can be a way of addressing the issue of building the bridge between skills, jobs and poverty reduction.

The protagonists of SLA did not offer it as a panacea. Nor can the obstacles and constraints to eliminating large-scale rural poverty in the world, with their structural and historical roots, can be so underestimated that the articulation of a conceptual framework would show the road to success. All that can be said that articulation of the relevant concepts and strategies would be the first steps towards progress in the right direction. Moreover, not being able to do so

Box 2.4 The Sustainable Livelihoods Approach—ADB Formulation

The sustainable livelihoods approach is a way of thinking about the objectives, scope, and priorities for development activities. It is based on evolving thinking about the way the poor and vulnerable live their lives and the importance of policies and institutions. It helps formulate development activities that are:

- People-centred
- Responsive and participatory
- Multilevel
- Conducted in partnership with the public and private sectors
- Dynamic
- Sustainable

The sustainable livelihoods approach facilitates the identification of practical priorities for actions that are based on the views and interests of those concerned but they are not a panacea. It does not replace other tools, such as participatory development, sector-wide approaches, or integrated rural development. However, it makes the connection between people and the overall enabling environment that influences the outcomes of livelihood strategies. It brings attention to bear on the inherent potential of people in terms of their skills, social networks, and access to physical and financial resources, and ability to influence core institutions.

Types of Assets

The sustainable livelihoods framework helps to organise the factors that constrain or enhance livelihood opportunities and shows how they relate to one another. A central notion is that different households have different access livelihood assets, which the sustainable livelihood approach aims to expand. The livelihood assets, which the poor must often make trade-offs and choices about, comprise:

- **Human capital,** e.g., health, nutrition, education, knowledge and skills, capacity to work, capacity to adapt
- **Social capital,** e.g., networks and connections (patronage, neighbourhoods, kinship), relations of trust and mutual understanding and support, formal and informal groups, shared values and behaviours, common rules and sanctions, collective representation, mechanisms for participation in decision-making, leadership
- **Natural capital,** e.g., land and produce, water and aquatic resources, trees and forest products, wildlife, wild foods and fibres, biodiversity, environmental services
- **Physical capital,** e.g., infrastructure (transport, roads, vehicles, secure shelter and buildings, water supply and sanitation, energy, communications), tools and technology (tools and equipment for production, seed, fertiliser, pesticides, traditional technology)
- **Financial capital,** e.g., savings, credit and debt (formal, informal), remittances, pensions, wages

Source: Olivier Serrat (2008): Sustainable Livelihoods Approach, Asian Development Bank, November 2008.

would trap countries and their international partners in a circle without an escape.

Indeed the work, so far limited, to develop an understanding of the concept itself and its application have pointed at the complexities. Major difficulties, commensurate with the multidimensional manifestations of the causes and consequences of poverty, arise in applying SLA and in understanding and addressing the multifaceted vulnerabilities of the rural poor. The complexities, as mentioned, are structural and historical, such as negative macroeconomic trends or a conflict situation, limitations to expanding and generating capital assets, dealing with rural power structure and governance deficits, clash of interests among groups of poor themselves and inequality rooted in history and social norms that undermines people's confidence, hope and self-esteem and confidence (Serrat: 2008).

Overall, the biggest questions relate to the implications of the SL approach for development planning and project development rather than to any conceptual questions. Learning processes are central to the SL approach. Changes over time in the opportunities and constraints influencing the livelihood options of the poor need to be mapped out and course corrections incorporated. As observed in respect of projects in Andhra and Orissa in India, iterative approaches to project design and implementation can only work if funding agencies (DFID and the Indian Government) and implementing partners (Orissa and Andhra Pradesh Governments) can cope with the demands of greater flexibility (Turton: 2000, p.24).

It is not surprising that SLA has not spread or has not evoked great enthusiasm, but is there an alternative to grabbing the bull by the horns? Difficulties and complexities are not good enough reasons to neglect or ignore the relevance of the idea, considering the high stake in well-being, rights and dignity of a large part of humanity.

It is necessary to resuscitate SLA, building on at least a decade of development of ideas and practices and give it a new lease of life, elaborating and reformulating it, where necessary, in the context of the new urgency to combat rural poverty and promote rural transformation.

The implications of SLA, especially skills development and capacity building of rural people with sustainable livelihoods as the defining criteria of relevance, in respect of organisations and, responsibilities for achieving results will be considered in Chapter 5. Two critical areas that must be examined in applying SLA to transformative changes in rural areas—food security and food production and building the green future—are discussed in Chapters 3 and 4.

Continuing with issues of the links between skills and capacities and lifting rural people from poverty, the special characteristics of the youth, the gender dimension and the question of movement of people in search of work from rural areas are discussed in the remainder of this chapter.

2.5 Cross-cutting Concerns—Youth, Gender and Migration

Youth—an often neglected agenda

Skills and jobs for young people, especially in the rural areas of developing countries, are a challenge for which few countries appear to be well-prepared or have developed workable concepts and tools to address it. As a group, the number of 15–24 year olds is expected to rise by 10 percent between now and 2050 in developing countries, but in the LDCs where the vast majority of the population is rural, the number will double in the same period. As this age cohort advances through life, the working-age population (15–64 year olds) will rise from approximately 450 million today to 1.1 billion in the 50 LDCs. In 2030, still almost 60 percent of them are expected to be in rural areas. About 130 million young people in developing countries (15–24 years) are classified as illiterate with women representing 59 percent (UNESCO: 2008). The high number of illiterate youth and those with low schooling are mostly living in rural areas and are badly prepared for productive work (Atchoarena and Gasperini: 2003). Addressing the challenge of rural youth employment today is necessary to improve prospects for decent work for future generations (ILO: 2008, p.30).

Who are rural youth?

Age and location are the two key defining characteristics of rural youth. The United Nations defines youth as individuals aged between 15 and 24. The 2007 World Development

Report about "the next generation" extends the age-range downward to 12. Distinguishing between who is rural and urban is complex, as we have seen, particularly for young people who have a greater tendency to be migrants than older people (World Bank: 2006).

With a few exceptions (like South Africa), youth as a group is not particularly a policy priority of most governments in developing countries. Ministries of Youth are generally very poorly resourced and are usually bracketed with other responsibilities, such as culture, sports and education. Youth, especially in rural areas, do not constitute an organised and vocal constituency with the economic and social clout and lobbying power (Bennell: 2007, p.3).

As with the rural population as a whole, rural youth are engaged in a diverse range of productive activities, both agricultural and non-agricultural. Statistics are inadequate, but the proportions of rural youth engaged in wage and self-employment in both these main areas of activity varies considerably across countries.

The livelihood assets for them can be broken down into four main types: political and social, physical and natural, human and financial. A number of livelihood improvement interventions supported by IFAD, it was reported, were related to interventions that improved physical and natural and financial assets as well as job-related human capital through skills training (Bennell: 2007, p.7).

Human capital—skills development for youth

The greatest contribution to improving the future employment and livelihood prospects of disadvantaged children and youth in rural areas, as in urban areas, is to make sure that they stay in school and become at least functionally literate and numerate. Expanding quality education opportunities for girls is another priority. Good quality post-school skills training (both pre-employment and job related) can be built only on the foundation of good basic general education and should follow it, but remains very limited in most rural areas. Many countries have plans to establish or expand existing networks of rural training institutions, but are stymied by resource scarcity. At the same time, it has been found from evaluations that the cost-effectiveness of most youth-related rural training which exist now is low (see Middleton *et al.*: 1993 and Bennell: 1999).

In short:

Typically, training services are fragmented and no coherent policy framework exists, which provides the basis for a pro-poor rural training system. There are some notable exceptions, mainly in South America (for example, the countrywide rural training and business support organisation, SENAR, in Brazil). The key challenges in providing high-quality training and extension services for rural youth are low educational levels/poor learning outcomes, scattered populations, low effective demand (from both the self-employed and employers) and limited scope for cost-recovery (Bennell: 2007, p.8).

Engendering skills and jobs

At the heart of reducing unemployment and eradicating absolute poverty in the developing countries lies the economic empowerment of women who are the majority of population and continue to be disadvantaged for historical and contemporary reasons. Girls and women are often in "double jeopardy," because they are already part of the poor and otherwise disadvantaged groups of society along with the disadvantaged males, and because they are females. The national agenda for development cannot succeed unless significant positive changes in many different ways can be brought to the ordinary lives of women, particularly for those in rural areas.

Life is very different for women and men in rural areas of the developing countries, with women usually enjoying far fewer rights and resources. These inequalities limit women's abilities, opportunities, and achievements. Research evidence shows that in rural areas of the developing countries, girls' and women's access to the existing development initiatives is constrained by (i) social and cultural bias, (ii) inadequate technological infrastructure, (iii) women's lower education levels (especially in science and technology education) and fear of or lack of interest in technology and (iv) women's lack of disposable income to purchase modern farming tools and equipment and other essential quality of life-improving services, such as education, health, sanitation and hygiene (IFAD: undated and Prakash: 2003).

What is true for women in the developing countries is equally true for the women of developed countries.

> The rural areas of the European Union are strikingly varied in terms of social and economic structure, geography and culture. Rural women too are not a homogeneous group. They have different roles and occupations, on farms and in family businesses, in employment and in community activities. Their needs and interests differ too, particularly from one age group to another, and depending on the size and composition of their family and age of their children. The economic and social changes that rural areas are undergoing do not affect all women in the same way: offering opportunities to some, to others they bring difficult challenges (European Commission: 2000).

Rural girls and women do not have sufficient access to vocational training and skills development services and their overall low enrolment in education constricts seriously their prospects for better paying wage employment and occupational skill training. Poor women are not participating in equal numbers as males in formal and informal TVET and continue to be disadvantaged, because of their low level of schooling and functional literacy skills, in particular in Sub-Saharan Africa, the Arab States and in South and West Asia. Any training and youth and adult education activity faces the challenge of adjusting and adapting training methods, curricula and pedagogy to the needs of the target population. The challenges are multiplied many-fold when the participants are poor, illiterate, have limited schooling, speak a minority language, and, on top of all these, female with burdens of inescapable household chores and generally possessing low self-confidence and self-esteem.

Training projects and programmes for the poor have generally replicated the policies and practices of training for the formal sector, which often have not worked effectively. Many forms of training involve passive or rote learning and little practical engagement and experimentation (Palmer: 2007). They have been a largely "top down" supply driven process of skills transfer which has ignored the knowledge and skills of the poor, especially poor women, whose particular circumstances and needs are not the same for men.

Young women and girls are often directed towards stereotyped training and occupations (Bennell: 1999 and Mayoux: 2005). Women continue to be under-represented in formal business training programmes and longer term career development opportunities. Poor and vulnerable women are usually more interested in skills training that meet their immediate "practical gender needs" as opposed to capacity building that may help tackle the underlying causes of female subordination. Women, therefore, are often concentrated in handicrafts, basic food processing and sale which are traditionally considered to be women's domain. As a result, these sectors are often saturated, and do not fulfil standards of decent work and production quality standards and yield low returns (The World Bank, FAO, IFAD: 2008 and Hartl: 2009, p.4).

For women in particular, overcoming economic vulnerability embraces a much wider set of abilities than just conventional technical and managerial competency. These include basic literacy and numeracy, social and gender awareness and life skills. It is generally accepted that enterprise development and income-generating projects require a more complex combination of capacities with heavier emphasis on social and management skills than narrowly defined technical competencies (Bennell: 1999, p.11).

Traditionally male-dominated artisan training courses (plumbing, metalwork, carpentry etc.) have predominated in TVET in most countries. Training for women is often offered in a narrow range of traditionally female-dominated activities. Training in social and business skills has also been fairly limited, particularly for women (Mayoux: 2005).

In rural societies, women are the primary caregivers, while they are also compelled to perform a large part of the agricultural work. Their work days are long and hard, but despite their major contribution to food production, to survival and well-being of their families, and to the rural economy as a whole, women's economic roles remain largely invisible and unrecognised. Some of the inequalities that women face in agriculture are shown in Box 2.5.

A recent study analysing gender gaps in rural wages from 13 countries from Sub-Saharan Africa, Asia and Latin America (Fontana and Paciello: 2009) found that in almost all cases, women's hourly wages ranged between 50 and

Box 2.5 Gender Inequalities in Agriculture—Some Examples

- Men's landholdings average almost three times the size of women's landholdings (globally).
- Fertiliser is more intensively applied on men's plots and is often sold in quantities too large for poor women to buy.
- An analysis of credit schemes in five African countries found that women received less than one-tenth of the credit that was received by men smallholders.
- In most developing countries, rural women's triple responsibilities—farm work, household chores and earning cash—often add up to a 16-hour work day, much longer than their male counterparts. However, women continue to lack access to important infrastructure services and appropriate technologies to ease their work loads.
- Women-owned businesses face many more constraints and receive far fewer services and support than those owned by men. In Uganda, women's enterprises face substantially higher barriers to entry than men's, although those that exist are generally at least as productive and efficient as men's in terms of value added per worker.
- In Guatemala, women hold only 3 percent of snow pea production contracts but contribute more than one-third of total field and virtually all processing.

Source: World Bank, FAO and IFAD: 2008, p.61.

100 percent of men's. This appears to be the result of disadvantages at the household and social levels, which result in fewer, lower skilled, less stable or less rewarding employment opportunities for women. Girls, as noted, also have less access to education and skills development opportunities, particularly beyond primary schooling (IFAD: 2011, p.61).

Women's poverty is largely a function of who has control over assets (including financial assets) and how decisions are made within the household. The above survey also showed that rural women have fewer critical assets (especially land), or less secure access and control over them. They also have less access to education, health care and financial services. In many rural areas, women raise relatively secure access and control over certain types of livestock and take care of them, yet they may not have control over the income generated through the livestock.

Rural women are less represented than men in governance processes and in rural organisations, particularly in leadership roles—sometimes, their attempt to participate expose women to social backlash or even violence. This lack of representation contributes to the fact that the voices are not attended well at global levels. In many countries, rural women face obstacles to migrating or from accessing gainful and rewarding employment due to a variety of ways—prevailing male-dominated social norms, low access to assets, lack of education and lack of time and energy being burdened by household responsibilities, not shared by male members of the family (IFAD: 2011, p.46). A critical factor of risk and vulnerability for women and girls is associated with early marriage and a high total fertility rate, which is a major factor in preventing access to education and better wage employment.

Lower levels of gender inequality in Latin America and the Caribbean are linked to the structural economic changes that have brought women into employment, and to a long history of policy measures designed to equalise access to education and other services (Fontana and Paciello: ibid.). Nevertheless, although Latin American countries are leading the way in establishing women's land rights (Quan: 2006), gender inequalities in asset distribution are very prominent here too—for example, women comprise only between 11 and 27 percent of all landowners across the region (World Bank: 2007).

The broad message from these findings is that achieving gender equality requires challenging and changing many of the existing social institutions and their norms in order to address interlocking deprivations which result in poverty for rural women and more general poverty. There are many cases where governments have taken important initiatives to change norms and institutions contributing to poverty through gender inequalities. The overarching concern is to make these initiatives work, given that the obstacles and constraints are often daunting.

A related concern is that at the local level the obstacles to change manifests in many specific forms and the gender norms tend to change slowly (Quisumbing and Pandolfelli: 2010), despite progressive policies. Change at this level occurs usually as a combination of women's economic empowerment; women's awareness of their rights as individuals and citizens, better access to education and skills development and capacity building in general for women and women's organisations all together can propel the forces of change in every community and every locality.

The argument has been made with strong justification in many developing countries that gender discrimination in

markets has led to a "feminisation of bad jobs" in agriculture and beyond (Jütting and Morrisson: 2009). Reversing this trend to the extent it prevails, calls for macro-level policy and local level actions both in building skills and capacities for productive and gainful work and creating the enabling environment for this to happen.

Rural out-migration and skills development

The acceleration of migration of people out of rural areas of developing countries into urban areas is a defining feature of demographic, economic and social change with profound implications for national development, poverty reduction and rural transformation. Migration is a pervasive feature of economic development. Temporary or permanent mobility of people is a routine part of agricultural activity in many countries. Migration clearly has great impacts on individuals, households and regions within countries and among countries. The pervasive and growing phenomenon of migration, temporary and longer term, within countries and among countries and the large one-way flow out of rural areas merit better understanding of motivations and impacts, costs and returns, winners and losers and how this phenomenon can be turned into a positive force of change to promote rural transformation.

It is estimated that there are 200 million temporary and seasonal migrants in India, and 120 million internal migrants within China. Most migration, and especially mobility of the poor, takes place within and between neighbouring developing countries. For example, several African countries simultaneously serve as both source and hosts to large number of migrants (Lucas: 2005b). Generally within countries, movement from rural to urban areas far outweigh mobility across borders, but the latter is a significant factor in some regions, such as West Africa and South east Asia. Many countries in South east Asia rely on cheap migrant from across their borders. International migration from Vietnam between 1994 and 1999 was 300,000; internal migrants in Vietnam over the same period were 4.3 million. Urbanisation is fed by large volumes of rural–urban migration within countries as well as migration from rural hinterlands of large cities from neighbouring countries (IOM: 2003).

Movements of workers from less developed to more developed countries have become a major and growing phenomenon. Demographic trends suggest that this will intensify for the next several decades with larger movements from South Asia and Sub-Saharan Africa to Europe, West Asia and East and South east Asia until a relative stability is established globally in demography and economic structures.

One hundred seventy-five million people—2.9 percent of the world's population—lived outside their country of birth at the beginning of this century. The number of migrants has more than doubled since 1975. Sixty percent of the world's migrants currently reside in the more developed regions, with 40 percent living in the less developed regions (UN: 2002). South–north migration has important implications for development and poverty reduction in developing countries. But it is dwarfed by rural–urban migration within developing countries themselves or among neighbouring developing countries.

A significant proportion of international migrants, perhaps even the majority, migrate on a temporary basis, either for a number of years before returning home, or migrating to and from between countries each year (IOM: 2005). For instance, many Haitians go backwards and forwards between their home country and the Dominican Republic. Much south-south international migration, especially temporary, circular and seasonal migration, falls between the cracks, with migration unrecorded and migrant undocumented (see below). The primary impact of migration on sending regions is conceived in terms of remittances. Global remittances have grown steadily and have come to be a major source of international finance for developing regions. Systematic data exist only on the formal flows and thereby they are very much underestimated.

Micro-studies or village level studies have shown a spectrum of temporary migration including seasonal migration, circular migration and commuting. They are all forms of short-term migration. Seasonal migration refers to fixed-period contracts related to agricultural cycles. Circular migration refers to the process of migration followed by return to the original home area, either the same place or at least the same original region (Lucas: 2005). Commuting, on the other hand, has become a feature in many peri-urban areas and villages near cities and metropolises. Given

improved communications, roads and new economic opportunities arising from urbanisation, it is a growing phenomenon involving rural households (IOM: 2005). In India, temporary, circular and seasonal migration, with people moving in response to opportunities for agricultural work, or for off-farm rural employment in construction and services, has long been part of poor people's lives (Rogaly: 2002).

Out-migration from rural areas, especially of youth who are relatively more educated and trained, changes significantly the rural landscape, brings noticeable social and demographic changes and impacts the rural society in several ways. It results in the growth of small towns and medium-size cities with strong economic ties to the rural inhabitants who stay behind. Evidence suggests that in many countries, the economic activities generated by this new "rurality" provide the engine for the creation of rural non-agricultural employment, which brings certain aspects of the urban quality of life closer to rural inhabitants.

A wide range of variables associate with migration interacts and influences the cross-effects of workforce loss, financial transfers, investments, asset acquisitions and demographic changes. Research evidence demonstrates that in densely populated regions, out-migration may be a way to alleviate underemployment in agriculture and protect the livelihoods of the farmers who remain behind (IOM: 2005). Seasonal migration allows for a better deployment, since those who are underemployed during the agricultural lean season can find work in towns or in other areas, thereby increasing their incomes. On the other hand, more lasting out-migration can deprive rural areas of critical agricultural during farming seasons. To an extent, remittances can compensate for the negative impact of out-migration by allowing hired to replace the force lost. Out-migration can also cause the drain of skills and the loss of innovative community members from rural areas (IFAD: 2007).

There are different ways in which migrants contribute to the development of their place of origin. For instance, they can contribute through collective donations of time, business networks, investments and the transfer of skills, culture, knowledge and experience. Migrant networks can form a bridgehead for local products or for enterprises seeking to market goods and services. These networks can also facilitate migrants' investments in their communities of origin. Through community cooperatives and other local associations, for instance, migrants often provide collective financial support, skills and knowledge to local development projects. Migrant groups have supported health clinics, built schools, repaired roads and more recently started investing in income and employment-generating projects in their home communities.

The impact of out-migration for women is different and often negative, unless mitigated by appropriate policies, as compared to men. It leads to increased feminisation of the agriculture force, as indicated above. In industries, when women work, they are subjected to weaker application of regulations of safety and working conditions and lower wages than in industries dominated by a male force. For instance, the women workers from Sri Lanka, Indonesia and the Philippines in the Gulf States have less control than male workers over how their remittances are used. Protection of women in relation to migration requires attention in several areas: the prevention of exploitative feminisation of agriculture; careful balancing of the protection of migrant female workers in the urban market without "pricing them out"; and long-term reforms of institutions and policies to secure a better gender balance in property rights (NEF: 2006).

Migration in search of work is an essential and important feature of both rural transformation and accelerating urbanisation. Orderly migration with well-considered policy measures and planned action at both the sending and receiving ends of migration can turn migration into a major positive force in reduction of poverty and rural transformation. These measures relate to building the human and personal capital assets—appropriate and effective education and training for new opportunities for gainful work both in the rural areas and outside within the country and abroad—and appropriate integrated development planning with a territorial perspective that links rural, peri-urban and urban areas and smaller and larger hubs of growth. We return to these issues in later chapters.

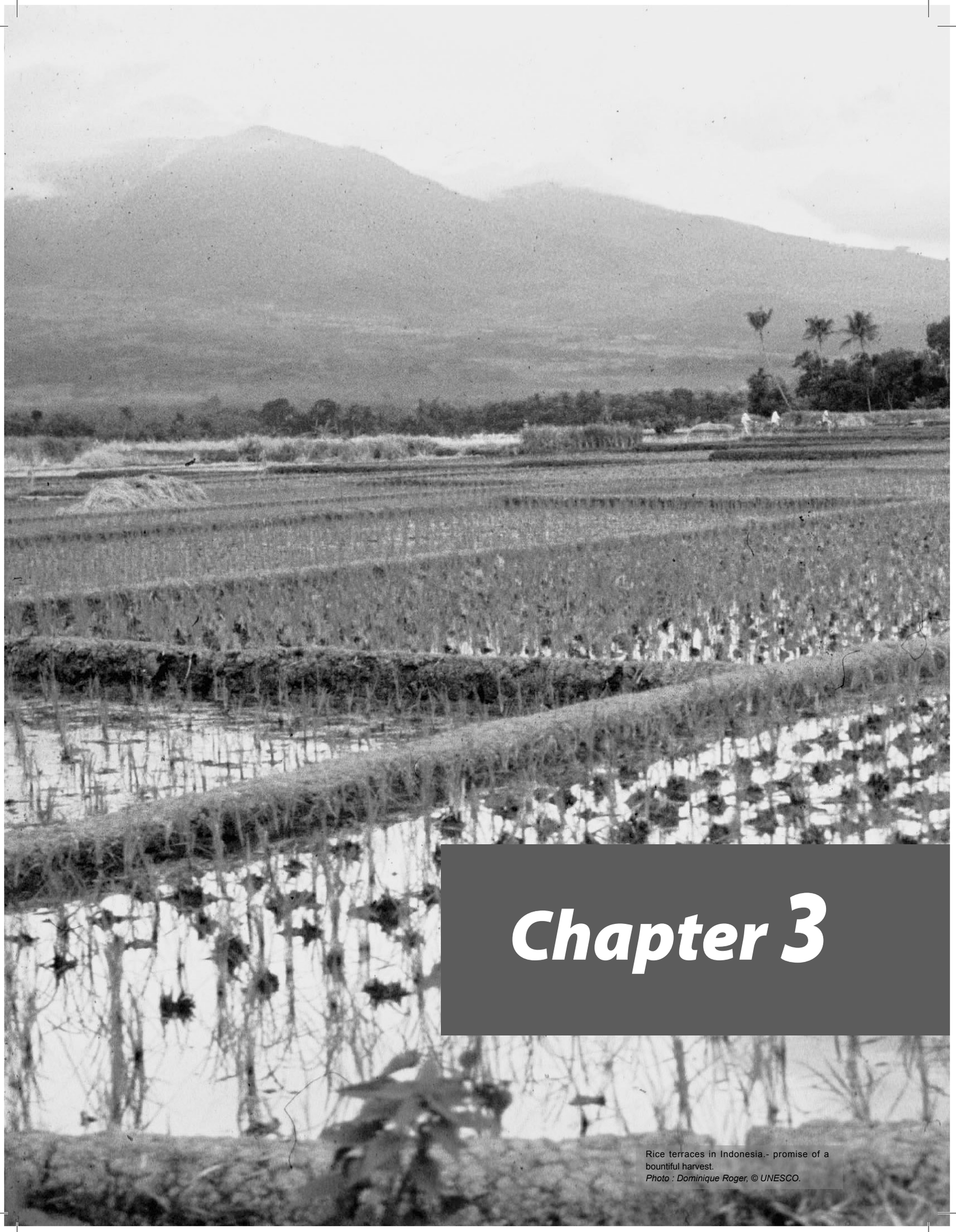
The issues of applying operationally the sustainable livelihoods approach as the conceptual bridge for skills and capacity development and fighting rural poverty and promoting rural transformation is discussed in Chapter 5. Be-

fore that, two key concerns, which have been hinted at—skills and jobs for food security and the implications of the broader perspective of green development and rural transformation are discussed in Chapters 3 and 4.

A capacity building workshop for women in Yunnan province, China.
Photo : © Li Jinsong.

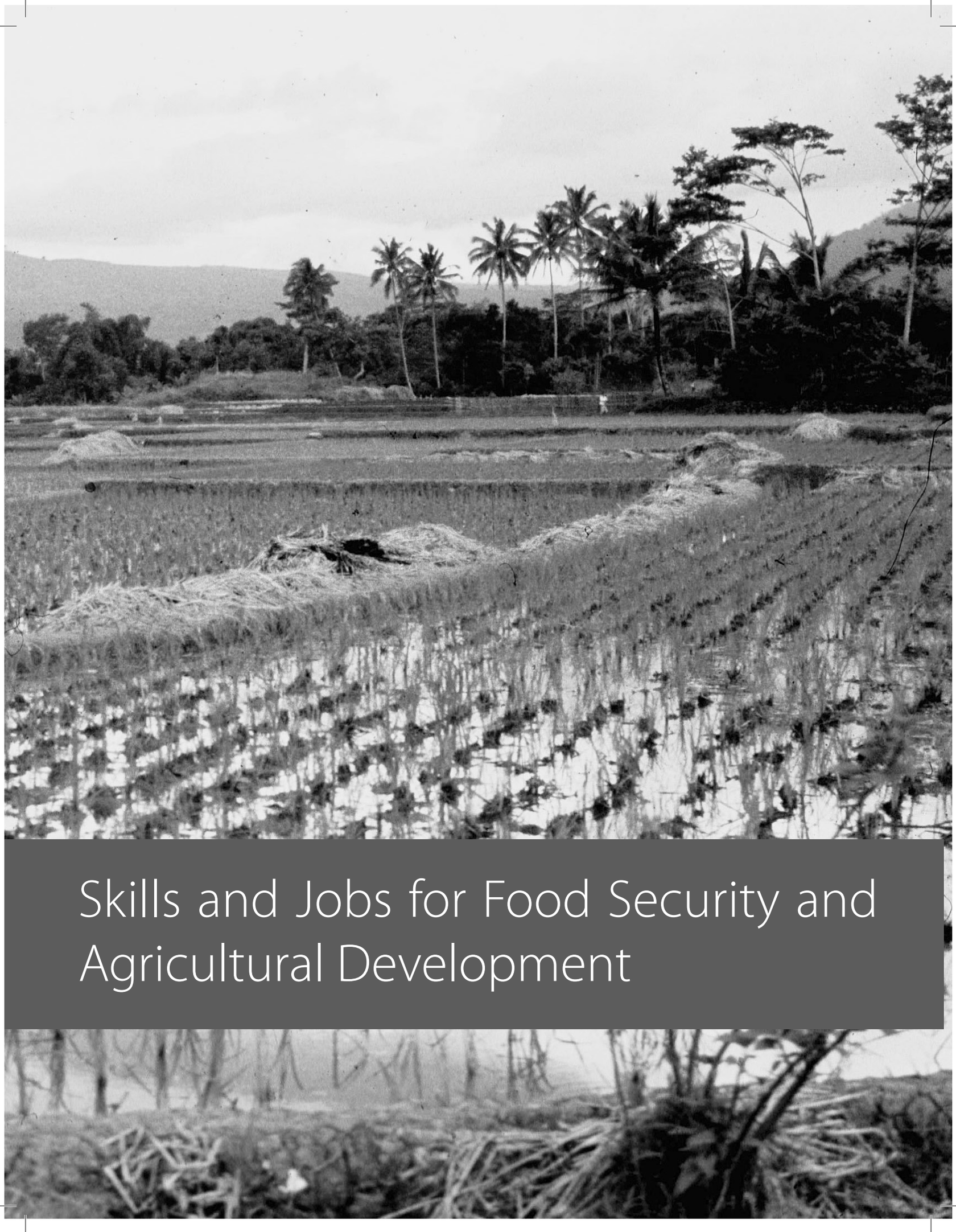
Kids showing their paintings happily and proudly.
Photo : © UNICEF.

A visiting group from Bangladesh National Agricultural University in Taihang Mountain, Hebei province, China.
Photo : © Wang, Li.



Chapter 3

Rice terraces in Indonesia.- promise of a bountiful harvest.
Photo : Dominique Roger, © UNESCO.



Skills and Jobs for Food Security and Agricultural Development

Chapter 3

Skills and Jobs for Food Security and Agricultural Development

"Food production and rural development, particularly in those countries with significant food security inadequacies, require appropriate and up-to-date technologies which, according to sustainable development criteria and local food traditions, promote modernisation of local production methods and facilitate transfer of technology. Full benefit from these technologies will require training, education and skill development programmes for local human resources".

The Rome Declaration on World Food Security, FAO: 1996.

This chapter aims, first, to underscore the critical importance of ensuring food security and paying attention to related aspects of agricultural and other economic activities and, second, examines the issues of skills development and job creation from the perspective of national food security. The issues relating to food security, its relevant features and characteristics, will be noted in order to understand better the skills and capacities required and their effective use to achieve food security goals. The four parts of the chapter comprise of: (i) fighting hunger in the world and food security trends and strategies in selected regions, (ii) issues of food security and agricultural development, (iii) skills development needs arising from food security goals and priorities and (iv) how the relevant skills are best utilised in jobs and employment to achieve food security and fight poverty.

There is a potential crisis in the making in respect of global food security which may be far more serious than what has been experienced recently in 2006–2008. The challenge remains to produce and supply enough safe and nutritious food in a sustainable way for a growing global population, which is projected to reach nine billion by 2050. The situation has all the potential of turning into a mega-crisis unless remedial measures of commensurate scope are taken within countries and through appropriate international collaboration.

A commonly accepted definition proposed by the 1996 World Food Summit is that food security is achieved "when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life" (FAO: 1996).

This definition points to three interconnected elements, which are essential to achieving food security:

- Food availability: having sufficient quantities of food from household production, other domestic production and availability in the market including commercial imports and food assistance;
- Food access: having the resources to obtain appropriate foods for a nutritious diet, which depends on household income, food prices, and non-market access to food; and
- Food utilisation: proper consumption of food with positive nutritional impact, facilitating a diet with sufficient energy and essential nutrients, potable water, adequate sanitation, and sharing and feeding practices within household as well as knowledge of food storage, processing, nutrition and child care, and illness management.

Food security is clearly a multidimensional phenomenon. It is about risks and vulnerability of people and has temporal, geographical as well as economic, social and political dimensions. It is more than a transitory and simple deficit that can be tackled by balancing supply and demand. Nobel Laureate Amartya Sen famously wrote that starvation is a matter of some people not having enough food to eat, and not a matter of there being not enough food to eat (Sen:1981). The irony is that most of the food insecure people live in rural areas where food is produced, yet they are net food buyers rather than sellers. Poverty prevents their access to food in the marketplace.

According to the UN Hunger Task Force, about half of the hungry are smallholders; a fifth are landless; and a tenth are agro-pastoralists, fisherfolk, and forest users; the remaining fifth live in urban areas. Today, agriculture's ability to generate income for the poor, particularly women, is more important for food security than its ability to increase local food supplies. Women, more than men, spend their income on food.

Food price increases around the world between 2006 and 2008, including more than doubling of the staple grain rice, sent more than 100 million people below the poverty line. The 2008 food price spike caused riots or civil unrest in a number of countries, including Bangladesh, Burkina Faso, Cameroon, Egypt, India, Indonesia, Ivory Coast, Mozambique, Pakistan, the Philippines, Senegal, Somalia and Yemen (BBC: 2010).

More importantly, the recent crisis challenged the complacent notion that agricultural development and technological progress would keep the world's growing population adequately fed and shortages of staples in countries would be adequately handled by international trade and the market mechanism.

The global price hike, shortages and consequent turmoil drew attention to some basic facts which may not have quite registered on people's consciousness with their full impact.

- More people die each year from hunger and malnutrition than from AIDS, tuberculosis and malaria combined (WFP: undated).
- More than one billion people—almost a sixth of the world's population—are undernourished (WFP: 2009). It is hardly a consolation that globally, there are a billion overweight people, the same number as undernourished, and 300 million of them are obese. Indeed, improper utilisation of food is a serious food security issue (WHO: 2011).
- Of the two billion increase in world's population expected from the present to 2050—7 billion to 9 billion—Africa will account for half, its population doubling to 2 billion by 2050. Sub-Saharan Africa arguably faces the most serious food security threat among all regions (WFP: 2009).
- Demand for food is projected to increase by 40 percent by 2030 and 70 percent by 2050 globally; it will be more than double for developing countries by 2050 (OECD-FAO: 2009).
- While demand for food is rising, the amount of land suitable for food production is decreasing—mainly through pressures from other uses and climate change (WFP: 2009).

Meeting the basic needs of food and adequate nutrition of all the people, rural and urban, is an essential element of combating poverty and bringing about transformative change in rural areas. The burden of meeting these basic needs fall primarily upon the rural people, their productive activities and how effectively their skills and capacities are developed and deployed. Agricultural development and off-farm economic activities are the twin engines of rural transformation and elimination of rural poverty. Ensuring food security is closely related to both improving agricultural production and other aspects of economic and broader development of people in rural areas.

3.1 Fighting Hunger in the World

The first of the eight Millennium Development Goals adopted in 2000 is to reduce by half the proportion of people suffering hunger by 2015. Despite some progress in the last decade, achievement of this goal remains uncertain. The progress has been particularly slow in South Asia and Sub-Saharan Africa. In both regions, there has been a reduction in the percentages affected by shortage of food, but because of high population growth, the absolute numbers of hungry people continue to go up. A food price inflation has been witnessed in recent years, which appears to reflect a secular trend, and if is allowed to go on unchecked, will push many millions more of already vulnerable people over the edge into starvation. The estimate is that an additional 100 million people are currently in danger. Climate change and depletion of natural resources will continue to have a major negative impact on food production in vulnerable areas of Sub-Saharan Africa (Government of Ireland: 2008).

Food insecurity in Sub-Saharan Africa

Chronic food insecurity and undernourishment, rather than transitory shortages persist in Sub-Saharan Africa. The major reasons for this situation are low agricultural productivity, limited rural development, government policy disincentives and the impact of poor health including HIV/AIDS and Malaria on the agricultural workforce. Added to these has been the impact of rising global food prices and climate change, which will continue to be critical factors for food security in the region (GAO: 2008).

A study of the International Food Policy Research Institute (IFPRI), based on household expenditure surveys in 12 African countries showed that the prevalence of food energy deficiency ranged from 37 percent in Uganda to 76 percent in Ethiopia. Even at the low level of deficit in Uganda, over one-third of the people do not have access to sufficient food to meet their energy requirements for daily activities. Almost three quarters of the people are in this situation in Ethiopia, Burundi, Malawi and Zambia. The ranking of the 12 countries are shown in Table 3.1, which illustrates the variation in food insecurity, and at the same time, the overall severity of the problem in Sub-Saharan Africa.

The IFPRI study used a diet quantity and a diet quality measure of food insecurity. These are (i) the percentage of people who consume insufficient dietary energy, or the prevalence of "food energy deficiency" and (ii) the percentage of households with low diet diversity, an indicator of poor diet quality. A household is considered to have low diet diversity if it fails to acquire foods from at least four of seven groups of essential categories—water, carbohydrates, fibre, fat, protein, minerals and vitamins. An essential nutrient is a food item required for normal body functioning that must be obtained from a dietary source.

As shown in Table 3.1, in seven of the countries—Burundi, Ethiopia, Malawi, Mozambique, Rwanda, Senegal, and Zambia—food insecurity appears to be both a problem of access and insufficient national food availability. In these countries, the average energy availability per capita falls below the average person's energy requirement for "light activity," which implies that there is not enough food for all people even if it were to be distributed according to need. In the other countries, enough food was available to meet the energy needs for light activity of all, at least in the survey year. Access problems arising from income inequalities and poverty were more the critical forces contributing to food insecurity in these countries. In Sub-Saharan Africa, both food availability and food access must be given attention, addressing weather-related transitory food insecurity as well as poverty-related chronic factors (Smith *et al.*: 2006).

The IFPRI study underscores that problems of diet quality are in varying degree widespread in most of the Sub-Saharan African countries. Low diet diversity appears to be a relatively minor problem in the three West African countries, but it is a more serious problem in the East and Southern African countries. In this respect, it is noteworthy that, there is not a strong association between the diet quantity and quality in terms of nutritional outcomes, suggesting that these two aspects of food insecurity have different distributions across and within households and differing determinants.

The study found a mixed picture regarding the prevalence of food energy deficiency in urban and rural areas. In seven of the study countries, the urban rate of food energy deficiency is close to or higher than the rural rate. This may be because urbanisation is increasing in Sub-Saharan Africa and the food insecurity problem is moving to the cities. As expected, income has a very strong bearing on food security. For both diet quantity and quality measures, the incidence of food insecurity decreases quickly as one moves from the poorest 20 percent of countries' population to the richest quintile in both urban and rural areas (Smith *et al.*: 2006).

Table 3.1 Food Energy Deficiency in 12 Sub-Saharan African Countries

Country	% of population in food energy deficiency	Data time and source
Ethiopia	76.4	1999–2000 Household Income, Consumption and Expenditure Survey
Burundi	74.8	1998–1999 Enquête Prioritaire
Malawi	73.3	1997–1998 Integrated Household Survey
Zambia	71.1	1996 Zambia Living Condition Monitoring Survey I
Rwanda	65.3	2000–2001 Enquête Integrale Sur les Conditions de Vie de Ménages au Rwanda
Mozambique	60.3	1996–1997 National Household Survey on Living Conditions
Senegal	60.2	2002 Enquête Senegalaise Auprès des Ménages
Ghana	51.4	1998–1999 Ghana Living Standard Survey
Guinea	45.1	1994–1995 Enquête Integrale sur les Conditions de Vie de Ménages
Tanzania	43.9	2000–2001 Tanzania Household Budget Survey
Kenya	43.9	1997 Welfare Monitoring Survey III
Uganda	36.8	1999–2000 Uganda National Household Survey

Source: Smith, Alderman and Aduayom (2006).

FAO has the responsibility for estimating food energy deficiency and monitoring progress in respect of Millennium Development Goal 1 related to extreme poverty and hunger. The FAO estimates and those of the IFPRI study do not quite correspond with each other. The discrepancy arises from the way national level parameters for food security—requirement, availability and consumption—are measured. FAO uses a minimum mean energy requirement for light activity (around 1,800 kilocalories); whereas many household living standards surveys, the data source for the IFPRI study, use an average requirement of 2,050 kilo calories, as recommended by the 1985 FAO/UNU/WHO Expert Consultation on Energy and Protein Requirements. The rationale here is to identify people who consume insufficient dietary energy to meet their needs, beyond physical survival. The latter criterion and estimates of food energy deficiency from household economic surveys (HES) applying this criterion are arguably associated strongly with other MDG indicators of poverty and hunger than the minimalist FAO estimates (Smith *et al.*: 2006, pp.70–71).

Although the data from the IFPRI study regarding food insecurity and malnourishment in Sub-Saharan Africa are somewhat outdated, the magnitude and character of the problems have not changed significantly in recent years. If anything, the recent global food price hikes and food shortages, not reflected in the study, are likely to have aggravated the problems. More important than precise statistics about proportions of people affected by food energy deficiency, which are sensitive to specific transitory conditions, the analyses provide an overall picture and trends which are on the whole worrisome and must be addressed.

The HES-based data for measuring food insecurity provide policy relevant, reasonably reliable and multifaceted measures. They are essential for multilevel monitoring and evaluation of national and sub-national food insecurity. When collected, processed, analysed and reported regularly, they are essential inputs for formulating and assessing policy interventions.

African agriculture, feeding the population and providing livelihood and employment for the large majority of the people nationwide, and in overwhelming proportions in rural areas, operates largely as smallholdings. The widely accepted premise regarding Africa as well as developing countries in general, as discussed above, is that the future of agricultural development and protection of food security lie in improving the performance of the smallholders. The prospects for farm workers without land ownership and off-farm rural employment also ride heavily on the shoulders of the smallholders' ability to multiply farm productivity and generate the wealth to create economic opportunities for all rural people. Agriculture and food production is unlikely in the foreseeable future to become highly capital-intensive and technology-intensive industry in Africa as in the high-income countries. However, is there a role for large-scale commercial farming in Africa—along the line of what has been witnessed in such diverse countries as Argentina, Brazil, Malaysia, South Africa and Thailand?

Many would argue that large-scale commercial agriculture can be a powerful driver of agricultural growth and can make an important contribution to ensuring food security and reducing poverty in Africa (see Box 3.1).

Food security in China

China's tumultuous history has had its fair share of droughts and famines. More than 5,000 years of farming also has left its soil depleted, more dependent on technology and agrochemicals to boost production. Growth of population and urbanisation has further intensified the pressure on arable land. Unremitting urbanisation and property development have devoured massive amounts of farmland, threatening grain supply and agricultural development. Since the 1990s, an increasingly affluent population, with a growing appetite for agriculturally intensive food products like meat and dairy, has made food price inflation a concern for wider social stability and development in China. Meeting the food demands of 1.3 billion people is a challenge with many ramifications.

In the three decades since the 1980s, Chinese agriculture has maintained a growth rate to feed successfully its large population, still increasing, albeit more slowly than in the past. The outputs of grains increased by 64 percent during 1978 to 2007—from 305 megatons to 501 megatons. The population increased during the same period by 37 percent, from 963 million to1.32 billion. The farming land

Box 3.1 Commercial Agriculture in Africa

A recent World Bank study, titled *Competitive Commercial Agriculture for Africa*, investigated how the successful agricultural commercialisation experiences of Brazil and Thailand may be able to inform agricultural development initiatives in Africa. Based on detailed case studies carried out in Brazil and Thailand, as well as in three African counties extensively endowed with underdeveloped land resources in the Guinea Savannah zone (Mozambique, Nigeria, and Zambia), the study found that there are substantial opportunities for farmers in Africa to gain international competitiveness and improve national food security.

The value-chain analysis carried out for the study suggests that large-scale farming may be advantageous in Africa under three sets of circumstances:

- When economies of scale are present as, for example, in "plantation crops" (sugar, oil palm, tea, bananas, and many horticultural crops grown for export).
- When Africa's producers must compete in overseas markets that have stringent quality requirements and demand traceability all the way back to the farm—which may be feasible through commercially organised contract farming involving smallholders.
- When relatively fertile land must be developed in areas with relatively few people. Without a large, local labour force, large-scale mechanised farming may be the best model, even for growing staple foods.

On balance, the evidence suggests that today commercial agriculture has the same or better prospects in Mozambique, Nigeria, and Zambia as it did 40 years ago in Brazil and Thailand. Policy measures that needs attention for commercial agriculture to play its role in food production and poverty reduction include:

Reform of institutions to make markets work better: Commercial agriculture needs institutions that make markets more efficient and less risky. The state must offer critical services that the private sector currently has few incentives to provide.

Public sector and governance reform: A major challenge is to develop governance structures and capacities for the state to play its vital role in developing a dynamic and equitable commercial agriculture. Personnel at the local level of Ministries of agriculture and local governments and a range of other ministries require far more capacity and skill in marketing and business development services, as well as in forging the public-private-civil society partnerships that typify the state's new roles.

Managing social impacts: Commercial agriculture cannot support national objectives of broad-based growth and poverty reduction unless the wealth it creates is shared widely. Thailand's agricultural transformation, dominated by smallholders, seems more compatible with the employment generation objectives of many African countries than Brazil's transformation, which was dominated by farmers with the wealth and political power to secure large areas of land and leverage the capital to invest in large-scale, highly mechanised production technologies.

Managing environmental impacts: The expansion of current low input African agriculture incurs especially high environmental costs: deforestation, land degradation, lost biodiversity, and the release of carbon sequestered in soils and trees. A more intensive land use pattern could limit these costs by limiting the land converted to agriculture. However, more intensive agricultural strategies can also deplete or degrade water and pose health hazards.

A significant general lesson is that modern commercial agriculture is not synonymous with vast, mechanised farms. Thailand and Brazil show that agricultural revolutions can be catalysed by smallholders or by large-scale farmers. On balance the evidence suggests that the fruits of those revolutions are more widely shared when smallholders participate. Second-round employment and poverty-alleviation effects are likely to be much larger when smallholders lead the way, because growth in smallholders' incomes tends to generate more demand for locally produced, non-tradable goods.

Source: Adapted from World Bank, "Awakening Africa's Sleeping Giant: Prospects for Commercial Agriculture in the Guinea Savannah Zone and Beyond" from the Directions in Development Series.

for grain during this period shrunk by 12.4 percent—from 120.6 million hectares to 105.6 million hectares—due to land degradation, desertification, urbanisation and other reasons. At the same time, China's wheat and maize yields almost tripled and rice yield doubled from 1965 to 2002 (Rozelle, Veeck and Huang: 1997; Yu and Zhao: 2009).

Nobel Prize winning economist Theodore Schultz, contrasting agriculture in developed and developing countries said that the former has a food problem while the latter is faced with a farm problem (Schultz: 1953). He was referring to the situation of subsistence farmers and poor productivity resulting in farmers not producing enough even to feed themselves in many developing countries. The industrialised countries had reached a stage of high land and labour productivity with the application of technology; their problem was to manage the farm with optimal efficiency responding to market forces. Hayami and Godo added another problem for the middle income countries, namely the poverty problem (Hayami and Godo: 2002). They pointed to the problem of disparity in wages between farm and non-farm work, arising from insufficient investment in technology and relevant skills and other policy and inputs constraints, impeding productivity and growth in agriculture and food production.

China has successfully tackled the food problem in the sense of maintaining increase in yield to meet the demands. It faces the poverty problem—the disparity in productivity and returns between agriculture and others sectors,

which have emerged as a constraint, and which needs to be addressed with appropriate policy interventions in investment, pricing, research, human capital development and institutional changes. This perspective can be taken as an analytical framework for looking at food security issues in China as well as other developing countries which may be poor, middle income or in-between.

The income and livelihood of the vast majority of farmers in China has changed radically in the last three decades. Poverty in rural China has decreased very substantially. The nominal net per capita income of farmers has increased by 25 times and real increase, after discounting inflation, four times between 1978 and 2003 (Fan, Zhang and Zhang: 2004). The number of people in poverty, as it is defined officially, decreased from 250 million in 1978 to 23.6 million in 2005. The corresponding decrease in proportions is from 30.7 percent to 2.5 percent. The economic growth in rural China did not only change the poverty figures in China, but also changed the poverty map of the world (World Bank: 2008).

Researchers attribute China's success in increasing agricultural productivity and farmer's income to three major factors—investment in inputs, in adopting relevant technology and in institutional changes to facilitate the effective use of the inputs and the technology (Fan: 1991, 1999; Lin: 1987, 1992a; Fan and Pardy: 1997, cited in Yu and Zhao: 2009).

As noted, the land resource in China is decreasing, which implies that the output would be sensitive to other inputs, particularly those aimed at increasing productivity per unit of land. Researchers have shown that fertiliser and power for irrigation have made a major contribution to productivity. It is reported that 21.7 percent of the agricultural growth from 1965 to 1993 in China can be attributed to use of chemical fertiliser and 12.9 percent from power input (Fan and Pardy: 1997). Productivity increase from labour input has been found to be insignificant, given that an abundant supply of labour renders marginal output from labour close to zero (Watanabe: 1996; Hayami and Godo: 2005).

China has one of the most fertiliser-intensive agriculture sectors in the world. Nitrogen fertiliser uses in China are significantly higher than most other developing countries. It is more than 10 times higher than in the African countries (Yua and Zhao: 2009). In the era of the planned economy, before 1978, China had invested heavily in building a good irrigational system, which contributed a lot to Chinese agriculture growth in the post-1978 period with the provision of energy to keep the irrigations system going.

Technology

Widespread use of two technologies—the use of hybrid seeds and the changes in cropping pattern—is reported to have contributed to 60 percent of the increase in rice productivity between 1975 and 1990, with 49 percent of the increase attributed to hybrid seeds and 11 percent to change in the cropping pattern (Xu: 1999). Researchers agree that technological innovations are the most important factor for agricultural growth in most provinces in China in the 1980s and the 1990s (Jin *et al.*: 2002; Mao and Koo: 1997).

Research plus education is the engine for technical change (Mao and Koo: 1997; Jin *et al.*: 2002). It is claimed that agricultural research contributed 19.5 percent of the agricultural growth from 1965 through 1993 (Fan and Pardy: 1997). In the 1990s, China has invested heavily in plant biotechnologies to improve agricultural yields in order to feed the increasingly large population. China arguably has the largest biotechnology capacity outside of North America (Huang *et al.*: 2002).

Institutional reforms

The change over from the communal cooperatives to the household responsibility system that came after the 1978 economic reforms is seen as an institutional reform that changed the scenario of Chinese agriculture with far-reaching impact on food production and food security. Various studies have shown a high impact of the institutional changes in the 1980s, soon after these were introduced, and major shifts from previous practices and procedures brought in. The impact became less visible or consequential in the later years, but still the high benchmarks were maintained for productivity and efficiency which were established with the change in institutions and management of the agriculture sector following the economic reforms.

Percentages of contribution to productivity that can be attributed to the changes mainly in the form of household responsibility and relaxation of pricing and marketing control have been attempted to be calculated and figures as high as 60 percent have been indicated (Fan, Zhang and Zhang: 2004). There are obviously methodological issues about attribution of outcomes to one factor when many interacting factors are at work. It can be confidently argued that appropriate institutional changes are necessary to make physical and technological inputs work effectively; and that without the latter, institutional changes can do little to influence the outcomes.

One of the institutional reforms that created incentives for agricultural productivity was in the area of pricing and marketing of grains. Many developing countries have attempted to keep food prices low for the benefit of urban residents and non-agricultural workers to the detriment of farmers. Under the weight of a looming crisis of low food production from Chinese agriculture, the distortions and regulations of grain prices and marketing collapsed and a market-based approach was adopted along with the household responsibility for farms. China started to increase the purchasing prices for food, and subsidise agricultural inputs, such as fertilisers and machineries (Ye and Rozelle: 1994; Qiao *et al.*: 2003; Wiens: 1983).

Human capital

The physical and technical inputs and the institutional changes mentioned above—the essence of the Green Revolution—has made modern agriculture more complicated than the traditional system of the past. Farmers need new knowledge, information and skills, and need to update these, in order to manage production, such as the utilisation of fertiliser, the use of pesticides, and the management of the irrigation system. Human capital development is vitally important for post-Green-Revolution agricultural development.

Some researchers have suggested that the full potential of the technological and physical investments and the reforms in institutions may not have been realised because of inadequate investment and efforts in developing the necessary human resources. Efficiencies in resource allocation and use of techniques and overall economic efficiency have been found to be better among rice producers who have continued with conventional approaches, for example in Jiangsu and Zhejiang provinces, without adopting the new technologies or investing in new inputs (Xu and Jeffery: 1998; Fan: 1999).

Survey of 7,000 farmers in 1990 from Sichuan Province and Jiangsu Province showed that educational level of farmers were statistically significant for explaining the differences in technical efficiencies of farm production in both provinces. Similar association of education and farm productivity has been found in other provinces (Liu and Zhuang: 2000).

Drawing conclusions from research noted above, it can be said that:

- The potential for realising the benefits of technology such as hybrid seeds is not fully realised due to the increasing complexity of managing production for which investments are needed in developing the skills and knowledge of farmers.
- There appears to be a slowing down in productivity and efficiency growth as realising the benefits of technological and other inputs and the management functions become more complex, which calls for greater attention to skills and capacity development of farmers and workers in complementary rural production and services.
- Regional disparities in agricultural development and food production, including adoption and adaptation of technologies and management and institutional reforms persist, especially between Western and Eastern China; which call for scrutiny of policy initiatives taken in this respect and their implementation.
- Human capital development including specific skills and capacities and general basic and tertiary education and research needs to be considered as essential components in the formulation of policy and programmes for food security and agricultural development.

Food security in India

After remaining in food deficit for about two decades after independence, India became largely self-sufficient in food

grain production. Food grain production in the country increased from about 50 million tonnes in 1950–1951 to around 240 million tonnes in 2008–2009 recording an annual growth rate of about 2.5 percent per annum.

In the recent two decades, the growth rates for food crops have shown a decline by almost one-third from 1986–1997 to 2008–2009. The decline has been from 2.93 percent to 0.93 percent between these periods (Dev and Sharma: 2010, p.2). The decline has been due to a combination of reasons related to ecology, demography and the political economy of pricing of agricultural inputs, grain prices and land tenure.

Availability

The scope for further increase in net sown area does not exist. Per capita land availability is declining rapidly and the average size of farms is shrinking. Land degradation in the form of depletion of soil fertility, erosion, water logging and salinity of soil has increased. There has been a decline in the surface irrigation expansion and a fall in the level of the ground water table as well. Exposure of domestic agriculture to international competition has resulted in high volatility in prices. Disparities in productivity across regions and crops, and between rain-fed and irrigated areas have increased. It appears that farming is becoming a non-viable economic activity for many. To make food production viable for farmers, public policy interventions have to be carefully calibrated. Balances have to be struck between procurement prices for public distribution system and maintaining buffer stocks, on the one hand, and prices and subsidies for inputs such as fertiliser, power and irrigation, on the other.

Increase in total food grain production has not kept pace with the increase in population. In the year 2007, per capita availability of food grains was 443 grams compared to 501 grams in 1991. Because of shifts in consumption habits, away from cereal to non-cereal food, the Ministry of Agriculture has projected a demand of food grains of around 250 million tonnes for 2020, which appears possible to be met from domestic production (Dev and Sharma: 2010).

Achieving self-sufficiency in food grains from domestic production and ensuring access by keeping prices affordable (mainly through open market intervention with procurement from surplus areas), complemented by the public distribution system, have been the twin objectives of food grain management in India since the great Bengal famine of 1943. The major deficiencies in respect of availability and access in India can be grouped under several categories: (i) investment, credit and infrastructure deficit, (ii) research and extension deficit, (iii) market deficit, (iv) diversification into crops and non-crop production deficit, (v) institutions deficit and (vi) education/skills deficit (ibid.).

Access to food

At the individual level, food security means that all members of society have access to the food they need, either from their own production, from the market and/or from the government's transfer mechanism. In order to achieve food security it is also important that the poor have sufficient means to purchase food.

Poor people cannot afford to purchase the food they need at market prices, and therefore, social protection programmes are needed. Adequate purchasing power for the poor to buy food can be ensured in two ways. One is to have an employment intensive pattern of growth which can provide remunerative work to the poor and enhance their power to purchase food. Another way is to increase incomes and subsidise food through social protection programmes like a public distribution system (PDS) and employment programmes.

Even if there is availability as well as access to food, there is no guarantee of proper consumption of food for adequate nutrition outcomes. Realisation of nutrition benefits depends on several factors, such as the health of pregnant women, breast feeding prevalence, basic health care, hygiene practices, availability of drinking water and sanitation facilities. It is necessary to look at both access to food and nutritional indicators.

Hunger

Estimates of hunger (two square meals a day) based on self-perception from the national sample survey (NSS) data show that the proportion of households suffering from hunger declined from 17.3 percent in 1983 to 2.5 percent in 2004–2005. There are state-to-state variations

in this regard—West Bengal having the highest proportion of people in hunger at 11.1 percent followed by Orissa (5.9 percent) and Assam (5 percent; Government of India: 2007).

In spite of high overall economic growth, inequality increased significantly in the period after economic liberalisation in the 1990s. Poverty is getting concentrated among some regions and some groups, especially scheduled castes and scheduled tribes (Dev and Sharma: 2010). This situation parallels the pattern of aggregate reduction in poverty. In 2004–2005, the proportion of people in poverty was more than 40 percent in Orissa, Bihar, Chhattisgarh, and Jharkhand, and between 30 and 40 percent in Madhya Pradesh, Uttar Pradesh, and Uttarakhand. It may be noted that Orissa's poverty level (47 percent) was almost six times that of Punjab (8 percent). About half of the poor in India are concentrated in a few states. A group of states comprising combined Bihar, combined Madhya Pradesh, combined Uttar Pradesh (including districts that lately have become separate states) and Orissa had 61 percent of the rural poor in 2004–2005—an increase from 49.8 percent in 1983—with a concentration among SCs and STs (see Table 3.2).

It is worth-noting that the per capita calorie consumption for the bottom decile of the population on the income scale was very low at 1,485 kcal per day in 2004–2005. This level is much below the norm of 2,400 calories in rural areas (Dev and Sharma: 2010, p.18).

Income growth and poverty

Low income growth is one of the reasons for low access to food and malnutrition. Annual GDP growth rate in India was 6–7 percent during 1992–1993 to 2005–2006 and it was at an average of 9 percent in the last four years. However, child malnutrition declined from 52 percent to 46 percent or at the rate of 0.5 percentage points per annum. This disconnect between GDP growth and changes in the status of malnutrition is at least in part related to the distribution problem or unequal sharing of the wealth created.

The data for India and South Asia show that malnutrition levels are surprisingly high even in rich income quintiles, though there is an overall correlation between income and malnutrition. Under-nutrition for the lowest and highest wealth quartiles respectively was 56.6 percent and 19.7 percent in 2005–2006. It can be said that income growth is a necessary but not a sufficient condition for reduction in malnutrition (Dev and Sharma: 2010, Table 18).

The regional experiences in India highlight differences in basic health care provisions, improvement in child care and health status of women as factors that explain differences in malnutrition across states. The high-performing states in India have shown:

Table 3.2 Poverty Ratios of Population by Social Groups: 2004–2005: All India and Selected States

Areas	Rural			Urban		
	SC	ST	OBC	SC	ST	OBC
Bihar	64.0	53.3	37.8	67.2	57.2	41.4
Chhattisgarh	32.7	54.7	33.9	52.0	41.0	52.7
Jharkhand	57.9	54.2	40.2	47.2	45.1	19.1
Madhya Pradesh	42.8	58.6	29.6	67.3	44.7	55.5
Maharashtra	44.8	56.6	23.9	43.2	40.4	35.6
Orissa	50.2	75.6	36.9	72.6	61.8	50.2
Uttarakhand	54.2	43.2	44.8	65.7	64.4	46.5
All India	36.8	47.3	26.7	39.9	33.3	31.4

Note: SC—Scheduled Castes; ST—Scheduled Tribes; OBC—Other Backward Classes.
Source: Planning Commission, Government of India (2009), cited in Dev and Sharma, 2010, Table 9.

- A rise in women's nutrition status;
- An increase in the proportion of children under the age of three breastfed within one hour of birth; and
- A rise in the percentage of children with diarrhoea who received oral rehydration therapy (ORT).

These "good practices" have resulted in better child nutrition performance in Tamil Nadu, Kerala and Northeastern states. It can be argued that a significant part of the explanation for the so-called "South Asian enigma"—the low child nutrition status in South Asia compared to Sub-Saharan Africa—lies in " women's agency" (Jones *et al.*: 2007, Dev and Sharma: 2010, p.26).

Rural non-farm sector

With 55 percent workers in India in the agricultural sector, the avenues for improvement in income and employment have to be found in the rural non-farm sector. India currently produces about 50 million tonnes of fruits and 90 million tonnes of vegetables. Only 2 percent of these fruits and vegetables are processed, as against 23 percent in China, 78 percent in the Philippines and 83 percent in Malaysia.

Education and skills are constraints in the development of new non-farm sector opportunities. Half the people engaged in agriculture are still illiterate and only 5 percent have completed higher secondary education according to data for 2004–2005.

Researchers have pointed at China's experience and contrasts in policy emphases in India and China with regard to structural transformation in rural areas which have created off-farm employment opportunities. The State's role has been decisive in building up the physical and social infrastructure including land reforms and basic education development in rural areas in China (Rao: 2005, Dev and Sharma: 2010, p.27).

Social protection measures

Comprehensive social protection programmes are required to address the problems of access to food and malnutrition, given prevailing high inequality and risks faced by vulnerable groups. The social protection measures are targeted transfer programmes to vulnerable groups. These measures can provide a safety net for the vulnerable groups and prevent unacceptable losses in well-being in hard times. The social compact guaranteed by the national constitution and various laws regarding rights and entitlements of people require that the state fulfil its obligation of helping the poor in times of insecurity and in ensuring minimum levels of provision to those unable to benefit from economic growth. Government interventions can blend elements of both redistribution of income and insurance against risks.

The current major social protection schemes for the poor in India fall into two broad categories: (i) food transfer like public distribution system (PDS) and providing supplementary nutrition and (ii) guaranteeing employment for the poor (see Box 3.2).

The public distribution system (PDS), perhaps the largest such programme in the world, is an instrument for improving food security at the household level in India. The PDS evolved as an important instrument of government policy for management of scarcity and for distribution of food grains to the poor at affordable prices. Supplemental in nature, the scheme is not intended to meet the entire requirements of food grains of the households. It is also an instrument for fulfilling the right to food, which has gained wide acceptance in India and is likely to be recognised as an entitlement of citizens and an obligation of the state by the enactment of a right to food law (see Box 3.3).

Direct nutrition interventions targeting young children are carried out through the Integrated Child Development Service (ICDS). ICDS offers supplementary feeding for children of 3–6 years of age complemented by a package of services including health check-ups, immunisation, referral services, non-formal pre-school education and advice on health and nutrition. The high and persistent child malnutrition in India suggests that the ambitious ICDS programme has not produced the desired result (see Box 3.2).

The mid-day meal programme at primary and elementary schools (grades 1 to 8) is now prevalent all over India and has become a major initiative to improve nutrition and educational performance of primary school children (see Box 3.2).

Rural works programmes (RWPs) of various types have become an important element in the strategies for alleviating

Box 3.2 Social Protection for Rural People in India

Public Distribution System (PDS)

The PDS ensures availability of essential commodities like rice, wheat, edible oils, and kerosene to the consumers through a network of outlets or fair price shops at below market prices to targeted consumers through a network of more than 462,000 fair price shops (FPS). Food commodities worth more than Rs. 300 billion are distributed annually to about 160 million families.

Government evaluations of PDS note some major problems, including: (i) high exclusion and targeting problems; (ii) non-viability of fair price shops; (iii) not fulfilling the price stabilisation objective; and (iv) leakages. The leakages varied, but very high in some states—exceeding 75 percent in Bihar and Punjab and between 50 and 75 percent in Haryana and Uttar Pradesh (Report of the High Level Committee on Long-Term Grain Policy, Government of India, 2002; Performance Evaluation of Targeted Public Distribution System, Programme Evaluation Organisation, Planning Commission, 2007). Recent surveys by National Council for Applied Economic Research (NCAER) has indicated some improvements in the functioning of PDS including larger coverage, improved distribution among the poorest groups, and lower diversion; but the problem of misidentifying the target recipients seem to persist.

Nutrition Programmes

The Integrated Child Development Services (ICDS), launched in 1975, aims at the holistic development of children up to six years of age with a special focus on children up to two years, besides expectant and nursing mothers. It is intended to address the problem of child and maternal malnutrition, but has clearly had limited impact. Child malnutrition has barely declined at all in a decade and a half, anaemia among women and children remains high and a third of all adult women were undernourished at the end of 1990s and also in 2005–2006. The coverage has not spread evenly across states. The answers to making the programme fulfil its promise lie in making the coverage effectively universal, looking at the design critically, and planning the implementation in sufficient detail so that the objectives are not vitiated by the design and weak implementation (Government of India: 2008).

Mid-day Meal Scheme

The mid-day meal scheme (MDMS), begun as a national programme in 2004 at the primary level, has been extended to Upper Primary School from 2007. MDMS was expected to serve 180 million children by 2008–2009. The 11th Five Year Plan has given the following action points for improving the performance of MDMS: (i) MDM to be managed by the local community and NGOs, and not contractor-driven; basic quality and safety to be prime considerations; (ii) sensitization of teachers and others involved in nutrition, hygiene, cleanliness, and safety norms to rectify observed deficiencies; (iii) involvement of nutrition experts in planning low cost nutrition menu and for periodic testing of samples of prepared food; (iv) promoting locally grown nutritionally rich food items through kitchen gardens in school, etc. (Government of India: 2008b).

Rural Employment Guarantee

The National Rural Employment Guarantee Act (NREGA) was passed by the Parliament in August 2005. This is seen as a step towards legal enforcement of the Right to Work by providing at least 100 days of guaranteed wage employment in a financial year to every poor rural household. The auxiliary objectives are to regenerate the natural resource base and create productive assets in rural areas as well as to strengthen grass roots democracy by infusing transparency and accountability in governance. Gram Sabhas (village councils) conduct social audits of all works taken up within Gram Panchayat (village government). The performance of the programme, as may be expected, is uneven due to deficiencies related to (i) lack of awareness among workers and village officials; (ii) implementation and administration weaknesses; (iii) monitoring and evaluation problems; and (iv) insufficient professional skills and capacities, particularly at the panchayat level.

Source: Adapted from Dev, S.M. and Sharma, A.N. (2010):"Food Security in India: Performance, Challenges, and Policies," Delhi, Oxfam India, pp.27–34.

Box 3.3 The Right to Food Law in India

The National Food Security Act (NFSA) is envisaged as a path-breaking legislation, aimed at protecting all children, women and men in India from hunger and food deprivation. There are compelling economic, social, political and ethical imperatives for such a legal guarantee of protection from hunger. Aside from creating new food entitlements, the Act would place a range of existing food-related schemes on a new footing and set new standards of delivery, transparency and accountability for social programmes.

Motivation: The motivation for the proposed NFSA to provide a guarantee of adequate nutrition is derived from the right to food as an aspect of the right to life under Article 21 of the national constitution (interpreted by the Supreme Court as a right to life with dignity), which is a fundamental right of all citizens.

Objectives: The proposed NFSA aims to ensure public provisioning of food and related measures, to enable assured economic and social access to adequate food with dignity, for all persons in the country, at all times, in pursuance of their fundamental right to be free from hunger, malnutrition and other deprivations associated with lack of food and related matters. Although the right to adequate nutrition connects with a wide range of provisions, the main focus of the NFSA should be on legal food entitlements that underscore the duty of central, state and local governments to ensure provision of food to the people, through subsidised grain, direct feeding programmes and related interventions.

Two qualifications: One, even though the NFSA focuses mainly on food entitlements, the National Advisory Council (NAC) recommends that it should take a broad view and not restrict itself only to the Public Distribution System (PDS). Two, the NAC recommends adopting a life cycle approach to food security. The food entitlements created by this Act should cover the entire life cycle of a human being, starting with overcoming maternal and foetal under-nutrition resulting in low birth weight babies, and extending up to old and infirm persons. The first 1,000 days in a child's life (starting with conception up to the end of 2 years of age) ought to receive special attention especially because nutrition deficiencies at this stage lead to lifelong physical and cognitive deficiencies.

Source: Adapted from National Advisory Council (2011): "Draft National Food Security Bill—Explanatory Note," New Delhi, 21 February 2011.

poverty and hunger in many developing countries. In India, this has evolved into a question of entitlement, especially for the rural poor, and a law to guarantee a certain quantum of employment, called the National Rural Employment Guarantee Act (NREGA), has been adopted (see Box 3.2).

NREGA is a rights-based approach for employment that has been introduced throughout India, but has encountered implementation difficulties. Most evaluations, however, indicate relative improvement in implementation of the programme compared to its predecessor projects. The "leakages" have been reported to be relatively less. Most importantly, an increase in agricultural wage is attributed to the scheme. In some rural areas, outward migration from rural areas has declined and some urban poor has returned home. The 11th Five Year National Development Plan of India (2007–2012) saw implementation of NREGA as a major vehicle of poverty reduction in India with the potential to transform livelihoods of the poor and bring about qualitative change in rural governance.

Right to food and National Food Security Act

The Government of India, through the address of the President to the Parliament in 2009, pledged that the adoption and implementation of the National Food Security Act would provide a legal framework for ensuring food security for all. The draft law is winding its way through the legislative process. Ongoing "targeted public distribution system" (TPDS), which will come under the new law when it is passed, provides subsidised food grains to the population below the poverty line (BPL) population. The proposed legislation has a wider scope, making PDS more responsive in reaching out to the targeted population which may include poor people beyond those below the poverty line (Khera: 2009; see Box 3.3).

India's efforts to achieve food security, combating poverty and expanding gainful employment in rural areas have generated experience and lessons which point to priorities in intervention strategies for the government at different levels and other actors including communities, NGOs and the private sector. The interventions must include components of skills and capacity building, knowledge and technology, and changes in institutional and management mechanisms. Some of the action areas in these categories are:

- Small farms need help with access to extension services and better water management to increase their productivity, especially in rain-fed and dry land areas, where food insecurity is greater.
- Local knowledge and local seeds should be encouraged to generate higher incomes for small farmers and to protect the environment.
- Home-grown food should be encouraged to enhance food security and nutrition and setting aside cash for essential non-food expenses such as health and education.
- Sustainable agriculture in the ecological conditions of tribal areas merit special attention.
- Producers' cooperatives should be encouraged to realise economies of scale in buying inputs and marketing outputs, reducing middlemen's high mark-up.
- Promoting the use of information technology for production and marketing, such as mobile phones, information kiosks and community radio.
- Organisational and institutional efficiency for major nutrition interventions, such as ICDS and mid-day school meal. Essential micro-nutrients such as Vitamin A and salt iodisation can be made part of the existing programmes mass-targeted at children (Dev and Sharma: 2010).

Food and nutrition security based on a rights-based approach has to be an inter-sectoral effort and requires social participation in policy-making and implementation. It also requires creating a consensus among different views and implemented through decentralised planning and management within the state and local government systems. It is necessary to review and update the rural and agricultural agendas, strengthening the links between access to adequate and healthy food with consumption and production and the role of family farming.

Food security in Bangladesh

Bangladesh has made many important gains in the last two decades in economic and social indicators, including reducing the prevalence of poverty and child malnutrition. Despite these improvements, Bangladesh remains a food insecure country, with improvements needed in food access and utilisation in particular. The country is

also particularly vulnerable to natural disasters, including floods, cyclones and storm surges with major adverse consequences for the economy as a whole and people's livelihoods, food security and health (see Box 3.4).

In absolute numbers, with 70 percent of the people living in rural areas, chronic poverty and malnutrition remain largely a rural problem, which spills over in to urban areas. However, rural areas are burdened with more than their proportionate share of the problem. People living in rural areas are also more likely to be poor and to have malnourished children than those living in urban areas. The degree of food insecurity also varies geographically depending on the ecology of specific areas, which affects the levels of poverty and the risks and vulnerability arising particularly from floods and cyclones.

Despite commendable progress made in the reduction of child and maternal mortality as well as recent progress in respect of child and women nutrition, Bangladesh has one of the highest prevalence rates of malnutrition in the world among children, adolescents and pregnant and lactating women. They suffer from one or more forms of malnutrition including low birth weight, stunting, underweight, vitamin A deficiency, iodine deficiency disorders and anaemia. Malnutrition contributes to more than 50 percent of child deaths (Government of Bangladesh: 2010, p.17).

Farming of rice, the staple for the people, and the crop sector generally suffer from low productivity. A decline in soil fertility arising from improper use of fertilisers, expansion of crop cultivation to inappropriate and dispersed locations, and low investment in seed–fertiliser–irrigation technology are the main reasons for low productivity in farming. There are large gaps between yields achieved by experiment stations and those by farmers. Reducing this critical gap requires increased investment and better management in the development of improved crop varieties, seed quality, soil health, pest control, agronomic practices, flood control, irrigation and water management and effective extension services.

Approaches that are being promoted to intensify rice production include strengthening rice research to generate new high yield and hybrid varieties, minimising the yield gap between experiment station and farmer plots with better extension and management practices, and increasing the availability and more efficient use of fertiliser, water and energy (USAID: 2009).

Box 3.4 Achieving Food Security in Bangladesh

A traditional expression of blessing in Bangladesh is—let there be milk and rice a plenty for the child.

The 31.5 percent of the population estimated to be under the poverty line consume less than 2,200 kilocalories of food energy every day considered necessary for normal activities. Perhaps half of them, regarded as the extreme poor, disproportionately high in number in the rural areas, cannot have even 1,800 kilocalories. The 2007–2008 food price increases, which have stayed at the high level since then, have pushed thousands of families below poverty line. More people than before have moved to city slums in search of livelihood.

The country has always depended on import to meet its staple grain needs. In the 1980s the average annual import was 1.9 million tons. It rose to an annual amount of 3.2 million tons in 2009–2010 including food aid and commercial imports. On average, the estimate of rice consumption is 477 grams per day per person in rural areas and 381 grams in the urban areas. This adds up to a need of 25 million tons of rice in 2011. If the harvests are good, domestic rice production would be 23 million tons, leaving a deficit of 2 million tons.

In the last ten years, the population has grown by 34 percent. The area of cultivable land has decreased by 7 percent. The population will increase to 172 million in 2021 (and to 220 million by 2051 with 140 million living in cities). The demand for rice will grow respectively to 280 million tons and 340 million tons.

With improved standard of living and changes in dietary habits and preference, the amount of rice in diet will come down. One could foresee a10 percent reduction in the share of rice in daily diet in each decade up to 2051. Bangladesh will still need 23 million tons of rice in 2051, instead of 34 million tons by present trend.

The Bangladesh farmers have increased food production three-fold in the last forty years, while the population has doubled. Food and nutrition security is very much achievable within the decade. Bangladesh has developed a 10 billion dollars plan for food and nutrition security. It will take strong political will and determination to implement effectively the plan to achieve the results. The blessing for the child to be in milk and rice aplenty will then come true.

Source: Adapted from Mohiuddin Ahmed (2011): "Amar shontan jeno thakey dudhe-bhate" (Milk and rice aplenty for my child), Daily Pothom Alo, 17 October 2011.

A Bangladesh Country Investment Plan (CIP) for Agriculture, Food Security and Nutrition has been developed through involvement of researchers and wide consultation and endorsed by the government in June 2010. The CIP is intended to be a comprehensive plan based on the government's investment priorities and aims to: (i) plan and invest resources in a coordinated way (ii) increase convergence and alignment of budget and external sources of funding and (iii) mobilise additional resources. Proposed investments relate to strengthening physical, institutional and human capacities in the field of agriculture, water management, fisheries, livestock, agricultural marketing, food management, safety nets, nutrition and food safety.

The CIP is designed as a set of investment programmes to fill gaps, scale up current positive interventions and develop new programmes as prioritised by the government. Table 3.3 summarises the programmes identified so far.

Food availability

The main priorities under the food availability component and the six areas of programme activities listed focused on:

- Sustaining the availability of key food crops increasingly confronted by considerable challenges including climate change (climatic shocks, increased salinity and sea level rising, floods); decreasing natural resources (scarce water during the dry season, land disappearing at 1% annual rate) and the continuing population pressure. Improving nutrition status through food production diversification is apriority. The need to diversify crop production will shape the programmes, in particular extension, research activities and the development of improved seeds. In addition, in order to complement the current diet, poor in micro nutrients and animal proteins, fishery and livestock development programmes are proposed.
- Increasing purchasing power and rural employment to enhance access to food through improved value added, agro processing, access to markets and the development of rural businesses. A programme is proposed to improve access to markets resulting in improved agricultural value added and increased non-farm incomes.

Food access

Under the component of food access, the priorities are two-fold:

Table 3.3 Components for Bangladesh Investment Plan for Food and Nutrition Security

No.	Component	Programme Title
1	Food Availability	Integrated research and extension to develop sustainable responses to climate change
2		Improved water management and infrastructure for irrigation purposes
3		Supply and sustainable use of agricultural inputs
4		Fishery development programme
5		Livestock development programme
6		Access to markets, improved agricultural value added, increased non farm incomes
7	Food	Capacity strengthening to formulate and implement food policies and related issues
		Access investments
8		Enhanced public food management systems
9		Development of an integrated multiyear safety net programme
10	Food	Community based nutrition activities through livelihood approaches
11	Utilisation	Orientation of food and nutrition actions through updated data
12		Food safety and quality improvement

Source: Government of Bangladesh (2010): "Bangladesh Country Investment Plan: A Road Map Towards Investing in Agriculture, Food Security and Nutrition," June 2010.

- Different approaches to enhance food access in normal years and in times of unusual conditions such as externally induced market volatility and natural disasters are needed to mitigate food insecurity. Stabilisation of food access in these different circumstances needs strengthening institutional and physical capacities to implement effectively food policy and enhance the public food management system.
- Safety net activities (food distribution, cash transfers) are being financed by the government. In order to better ensure access to food of the most food insecure, the CIP would finance the development of an integrated multi-year safety net programme built on the existing scattered programmes, with better targeting and other needed improvements, many already identified by studies and analyses.

Food utilisation

Component 3 concerned with food utilisation. Two priorities have been identified:

- Improving substantially the nutrition status of malnourished population, especially the most vulnerable groups, such as children under 2 and pregnant and lactating women: Two programmes are proposed to complement activities proposed under other components or currently covered by public health interventions and the on-going National Nutrition Programme—Development of community based nutrition activities through livelihood approaches. Communities, particularly associations of women, will be supported to increase production and consumption of micronutrient-rich foods. Home gardening and integrated horticulture, raising small animals, developing small fish ponds, developing food processing, and preservation methods will be encouraged. Advocacy, awareness-raising and nutrition education, and communication for behavioural change will be part of the programme.
- Ensuring food safety: It is an essential public health function. Food and waterborne diarrhoeal diseases are leading causes of illness and death and cause great human suffering and economic losses. A programme aims at improving food safety and quality for consumer health and nutrition—reviewing and developing policy, strengthening capacities of the existing institutions, enhancing consumer protection and improving food safety practices.

Capacity building

Important gaps have been identified which may put at risk the investment plan for food and nutrition security. These include skill gaps, limited implementation capacities, and the low operating capacity and result orientation of people and institutions. To overcome this obstacle, a key element in all of the major programme components has to be to enhance capacities at all levels, from government institutions to the grass-roots level, by strengthening workers, producers, administrators and community organisers in accessing knowledge and developing skills.

3.2 Food Security and Agricultural Development

Agriculture will continue to play a central role in tackling the problem of food insecurity. Maintaining and increasing global food production, ensuring food availability, is clearly dependent on agricultural productivity gain. It is also the major, and in many cases, the primary means for the poor to earn an income and to have adequate access to food.

Historically, progress in agricultural productivity has helped food production to keep pace with population growth and even to lower food prices until recently. There is a serious concern that this trend may no longer hold true because of the agricultural intensification pattern that aims to squeeze ever higher yields from dwindling land resources using hybrid and modified seeds and high levels of agrochemicals. For food production in developing countries to double by 2050, it will require, above all, more intensive land use and higher yields. The backdrop of ever scarcer natural resources, energy shortages and climate change are making the negative environmental externalities of agricultural production too costly. Improved inputs, technology and techniques will remain critical for increasing food availability along with improved knowledge, skills and capacities of people engaged in production of food, bringing food to the consumers, and ensuring its proper use by individuals and households.

Sustainable agricultural intensification

An agenda for sustainable agricultural intensification has been emerging and various sustainable intensification practices are being taken up by a growing number of farmers. The agenda requires that farmers, especially smallholders, develop their own practices, capitalising on their local knowledge as well as scientific research to address their specific problems. A combination of a systemic approach, adaptation to the local context and linking farmers' and scientists' knowledge—are the key to the emerging agenda. Developing smallholder farmers' skills to combine their experience and knowledge with science-based approaches require strengthening agricultural education, research and advisory services. It also calls for greater collaboration, innovation and problem-solving among smallholders, researchers and service providers (IFAD: 2011, pp.19–21). We return to this topic of sustainable agriculture in the next chapter.

Agriculture, perceived primarily as the supplier of food, has also become a substitute source for dwindling petroleum resources. The combined effect of rapid development of biofuels and the trend of foreign countries acquiring land in some developing countries, especially in Sub-Saharan Africa, for large-scale commercial farming, has made the issue of competing demands on agriculture for food and fuel a political agenda. The problem of the reduction of arable land has been compounded by shrinking water supplies, and the negative impact of climate change on agricultural land.

Competing demands of biofuels and food

Biofuel production, mainly because of the US Government support for ethanol production, has pushed up feedstock prices. Energy and agricultural prices have become much more interdependent with industrialised farming, more processing and increased transport, as well as the emergence of the biofuels industry (particularly for maize, oilseeds and sugar feedstocks; OECD-FAO: 2009). The price of maize, for example, rose by 23 percent in 2006 and by another 60 percent in the subsequent two years. Because the United States is the world's largest maize exporter, Biofuel expansion in the United States has contributed to a decline in world grain stocks to a low level and has put upward pressure on world cereal prices.

Similar price increases have occurred for vegetable oils (palm, soybean and rapeseed). Rising agricultural crop prices from demand for biofuels foreshadow an emerging conflict between food and fuel. The reality of this conflict is graphically illustrated by the fact that the grain required to fill the tank of a sport utility vehicle with ethanol (240 kilograms of maize for 100 litres of ethanol) is enough to feed one person for a year. The adverse impact on many food-importing countries of rising cereal prices have been witnessed in recent years. The welfare losses even in the short term of high food prices can be serious for people close to the poverty line with consequences that are longer term for them (World Bank: 2008).

The first generation of biofuels has mainly been derived from agricultural products that are also sources of human food—sugar crops, cereals and crops that produce oil for human consumption—thus in direct competition with food production. There are large potentials for what is called the second generation biofuels, which can be produced from non-edible biomass arising from residues and wastes from crops, forests, industries, cities and households, not competing with food production or using up agricultural land. There are also likely positive impacts on climate change mitigation (see Box 3.5). These possibilities have substantial implications for skills and capacity development for rural people and potentials for new kinds of job opportunities both in rural and urban areas.

Food losses and wastes

The efforts to increase food production must go hand in hand with reduction of losses and waste of what is produced at various stages of production, distribution and consumption. Loss and wastes of food and preventing and reducing such losses have not received due attention, although up to a third of food produced may be lost before it is consumed. The various stages at which losses and wastes occur are related to the components of food security, namely the availability of access to and consumption of food to maximise the nutritional outcomes.

The losses are a global problem and have a global impact which is transmitted through the effects on global availability of food and through influences on global markets and prices for food. The problems are manifested in different ways in the rural areas of developing countries where much of the food for the developing countries is

produced. Addressing these requires differentiated approaches including investments in infrastructure and technologies and promotion of relevant skills and capacities of people in rural areas. These approaches need to be important components of the total effort to ensure food security (see Box 3.6).

Box 3.5 Biofuels and Land for Food Cultivation

Does the development of biofuels represent a threat to the supply of land available to food cultivation?

The first generation of biofuels (1G) currently in use are primarily derived from the storage organs of crops that have historically formed a major component of the diet of humans and animals alike: sugar producing crops (sugar cane, sugar beets), cereals (corn, wheat, etc.), and oleaginous crops (soy, rape, palm, etc.). Because of competing demands made on limited resources the growth of the biofuel sector poses a direct threat to global food security and has become a very real concern for policymakers worldwide. The conflict reached a paroxysm as recently as 2007–2008 when the price of basic foodstuff threatened to spiral out of control. The trauma of this recent experience has lingered in a context that is permeated with concerns over how to feed a population that is expected to surpass 9 billion by the year 2050 without destroying the environment in the process.

In the current climate of opinion on this issue, much hope is being placed in second generation biofuels (2G) which are designed to exploit the energy potential of (non-edible) lignocellulosic biomass. Three principle sources that could be developed are: (i) residues or leftover material from crops, forests, industry, cities, and households; (ii) wood; and (iii) annually produced crops such as wheat or corn (using stalks and all); or perennials (herbaceous or forages) ; or bushy plants using short rotation techniques.

A number of contributing factors have made developments in this area promising. For one, untapped sources of the primary feed stocks are widespread. Secondly, the impact of these sources on our ability to produce food would be negligible if they consist mostly of agricultural residues, wood, or other forms of agriculture unsuited for human consumption needs. Finally, the superior energy efficiency (and corresponding economic efficiency) in terms of biomass produced per unit of land combined with a higher conversion rate for transforming this biomass into liquid fuel creates a compelling case when added to other factors in favour of cellulosic fuel. Nevertheless, the leap of faith to bridge the gulf between mere promise and concrete reality should calls for care.

A thorough analysis of the implications of increased competition for arable land is imperative. It has to be acknowledged that the demand for biomass to be used for fuel is set to skyrocket over the coming decades. The crops grown specifically as feedstock for fuel production are likely to be the primary source for the biomass. The positive side of this situation is that higher the yields of 2G biofuels (both in terms of biomass and energy) and greater the use of marginal lands, the more limited will be the damages to crop production.

Source: Adapted from Hervé Guyomard and Agneta Forslund (2011): "Hungry for Land? Potential Availability of Arable Land, Competition Between Alternative Uses, and the Impact of Climate Change," ParisTech Review, 3 March 2011, www.paristechreview.com

Box 3.6 Post-harvest Losses and Waste

Increased production is not the only way to meet global food demand. Waste in agriculture occurs at harvest, through post-harvest handling, drying, storage, as well as in manufacturing and distribution, and both with individual and institutional consumers (e.g., in restaurants and homes). Increased efficiency can reduce waste in each of these areas.

No one knows precisely how much food is wasted or where exactly the waste occurs from harvest to the consumer. Total food waste has been estimated at 20–30 percent of production globally, while in the EU it is estimated at 30 percent and in the US at 40 percent.

Food waste globally can be divided into two broad categories. There is waste related to harvesting and post-harvest losses, which is more common in lower income countries. There is also consumer or institutional waste, which is more common in higher income countries. On the production side, waste most often results from the lack of infrastructure—the lack of adequate on-farm storage which results in losses from insects, rodents, mould and mildew. In addition, post-harvest losses result from inadequate local processing, the inability to dry grains and other food, and the inability to preserve fresh produce. Losses result from inadequate or nonexistent markets, infrastructure or storage for dry goods, and/or refrigeration facilities for fresh fruits and vegetables and animal protein throughout the supply chain. In comparing developing and developed countries, the former appears to have twice as much loss in production, harvesting and post-harvest management than at consumption level; whereas developed countries have double the losses at the retail, foodservice and consumer level than in production and post-harvest management.

Insects, rodents, mould and mildew can destroy half or more of food in some places. It has been estimated, for example, that 80 percent of the mango production in India, the pineapple production in Ghana, and the cashew and acacia fruit production in Brazil rots before it can be harvested because there is a lack of processing capacity locally. According to a United Nations Environment Program (UNEP) report, as much as 30 percent of the calories that are produced by farmers or approximately 1,400 kcal/ per capita/per day are lost due to harvest and distribution losses and overall waste in food supply chains. Investments in infrastructure to improve market access, storage and transportation—and improved skills and capacities to manage and utilise these infrastructures and technologies—could substantially reduce these losses. As populations become more urban in the coming decades, the issue of infrastructure and post-harvest losses, as well as losses at the consumer end, will increase in importance.

Producing sufficient food to meet global food demand by 2050 requires that the food waste issues be given a high priority. At present, 95 percent of all funding for agricultural research and extension is for production, while only 5 percent is for post-harvest issues, although post harvest loss may be one-third of what is produced.

Source: Adapted from Jason W. Clay (2010): "Agriculture from 2000 to 2050—The Business as Usual Scenario," Washington, DC: The Global Harvest Initiative.

The multiple dimensions and a systemic approach to food security call for an inter-disciplinary perspective in understanding and addressing problems. A Cross-Government Food Research and Innovation Strategy was developed in UK which comprises four cross-disciplinary themes (DFID: undated).

- Economic resilience: how economic resilience of people and communities, especially in rural areas, can be an important factor in addressing hunger, poverty and environmental degradation across the globe and how this might be addressed.
- Resource efficiency: including water, energy, nutrients and other inputs; land use and soils, with particular focus on the sustainable use of resources; increasing competitiveness, profitability, efficiency and reducing waste.
- Sustainable food production and supply: including farming systems, food production from crops and animals (including fish), food processing, manufacture and transport.
- Sustainable, healthy, safe diets: including food safety throughout the supply chain, nutrition, consumer behaviour, food choice and accessibility.

These themes will have to take into account the sustainability of ecosystems related to food production (including land use, biodiversity and other ecosystem services). These are also pertinent concerns in considering the overarching challenges of reducing greenhouse gas emissions and reducing losses and waste throughout the food system. We return to this question again in the next chapter.

There is obviously no silver bullet solution to the multifaceted challenge of ensuring food security for the world's growing population. Jayson Clay of the World Wildlife Fund, who has attempted to bring an interdisciplinary perspective to bear on a set of workable pragmatic actions, which he calls "food wedges" that make up the whole pie of mutually complementary strategies with a 2050 time horizon. The eight wedges of the strategy pie for moving towards greater food security for the world, feeding all the people and still keeping the planet safe and healthy, are listed here. The list underscores the key factors that must be considered in working out skills development, knowledge needs, dissemination of knowledge and technologies, and creation of jobs and employment opportunities (Clay: 2010).

- Harnessing the science of genetics: Ten crops account for nearly 90 percent of all calories. Only two are on track to double production by 2050. Genetics (e.g. traditional plant breeding, hybrids, genetic engineering or genetically modified seeds) cannot be left off the table. It is necessary to be open-minded about the technologies with an eye on unacceptable ancillary impacts, and a focus on the results desired.
- Adopting and adapting better farming practices: The best producers globally are 100 times better than the worst. The best countries are 10 times better than the worst. To achieve global food security and maintain the planet, far more can be gained in producing food and reducing environmental impacts by pushing the middle and the bottom performing farmers and their practices to a better performance level.
- Optimising technology: All inputs (water, fertiliser, pesticides and energy) must be used more efficiently. An achievable goal can be to triple or quadruple the efficiency of input use in many situations.
- Bringing back to use degraded land: Instead of expanding into new areas to farm, it is possible and necessary to rehabilitate degraded or underperforming lands applying technology and science, skills and knowledge of people, and better management. The goal should be 100 million hectares rehabilitated by 2030 and 250 million by 2050, which would be a small proportion of the total estimate of degraded land. Depending on criteria applied, this estimate is between 200 million to 2 billion hectares. It may be noted that of the 4.9 billion hectares of land used for agricultural purposes worldwide, close to one-third is suited to annual or permanent crops, whereas over two-thirds are allocated to permanent meadows or pasture.
- Land tenure and property rights: What farmer will plant a tree or invest in sustainability if they don't own the land? What company will invest in new technologies if their intellectual property is not protected? It is necessary to pursue strategies that address these issues.
- Preventing and managing losses and wastes of food:

Globally as much as 30 to 40 percent of all food produced is wasted. The goal should be to cut waste in half in both developing and developed countries. To do this, it is necessary to invest substantially in reducing post-harvest losses and food waste including development of skills, creation of jobs and enhancement of management capacities.

- Balanced consumption: A billion people don't have enough food while a billion people eat too much. A reasonable goal would be not only to freeze these figures, so they do not increase, but to reverse these, ideally cutting each by half by 2030.
- Enhancing viability of food production with carbon trading: Whether in the soil or perennial crops or trees, carbon makes agriculture more sustainable. The goal for developing countries can be to develop and participate in carbon markets that allow food producers to sell the carbon credits under international climate protocols, to make food production more sustainable and profitable (more on this in the next chapter).

In short, no single strategy will ensure global food security, but there are many things that individuals, communities, institutions, national governments and the global community can do which collectively will make it possible to meet the challenge. A consensus has to be built around the combinations of actions to be pursued. Skills, capacities, knowledge, technologies and institutional structures have to be built, and the energy and enthusiasm of people have to be mobilised to this end.

3.3 Skill and Capacity Needs for Food Security and Agricultural Development

The previous section has attempted to probe the food and nutrition security and the related agricultural development challenges in different developing country contexts. The gist of a systematic country investment plan for food and nutrition security in Bangladesh has been presented as an example of the major programme components and areas of programme activities which may be relevant to address food security and nutrition needs in a developing country. The plan has also indicated the potential interventions necessary and the main tasks that have to be undertaken to implement the plan (see Table 3.4). Taking the Bangladesh plan as illustrative of the tasks and functions which have to be performed, the range of skills and capacities needed in rural communities and among workers in these communities can be derived from the required interventions, applying logic and judgement based on empirical information, as shown in Table 3.4.

The indicative listing of skills and capacities required among the workers in the rural communities are those directly linked to carrying out the interventions identified in the plan to address food security and agricultural development priorities. It is obvious that acquiring the skills and capacities listed call for access to general education of varying levels and certain general skills training opportunities as a prior condition for the potential performers of the skills in their jobs. As discussed in the previous chapter, it is likely that in rural communities in most developing countries these conditions remain to be fulfilled adequately.

As noted in Chapter 2, the skills and capacities of people required to pursue the goals of rural transformation can be put under four broad categories—basic tools for learning to learn, skills and knowledge related to improving the quality of life, production- and employment-related skills and knowledge, and skills, knowledge, attitudes and values related to organisation, management and social institutions.

Another way of looking at skills and capacities in the rural context, again noted in Chapter 2, is to consider the occupational categories in rural communities and the related skills. The main categories mentioned were: (i) those directly concerned with agricultural production, (ii) off-farm commercial activities and (iii) general services including the work of administrators, planners, teachers and trainers, and technical specialists of various kinds.

The skills and capacity needs shown in Table 3.4 are consistent with the three kinds of categorisation mentioned above, which provide a framework for judging relevance and rationale for skills development objectives and content. The enumeration does not specify, but important to keep in view, that each of the skills represent different levels of general education background, participation in generic and/or occupation-specific skill training and experience-based knowledge and expertise development.

Table 3.4 Illustrative Interventions and Skills Needs to Ensure Food and Nutrition Security

Programme Areas	Potential Interventions	Skills and Capacity Areas at Local Level
Integrated research and extension to develop and propagate sustainable responses to climate change	• Enhance research to adapt to climate change • Develop community based learning and experimentation practices (expand the Field Farmer School programmes) • Promote sustainable agriculture practices (conservation agriculture, integrated pest management or integrated crop management)	Work in research stations, field trials, and extension work; work of trial farmers
Improved water management and infrastructure for irrigation purposes	• Improve water management at farm level (capacity building for water users, rehabilitation of infrastructure) • Surface irrigation, deep well pumping, balancing ecology & costs • Protection infrastructure rehabilitation against sea intrusion; and • River dredging and channel maintenance	Water equipment maintenance, construction and maintenance in irrigation and land management
Supply and sustainable use of agricultural inputs	• Partnerships of public agencies, private sector, research institutions in seed and genetic technology • Building capacities for seed quality testing and certification • Improved and rational use and quality control of fertilisers, chemicals	Farm input supply, distribution, training, extension
Fishery development programme	• Restore inland open water fisheries • Develop small scale inland aquaculture • Provide quality enhancement and certification for shrimp culture	Fishery technology, maintenance, extension, quality control work
Livestock development programme	• Strengthening animal health services • Capacity building and training at herder level and feed processing • Cattle and buffalo genetic improvement activities	Animal health work, training, extension, management
Access to markets, improved agricultural value added, increased non farm incomes	• Improvement of rural roads and markets • Group marketing and training at community level • Private storage, value chain facilitation, information provision • Assist the development of off-farm activities and rural businesses	Road construction, maintenance, cooperatives, marketing, communication
Capacity strengthening for food policy and formulation of investment and implementation and monitoring	• Strengthening and expanding capacity to implement, monitor and coordinate food policy and food security activities • Strengthening the capacity to formulate, implement, monitor and coordinate the food security plans and programmes	Leadership, organisation and operational skills for local organisations and institutions to provide policy inputs and implement food security plans and initiatives
Enhance public food management systems	• Enhance efficiency of public management systems (improve operational procedure; adopt ICT and computerisation and develop operation research) • Build capacities of concerned public agencies, at different levels to manage the food system • Increase and modernise public storage and handling facilities • Strengthen capacity of quality control of food and food stuffs	Local distribution, storage, information system, quality control skills, skills for managing, operating and using ICT-based farm production and market information
Development of an integrated multiyear safety net programme	• Formulate new comprehensive safety net programmes, streamline existing programmes and enhance their impacts • Review, redesign, streamline safety net programmes in partnership with relevant stakeholders • Improve institutional capacity to effectively operate social safety net programmes	Local management of social protection and safety net activities and service provider skills

Table 3.4 (continued)

Community based nutrition activities through livelihood approaches	• Review, build on on-going nutrition intervention programmes • Assist rural communities to develop their own nutrition activities, through a livelihood approach,co mplemented by health oriented awareness campaigns • Support to develop home gardens, small animals, change in nutrition behaviour and practices • Link long term measures with immediate treatment of acute malnutrition	Local management of nutrition initiatives, nutrition education and awareness and service provision skills
Monitor and re-direct as needed food and nutrition programmes through data	• Update food consumption survey, food composition tables • Work out updated nutrition messages for nutrition awareness and build capacities in this area	Data collection and monitoring of nutrition programmes at local level
Food safety and quality improvement	• Improve surveillance system of food borne illnesses • Enhance capacities and laboratories for food control and safety	Involvement in food safety assurance, awareness raising of community

Source: Column 1 and 2 based on Government of Bangladesh (2010); Colum 3 constructed by authors.

The disparities in education and training provisions in general between urban and rural areas have been noted earlier. In assessing skills and capacity development issues for food security and agricultural development, this general problem of adequate and appropriate provisions for general education and technical and vocational training opportunities both in urban and rural areas have to be given due consideration. This is discussed further in Chapter 5.

At this point, specifically from the point of view of skills and capacities related to the interconnected questions of ensuring food and nutrition security, agricultural development and poverty reduction of rural people, the role of non-formal education and continuing learning opportunities for people throughout life need to be underscored. Many of the areas of skills and capacities mentioned in Table 3.4, while dependent on prerequisites of varying levels of formal education and training, need to be further developed, maintained and effectively put to use through a range of non-formal education and capacity building activities.

Learning, knowledge and skills network within the framework of lifelong learning: The argument for a central position of the knowledge network and lifelong learning in the national development agenda is well recognised. These challenges as articulated in development priorities and aspiration of societies have to find a place in the curriculum, learning objectives, educational methodology and in expanding learning opportunities for all in both rural and urban areas (Ahmed: 2009).

A convergent view of lifelong learning embracing functional literacy, alternative vocational and technical education, alternative and complementary provisions for stages of formal schooling, and diverse continuing education for adults has emerged with new urgency. The developing world, particularly South Asia and Sub-Saharan Africa, has a high concentration of adult and youth illiterates, especially among women and marginalised groups. Structural shifts in the economy from farming to industry and services and the need to acquire and upgrade skills for the competitive and rapidly changing labour market need to be key considerations in shaping social and individual goals for adult and continuing learning.

A multi-pronged approach to promote "critical literacy" and combat poverty

Effective programmes to fight poverty have to link literacy skills, production skills, quality of life components and ancillary support

Skill training can lead to better earning only with ancillary support and creation of necessary conditions, such as access to credit, management advice, market information and links with potential employers. Moreover, poverty is not just a matter of income. Improvement in health and nutrition and protection from diseases,

knowledge and practice of family planning, priority to children's education, status of women in family and community and their participation in economic activities outside home, are also some of the factors that affect well-being and quality of life. As are information and knowledge of government services and people's claim to these including food and nutrition security in short and long terms. All of these should be elements of adult learning aimed at fighting poverty.

Networks of community learning centres as the vehicle

Examples of multipurpose community learning centres with community ownership exist in many developing countries. These are effective when they become the base for offering a menu of relevant training and knowledge dissemination and for link-up with ancillary support. These, brought together into national or regional networks for technical support, can be a vehicle for offering the education and learning opportunities which have an impact on poverty. Thus they can become the building blocks for lifelong learning in the learning society.

Affirmative action in education to address inequality

A policy of affirmative action is needed to identify and serve the disadvantaged and marginalised sections of the population. Their specific needs have to be addressed with these strategies. A key strategic principle for adult and lifelong learning has to be to design programmes and set priorities to play a role in overcoming the gross inequalities in society.

High priority to overcoming gender injustice and disparity

Patriarchal values and culture continue to dominate causing many forms of overt and subtle gender injustice and discrimination. Gender issues need to be addressed both in respect of management structures and in their pedagogical aspects. Special attention is needed to ensure that a higher proportion of women than at present are in management, supervisory roles and as trainers.

Disadvantaged and neglected groups

Ethnic and linguistic minorities, indigenous people, the ultra-poor and people with disabilities and special needs continue to be outside most education and training programmes and are difficult to reach. Specialised and more directly targeted projects would be required for these groups. Mobilisation and awareness raising efforts need to be directed specifically to overcoming traditional attitudes regarding gender, disabilities and ethnic, cultural and religious differences.

3.4 Turning Skills into Jobs

The mismatch between skills and jobs, how demand and supply of skills and jobs relate to each other, is a ubiquitous and complex question. Development of skills does not by itself create the jobs where the skills would be used. And jobs do not necessarily prompt or cause efficient development of appropriate and relevant skills.

How can the skills and capacity requirement for food security and agricultural development be turned into "decent jobs" with improved productivity and better earning for the workers? More broadly, with huge potential for development in agriculture and its role in fulfilling the overarching goals of fighting hunger and poverty, what need to be done "to awaken the sleeping employment giant for skilled and unskilled labour force in the agricultural sector"? (Kulabako: 2011).

The illustrative tasks and functions indicated in Table 3.4 and the related areas of skills suggest the jobs in which these skills would be used. Many of these exist at present in rural areas and the commercial and service hubs serving rural areas. New ones have to be established by public agencies at local and higher levels, private sector and NGOs and community organisations. Existing jobs and new ones have to be placed within strengthened and newly created organisational and institutional structures so that these can be supported by necessary technical backup and supervision. The potential for creation of jobs and making existing ones deliver better have to be assessed in the light of the food security and agricultural development strategies and plans.

In Africa, 200 million people are aged between 15 and 24 years, comprising more than 20 percent of the population. The large majority of the youth lives in rural areas and 65 percent of them are employed in agriculture. Making well balanced choices for employment-

intensive investments in agriculture and rural nonfarm activities, which are consistent with indicated food security and agricultural strategies, can create jobs which can absorb the young people. These can be short-term employment demanding limited skills, such as many of those in the Indian Employment Guarantee Scheme; or longer term ones related to new functions and institutions, requiring new specialised and upgraded skills.

In Uganda, agriculture contributed to 14 percent of GDP in 2010–2011, but employed 80 percent of the labour force. This disproportion between agricultural output and employment, manifested in a more extreme form than in other countries, nonetheless, is emblematic of the dilemma of developing countries—poor productivity and earnings of the large majority of the workers who are in rural areas leading to concentration of poverty among the rural people.

How can a vision of rural transformation help change this scenario with higher productivity and earnings for rural workers in agriculture as well as non-farm activities, while ensuring protection from hunger and poverty for all people?

In the context of Uganda, a number of ideas have been suggested, which lend justification for promoting skills to serve functions indicated above. Uganda has 5.5 million hectares of arable land, fertile soils and plenty of rainfall, but the full potential of agriculture and related development of rural communities is yet to be fully exploited. Among ideas suggested by experts and informed observers in Uganda are promoting cooperatives and other forms of grouping of farmers for procuring inputs, securing credits and marketing produce; investing in appropriate mechanisation of production and processing; and promoting agro-processing which have multiplier effects for off-farm employment.

"Cooperatives will enable farmers to process agricultural products collectively and help them raise enough quantities of final products for regional markets," said Bernard Tayebwa, a Mekerere University economist. Revived and strengthened cooperatives would facilitate collective marketing, and enable easy access to agricultural funds and inputs, he said. He also suggested that the country needs to build capacity for agro-processing to create substantial off-farm employment opportunities (Kulabako: 2011).

In the same vein, Uganda Safety Council Technical Director, Dr David Ongaram, has urged the government to promote group farms where farmers are encouraged to grow similar crops at the same time to make it easier to extend support services. Thomas Mwebaze, an economist from Makerere University, said boosting agricultural production through appropriate mechanisation and promoting agro-processing holds great potential to create employment opportunities for skilled, semi-skilled and unskilled Ugandans. "The agricultural sector has multiplier effects; if you mechanise and boost agricultural production, you create jobs for farmers, engineers, transporters, traders and processors along the value chain," according to Mwebaze (Kulabako: 2011).

The secular and historic trend in economic development shows that the problem of rural poverty cannot be overcome without a structural change by which the employment in agriculture will match agriculture's contribution to GDP and eventually, moving towards the pattern in developed countries, the proportion of direct on-farm workers as share of total workforce will be significantly lower than the share of agriculture to GDP. This suggests that a reasonable goal in many developing countries would be to reduce the proportion of on-farm employment by half in the next 10 to 15 years. The goal for Uganda, for instance, may be to reduce agricultural employment to 35 to 40 percent of total employment. For Bangladesh, the target by 2021 may be 25 percent of employment in agriculture, a decrease from the present 48 percent, with agriculture currently contributing 20 percent of GDP. The significance of such a structural change and the implications for skill development and job creation policy and strategy are discussed further in Chapters 5 (see also Chapter 2, "Pathways out of rural poverty").

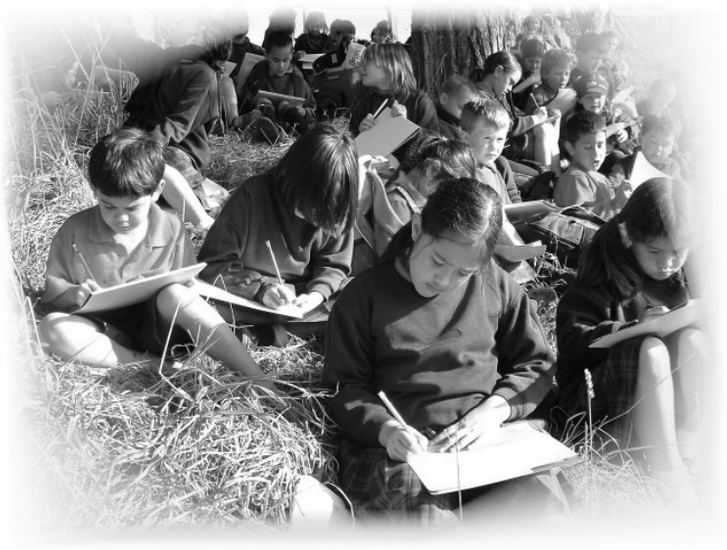
The acceleration of the structural change in the economy will require a mix of strategies encompassing efficient smallholder farming; commercial farming of different scales; and diversification of agriculture with a balance of crop and non-crop production. Investments will be needed in physical infrastructures including roads, water management and energy supply. Technology including appropriate mechanisation, use of chemicals and application of bio-technology will have to be put to use. Off-farm economic activities have to be identified and promoted. ICT application has to be

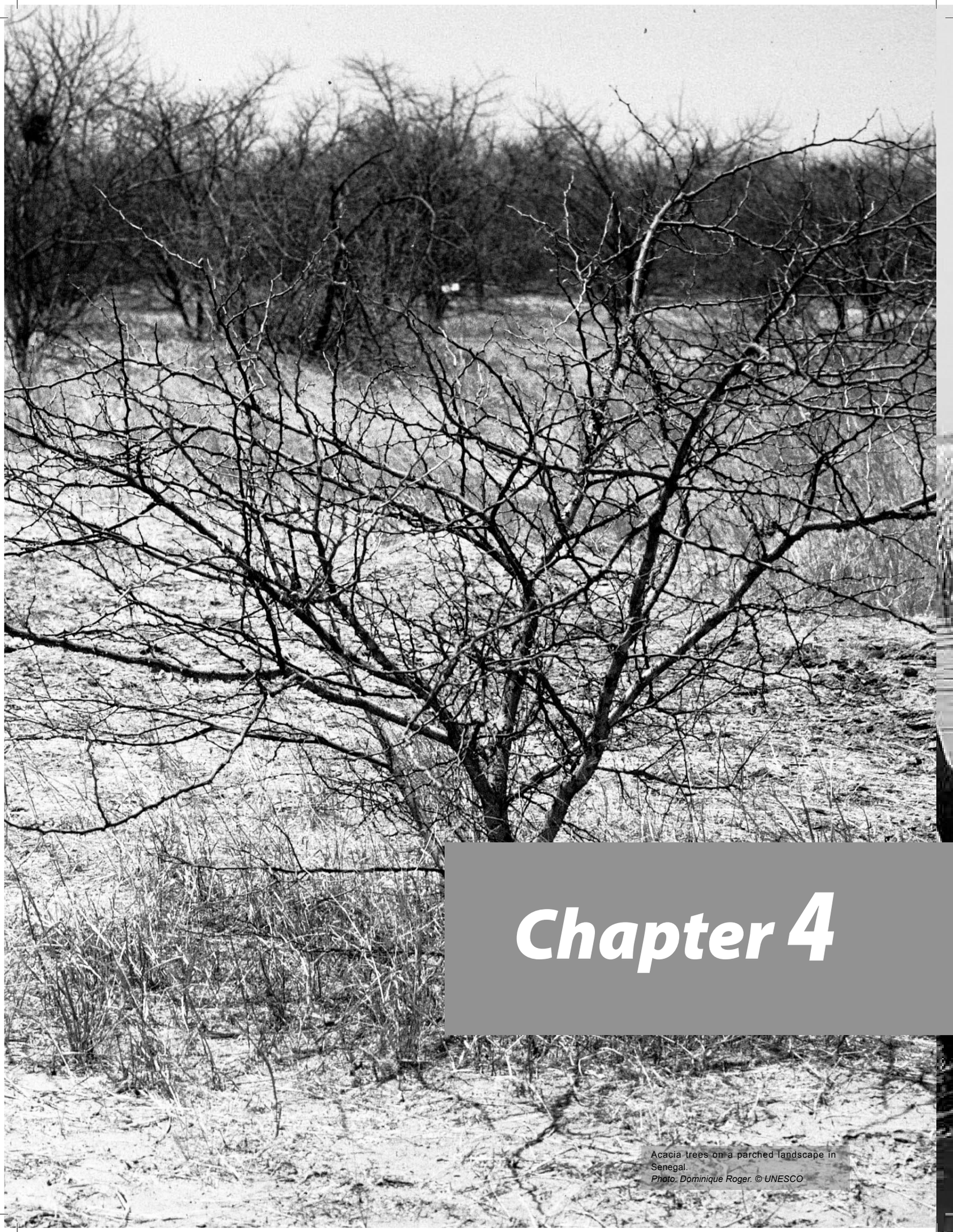
introduced in distribution and marketing and changes will be necessary in organisational and institutional structures. A judicious mix of strategies has to be chosen, keeping in view the labour intensity impact and labour market consequences in the rural areas. It has to be ensured that the changes benefit the poor and the disadvantaged and mitigate any negative impact on them.

In making the right choices regarding change in specific national and local contexts the sustainable livelihood approach (SLA) discussed in Chapter 2 would be a useful framework. The framework can be helpful in assessing the broad and longer term structural change goals and targets and the more immediate practical decisions regarding inputs, technology and entrepreneurial choices. Due attention has to be given not to undermine the priorities and the outcomes in fighting hunger and poverty and to avoid inconsistencies between the longer term and the immediate.

The SLA approach, it may be recalled, emphasised understanding the vulnerabilities of poor people and the organisational and institutional environment within which poor people functioned. The poor must be helped to have access and make use of the key assets in working out a livelihood strategy for themselves—human capital, social capital or support derived from belonging to social groups, natural or ecological capital, physical capital and financial capital. SLA provides a framework for considering the whole range of policy issues relevant to the poor, access to health and education as well as to finance, markets and personal security. An integrated approach is necessary in making the different assets contribute to the common objectives of turning knowledge and skills into productive work, and productive work improving people's lives.

The operational aspects of the use of SLA framework for designing, implementing and assessing skills, capacity building and job creation are discussed in Chapter 5. Sustainable livelihood, by its definition, is intimately intertwined with broader issues of sustainable development and building the green future. The ramifications for skills, capacities and livelihood of such a future must be better understood. These questions are explored in Chapter 4.





Chapter 4

Acacia trees on a parched landscape in Senegal.
Photo. Dominique Roger. © UNESCO

Skills and Jobs for a Green Future

Villagers take advantage of an overowing river in Myanmar.
Photo: © Poet, www.poet.net

Chapter 4

Skills and Jobs for a Green Future

Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meeting their own needs.

– The World Commission on Environment and Development, Our Common Future (The Brundtland Report), 1987, p.43

Eradicating poverty is the greatest global challenge facing the world today and an indispensable requirement for sustainable development, particularly for developing countries.

– The Plan of Implementation of the Johannesburg World Summit on Sustainable Development, 2002

The United Nations Decade of Education for Sustainable Development (DESD, 2005–2014), for which UNESCO is the lead agency, seeks to integrate the principles, values, and practices of sustainable development into all aspects of education and learning, in order to address the social, economic, cultural and environmental problems we face in the 21st century.

– Global Development Research Center, UNESCO, 2002, www.gdrc.org/sustdev/un-desd/

What is a green future? It is the vision of the planet and communities which are cleaner, safer and greener than today. It is the manifestation of sustainable development "that meets the needs of the present without compromising the ability of future generations to meeting their own needs" as articulated by the World Commission on Environment and Development (the Brundtland Report: 1987). It is about preventing, adapting to and mitigating the adverse effects of climate change.

Climate change affects the poor disproportionately and has far-reaching consequences for agricultural and rural development. As a major source of greenhouse gas (GHG) emissions, agriculture also has huge potential to reduce emissions through reduced deforestation and changes in land use and agricultural practices. But this potential has to be realised in ways that reduce poverty of the rural majority in developing countries and promote the goals of rural transformation.

The four parts of this chapter will discuss: (i) the importance of green development—how climate change impacts the rural poor (ii) greening of rural transformation—sustainability issues in agriculture and rural economy, (iii) skills and capacity needs for sustainable rural transformation and (iv) promoting skills and jobs for the green rural transformation.

4.1 How Climate Change Impacts the Rural Poor

It can be justifiably argued that in two decades since the 1992 World Conference on Environment and Development, workable policies and strategies are yet to be developed and used widely, which effectively integrate environmental sustainability and poverty alleviation in general, and rural poverty in particular. Moreover, the forces of globalisation have served more as inhibitors than drivers in placing sustainable development at the centre of economic policy prescriptions, not to speak of sustainable rural transformation, and accompanying institutional reforms (Reed: 2002).

The overwhelming reality at the beginning of the 21st century is that the extent of poverty globally remains massive. As Lester Brown put it:

> The social and economic gap between the world's richest 1 billion people and its poorest 1 billion has no historical precedent. Not only is this gap wide, it is widening. The poorest billion are trapped at subsistence level and the richest billion are becoming wealthier with each passing year. The economic gap can be seen in the contrasts in nutrition, education, disease patterns, family size and life expectancy (Brown: 2008, p.107).

The impact of these changes, even before they reach a critical threshold, is disproportionately adverse on the rural poor and their efforts to overcome their circumstances, as noted in earlier chapters.

Effects of climate change show that poor people are most likely to be the first victims and the greatest sufferers of environmental degradation. The rural poor are more vulnerable than others to environmental hazards and environment-related conflicts and least able to cope with them when these occur. They also tend to be most dependent on the natural environment and direct use of natural resources, and are, therefore, most severely affected by environmental degradation and lack of access to natural resources.

On an operational level, the concept and practice of sustainable development must be focused on the fight against poverty, especially rural poverty in developing countries, given its preponderance in these countries. By integrating environmental considerations into the struggle against poverty, and vice versa, the chances of achieving meaningful progress will substantially increase. At least three key elements of this integrated approach, as noted below, have emerged from the discourse on sustainable development, and ways of enhancing skills and capacities of people through education, training and relevant supportive strategies (Ahmed: 2010).

- Overcoming marginalisation and disparity and claiming a stake for all in economic and social development: The vulnerable poor in rural areas, who form the majority in developing countries, have to be given a stake in sustainable development. Important aspects of this effort are empowerment of people at the local level in designing and achieving poverty reduction; access to productive assets, capital and technology for the poor;

and social safety net and economic support to the ultra-poor, those who are ineligible even for microfinance, in order to enhance their capabilities to access capital and technology.

- Coping with the feminisation of poverty: Women, making up two-thirds of the world's poor, are more likely than men to be poor, malnourished and illiterate. They usually have less access to medical care, property ownership, and employment, and are far less likely than men to be politically active.
- Women are also the first to encounter the effects of ecological stress, because they must walk farther to get wood for cooking and heating, to search for clean water and to find new sources of food. The responsibility for rearing children and ensuring sufficient resources to meet their needs for nutrition, health care and schooling falls upon the mother. Women's lives have been inextricably linked to the use of natural resources in traditional society. Economic and technological development and expansion of economic opportunities often altered the symbiotic relationship between humans and nature and added new stress both on women's life and on the natural environment (see Chant: 2006).
- Promoting sustainable production and consumption in the context of poverty reduction: Roughly five percent of the people of the world in North America enjoys one-third of the world's economic output. On the other hand, one-third of the world's population in China and India can lay claim on only six percent of the world's economic output.

Arguably, the central point of debate on sustainability is whether the pattern of consumption and production in North America and Europe is sustainable for the majority of the world outside the privileged enclave. Another way of posing this question is: Is it responsible behaviour on the part of the developing world to aspire to emulate and aim to achieve the pattern of production and consumption of North America and Europe? By the same token, is it responsible for the rich countries to insist on protecting the privileges they have enjoyed? If not, is there an alternative development path that the developing countries need to find and follow, while protecting and promoting the rights, dignity and well-being of all human beings? And what are the corresponding moral, ethical and enlightened self-interest imperatives for the rich countries of the industrial world? (Korten: 2003)

Lester Brown of the Earth Policy Institute points out:

> The western economic model—the fossil-fuel-based, automobile-centred, throwaway economy—is not going to work for China. If it doesn't work for China, it won't work for India or the other 3 billion people in developing countries who are also dreaming the American dream. And in an increasingly integrated world economy, where we all depend on the same grain, oil and steel, it will not work for industrial countries either. The challenge for our generation is to build a new economy, one that is powered largely by renewable sources of energy, that has a highly diversified transport system and that reuses and recycles everything. And to do it with unprecedented speed (Brown: 2008, p.XII).

Consequences of global warming for agriculture

The impact of climate change on agriculture and thus on the rural poor, who are dependent on agriculture for livelihood, can be devastating. The evidence of the threat of global warming on agriculture is unambiguous, though its magnitude in different contexts may be debated. Changes in temperature, precipitation, carbon dioxide storage and emission, fertiliser needs and water on surface and underground are the major factors that affect agriculture prospects. The assumption of a moderate increase in global temperature (1–3 °C) would have an overall moderate effect on agricultural production, but would have different impact on warmer and temperate zones of the world, with a more severe negative impact on the developing countries in the tropics.

A higher estimate of global temperature rise of above 3 °C would adversely affect all regions, but the tropics would suffer particularly severely. Decline of wheat and maize yields in parts of Africa, Asia and Central America could be by 20–40 percent. Rice also would be affected, but less severely. These conservative estimates do not take into account the consequences of more intense droughts and floods, changes in surface water runoff and the effects on other crops and livestock (World Bank: 2008, pp.200–201).

Food security in jeopardy

In several Sub-Saharan African countries, declining precipitation could reduce yields from rain-fed agriculture by up to 50 percent by 2020. Agricultural production and access to food are likely to be severely compromised in many areas of the continent, endangering food security and exacerbating malnutrition (IPCC: 2007).

The high reliance on agricultural production, for both food and income, of rural people in developing countries intensify the negative effects of climate change. In Mali, agriculture accounts for 40 percent of GDP and provides primary livelihood for 80 percent of the population. In India, close to 60 percent of the working population is engaged in agriculture. The change in the patterns of the monsoon due to increases in global temperature will have detrimental effects on agricultural production and people's livelihood.

Countries such as Brazil and Egypt will be affected by decreasing precipitation, putting pressure on dwindling water resources, thus inhibiting agricultural production. Many countries such as Bangladesh, Brazil and the Philippines already suffer from droughts and floods simultaneously, in different parts of the country or at different times of the year. These effects are likely to be further aggravated by climate change. Competition between land use for food and Biofuel production has consequences for food security and employment pattern, which calls for careful balancing (see Box 4.1 and ILO: 2011a).

Other social and economic impacts

Climate change and environmental degradation not only damage the environment; the immediate and longer term negative social and economic impacts are immense. Nicholas Stern, in his influential review of the global impacts of climate change, estimated that the reduction in global GDP due to the effects of climate change could be at least 5 percent currently and as much as 20 percent by 2050 (Stern: 2006). The number of people forced to abandon their homes and livelihoods by floods, droughts and other weather-related events would increase over the next decade; and water shortages and malnutrition threaten to affect 600 million people by 2080 (UNEP *et al.*: 2008, p.20).

Box 4.1 Policy Context in Selected Countries: Climate Change Impact and Priorities

Bangladesh

A minor contributor to global GHG emissions, Bangladesh is suffering from highly disproportionate climate change impacts. Environmental degradation is happening through soil erosion, deforestation, increased water salinity and water body pollution. The most damaging effects of climate change in Bangladesh, heavily dependent on agriculture, are floods, salinity intrusion, and droughts that have been drastically affecting crop productivity almost every year. This is critical to the economy of Bangladesh, which relies predominantly on agriculture. Mass deforestation is occurring, including burning already low forest cover to clear land.

A system or institutional responsibility does not exist for identification of current and future skill needs for any kind of jobs—non-green or green—in the labour market. In the absence of firm policy agenda, the delivery mechanisms of the existing institutions for developing skills for green jobs remain weak.

Brazil

The primary sectors for emitting CO_2 in 2005 were forestry and agriculture, accounting for four-fifths of CO_2 emissions. The emissions and characteristics of energy supply sources point towards four primary environmental challenges:

- Decreasing the net loss of forest area;
- Implementing incentives for adoption of agro-forestry systems, no-till farming, energy efficiency, waste management and clean production measures;
- Encouraging the replacement of fossil fuels by biodiesel and ethanol for countrywide transportation; and
- Actively participating in the national Clean Development Mechanism (CDM).

The transition of Brazil towards a low-carbon economy is mainly driven by environmental legislation at international and national levels. Environmental legislation, to the extent implemented effectively, leads to direct and indirect effects on the demand for green occupations and skills.

Box 4.1 (continued)

China

Emissions primarily produced by burning fossil fuels. Current industries need to be analysed to identify opportunities for greening as a priority, including not just non-wood pulp and paper production, but also new industries such as those for alternative energy.

The shift towards a greener economy in China will require workers to develop new green skills, leading to an adjustment in skills development strategies and training programmes. A major part of the challenge will be implementing changes in the vocational training sector, which provides training to 80 percent of occupations. Green occupations are a new concept in China and therefore few professional qualifications have been adopted. China needs to ensure that green jobs offer adequate wages and opportunities to workers.

China is planning a significant increase in its use of wind and solar power over the next decade offering new incentives. These green jobs require new skills among workers. China will need to re-direct training focus on environmental management and protection skills in eco-friendly technologies, including those which support renewable energy sectors, energy efficiency and recycling.

Egypt

A rapidly growing population places an increasing pressure on natural resources, resulting in stress on land and water and habitat destruction. Serious ecological problems are manifested in shoreline erosion in coastal zones. The Delta region faces problems of possible flooding due to rising sea levels. In addition, agricultural productivity could be negatively impacted by the increase in average temperatures. Human health hazards are likely to increase, as climate change may lead to outbreaks of vector-borne diseases. Egypt's total CO_2 emissions were estimated at 158 million metric tons, 1 percent of the total world emissions. However, emissions had escalated by 40 percent between 1996 and 2004. Major contributors to GHG emissions in Egypt are the energy sector (22 percent), manufacturing (19 percent), transport sector (18 percent), agriculture (15 percent), small combustion (9 percent), non-combustion emissions in industry (9 percent) and waste (5 percent).

A structured approach to skills response to climate change does not exist. Lax enforcement of environmental regulations is a disincentive for investing in alternatives to improve environmental performance. Initiatives for mitigation and adaptation to climate change are mostly implemented on a relatively small scale and in the form of donor-supported projects.

India

The Indian economy is now the fourth largest economy in the world and the fifth largest greenhouse gas emitter, accounting for 5 percent of global emissions. In per capita terms, it is low for a rapidly developing country. India's policies for sustainable development focus on energy efficiency and energy pricing, renewable and cleaner energy supply, pollution abatement, reforestation and mass transport. These policies could translate into projects that generate millions of "green jobs" in the coming years. Close to 60 percent of the working population of India are engaged in agriculture, making this the biggest employment sector. Crop production in India is critically dependent on the summer monsoon, making the agricultural sector highly vulnerable to climate change impacts. A major problem is the degradation of national water resources due to excessive water withdrawal for irrigation, industry and domestic consumption.

According to a recent survey, 86 percent of the labour force in India are in the informal economy and are potentially a reservoir of green workers, if they are trained and supported by policy measures. A proposed modular employable skills initiative targeting less-educated people without employable skills, workers who have acquired skills informally and Industrial Training Institute (ITI) graduates is an important step in the right direction, which has to be implemented effectively.

Indonesia

The Presidential Decree No. 5 of 2006 regarding National Energy Policy aimed to increase the use of renewable energies. The challenges for the green economy in Indonesia are:

- Land use changes in the forestry sector—emissions increase from deforestation, peat oxidisation (emissions from organic soils), peat fires and forest burning;
- Energy sector—emissions of CO_2 from electricity and petroleum operations, transportation, commercial and industrial operations, and fugitive emissions (leaks and other unintended or irregular release of gases);
- Agriculture sector—emissions from rice cultivation, fertilisation, biomass, and manure management; and
- Waste sector—emissions of greenhouse gases originating from industrial wastewater treatment and discharge, domestic wastewater treatment and discharge, open burning solid waste, and unmanaged waste disposal sites.

There seem to be few linkages between the private sector and education and skills development, especially in terms of green issues; these links need to be improved to help fill the demand for green skills.

Mali

The agricultural sector is the backbone of Mali's economy: it contributes over 40 percent of national GDP and provides primary livelihood for more than 80 percent of the country's population. The performance of the agricultural sector and its capacity to adapt to climate threat are the key challenges in the future for the economy of Mali. The drive towards greening of Mali's economy hinges on how the agriculture sector responds resiliently to climate change and environmental degradation such as desertification and loss of soil fertility. Strategies or policies geared towards greening the economy are not in place and the term "green job" is not commonly known.

Box 4.1 (continued)

Greening the economy is seen more as a burden rather than an opportunity. There is some recognition of the potential in this respect, which needs to be further promoted.

The main concern about Mali clearly is adaptation within the agricultural sector. Actions on climate change are uncoordinated and a national strategic framework that defines Mali's vision is lacking. Despite Mali's vulnerability, an analysis of policies, strategies and key development programmes in Mali (GPRS II, PDES, LOA etc.) show that the impacts of climate change are not receiving due priority.

Philippines

The Philippines, an archipelago of more than 7,000 islands with a population of over 90 million, is on the UNDP's shortlist of most vulnerable countries in the world to climate change. The country is a low emitter of GHGs, contributing only 0.3 percent of the global share in 2004.The Philippines has suffered destructive episodes of El Niño droughts and La Niña floods. It is estimated that about 43 percent of the country is likely to be affected by climate change-induced drought, 20 percent by floods, and 11 percent by landslides. The negative impacts of climate change include water shortages, decreases in agricultural productivity, infectious diseases due to heat stress, and residents in low-lying coastal areas becoming "climate refugees". Coral bleaching, disappearance of small islands, and a decline in livestock production are other likely negative effects. The agricultural sector is the main focus of the Government's climate change programmes.

There are many official declarations as to the country's full alignment with global aspirations to build a climate-friendly world. Many environmental and climate change related laws have been enacted. However, there is a large gap between the enactment and enforcement of the laws. There is also a need to push more vigorously for sector-by-sector greening of the economy, including dense urban and rural poor settlements.

South Africa

The long history of structural inequalities remains an overwhelming burden for society and economy in South Africa. Key challenges and priorities have been identified. The general lack of skills in many sectors, especially of scientists, engineers, technicians, and training and development professionals, who must lead the transition to a greener economy, is a major constraint. A major challenge is to decarbonise the economy, since South Africa ranks eighth globally in terms of per capita emissions. The economy is dependent on coal-based energy with large reserves of coal in the country. Solar and other renewable sources are so far seen as mere pilot experiments.

South Africa is a semi-arid country, and lack of water is a limiting factor to agricultural and rural development. Water quality and availability is closely linked to change in land use, regional planning, economic growth and protection of biodiversity. An integrated approach to the management of land and water use is essential. South Africa is at the beginning of the greening and low-carbon economy curve and is yet to experience a significant structural shift in the economy or labour markets. The momentum is gathering, though, and the policy environment is changing in a positive direction.

Thailand

The Thailand Tenth National Economics and Social Development Plan (2007–2011) mentions a serious overuse of natural resources, citing the destruction of 10.7 million hectares of forests in 40 years. Forests now cover only one-third of the land compared to two-thirds in 1945. The seafood catch has been reduced to one-third and coral and sea grass conditions have deteriorated. Biodiversity is rapidly being destroyed by human activity with an increase in the rate of the extinction of species. Population growth and increased consumption have put pressure on air and water quality. Waste volumes are increasing faster than the capacity to dispose of them. Harmful substances have seeped into the environment and have contaminated the food chain. Thailand also relies heavily on imported fossil fuels for energy and transport needs. The increase in demand will mean that Thailand will face supply constraints as well as the risks of high GHG emissions.

The Thai Government has pledged to implement a green policy. Action plans have been developed by ministries, such as, the 15-Year Alternative Energy Plan and the DAEDE Four-Year Action Plan (2008–2011). These plans promote green skills development for use of new technologies. However, effective implementation in a coordinated manner remains a problem. The country still has no database on green skills and green jobs.

Uganda

Uganda, like many other developing countries, has not effectively responded to the challenges of climate change. Inaction by the majority of institutions mandated to protect the environment has led to increased vulnerability of people. The National Environment Management Authority lists environmental challenges in exponential population growth, biodiversity loss, habitat destruction, deforestation, soil erosion and degradation, pollution of air and water, and poor waste management in urban areas.

According to the Government's 2007 National Adaptation Programmes of Action (NAPA), climate change adaptation and mitigation priorities for Uganda include addressing land degradation and resource management, strengthening meteorological services, water and sanitation, water for irrigation, drought adaptation, pests and disease control, and climate change and development planning. Challenges associated with achieving these include lack of human and financial resources, unclear mandates of institutions involved, high transaction costs involved in Climate Development Mechanism (CDM) decision-making, and lack of committed leadership.

The overall direction of Uganda's economy will determine the nature of greening shifts. The country has plans for making the transition from a high-carbon to a low-carbon economy, which, if implemented effectively, will result in employment opportunities in various sectors. Opportunities exist, which must be realised, to reorient Uganda's economy to support sustainable development and build long-term resilience.

Source: Adapted from ILO. 2011a, Part 2, Summary of Case Studies. The background country reports are available at: http://www.ilo.org/skills/what/projects/lang--en/WCMS_144268/index.htm

ILO's Skills and Employability Department, in cooperation with the European Centre for the Development of Vocational Training (CEDEFOP), launched in 2008 a global investigation of skill needs for greener economies. Investigations were carried out in 21 countries that represented 60 percent of the world population and about the same proportion of global GDP and was responsible for about half of global CO_2 emissions. The countries involved in the study were: Australia, Bangladesh, Brazil, China, Costa Rica, Denmark, Egypt, Estonia, France, Germany, India, Indonesia, Mali, the Philippines, the Republic of Korea, South Africa, Spain, Thailand, Uganda, the United Kingdom and the United States. The study drew on other collaborative work that preceded it (see UNEP *et al.*: 2008).

The country studies were intended to reveal whether the potential for new and better jobs in greener industries is being realised, and if so, how. The synthesis of the 21 country studies attempted to look at the policy contexts at the country level. It examined the state of green structural changes and their implications for skills development, and if and how occupations changed with the greening of the economies. This chapter draws substantially on this recently published synthesis of the collaborative research (ILO: 2011a).

Excerpts from statement of the policy context in the country studies from the developing regions underscore the impact of climate change in the countries and the possibilities and priorities for action. The selected excerpts are presented in Box 4.1.

The policy context, and climate change impact and priorities, summarised from statements of national teams in the selected developing countries, are expectedly uneven. These were focused on general issues of the green economy, rather than the rural economy and the agriculture sector. A number of points illustrated by these statements, as listed below, merits attention.

- The majority of the people of the developing countries live in the rural areas, dependent on agriculture for employment and livelihood, and the agriculture sector and people's livelihood in rural areas will bear the brunt of the negative consequences of climate change. Yet the recognition of the impact on agriculture and rural people are uneven at best and barely noted in some cases. There appears to be a focus on carbon emissions as the problem, influenced by an emphasis originating in industrial development and industrial countries, which is ultimately a major source of the problem and the solution. But this appears to have distracted attention from the immediate impact on lives of hundreds of millions of people by the proximate effects of climate change manifested in pressure on land and water and weather volatility. Admittedly, the ILO-sponsored study on green skills and jobs has emphasised the organised sector of the economy. The relative neglect of the informal economy, agriculture-related activities and the rural people remains a serious problem at the national and international level.
- The numbers and proportions affected in rural areas, as well as the potential for action with high impact on people's well-being, demand a high priority to rural economy and the rural people in considering the responses to the impact of climate change. Both the numbers in the workforce and the place of the rural economy within the national economy in the developing countries, albeit it is changing, offer possibilities that remain unexplored for adaptation to climate change, mitigation of the consequences and, indeed, the possibilities of preventing some of the negative effects. Again the potential, needs and opportunities appear to be inadequately reflected in many of the expressions of impact and priorities (see the next section).
- In many instances, even when the impacts and the need for action are recognised and policy, goals and objectives for transition to the green economy are stated, actual progress in implementation and the political will and mobilisation of support are insufficient. Capacities and relevant skills for the transition to the green economy, overall and particularly in the rural communities, are a major constraint in most countries. Assessing the situation and needs and developing strategies and planning actions for this purpose, for which the ILO collaborative study is a significant step, show some bright spots and many weaknesses (see below).

The next section of this chapter turns to the issues of greening rural transformation—sustainability in agriculture and rural economy—which, as we have emphasised, deserve greater attention than so far given.

4.2 Greening Rural Transformation—Sustainability in Agriculture and Rural Economy

There is a general agreement, at least rhetorically, since the Rio Earth Summit in 1992, that the agriculture and environment agendas are inseparable. It is generally accepted that agricultural development programmes will not succeed without sustainable use of natural resources—water, forests, soil, crops and animal diversity and the ecosystem as a whole. It is also beginning to be realised, though the full policy and action implications in different contexts have to be worked out, that agricultural development has to be seen as an integral part of a broader rural transformation agenda. The web of interconnection between the degradation of natural resources, undermining of agricultural production, continuing unsustainable use of natural resources and increased vulnerability to risk of people requires that an integrated view is taken of agricultural and rural development and responses to climate change. The greening of rural transformation, focusing on an integrated approach to sustainably embracing agriculture and other aspects of the rural economy, has to be the overall framework for responses to climate change.

Agriculture is the main user of land and water, a major source of greenhouse gas emissions (GHG), the main cause of human-induced conversion of natural ecosystems and the loss of biodiversity (see Box 4.2). The sector with the highest worldwide greenhouse gas emissions, which threaten the temperature balance of the planet, is energy generation. It releases over a quarter of total emissions (26 percent), followed by manufacturing at 19 percent. Agriculture accounts for around 14 percent emissions globally, but combined with forestry (17 percent), they add up to almost one-third of total global emissions (International Energy Agency: 2008).

The sources and effects of greenhouse emissions vary among developing countries. The forestry-related emissions arise from both over-harvesting of timber and low rate of forest regeneration, reducing CO_2 absorption. In the Philippines, the proportion of land covered by forest has come down from 70 percent around 1900 to 6 percent today. In Bangladesh, Mali and Uganda, the use of charcoal and firewood for domestic use and making bricks for construction have resulted in rapid denuding of forest cover. Emissions attributed to agriculture are

Box 4.2 The Greenhouse Gases

What causes the greenhouse effect? Life on earth depends on energy from the sun. About 30 percent of the sunlight that beams towards Earth is deflected by the outer atmosphere and scattered back into space. The rest reaches the planet's surface and is reflected upward again as a type of slow-moving energy called infrared radiation. The heat caused by infrared radiation is absorbed by "greenhouse gases" such as water vapour, carbon dioxide, ozone and methane, which slows its escape from the atmosphere.

Although greenhouse gases make up only about 1 percent of the Earth's atmosphere, they regulate our climate by trapping heat and holding it in a kind of warm-air blanket that surrounds the planet. This phenomenon is what scientists call the "greenhouse effect". Without it, scientists estimate that the average temperature on Earth would be colder by approximately 30 degrees Celsius (54 degrees Fahrenheit), far too cold to sustain our current ecosystem.

How do humans contribute to the greenhouse effect? While the greenhouse effect is an essential environmental prerequisite for life on earth, there really can be too much of a good thing. The problems begin when human activities distort and accelerate the natural process by creating more greenhouse gases in the atmosphere than are necessary to warm the planet to an ideal temperature.

- Burning natural gas, coal and oil—including gasoline for automobile engines—raises the level of carbon dioxide in the atmosphere.
- Some farming practices and land-use changes increase the levels of methane and nitrous oxide.
- Deforestation also contributes to global warming. Trees use carbon dioxide and give off oxygen in its place, which helps to create the optimal balance of gases in the atmosphere. As more forests are logged for timber or cut down to make way for farming, there are fewer trees to perform this critical function.
- Many factories produce long-lasting industrial gases that do not occur naturally, yet contribute significantly to the enhanced greenhouse effect and "global warming" that is currently under way.
- Population growth is another major factor in global warming, because as more people use fossil fuels for heat, transportation and manufacturing the level of greenhouse gases continues to increase. As more farming occurs to feed millions of new people, more greenhouse gases enter the atmosphere.

Ultimately, more greenhouse gases means more infrared radiation trapped and held which gradually increases the temperature of the Earth's surface and the air in the lower atmosphere. During the entire 20th century, the average global temperature increased by about 0.6 degrees Celsius (slightly more than 1 degree Fahrenheit). Using computer climate models, scientists estimate that by the year 2100 the average global temperature will increase by 1.4 degrees to 5.8 degrees Celsius, depending on mitigating actions taken. The Intergovernmental Panel on Climate Change (IPCC) is of the view that the increase in global average temperature should be limited to a maximum of 2°C to avoid irreversible negative impacts.

Source: Adapted from http://environment.about.com/od/globalwarming/a/greenhouse.htm

considerably higher than the world average in some large developing countries. The rate is estimated to be 21 percent of the national total in China, arising mainly from rice farming. In Brazil agriculture is responsible for 57 percent of the total national emissions (ILO: 2011a, pp.16–17; see also Box 4.2).

In developing countries, agriculture is a key entry point for interventions in environmental protection. The large "environmental footprint" of agriculture also means that there are many avenues for environmental action in this area. Identifying the opportunities and getting the right incentives in place for the stakeholders to behave responsibly towards sustainability are the first steps. Long-term support and capacity building to improve natural resource management and coping with increased climate risks are also priorities. Strategies and actions have to give due importance to agriculture and forestry in adapting to climate change and mitigating their negative effects (World Bank: 2008, p.199).

Adapting to and mitigating the effects

Even if emissions of GHG are stabilised at current levels or reduced somewhat, adaptation of agricultural practices is urgent because the developing countries are already subject to many adverse effects in varying degree. What does adapting in the agriculture sector mean and how can it be encouraged and supported?

Farmers in many countries are already adapting and are ready to do so, when the support and incentives are available. A survey of practices in 11 African countries show that farmers are planting different varieties of the same crop, changing the planting calendar and modifying practices to adapt to a shorter growing season. But in many other countries, more than a third of the households have not changed their farming practices, though they have been aware of climate variability or the threats of higher temperatures. Farmers report of barriers in the form of lack of credit and access to water (World Bank: 2008, p.201; Maddison: 2006).

In developing countries, farmers, especially smallholders, will need public sector support in adapting to the climate effects. These supports can be through crop and livestock insurance, safety nets, research and adoption of research results on new pest and drought-resistant crops and dry land farming (African Development Bank *et al.*: 2007). The cost of constructing and modifying irrigation schemes needed to adapt to reduced water flow in river systems, such as those dependent on glacial melt, can run into billions of dollars.

Developing countries are responsible for about 80 percent of global emissions of GHG from agriculture in contrast to emissions from fossil fuel use and industry, for which the richer countries bear the main burden of responsibility. Agriculture in developing countries is also a major contributor to reduction in natural carbon sequestration or storage (thus reducing emissions) in soil, pastures and forests. This loss happens through change in land use pattern resulting in the loss of soil organic matter in cropland and conversion of forests to farming (World Bank: 2008, "Focus F").

Mitigation through carbon trading

The possibility of trading carbon emissions under international agreement through the Clean Development Mechanism (CDM) of the Kyoto Protocol is emerging. This arrangement can benefit farmers and rural communities in developing countries which can use land and agricultural practices that help store carbon, instead of being released to the atmosphere. The major hurdle to benefiting farmers and rural people are that the protocol so far has a limited coverage of afforestation and reforestation in addition to preventing depletion of existing forests through agriculture-related encroachment. Deforestation is the villain that creates almost a fifth of global GHG emissions (World Bank: 2008). The knowledge and understanding of the protocol and working out how it can benefit poor farmers and rural communities still remain a problem (see Box 4.3).

Broader economic and social adjustments

Transition to a greener economy focusing on agriculture and rural areas has to be part of broader long-term structural change in the economy. Socially responsible restructuring measures have to be adopted which do not punish further the poor and the disadvantaged in rural and urban areas. The costs of adjustments and how these are shared recognising prevailing inequalities and disparities have to be examined and public understanding and consensus

Box 4.3 What is Carbon Trading?

Carbon is an element stored in fossil fuels such as coal and oil. When these fuels are burned, carbon dioxide (CO_2) is released and acts as what is called a "greenhouse gas". Carbon trading is a market based mechanism for helping mitigate the increase of CO_2 in the atmosphere. Carbon trading markets can bring buyers and sellers of carbon credits together with standardised rules of trade. Any entity, typically a business, that emits CO_2 to the atmosphere may have an interest or may be required by law to balance their emissions through mechanism of carbon sequestration or storing. Entities that manage forest or agricultural land might sell carbon credits based on the accumulation of carbon in their forest trees or agricultural soils.

The carbon trade came about in response to the Kyoto Protocol. Signed in Kyoto, Japan, by some 180 countries in December 1997, the Kyoto Protocol calls for 38 industrialised countries to reduce their greenhouse gas emissions between the years 2008 to 2012 to levels that are 5.2% lower than those of 1990.

The idea behind carbon trading is quite similar to the trading of securities or commodities in a marketplace. Carbon would be given an economic value, allowing people, companies or nations to trade it. If a nation bought carbon, it would be buying the rights to burn it, and a nation selling carbon would be giving up its rights to burn it. The value of the carbon would be based on the ability of the country owning the carbon to store it or to prevent it from being released into the atmosphere. The better one is at storing it, the more one can charge for it.

The market would facilitate the buying and selling of the rights to emit greenhouse gases. The industrialised nations for which reducing emissions is a daunting task could buy the emission rights from another nation whose industries do not produce as much of these gases.

Carbon trading seems like a win-win situation: greenhouse gas emissions may be reduced while some countries reap economic benefit. Critics of the idea suspect that some countries will exploit the trading system and the consequences will be negative. Carbon Trade Watch, an independent research collective, argues that it places disproportionate emphasis on individual lifestyles and carbon footprints, distracting attention from the wider, systemic changes and collective political action that needs to be taken to tackle climate change. Debate over this idea arises because it involves finding a balance between profit, equality and ecological concerns.

Source: Adapted from http://www.investopedia.com/ask/answers/04/060404.asp#axzz1dLsed72v

has to be developed about policies. Attention is often focused on extractive industries and energy generation from fossil fuels and manufacturing industries as the source of the problem and areas of action in search of solutions. Clearly, these cannot be separated from issues pertaining to agriculture and rural areas, including those related to land and water use, livestock raising, forestry and preserving biodiversity.

The move to renewable energies, clean energy, energy efficiency, green manufacturing as well as the green rural economy is intricately linked to agriculture and the rural economy. Climate friendly agriculture including more organic farming; livestock, fish and poultry raising that is sensitive to climate stress; preservation and growth of forests; and management of land and water will create new economic opportunities and jobs in both rural and urban areas. Those who take advantage of the new jobs may not all be those who are already disadvantaged and affected adversely by climate effects. The disadvantaged have to be identified and specifically targeted for assistance including training, retraining and upgrading of skills. Public dialogue and consensus building are again necessary. So is sharing roles and responsibility by the government at different levels, communities, civil society, workers and employers in the private sector, for success in the complex endeavour to reshape the economy, build skills and capacity and match skills and jobs (ILO: 2011a, pp.55–56; UNEP *et al.*: 2008).

Green transition and stages of development

There is a strong relationship between the stage of development and the progress of green structural change as illustrated by the scope and pace of transition to the green economy among countries. The review of experiences highlighted in the recent collaborative interagency studies shows this link (ILO: 2011a; Table 4.1).

In the developed countries, the green restructuring of the economy has been going on for at least three decades. For example, Australia, Denmark, France, Germany, the United Kingdom and the United States have witnessed a gradual change that has been driven by a combination of automation, relocation to reduce costs, developments in labour market policies, major changes in the composition of the industrial sector, the growth of the services sector and an increase in service intensity in other sectors.

The broad-ranging restructuring since the 1970s has been initially driven by environmental regulations followed by fiscal policies and incentives to promote green behaviour among enterprises and consumers. Awareness raising and

social mobilisation by the growing "green movement" have encouraged this process. This process continues with a greater emphasis on innovation and growth with the market serving as the driver of change. There is a long way to go before general public acceptance of the precepts of the green economy is achieved.

Among the middle income countries and those industrialised more recently, Costa Rica, Estonia, the Republic of Korea, South Africa and Spain were included among the 21 countries covered by the collaborative case studies on green jobs conducted by ILO and CEDEFOP. These countries, like the industrialised countries, also have been influenced by technological and market factors in their response to climate change. However, the attempt to articulate national policies including legislation and regulations are the main forces of change in these countries which are at the beginning of the greening curve towards a low-carbon economy. They are yet to experience a significant "green" structural shift in their economies and labour markets.

In many of the developing countries out of the sample of countries, including Bangladesh, Brazil, China, Egypt, India, Indonesia, the Philippines and Thailand, it was judged that "green shift" remains at an early stage. A more significant transition towards a green economy on a wider scale in these countries would require systemic efforts on several fronts. These include continuing the work on policy development and refinement, effective implementation of policy, law enforcement and adapting to and adopting green technologies. In Mali and Uganda, green structural shifts remain at the embryonic stage, with green policy and regulations still to be accorded a high priority in public agenda (see Box 4.1 and ILO: 2011a).

In short, the priority for transition to a green economy is to combat climate change and environmental degradation and remove their negative environmental, economic and social impacts. This transition in developing countries requires an integrated view of urban and rural areas, with a special attention to agriculture and related economic activities, rural areas and rural people. This is necessary because the rural people constitute the majority who are affected and they also can contribute to the solutions. Many developing countries, in spite of having formulated policies, laws and regulations, falter in implementation and fall short in developing skills and capacities that are demanded by the green economy and green employment. This latter question is discussed in the following section.

4.3 Skills and Capacity Needs for Sustainable Rural Transformation

A central task in moving towards a sustainable greener economy with rural transformation as the key component is to create new skills and capacities and redefine and upgrade existing ones. This capacity building has to be done to facilitate new investments, adopt new technologies and create new jobs supporting the sustainable rural economy, mitigating the effects of and adapting to climate change. The message of the Green Jobs report (UNEP *et al.*: 2008), reaffirmed by the Skills for Green Jobs study (ILO: 2011a), is that the efforts to tackle climate change could result in the creation of millions of new "green jobs" in the coming decades in developing countries.

What are "green jobs"?

"Green jobs" can be defined as jobs that reduce the environmental impact of enterprises and economic sectors to levels that are sustainable. This definition covers work in agriculture, industry, services and administration that contributes to preserving or restoring the quality of the environment while also meeting the criteria for decent work—adequate wages, safe conditions, workers' rights, social dialogue and social protection. It also covers activities related to both mitigation of, and adaptation to, climate change. This working definition implies, in its inclusivity and breadth, that most jobs have the potential of becoming greener. Over time, as the transition to a green economy progresses, what is considered a green job now may not be so regarded in the future. The understanding of green jobs also varies among countries and contexts. Ultimately, countries have to articulate own definitions applying agreed criteria and set benchmarks for practices considered green or non-green (UNEP *et al.*: 2008; ILO: 2011a).

Drivers of change in skill needs

Research and review of country experience presented in the Green Jobs report (UNEP *et al.*: 2008) and the Skills for Green Jobs report (ILO: 2011a) suggest that there are four main determinants of change in skills requirements: (i) physical changes in the environment itself, (ii) environmental policy and regulation, (iii) technology and innovation; and (iv) changes in markets, prices and consumer habits. These drivers, or forces of change, are interrelated but their relative importance differs among countries.

In developed countries consumer behaviour and market forces have become major influences in shaping change in the economy, and thus, in skills and jobs. In developing countries where environmental changes are directly impacting peoples' life and livelihood, this situation is prompting development of policies and regulations. This is a stage which the industrialised countries had passed through already. However, better-informed policy-making and adjustments and refining of policies are a continuing task in all countries, developed and developing alike. Development and adaptation of appropriate technology and innovations are also critical factors in countries at different stages of development, though the criteria of appropriateness would vary. Technology and innovation also provide market signals, trigger investments and create demand for skills and influence job profiles in both developing and industrialised countries.

Technology that is sensitive and responsive to the goal of green transition is an important driver of change in skill needs in its own right. This is so because of the critical role of skills in research and development in appropriate technologies as well as the skills in adaptation, adoption, transfer, diffusion and maintenance of new technologies in both developing and developed countries. In all these functions, the availability of relevant skills is decisive for success, but they are often in short supply.

Broadly speaking, the changing natural environment imposes greater demands on adaptation and the built environment creates a strong demand for mitigation measures. As the changing physical environment tends to loom larger in developing countries, especially in the rural areas, the relative importance of adaptation skills is correspondingly greater there than in the developed world (ILO: 2011a, p.12).

The need for new and upgraded skills is likely to be increasingly pressing across countries and regions. Particular skills needed for green jobs in particular locations and sectors have to be identified, pinpointing where occupations will change and where new ones will come into being. Working out effective strategies for developing skills will help countries prepare for change across regions of the world and across the development spectrum.

Skill shortages

The analysis of countries' experience revealed that skill shortages already constrain the transition to a greener economy—in terms of preparing for some new occupations and in terms of changing the skill profile of a large number of existing occupations. A useful definition of skill shortage is:

> ...a genuine lack of adequately skilled individuals available in the accessible labour market with the type of skill being sought and which leads to a difficulty in recruitment. A skill shortage characterises the situation where employers are unable to recruit staff with the skills they are looking for at the going rate of pay. This could result from basic lack of people (when unemployment levels are very low), significant geographical imbalances in supply (sufficient skilled people in the labour market but not easily accessible to available jobs), or a genuine shortfall in the number of appropriately skilled individuals—either at new entrant level, or for higher level skilled occupations (Strietska-Ilina: 2008).

As part of ILO's Global Green Jobs initiative, 11 countries in Asia and the Pacific are involved in a collaboration to encourage governments, employers and workers in generating coherent policies and effective programmes that will support a green economy, with green jobs and decent work for all (ILO: 2011).

The methodology to examine the current and future numbers of green jobs in a developing country calls for a systematic approach in assessing direct green jobs and indirect jobs that contribute to low-carbon development and environmental

sustainability. An exercise undertaken in Bangladesh suggests that activities consistent with environmentally sustainable growth can support several million jobs (Table 4.1). Sectors such as sustainable agriculture, sustainable forestry and waste management show promise for creating large numbers of green jobs. However, some of the environment-related jobs created thus far are not "decent" due to the widespread practice of paying low wages, the very low participation of women, high wage disparities between men and women and poor or hazardous working conditions. This initial exercise also significantly admits that it was not possible to obtain an estimate for the share of green jobs in agriculture and forestry, which account for more than half of total employment in the country and presumably have the highest potential for expanding green jobs.

The 21 countries study on skills for green jobs also attempted to examine needs and prospects for green jobs. Highlights of observation from some of the developing countries are noted.

Bangladesh

In Bangladesh, the National Capacity Self-Assessment (NCSA) for Global Environmental Management identified capacity needs at professional and technical level in respect of climate change analysts, environmental restoration planners, environmental certification specialists, environmental economists, industrial ecologists, water resource specialists, water/wastewater engineers and geospatial information scientists and technologists (ILO: 2011a, p.216). In the context of greening the economy, skills development policies and strategies in Bangladesh are not aligned or linked to macroeconomic and environmental policies and no estimates of likely green jobs or a strategy to create these exist at present, as mentioned above (ILO: 2011a, p.217).

Brazil

In Brazil, the National Plan on Climate Change states that opportunities for green jobs exist in energy, transport, construction, ecological planning and industry. These can be realised through use of solar power and other renewable sources, adoption of an integrated planning system allowing efficiencies of energy use with efficient equipment, adoption of recycling practices, and capture and storage of carbon. No specific mention is made of the rural or agricultural sectors. It is noted that the skills supply for sustainable forest management activities is vital to the sustainability of the Amazon, reducing deforestation and the creation of conditions for sustainable use of forest resources. The need is emphasised for undertaking in-depth

Table 4.1 An Exercise in Estimating Creation of Green Jobs in Bangladesh

Economic sectors	Core environment-related jobs	Direct green jobs	Indirect environment related	Total jobs
Sustainable agriculture	41,548	n.p.	47,482	89,030
Sustainable and participatory forestry	28,813	n.p.	28,121	56,934
Sustainable energy	18,823	18,823	50,561	69,384
Waste management and recycling	189,180	n.p.	212,753	401,933
Collection purification/distribution of water	8,441	n.a.	n.a.	n.a.
Climate adaptation activities	1,726,755	616,052	967,849	1,583,901
Manufacturing and energy efficiency	10,934	10,934	21,472	32,406
Sustainable transportation	178,510	178,510	54,049	232,559
Sustainable construction	1,340,000	536,000–670,000	1,416,364	2,019,364
Total	3,543,004	1,427,319	2,798,651	4,485,511

n.p.—Not possible to obtain an estimate for the share of green jobs due to data limitations.
n.a.—Not available.
Source: "Looking at the Relationship between Environment, Economy and Jobs in Bangladesh," a study by ILO/GHK, April 2010, cited in ILO, 2011.

studies to understand how skills will be modified, by an analysis of technological impacts and procedures introduced through production processes as well as discussion of the definition of green economic activity and specific skills and qualifications relating to it (ibid., pp.230–231).

China

In 2007, China established the National Leading Group to Address Climate Change which aims to:

- Cut energy consumption per unit of GDP by 20 percent between 2005 and 2010;
- Increase the use of renewable energy to 10 percent of total energy consumption by 2010; and
- Increase forest cover to 20 percent by 2010.

As China moves towards a green economy, industries which have been historically sources of employment for millions will become obsolete, requiring vocational training and skill upgrading of workers on a huge scale. The development of low-carbon industries including the desulphurisation industry is likely to create over 1 million jobs between 2005 and 2020. The cross-country study observes that China will need to focus training on environmental management and protection skills in eco-friendly technologies, including those which support renewable energy sectors, energy efficiency and recycling. This will require: (i) surveys of employees and employers on green skills, (ii) quantitative projections of employment based upon appropriate econometric models; and (iii) qualitative analysis of green skills (ibid., pp.237–248).

India

In India, the 2008 National Action Plan on Climate Change (NAPCC) outlined a national strategy that comprised eight national "missions" on—solar energy, energy efficiency, sustainable habitat, water, sustaining the Himalayan eco-system, green India, sustainable agriculture and strategic knowledge for climate change. These missions provide an organisational structure for formulating policy and priorities, bringing the main stakeholders together, mobilising resources, guiding implementation and monitoring progress.

India has around a fifth of its area under forests. Despite the pressure on land, the target is to increase the area under forest from 23 percent to 33 percent.

The Mission on Strategic Knowledge for Climate Change is engaged in the identification of skills gaps, capacity building on climate change and promotion of research and development. A national green skills development strategy is yet to be developed, though some steps have been taken to address the skills gap. In 2007, the Prime Minister pledged the opening of 1,600 new industrial training institutes (ITIs) and polytechnics, 10,000 new vocational schools and 50,000 new skill development centres. These together would produce over 10 million youth equipped with vocational training annually—a four-fold increase from today's level.

Little data are currently available on green skills development and the information that exists is scattered, with no central database in India. A sample survey has been proposed. Further comprehensive research is required to study the impact of green jobs on the environment and climate (ibid., pp.322–334).

Indonesia

In Indonesia, an instrument to forecast skill needs including a feedback mechanism does not exist. Technical capacity building and managerial training has been provided to authorities at national and local government level, and in publicly funded sectors and universities. The training activities proposed by the National Council for Climate Change need to be acted upon by government agencies, private enterprises and community organisations. Sustainability training as part of the strategy to develop skills for green jobs should be embedded in education systems and training at all levels. The "green" awareness in Indonesia is still emerging and green skills responses are at an early stage of development. A structured and formal green skills response is yet to be developed from the policy and planning perspective and from the point of view of the end-user (ibid., pp.335–344).

Mali

The Government of Mali considers agriculture as the backbone of national socioeconomic development; however, this is also the most vulnerable sector to climate change impacts. Major potentials exist for increasing the number of green jobs, both in the development of new occupations and new skills for existing occupations. Economic sectors that need green

skills are renewable energy, agriculture, waste management, construction, forestry and carbon finance.

In agriculture a key issue is appropriate water management systems for both surface and underground water. New ways of raising livestock have become urgent as nomadic lifestyle and the seasonal movement of people with their livestock are becoming more difficult to practice. Sustainable fish farming practices are in demand. Furthermore, "adding value" to primary resources is essential, for example, by developing or adopting technologies which use agricultural by-products for energy generation.

Biofuel from jatropha plant is becoming a popular replacement for imported fossil fuel. The need to expand this industry has given rise to new skills gaps for nursery growers, producers and jatropha oil motor operators, and for developing its use at a local level. It is also important to train operators of machinery (agricultural, transport etc.), in adapting and maintaining these, for the use of jatropha biofuel. The agricultural meteorological network in Mali has a major skills gap. In a situation of high weather unpredictability, increasing and improving the skills in this area is a priority.

In Mali the greening of the labour market has not yet been taken as a priority. Assessing and planning for skills needs are yet to be addressed systematically by the national authorities (ibid., pp.345–354).

Philippines

There is a wide gap between legislation and the implementation of environmental reforms. A plethora of laws including two recent ones have been adopted, which should be especially relevant for green rural transformation. One of the acts known as "Mainstreaming Climate Change into Government Policy Formulations—Establishing the Framework Strategy and Programme on Climate Change" of 2009 provides for the creation of a Climate Change Commission headed by the President to serve as the country's sole policy-making body on climate change. It aims to coordinate climate change related programmes. The other recent legislation is the Organic Agriculture Act of 2010 for the development and promotion of organic farming in the country. The intent of these laws needs to be fulfilled with proper implementation.

Currently there is a shortage of decent jobs for one million new annual labour entrants, the estimated 3 million unemployed, over 6 million officially counted as underemployed, four million "unpaid family workers," and over 12 million working less than 40 hours a week. The green restructuring of the Philippine economy could have a positive impact on the total employment scenario, because of the generally labour-intensive nature of green jobs. Examples of the potentials include the shift from current chemical-based farming to organic agriculture, the growth of the renewable energy sector, reforestation programmes and the expansion of the recycling sector.

An army of agricultural extension personnel, with training and technical support, needs to provide knowledge on agricultural technology and climate change adaptation and risk reduction to millions of farmers. There is a need to increase the agri-business and entrepreneurial skills of farmers to prepare them for the shift to organic and sustainable farming with retraining in, for example, methods of composting to produce organic fertilisers and in the selection of sturdy seeds that can withstand weeds and pests invasions.

There is currently no data from the National Statistics Office on the number of establishments going green or skills shortage or workers displaced by enterprises that have gone green. The newly created Climate Change Commission could provide the lead in this respect (ibid., pp.355–364).

South Africa

The Medium Term Strategic Framework for 2009–2014 to address climate change has two strategic priorities: the first aims at strengthening the skills and human resource base in general, and the second relates to sustainable resource management and use with a specific reference to green jobs. It is necessary to articulate and align the skills development focus and the greening focus. The overall national policy for skills development lacks explicit focus on greening. One of the areas of acute skills shortages is the education and training sector itself, with deficiencies in many aspects including the capacity to promote green skills.

Greening initiatives are in demand in various sectors

with the increased awareness of climate change, thus creating jobs that were not formerly needed. The country has large numbers of unskilled jobs in agriculture and construction. Workers in these sectors need to learn to dispose of materials and chemicals correctly, along with efficient use of energy and water. In agriculture, specialised skills areas in demand are related to managing irrigation methods and water efficiency, expertise to select proper technology, skills in using and maintaining the technology appropriately, and skills in market assessment and making business plan for investment and marketing (ibid., pp.376–388).

Thailand

The National Economic and Social Development Plan (2007–2011) of Thailand does not present a clear or specific strategy on skills development for greening the economy. However, with increased concern in general about climate change, new green competencies and skills have been promoted by government agencies and the private sector. For example, the Ministry of Agriculture organised training courses for the production and use of bio-fertilisers and better practices in terms of harvesting and packaging products to sell to both domestic and overseas markets. The Department of Alternative Energy Development and Efficiency (DAEDE) has supported research, and has developed plan for training rural people, on generating and using alternative energy, such as biomass solar energy, hydro energy and wind energy. Thailand expects to implement World Bank-assisted biomass energy projects in 340 communities, as well as wind turbines and solar power projects creating new jobs across rural communities.

The Ministry of Agriculture has been orienting extension and training for farmers towards addressing sustainability issues. Agriculturists, agro-industries and rural businesses have been involved with local government in promoting the use of bio-fertiliser, reducing environmental risks to local communities. Agricultural officials went to sub-districts and served as mentors to farmers in adopting new practices (ibid., pp.399–406).

Uganda

Under the Ministry of Water and Environment (MWE) auspices, a multi-sectoral and multidisciplinary National Climate Change Steering Committee has been established in Uganda to coordinate the implementation of the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol. It advises the line Ministries on Clean Development Mechanisms (CDM) and implementation of the National Adaptation Programme of Action (NAPA) under UNFCCC, prepared in 2007.

The National Environment Management Authority (NEMA) estimates that, if deforestation continues at its current rate, Uganda will lose all of its forested land by 2050, agriculture will not be viable for most farmers and biodiversity would be affected severely. With over 80 percent of Ugandans currently employed directly in the agriculture sector, this would have a crucial impact on the total economy. The major sectors for green occupations are in agriculture, energy, water and environment, forestry, manufacturing industries, transport, and trade. In agriculture, there is a need for soil scientists, plant and animal breeders and pathologists who will enable maximum agricultural productivity amid climate change scenarios. Meteorology specialists are needed who can use and disseminate satellite and climate-related data. Environmental impact assessors are needed. Solar technicians are needed for the development of solar technology, including installation and maintenance. There is also great interest in implementing greening practices. These include sound soil and water conservation practices; use of better natural soil fertility measures such as crop and grazing rotation; natural pest/parasite and disease control approaches; increased use of organic matter; and the effective use of livestock waste to preserve soil fertility (ibid., pp.407–419).

The research project on skills for green jobs, building on earlier work of ILO and others explored the need for skills and capacities to improve productivity, employment growth and development, focusing especially on the imperatives of sustainability. The perspective of the green jobs study was not necessarily rural areas and rural people. But, the interface of green development and tackling poverty in developing countries, and skills and jobs in that context, required attention to rural people and rural areas. The demographic and spatial concerns and the importance of agriculture and non-farm activities in the economy merited a sharper rural focus than was evident. The summary of the statements from

selected developing countries regarding needs and demands for skills for green development presented above suggest at least three conclusions.

- The needs and potentials for agriculture, the rural economy, rural people and rural areas are underestimated in the discourse on green development of countries. In the same vein, the potential for contribution to green development of agriculture, rural economy and rural people are also denied appropriate attention. There appears to be a disconnect between the proportions out of the national total in developing countries of rural people, the direct and indirect impact of climate change on rural people and the role agriculture and the rural economy can play in adaptation and mitigation strategies, on the one hand, and the diagnostics regarding needs and development of skills and capabilities of people, at least as these are expressed in the country case studies in the skills for green jobs study.
- Green transition in national development has begun to get attention in the developing countries as reflected in policy statements, various legislative measures and national institutional mechanisms, in the context of international dialogue on the subject, especially in the aftermath of the United Nations Framework Convention on Climate Change, otherwise known as the Kyoto Protocol, adopted in 1997. However, the efforts in implementation of the strategies and the legislations including assessment, analyses, building the database to conduct adequate diagnostics and to develop the evidence-based policies and strategies are deficient in most developing countries. So are the mechanism to monitor progress and the organisational and institutional structures and professional capacities for implementation.
- There are scattered activities in developing countries in identifying skills needs and offering green skills development opportunities either in the public sector or by private enterprises. They do not mostly add up to a coherent and comprehensive strategy and programme. However, it is necessary and possible to build upon these existing activities and work out strategies and programmes which are sufficiently comprehensive and are effectively implemented.

Promoting the second generation green revolution

The key messages of this section may be expressed in terms of adopting and acting on a second generation concept of the green revolution. In other words, the challenge is how the original green (meaning agricultural) revolution can be turned into a green revolution in the sense of environmental sustainability.

High-input farming on irrigated and high-potential rainfed land with the use of seed, fertiliser and crop-pattern technology was the essence of the green revolution that spread in the 1970s and averted a looming food crisis in the developing world. It also helped to save vast amounts of low-potential land including forests and arid land from being converted into low-yield farms to meet the demand for grains. But the typical mono-cropping practices with the package of seed–water–fertilisers–pesticides which led to dramatic increase in wheat and rice production also exacted an environmental price, often ignored at the time (World Bank: 2008, Chapter 8).

Demand for irrigation water rose as was misuse and waste of water. Other problems arose from improper use of fertilisers and pesticides leading to water pollution; indirect damage to ecosystems when chemicals from farming entered water systems; and pesticide poisoning of humans, animals, plants and insects. Additional fertiliser runoff from agriculture also caused algae growth choking water channels and destroying wetlands and wildlife habitats. Evidence is mounting that the intensive and high-input farming pattern focusing on increased grain production almost at any cost is not sustainable. Land degradation and pest and weed build-up are slowing down productivity gains especially in the intensive systems of rice and wheat farming in South Asia (ibid., chapter 8).

The environmental stress and the collateral costs of intensive farming of the original green revolution farming pattern demand a re-examination of the cropping systems and management of resources to adjust these to locally appropriate sustainable methods. Incentives and pricing of inputs and products which encouraged adoption of the intensification practices now prevent the shift to diversified systems and use of alternatives to heavy use of chemicals and water and depletion of

natural soil fertility. How the balance can be shifted to diversified eco-friendly agriculture, without jeopardising food security and life and livelihood of rural people, has to be put high on the agenda for national and international response to climate change.

Supported by macro policies for greening agriculture and rural and national economies, research and knowledge dissemination, and skills and capacity building, have to be directed to exploring the elements of a second generation "green" revolution and applying these in broad-ranging rural transformation in developing countries.

4.4 Promoting Skills and Jobs for the Green Rural Transformation

Skills development systems need to go beyond matching training to labour market needs. They need to play a catalytic role in future economic growth and resilience by enabling enterprises and entrepreneurs to adapt technologies, compete in new markets, diversify economic activities and thus accelerate job growth. Availability of good quality and sufficient education and training means creation of the capability to take advantage of opportunities and to mitigate the negative impact of change (ILO: 2011a, p.IV).

What are "green skills"?

A body of literature has developed on defining and determining green jobs and green skills. The concept of green jobs has been discussed above. The following is one list that enumerates essential skills necessary for green jobs mentioned in the country cases in the skills for green jobs study. It is evident that the skills identified are general competencies and skills relevant for performing effectively as producers, consumers and decision-makers in the general economic context of producing goods and services. Whether these are "green" or not depends on the specific contexts and purposes—how the products or services are produced and used; it is not inherent in the skill itself. The ILO study, as noted, did not specifically look at the rural economy and the green transition of rural areas; but the following list clearly has broad applicability (ILO: 2011a, Chapter 5).

- Strategic and leadership skills to enable policy-makers and business executives to set the right incentives and create conditions conducive to cleaner production, transportation, marketing, etc.;
- Adaptability and transferability of skills to enable workers to learn and apply the new technologies and processes required to green their jobs;
- Environmental awareness and willingness to learn about sustainable development;
- Coordination, management and business skills to facilitate holistic and interdisciplinary approaches incorporating economic, social and ecological objectives;
- Systems and risk analysis skills to assess, interpret and understand both the need for change and the measures required;
- Entrepreneurial skills to seize the opportunities of low-carbon technologies;
- Innovation skills to identify opportunities and create new strategies to respond to green challenges;
- Communication and negotiation skills to discuss conflicting interests in complex contexts;
- Marketing skills to promote greener products and services;
- Consulting skills to advise consumers about green solutions and to spread the use of green technologies and
- Networking, IT and language skills to perform in global markets (ILO: 2011a, p.107).

The emphasis on technology-driven innovations in green transition has prompted many country reports to stress on skills in science, technology, engineering and mathematics (STEM). These skills are in demand for the economy. But science courses do not attract enough applicants, with enrolment rates low and drop-out rates high, especially in rural areas. These courses are often not on offer in rural communities or nearby towns. When the schools exist, poor learning environment and poor quality of instruction discourage students. Many types of work in the green economy demand skills such as the ability to reason and identify problems; the mathematical, scientific or technological knowledge to address these problems; the research and scientific skills to break down a complex issue into smaller parts, to recognise cause and effect relationships and to draw conclusions. The ICT skills needed to access

knowledge and information and use appropriate software and equipment for this purpose have become critically important (see below).

Core, generic and portable skills

In many countries the basic requirements of functional skills in literacy and numeracy remain unmet. Participation in a green economy that relies on technologies to move towards sustainable forms of production and consumption calls for a range of competencies. These extend from basic skills of reading product labels and understanding manuals and written instructions to calculating prices and costs, documenting knowledge and planning green investment. Basic literacy and numeracy skills are also a foundation for further learning and attaining technical competencies. Rural people in developing countries lacking functional literacy and numeracy can take a major leap forward towards the transition to a green economy, if the people are equipped with the basic general competencies (ILO: 2011a, p.108).

In addition to work- and employment-related skills mentioned above, certain core skills at a basic level are central in coping with changing economies. These include knowing how to learn, how to work in teams and how to communicate effectively, which need to be learned at a young age through participation in basic general education. Language skills are critically important in accessing knowledge related to environmental change. Basic competencies in language and mathematics are essential to participate effectively in skills training and perform well in jobs, as noted above. Basic vocational orientation and preparation should be available to all. It should include basic scientific knowledge regarding the physical and biological environment; working at a basic level with and appreciating the properties and uses of materials, such as wood, metal, soil, air and water; basic understanding of finite and renewable resources of the planet; and basic orientation about occupations and jobs, including green jobs. These basic knowledge and skills can be considered as "portable skills" which are useful whatever occupation one enters or whatever further training or education one moves into (ibid., Chapter 5).

Comprehensive and well-coordinated policies

Effective policies need to combine a sound environmental policy and a comprehensive skills policy for greening which together build an effective green strategy. The two connected arenas of policy have to be consciously designed to avoid skill gaps in achieving environmental goals, and identify, in the transition to the low-carbon economies, opportunities for new jobs and new skills. The key to achieving policy coherence lies in designing the right institutional mechanisms to ensure that policies are coordinated between different line ministries and agencies, social partners and other stakeholders.

The developing country cases reported in the ILO skills for green jobs study illustrate the mixed picture in respect of the development of coordinated climate change and skills policies. In South Africa, for example, the National Climate Change Strategy dates back to 2004, yet no plan was formulated for its implementation. The Long-term Mitigation Scenarios Plan (2008) contains an ambitious mitigation strategy but lacks an adaptation supplement. South Africa has been in the process of developing a national response to climate change including adaptation measures.

Sustainable development is a national strategy in China, and many policies and measures introduced under this umbrella—on energy efficiency, renewable energy, reforestation, and soil and water conservation—yield benefits in respect of climate change. China's Action Plan on Climate Change addresses mitigation and adaptation, science and technology, public awareness, institutional reform, coordination across agencies and international cooperation. A comprehensive national skill development strategy for greening the economy, however, is still in the works.

Bangladesh, Mali and Uganda fall into the category of least developed countries and qualify for support under the National Adaptation Programmes of Action (NAPAs) introduced by the United Nations Framework Convention on Climate Change (UNFCCC). NAPAs are policy documents designed to help prioritise urgent and immediate climate change adaptation needs. This mechanism, if used effectively, can help formulate integrated plans and activities and receive the resource support for implementation, moving away from dealing with skills policies and environmental policies in isolation from each other.

Overall, three broad policy-related difficulties confronting countries in their attempts to move to a low-carbon economy can be identified.

- Lack of enforcement of environmental regulations of already adopted, sometimes along with a need for more detailed and elaborate legislation to protect the environment. Weak enforcement of environmental laws and consequently lax implementation reduces the demand for the new skills needed to comply with them.
- Limited awareness and capacities of policy-makers to integrate a skill dimension into policy responses to manage environmental risks. Most of the documentation on adaptation and mitigation measures, policies, strategies, action plans and programmes initiated in response to climate change and environmental degradation refers only very briefly to the skills implications of these measures, and lacks any, or any substantial, skills response component. Lack of human and financial resources, unclear mandates of institutions involved and lack of general environmental awareness are some of the obstacles hampering skills development strategies.
- Weak coordination of efforts between ministries and other governmental agencies. Mechanisms established for identifying, monitoring, anticipating and providing skills do not usually include representation from environment ministries. Similarly, ministries, agencies and institutions concerned with education and training are mostly not involved in developing environmental policies. This lack of reciprocity clearly reduces the prospects for coordinated approaches. In other cases, even if inter-ministerial coordination is undertaken successfully, coordination for implementation may be weak, and as a result policies to include a skills response in greening remain limited to isolated initiatives (ILO: 2011, pp.53–54).

In coping with the challenges of climate change and job creation and linking the two, policies for both the environment and skills are weak and generally not well aligned in many countries. The majority of developing countries does not quite have either a well-developed environmental policy or skills development policy for a greener economy. This is the conclusion from country case information analysed by the authors of the ILO study. The countries have benefited from important initiatives in the environmental field at strategic level, but generally lack implementation mechanisms, including implementation of training responses to improve skills for greening the economy. Their policies reflect weaknesses both in environment and skills areas and in links between the two.

Policy challenge—relating environment and skills issues

The coordination of skills policies and environmental policies is a critical issue in the transition to green economy and employment. As the country studies show, many countries have formulated environmental policies but have fallen short of developing the necessary associated skills policies. Others have gone further in articulating skills policies and strategies, but they have not necessarily seen the importance of or attempted to forge the links between the two.

Coherence of policies and the links between related policy arenas have many facets and are highly contextual. The ILO study on skills for green jobs, based on country experiences, has suggested following criteria for assessing and promoting policy coherence.

- One policy should not contradict another. Coordination among policies is essential to avoid working at cross-purposes.
- Policies should have good coverage and be mutually complementary to each other. Policies should reflect need and concerns of different stakeholders, including employers, workers, consumers and government agencies representing overall public interest.
- Policies should correspond to the needs of the labour market and take into account current and future challenges. Therefore, policies should be informed by research and labour market monitoring.
- There should be a clear link from policy pronouncements to actions, including finance. Lack of implementation and enforcement has been reported by countries as one of the most frequent hindrances to the greening process.
- There should be an effective monitoring and evaluation mechanism to follow policy implementation.

In short, among the developing countries, most have attempted to articulate environmental policies and many have grappled with policy priorities and strategies in skills development. It is necessary to ensure how the two moving on parallel tracks without intersection can be prevented.

Public sector and government roles

The leadership and the guidance for creating a favourable policy environment for transition to the green economy have to come from the government as part of its role in articulating the policy, priorities and strategies for the green transition. Creating the national coalition of stakeholders and partnerships of all actors in formulating and supporting the national goals and programmes is also the responsibility of the political and government leadership, as is the fostering of the political will to act effectively. The policy and regulatory framework and specific programmes should evolve through a process of participatory social dialogue keeping in view the potential social tensions, fair sharing of costs and benefits, and effective use of scarce physical and financial resources. Again the government has to provide the leadership and nurture the environment for partnership (UNEP *et al.*: 2008).

Workers and segments of society adversely affected by the green transition need protection through, for example, proactive labour policies, income guarantees, retraining and capacity building. New job opportunities arising from new low-carbon markets are expected to offset unemployment arising from the contraction of older, more carbon-intensive industries. The new green jobs will not necessarily go to those who have lost their old jobs. Disadvantaged groups in the labour market will need targeted assistance and preferential treatment. Retraining and skills upgrading are thus crucial to a successful, smooth and equitable transition to the low-carbon and green economy.

An important role of government policies and regulations and publicly funded services is to ensure equal access of all groups, especially the disadvantaged. Those with disabilities, young people, ethnic minorities and the low-skilled need to have access to productive and gainful jobs or appropriate training and skills development opportunities leading to jobs (ibid., p.93). Attention is also needed on encouraging entrepreneurship and investment in diversifying local economies and creating new jobs.

Country case studies have drawn attention to public sector roles and initiatives, a few of which are briefly noted here.

India

The National Rural Employment Guarantee Act of 2005, mentioned earlier, offers guarantee of work for 100 days in a year to at least one member of rural households below the poverty line. The scheme targeted at the low-skill workforce, has a strong natural resource management component and has recently included afforestation projects. Men and women employed through the scheme planted and protected trees and acquired their skills either through traditional channels or through informal training in the field.

South Africa

In South Africa, the Expanded Public Works Programme (EPWP) has provided over one million jobs since its inception in 2004. The EPWP supports work in infrastructure, economic, social and ecosystem protection projects. It provides relevant training to the employees. The programme particularly targets vulnerable population groups.

The "Working for Water" programme in South Africa trains unemployed people in local communities to use a range of methods to control and remove invasive alien plants. The alien plants pose a threat to South Africa's water security and the natural ecological systems by diverting enormous amounts of water from more productive uses. An essential element of the programme is to enable people to participate in environmental conservation and in sustainable, decent jobs. The programme provides various jobs, including water contractor employees, chainsaw operator, brush-cutter operator, herbicide applicator, plant identifier, and health and safety representatives (ILO: 2011a, pp.83–85).

Thailand

In Thailand, the Ministry of Agriculture has organised training courses for rural farmers in producing and using bio-fertilisers based on renewable organic material rather than on chemicals or oil. The Department of Alternative Energy Development and Efficiency (DAEDE) has adopted an action plan to train people who have lost jobs in rural areas in the production, installation and maintenance of alternative energy sources (making biomass, and installing and maintaining solar, hydro and wind energy technology; ILO: 2011a, pp.81–82).

The informal economy

The informal economy is by far the largest provider of employment in most developing countries. Measures to restructure the economy mainly in the organised sectors will leave large proportions of the people, especially in rural areas, without access to the skills development and new job opportunities. The organised sectors of the economy lend themselves to policy and regulatory interventions somewhat more easily than the dispersed informal economic activities. Quantitative estimates are hard to come by, but it can be reasonably assumed that there is large overlap between informal sector work and rural employment.

ILO estimate indicates that informal sector employment ranges form over one-third to more than 80 percent of total employment in developing countries. For example, it is reported to be—Uganda 83 percent, the Philippines 77 percent, Thailand 72 percent, Indonesia 68 percent, India 57 percent, Mali 56 percent, Brazil 46 percent, Egypt 44 percent and Costa Rica 37 percent. However, these estimates are not based on consistent criteria. All agricultural workers are not included in some cases, in others some other sectors are excluded and data sources and their reliability vary. The researchers compiling the statistics are of the view that the actual proportions in the informal economy are likely to be substantially higher in some of the countries (ILO: 2009).

The informal economy employs a high proportion of low-skilled workers with the least prospects of moving into the formal economy or alternative employment. In India, for instance, 23 percent of men and 40 percent of women in the unorganised sector do not have primary-level education. The informal economy also consists largely of micro and small enterprises, which may need greater technical support and public assistance in restructuring (ILO 2011: p.59).

Specific measures in agriculture, forestry and livestock

Restructuring in agriculture is happening in a great variety of ways. Most of the country case studies indicate that many farmers are repositioning themselves both within the sector and in other sectors, prompted by the inability to make enough profit to live on from agriculture. The farmers are attempting to respond to the development of machinery and technology, and various effects of climate change.

China is a prominent example, but others are following suit in agriculture, forestry and fisheries to refocus on organic food production. This is part of the shifts across subsectors and within the food/wood processing industry (for example, to sustainable forestry or new kinds of aquaculture), which generates corresponding training and retraining needs (UNDP: 2010, p.64).

Organic farming is more labour intensive than conventional farming, generating 20–30 percent more jobs. Moving from low-productivity conventional farming, where farmers often cannot afford pesticides and fertilisers, to organic farming requires adoption of new technologies, which generate higher yields and better productivity with impact on income poverty. This kind of shift has implications for skills development and provision for extension services.

In *Bangladesh*, organic farming is as profitable as conventional farming. Although production costs are higher, products command premium prices. It is still on a largely experimental footing, accounting for only 2 percent of the country's total cultivable land and one percent of farmers. The Ecological Agriculture Program (EAP), run by a national NGO with support from international donors, is expected to involve around 0.8 million farmers in organic cultivation on 0.22 million acres of land by 2020. The involvement of farmers in organic farming through training programmes, mostly provided by NGOs, spans over 16 districts and over 100,000 farming families.

In *Egypt*, 500 organic farms cultivate approximately 24,500 hectares of land. This is a negligible proportion of the total agricultural land, but the potential for growth is high. Development of the skills, again, is primarily met by NGOs like the Egyptian Biodynamic Association (EBA). It provides regular training seminars, workshops, farm visits and field trips.

In *Uganda*, according to the National Organic Agricultural Movement (NOGAMU), 200,000 farmers are engaged in organic farming. NOGAMU has identified the skills needed to build capacity in the production and processing of organic

products, and also the training needs for farmers. The training covers areas of organic production including management of pests and diseases, soil fertility, post-harvest handling of crops, weed management, and processing and marketing of products (World Bank: 2008, p.67).

Biofuels prospects

Biofuel production arguably helps reduce poverty by creating rural jobs and at the same time mitigates climate change. There are also costs that need careful consideration from the social, environmental, ethical and economic points of view. Where the costs and benefits work out in favour of turning over low-yield land to biofuel feed stocks, it creates employment and income generation opportunities for those farmers and farm workers who are forced to stop food farming for economic and environmental reasons. Retraining is important, both in restructuring from traditional agricultural crops into biofuel and in adapting to change in both fuel and food production.

In Brazil, South Africa and other parts of Latin America, bio-fuel cultivation is dominated by low-skill migrant labour. Requirements for skilled labour will increase as the industry grows. Farmers and farm workers will need better skills to thrive in the new environment. In Kenya, the cultivation of jatropha (a type of succulent plant found in tropical and subtropical areas of Africa, Asia and America) for biofuel production has been considered not viable for smallholder farming, despite its promising potential and good reputation elsewhere, like Mali. This is partly because of the current methods of cultivation (monoculture or intercrop plantation rather than natural growth with very few inputs), and because of a lack of agronomic support, awareness raising and skills development. Investment in biofuels has to be integrated within a broader context of rural development and human capital formation (UN Energy: 2007; World Bank: 2008).

Enhancing effectiveness of skill training

The country cases in the ILO study indicate that short, intensive vocational training courses, tailored to the specific needs of employers are the most successful way of delivering retraining for specific new job opportunities. Such retraining has to occur locally, in rural areas, if this is where the jobs are. Ideally, it should be linked to the job opportunity and should not detach participants from existing work or from the job market. For instance, in rural areas it is more difficult for women than for men to participate in training outside their village. Thus there is a need for local training facilities. Trained trainers and teachers have to be found and the remunerations have to be such as to attract the right people as trainers. The Philippines country report refers to the import of a green technology that is not yet available in the domestic market, which means either sending Filipinos appointed to manage and maintain the technology overseas for training or bringing in expertise from abroad to train Filipinos (ILO: 2011a, pp.81–82).

Anticipating and projecting green skills and green jobs

A standard and agreed definition and statistically countable categories of green jobs and related skill, as noted above, do not exist. This creates difficulties in measuring green jobs and skills and placing these into occupational and industrial classification systems. Countries which have developed and established systems for the identification of skill needs and collect labour market information through labour market information systems (LMIS) enjoys a head-start. They need to create additional means of detecting new requirements arising from the transition to a low-carbon, greener economy. Where LMIS does not exist, as in most developing countries, ad hoc surveys can be relied upon and used as the basis for developing the information system. Effective approaches in this respect make use of public dialogue and participation at the sectoral or grass-roots level with stakeholders (ILO 2011: p.145).

The developing countries without LMIS rely on ad hoc surveys organised by NGOs, international donors and, in some cases, national government agencies. On the whole, these have not produced sufficiently comprehensive information about present and anticipated green jobs and the quantitative and qualitative status of skills related to the green jobs. They often use very basic forecasting methods and use simple assumptions; for example counting every job created in agriculture as a green job (ibid., p.156).

Some specialised green skills

The International Standard Classification of Occupations (ISCO), last updated in 2008, classifies skill specialisation in terms of four conceptual areas: (i) the field of knowledge required, (ii) the tools and machinery used, (iii) the materials worked on or with and (iv) the kind of goods and services produced (Greenwood: 2008).

Whether entirely new occupational categories need to emerge or some redefinition of the character or features of existing occupations will suffice, depend on the degree of change in the skill composition of occupations when economies go through the green transition. The evidence from the case studies is that redefining existing jobs and skills rather than inventing new categories is generally expected. In a way this is a bigger challenge which requires looking at existing skills and jobs critically and reshaping them rather than designing new job profiles from the scratch. The distinction probably is a matter of degree, because almost all skills and jobs in the fast paced global economy have been changing rapidly in any event. It is now necessary to bring in the green perspective into this process, which has been often neglected. Recent research including the ILO study, particularly the country cases, suggests new combinations of specialised skills which need to be given attention in promoting the green transition especially in the context of rural transformation. These, reported in the skills for green jobs study (ILO: 2011a, pp.125–126), are summarised here.

Carbon financing specialists

Flexible mechanisms introduced in the Kyoto Protocol included international carbon trading, which led to a number of new green occupations. The United Kingdom carbon finance sector employs over 21,500 staff in 2,500 companies, including emissions traders, environmental lawyers, carbon auditors and Clean Development Mechanism (CDM) project investors. Financial brokers who once traded fossil fuels are now buying, selling and trading current and future carbon emissions. The new occupational profile requires the skills of the existing occupation plus additional specialised knowledge of new green markets.

Demand for carbon consultants is growing in developing countries like Indonesia where firms providing services related to CDM projects are increasing rapidly. Carbon consultants are hired to assist project owners in meeting national and international criteria to qualify under the CDM. A combination of technical and financial skills is needed to perform these tasks. Technical skills required include the capacity to calculate the emissions reduction potential using methods defined by the international CDM governing body. This specialised skill is particularly important for the rural economy and the agricultural sector where major potentials exist for carbon sequestration in forests and land making new rural economic activities potentially viable. The country reports for Mali and South Africa have noted the shortage of carbon consultants, but the shortage exists in other developing countries as well.

Researchers at university level

Crop varieties have to be developed and introduced that can withstand the vagaries of climate change. Demand for soil scientists, plant and animal breeders and pathologists will rise. Most researchers in agriculture have to be multidisciplinary. The scientists have to be supported by agricultural technicians for field level experimentation and trial of crop diversification and the application of improved machinery to reduce energy consumption and GHG emissions. A new occupational field in this area is precision agriculture which helps calibrate applications of herbicides, pesticides, irrigation and fertilisers to avoid over- or under-use. The skills it requires include the ability to apply remote sensing, geographic information systems (GIS) and global positioning systems (GPS).

Irrigation specialists

They will be in demand to identify appropriate irrigation technologies that improve water conservation, conduct market studies to ensure the technologies are applied effectively and impart skills in using and maintaining the technology to end users. This is particularly important as climate change and variability increase water scarcity.

Agricultural meteorology

It is a new occupation created in response to increasing weather variability. These professionals apply meteorological information to enhance crop yields and reduce crop losses caused by adverse weather. They combine knowledge of

plant physiology and pathology, meteorology and agronomy, common agricultural practices and remote sensing techniques. They collect satellite images and remote sensing images, including vegetation indices from centres that monitor the evolution of rainfalls, and make projections about weather, river flows and pest infestations.

Eco-adviser in agriculture

For sustainable development, eco-certification is another emerging occupation. These experts advise farms of all sizes from agribusinesses to smallholders in sustainable practices and existing certification mechanisms and standards. In the forestry sector, numbers of foresters or tree farmers are expected to rise when governments invest in reforestation to mitigate negative impacts of climate change, restore soils and conserve biodiversity. Tree farmers in countries like Uganda need additional skills to become involved in selling the carbon sequestered by their forests on the voluntary and CDM markets.

Renewable energy specialists

This sector represents the most dynamic labour market segment for newly emerging green occupations, such as renewable energy engineers, consultants, auditors, quality controllers, and installation and maintenance technicians. These occupations are widely considered new since their skills content differs considerably from their counterparts in other sectors, albeit with some overlap. These occupations are all characterised by high added value and middle to high qualification levels. Others that may develop in the future include lawyers specialising in renewable energy legislation.

Education and training specialists

The education and training sector is of critical importance in the green transition, disseminating basic knowledge about environmental changes and influencing the behaviour of people in matters of environmental sustainability. The skills required in education itself are also changing, as teachers, trainers, instructors, school managers and public administrators adapt to change brought about by technological change and innovation, climate change and environment, greening policy and regulations about education and labour markets.

Teaching and training personnel in all education systems and at all levels need command of the necessary skills and methods to impart environmental knowledge, to create awareness and to react flexibly to ever-changing labour market needs. But developing countries have insufficient numbers of well-trained teachers and trainers to satisfy the need to update the skills of large and growing workforces, including a need to incorporate environmental course content and update curricula in primary, secondary, tertiary and adult education and training.

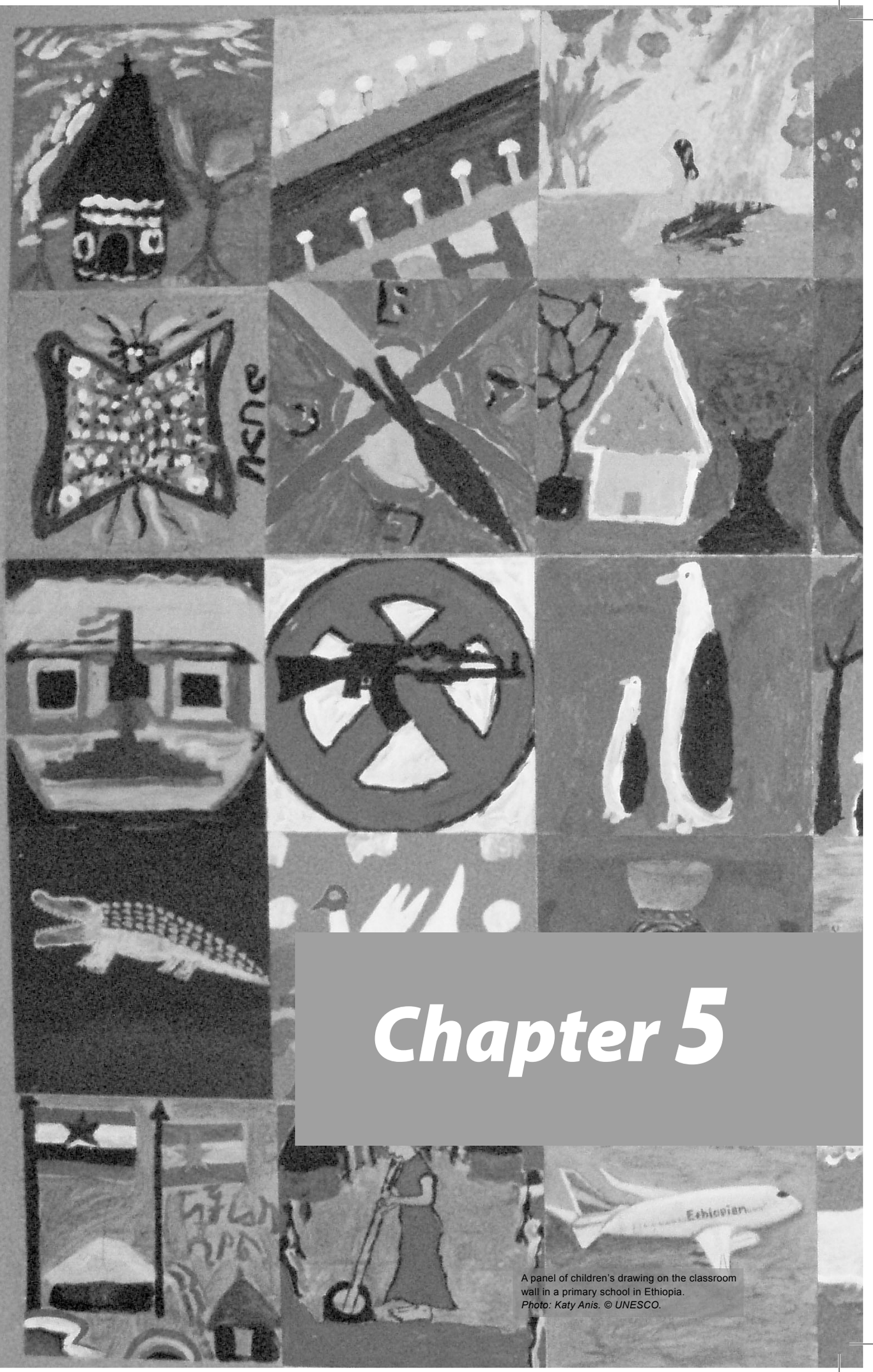
The greening of the economies in developing countries and the implications for skills and capacity building within a framework of rural transformation have been reviewed in this chapter. How this perspective can be incorporated into organisations and institutions for promoting skills and capacities to fight rural poverty and bring about rural transformation will be considered in Chapter 5.

Towards the future. Chengdu, China.
Photo: © Shen, Peng.

Extracurricular activity in a rural school in Dujiangyan city, China.
Photo: © Shen, Peng.

Rural women reading and learning in their leisure time. Yunnan, China.
Photo: © Li, Jinsong.

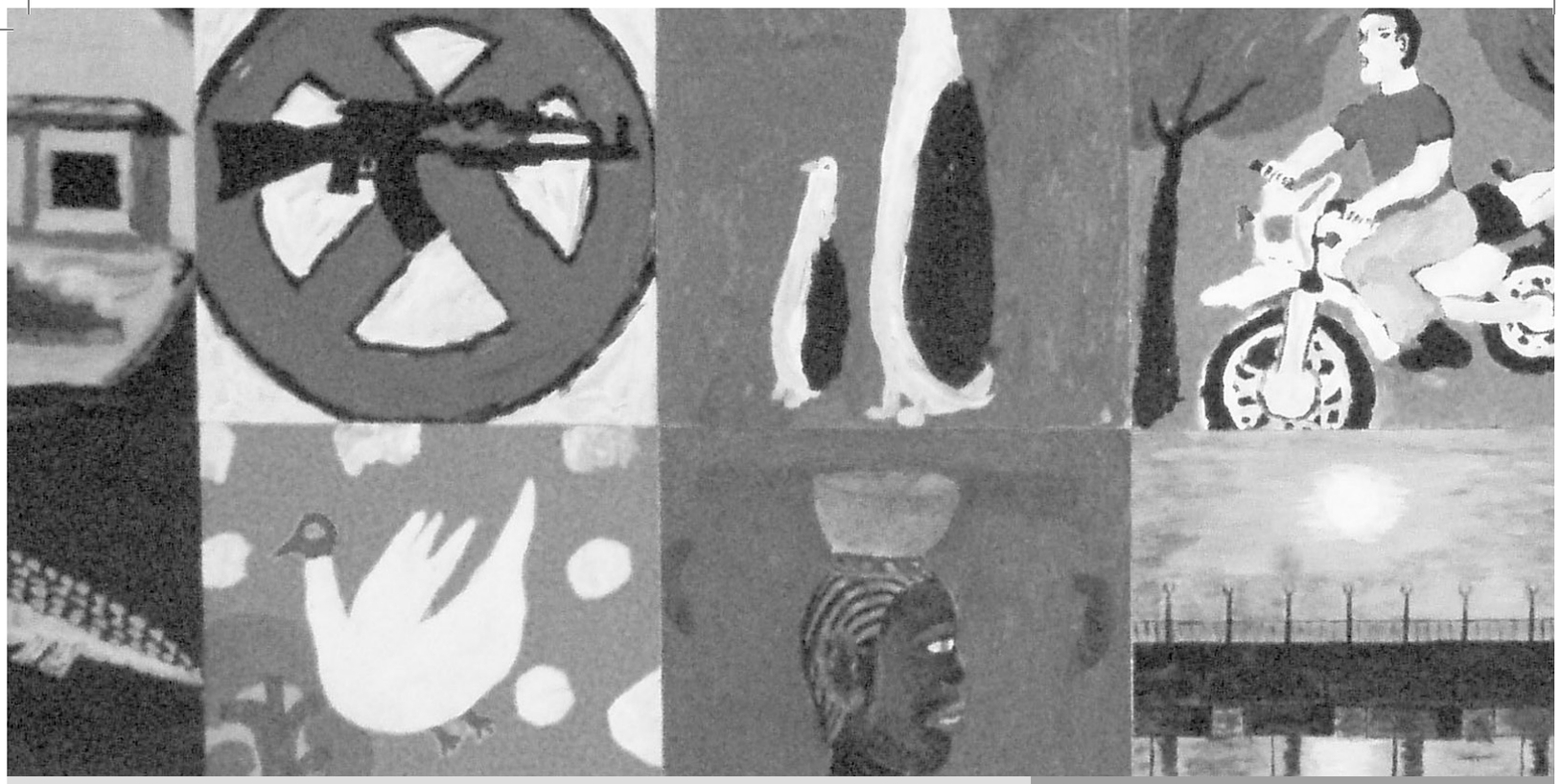
A small village in rural Ethiopia.
Photo: © Wang, Li.



Chapter 5

A panel of children's drawing on the classroom wall in a primary school in Ethiopia.
Photo: Katy Anis. © UNESCO.

Roles, Responsibilities and Challenges: A Framework for Policy and Action



Chapter 5

Roles, Responsibilities and Challenges: A Framework for Policy and Action

... as urbanisation increases, the rural economy will continue to be a principal tool for development and sustainability. Patterns for growth need to respond to the growing aspirations of the people in these new realities. Globally, the demand for food will grow with increasing land and water scarcity, as well as greater environmental pressures. ... that future challenges will be many, and that this situation requires analysis, debate and discussion. ...this work is being undertaken in a globalising world, where what happens in one part of the world gets transmitted to other parts rapidly. A number of flagship initiatives being undertaken. .... These aim at transforming the rural areas through education, health, securing incomes and strengthening infrastructure. With a large workforce living in rural areas, creating work opportunities (including for youth and women) acquires great significance. [It is vital] ...to forge links between the corporate world and the agriculture sector, as many complementarities exist between the two.

Source: President Of India, Inaugural Address, INTERNATIONAL CONFERENCE, DYNAMICS OF RURAL TRANSFORMATION IN EMERGING ECONOMIES, 14–16 April 2010, New Delhi, India

In considering a framework for policy and action priorities for skills development as an integral part of rural transformation, it is necessary to look at the developmental context in which skills development policies, programmes and activities would be carried out. Different aspects of skills development and capacity building in relation to the overarching goals of fighting poverty and rural transformation have been discussed in the preceding chapters. It is clear that skills development is a critical component of the total effort to bring about rural transformation, but it is not sufficient by itself. The programmes and strategies for skills development can be effective, when they are nested in a supportive environment of broader development goals and policies which accord a high priority to, and are consistent with, the aims of rural transformation and rural poverty reduction.

There are different ways of looking at the key elements of the supportive context and assessing what exist. Options have to be weighed in determining what can be done to take advantage of the positive elements in social, political and economic environment and to circumvent or cope with the constraints. The premises underlying goals of rural transformation and poverty reduction logically direct attention to a number of contextual factors intimately intertwined with these goals. These factors include structural changes in the economy which are consistent with rural transformation objectives, a regional planning and development perspective, and the environment for economic activities. This last category encompasses expanded opportunities for enterprises in rural areas, social protection and safety net policies, and governance issues.

A facilitative and supportive policy environment is essential for carrying out skills development effectively. Aspects of organisational and institutional mechanisms need to be considered under a rational, transparent and participatory policy regime. In such a context, issues of governance, financing, allocation of responsibilities and collaboration among national and international partners can be resolved to achieve optimal outcomes. In line with this logic, this chapter examines the influences that shape policy objectives and their implementation. The chapter is divided into six parts: (i) A supportive policy environment—structural change in the economy, a regional planning and development perspective, the role of microcredit and social business, and social protection policy related to skills, jobs and fighting poverty, (ii) priorities, organisation and management of education and skills development for rural transformation—general basic education, vocational and technical education, tertiary education and research, and lifelong learning, (iii) governance issues in skills development and capacity building, (iv) roles of different stakeholders, (v) monitoring and evaluating skills development, and (vi) resource mobilisation for skills development and partnership building—national and international.

5.1 A Supportive Policy Environment

Structural change in economies

Historically, economic development has meant structural change in national economies of countries in terms of the contribution of the major sectors of the economy (agriculture, industries and services) to the total productive output of the country (GDP) and the proportions of the working population employed in the major sectors. Countries which have gone further in reducing poverty and improving the well-being of their people are those where the labour force has moved from agriculture to more diversified economic activities. There has been a spatial or geographical change manifested in urbanisation and increase in job opportunities in towns and cities away from villages. There also has been a sectoral movement of workers away from farming to off-farm, manufacturing and services activities (McMillan and Rodrik: 2011).

By one estimate, based on a sample of 29 developing countries and data for the decade prior to 2005, the average manufacturing–agriculture productivity ratio for workers was 2.3 in Africa, 2.8 in Latin America and 3.9 in Asia (ibid., p.6). On the whole, inter-sectoral productivity gaps are seen as a feature of underdevelopment. The gaps were widest for the poorest countries included in the sample and sustained economic growth contributed to narrowing the gap. They show the important role of structural change in reducing the gap in productivity and earnings, both within economies and across poor and rich countries.

As a pioneer in the field of development economics, W. Arthur Lewis defined the challenge of development economics to be closing the gap in productivity and earnings

of workers between sectors. He observed that the task was to transform the dual economy model of the traditional and modern sectors with large gaps in productivity of workers in less developed countries to a progressive narrowing of the gap among sectors with structural change among and within sectors (Fields: 2007).

The historical evolution of the structure of economies may be looked upon as defining characteristics of economic development. The markers of this evolution in general terms are progress from a heavy dependence for output of the economy and employment on subsistence agriculture to commercial agriculture; to light, heavy and technology-intensive industry, in successive stages; and to the post-industrialisation era dominated by knowledge-based services and products. This evolution is also characterised by a process of continuous technical innovation leading to improved productivity evident in improved quality, lower costs and availability of newer goods and services (Lin: 2009).

The implications of the shifts in the structure of the economy, especially relevant from the point of view of the rural transformation goal, are that:

- A progressive and relatively rapid decrease can happen in the proportions and total numbers of the workforce in agriculture, while improving at the same time total output from agriculture, thus increasing productivity dramatically per unit of labour input as well as per unit of finite and scarce land.
- There can be a movement of the workforce in rural areas from farming to off-farm, manufacturing and services activities, with creation of some of these economic opportunities in rural areas themselves, in a context of overall expansion of these non-agricultural activities within countries and beyond the borders of countries, in the era of globalisation.
- Increases can occur in mobility of working people and those eligible for work in rural areas both spatially and sectorally. Spatial mobility of workers may be within rural areas, to peri-urban areas, rural hubs and small towns, and larger cities, with some of the movements in the reverse direction. Sectoral mobility may be from farming to off-farm processing, services related to modernising and diversifying agriculture, livestock, forestry and infrastructure building, and extension of some of the urban services to rural areas.
- One area of sectoral extension and expansion possibility is education and skills development with expanded scope and variety of education and skills development activities in rural areas, small towns and rural hubs (central rural locations where services and infrastructures are located to serve a group of rural communities).

Structural changes of the economies are happening and are inevitable. But they do not necessarily produce the same results in terms of the growth of total GDP. They may fail to narrow the gap in productivity and earnings among sectors or among enterprises within sectors. The intended results of expanding gainful employment, improving the well-being of people and reduction of poverty are thus not achieved. Ongoing changes and shifts in structures have not by any means been smooth:

> Many developing countries have devoted large amounts of resources to educate and train workers. However, without upgrading in industrial structure, many educated members of the labour force are often left unemployed or compelled to migrate. Improvements in human capital must, therefore, be part of the overall strategy to accumulate physical capital and upgrade the industrial structure (Pritchett: 1996, p.12).

If there were an inter-sectoral redistribution of employment along the pattern found in advanced economies, developing countries would employ far fewer workers in agriculture and many more in the modern, productive sectors. The hypothetical gains in overall average worker productivity would be quite large. India's average productivity would more than double, while China's would almost triple. The potential gains would be even higher for several African countries. Ethiopia's productivity would increase six-fold, Malawi's seven-fold and Senegal's eleven-fold. These numbers indicate the extent of dualism that characterises poor economies (Macmillan and Rodrik: p.8).

The scenario described above is hypothetical based on assumptions that the sectoral shifts in workforce could happen without any effect in present productivity within

each sector. In reality, there have been large differences in patterns of structural change across countries with substantially differing performance in economic growth and productivity. It has been found that Asian countries have experienced "productivity-enhancing" structural change, but both Latin America and Africa have experienced "productivity-reducing" structural change (ibid., p.12).

Labour productivity growth in an economy can be achieved within economic sectors through capital accumulation, technological change and reduction in misallocation of resources across enterprises. It can also happen across sectors, through shifting workers from low-productivity sectors to high-productivity sectors, increasing overall labour productivity in the economy. However, globalisation, creating an international market for investment and products, has led to highly uneven outcomes. Countries with a comparative advantage in primary products, many of those in Africa, were pushed to achieve greater efficiency within sectors, by adopting capital and technology intensive methods, rather than expand labour-intensive production (ibid.).

The productivity gains are not achieved automatically with structural change. In both Latin America and Africa, structural change has made a negative contribution to overall growth, whereas in Asia the contribution has been positive in the period between 1990 and 2005. The bulk of the difference between the regions' productivity performance can be attributed to the pattern of structural change in the three regions.

In Asia, labour actually moved from low- to high-productivity sectors, but the effect was the opposite in Latin America and Africa, because, globalisation-induced economic policies led to culling out of inefficient plants and enterprises, new infusion of technology and capital, and shedding of inefficient labour, rather than expansion of employment and opening up opportunities for agricultural workers in the manufacturing and services sectors as well as extractive industries and forestry (ibid.).

Not that the globalisation pressures did not exist in Asia, but the policy regime including skills and education development, currency and trade policy, and social protection and employment policy provided a measure of mitigation against the adverse effects of economic liberalisation. Moreover, progress already made in capacity building in skills, technology and entrepreneurship offered the Asian countries an advantage in exploiting the potentials of the global market.

The point has been made that there is an ongoing shift of labour from low-productivity agriculture and rural economic activities to high-productivity activities in industry and services, as well as, diversified agriculture, processing and rural services. This shift, both sectoral and spatial, planned and coordinated to minimise the negative effects, and accelerated in many instances, have to become the driver of development in general and rural transformation, in particular. Macro policies in the spheres of the economy, regional development, human and skills development, and governance have to create a supportive environment for this development process to unfold successfully.

Rural–urban linkages and regional development planning

Rural and urban areas are in reality interconnected through a constant movement of people, goods, capital, ideas and information. The complex web of flows and exchanges has made rural and urban areas dependent on each other. The trend is accelerating in many parts of the developing world as a result of better transport and communications, rural–urban and return migration, and the dissemination of urban norms and values in the rural areas. There also has been the spread of urban economic activities in the rural areas (rural industrialisation and spread of basic amenities) and of rural economic activities in the urban areas (like urban agriculture initiatives).

The physical boundaries of urban built-up areas often do not coincide with their administrative boundaries. The peri-urban interface around larger urban centres is the location where processes of urbanisation are most intense and where some of the most obvious environmental impacts of urbanisation are evident. They are characterised by rapid change in land use, encroachment on farm land, displacement of farmers from their ancestral homesteads and traditional livelihood, and intense pressure on natural resource systems (for example, for water, fuel wood, disposal of urban wastes and land for non-agricultural uses).

Coordinated and creative regional planning to deal with the peri-urban interface is essential and offer opportunities that cannot be available in separate urban and rural initiatives (DANIDA: 2000).

The persistent and growing disparities in levels of income, economic opportunities and quality of life between the rural majority and the urban minority have lent a new urgency to an integrated approach. Economic liberalisation and opening of the global market have given an added impetus to look at the urban–rural connections in a new light. A deliberate blurring of the urban–rural distinction has to be taken as a policy objective with supportive policies and strategies (ESCAP: 2001).

It is being recognised that there are needs and opportunities for strengthening rural–urban linkages in several areas. These can be broadly categorised as economic linkages (markets, employment); physical linkages (infrastructure, transport, communication); and linkages in services and amenities (education, health care, communication and information, and financial and market services). The less visible, but highly significant and relevant for all three broad categories mentioned, is the flow of ideas, innovation and information which need to be both ways for mutual benefit. Understanding the scope and potential of the linkages and ways of strengthening them require a regional planning approach embracing urban cities and towns, peri-urban areas and rural communities.

Rural-urban linkages take many different forms, depending on political and institutional history and culture in the country as well as the geographical and ecological conditions that define the possibilities.

Examples of the regional approach

The rural–urban partnership programme (RUPP) from Nepal is a national level programme involving 13 municipalities and 33 rural market centres. RUPP sees rural–urban linkages as a fundamental element of regional development. Eighty percent of the population in Nepal is rural and one-third are categorised as below poverty line. Only 40 percent of the income of an average rural household came from farming and the remaining 60 percent from other income sources (Nepal Central Bureau of Statistics: 2002). Moreover 60 percent of farmers had less than a hectare of land which could be a source of survival for more than half of a year. Clearly, rural households in Nepal needed additional sources of income to survive. Many relied on the urban linkages—flow of goods, services, remittances and people. Better planning and structuring these flows were considered essential.

The essential premise of the programme is that development of the defined areas that include municipal towns, market centres and surrounding villages can be planned and implemented for the common benefit of urban and rural communities and people. Entrepreneurship development, promotion of village economic enterprises linked to urban businesses and access to jobs for rural workers in industrial/commercial establishments are key components of the programme. The zones have been identified on the basis of already present socio-economic, road and communication and migration links between nodal market centres and the surrounding villages. The aim is to further develop these linkages through a participatory planning and management process for optimising the benefits for all.

The Nepalese Government selected RUPP as a national core programme, and RUPP approach of poverty alleviation and urban development was incorporated into the Tenth Plan (2003–2008) of the country (ESCAP: 2005).

The case of the Metro Naga Development Council (MNDC) from the Philippines illustrates an attempt, similar to RUPP in Nepal, to overcome the obstacles presented by administrative classification of local government units as either urban or rural. The MNDC bypasses the rural–urban dichotomy by bringing together Naga City and 14 surrounding municipalities into one administrative entity for planning and undertaking joint area-based development activities. The MNDC served as the mechanisms for the participating local government units (LGUs) to work together on: (i) planning as a cluster for selected economic and development projects, (ii) resource pooling that increased capacity of LGUs to carry out larger and joint projects and (iii) better access to opportunities for capability-building that helped LGUs become more efficient and effective (ibid.).

Providing Urban Amenities to Rural Areas (PURA) is a

strategy for rural development in India advocated by former President of India, Dr A.P.J. Abdul Kalam. He envisaged it to be a viable model for the delivery of basic urban services and facilities in rural areas to be managed through an implementation mechanism that brought together local people, public authorities and the private sector. Extensive consultation and research involving state governments, private sector and international development partners contributed to the design of the programme. It is a flagship programme of the Ministry of Rural Development (MoRD), Government of India and is planned to be implemented in over 200 districts or over one-third of the total in the country (MARG: 2011).

PURA proposes that urban infrastructure and services be provided in rural hubs to create economic opportunities outside of cities. Physical connectivity by providing roads, electronic connectivity by providing communication network and knowledge connectivity by establishing professional and technical institutions will have to be undertaken in an integrated way so that economic benefits accrue to all.

The private sector involvement in PURA under the public-private partnership framework is illustrated by role of MARG Limited. It is one of India's fastest growing integrated infrastructure companies. MARG has supported the first PURA pilot project at Karaikal district in the Union Territory of Pondicherry. The multidimensional social inclusion project will generate livelihood opportunities and provide basic amenities across eight village panchayats with an estimated population of 31,000 spread across 29 square kilometer in Karaikal District (ibid.).

Speaking about PURA, Mr Kalam called for physical connectivity of villages among themselves and with main towns and metro-cities through roads and railway lines. He also called for the preservation of native knowledge and its enhancement with latest tools of technology. He urged that the villages must have access to good education from best teachers, good medical facilities and must be provided with latest information on villagers' pursuits like agriculture, fisheries, horticulture and food processing. The former President also called for knowledge connectivity that could increase the productivity, utilisation of spare time, awareness of health care, ensuring a market for products, increasing quality consciousness and transparency in partnership (ibid.).

Another initiative that could be seen as complementary to PURA is the Rural Business Hub (RBH) programme. The objective of the scheme is to spread the benefits of India's rapid economic development to the rural areas through the medium of Panchayati Raj Institutions (PRIs). Rural Business Hub is a participatory development model for the rural areas of the country that is built on the platform of 4-P, that is, Public, Private, Panchayat, Partnership. Special features of the Scheme are:

- It links rural producer with the wider market through a marketing partner and develops this as an integrated business relation benefitting both sides and is, therefore, sustainable.
- Panchayats/Rural local Self-governments play the key role of planning and implementing plans; the plans are based on local resource endowments, felt needs of people and relative absorptive capacity.
- The project is located in a rural area and is based on economic activity and generates rural employment and livelihood.
- The Scheme is demand-based and there is no state-wise allocation (Tiwari: 2010).

Panchayats perform the key role of identifying skills and endowments of people and natural resources. They address the concerns of local inhabitants and establish and sustain community linkages. They also extend institutional support to viable business initiatives that benefit the rural populace. At a later stage, the panchayats help integrate the economic development plan emerging from RBH initiative with the decentralised district planning process. The business partners would perform the roles of identifying local skills/products that have wider market potential, prepare business plans acceptable to the community and provide sustainable local employment. The central/state governments would support the initiative through conducive policy regime, dovetailing government schemes, bridging critical gaps in infrastructure, etc.

The resources required for setting up RBH are to be mobilised primarily through convergence of ongoing central/

state schemes, programmes of partnering institutions, etc. An initial seed funding support is available from the budget of Ministry of Panchayati Raj. RBH is planned to be initiated in all the 250 districts covered under the Backward Region Grant Fund scheme of the Ministry of Panchayati Raj and all the districts in the north eastern region (ibid.).

Social protection and safety nets

Agricultural work is the major source of income for most rural households in developing countries; although for most of them smallholder farming is only part of a diversified livelihood strategy, which combines on- and off-farm wage work, service activities and remittances. Earnings from agricultural wage labour are low and volatile, especially when workers are engaged on a casual or temporary basis. Much agricultural work is by its nature physically demanding, involving long periods of hard physical work, often in extreme weather conditions and risk-prone circumstances.

Even when technology has been introduced to reduce physical drudgery, it creates new risks related to the use of machinery and chemicals without appropriate safety measures. But basic health services are often inadequate or non-existent for rural workers and workers' compensation, disability insurance and survivors' benefits for them are mostly unheard of.

A significant proportion of rural people in developing countries, whether they are engaged in agriculture or off-farm activities, face natural or man-made emergencies and/or are in a state of chronic hunger and deprivation which they cannot handle without assistance from the state. They need support to respond to the high level of risk and vulnerability and overcome the negative impact on livelihood. Assistance is necessary not just to provide relief and protect the well-being of people, but to help them move out of the vulnerability and restore their productive capacities. Ideally, the protection measures can be an investment in people which can produce longer term payoffs and prevent the intergenerational transmission of poverty.

As noted in Chapters 2 and 3, vulnerability and the lack of social protection are manifestations of poverty and social exclusion of rural people. They are also obstacles to the development of capabilities and skills development of young people and, therefore, are hurdles to the access to productive employment. Questions regarding "decent work" in rural employment need to be addressed urgently as the rural population in developing countries continues to grow in absolute numbers. There is much room for improvement in the labour and social protection currently provided to rural workers, whether in terms of their conditions of work or their vulnerability to livelihood risks (ILO: 2008, p.41).

Social protection is regarded by ILO as a holistic set of life-cycle-based strategies that seeks to protect workers at their workplaces in the formal and informal economy against unfair, hazardous and unhealthy working conditions. It also seeks to provide access to health services, a minimum income for people with incomes under the poverty line and support for families with children. It replaces income from work lost through sickness, unemployment, maternity, invalidity, and loss of breadwinner or old age (ILO: 2007).

Another common description of social protection is social safety net—a net that prevents individuals and families from falling below defined levels of basic well-being (see Chapter 2). Social safety nets specifically emphasise non-contributory transfers targeting the poor and vulnerable in order to protect them from risks and severe poverty. They are seen as an important tool not only to assist the vulnerable groups during times of crisis, but also as a part of countries' development agenda.

Social safety nets are rarely comprehensive enough to cover all forms of vulnerability of the rural poor. Different objectives are emphasised in specific contexts. Depending on these objectives they comprise income transfers through cash, food-related transfer programmes, price subsidies, human-capital-related measures, public works programmes, and micro credit and informal insurance programmes (Babu: 2003).

In short, safety nets for social protection have four main objectives: (i) they aim to reduce poverty and inequality through the redistribution of resources, (ii) they function as insurance and help improve households' social risk management, (iii) they are expected to enable households

to invest in human and physical capital, which advances long-term economic opportunities and (iv) they can mitigate the negative consequences of difficult but needed socioeconomic reforms (World Bank: 2011; see Box 5.1).

Experience of social protection measures in developing countries illustrates the scope and pattern of these measures.

Labour market intervention

Rural labour markets are often characterised by oversupply of labour, limited employment opportunities and poor transport and communications that restrict movement of labour. Rural employment schemes have been used in several countries to address this problem, as in India, which aim to create employment opportunities through public works to build physical infrastructure.

The India National Rural Employment Guarantee Act (NREGA) was adopted in 2005 and is based on the earlier Maharashtra Rural Employment Guarantee Scheme (MEGS). A critical defining feature of NREGA is that it confers statutory rights on beneficiaries, unlike a "scheme" or a temporary project (see Chapter 2). NREGA makes available up to 100 days of employment per rural household per year on public works, at the prevailing minimum unskilled wage rate (Sjoblom and Farrington: 2007).

Box 5.1 Main Types of Social Safety Net Interventions

1. Unconditional Transfers in Cash and in Kind

Unconditional cash transfers aim to lift poor and vulnerable households out of poverty or protect them from falling into poverty due to a crisis or reform. Most of these subsidies are means-tested. Based on expenditures and welfare, households are assigned to a poverty index and only those at the bottom are eligible for benefits.

Other transfers may be categorical, that is, paid to families with children under a certain age (family/child allowances) or to vulnerable groups, such as the elderly who lack formal social insurance (non-contributory pension) and the disabled (disability benefits). In emergency and disaster contexts, cash transfers are often used as a flexible instrument to protect the poor, who are credit constrained and vulnerable to external shocks.

In-kind transfers are tied to the provision of goods either directly (food aid, basic transfers) or through price/tax subsidies that encourage the consumption of basic commodities (housing and utility subsidies). The most common of forms of in-kind transfers are food-based programmes (food aid), which aim to help the poor achieve and maintain better nutritional status.

2. Income-Generating Programmes

Workfare (or public work) typically employs low-skilled workers in labour-intensive jobs constructing or maintaining public infrastructure projects. If well-designed, these programmes can make public spending more cost effective. The participants may be paid in cash (cash for work) or in-kind (food for work). These programmes may also include on-the-job training to provide necessary skills to participants. They might also be gender sensitive, providing different types of work to men and women.

Wage/employment subsidies provide incentives for participants to take up temporary employment with the goal of helping them transition to more permanent jobs. The subsidies are offered to either the employees or employers on the condition that they maintain the job in a public or private enterprise for a period of time (often not less than six months).

3. Programmes Promoting and Protecting Human Capital

Conditional cash transfers (CCTs) have become increasingly popular instruments of human capital interventions. The first wave of CCTs began in Latin America where many such programmes have shown encouraging results in increasing consumption, attention to health care, and school enrolment. The CCT model has now spread to other countries in Africa and Asia. They have two explicit goals: to reduce current poverty and to promote investments by the poor in their human capital in order to increase the standards of living in the future. To encourage investments in education, they require that households enrol their children in school and that the children attend a majority of classes.

Similarly, health and education fee waiver programmes aim to encourage the use of educational and health services so that the poor households (who might not be able to afford them otherwise) could maintain an acceptable standard of living. They often subsidise a part or the total of the costs of these services either directly to the beneficiaries (in the form of vouchers) or to the service providers to recover their costs. The two main types of these programmes are fee waivers for health care and fee waivers and scholarships for schooling. Health care fee waivers may include the cost of services, drugs, and at times transportation to health centres. Fee waivers for schooling or scholarships may include tuition, stipends, and/or school-related materials such as textbooks and uniforms. There also can be conditional in-kind transfers such as school feeding and take-home rations to encourage students to attend classes.

Source: Adapted from World Bank 2011, pp.93–94.

Assisting the ultra-poor

Poverty and exclusion in rural communities, as multidimensional phenomena, call for multifaceted interventions. One example of a multidimensional social-assistance programme is the "Challenging the Frontiers of Poverty Reduction -Targeting the Ultra Poor" (TUP) programme of BRAC, a large Bangladesh NGO. This was launched in 2002, recognising that many common interventions including microcredit were not reaching or helping the poorest people in rural Bangladesh. The TUP programme combines asset transfers (grants rather loans) linked to livelihood skills training, health promotion and other social programmes with potentially transformative effects (Rabbani: 2006; also see Chapter 2).

Health and safety of workers

ILO estimates that up to 170,000 agricultural workers are killed each year and millions are seriously injured in accidents involving agricultural machinery, pesticides and other agrochemicals. The risk of serious injury is compounded by the absence of information about safe work regulations and practices for rural workers and lack of knowledge and information about the dangers and risks. Poor living and working conditions for the most vulnerable groups are compounded by endemic diseases. They cause poor health, reduced work capacity, low productivity and shortened life expectancy of rural workers. Protecting rural workers from hazards in work place must be an important element of social protection. An approach that relies on community participation and network is illustrated by the Work Improvement for Neighbourhood Development (WIND) methodology described in Box 5.2 (also see ILO: 2001; ILO: 2008).

There is no single blueprint for social protection and application of safety nets. No one instrument can provide a magic bullet. The options are diverse and policy-makers have choices, as seen above. Policies, objectives and a combination of programme actions need to be designed by focusing on dominant problems and feasibility of effective implementation. Regional patterns can be observed regarding dominant problems and feasibility of effective implementation. There are regional patterns which have evolved over time which provide useful lessons about options and their efficacy in different contexts. In Latin America the emphasis has been on support to human capital building through conditional cash transfers and social pensions. In South Asia and Africa, the focus is on more immediate vulnerabilities of people through a variety of social protection interventions aiming at food security of households and a minimum income protection through public works (Hickey: 2007).

With the availability of different intervention instruments, getting the combinations and sequencing right (such as, combining household transfers with actions to enhance skills and capacity) is important. This requires good information and understanding about the state of poverty and vulnerability. Consensus building through social dialogue is also necessary to improve effectiveness of initiatives. The politics of social protection that defines conflicting interests and perceptions of stakeholders cannot, therefore, be ignored in considering policy choices. In Africa and South Asia, the focus on food and income protection indicates that there are strong linkages between social protection policies and wider policies, particularly in respect of agricultural development. This current focus also suggests neglect and, therefore, a potential for linking social protection more closely with longer term capacity and skills development as seen in Latin America (ILO: 2008, pp.81–83).

Role of microcredit and social business

Microcredit

Microcredit refers to very small loans given to poor people

Box 5.2 The WIND Methodology

The Work Improvement for Neighbourhood Development (WIND) methodology offers a community-based approach to improving the safety, health and working and living conditions of small farmers and rural workers. It is intended to help families adopt simple, low-cost and sustainable improvements to the quality of working life. Special attention is given to health and working conditions of women.

Since its inception in Vietnam, WIND is gaining popularity in a number of countries in Africa, Asia and Central America. It aims to be adaptable to local needs to support local economic development initiatives. WIND attempts to establish practical links between health protection, poverty reduction and community development. It enables discussions among participants on common concerns such as conditions of work and life, protection of children, increased production level and quality of products leading to possible increases in family income.

Source: ILO: 2008, Box 5.3.

to help them start an economic activity that can provide gainful employment and an income to the creditor. Thus, if the activity is sufficiently profitable, it lifts the creditor out of poverty. Poor people do not often have steady employment, lack collateral for a loan and do not have a credit history. They, therefore, do not qualify for credit from the regular financial institutions. They could depend only on usurious moneylenders, if they had to take a loan, and sink deeper into poverty. Microcredit institutions fill the gap between private moneylenders and commercial banks by offering small collateral-free loans to the poor, the large majority of whom are poor rural women; thus generating employment and income for them. Equally significant is the spurring of entrepreneurship, change in gender attitudes and expansion of choices in life for poor people (Yunus: 2003).

The financial innovation in its modern form was initiated in the 1970s by Muhammad Yunus with the development of the Grameen (rural) Bank model in Bangladesh. The model has now spread worldwide. Yunus and Grameen Bank were jointly awarded the Nobel Peace Prize in 2006 for the innovation that made it possible to extend credit to the poor.

According to the report of the Microcredit Summit Campaign, by the end of 2010, the number of microcredit borrowers worldwide surpassed 205 million of whom 137.5 million were active current borrowers (82 percent women) through more than 3,600 lending institutions. The goal of the Campaign is two-fold:

- To reach 175 million of the world's poorest families, especially the women of those families, with credit for self-employment and other financial and business services by the end of 2015; and
- To reach a count of 100 million families who would rise above the US$ 1.25 a day threshold, adjusted for purchasing power parity, for the period 1990 to 2015.

According to the Campaign reports, during the past two decades (1990–2008), almost 2 million microfinance households in Bangladesh, including nearly 10 million family members, had moved above the US$ 1.25 a day threshold. Similarly in India, on a net basis, nearly 9 million households involved in microfinance, including approximately 45 million family members, rose above the US$ 1.25 a day threshold between 1990 and 2010.

Extrapolation from the current level of participation suggests that the first goal of attaining 175 million microcredit participants will be met and surpassed by 2015. Bangladesh and India counted for over half of the total number of microfinance clients reported to the Campaign in 2011. The trend and projection from numbers of microcredit clients who have moved above the benchmark of US$ 1.25 a day indicate that the second goal is unlikely to be attained by 2015 (Maes and Reed: 2012).

Economist Siddiq Osmani argued that the proportion of rural people in poverty in Bangladesh would have been four percent higher than what it is today, if microcredit had not existed. Osmani said, "Other factors such as employment opportunities and education are more important. Clearly, there is much more to poverty reduction than microcredit, but there is a role for microcredit as well, especially for the poor" (Osmani: 2011).

The key lesson from microcredit experience is that it provides a critical ingredient for poverty reduction by allowing poor people, especially women, access to credit. However, the goal of lifting poor families sustainably above the poverty line can happen on a substantial scale when access to microcredit is complemented by skills and capacity development and basic services such as health care.

Social business

The concept of social business, which is gaining acceptance as a way of combining entrepreneurship and altruistic spirit of people, can be regarded as an important complement to microcredit in the arsenal of fighting poverty, creating employment and income opportunities, while meeting specific social needs.

Social business is an innovative business model which promotes the idea of doing business in order to address a social problem, and not to maximise profit. As the title suggests, the aim is to provide a complement to the traditional capitalist business model to serve the most pressing social problems, especially fighting poverty. A social

business creates employment, good working conditions, and addresses specific social ills such as lack of education, health care and good nutrition.

In simple terms, a social business is a no-loss, no-dividend company dedicated entirely to achieving a social goal. In social business, the investor gets his investment money back over time, but does not receive dividend beyond that amount. The Grameen Bank is a prime example of social business, with the Grameen borrowers themselves being its shareholders. A social business can also be a profit-making enterprise, as long as it is owned collectively by the poor for their benefit and profit maximisation does not undermine social objectives (Yunus: 2010).

The seven principles of social business, as articulated by its proponents, are :

- The business objective will be to overcome poverty, or one or more problems (such as education, health, technology access and environment) which threaten people and society; not profit maximisation;
- Financial and economic sustainability have to be ensured;
- Investors get back their investment amount only. No dividend is given beyond investment money;
- When investment amount is paid back, company profit stays with the company for expansion and improvement of the business;
- The business must be environmentally conscious;
- Workforce gets market wage with better working conditions; and
- It has to be done with joy (Yunus: 2010).

A creative combination of microcredit, as well as capital from the financial market, especially for small- and medium-size enterprises, and social business enterprises is emerging in many parts of the world. Social needs, especially of the disadvantaged people, in such areas as health care, education, renewable energy, waste management, food and nutrition, housing, and water and sanitation, are the concerns of social businesses. They are demonstrating ways of creating employment and generating income for rural people while introducing new technologies and mobilising people's energy and creativity to address critical needs of society. Grameen Shakti (village strength/power) is an example of how solar power can be brought to rural households in Bangladesh described in Box 5.3.

5.2 Priorities in Education and Skills Development for Rural Transformation

The proportion of population under 25 years in total population in the developing countries averages at around 50 percent. In some Sub-Saharan African countries, (Niger, Uganda, Burkina Faso, Congo Zambia, Malawi, Chad Somalia and Tanzania) more than 60 percent of the population is under 25 years of age (UN: 2008). In human life cycle, childhood, adolescence and early youth are the stages when people acquire knowledge and skills and develop capacities that prepare them for the world of work and for roles and responsibilities as citizens, members of their communities, members of their families and fulfilment as a person. The learning process turns the population into human resources and can permit the rural areas of developing countries to enjoy the benefits of the demographic dividend—the premium from a youthful workforce and relatively low dependency ratio of post-working age population.

Box 5.3 Using Solar Power to Transform Bangladeshi Villages

For a country where only 40 percent of the population can access electricity from the grid, the possibilities offered by solar power are many. Grameen Shakti, a non-profit organisation tied to the microcredit agency Grameen Bank, spearheaded a solar panel adoption programme in rural Bangladesh that allows villagers to purchase subsidised solar panel systems on microcredit. Shifting their reliance from an overburdened, unpredictable national grid to a decentralized solar system has opened up to 2.5 million Bangladeshis the ability to keep shops open later, adopt formerly unattainable communications methods (especially mobile phone) and create countless job opportunities, just to name a few.

The solar panel programme started in the late 1990s, though it didn't take off until 2003. Subsidised by the World Bank and following an installation scheme run by the state-owned Infrastructure and Development Company Limited, the solar systems can cost from 9,500 taka ($135) to 68,000 taka ($970), depending on capacity. Prices are poised to fall, following reduction of import barriers and tariffs by the government for solar panel imports and further development of technology and economies of scale. In a period of about five years, 250,000 rural homes have become beneficiaries of solar power in Bangladesh.

Source: Posted by Connie Zheng on 18 August 2009. http://www.getsolar.com/blog/grameen-shakti-solar-power-transform-bangladeshi-villages/2087/

The potentially virtuous outcomes depend on what is done to overcome the neglect of the education and skills development provisions for rural people. The needs consist of various stages and types ranging from early childhood development and basic education, secondary and tertiary general education, vocational and technical skills development and lifelong learning opportunities.

Basic education

There is no dispute that literacy and basic education programmes which are designed keeping in view the needs and circumstances of learners contribute significantly towards improving people's life prospects and standard of living (see Chapter 2).

FAO and UNESCO initiated in 2002 the Education for Rural People (ERP) partnership (http://www.fao.org/erp/) which is one of the initiatives under the auspices of the United Nations Commission for Sustainable Development. ERP is a network of about 390 partners including governments, international agencies, civil society, the media and the private sector.

The ERP partnership aims to contribute to removing the urban–rural knowledge and education gap that prevents poor people from using their capacity. ERP works through the identification of political, institutional, organisational and individual opportunities and constraints that poor people face in accessing education and training services at all levels of education in both formal and non-formal settings. ERP seeks to empower the rural poor to become fully integrated actors of the development process by promoting collaboration among the education, agriculture and rural development sectors to ensure education and skills training to all rural people. A review of ERP experience reported in the book, *Education for rural people: The role of education, training and capacity development in poverty reduction and food security* presents a synthesis of lessons learned since the launch of the ERP partnership (Acker and Gasperini: 2009).

The modalities of formal, non-formal and informal learning have to be used in a pragmatic combination, all contributing to building a structure of life-long learning to meet diverse learning needs of people of all ages. With some creativity and imagination, in many instances, education and skill development can be designed in ways that link learning with other development activities (health, food security, agricultural production, etc.) so that learners can put their knowledge and skills to immediate use. The FAO-UNESCO Education for Rural People partnership project has emphasised priority areas of action to expand the provision of basic education with greater equity and improved quality, as indicated below.

Constructing more primary schools and classrooms in rural areas where facilities are still not within a reasonable distance from children's home.

- Making primary education compulsory and universal effectively: even though the law and the obligations have been stated officially, in many instances the measures to enforce the law and create the conditions for doing so are lacking, even though this is a prerequisite for achieving EFA.
- Increasing school enrolment and completion of basic education of girls: progress has been made in respect of initial enrolment, though even this is a significant problem in many countries; but dropout and the failure to complete the stage with acceptable learning achievement, thus leading to "silent exclusion" are serious and not fully quantified problems in many more countries.
- School-feeding programmes: a full school day with the child alert and engaged in learning requires a mid-day meal, as has been demonstrated in many countries.
- Early childhood development and preschool programme: which is essential to ensure that the child is physically and mentally ready to learn and participate in school, especially for children affected by socio-economic disadvantages.
- Working children: extreme poverty forcing children to engage in child labour, is a major obstacle to these children's participation in education in both urban slums and in rural areas; alternative and flexible approaches are required to address this situation.
- Illiterate adults and parents: a problem in itself, but also a serious hurdle to children's basic education when illiterate parents cannot provide the supportive environment and guidance to their children.

- Remote rural people: geographical and communication barriers often coincide with ecological and economic disadvantage, leading to poor or non-existent basic services, unless special steps and strategies are adopted to reach out to the un-served people.
- Nomadic peoples: educational services for itinerant people, not living in a settled community, but mostly dependent on rural habitat and livelihood, need educational services, which have to be adapted in delivery and content for their special circumstances.
- Refugees and internally displaced people: conflicts and emergencies of different kinds affect significant numbers in many parts of the world; the phases of emergencies, rehabilitation and restoration of a more normal conditions place special demands on educational services.
- Children and adults with disabilities: a significant proportion of the population need to be identified and their circumstances and characteristics assessed, who need special services which are preferably offered within the mainstream system, or when necessary, through special provisions (http://www.fao.org/erp/; also see Lakin and Gasperini: 2003, pp.77–174).

Secondary and post-primary education

As primary education becomes universal, the urgency has increased for meeting the expanding demand for secondary education, especially in the rural areas. In gross terms, 40 percent of the children in developing countries did not enrol in secondary schools in mid-2000s. These proportions are about 70 percent in Sub-Saharan Africa and over 50 percent in South Asia. (UNESCO-GMR: 2010). The statistics do not provide a precise rural–urban breakdown, but there is little doubt that the excluded children are overwhelmingly from the rural areas, given the general disparities in provisions especially at the post-primary level.

The trend that has been common in the developing world of somewhat restrictive entry into general secondary education programmes and early streaming into vocational and technical education tracks is beginning to give way to more widely accessible general secondary education. The Delors' Commission on Education for the 21st century said:

> .... secondary education should be the time when common core elements (language, science, general knowledge) should be enriched and brought up to date, so as to reflect the increasing globalisation phenomena, the need for intercultural and the same to use of science to foster sustainable human development. In other words, greater attention has to be paid to quality and to preparation for life in a rapidly changing, often technology dominated world (Delors *et al.*: 1996, p.126).

It is now widely accepted that general primary and secondary education is the foundation upon which young people, whether they live in cities or rural villages, will build their livelihoods and acquire the vocational and technical knowledge and skills that they need to take advantage of the new opportunities. As the UNESCO-INRULED report put it:

> The fast-changing dynamics of rural–urban interaction and the long shadow of the global market that touched some of the remotest villages generated demands for flexible and adaptable skills and opportunities for their renewal even in the rural communities. Technical and vocational education (TVE) has to be seen in the perspective of lifelong learning continuum and has to be responsive to both formal and informal economic sectors (UNESCO-INRULED: 2003, p.21).

Quality general secondary education is necessary to equip rural youth with generic skills and competencies essential for taking advantage of job-specific vocational and technical training opportunities in a changing and globalising labour market. It is also necessary not to foreclose for rural youth the possibilities of further education, seeking opportunities in urban and peri-urban labour market, or venturing into entrepreneurship.

Should rural high schools be different from those in cities in respect of the curricular content and learning objectives? As argued above, in an environment of dynamic change of rural and urban areas and the inexorable trend of urbanisation, there is no justification from an educational point of view, and repugnant on social justice grounds, to deliberately limit the life chances and livelihood opportunities for young people in rural areas.

Good pedagogy, however, attempts to relate learning experience and methods to life and the environment of the learner. An example is provided in Thailand where the secondary school and the farmers' field school for adult farmers were linked up. The Farmer Field School curriculum, designed for adult farmers focusing on integrated management of the eco-system and control of pests (see below), was adapted to fit the requirements of grade 6 children within a school environment. Students learned to work in teams to observe field ecology, collect and analyse data and other information and make informed decisions to manage the plots of land they were assigned. Both students and teachers enjoyed the complex learning experience presented in the rice eco-systems compared to the traditional rote memorisation of textbooks. Community members were invited to participate in field days or student exhibitions as part of the school work. High schools, agricultural colleges and non-formal education centres in more than 40 provinces in Thailand worked together to bring the secondary school and the farmers' field school together to mutual benefit (Atchoarena and Gasperini: 2003, pp.288–289).

It is a question, as discussed in Chapter 2, of a pragmatic balance between general and generic competencies for young people through post-basic general education and different levels of specialised technical and occupational skills separately or in combination with general education.

Vocational and technical education

The general problems of vocational and technical education, how it builds on, relates to and complement general primary and secondary education, have been discussed in Chapter 2. The discourse on TVET is dominated by the formal economy and formal and institutional training, largely neglecting the informal skills and training needs for the informal economy and the rural economy, even though up to 90 percent of the working people depend for their livelihood on the combination of informal and rural economy. The informal economic activities and employment opportunities are the mainstay for the growing population in the urban slums. However, informal economy and rural employment and economic activities, centred on farming and off-farm activities overlap to a greater degree in the rural areas.

The special features of the rural economy, characterised by informality and a workforce with relatively low level of formal education attainment, call for approaches that are geared to rural circumstances. An effective approach to meeting skills needs of practicing farmers through what has come to be known as the Farmer Field School, advocated by FAO, has been adopted in several developing countries (see Box 5.4).

Box 5.4 Farmer Schools—Philippines

Major advances in farming technologies and the globalisation of agricultural markets offer promising opportunities for improving the quality of life of farmers in developing countries. The field school approach, as pioneered by FAO, is a way to introduce farmers to discover basic learning for dealing with pest management issues, in particular and crop management concerns in general. The field school is regarded as best suited for introducing knowledge-intensive technologies—such as Integrated Pest Management (IPM)—to farmers who have little, if any, formal schooling.

The field school is the main national extension approach used to enhance farmers' IPM knowledge and skills in crop production. The Farmer Field School (FFS) is a season-long training of farmers involving participatory activities, hands-on analysis and decision-making. A typical school consists of a class with 25–30 farmers who undergo a season-long (a half day meeting each week over a 10-week period) experiential group learning programme focused on the crop and pest issues that they are likely to be confronted with.

The majority of the field schools in the Philippines are government run and financed. In order to diffuse FFS-acquired knowledge more rapidly, all FFS graduates are encouraged to share their knowledge and learning experiences with other farmers within their barangays (village) and elsewhere. FFS thus can become a cost-effective and viable approach to agricultural extension on a large scale. The IPM project has been widely, rapidly and efficiently spread throughout the country. Besides farmers, the experience also produced positive impacts on school education.

Source: Rola, Quizon and Jamias, 2002.

Effective techniques for off-farm skills development for young people in rural areas continue to be a major challenge. Brazil, a pioneer in organised apprenticeship as a major skills development method, has also developed and applied widely an apprenticeship programme for the rural areas known as SENAR, which has broad relevance in developing countries (see Box 5.5).

Does SENAR make a contribution to addressing the serious challenges of rural poverty, inequity and low level of education in rural areas? In fact some critics argue that the programme emphasises "how to" aspects of work and ignores the educational goal of "conscientisation" advocated by the Brazilian educator Paulo Freire. It thus reinforces the

Box 5.5 Responses to Training Needs in Rural Brazil

The first vocational education and training agency in Brazil, the National System of Industrial Apprenticeship (SENAI), was founded during the Second World War, in 1942, funded by a compulsory payroll tax on employers. This successful experience led the commerce and services sector to establish on the same basis the Sistema Nacional de Aprendizagem Comercial (National System of Commercial Apprenticeship—SENAC) in 1946.

Several similar institutions spread in Latin America, such as in Argentina, Chile, Colombia and Peru, but nowhere a similar system was put into place for the rural sector, until SENAR (National System of Rural Apprenticeship) was introduced in Brazil in 1993. The Confederação Nacionalda Agricultura (National Agricultural Confederation), an employers' association, was given responsibility for organising and managing it. Its funding followed the traditional model in Brazil, having as its main source a 2.5 percent payroll tax.

SENAR's mandate is to (i) organise, manage and perform rural occupational training and social promotion of rural workers in the national (federally administered) territory; (ii) support employers' entities in organising and elaborating training programmes at their own workplace; (iii) establish and diffuse rural vocational training and social promotion methodologies; (iv) co-ordinate, supervise and control rural occupational training and social promotion programmes and projects; and (v) support the Federal Government in issues regarding rural occupational training and social promotion.

The new system is distinct from the other Brazilian training agencies on at least six different points:

- A "lighter" managerial structure, requiring much less personnel and facilities;
- A consolidated partnership with a wide variety of governmental and non-governmental organisations, as employer associations, rural labour unions, co-operatives and other associations in general;
- A balanced decision-making combining decentralization—27 regional administrations, one for each state and one for the Federal District—with a central administration in Brasília;
- A formula combining, within the same organisation, vocational training and social promotion;
- A diversification of funding sources, through contractual agreements with partners, including the Ministry of Labour and by implementing activities of the National Plan of Workers' Qualification (PLANFOR); and
- A high degree of organisational flexibility in order to be able to adapt quickly to variations in resource availability and labour market needs.

Vocational training in the rural area has specific features. Contrary to the urban sector, workers have lower levels of general education, they can seldom leave their workplace, population is highly scattered and the employers are not conscious enough of the educational contribution to increase productivity. In response to these difficulties, SENAR tries to go where the trainees are, reducing transportation, facilities and logistics costs.

In an effort to minimise the fixed costs, SENAR often rents space for its administration, uses workplaces or other facilities to develop activities, maintains a very small number of permanent personnel and hires temporary personnel or organisations to offer its services. In the context of rural societies, one of the most successful features of SENAR's experience is the integration of occupational training and socio-cultural activities involving participants and communities. Work life is related to general education, health education and other fields of activities relevant to human resource development, requiring a holistic perspective. Adapting to contemporary demands, SENAR attempted to find new solutions and developed innovations.

Source: Adapted from Atchoarena and Gasperini: 2003, pp.289–303.

existing structure of injustice. They also argue that instead of all the funds raised from payroll tax being managed by the employers' organisations, at least a half should be used by the workers' unions.

These critiques have merit. Nonetheless, SENAR has offered a creative solution for combining occupational education and training and social promotion of rural workers. It represents a major state-supported effort to address rural skills development. The flexibility in management and innovative features of SENAR have imbued it with private sector responsiveness and entrepreneurship. In line with the Brazilian tax system tradition, formulae have been applied to resource distribution in order to compensate for regional differences. SENAR programmes and partnerships have been directed particularly towards preparing workers and small and medium-sized producers to improve productivity and expand output. This emphasis has resulted in helping relatively more workers to improve their employment chances and income prospects (Gomes: 2003).

The need for breaking away from livelihood dependence on farming, opening the door for new opportunities for rural youth, and increasing their chances for transition to tertiary education have appropriately resulted in attention to the development of primary and general secondary education. In this process, arguably, the need to improve the labour market relevance of vocational education and training in the rural economy has received inadequate attention; and tension has arisen in striking a balance between developing generic competencies and occupation-related skills development that does not unjustly limit life prospects for young people in rural areas.

Tertiary education from a rural perspective

The crisis in higher education in general has been discussed and debated in national and international settings and ideas and suggestions for change abound. Higher education institutions in most developing countries need a clear mission and well-designed academic programmes. Essential to their success are high-quality faculty, committed and well-prepared students, and adequate resources. Despite some notable exceptions, higher education institutions in developing countries suffer serious deficiencies in all these areas (World Bank: 2000).

Higher agricultural education (HAE) is seen most directly relevant to the rural economy and rural development. HAE, as part of higher education can be located in agricultural universities or colleges and departments of agriculture in the general university; or diploma-granting institutes or polytechnics. They offer short-term courses that prepare technicians for entry level work with the public or private sector, in-service training programmes for extension staff, farmer training of short duration, adult training and young farmer education and training. The broader field of tertiary education, however, has generally failed to adapt the educational content and objectives and management structures to education and services required by a changing rural economy and the broader process of rural transformation (Atchaorena and Gasperini: 2003, Chapter 5; also see Chapter 2).

Constraints and deficiencies identified with higher agricultural education include:

- The combination of lower investment and support has contributed to a qualitative decline in many agricultural education and training systems; and teaching and research standards have dropped;
- Political interference prevents rationalisation of undergraduate and trainee intake, leading to overcrowding, decreasing per capita funding support, and low staff morale;
- Agricultural education has tended to become isolated from mainstream academia; curricula do not keep pace with changes in the sector and employer expectations; unemployment of graduates, especially at tertiary level, is high;
- There is a change in the profile of students' backgrounds from mostly rural to increasingly urban; but programmes do not attract the highest achievers from secondary streams; and information technology is underutilised (Atchaorena and Gasperini: 2003).

Given the multiple dimensions of rural transformation and the broad range of knowledge, research and capacity building needs for this purpose, the contribution of higher education in this respect cannot be confined to HAE alone. Universities are well positioned to use their resources to assist the public and private sectors to develop strategies to address the problems of rural development. These resources include a range of educational programmes which contribute to the development of the country's human and physical capital. Universities are also in a position to coordinate and support research that improves the understanding of economic and community development issues, problems and opportunities.

Universities and higher education institutions can provide technical assistance to business and community groups. In principle, one can almost always find the needed expertise on any subject at one or another institution in the country. The variety of roles that universities and other institutions of higher learning including higher agricultural institutions can play includes:

- Education: Academic programmes that are relevant to present and emerging needs of higher level professional and technical personnel for rural transformation, including the teachers and trainers of middle level institutions, who absorb a large proportion of the higher education graduates.
- Research and extension services: Undertaking research on current trends, issues and challenges in rural development; providing agricultural extension services to farmers; need-based information services related to skill development, vocational training, employment, entrepreneurship, marketing of rural products and value-added services such as identification of user groups, innovators and entrepreneurs in various functional areas.
- Training: Contributing to design and implementation of capacity building and leadership development for middle level institutions, promotion of new livelihoods patterns and supporting vocational and entrepreneurship skills development.

- Technical assistance: Designing curriculum and learning content of middle-level institutions that are need-based and demand-driven; assisting local governments, industry councils and workers' organisations in such areas as establishing quality criteria and standards; assessment, monitoring and evaluation of skills development; assessing market demands and emerging trends; social protection and safety nets.
- Technology development: Identification and propagation of indigenous/local technologies; technology transfer, improvement of rural products through intermediate technologies, etc.

Universities can create partnerships between educational institutions and collaborations with stakeholders such as the department of agriculture, the agricultural research council and farmers' organisations. These collaborations can focus on practical engagement in action research. However, complementing, and in many cases, re-designing traditional approaches to agricultural research and development with integrated multi disciplinary, participatory approaches and methods is crucial in this process.

Lifelong learning and building the learning society/community

The concept of lifelong learning, leading to the creation of a "learning society" has been visualised and written about for several decades now. The UNESCO-appointed Faure Committee in 1972 in its report "Learning to be" had made a passionate plea to nations to reorganise their education systems so that all agencies within society become providers of education and all citizens engage in learning take full advantage of the opportunities provided by the learning society. Further impetus was provided in 1996 by the Delors' report on education for the 21st century "Learning: the treasure within." It laid strong emphasis on renewal of knowledge, skills and learning throughout life in order to act creatively in and on one's own environment, work in teams and face rapid social change.

In 1997, the Fifth International Conference on Adult Learning and Education (CONFINTEA V), proclaimed a strong commitment to a new vision for adult learning, making it a central element of lifelong learning. CONFINTEA VI in 2009 declares that lifelong learning "from cradle to grave" is a philosophy, a conceptual framework and an organising principle of all forms of education, based on inclusive, emancipatory, humanistic and democratic values. Adult learning and education, as the central component of lifelong learning, "are also an imperative for the achievement of equity and inclusion, for alleviating poverty and for building equitable, tolerant, sustainable and knowledge-based societies" (UNESCO: 2010, p.2).

As discussed in Chapter 2, addressing the learning needs of the members of the rural community involves the entire gamut of educational services, for which the community learning centre (CLC) is being used in many countries as the institutional mechanism (see Box 5.6).

Box 5.6 Community Learning Centres—a Vehicle for Lifelong Learning and Building Blocks for A Learning Society

UNESCO APPEAL (Asia-Pacific Programme for Education for All) defines CLCs as "local institutions outside the formal education system for villages or urban areas usually set up and managed by local people to provide various learning opportunities for community development and improvement of people's quality of life". Through active community participation CLCs are adapted to the needs of all people in the community. The CLC is often located in a simple building. Its programmes and functions are flexible. The main beneficiaries of a CLC are people with few opportunities for education, especially pre-school children, out-of-school children, women, youth, and the elderly.

CLCs are seen as a model for community development and lifelong learning. They operate in the following countries: Bangladesh, Bhutan, Cambodia, China, India, Indonesia, Iran, Lao PDR, Malaysia, Mongolia, Myanmar, Nepal, Pakistan, Papua New Guinea, Philippines, Thailand, Uzbekistan and Vietnam. CLCs adopt different characteristics in each country. Partners include governments, ministries, national and international NGOs, UN Agencies (such as UNICEF and UNDP) and the Asia/Pacific Cultural Centre for UNESCO (ACCU).

Source: APPEAL and ACCU websites, cited in Ahmed: 2009.

In short, multipurpose community learning centres with community ownership can be an effective base for offering relevant training and knowledge dissemination and for link-up with ancillary support. These, brought together into national or regional networks for technical support, can be a vehicle for education and learning opportunities which have an impact on poverty, and also become the building blocks for lifelong learning in the learning society (Ahmed: 2009).

Turning relevant skills into productive jobs

That skills are at the core of improving individuals' employment prospects, increasing productivity and growth in rural areas and enhancing workers' income is a basic premise underlying this report. But skills do not automatically or necessarily turn into gainful employment. The probing of the issues of skills development cannot ignore how skills lead to or may not lead to jobs. Insufficient demand for workers as well as mismatches between skills and available jobs while jobs remain unfilled are persistent problems manifested in high unemployment rates, especially among young people.

The mismatches between skills and jobs arise from many causes. From an employer's point of view, the would-be worker may be seen inadequately equipped in skills for the job. Education and training may not have provided the skills that employers want. In a situation of oversupply of job-seekers, the employer is not willing to invest in on-the-job training or the costs of doing so may not turn a profit for the employer. The necessary skills for self-employment and low-wage employment, especially in the informal sector, may not be clearly defined and existing skills development programmes and methods may not be well-equipped to offer appropriate and relevant training. Absence of ancillary technology and capital may be a constraint to use of the skills in jobs.

It has been argued, especially in Chapter 2, that economic opportunities and skills demand are changing rapidly in the globalised economy and as countries, including their rural areas move up the value-added chain for products and services. Labour productivity is increasingly dependent on cognitive skills (such as analysis, problem-solving and communication) and behavioural skills (such as discipline, working in team and goal focus). These skills are also necessary for workers to adapt to and benefit from new skills development opportunities.

A conceptual framework that pulls together the elements of a skills development strategy to link skills and jobs can help policy-makers and researchers think through the design of systems to impart skills that enhance productivity and growth. Such a framework—Skills toward Employment and Productivity (STEP)—focuses on five key elements or steps (World Bank: 2010).

Step 1: Getting children off to the right start: Developing the technical, cognitive and behavioural skills conducive to high productivity and flexibility in the work environment through early child development (ECD), and general basic education, primary and secondary, of acceptable quality with equitable access, is a serious problem especially in the rural areas. It is well known that early and right start for children's growth and development yield a high payoff personally and for society.

Step 2: Ensuring that all students learn: Assurance of quality in all education and training programmes is essential so that the expected outcomes in skills and competencies are actually achieved. Learning standards have to be established and applied for students, motivated teachers have to be attracted and performance criteria for teachers have to be used, and adequate resources have to be mobilised to provide the essential quality-enhancing inputs. Governance and management processes have to allow appropriate and a proper regulatory environment. Lessons from research and ground experience strongly support autonomy at the local and institution level with accountability for performance and results.

Step 3: Building job-relevant skills that employers demand: Skill bottlenecks, insufficient skills or skills not-quite-relevant-for-the-job, are constraints to productivity and gainful employment. Overcoming these problems call for designing and offering the right incentives for both pre-employment and on-the-job training programmes, aiming to make them relevant and responsive to the needs of the employment market and trainees.

Step 4: Encouraging entrepreneurship and innovation: This is made difficult by traditional mindsets that stifle creativity and risk-taking. Because country conditions differ, there is no ideal reform package to balance the supply of skills through pre-employment training programmes and the employer demand for skills. The challenge is creating the environment for providers of training to have the incentives to respond to the needs of the labour market.

Step 5: Facilitating labour mobility and job matching: The above steps will matter little if people do not actually find the jobs that match their skills. Even when job-seekers have the "right" skills, if the labour market does not function

reasonably well, growth in employment and productivity will not happen. Employers have to have policies and practices to manage their human resources with the ability to exercise some flexibility that balances the interests of both employers and workers. Workers need to be able to move without many constraints between jobs and locations. Updated information about available jobs and job-seekers and mechanism for sharing and linking these need to be developed and put in place.

The steps for linking skills and jobs are generic problems of the economy and the employment market which also affect rural areas and rural workers. While some efforts have been made and some successes achieved in the organised sectors of employment in the formal economy, there have been few initiatives to adapt and apply these measures in the context of the rural areas and the informal job market.

It has been noted that rural areas are at a disadvantage in respect of general basic and post-basic education which develop the generic competencies for entry into the world of work, either in employment or in occupation-specific skills development. In respect of promoting entrepreneurship and making labour market work better (steps 4 and 5), initiatives are more common in the urban areas and in the formal economy than in relation to the changing dynamics of the rural areas. Experience in general in relation to linking skills and jobs suggests a number of measures which need to be taken, with necessary adaptation for the rural context.

- Labour market information and matching services can work effectively when decentralised management allows regional and local offices to tailor programmes to the local job-seeking and employer communities; the central administration may retain responsibility for mobilising financial and technical resources, setting policy and evaluations.
- Better outcomes can be expected in labour mobility and matching of skills and jobs with expansion of coverage of social protection of workers. This is a special problem area for the rural population, as discussed above. The lack of appropriate income protection systems and social insurance benefits in most developing countries, especially in rural areas, is a disincentive for workers' mobility between jobs.
- Employment information services work effectively when their design allows for providing incentives for both job- seekers and employers to join; integrating employment services with training and competency assessment; decentralising management and expanding the role of the private sector with clear targets; and exploiting information technologies.
- Job-search and placement can be facilitated through skills certification frameworks to recognise individual skills and competencies (step 3 above), keeping in view current and emerging job opportunities in rural areas as well as urban areas in which the rural migrant workers can be absorbed. The skills certification system needs to include or be complemented by mechanisms for the certification or accreditation of training centres and programmes and apprenticeship schemes which cater to rural youth (World Bank: 2010).

Skills and jobs within the sustainable livelihood framework

The linking of skills and jobs does not happen in a vacuum, isolated from all the forces at play in relation to rural transformation. As discussed in Chapter 2, the concept of the sustainable livelihood approach (SLA) points to the bridging that must occur among various key assets to bring about the outcome of poverty reduction and contributing to rural transformation. Skills and capacities of people as human capital is one asset that must be put to work in synergy with other capital assets—physical, social, natural and financial—towards, achieving the defined development objectives.

As noted in Chapter 2, central to the idea of SLA is the range of assets that poor people can or should be able to draw on and bring to bear on their own effort to change their condition. Skills, knowledge and ability constitute human capital. An integrated approach is necessary in making the different assets contribute to the common objectives of turning knowledge and skills into productive work, and improving people's lives.

Livelihood strategies are aimed at achieving livelihood outcomes, thus focusing on the most critical concerns and anxieties of poor people—a guarantee of food and shelter, basic services such as education for children and

health care, and safety and security of life and livelihood. As discussed in Chapter 2 as well as in Chapters 3 and 4, in relation to food security and the green economy, the transforming society—rural, peri-urban and urban—creates demands for new kinds of jobs and old jobs with new profiles. It also generates commensurate needs for skills development. This broader and dynamic perspective of changing jobs, labour markets and skills requirements needs to be kept in view in thinking about and planning labour market interventions and efforts to match skills and jobs.

5.3 Governance Issues in Skills Development and Capacity Building

Good governance is critical for successful efforts in skills and capacity development that can play its role in poverty reduction and rural transformation. Good governance itself is predicated upon building capacities and setting performance standards for the institutions and mechanisms of governance. In the context of rural transformation, flexible and relatively autonomous structures at local levels that adapt to local circumstances, encourage participatory practices and promote accountability and transparency in governance processes are particularly important.

Building institutional capacity

It is generally accepted that strengthening the capacity of both national and local governments and relevant civil society organisations in respect of planning, quality assurance and involvement of stakeholders in local development, including the development of skills and capacities of workers, is particularly important. Sustainability of development efforts is seen as linked to the capacity of local actors to mobilise resources, provide valued services and advocate for and deliver their own programmes (World Bank: 2006). There is solid evidence to affirm that inadequate institutions diminish people's lives and life chances. IFAD's Background Paper (2003) on this subject emphasises:

> Weak, ineffective, corrupt or narrowly based institutions create uncertainty and unfairness, discourage saving and investment, and lower the growth rates. If the rule of law and judicial institutions are seen as ineffective or biased and property rights are insecure, they discourage investment for land improvements. Where markets and systems of exchange and finance are inefficient and unreliable, or captured by narrow groups, they engender distrust and raise the transaction costs of economic activities, which naturally affects poor producers particularly harshly. Not only does this entrench poverty, but it also reduces economic opportunities for all, the better-off as much as the poor (IFAD: 2003, p.36).

The poor suffer from low productivity and poverty, not mainly because they lack skills, but because they do not have the opportunities to raise their productivity and incomes. In such situations, the way to accelerate growth and development is to create the institutional framework that would help harness their underutilised capacity. This means offering them a greater voice in decision-making and better access to assets and the services that can raise the productivity of the assets.

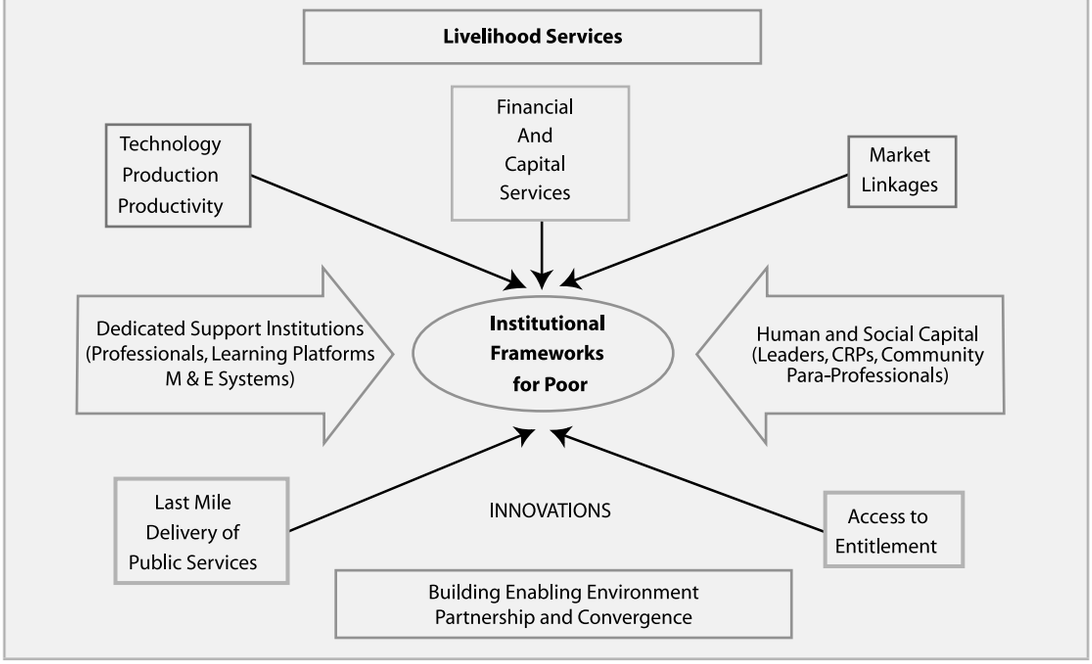
Creating institutions of the poor

Mobilising the poor to create and participate in their own organisations and institutions needs to be nurtured by coordinated support from many sources. Government agencies, NGOs and civil society organisations, local self-governments, banks and corporate sector each has a role to play. With time, as the institutions of the poor grow and mature, their members and empowered leaders take charge and accelerate the processes of change. Thus, the programme for the poor becomes the programme by the poor and of the poor. The challenge is to unleash their innate capabilities to generate meaningful livelihoods, which enable them to come out of poverty.

The first step in this process is motivating the poor people to organise themselves to participate in building up their own human, social, financial and other resources. The social mobilisation process enhances solidarity, voice and bargaining power of the poor. They are better able to pursue viable livelihoods, leveraging their own resources, skills and preferences.

The National Rural Livelihood Mission in India provides an example of the effort to build the institutional mechanisms for the rural poor to become actively engaged in changing their life and livelihood (see Figure 5.1).

Figure 5.1 National Rural Livelihoods Mission – India



Source: India's National Rural Livelihoods Mission, An Overview National Rural Livelihood Mission: 2000, Government of India, p.7.

Increasing participation of stakeholders

Stakeholder participation is a vital ingredient for the success of development efforts. Individuals and communities affected by any development activities should be involved in decision-making from the design stage. Experiences show that projects that employed participatory approaches have a much higher rate of success because of ownership and control of the development process by the stakeholders.

The stakeholders of rural development are often many and diverse—members of the community—men, women and youth; central and local government officials; health workers, teachers and extension workers; national, local and international NGO representatives; representatives of international programme funding agencies, community leaders and others. The rural poor, especially women, ethnic and other minorities, and people with disabilities and special needs often have no presence or no opportunity to voice their views in the stakeholders' forum, even when the development initiative is purported to be for their benefit.

A necessary initial step, therefore, is to raise awareness on the different options for addressing the plight of the rural poor through conducting inclusive dialogue forums involving all community-level stakeholders. The major objective of the dialogue will be to engage in analytical thinking and consultations on understanding and diagnosing the roots of problems and opportunities for practical interventions that lead to transforming changes in the rural economy.

It will be necessary to think of actions that may go beyond traditional sectors. For example, the focus has often been narrowly on agriculture, whereas the fight against hunger and poverty calls for looking more broadly at rural development issues. By improving agricultural productivity, and at the same time, diversifying off-farm activities and providing better access to markets and market information and paying attention to rural infrastructure, the vulnerability of the rural poor to climate variability and related economic challenges can be reduced significantly (World Bank: 2006).

In short, it is time to look at poor smallholder farmers in a new way—as people whose innovation, dynamism and hard work will bring prosperity to their communities and thus transform the rural areas (see Box 5.7).

Box 5.7 Investment Needs of Smallholder Farmers

- Rural areas must become a place where people want to live and do business: there is need to invest in infrastructure, utilities and services, and improve the governance of the rural areas.
- Poor rural people need the skills to manage the multiple risks they face, which often prevent them from taking advantage of economic opportunities. The rural environment must be made less risky, and people must be helped to better manage risk, both in their agricultural production systems and in their broader lives.
- A more productive, sustainable and resilient form of agriculture is knowledge-intensive, requiring smallholder farmers to develop new skills and capacities. Access to education and training must be expanded, and they must be adapted to rural needs and with focus on young people in particular.
- Participating in organisations gives poor rural people power, confidence and security. Support is needed to strengthen collective capacities for reducing risk, managing assets, marketing produce and representing and negotiating interests. And space at the table must be made available for these organisations.

Source: Adapted from IFAD: "Rural Poverty Report 2011," Chapter 7, pp.226–231.

5.4 Skills Development—Roles of Stakeholders

The point has been made that rural transformation is a multi dimensional and inter-sectoral enterprise that calls for partnerships among multiple stakeholders both within and outside government. The government or the public sector at various levels from national to local, private-sector agencies and the end-users at the community and household level need to play their roles in carrying out the activities and programmes related to skills and capacity development for rural change and development. This section presents a brief account of the roles and responsibilities of major stakeholders in skills development for rural transformation.

Government has a role in the broad field of education and training in the creation, funding and management of institutions responsible for the acquisition of knowledge, research, and in its dissemination. Development of the required skills and extension services to farmers and other end-users need to be provided by the government. Government may have a role in facilitating trade relationships with new suppliers of technology or equipment. Major roles of the government, especially at the national or central level are indicated in Table 5.1. Depending on the structure of public administration and governance in the country, some of the responsibilities may be delegated or devolved to state or provincial level and the local government bodies at the district and sub-district level.

A critique of rural development policy and practices is that top-down approaches to development have become "supply-driven" in many countries. A decentralised "demand-driven" strategy can be more responsive to specific demands and potential of each locality. The local government institutions and local community organisations could establish a collaborative partnership in undertaking the responsibility for developing a local "vision" and strategy; and designing/planning, allocating resources, implementing and monitoring of development activities that would better cater to the local needs.

With a demand-driven and decentralised approach, and partnerships of stakeholders and key actors, the role of the central government would be more in the formulation of policies to facilitate the effective functioning of the roles assumed by other actors. With decentralisation, local governments will have to assume greater responsibilities and would become the focal centres for local development. Local governments have to be effectively linked with the national levels as well as with local communities (IFAD: 2007).

Table 5.1 Role and Responsibilities—Government Especially at the National Level

- Setting up priority and policy planning-statistics gathering.
- Providing regulatory framework and enabling environment for stakeholders.
- Devising financing mechanism, reward and promotional framework.
- Building capacity of social partners.
- Setting up of monitoring, evaluation and dissemination of information and reporting to all relevant forums and stakeholders.
- Facilitating international cooperation.
- Setting up of a qualification framework and quality assurance mechanism.
- Setting standards for skills development processes.
- Preparing work plans to meet sector specific skill sets.
- Evaluating skills development initiatives over a five-year cycle by assessing them against strategic objectives.
- Consolidating a skills development quarterly report that reflects the situation at national, regional and local levels.

For an integrated approach to rural development, local communities, where the beneficiaries/actors of development are, should themselves become organised to be actively involved in planning and managing development. To achieve sustainability, the challenge is to facilitate and institutionalise a process through which rural communities themselves would evolve local organisations to satisfy their own local needs (UN: 2009). In most developing countries, local government structures and bodies have been in existence or emerging, which are generally expected to promote and support increased community role and responsibility.

The village panchayat in India and the township and village governments in China are illustrative of the local government bodies that exist in many countries. While the stated intentions and even the legal provisions for setting up the local bodies reflect ideals of authority and responsibility of citizens at the community level, in practice political power relationships, limitations of resources, and technical skills and capacities at the local level have stood as obstacles to local government bodies fulfilling their stated roles and potentials.

Effective utilisation of social capital can be singled out as the key role of local communities in respect of transformative change in rural areas. As a prerequisite for accumulation and the effective mobilisation of social capital, improving and upgrading the human capital is crucial. Developing skills of the individuals in a community enhances the quality and quantity of the output of social capital through collective action of the community.

Rural private sector

The rural private sector includes a whole continuum of economic agents, ranging from subsistence or smallholder farmers, rural wage-earners, livestock herders, small-scale traders and micro-entrepreneurs; to medium-sized, local private operators such as input suppliers, microfinance providers, transporters, agro-processors, commodity brokers and traders; to other, bigger market players that may or may not reside in rural areas, including local or international commodity buyers and sellers, multinational seed or fertiliser companies, commercial banks, agribusiness firms and supermarkets. Associations of farmers, herders, water users or traders also constitute an important part of the private sector (IFAD: 2007).

The private sector already does and can do more in many countries, with supportive policies and incentives, in making the provisions for farm inputs including farm machinery and the associated machinery support services (supply, repair and maintenance of equipment). Building close relationships with the farmers, assessing needs and satisfying demands, while competing with peer companies, are all part of the business venture. In such operational scenarios, the demand for mechanisation is likely to be satisfied and the agricultural productivity enhanced. Operations are best conducted under commercial enterprises requiring adequate investment and offering the opportunity to make profitable commercial returns (ILO: 2007).

Private sector can make significant contributions to education and skills development by improving both the quality of educational output, the relevance of educational programmes to the needs of rural economy as well as expanding the opportunities available. However, there is the need for a supportive framework in the education sector that will encourage private sector participation in improving the standards of education such as setting up and monitoring standards and quality.

There is, also a need for a coordinated and focused response particularly as regards to partnerships and collaboration. With regard to its active participation in the provision of education, the private sector in developing countries can draw on successful experiences from many developing and developed countries across the world. However, this outcome is contingent on measures taken to promote the role of the private sector in policies and plans for economic development in rural areas (see Table 5.2).

Table 5.2 Promoting the Role and Responsibilities of the Rural Private Sector

- Supporting the establishment of viable backward and forward linkages between rural producers and surrounding private markets.
- Supporting private-sector entities (e.g., input suppliers or agro-processors) that can provide commercially viable services and markets for the rural poor.
- Establishing an enabling policy and institutional framework for rural private-sector development.
- Engaging the private sector to bring more benefits and resources to the rural poor.

It is important to note that private sector involvement in education is gaining prominence in Sub-Saharan African countries in terms of philanthropic or community social responsibility (CSR) activities such as companies giving bursaries and scholarships to undergraduate students in different tertiary institutions (UNESCO-GMR: 2011). This is done mainly by large corporate and parastatal organisations. Private companies also support educational institutions through donations of cash, equipment or materials as part of their corporate responsibility.

According to a UN report "Unleashing Entrepreneurship: Making Business Work for the Poor" (UNDP: 2004), there are three main constraints on entrepreneurship and private-sector growth in developing countries: lack of access to finance; lack of access to skills and knowledge; and lack of a level playing field for firms competing in the domestic market.

Stimulating the positive role of the private sector in rural economies to the benefit of the poor requires efforts to remove the various obstacles that rural people face. It is also necessary to create the conditions that can facilitate fair market relations among the various players in partnership with the public sector, other donors, NGOs and relevant private organisations.

It is worth noting that a hybrid category that combines the features of the private sector and NGOs, in the form social business and social enterprise, has been gaining prominence, as discussed earlier in this chapter. They play many of the roles expected of the private sector with the added advantage of being focused on the needs of the poor and the disadvantaged segments of society. Social enterprises and social businesses are likely to emerge as important actors in skills development and capacity building for rural transformation.

Community organisations

Community institutions, including, cooperatives, farmers'/people's companies, farmers' organisations, other types of people's associations, such as credit unions, savings societies, educational institutions and clubs merit being considered as a separate category described as local community organisations.

With decentralisation, local communities are expected to assume greater responsibility for community development. Community organisations/institutions are becoming the pivotal instruments responsible for managing community development, which include the assessment of community needs/demands as well as the potential. They can look at availability of resources internally and externally for planning and implementing development activities. These may relate to maintaining information systems, providing goods and services, developing and maintaining rural infrastructure and interacting effectively with local governments. The community organisations also need to play a role in developing partnerships and sharing responsibilities, managing conflicts, and monitoring and evaluating community development (see Table 5.3).

Table 5.3 Role and Responsibilities—Community Organisations

- Administering and monitoring programmes and activities of stakeholders of rural development.
- Facilitating training of unemployed youth and adults, upgrading the skills of farmers, introduction of new technologies.
- Raising awareness of literacy training (National Literacy Campaigns), promoting the introduction and use of appropriate technology for the rural community, help organising short-term farming and vocational training and establishing Community Learning Centres (CLCs).
- Organising income generating and skills training programmes for illiterate individuals, individuals with some schooling and drop-outs of the formal education system.

As mentioned above, effective utilisation of social capital is a key role of local communities in rural development. Major factors that contribute to "demand" for utilising social capital in rural development include: (i) inadequate capacity and resources of the government, (ii) the growing demand for improved and diversified infrastructure in rural areas, (iii) relative inefficiencies in the government bureaucracies in rural development, including the delivering of support services to the rural sector and (iv) the positive experience and lessons that have been accumulated from local community participation in development.

Many countries have had traditional systems of "participatory" and collective behaviour of rural communities. It is possible to build on such traditions in rural communities. As rural people in many of these countries do not possess the strength, as individuals, to participate actively in a market

economy, strengthening of social capital and collective action should help them cope with the negative impact of and benefit from the process of globalisation (Wijayaratna: 2004).

Community participation and the role of the community, both as organisations/institutions and individuals in rural development, is not something that can be set once for all in a particular pattern. It is an evolutionary and dynamic process and there is a need for institutional mechanisms to coordinate the decisions taken by a large number of individuals. To achieve sustainability, the challenge is to facilitate and institutionalise a process through which rural communities themselves would evolve local organisations to satisfy their own local needs.

Civil society and non-governmental organisations

The civil society organisations (CSOs), when organised effectively, can help the vulnerable sections of society to be empowered, to defend their right and to enhance their quality of life. They can go where the government is not adequately reaching and the areas to which the government has not paid adequate attention. Their role is not to stand as substitute for the government, but to help highlight problems, facilitate the response of the responsible authorities and to help the local people to be aware of rights and entitlements and be self-reliant (Table 5.4).

Table 5.4 Role and Responsibilities—Civil Society and Non-governmental Organisations

Civil Society Organisations (CSOs)

- Organising rural people for self-help and being aware of rights and entitlements.
- Raising awareness about skill development plans and activities among the public.
- Facilitating the implementation of skill development programmes of all stakeholders.
- Assisting the development of competency standards.
- Assisting in course designing, examination and certification.
- Promoting lifelong learning among the public.
- Promoting dignity of labour among the public.
- Sharing experience of learning with others.

Non-Governmental Organisations (NGOs)
National NGOs

- Organising literacy, post-literacy and out-of-school education programmes.
- Organising saving and credit groups.
- Organising income-generating programmes for poor people through skills training.
- Learning materials development and publication.
- Capacity building of local organisations.
- Organising seminars for awareness building among the community people.
- Monitoring grass-roots organisations and service organisations.
- Organising training, seminars, workshops, meetings, etc.
- Undertaking research and evaluation of development programmes.

International NGOs

- Providing funds in the field of education, specially non-formal education, and capacity building of rural disadvantaged groups.
- Support capacity building of local community organisation and civil society bodies for playing their roles effectively in a changing scenario.
- Bringing a perspective of international and comparative experiences and lessons and work in partnership with indigenous organisations and institutions to adapt and apply the lessons.
- Promote solidarity of the disadvantaged and the agenda of human rights, human dignity and development in the context of globalisation and the shared common future of humanity.

NGOs work very closely with rural people and people in urban slums, playing varied roles in capacity building and non-formal education. World Bank has classified NGOs into four categories: (i) charitable service oriented NGOs (ii) participatory NGOs, some with defined group-based membership, aimed at empowering participants (iii) community based organisations serving community development objectives and (iv) international NGOs which work in more than one country (see World Bank Website "World Bank Publications on Civil Society Engagement").

The categories listed indicate varying roles and scope of NGOs' work. They have demonstrated the capacity, much more than the government sectoral services in health, education and other basic services, to design and carry out tailor-made cross-sectoral activities in response to specific needs. Thus rural communities have benefited from education, literacy and skills programmes which have combined knowledge and action about farming, health, hygiene, family planning, environment conservation, formation of savings and credit groups and income generating activities.

NGOs in a large number of developing countries have promoted and supported the concept of community learning centre (CLC).

At the community level, in order to achieve effective and sustainable rural development, the challenge is to facilitate and institutionalise a process through which rural communities themselves would evolve local organisations to satisfy their local needs. NGOs have facilitated institutional development in the communities as illustrated by the work of the Aga Foundation, an international NGO, in the northern tribal areas of Pakistan (see Box 5.8).

NGOs have, in particular, played an important role in raising environmental concerns, developing awareness of environmental issues and promoting sustainable development. The encouragement of public participation in environmental management through legislation in recent years has also enhanced the role of NGOs.

Box 5.8 Aga Khan Foundation and Rural Development

The Aga Khan Foundation is committed to reducing rural poverty, particularly in resource-poor, degraded or remote environments. [Among the tribal people in the northern region of Pakistan], it concentrates on a small number of programmes of significant scale. The model of participatory rural development, it has pioneered, combines a set of common development principles with the flexibility to respond to specific contexts and needs.

Programmes typically link elements such as rural savings and credit, natural resource management, productive infrastructure development, increased agricultural productivity and human skills development with a central concern for community-level participation and decision-making. The ultimate goal is to enable community members to make informed choices from a range of appropriate options for sustainable and equitable development.

A central strategy has been to create or strengthen an institutional structure at the village level through which people can determine priority needs and decide how best to manage common resources in the interests of the community as a whole. Whether broad-based or task-specific, these village organisations also serve to represent the community to the government and to other development partners, including NGOs and the private sector.

Social capital built at the local level provides a supportive environment for enlarging the economic assets of a community and for harnessing individual self-interest to generate income growth in an equitable and sustainable manner.

Assets are typically built through community management of natural resources-water storage, irrigation infrastructure, soil conservation or forestry—or the construction of basic economic infrastructure, such as rural roads or agricultural storage facilities.

Income growth is promoted by increasing agricultural productivity through improved farming methods, input supply, marketing, land development and management reform or by increasing off-farm incomes and supporting enterprise development.

Local capital is mobilised by promoting savings and developing financial services to enable broad access to credit on a sustainable basis.

Training programmes support the effectiveness and sustainability of the village-level institutions by providing the management and technical skills needed to plan, implement and maintain local development activities.

The Foundation is committed to building the knowledge base in rural development through learning, analysing and disseminating lessons learned from field experience. Models it has promoted have already been adapted and replicated by governments and international donors in a wide spectrum of environments and economies.

Source: Adapted from IFAD: "Rural Poverty Report 2011," Chapter 7, pp.226–231.

Information and communication technology (ICT) and media

Advances in ICT have opened new frontiers, not just in delivering learning content in new ways, but also in respect of new economic opportunities and in defining profiles of jobs and skills in every economic sector. In respect of skills development, some of the obvious areas of interest are delivering content in creative ways, reaching new groups of learners at a time and place of their own choice, enriching the teaching and learning process, improving management information and upgrading teaching personnel. The potential, however, is far from being realised in most countries in general and in rural areas in particular. The "digital divide," between the rich and the poor and between urban and rural areas, is a major concern as ICT rapidly advances.

ICT development has tended to increase income inequality for several reasons: (i) it requires relatively good education and special skills to make full use of ICT for socio-economic gains, (ii) ICT infrastructure is more expensive and, therefore, easier to develop in urban areas, thus further broadening the gap between urban and rural access to ICT and (iii) those who developed and widely used ICT applications are mainly from urban areas who could reap benefits from being first in tapping the ICT market in the country.

Notwithstanding the existing inequality bias, ICT has potential to improve the livelihoods of low-income earners by enhancing delivery of socio-economic services, offering them opportunities to increase income and empowering them through participation in decision-making processes. Box 5.9 shows how a small community net has changed the life of tribal rural people in Dhar District of Madhya Pradesh of India.

ICT holds the promise of connecting remote and isolated areas to urban centres at a lower cost than through conventional infrastructure. ICT can bring educational and health services to the rural areas. It can bring information about market conditions to farmers and other rural enterprises. It can improve communication between family members in rural and urban areas and abroad and facilitate remittances. Free-market economic policies remove any favourable treatment of urban areas and industry by governments through subsidies and import tariffs.

Box 5.9 "Gyandoot" Community Network—India

The "Gyandoot" community network, aimed at creating a cost effective, replicable, economically self-reliant model for taking benefits of Information Technology to the rural population, is an intranet network using Wireless in Local Loop (WLL) technology to set up in 5 blocks with 21 kiosks, each catering to about 15–20 villages in tribal Dhar district in Madhya Pradesh. The success is largely due to targeting the information interest of the people: rates of agriculture produce, land record rights, computer training, caste certificates, online public grievance redressal, health services, e-mail, rural education, matrimonial alliances, information on government programmes, information for children, online employment exchange, availability of applications for jobs, local weather report, e-news papers etc. Between January 2000 and June 200l, 68,500 villagers used various services. The most commonly used services were grievance redressals (41%), market rates (25%), and land-records (20%). Interestingly, one out every six users of the network was illiterate with no knowledge of reading or writing. It is a disappointment that only 13 % of users are women.

Source: Samiullah and Rao: 2002.

As a part of global trade liberalisation, industrialised countries will eventually have to open their markets to agricultural products of developing countries leading to benefits for rural entrepreneurs and workers. ICT can help establish the links without being entirely dependent on the intermediaries who often reap the benefits of trade at the cost of the rural producers. Partnership and government leadership are pre-conditions to the success of the promotion of ICT in poor areas. What is required and in most of the cases missing is a national ICT policy that puts poverty reduction at the centre and addresses the inequality bias of ICT development (see Table 5.5).

The communications media can play a significant role in rural development in several ways. Information and knowledge disseminated by media can help rural people find alternative livelihood and economic options, which would reduce the pressure on land and raise a family's economic status. Media can help create demand for goods and services and motivate local initiatives to meet rising demands. Reporting on rural life and agriculture has often been restricted to natural disasters, food shortages, rising food prices and crop failures.

There have been examples of the media playing a role in raising the profile of agriculture, rural economy and rural entrepreneurship amongst the decision-makers and the wider public, and in communicating farmers' needs. Channel I Television in Bangladesh and its popular anchor

Table 5.5 Role and Responsibilities—Information and Communication Technology (ICT) and Media

Information and Communication Technology (ICT)

- Connecting remote and isolated areas to urban centres at a lower cost than through conventional infrastructure.
- Improving access to the information rural people need.
- Enhancing outcomes of "development"—raising awareness, empowering people with relevant information, protecting livelihoods and the environment.
- Providing citizen feedback to government—a check on bureaucratic abuse and corruption, alerting the government to citizen's needs and concerns, and giving citizens a sense of having a voice in society.
- Assisting people in monitoring accountability of development programmes.
- Building the learning society and the learning community—diversifying, enriching and increasing opportunities for ICT-enabled learning.

Media

- Promoting right to information—thus, contributing to citizens' practise of democratic rights and responsibilities.
- Informal learning source for citizens in quality of life, livelihood, rights and entitlements, learning about options and possibilities and exercising choices.
- Helping provide information and create demand for goods and services, encouraging local initiatives to meet rising demands.
- Assisting rural people and community members recognise their own importance in the power structure and act as a stimulus to political participation.
- Community radio—technological development has made it possible to establish local radio stations affordably as a hub of local information, communication and knowledge.

person Shaikh Siraj, for instance, have been effective in presenting problems and successes in agriculture and rural life, attracting attention of national policy-makers and the general public. This success story has prompted other media channels to imitate the example of Channel I and give greater prominence to rural news and features.

Media can help change attitudes about hereditary and achieved social status. In a society dominated by traditional values, like India, with its sharp caste and class differences, media has helped in shifting deference to traditional social position determined by birth to status achieved by acquiring knowledge and demonstrating ability. Media can help bring about greater equality and a greater respect for human dignity and make cultural and social change a self-perpetuating process (Mathur: 2006).

The power of traditional radio and television should not be ignored. Community radio bridges the information/communication gap and facilitates participation of the rural people of specific geographical community, as the mainstream media are not able to provide space for them. Community radio, with leadership and imagination, can support and promote the participatory process of consultation, reflections, discussion, and thus can become a part of wide ranging participatory decision-making.

Community radio in the ideal situation can be a kind of communication tool for negotiation with the outside world for the people, who are not literate, but are able to manage their activities and "microcredit" process and marketing of the products, through oral dialogue and discussions facilitated by the use and management of ICTs at their disposal and control. The combination of ICT, such as rural IT centre and community radio; in linking up with audiences can enhance the strength of both.

Rural extension services can make use of the community radio to reach out to their clients in an interactive way. The partnerships could permit the extension trainees to interact with extension staff with regard to rural entrepreneurship experience, cultivating leadership qualities, diversification into activities other than those solely related to agriculture and linkages to rural development research. The sharing of knowledge, experience and lessons can be in the emerging issues such as:

- analysis and developing strategies to maximise impacts on poverty reduction,
- maintaining productivity in rural areas,
- minimising negative environmental externalities, and
- ensuring a basis for future productivity and improved quality of life.

In the face of competition, rural people in general and farmers and small-scale producers in particular need a variety of information and skills to be able to respond to market signals and constantly evolving markets. These circumstances require extension programmes to be proactive in using the channels of communication to provide diverse, but relevant, services to their clients.

Rural trade unions and cooperatives

A trade (or labour) union is an organisation created and run by workers to protect and promote their livelihoods and labour rights in workplaces. As a democratic organisation created and run by workers, a trade union is expected to protect workers at work; improve the conditions of their work through collective bargaining; seek to better the conditions of their lives; and provide a means of expression for the workers' views on their own well-being and problems of society. Trade unions, rural workers' organisations, agricultural producers' and farmers' associations show a mixed picture in respect of their development, status and effectiveness in rural areas of developing countries. Where they have developed, they have played a significant role in protecting and promoting the interest of farm workers and other rural workers (Table 5.6).

Table 5.6 Role and Responsibilities—Rural Trade Unions

- Raising awareness and knowledge about the rights and entitlements of farm and rural workers.
- Raising awareness about the benefit of training, skill development plans and activities among the workers.
- Promoting skill up-gradation and lifelong learning among the workers.
- Running special skill development institutes for skill development of workers.
- Promoting investment on skill development among the employers.
- Facilitating participation of workers in all relevant skills development activities.
- Assisting the development of competency standards, especially for off-farm skills.
- Facilitating improvement in the status of VET trained graduates.

In developing countries, the potential for trade unions to enter the field of rural development is vast. Integrated programmes could be organised by trade unions to combat illiteracy, non-attendance in schools, ill-health, poverty, poor housing, malnutrition and other barriers that stand in the way of an acceptable level of human existence. The initiative and leadership for such programmes should always be developed by the people themselves, so that patronage and dependency are avoided right from the very inception.

One of the steps that can be taken is to support youth leadership in the village, who can take a variety of responsibilities, such as conducting family and village surveys, collection and analysis of data, selection of priorities in the village development programme, organisation of social groups, learning and using appropriate technological methods and techniques and initiating self-employment programmes. The trade unions can support these youth leaders and play the role of initiator, educator and supporter of village groups.

Trade unions themselves sometimes establish or partner with workers', producers' or consumers' cooperatives. A cooperative is non-profit organisation formed by a group or organisation that owns and controls it for their own benefit. Cooperatives, when established as viable enterprises, secure productive employment and self-employment, and generate income and the payment of decent wages and salaries. Financial cooperatives provide the means for escaping from indebtedness and for effective financial management. Their provision of insurance and services for health and social care, as well as affordable and appropriate housing, and their contribution to food security are clearly major contributions to the alleviation of poverty.

To sum up this discussion of governance and management of skills development to serve the goals of rural transformation, it can be said that governance has to fit the purpose. There is no one template that can be applied, but experience of decades points to principles and general lessons which can guide action (Ahmed: 2009).

The governance and management of skills and capacity development of rural people should be based on partnerships of government-civil society and decentralised enough to make it responsive to local conditions and accountable to learners and the community.

Partnerships of all actors within a common policy framework

It is neither necessary nor very efficient to have all or most of skills development programmes managed by one mega-agency in the public sector. Many of the activities can be carried out, within a common agreed framework, by NGOs, community organisations and the private sector, with appropriate financial incentive and technical support from the government and other sources.

Participatory choices

There are choices to be exercised regarding who among potential providers of services does what and how all can contribute to meeting the critical and diverse learning needs of people. These choices must be made in a participatory way within an agreed overall national framework of goals and priorities, guided by consideration and consensus building at national and regional levels within countries, especially in the larger ones.

The government role that facilitates optimal contribution of all actors

The government, especially at the national level, would generally have a regulatory, facilitative and guardian of public interest role. A larger role for various non-government actors would mean that the role of national government agencies may be more at policy-level with senior technical professionals developing overall policies and priorities, creating supportive and facilitative mechanisms, providing finances and helping to mobilise resources. Working with all providers of services, they will also set quality norms and enforce these through overall monitoring and assessment, and generally help to promote and protect the public interest.

Making decentralisation work

It is a process that has to be promoted in the context of each country's historical, political and bureaucratic culture. There has to be trial and experimentation and systematic building of capacities of personnel at different levels for decentralisation to work effectively. Where the local government system has advanced further, it offers an anchor for institutionalising decentralisation of planning and management.

Transparency, accountability and participatory ethic

These valued characteristics in an education or development programme, also happen to be in line with the philosophy and ethics of democratic development, empowerment of people and a lifelong learning approach. These attributes are not always consistent with the bureaucratic culture and practices in many countries and the hierarchy-based social roles and values. Most countries recognise the need for change in the traditional mores and education and skills development themselves. Problems of corruption, dishonesty and mismanagement, present everywhere to a degree, are serious in some situations. Principles of transparency and accountability—and their practice—are particularly important in these situations.

Finally, in the context of rural transformation, it needs to be underscored that local organisations and institutions are the mechanisms for involving people in transformative rural development. Most essential and valuable local resource in any development enterprise is the people themselves who, with their individual and collective efforts, transform raw and primary materials into useful commodities using skills, intelligence and labour.

5.5 Monitoring and Evaluation of Skills Development

The activities, results and outcomes of skills development for rural transformation have to be monitored and evaluated to ensure that progress is being made and necessary adaptations are undertaken when the efforts are not on track.

The broad scope, complexity and chain of relationships of the rural transformation agenda, poverty reduction and generation of employment with decent income as a critical part of this agenda, and skills and capacity development as a key element have been noted. What should be the shape and character of the monitoring and evaluation functions, processes and mechanisms for education, training, skills development and job creation for rural transformation?

There cannot be one central organisational entity vested with the total task of monitoring and evaluation for all skills development for rural transformation. This is so because the responsibilities and actions are dispersed and diffused among many government and non-government actors and objectives and outcomes are numerous and diverse spanning different levels from individuals and households to the national government authorities. The organisational structure of the monitoring and evaluation system will depend on the substantive elements of the programmes designed to reduce poverty and bring about rural transformation. What needs to be underscored is that a result-focused

monitoring and evaluation system with specified functions and processes has to be established. It needs to be built into the governance and management structures of all the major organisational entities which may have responsibilities for various components and elements of the rural transformation agenda. In this section a number of general points will be made about the national government role in monitoring and evaluation of a complex and wide-ranging area of national development. It is also necessary to emphasise some specific aspects of measuring and assessing skills development in the context of rural transformation.

Good governance and monitoring and evaluation

Good governance, in the sense of basic efficiency, transparency and accountability in management of resources to achieve the outcomes, is a prerequisite for success in the complex and multidimensional endeavour of skills and capacity development for rural transformation and poverty reduction. Adequate monitoring and evaluation is fundamental to minimisation of corruption, wastes, delays and mismanagement in this effort. Corruption and waste of public resources are major obstacles to effective implementation of large-scale public entitlement and social protection programmes which defeat the basic purposes of these initiatives in many developing countries.

> Corruption thrives most rapaciously when accountability is not clearly defined, supervisory structure is demoralised and unauthorised interventions become the order rather than the exception in public management. Widely sharing of information in public management is thus a primary instrument for ensuring an honest and efficient mode of governance. Monitoring and evaluation institutions in public organs are fundamental to good and efficient operations of a government (Mudahar and Ahmed: 2010, pp.292–293).

Political support and commitment of political authorities to establishment of effective monitoring and evaluation mechanisms are necessary for these mechanisms and processes to function effectively. The location or locations and responsibilities in the government for monitoring and evaluation of the total rural transformation effort and skills development as its part have to be clearly designated. The necessary capacities, resources and authorities within appropriate legal and administrative framework have to be identified and ensured.

To what extent are countries prepared to install an effective result-based monitoring and evaluation system? The authors of the result-based monitoring and evaluation system advocated by the World Bank suggest that an assessment of readiness of a country to adopt such a system should be the first step in developing and introducing an effective monitoring and evaluation system.

A survey undertaken to assess readiness of countries to design and build a result-focused monitoring and evaluation system found many obstacles. Often there are no genuine champions among the top policy- and decision-makers of the government and sectoral ministries for such a system, though many are willing to provide lip service to it. It was difficult to identify and get support for reform initiatives in public management that would create incentives for linking performance to monitoring and evaluation findings.

Moreover, legal and regulatory provisions for using monitoring and evaluation systematically in decision-making were lacking. Weak technical capacity in public agencies in monitoring and evaluation and management of credible information systems and inadequate training capacity in universities and research institutions to develop these capacities also were impediments. Strong political support and sustained institutional capacity building in monitoring and evaluation itself will be needed for introducing credible and useful monitoring and evaluation systems in most developing countries (Kusek and Rist: 2004).

Essential steps in monitoring and evaluation system

A range of measurement and qualitative assessment based on set goals and indicators and applying appropriate tools and instruments is necessary to guide skills policies and actions for multifaceted rural transformation. The supply dimensions including stocks, flows and variety and quality of skills as well as the quantity, trends and composition of demands for skills have to be considered. How demands and supplies match have to be assessed. All of these have to be examined in the context of policies and goals regarding social and economic development, poverty and

disparity reduction, regional development strategies and human resource development programmes.

There is general agreement about the essential sequences and steps for building a result-based monitoring and evaluation system (see Kusek and Rist: 2004). These essential elements are shown in Box 5.10.

Box 5.10 Steps in Designing an Effective Monitoring and Evaluation System

- Conducting a readiness assessment for introduction or/and strengthening of monitoring and evaluation systems.
- Formulation of goals and outcomes.
- Selecting outcome indicators, relevant to the goals, which will be used in monitoring and evaluation.
- Deciding on responsibility, organisational mechanisms and capacities needed for carrying out monitoring and evaluation.
- Determining and constructing tools and instruments for collecting data on the indicators.
- Gathering baseline information on key indicators.
- Collecting and recording data systematically and regularly on the indicators using the appropriate tools.
- Analysing the data and reporting results of the analyses.
- Sustaining and further refining the monitoring and evaluation system at central, sectoral and decentralised tiers of the government.

Source : Adapted from Mudahar and Ahmed: 2010, Figure 9.1.

Overall monitoring and tracking of rural transformation

It is necessary to collect and present relevant statistical information globally and regionally which would support, illustrate, elaborate and explain as much as possible the key points being made in this report. A series of statistical tables based on available international sources is presented in the statistical annexure. Existing international databases have been relied upon and an attempt has been made to make these as comprehensive as possible in terms of coverage of countries and regions and relevant indicators (see statistical Tables in the annexure).

Monitoring and evaluation are clearly interconnected and complementary to each other. Monitoring can be described as a continuous function that involves systematic collection and analysis of data and information on specified indicators to keep managers and stakeholders informed about progress in planned interventions and help make any necessary course correction. Evaluation is the systematic and objective assessment on a periodic basis of the results and impact of interventions including policy, design, strategy and utilisation of financial and other inputs. The information and data collected and analysed through monitoring are essential inputs for effective evaluation.

Various relevant social and economic indicators for countries ranked by the proportion of rural population in the respective countries are presented. In addition to the table that provides the ranking of countries for different indicators, statistical tables showing actual values for the indicators ranked by proportion of rural population are included as a ready source of reference.

These statistics primarily make the point that a high proportion of rural population is associated with low human development indicators. The scatter grams and trend-lines on individual indicators against proportion of rural populations for selected countries shown in the annexure make the same point. These also support the argument that high rural population ratios are both the cause and the consequence of low development indicators of a country. Because of these interactive and complex relationships, simple and rapid urbanisation is not the answer to the problem. The concern is how both rural and urban areas are transformed with close attention to how the various relevant development indicators are affected and influenced in the desirable direction.

Constructing a rural transformation index

To the extent possible, it is important to indicate trends, or desirable changes, on relevant indicators to show progress or lack of progress in respect of rural transformation. This can constitute a Rural Transformation Index (RTI). In constructing it, it is necessary to be clear about what the key indicators are for rural transformation, or at least the indicators which should be highlighted. This in turn has to be derived from a clear articulation of the specific aims, and thus the indicators, of rural transformation. One obvious key message is the need to move away from the present lopsided growth and development, with majority of the people in rural areas, employed in agriculture and related informal sector activities, but receiving (and contributing

to) a disproportionately low share of GNP. Their socio-economic status is also characterised by low values in various development indicators.

The rural transformation indicators have to be about rural people and rural areas, but seen with a national perspective. It can be justifiably argued that:

First, there has to be a more balanced growth and development, marked by reduction of three kinds of gaps to overcome the present disparity between the situation of the rural people and the rest in each country:

- The gap between per capita rural GDP and per capita national GDP;
- The gap between rural HDI and national HDI; and
- The gap between the ratio of agricultural GDP/total GDP and the ratio of agricultural employment/total employment.

If it is agreed that the reduction of these gaps, thus moving towards a balance in development and well-being of rural and urban populations, as the thrust of rural transformation, RTI can be the composite value of these three measures.

Second, besides looking at the present status, the targets for rural transformation, reflected in indicators, would be *to reduce the proportion of people described as rural, to reduce the population employed in agriculture (albeit in a planned and deliberate way), and to increase the income level of those who remain in rural areas and in the rural economy, ensuring that they enjoy a higher level of human development than at present, reaching at least the level of the average national values for HDIs.* RTI, therefore, can indicate the present status of a country and can provide the basis for setting goals for change in various indicators for the country.

Data are available for the rural population by country. To construct RTI, therefore, data are needed for rural GDP, agricultural GDP and rural HDI (or at least components of HDI), to ascertain the gap between the rural and national values of these indicators. We can then take the consolidated averages of these and relate these to ranking by rural population.

Reliable data with urban-rural breakdown for the indicators mentioned are not available for most countries. An attempt to see what is available (at least for some countries) and see if these could be presented illustratively, particularly for countries in Sub-Saharan Africa and South Asia, did not prove feasible. The conclusion is that an initiative has to be taken to collect data for some very basic indicators with rural–urban breakdown at national and international levels, through existing systems of collecting data for social and economic indicators. This would signal due importance to the goal of rural transformation at national and international levels and make it possible to construct RTI.

Approach to measurement of skills for people in rural transformation

Some of the measures of skills used at present in OECD and some developing countries relate to quantitative proxies for skills such as years of education or the level of qualification attained. These measures are based on the assumption that each additional year of education and different qualifications represent the same amount and quality of skills regardless of institutions and locations. Moreover, they ignore skills acquired informally and outside the education and training systems.

Increased access to education and training does not necessarily lead to better economic outcomes, as discussed earlier. In order to make skills supply relevant for the economy, information is needed about demands for skills in the first place. Distribution of employment by education/training background and by occupations provides indications regarding the match between supply and demand. Usually, census and labour force and household surveys provide this kind of information. An important challenge in this regard arises, as noted earlier, from the fact that large parts of the economy are in the informal sector.

The bottom line is how skills impact on economic and social outcomes. Skills contribute to rural transformation and poverty reduction both, directly, through increased productivity, and indirectly, by creating greater capacity of individuals, for example to identify business opportunities and to adopt new technologies and ways of working. Skills also improve economic and social outcomes of people through foundation or generic skills linked to empowerment,

better employment and earning chances as well as positive impact on health and personal attitudes and aspirations.

A number of measures of economic performance and labour market and health outcomes can provide information on the links between skills and these outcomes. In respect of economic performance, measures could focus on production and productivity growth at the local level for different sectors and types of economic activities. Labour market outcomes are seen in employment, unemployment and underemployment rates and earnings. Measures of health outcomes could be about general health and nutrition and disease burdens for specific diseases with high prevalence. Clearly, to be meaningful for the purposes of assessing the role of skills development for rural transformation, it is essential that systems are established to collect these statistics at the local level and consolidated regionally and nationally showing urban–rural breakdown.

Given the range of actors involved in skills development for rural transformation and linkages between different policies and programmes in this respect, a systematic approach is needed to support and carry out concerted efforts and take advantage of synergy. To optimise the efficiency of investment in skills from public and private sources, a strategic and coordinated funding approach based on sound principles helps to avoid underinvestment as well as waste. The evidence on skills managed and collected by different agencies and institutions needs to be drawn together and used to support a strategic approach to skills policy-making.

Recognising the importance of a coordinated and strategic approach, OECD has initiated the development of a global skills strategy-a systematic, evidence-based approach to promoting in countries the formulation of sound skills policy and programme development (A first issues paper has been published in 2011-"Towards an OECD Skills Strategy," OECD: 2011, http://www.oecd.org/dataoecd/58/27/47769000.pdf). This strategic approach to skills policies attempts to integrate evidence on supply, demand, match and outcomes of skills under a common framework and suggests policy measures in all these areas as well as financing of skills development and steering of national efforts taking advantage of international best practices. The relevance of this initiative in skills development for rural transformation in developing countries has to be observed, assessed, and the lessons put to use (see Annexure II on Measurement of Skills for People in Rural Transformation contributed by OECD Skills Project Team).

5.6 Resource Mobilisation and International Cooperation for Skills Development

Under-investment in education combined with poor targeting of expenditures, especially in relation to rural needs, is a major obstacle to equitable access, quality and relevance of education. Increased resource mobilisation by countries themselves and its better allocation and use must be a key element of the effort to close the educational resource gap in general and direct resources to achieving rural transformation.

Re-examining public plans and priorities

At the national level in developing countries, development priorities and plans have to be looked at to re-examine the national poverty reduction strategies. The priorities in public expenditures have to be under review; how equitable allocations are and how effective is the management of budgets have to be assessed. Participation of civil society and other stakeholders should be ensured in determining priorities and in improving accountability. A greater effort has to be made to mobilise domestic resources, applying criteria of equity.

The countries with large proportions of the population in the category of rural poor cannot do it by themselves. As the Oxfam-Action Aid proposal for a Compact for Africa proposed more than a decade ago, closing the resource gap for education in the poorest countries and the poorest segment of the population in these countries requires a collective resolve on the part of national governments and the international community.

Economic and financial difficulties that have hit recently the European Union, North America and Japan pose new uncertainties about fulfilling their commitment to assistance for poor countries in supporting the MDG and EFA goals within the framework of international cooperation and solidarity. The long-standing target of devoting a

minimum of 0.7 percent of GDP as international assistance appear to have receded farther for some of the largest industrialised economies.

Arguably, in difficult times, it is more important than ever to stand by each other, recognise the interdependence of economies and common interests of humanity, and work together to lift all above the threshold to meet basic needs of people and ensure human dignity for all. There is no good reason for not doing so when the sacrifices called for from citizens and states in the industrial world are small by any reasonable measure.

Climate change funds

The mortal threat of climate change is a stark reminder of the urgent need for international partnership and cooperation. In the discourse on how to address global warming, the consensus among stakeholders including scientists, policy-makers and environmental activists is that solutions lie both in mitigation—reducing carbon emissions, and adaptation—helping communities cope with the current and future effects of climate change.

In respect of mitigating global warming, one estimate is that the required measures will cost one percent of global GDP annually, largely in industrialised countries, if immediate action is taken; costs will increase considerably the longer action is postponed (Stern: 2006). It is obvious that developing countries will require tens of billions of dollars to implement adaptation measures to reduce vulnerability to climate change and respond to climate impacts.

Meeting the costs of adaptation to climate change is a major challenge for the international community. Estimates of financial needs for adaptation vary substantially given the uncertainties involved. UNFCCC (United Nations Framework Convention on Climate Change) projections indicate costs in the range of US$ 28–67 billion per year for developing countries by 2030. There has been an increase in adaptation finance from dedicated climate financing instruments, up from 8 percent of total climate finance in 2010 (US$ 587 million) to 21 percent in 2011(US$ 957 million). The scale of finance is clearly not commensurate with estimated needs, and its effective use is further impeded by severe fragmentation across various initiatives.

There are several dedicated multilateral climate funds that support adaptation measures in developing countries.

- The Least Developed Countries Fund (LDCF) primarily supports the preparation and the implementation of NAPAs (National Adaptation Programmes of Action). The Global Environment Facility (GEF), an operating entity of UNFCCC, administers the LDCF. All Least Developed Countries are eligible for support for immediate and urgent needs to adapt to climate change. As of November 2011, it had disbursed US$107 million.
- The Special Climate Change Fund (SCCF) was established in 2002 to support long-term adaptation measures that increase the resilience of national development sectors to the impacts of climate change.
- The Adaptation Fund (AF) was established under the Kyoto Protocol and made operational in 2009. It is the only climate finance mechanism funded by an automated funding formula. Recipient countries can directly access resources from the fund via a country-designated National Implementing Entity (NIE).
- The Global Climate Change Alliance (GCCA) is a bilateral initiative of the EU that has disbursed a significant volume of finance for adaptation.
- The Pilot Program for Climate Resilience (PPCR) is a World Bank administered climate loan facility. It was set up in 2008 to provide loans to encourage integration of climate resilience into national development planning.

The plethora of funding mechanisms has meant a lack of coordination and consolidation at the international and national levels and administrative burdens at the recipient end. This situation in fact has been an obstacle to creating synergies between adaptation goals and other development priorities in countries. There also have been unnecessary complications and delay in access to funding.

Negotiations about establishing a global Green Climate Fund (GCF) under UNFCCC have grappled with the question of mobilising finance of necessary scale, utilising funds equitably and effectively, while ensuring accountability and transparency. The GCF is supposed to channel "a significant share of new multilateral funding for adaptation", balancing its allocations between mitigation and adaptation. It can play the role in scaling-up global funding

for adaptation actions—"provided the fund itself is funded adequately, predictably and sustainably" (Nakhooda: 2011).

As noted in the preceding chapters, climate change threatens development and sustainable development, in turn, reduces vulnerability to climate change. Clearly, substantial amounts of development assistance and national resources expected to be directed to adaptation measures deserve to be devoted to skills and capacity building of people, especially in rural areas. Besides the mechanisms and size of funding, the content of what is to be done with the funds, especially in respect of the "software" of sustainable development, need equal attention.

It has been argued that a major role of the international financial institutions is "to establish a framework in which public and private investment in developing countries becomes more climate resilient through awareness raising, knowledge sharing and capacity development" (World Bank: 2006, p.x).

- The richer countries should fulfil their pledge to fill the resource gap for the poor countries; a combination of debt relief and increased aid should be provided to the least developed and other poor countries;
- The poverty reduction and climate change facilities of the multilateral and international financial institution should be designed to meet the resource requirements for education and skills development including directing resources to improving quality and overcoming disparities in rural areas;
- National poverty reduction strategies should be strengthened through equitable allocation and management of budgets, and greater accountability and participation of civil society organisations; and
- National governments need to review priorities in public expenditures; and make a greater effort to mobilise domestic resources, applying criteria of equity (Oxfam and ActionAid: 1999).

The bottom line is that there has to be a major increase in resources for rural education and skills development, with mobilisation from all sources along with better use of available resources. This increase need to occur within a reordering of national development priorities and strategies that recognises the disparities and aims at correcting the disparities and imbalances between urban and rural areas.

Assessing resource needs for rural skills development

In the diffused undefined landscape of skills development, it is almost impossible to estimate what resources are available for what purposes and how these are utilised. A systematic effort is needed at the local level to assess and estimate resource availability and needs which can be consolidated to derive an overall national and subnational picture. A major part of any new resources will have to be devoted to incentives for teaching personnel, and their training and supervision. Performance standards and assessment of the results of their work have to be established to justify the incentives.

Climate change financing, not only because it is a new source, but also because of the synergy in objectives and strategies of enhancing skills and capacities and coping with vulnerabilities, should be designed and utilised for education, training and capacity building. The aim should be to remove urban–rural disparities in opportunities in this respect. It has to be ensured, however, that the climate change resources for education and skills development are in fact additional and not mere replacement of "regular" external assistance and national allocations for these sectors.

Major increase needed in public resources

It is likely that any reasonable assessment will show that, along with the general neglect of educational investment in rural areas, resources for skills development in rural areas are grossly inadequate. All possible sources including the direct beneficiaries, employers, communities, and the private sector will have to be tapped. National goals of poverty reduction and social equity in most developing countries call for significant increase in public resources for rural skills development. How much, precisely for what and how these should be matched or complemented with other sources are matters that have to be worked out on the basis of strategies and plans for rural transformation and skills development within that framework.

As the MDG and EFA historical milestone of 2015 is

approached, progress made and shortfalls are likely to be scrutinised and pathways for the future will be searched. In this scrutiny, how scarcity of resources have affected progress and how these can be overcome in the future have to be a prominent topic.

International and regional cooperation

The task of visualising rural transformation as a central component of national development and defining, designing and implementing the role of education and training in this effort has to be undertaken primarily in each country. In today's global village, however, there is an international dimension to every significant national endeavour.

As noted in the UNESCO-INRULED report published in 2003, the last decades of the 20th century has been characterised by a conscious effort to develop and articulate global views and goals on major common problems faced by humankind. These in turn have informed and influenced national goals and priorities. The EFA movement in the decade of the 1990s and its continuation in the new century represent a prime example of the interaction between global and national initiatives.

It has been underscored in this report that education for rural transformation (ERT) intersects major global concerns—poverty alleviation, building equitable and democratic societies, practicing sustainable development and expanding opportunities for fulfilling human potential. These major human agenda can build a constituency of support among the protagonists of the various causes these agenda represent in the international arena.

The international coalition of supporters and promoters of EFA that has emerged in the last two decades, including international organisations, donor agencies, NGOs, professional groups, and communication and media agencies, have a special responsibility and the opportunity to move forward the ERT agenda.

UNESCO, the lead agency for education, culture and science in the United Nations system, the co-initiator of ERT and the focal point for the follow-up of EFA, is at an advantageous position to provide leadership in building a grand alliance for ERT. UNESCO can do so and help formulate the implementable agenda for action in collaboration with international and national stakeholders in ERT.

The existing regional structures of cooperation and exchange in education and other relevant components of ERT should be mobilised to play their role in promoting the ERT agenda. The regional mechanisms have a special responsibility to bring out the regional characteristics of ERT and facilitate exchange of experiences among neighbouring countries with similarities of conditions.

The contribution and comparative strengths of NGOs, national and international, in the area of education and related components of rural transformation have been discussed. NGOs, in line with their own mandates and priorities, should participate prominently at global, regional and national levels at forums for policy discourse and in carrying out activities in their respective spheres of interest as partners in the grand alliance for ERT.

UNESCO-INRULED, as the international centre with a mandate for research, education and training in rural education and as the initiator of this report on ERT, has a special responsibility in advancing the ERT agenda. It needs to look at its academic, training and research activities in the light of ERT objectives. Its present and potential capacities and resources should be assessed and a plan for its development should be prepared with a focus on academic and research programme, advocacy and experience-sharing activities in support of the ERT agenda.

Summing up: regional and international cooperation

In summary, the needs and potential for regional and international cooperation in a number of areas merit special attention—sharing, learning and disseminating lessons through cooperation among countries, organisations and institutions; strengthening existing mechanisms; and fulfilling rich countries' pledge of cooperation. The international cooperation agenda need to emphasise the following principles.

Learning from diverse experience and stages of development among countries

Diversity in development experiences and different levels of progress in skills development in the context of respective rural and national development scenario offer a special opportunity to share experiences and learn from each other. A systematic effort needs to be made through bi-lateral and multilateral channels and the channels of UNESCO and other international agencies as well as international NGOs for learning from the rich pool of country experiences.

International and national exchanges among civil society organisations

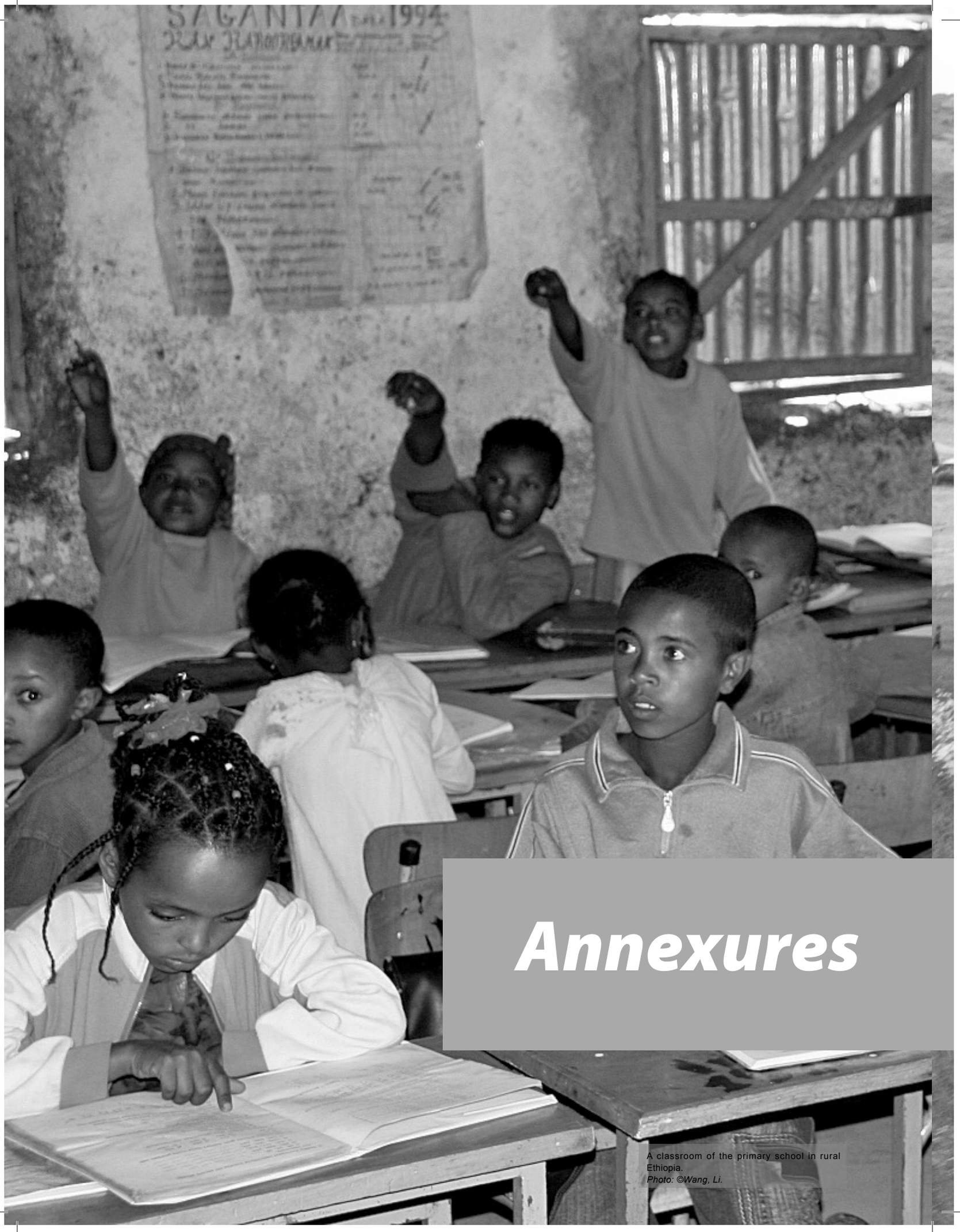
Civil society organisations and development NGOs concerned with education, rural development, poverty alleviation and sustainable development have their network and forums for promoting cooperation and sharing experiences. These efforts as well as exchanges among national NGOs and academic and research institutions within regions and across regions should be encouraged and supported. INRULED and UNESCO should consider how they can contribute to and facilitate this process.

Priority to promoting cooperation and exchange through external assistance

Living up to the pledges of financial support for poverty alleviation, mitigation and adaptation to effects of climate change and EFA by rich countries would be a vitally important expression of international cooperation and human solidarity. A small proportion of the promised resources would be well spent on promoting purposefully designed cooperation and exchange on skills development for rural transformation within regions and, when relevant, across regions, for mutual support to capacity building among countries.

Students on campus of a technical and vocational school in Dujiangyan city, China.
Photo: © Shen, Peng.

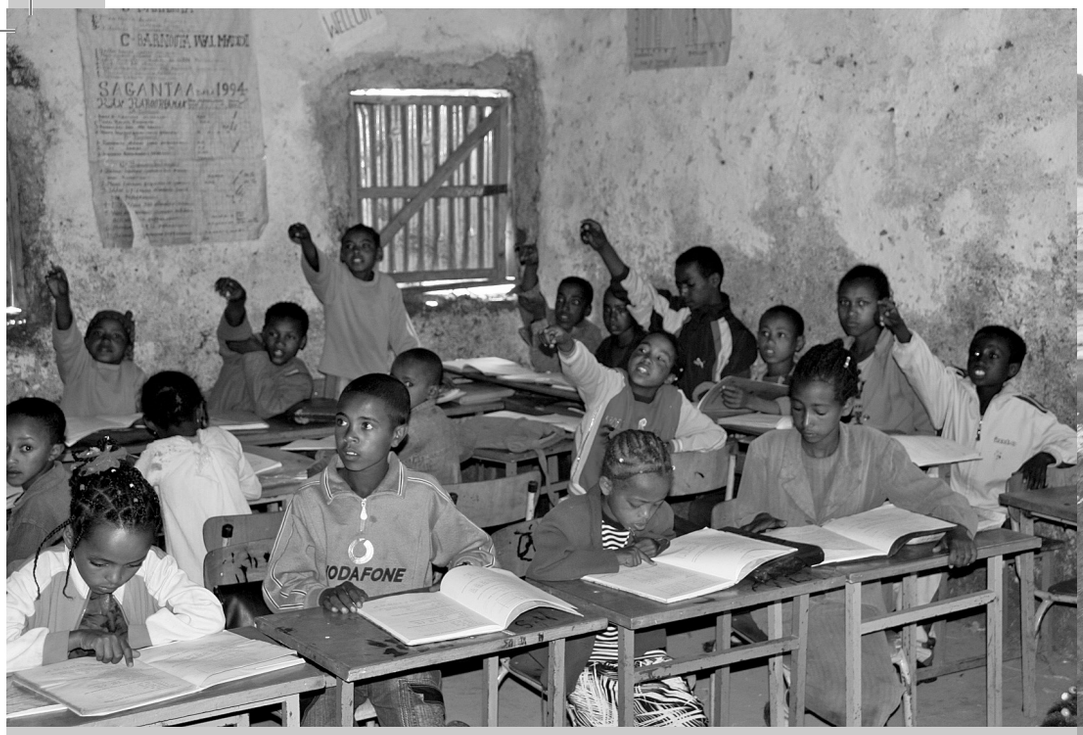
Annexures

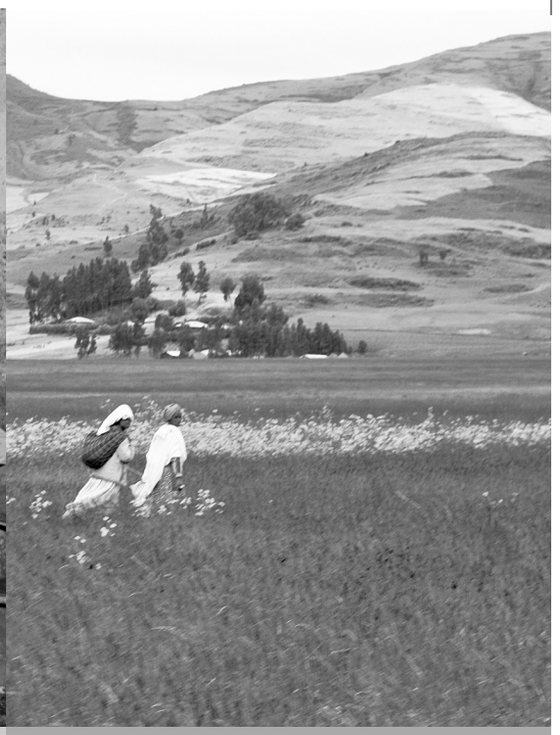


A classroom of the primary school in rural Ethiopia.
Photo: ©Wang, Li.

Good Practices, Measurement of Skills, Statistical Tables

Women in rural Ethiopia.
Photo: ©Wang, Li.





Annexures

Good Practices, Measurement of Skills, Statistical Tables

ANNEXURE I

Good Practices in Skills Development: Selected Case Studies

This annexure presents selected case studies of projects for skills development in rural areas-spacing. Twelve cases selected from Australia, Bangladesh, China, Ghana, India, Mozambique, South Sudan and Thailand are included. The good practices in their respective context are described and useful lessons are identified. The cases underscore constraints encountered and the approaches pursued in tackling these in the process of rural transformation and fighting poverty.

The issues highlighted in this report including the varying contexts, the different dimensions of rural transformation and poverty reduction, and applicable approaches and strategies in the diverse circumstances are illustrated by the cases. The cases do not necessarily represent "best practices" based on any comparative and international assessment. It is arguable if models that fit across countries at all exist. The cases are an opportunistic compilation drawn from knowledge and experience of the research team associated with the preparation of this report. This explains a higher weight given to the Chinese experiences.

The case studies presented here bring out the processes of running programmes on capabilities and skills development of people who were instrumental in initiating and implementing rural transformation. They also highlight certain lessons which the development community, especially those who are involved in rural transformation, can learn. Such lessons will be valuable in considering strategies and interventions for disadvantaged people and communities in developing countries.

The world is going through enormous economic and technological changes. These rapid and wide-ranging changes pose the threat that the poorer people will be left behind, leading to more income and wealth gaps between the rich and the poor and also between the urban and the rural communities. The risk of social and political unrest arising from the imbalances and disparities is too real. The cases indicate ways of dealing with such challenges by enhancing the capabilities of the poorer communities.

A summary description of poverty reduction practices in China in the last two decades is presented first. This serves as a backdrop for specific cases in China. The case studies from China and elsewhere are listed here.

China

1. Poverty reduction practices in China;
2. The Sunshine Project: Skill training and support for people migrating from rural areas in search of jobs;
3. Different approaches for rural entrepreneurship development (Bamboo shoot farming in Deqing County, promoting enterprises and protecting cultural identity and business promotion for self-employment);
4. Model of a multipurpose community learning centre in Yunnan and
5. Higher agricultural education serving rural needs—Agricultural University of Hebei.

Cases included from other countries are:

6. Entrepreneurship development in Australia;
7. BRAC—a multipurpose rural development programme in Bangladesh;
8. Rural radio in Ghana;
9. Junior Farmers' Field and Life School (JFFLS) in Mozambique;
10. Women's entrepreneurship in India;
11. Rural skills development in South Sudan and
12. A rural community shop in Thailand.

Case 1
Poverty Reduction Practices in China

China has experienced rapid economic development in the past three decades. However, the remote rural areas continue to face the challenges of unbalanced development and abject poverty. The rural–urban disparities in the socio-economic development form one of the alarming concerns of the development planners in the country. The focus of China's poverty alleviation strategy, therefore, remains primarily rural.

Poverty reduction has always been an important priority area in China's national development plans. Most national development policies are geared towards sharing widely the benefits of economic and social development equitably among all sections of the national people. Since the 1990s, the government has been implementing its Seven-Year Priority Poverty Reduction Programme (1994–2000), the Outline Plan for Poverty Reduction and Development of China's Rural Areas (2001–2010), the Outline Plan for Development-Oriented Poverty Reduction for China's Rural Areas (2011–2020) and other poverty alleviation initiatives. The key strategies pursued through these plans are summarised below.

Development-Oriented Poverty Reduction with Social Protection—"Teaching Them to Fish Rather Than Giving Them Fish"

Some 600 counties, about 20 percent of the total, were selected as "key" counties to be included in the national poverty reduction programme. In these counties, the State Task Forces have launched pilot projects to integrate development-oriented poverty reduction policies with particular reference to moderate subsistence allowance for rural residents. These programmes are planned to enhance social harmony and stability, fairness and justice in rural areas together with an emphasis on widening the basic human rights. China has accomplished well ahead of MDGs' schedule of the United Nations of reducing the poverty-stricken population by more than half of its present number.

Rural transformation policies and programmes

Despite its laudable progress during the last four decades, its economy is still characterised as an agrarian economy with a large rural population of whom a significant number live in "absolute poverty." The Chinese Government followed the strategy of coordinating urban and rural economic and social development based on the principle of "industry nurturing agriculture," especially since 2003.

The government enacted laws to abolish gradually the agriculture tax that had existed in the country for over 2,600 years. The government provided subsidies directly to farmers to buy hybrid seeds, agricultural machinery and tools and other agricultural supplies. Attempts have also been made to put in place a vigorous social security system for rural people. Basic services such as potable drinking water, electricity, roads and methane gas supply were made available and dilapidated rural housing were refurbished and renovated.

The government adopted measures to enhance overall agricultural productivity so as to ensure tangible benefits to farmers and increase their incomes. The national budget on agricultural recoded a noticeable increase from 214 billion yuan in 2003 to 858 billion yuan in 2010. Many of the measures to strengthen agriculture and increase farmers' income were first carried out in the impoverished rural areas.

Regional development plans and policies

In the last decades of the last millennium, the government implemented on a large-scale several development initiatives in the underdeveloped western region of the country. Projects for water conservancy, forestation and exploitation of mineral resources were successfully implemented. For instance, the government designed and implemented a series of regional projects for promoting economic and social development in Tibet and Tibetan-inhabited areas in Sichuan, Yunnan, Gansu and Qinghai provinces, as well as in Xinjiang, Guangxi, Chongqing, Ningxia, Gansu, Inner Mongolia and Yunnan. These projects were fully in line with the national development-oriented poverty reduction programme.

Empowerment of the people

In view of helping the rural poor, the State followed an innovative approach, namely the market-oriented approach. Attempts were made within this approach to ensure an improvement in local economic conditions, larger exploitation of local resources, and to develop both farm and non-farm production. The approach also paid due attention to issues and challenges related to sustainable development, resource conservation, ecological construction and population growth.

Coordination, cooperation and self-reliance

Financial outlays from the Special Poverty Reduction Funds, transfer payments from the central government revenues, philanthropic donations by local communities and technical and financial assistance from the development partners have shown increasing trends since the inception of these projects. Poverty reduction initiatives, such as participatory and integrated village development, availability of microcredit facilities and contributions from local communities were also mobilised and utilised effectively. Efforts were made to bring into play the initiative, enthusiasm and creativity of the community. The local communities were encouraged and involved in the decision-making process and attempts were made to address and improve the backwardness of the rural poor.

Achievements of development-oriented poverty reduction

The problems with regard to the provision of a basic survival kit (food, clothing and shelter) for the rural poor were basically met by a chain of safety networks provided over the past two decades. The net outcome of these measures has been a phenomenal increase in the income of rural people from 865 yuan in 2000 to 1,274 yuan in 2010. During this period, 592 poor counties served by the national poverty reduction programme witnessed an increase in per capita net income of farmers from 1,276 yuan in 2001 to 3,273 yuan in 2010.

By the end of 2010, nearly 61 percent of rural households had access to tap water or quality potable water, 88 percent of the villages had approach roads, 98 percent had electricity and 93 percent were using telephones (community public services). Further, the per capita housing space reached a level of 24.9 square meters with 88 percent of the rural households having access to sanitary facilities and latrines.

Social Security and Protection

Ensuring basic social security for the poverty-stricken population was a key strategy for steady progress towards solving the problem of adequate food and clothing for people. In 2007, the State decided to establish a rural subsistence allowance system covering all rural residents whose annual net household income was below the prescribed poverty line. The aim was to solve the problem of adequate food and clothing for the rural poor in a stable, lasting and effective way.

The State provided five guaranteed forms of support (food, clothing, housing, medical care and burial expenses) for old, weak, orphaned, widowed and disabled rural residents (five target groups) who were unable to work and had no family support. During the decade, the government gradually turned these five forms of support from a collective welfare system into a modern social security system financed by the State instead of by the rural communities themselves.

By the end of 2010, the system covered 25.3 million rural households comprising 52 million people. Also, a total amount of 44.5 billion yuan was spent on rural subsistence allowance, of which 26.9 billion yuan was provided by the central government.

Housing

Since 2008, the State has undertaken pilot projects to rebuild dilapidated houses in rural areas, aiming at ensuring basic housing safety for the rural poor. Over the past three years, the State has earmarked 11.7 billion yuan to help over 2 million poor farmers' households refurbish unsafe houses. In 2010, the programme covered all counties identified within the framework of this initiative.

Health care

The cooperatives of medical care system for rural residents

provide quality medical and health care services to all. By the end of 2010, nearly 93 percent of rural households participated in this programme. Every township had a hospital, and most administrative villages had a clinic. Population and family planning work and the building of a public cultural service system were effectively strengthened. The programme also provided free of charge orientation training to medical students willing to serve rural areas. A comprehensive support and reward incentive scheme was instituted for those who practiced the national norms of family planning policy.

Priority groups and regions

The government carried out development-oriented poverty-relief work in some special areas facing typical poverty issues. This included: development of basic infrastructure in Donglan county, Bama county and Fengshan county in the Guangxi Zhuang Autonomous Region; pilot project for the prevention and control of Kaschin-Beck Disease in the Aba Tibetan and Qiang Autonomous prefecture in Sichuan province; pilot project on ecology and environment in the rocky desert areas of Qinglong county in Guizhou province; pilot projects for enhancing the income-generation skills in the border areas of Akqi county in the Xinjiang Uygur Autonomous Region and for the Blang ethnic group and the mountain tribes of the Yao ethnic group in Yunnan province; and for strengthening the capacities of rural people in post-quake prevention measures in the Wenchuan county of Sichuan Province and Yushu county of Qinghai province.

The State also accorded high priority to development-oriented poverty reduction schemes of ethnic minorities, particularly of women and the disabled. A special programme was launched for the people employed by the Xinjiang Production and Construction Corps. Within this programme, the State rendered special support to 22 small ethnic groups, each with a population under 100,000 during 2005–2010. The State Programme for the Development of Chinese Women (2001–2010), was designed for alleviating women's poverty. Since 2009, the State has also implemented programmes of microcredit and sanctioned guaranteed loans to poor farmers. By the end of July 2011, the government invested a total of 41 billion yuan in such loans, including 26 billion yuan for women in rural areas. A Programme for Disabled People in Rural Areas (2001–2010) was also implemented to ensure food security for disabled people.

Diversified Poverty Reduction Programmes

Poverty reduction programmes in the western regions, areas inhabited by ethnic minorities, border areas and destitute and impoverished areas followed diverse approaches.

Promoting poverty reduction with market-oriented approaches

Several innovative approaches were put in place within this government initiative to improve the living conditions of rural people. Major programmes include: socio-economic development of contiguous areas; poverty relief through science and technology; support to impoverished farmers; development of industrial bases, encouraging the use of modern advanced equipment and technologies in agricultural pursuits; and setting up of farmers' cooperatives in villages. Over the past decade, the State has helped impoverished areas develop potato cultivation, growing economic (timber) trees and fruits, plantation of commercial crops, etc.

Poverty reduction by entrepreneurship and innovation

The underlying premise of this programme is to study and examine the local conditions and relative advantage of each county with a view to scaling up advanced farming technologies in agricultural production. The government provided technical assistance and material support to local communities through the grass-roots level farming practices for which several demonstration models have been developed and designed. The State also provided large-scale training in rural areas, targeting primarily the youth and the middle-aged people, so as to build a cadre of trained and experienced trainers and technicians in each county in modern farming practices, breeding, animal husbandry, skilled craftsmanship, small-scale commercial entrepreneurship and managers and practitioners of farmers' cooperatives.

Attention has also been given to strengthening technical

services for renewable energies and construction of rural energy supplies using methane, fuel-efficient stoves and small hydropower stations to replace the use of carbon fuels.

Harnessing science and technology

The farmers had an easy access to technical teams comprising experts and young and middle-aged technicians with practical experience from universities, colleges and research institutions in agricultural and farming techniques. Scientists were appointed as resident deputy heads of key counties for poverty reduction work and to help study and formulate poverty reduction plans, harnessing the benefits of science and technology in the development of local non-farm small-scale commercial enterprise in poverty-stricken areas. The State also launched technology entrepreneurship schemes in rural areas to encourage scientific and technological workers to form interest groups with farmers. These groups were encouraged to start businesses and develop the locally tailored and relevant ICT services for rural entrepreneurship by using technology, information and financial management techniques and practices essential for promoting local economic and social development.

Human capital formation

Compulsory education in rural areas has been strengthened, and the work to eliminate completely illiteracy among young and middle-aged people has made great headway. By the end of 2010, the counties recorded, on an average, a net enrolment ratio of the order of 97.7 percent of children 7–15 years, a ratio close to the national average. The adult literacy rate increased by 7 percent—from 81 percent in 2002 to over 88 percent in 2009. The average duration of schooling for the young and the middle-aged reached eight years.

Further, the State established funding mechanisms for compulsory education in rural areas and increased subsidies to students from poor families in impoverished areas. Funds were provided for classroom renovation projects for rural junior high schools in the central and western regions. School building safety projects and renovation and construction of dormitories, canteens and other basic infrastructural facilities in rural areas were supported throughout the country. Distance education for rural primary and secondary schools was introduced to share high-quality educational resources with urban areas and among different regions.

Training of the labour force

Since 2004, the central government has expended three billion yuan for the "Dew programme," which focused on training labour force from poor rural families in technical skills and practical techniques leading to the creation of more and more gainful employment opportunities for rural people. By the year 2010, more than four million people received such training and 80 percent of them were deployed in non-farm jobs. A sample survey revealed that workers who had received training earned 300–400 yuan more per month than those who never participated in this programme. In 2010, a pilot project was launched to offer stipends directly to high school graduates from poor families to pursue vocational education.

From 2001 to 2010, some 43 million students graduated from secondary vocational schools, a majority of them from rural or impoverished urban areas. Concerted efforts were made to improve its access to target groups and to manage effectively and efficiently the subsidy system for poor students in compulsory education, senior high school education and higher education to ease the financial burden of the poor families. Schools were built especially for the children of migrant families.

The State also strengthened the public cultural service networks in rural areas through a number of initiatives including the building of multipurpose cultural centres in townships, projects for national cultural information resource sharing, village libraries, radio and TV access to villages, rural film shows and rural community libraries.

Green Development

The system of collective forest rights was reformed and reinforced to ensure ownership to farmers of cultivable land and forests. Various preferential activities were implemented for conserving forests as well as for promoting eco-tourism as means of increasing consistently farmers' incomes.

The State made efforts to consolidate the achievements of the farmland-to-forest project, reinforcing the subsidy policy and extending the deadline for such subsidies. A pastureland-to-grassland project was implemented by adopting measures such as sealing-off mountains and hills to promote a substantial increase in natural grassland growth and a total ban on grazing to protect the vegetation coverage of natural grasslands. Pilot projects were launched in Tibet Autonomous Region and other areas to subsidise people who protected grassland ecology. The Beijing and Tianjin sandstorm source control project was implemented by erecting green walls of vegetation and forests. Ecological–friendly industries were developed to realise the organic integration in all development initiatives in rural areas.

Comprehensive measures were taken to reverse the trend of desertification in Karst areas by restricting plantation of trees and pastures in the hilly areas, and by paying an increasing importance on developing herbivorous animal husbandry, constructing terraces on sloping land and building small hydraulic and water conservation projects.

Projects were undertaken at the headwaters of the Yangtze, Yellow and Lancang rivers to strengthen ecological protection in these areas through the conversion of farmland to pastures, migration for ecological protection purposes, prevention and control of rodent damage, precipitation enhancement and other measures. The State enhanced the ecological compensation System and strengthened the protection of natural forests, restoration of marshy land, conservation of wild animals and plants and construction of natural reserves to maintain biological diversity.

The efforts in the recent decades have brought ecological degradation under control. From 2002 to 2010, 149 million mu (10 million ha) of farmland was restored to forest or pastures and 226 million mu (15 million ha) of commercial forest was planted. In these counties, the proportion of households with polluted drinking water sources decreased from 15.5 percent in 2002 to 5 percent in 2010, and those of the households having difficulties in securing domestic fuel decreased from 45 percent to 31 percent.

Social Involvement in Poverty Reduction

The State mobilised and organised all sectors of society to give various forms of support to poor areas in their development. Government departments, enterprises and civil society organisations extended special support in the pilot prone poor areas. Eastern and Western China jointly endeavoured to reduce poverty and help poor farmers increase their incomes.

Organisations, such as the All-China Federation of Industry and Commerce, the State key research institutions and universities, provided technical and material support to targeted counties by sending professionals to these locations, helping them in investing funds for establishing self-owned businesses, infrastructure development, industrial operations, training of labour force, environment and ecological preservation and health care services as well as in disaster relief measures. Two hundred seventy-two units and departments assisted 481 poverty-stricken counties from a total of about 600 such counties. From 2002 to 2010, over 3,600 professionals provided 9 billion yuan worth of direct aid, both in cash and in kind, mobilised 34 billion yuan to support development funds and trained 1.7 million people of diverse occupational categories.

A policy towards twining arrangements between the more developed eastern provinces and municipalities with the impoverished regions of the west was established by the Chinese Government for achieving the overall growth prosperity of rural people in these provinces. Since 1996, 15 relatively more developed eastern provinces and municipalities provided assistance in cash and kind and through exchange of trained personnel to 11 western provinces and autonomous regions.

From 2003 to 2010, some 2,600 professionals were sent from the eastern to the western provinces to hold temporary key positions, and in turn, 3,610 were sent from the western to the eastern provinces for the same purpose. About 4.4 billion yuan were provided and 5,684 enterprises were recommended by governments of the eastern region for cooperation resulting in 250 billion yuan of investments and 1.4 billion yuan in voluntary donations, in addition to the training of 226,000 technical personnel. Moreover, 4.7 million people from the poverty-stricken areas provided

labour services elsewhere, which helped them find gainful employment and improve their capacities.

The military forces were also mobilised to help develop infrastructure construction, including basic farmland development and irrigation works. NGOs, the private sector and the general public took an active part in the poverty reduction drive. In line with the actual conditions and specific requirements of the impoverished regions and people, these organisations helped in the process of developing infrastructure and a rural industrial base, education and public health-related activities, production, and living conditions and ecological protection by addressing the needs of rural areas. They also mobilised the local leaders to seek their full support and in mobilising rural people for active participation and involvement in development activities. The private enterprises were encouraged to fulfil their corporate and social responsibilities and generously contribute financially to overall development activities, and also to extending employment opportunities for rural people and setting up businesses and training centres.

International Cooperation

In the early 1990s, China began to make use of external assistance in its fight against poverty. Joint projects with the bilateral and multilateral international development partners such as the World Bank, the United Nations Development Programme (UNDP), UNESCO, UNICEF, ILO, FAO, WHO and the Asian Development Bank were designed and implemented.

According to available information, by 2010, a total of 1.4 billion US dollars in foreign funds were spent on poverty reduction projects and programmes in China. About 110 internationally funded poverty reduction projects had been implemented so far.

Source: Contributed by Wang Qiang, Nanjing Normal University based on "New Progress in Development-oriented Poverty Reduction programme for Rural China," Information Office of the State Council of the People's Republic of China (2011).

Case 2
The Sunshine Project: Tackling Rural–Urban Migration in China

Since the reform and opening-up in 1978, and later its entry to the World Trade Organisation in 2001, China has steadily developed a market economy, which has accelerated the growth of industrialisation and services in the urban areas. The new economic opportunities have attracted huge migration of people from rural areas looking for new livelihood and income opportunities.

Rural Labour Migration Challenges

Currently, there are 280 million surplus labourers in rural China with an estimated addition of 6 million each year. There were 114 million rural migrant labourers in 2003, accounting for around 20 percent of rural labourers. The migrant labourers mostly came from China's underdeveloped western and central provinces such as Sichuan, Anhui, He'nan, Gansu, who headed to urban areas in southeastern coastal locations and metropolises like Beijing, Shanghai, as well as nearby township and county centres, small cities and provincial capitals. By 2020, it is estimated that another 100 to 150 million "surplus" rural labourers will join the rural labour migration.

The government has come to appreciate the importance of addressing the issues of transition and integration of rural migrant workers into the new employment market and social environment. One attempt in this respect is the "Sunshine Project" launched in 2004. This is a joint initiative, under the State Council leadership, of six ministries, namely, Ministry of Agriculture (MOA), Ministry of Labour and Social Security (MOLSS), Ministry of Education (MOE), Ministry of Science and Technology (MOST), Ministry of Construction (MOC) and Ministry of Finance (MOF). It is one of the major components of the government's "Training Plan for Nationwide Rural Migrant Workers (2003–2010)."

The project, planned as an action-research, involves social science researchers in designing, monitoring and evaluating the actions, which include skill training, practical education (in such areas as law and health awareness), network building, and social capital formation, executed in eight selected pilot sites.

Goals and Objectives of the Sunshine Project

The overall objective of the project is the integration of migrant workers into the urban social and economic fabric through concrete services including training in basic and life skills, vocational training, career prospects, family planning, and health and rights awareness. The main target group is young and female migrants confronting discrimination both as migrant workers and as women.

Project implementation

To reach its goals, the project has adopted the following implementation modalities:

- Selection of a single local agency as the main local partner in each pilot site to take charge of policy implementation;
- Forging a triangle partnership consisting of governmental agencies (officials), academic institutions (researchers) and NGOs/NPOs at both national and local levels;
- Publicising and promoting the project in a comprehensive way, utilising publications, print and non-print media, academic seminars, art events, etc. and
- Preparing comprehensive draft policy papers/reports on the findings from the pilot sites for wider dissemination and follow-up both at national and local levels.

The project focused on 8 pilot sites throughout the country: Beijing, Shanghai, Dalian, Chengdu, Kunming, Diqinq, Chifeng and Zhuolu and an additional site in Mongolia. These sites have been selected to include sending, receiving and transitional areas in an effort to capture the full spectrum of challenges confronting migrants. In each pilot site, working partnerships are built between social scientists, NGOs (including local Women's Federations) and local authorities in order to promote and facilitate the provision of various training, counselling and health services for migrants.

The main actions of the project consisted of:

- Increasing migrants' awareness of legal issues, health, education and employment conditions;
- Developing a support network between young female

migrants for information sharing, social and psychological support, and collective action;

- Improving migrants' skills with concrete training based on their needs and interests;
- Developing awareness among inhabitants of "sending areas" about possible difficulties associated with migration and
- Coordinating action with policy-makers in order to improve the general situation of migrants.

Training activities

The project has thus far trained 1.5 million rural surplus labourers and successfully transferred 1.2 million people, women accounting for more than half.

Training of local officials and local partners in each pilot site is organised to facilitate participation of local agencies, establish networks within or between the project sites, and foster better understanding of the rural–urban migration issue. Annual national workshops for evaluating the projects' progress and follow-up action plans are organised with an active support and participation of municipalities, Ministry of Public Security, State Council, Labour Bureau and the private sector.

The training programmes and activities focused primarily on creating awareness and competitiveness among rural migrant workers for seeking gainful employment opportunities; carrying out vocational training based on periodic industrial structural adjustments; developing new projects to improve their adaptation for semi-skilled jobs; organising self-employment training for the returnee workers for establishing self-owned small-scale enterprises; and conducting practical training for strengthening their ability to learn new agricultural technology.

The project also organised on-the-spot recruitment fairs and labour service consulting seminars for rural workers; offered employment track and effective maintenance services; organised working skills contests; fostered labour services intermediary organisations and agents; built a series of effective and influential labour services brands companies across the country, such as Long Ge, Long Mei, Chuanmeizi, Chongking Fuqiao and Mizhi Housekeeping which are agencies that facilitated recruitment of workers by urban employers.

In its training programmes and activities, the project relied heavily on three types of networks. First, the social network is nurtured among migrant labourers and stakeholders (families and friends of migrants). Second, the network of sending and receiving places is used for linking local government agencies and for forging a cooperative relationship between sending and receiving places. Finally, the nationwide working network is used for pooling the trainers.

In cooperation with the Chinese Academy of Social Sciences (CASS), UNESCO developed a method of training of trainers (TOT). The trainers include local partners, government officials, NGOs and other civil society representatives. The TOT programme is designed to:

- Train local counterparts to understand the project's principles, strategies and methods;
- Involve more governmental agencies and other social actors, build a closer working network and publicise the project among them in pilot sites; and
- Strengthen the network among UNESCO, CASS and the eight pilot sites to share information and best practices.

Sunshine Project is financed mutually by central and local governments, with the local governments playing the major role; the central government subsidies went mostly to the western region and were rarely increased from 2008. From the initial implementation of Sunshine Project in 2004 till now, the central government had provided 5.4 billion yuan.

Monitoring and Supervision

The project is monitored and supervised by a team consisting of high-level experts and professionals in each thematic area. The major areas of monitoring and supervision of the project include the following:

- Project management and training;
- Administrative accountability;
- Training-based accreditation;

- Bidding and publicity and
- Project records (administrative and financial).

The members of the project team led by an associate professor and/or a professor supervised and assisted the technology-intensive and micro-processing enterprises owned by former rural migrant workers facing under-utilisation of capacity. The team also assisted in evaluating the rural education and training programmes and activities, particularly in vocational training schools.

Lessons Learned

During the 7 years from 2003 to 2010, 140 million rural labourers transferred to urban areas in China. The value-added of the manufacturing industry had also been increasing in these years where most rural migrant workers were employed. Evaluations carried out for the project reveal that the project has been successful in:

- Improving awareness of equality-based treatment of migrant workers;
- Improving vocational skills of trainees;
- Demonstrating a model of rural labour transfer;
- Establishing a series of labour services brands;
- Strengthening supports to new countryside construction and
- Contributing to increase in rural household incomes.

However, there are certain areas where concerted efforts are still needed for further improvement. They include:

- Improving the quality and scope of general education services for rural workers;
- Support and commitment to Sunshine Project on the part of all concerned parties;
- Improving efficiency in various operational aspects of implementation;
- Effective participation of various stakeholders and
- Timing and sequence of various activities in line with needs and opportunities in employment prospects and demands.

One of the weaknesses of the project is that the policies have yet to identify the "poorest" of the poor among rural migrant labourers. Class stratification has emerged among rural migrants in cities during nearly 20 years of rural labour migration. Many rural migrants have indeed integrated into urban societies and enjoy a high standard of living, while many others have not. Another weakness is that the policies have not paid sufficient attention to returnee migrant labourers, who can have both positive and negative impact on local rural development.

There are general policy issues which need to be critically examined in relation to the government effort to facilitate rural workers' geographical and occupational mobility. Are all the possibilities of pro-poor policies even within an overall framework of liberalised markets being fully utilised? Are the governance and regulations of the agricultural markets fair to the rural producers and workers? Public intervention in agriculture has been of paramount importance. If the paraphernalia of subsidies of inputs are set aside, dictated by the imperatives of the market, are there still economically rational and socially valuable market interventions that the Chinese Government can implement? How can public policies balance pro-poor and pro-market interventions with overall inclusive social and economic development as the paramount goal? In fact, if the objective of a policy is inclusion of migrant workers and small-scale farmers in dynamic markets, pro-poor policies that are not also pro-market are most likely to fail.

Source: Adapted from Li Xiaoxi: "Rural Migration in China: Operational Mechanism and Effects of China's Sunshine Project," School of Economics and Resource Management, Beijing Normal University.

Case 3

Approaches to Promoting Rural Entrepreneurship in China

3A. Combining Entrepreneurship and Cultural Identity: Longsheng County, Guangxi Province

Background

Longsheng multi ethnic autonomous county is located in the north east of Guangxi province. It is a mountainous area. Five major ethnic groups—Han, Zhuang, Yao, Miao and Dong—find their abode in this county. The county is predominantly agricultural. In 2010, the county's GDP was 31.9 billion yuan, with per capita GDP of 18,010 yuan, enjoying relatively a high annual growth rate of around 15 percent.

The landscape is full of idyllic scenery, dotted by distinct traditional residential architecture. Most houses are made of wood and their design and construction are based on meteorological principles and the ethnic traditions of the county. Building wooden houses rather than stone ones reflects a native concept of human-nature harmonisation.

More than one hundred annual festivals of various ethnic groups in the county are celebrated by the people. The county is known as the "hundred festivals county." The county is well-known for the Zhuang papermaking technology—a native craft, traditional folk dances and folk operas called Gui opera, Caidiao Opera and Dong Opera.

In 2011, the Longji Zhuang Eco-museum was founded. Three villages of the county were declared as the nature protection areas. These villages rely primarily on the terrace farming; the traditional Ganlan-styled residential architecture; flagstone roads; the special Bronze-drums symbolising the local song and dance culture; and the unique glutinous rice and rice wine representing the Zhuang food culture.

Rural Transformation and Learning Motivation

In recent years, Longsheng County has experimented a selected number of approaches to boost income, develop the villages and promote ethnic cultures through performing folk music and tourism. Keeping in view the rural festivals and the colourful ethnic folk culture, the county has built 15 "landscape villages" and 8 "classic villages" for showcasing the natural scenery. For promoting tourism in the county, it has recently built several hotels with exotic local cuisine and cultural programmes. Local handicraft products are readily available for sale in the village markets.

Women from minority ethnic groups integrate themselves in all development activities and with their counterpart men in the community through literacy programmes and participation in the rural and family economic development. The development of tourism has opened new and diverse avenues of income earning for women.

Strategy

In order to promote entrepreneurship while protecting and promoting the distinctive cultural heritage of the people, the county and village governments have established leading groups for cooperation between different departments. These leading groups are headed by the government officials from Women's Federation, Communist Youth League, Commission of Development and Reform, departments of agriculture, health, civil affairs and finance.

The county has also established a county community learning centre, a township adult technology school and hamlet community learning schools for various training activities for farmers.

Funding system

Each village provides at least 3,000 yuan and each town provides at least 5,000 yuan for development activities. This guarantees regular financial support to development activities. Further, the county mobilises donations from local residents for education and training funds for adult farmers in poor communities.

Working funds for the post-literacy training programme are utilised and distributed according to the distance from home to the community learning centre, education status, transportation facilities, adults' age and their other

pertinent needs. Utilisation of funds is closely controlled and monitored by Education Bureau and schools. These funds are equally allocated for buying learning, payment of teachers' salaries and trainees who met the basic learning requirements.

Skills training content and methodology

A strong mechanism has been put in place to protect and promote local ethnic art, culture and dance and music. There are nearly 200 amateur performance teams and more than 4,000 village performers who are encouraged and supported to learn, practice and perform in cultural performances and events.

Ethnic crafts and skills training base

In 2010, ethnic embroidery technical training centres were established in Xiaozhai, Shijing, Gudong, Baimian, Pannai, Guangnan, Shijia and other townships. These centres focus on training and development of talents and skills of 400 people. Such initiatives have also developed and supported ethnic carving craftsmanship. The county has established a good working relationship with carving maestro Meng Huanchun who has guided and developed quality products of the "seven stars surrounding moon," a wood carving with a traditional mythological theme. This artefact has attracted orders from Europe, the United States and other countries.

Literacy and skills training

Longsheng county initiated multi purpose schools to provide technology and skills training and literacy education for adults during holidays and in the evening. In addition, there are 10 county and township-level adult culture and technology schools, and 105 village-level adult culture and technology schools, which have trained a large number of traditional workers and farmers.

Night schools provide both learning and training facilities to adult learners. Bilingual (local dialect and mandarin) teaching-learning methods are practiced in the schools whereas the training programmes are organised to develop learners' skills in embroidery, folk dance, tourism, English language and farming technology.

"Mothers' class," "grandmothers' class" and other classes for adults were conducted to promote the harmonious development of early childhood care education. Almost 10,000 parents attended the pilot training programme which accounted for 78 percent of the parents in the pilot area.

Training content

Examples of skills training content includes "household electrical appliances operation guide," "applied production technology," "daily practical skills," production of fertilisers and green pesticide, mobile phone (or computer) operation, biogas production and use, health care, hygiene, sanitation and family planning. The learning contents are practical and demand driven.

Learning material

The county has revised and published 10,000 copies of learning materials (loose-leaflet materials) and developed learning modules on diverse themes affecting the day-to-day lives of ethnic minorities. Nearly 20,000 copies of teaching materials on vocational training have also been printed. The county designed several literacy training manuals and resource packs, especially the "literacy folk songs for farmers" and "applied rural technologies."

Challenges and Concluding Remarks

The number of young women and men who participated in cultural heritage activities is declining. Those who are involved in these activities are adult women. Many of them have no basic education and are reluctant to come forward and participate in various activities. The children, mostly with modern school education background, do not want to stay at home and exercise and engage themselves in supporting parents in agriculture-related work. Consequently, the sustainability of ethnic culture is at stake due to these challenges.

In addition, tourism development is mainly linked to market needs. There is a lack of specific programmes which tackle the issues of empowerment of women and economic aspects of the tourist industry holistically.

Decline of ethnic culture and traditional skills

Learning about and inculcating ethnic culture and skills through traditional educational methods and acquiring modern skills and knowledge need not only to be mutually complementary but also inclusive. But as more and more children intend to enrol in town schools which are located far from their families and villages, the family and community education which focuses primarily on transferring ethnic culture and skills from one generation to another is disappearing fast. Ethnic languages, skills and cultural traits and practices are becoming more and more unfamiliar to ethnic minority children.

Changes in agricultural production technology and practices are posing great challenges to the preservation of traditional agricultural techniques, crops and the cultural legacy associated with these. The unique farming techniques and related ethnic folk activities can make a useful contribution in the preservation of the complex agricultural ecosystem, forest protection, water sources conservation and adaptation of traditional rice-farming and agriculture processing. These can be nurtured and kept alive if they are utilised in a complementary and inclusive way or are firmly integrated within the framework of the local agricultural production system and other development programmes.

Special disadvantage of ethnic communities

The ethnic groups without a written language, attempting to preserve their heritage, have encountered the fiercest challenges. Not many people can sing the songs; little modern life content has been added into the songs; and the native youngsters rarely want to learn the songs. Special efforts, resources and policy commitment are needed so as to ensure that the precious heritage of the small communities is not lost.

Source: Contributed by Lan Jian, National Institute of Educational Sciences, Beijing.

3B. Start Your Business and Improve Your Livelihood: Reviving Enterprises in Post-earthquake Sichuan (2008)

Background

Start and Improve Your Business (SIYB) Programme, initiated by the International Labour Organisation, has been implemented in many countries including China. The essence of the programme is to improve the living conditions of vulnerable groups and help them get decent jobs by providing job opportunities, occupational skills training and training on self-employment. The programme has made a great contribution to the reconstruction after the earthquake occurred on 12 May 2008 in Sichuan Province in China. It has greatly accelerated the rural transformation, promoted the economic growth of rural areas, improved the rural economic structure and enhanced the living conditions of rural population in the project communities.

Goals and Content of the Programme

The overall aim of the Emergency Start and Improve Your Business (E-SIYB) Programme was to provide targeted assistance to re-establishing destroyed small businesses and setting up new ones for those who lost their jobs, which eventually made a contribution to the reconstruction of some of the most destroyed cities and townships in the earthquake. The programme supported three groups of people, including unemployed workers who lost wage employment and had strong willingness to start businesses; farmers who lost land and other assets of agriculture and had strong willingness to start non-farm income generating activities or family businesses; and small business owners who lost their businesses but were willing to start again. The E-SIYB Programme, a short-term emergency assistance project, was implemented from July 2008 to 30 September 2009.

During the implementation process, the self-employment training system was established in six cities and townships, through which a number of people received training on management and training methods. These trainees now constitute a cadre of qualified managers and trainers, providing self-employment training and technical assistance to more and more people.

Key activities and outcomes

The programme focuses on entrepreneurship education and training of E-SIYB. It is complemented by small grants or small loans, short-term vocational training and comprehensive technical support for building a supportive environment and for starting a business. This was aimed at the targeted beneficiaries to recover or start small businesses and to realise employment and livelihood restoration in the process of reconstruction in post-disaster areas.

The training activities also demonstrated that with the progress of post-disaster restoration and reconstruction work, the large number of infrastructure and house reconstruction also stimulated entrepreneurial opportunities in architecture, building material, transportation and other industries. Meanwhile, the gradual recovery of urban and rural residents' daily consumption promoted business opportunities of commerce, industry and the service sector.

Policy Commitment, Public Participation and Initial Assessment

The programme was set up at policy level with provincial and municipal authorities. This was followed by communication and decision at local community, county, town, municipality, village and employment service stations. A series of promoting activities were organised through media, flyers, brochures, briefings and seminars organised by related industries and associations.

The programme adopted two ways to evaluate the damage and loss situation of the affected enterprises:

- The local employment service bureau and employment service station of county/village level visited households who owned small businesses, collected information about damage and destruction and determined the potential participants for the training programme; and
- E-IYB and E-SYB trainee registration cards were used to specially collect destruction information of small businesses, understand the learning needs of the trainees, which helped to design the curricula to ensure the training quality.

The three requirements for the selection of trainees were:

- They have to be affected farmers and unemployed workers because of earthquake;
- They must have willingness to start a business; and
- They must have basic literacy and numeracy skills.

E-SIYB Teachers—guaranteeing quality of trainer

The core task of E-SIYB programme was to provide IYB or SYB training to affected small enterprises and affected people who wanted to start their own businesses in disaster areas. Therefore, it was crucial to have a team of qualified teachers both in terms of number and quality. According to SIYB standard, each class could only have 20 students. To ensure the availability of the required number of teachers, the programme conducted two 10-day IYB teacher training courses in October 2008 and January 2009 respectively in six cities and counties which produced 40 new IYB teachers.

Organising teacher improvement

In the class, trainee teachers learned to use new technology, new methods and new teaching materials. The training materials specifically designed from a gender perspective, "Gender and Entrepreneur Together-GET-AHEAD," were also used. These were adapted for local use aiming at developing of female entrepreneurs in rural areas. These SYB teachers became the backbone of the local training institutions that would provide their services in the long run in the disaster affected areas.

Adjusting and revising training materials

Training material of "improve your business (IYB)" was adjusted to meet the needs of E-IYB. To help small construction enterprises to get the contracts for local reconstruction and other projects, the programme relied on ILO modules: "start and improve your construction business (SIYCB)." The GET-AHEAD materials, keeping the gender perspective in view, were also adapted for local use.

E-IYB and E-SYB training

The programme held 64 E-IYB courses in the pilot cities and counties. A total of 1,280 small business entrepreneurs attended the training classes. Training organisations and teachers carefully selected trainees in accordance to their skills needs and developed the teaching plan and demonstration lessons. In the teaching-learning process, participatory methods were utilised to fully motivate trainees. The programme also organised six emergency Improve Your Construction Business (E-IYCB) training courses for 120 small construction entrepreneurs.

E-SYB training courses were held to provide classroom-based training in remote rural areas with limited facilities. Teachers built classrooms in difficult hilly areas. The programme furnished short-term skills training for enterprises that had specific skills needs, for instance, restaurant cooking and vegetables and mushroom planting, beauty parlour, souvenir production, eco-tourism, Chinese New Year greeting cards, embroidery, rattan craft, handicraft, computer and mobile phone repair, etc. The E-SYB programme became a life-saver for the families and a source of encouragement for people in the earthquake affected areas.

Green business options courses

The programme used "Green Business Option (GBO)" training module of ILO for starting green businesses. The aim was to help trainees discover green business opportunities in the post-disaster reconstruction process. During the training, the trainees had more than 60 green enterprises ideas, including turning the waste into useful resources, development of organic farming, handicrafts production, improving methane facilities and post-disaster waste treatment and so on. GBO programme raised the environment protection awareness of rural residents and infused among them the concept of sustainable development.

Access to financial assistance

The programme gave attention to assisting trainees to get capital funds. As a follow up of training, teachers assisted trainees by informing them about the local reconstruction plan, microfinance programmes and credit plans through telephone communication, home visits, and group consultancies. More than one third of the trainees applied and received funds from the organisers.

Each small-scale business enterprise received trainers at least twice for consulting services. Teachers regularly visited trainees' enterprises in person and reviewed their business outcomes. They also provided consultations on auditing financial accounts, cost control and price setting of their products.

Surveying market opportunities for vulnerable groups and rural women

The programme attached special importance to assisting businesses for rural entrepreneurs, especially business opportunities for rural vulnerable groups. The programme deployed experts to conduct market research and undertake skills needs surveys using the ILO "TREE" method. The following business skills development areas were strengthened:

Business Opportunities in Selected Areas

City/County	The selected businesses
Pengzhou	Organic chicken, pig breeding, handmade souvenirs, mushroom cultivation, eco-tourism
Dujiangyan	Livestock farming, pollution-free vegetables, eco-tourism, fish farming
Mianzhu	Chinese new year painting production, embroidery, handicrafts, traditional pastry production
Shifang	Processing of organic pickles, organic pig farming, aquaculture, catering
Anxian	Konjac planting and processing, bamboo crafts, silk processing, traditional pastry production
Jiangyou	Energy-saving lamp production, stone sales, mop production, rabbit skin and leather processing

The leaders and members of cooperatives had an easy access to E-SIYB training and microcredit facilities to organise and start group entrepreneurial activities. Experts evaluated and selected 21 cooperatives and 114 entrepreneurs for the E-SIYB grants with a total sum of US$ 100,000.

Key Features and Lessons

The programme attached great importance to local conditions of the disaster affected areas and the business potentials of local people. It utilised available local resources and markets and identified ways and means for starting new businesses or re-establishing the ones destroyed by the earthquake.

- The concept of "decent work" of ILO was applied, focusing on helping vulnerable groups such as rural women and disabled people to seek gainful employment and protect the local environment;
- The programme carried out comprehensive market surveys, learning and skills training needs assessment surveys, reviewed market potential and highlighted several opportunities for starting and/or re-establishing small-scale enterprises;
- An easy and quick access to funding was ensured in each pilot village, town and city; and
- The content of the training programme corresponded with the reality of the post-disaster areas and the training methods were highly effective and demand driven. The training built and strengthened their capacities to undertake new business ventures and instilled in them tremendous confidence and self-esteem.

The programme provided an example of effective and positive response to post-disaster crisis. It also demonstrated effective ways and means to promote rural transformation, develop the rural economy and improve the livelihood of rural people through skills training.

Source: Compiled by Jing Ming based on reports of Ministry of Human Resources and Social Security, People's Republic of China; ILO and DFID, U.K.

3C. Integrating Agriculture, Science, Technology and Education to Improve Agricultural Productivity in Deqing County

Background

The integration of Agriculture, Science, Technology and Education sectors (Nong Ke Jiao Jie He) for increasing agricultural production and community development has been the national strategy for rural transformation in China since the 1990's. The underlying goal of this strategy is to mobilise human, financial and material resources offered by agriculture, science, technology and education for modernising agriculture and to improve the living conditions of rural poor.

Deqing County is located in the northern part of Zhejiang province. More than one third land surface of the county is surrounded by mountainous and hilly areas. Agriculture activities comprise forestry, fisheries and animal husbandry. The pilot project made significant strides and resulted in augmenting the per capita income in the county to 13,575 yuan in 2010, 2.8 times higher than a decade ago.

Cultivation of high-quality bamboo shoots is the main source of income of people. As a traditional exotic food, it has thousands of years of history, but it has hardly yielded much profit to local cultivators. The preliminary research undertaken by the Wukang community learning centre revealed that delays in harvesting bamboo shoots in the county as the main reason of meagre economic returns to cultivators. Another problem was decay and erosion of land fertility.

A Strong Coordination Mechanism

In order to address these issues, the county administration developed an Inter-sectoral Working Group comprising senior officials from the departments of education, science and technology and finance, and the local association was set up to plan, implement and administer this pilot project. The community learning centres served as the training bases for executing the project.

The skill training under the framework of inter-sectoral coordination relied primarily on local needs. In its implementation strategy, an outcome-oriented approach was taken to plan and implement education and training activities of CLCs. Within this approach, attempts were made to select the right programme, promote relevant technology and develop a pool of trained technicians and experts for each group of farmers and cultivators in line with the main features and physical and material resources of the county.

Experimentation and Trial to Develop and Adapt Technology

The local adult schools and programme coordinators established specialised production cooperatives which carried out experimentation on planting and growing the bamboo shoot. The teachers of Wu Kangcheng CLC maintained direct contact and liaison with cooperatives members, kept daily records of forest's temperature, utilised modern techniques to control the adverse effects of temperature and humidity during the crop season, and recorded and analysed the outcomes of these measures. They analysed the impact of chemical fertilisers on productivity. Efforts were also made in marketing the products.

In order to win the trust of farmers, practical demonstration lessons were organised by the CLC technicians. The CLC selected motivated and enterprising households to serve as demonstration farms. The centre provided technical guidance to 27 selected demonstration households, supervised their progress, examined and analysed problems and suggested concrete remedial measures.

Lessons Learned

The experience of Deqing county showed that a mechanism for cooperation and coordination is the key for enhancing the agricultural productivity. The county/township level government played a major role in inter-sectoral cooperation and coordination.

Technicians of the Wukang CLC maintained a close working relation with universities and research institutions and periodically invited experts and technical staff for field visits and organised seminars for knowledge and experience sharing.

Each county/township CLC was encouraged to develop locally tailored training programmes based on the principle of "learning by doing."

Source: Contributed by Lan Jian, National Institute of Educational Sciences, Beijing.

Case 4
Multi-purpose Community Learning Centre in Yunnan

Background

Given the diverse rural contexts, education for rural transformation has to be linked to the specific skills needs of the rural community. A multi-sectoral educational approach that integrates formal, non-formal and informal education is necessary. Community learning centres (CLCs), as a bottom-up approach, which emphasises empowerment at the grass-roots level, have become popular both in foreign aid programmes and in national initiatives. As one of the poorest and agriculture-based provinces of China, its development is vital for improving the socio-economic condition of its people and in particular its rural folk. Its high ethnic diversity implies diverse learning needs.

A participatory learning approach based on strong CLC-community partnership guides the activities of the CLC. The approach is geared towards harnessing maximum opportunities and benefits from the limited resource endowments of the province. This case study shows how an education model that is flexible in delivery modes becomes a vehicle of rural transformation. The study also examines and highlights the operational aspects of planning and implementation.

The concept

In China, CLCs are established:

- To eliminate illiteracy and provide continuing post-literacy facilities;
- To disseminate information on the use of agriculture-related science and technology so as to upgrade technical competencies of rural people, particularly the rural women, for enhancing the quality of labour force and agricultural productivity;
- To improve the socio-economic conditions by increasing incomes of community members;
- To empower through knowledge and skills the most disadvantaged and vulnerable population groups, such as women, out-of-school youth and ethnic minorities,
- To provide life long learning opportunities, serving as a permanent training institution for rural people and enhancing their ability to participate in sustainable development and
- To preserve and promote local culture.

In addition to literacy, general basic education and skill training activities, CLCs also provide courses on legal rights, healthy life, disease prevention, sanitation and hygiene, and general improvement of the quality of life of rural people.

Profile of Yunnan

Yunnan has the highest number of ethnic groups among all provinces and autonomous regions in China. Twenty-five minority groups account for one-third of the population of Yunnan. It is also one of the poorest provinces of the country. In 2002, per capita GDP of Yunnan was US$ 627, and rural per capita income was US$ 195. Of the total population, 74 percent live in rural areas and 33 percent of the rural people live below the national poverty line (around 0.31 US$ per day). Tobacco, animal products, minerals and tourism are the main sources of income of majority of its inhabitants. The province is mainly agrarian.

As one of the poorest provinces with diversity ethnic groups, Yunnan has attracted foreign aid in development projects, for example, those supported by UNDP. The 11th National Development Plan (2006–2010) accords special status to Yunnan's economic development.

Besides universal 9-year-comporsory education, various non-formal programmes are organised for increasing income and empowering the marginalised rural poor and ethnic minorities in the province.

The Case: Community Learning Centre in Yunnan

The programme to establish CLCs was launched in 2001 in Liushao county and Lianhe county (both minority inhabited areas) of Yunnan province. CLC in Yunnan province comprise four major components: a training centre, a library,

a development centre and a cultural activity centre. CLCs rely on the principles of participatory-learning and maintain close links between educational activities and community development.

The operational framework of CLCs was designed by a research group of Yunnan Normal University. A unique local-tailored model has been developed according to education and socio-economic development needs of Liushao and Lianhe counties. Local primary schools and community committees were directly involved in establishing the CLC with the support of local government and technical guidance from higher education institutions. The aim was to address the learning needs of teachers, students, parents and villagers of the county. The four components of CLCs, noted above, represent different and somewhat independent functions of a CLC; but they share the same goal, that is, to improve overall quality of the local human resources, facilitate economic growth and preserve and promote minority cultural heritage in the area.

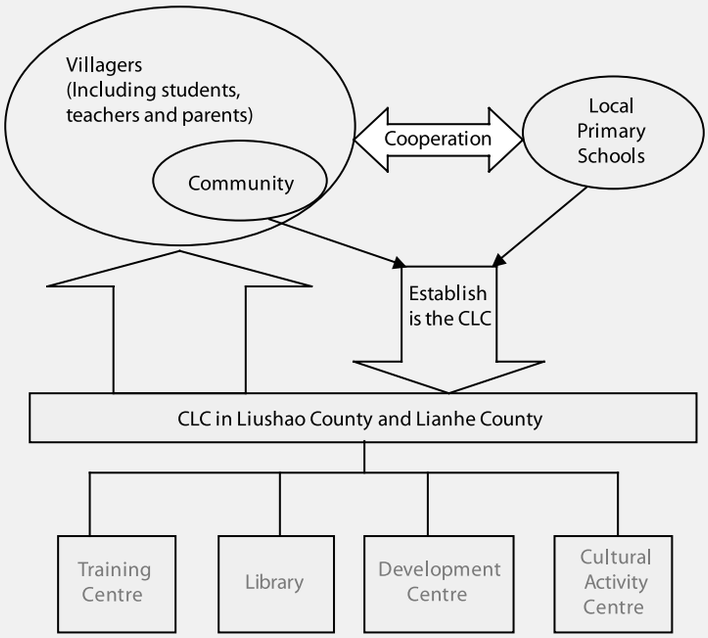
The training centre provides three kinds of education and training:

- Training for rural teachers;
- Courses for community members (including literacy and basic life skills) and
- Training in modern agro-technology.

The library was set up in 2005 in order to enrich the knowledge and spiritual development of local people. The development centre offers the demonstrable opportunity to trainees to deploy the acquired knowledge through CLC into practice and help trainees undertake income-generating activities. Training programmes in the use of modern agro-technology and field visits are also organised by the development centre.

The cultural activity centre of the CLC is its unique feature. Being located in an area of ethnic minorities, preserving and promoting local culture and traditions are seen as one of the key functions of the CLCs. By adding knowledge of traditional culture in the learning content and holding various traditional cultural activities, trainees are encouraged to learn and develop and be proud of their ethnic identity. The organisational structure including the four components and how they interact with each other and promote the objectives of the CLC in Liushao and Lianhe counties are shown in below.

Figure A1.1 Organisational Structure of CLC in Yunnan



The CLC represents a bottom-up model, where learners from the local community are closely involved in establishing the centre and in implementing its activities. The emphasis is on empowering people to help themselves through learning and development activities including skill development, income-generation and well-rounded development of human resources.

Since their establishment in 2005, about 1,500 people directly benefited from training provided by the centres. Recently, CLCs have also set up potato growing laboratories. Numerous cultural activities were held to enhance appreciation and respect for ethnic cultural identity and tradition.

Planning and management process is decentralised and is highly flexible. A participatory approach is applied in all decision-making process.

Concluding Remarks

The CLC appears to be an appropriate institutional model to offer NFE programmes to meet the diverse learning and skill development needs of rural people, mobilising local resources and involving local people. As the case study shows, flexible and responsive education and training can be provided by the CLC to serve specific learning needs and promote the broader goal of empowerment of people. Research and technological development concerning agriculture was adapted in accordance to local needs and conditions; cooperation and coordination among education institutions and labour market enterprises was given attention to improve the relevance of education and training activities. The development strategy promoted by central government is thus successfully implemented at the local level through coordination and cooperation among various bodies involved in rural development.

The CLC in Yunnan illustrates the effort to link research and planning with market needs in order to achieve a balanced and integrated agricultural education geared to real life conditions. The connection between higher educational institutions and the local community in order to adapt and respond to variability in local geographical conditions is evident in the activities of the CLC. The potato growing centre, the related research and their contribution to promoting the potato growing industry in Liushao and Lianhe counties is an example of the linkages between research, training, market and community organisations.

If investment in education in general is justified, investment in rural education is even more so. Many countries still continue with an urban bias in the allocation of resources. While the majority of the population including the most disadvantage groups lives in rural areas, imbalances in resource allocation further aggravate disparities between urban and rural populations and result in unplanned development of the country.

For the knowledge society, education can no longer be a time-bound endeavour, but rather a continuous activity throughout one's life. In the same vein, education for rural development has to provide opportunities for the disadvantaged groups to cope with the changing reality and exercise choices to improve their lives. The CLC can be the institutional vehicle for making education a continuing activity. It can thus be a flexible and permanent mechanism for transforming, renewing and upgrading skills and capacities. The merits and potentials of such non-formal and life long learning should be deeply explored and seriously promoted for the benefit of rural people. Nevertheless, it has to be kept in view that education is not a magic bullet; there has to be cooperation, coordination and linkages among complementary and supportive educational and non-educational components of the total development effort, as CLCs in Yunnan illustrate.

Source: Contributed by Zhang, Wen (2010). Adapted from presentation made at the Dujiangyan International Forum, Chengdu, China, 6–8 August, 2011.

Source: Wang L. (2008) Practical Exploration on Constructing Community Learning centres Based on Schools in Rural Ethnic Areas—A Case Study of Liushao and Lianhe Towns in Xundian County, Yunnan Province. Educational Research, No.12, pp.91–94.

Case 5

Higher Education in Rural Transformation—Agricultural University of Hebei in the Taihang Mountain

The Agricultural University of Hebei (AUH) had been involved in the advocacy of an education and development model "Combining Theory with Practice" in the context of rural China. Known as the Taihang Mountain Model "Road to Prosperity," it has attempted to harness the potential of education, science and technology in reconstructing the rural economy and reclaiming the ecological environment of the mountainous areas of Hebei Province.

The Taihang Mountain Model

Taihang Mountain is the largest mountain area in Hebei, China. Changing its poor underdeveloped status and its ecological environment is of great strategic significance for Hebei Province.

Since 1979, the experts from AUH have been conducting research and analysing the characteristics of the mountainous regions. The research led to the overall guiding principles: priority to transforming poverty before transforming the mountain eradicating ignorance before eradicating poverty and transforming the intellect and mindset before addressing poverty.

An experiment was initiated in combining demonstration and extension services, building into it the use of technology to address rural poverty along with education and preventive preparedness against natural calamities. The AUH professors and staff provides advisory services to farmers, for instance, on growing strawberries in simple locally made green houses, growing persimmon trees in the mountain, raising rabbits, and improving crop production. Since its inception, there have been noticeable increases in agricultural productivity and incomes, and awareness raising for the protection of the local environment.

Planning and implementation

AUH with active participation and involvement of communities launched diverse income-generating projects aimed at opening up several areas of production and development at the county level. Objectives of these projects were:

- To enhance farmers' knowledge of science and technology to improve farming practices in order to increase agricultural productivity and income;
- To develop local industries and rural entrepreneurship to create more and more employment opportunities; and
- To reverse the condition of deteriorating natural environment of the county.

The Task Force for the projects comprised faculty experts, students and personnel from provincial and local departments and bureaus.

A wide variety of methods and materials were used in the implementation of the education and capacity building work. Farmers' night schools, winter schools, technical consultations, experimental bases and demonstration labs, inputs service stations, the science and technology market, and model households were some of the mechanisms of dissemination knowledge and changing practices and improving skills. Learning technologies comprised of bulletin boards, blackboards, posters, leaflets, radio and TV broadcasts, technology prescriptions handouts, slide shows, video films as well as scientific exhibitions and cultural programmes.

Project activities

Based on the comprehensive analysis of experts and following a holistic approach, various activities were carried out. Experimental bases were set up which served as demonstration sites aimed at disseminating knowledge about agricultural technologies.

A system of extension and training for dissemination and application of agricultural technology on farmers' fields and at homes was put in place. This was accomplished by various activities, such as:

- Compilation of practical technologies based on field research;
- Training of farmers to adopt technologies that required less and less manual labour without adversely affecting agricultural productivity;
- Organising technical consultation with farmers; professional technical societies for specialised interests (e.g., Fuji Apple Development Society);
- Establishment of the scientific and technology market of AUH linking university with farmers for mutual benefit;
- Selecting poor counties (10 out of 39 in the province) to set up experimental villages to implement the "prosperous village" project to carry out poverty alleviation strategies;
- Linking up with and bringing in the services of national projects that focused on rural education reform, agricultural technology extension and poverty alleviation;
- Training farmers to become leading members of an extension workforce under the Green certificate programme of the Ministry of Agriculture and
- Setting up the Beigu Farming School in Anping County with AUH technical support which trained 16,000 farmers in advanced techniques, 240 of whom were appointed as farmer technicians by the County government.

Human resources were mobilised with AUH guiding the effort in forming scientific and technical extension teams. Vocational students in the counties joined farmer technicians in providing skill training and advice to farmers. Every year in over 20 departments of AUH about 500 specialists and researchers, and over 1,100 students, stayed in rural areas and assisted farmers.

AUH supported information dissemination, availability of resource materials and cost-effective marketing of inputs. For instance, AUH set up strong marketing networks for Chinese cabbage seed in Gaoyi county. AUH contributed 6,000 books and reference materials and other teaching equipment to Yongnian county Professional School and to Beigu Farming School. Farmers were organised into various technical associations to bring into play their initiative to learn and use science and technology and knowledge about marketing their products. These measures included: Mushroom Association in Tang county, Chicken Association in Lai Yuan county, Red Fuji Apple Association in Shunping county, Watermelon Association, Peach Association, Vegetable Association, Maize Association and so on.

Empowering villages through education, science and technology: the Chaichang village

AUH participated in the project of Empowering Villages through Education, Science and Technology initiated by the Chinese Association of Agriculture. Chaichang village was selected as the first pilot village of the project in 1995, where action research and theoretical analyses were undertaken.

By 1999, AUH had extended its programmes into 9 villages in 3 pilot counties where about 800 AUH professors had offered about 600 various technical courses for about 80,000 trainees, distributed 60,000 copies of training materials, donated 10,000 scientific and technical books and periodicals. As a result, more than 100 latest techniques identified by AUH research projects were introduced to the farmers, which made a great contribution to the socio-economic growth of communities in these villages and counties.

Growing fruits in Shunping and Mancheng counties

Shunping county is one of the poorest areas in Hebei province situated on the eastside of Taihang mountain. AUH identified the county as a favourable location for growing Red Fuji apple. Through research and development over 10 years practical techniques were packaged and extended to farmers in Shuping. Red Fuji apple from Shuping has become a well-known brand across China and abroad.

The fertile soil and climate of Mancheng county is suitable for growing strawberries. However the yield was low due to poor varieties, mono-planting and backward farming techniques. AUH Department of Horticulture experimented several local and foreign varieties of strawberries. Seed plots were set up to provide a stable source of planting materials for successive production seasons. High-yielding pest disease resistant varieties of apple plantation were identified and farmers were motivated to use these varieties at larger scale. With technology support, off-season growing of strawberries in greenhouses was also introduced.

Organising farmers' association in Tangxian county

AUH approach to extension work is described as a collaborative process, that is university experts bring relevant technical knowledge; local government personnel coordinates, model households are selected as the core units for developing and adapting the techniques and later demonstrating these to others, and all other farmers are encouraged to join various associations based on their interest in order to benefit from the techniques.

AUH organised more than 10 farmers' technical associations, which have facilitated farmers' access to modern practices and brought them economic benefits. The establishment of these associations played an important role in the development of the rural economy.

Group contacts to facilitate coordination in Dingxing county

AUH organised the technical contact groups of "Synthetic Agriculture" in Dingxing county to offer technical assistance in the use of science and technology in farming. The group was set up through the following procedure:

- A leading group composed of personnel from the prefecture, the county and the university was set up;
- The university established a consultative group with professors and specialists in relevant disciplines;
- A service network with the local government departments of finance, banking, supply and marketing, materials and oil supply, and town service stations was formed to support the work of the Contact Group;
- Working through the Contact Group, AUH extended education outside the university by training the staff from middle schools and vocational schools as active technology carriers to rural areas; and
- Based on investigation and knowledge of the area, the university constructed an overall "system model" of rural development with a five year time horizon which included plans for agriculture, forestry, animal husbandry, fishery and rural enterprise. The model also included model sub-systems for crops planting, fruit processing, animal husbandry and rural enterprises.

The Contact Group approach greatly facilitated cooperation and coordination among departments and agencies in the county for the benefit of rural people. The output of grains, cotton, edible oil, meat, fruit and vegetables increased remarkably.

Scientific and technical market at AUH

AUH set up the General Developing Company of High Technology in 1988. It also established a market street as a bridge between the university and rural areas. The market was intended to bring together and demonstrate modern farming methods and advanced farming technology.

The AUH farmers' technical market has a number of special features, for example, shops selling high-yield varieties of crops and varieties of hybrid corn. The market also has expert clinics set up to give farmers free consultation and to respond to farmers' queries about crops and livestock pests and disease control. The AUH market has earned enough popularity to extend its business to 24 provinces.

The technical market has also become the demonstration site for students in pursuing studies in agriculture and farming. The market has also become a source of income for the university, earning for it over 100 million yuan annually.

Sustainable development in Qian Nanyu village

Qian Nanyu village is a case where engineering and partnership of university experts and village people protected disaster-prone plains and mountains and promoted sustainable development of the rural economy. In the aftermath of a devastating flood in Xingtai City in Hebei province in 1963, researchers from AUH investigated and designed a plan to help people recover from the effects of the flood.

Qian Nanyu Village in Jiangshui Town was taken as a pilot site. The whole village was flooded. Aftermath the devastating flood, fertility of cultivable land was adversely affected and the hillsides used for farming were badly damaged. The villagers were at the verge of migrating to nearby villages, cities and towns for survival. The AUH devised a plan to transform soil to raise the level of some of the flooded land and make the plots ready for planting a crop. Plans were made to protect the slopes of the hill and tame the river gradually. The village people, strongly motivated to

protect their native village, were mobilised to carry out the whole construction process. The combined effort of the university experts and village people solved the problems of flood, drought, poor soil and erosion which had been a scourge for the area for a long time.

Concluding Remarks

Combining theory with practice in the Taihang Mountain Model of development has proven to be of mutual benefit to university students and teachers and the people of rural communities.

The AUH experienced innovative and successful endeavours regarding the role of higher education institutions in knowledge transfer and skills development within the framework of extension services provided by the institutions of higher learning but rarely exploited by policymakers.

- An agricultural university should be located in the rural area and must have close interaction with rural communities;
- Universities need to commit themselves to the cause of rural transformation and clearly identify as their mission and goal to make a significant contribution to rural transformation. A strong and effective partnership with rural communities, contributing to their overall well-being, should be an important element of the academic, research and service roles of institutions of higher education, especially those concerned with agricultural development;
- Governments at different levels should commit themselves to support universities' rural development programmes. Government commitment, financially and administratively, has proven to be a very important ingredient for universities to be successfully involved in rural and regional development programmes;
- Communities need to be drawn proactively into universities' rural development programmes. An approach of partnership and meaningful participation of the main stakeholders is essential for sustainable outcomes;
- AUH has powerfully demonstrated that the farmers realised and understood the value and potential of technology, and the relevance and logic of eliminating ignorance. They recognised that a strong commitment is necessary to practise scientific methods. The institutions of higher education need to capitalise on this positive reality and nurture it and
- Recognising the diversity of conditions and adapting to local contexts, responding to and learning from local realities, are essential conditions for success for universities in playing their role in rural transformation.

The rural and mountainous areas in Hebei remained isolated for a long time. The isolation led to low levels educational attainment, higher rates of adult illiteracy as well as adherence to conservative and traditional attitudes taboos. Farmers, therefore, were inclined to stick to the traditional methods of farming and resisted strongly to changes until they noticed concrete and tangible results.

The university, government and community have to work in unison to provide information and knowledge, enhance skills and capabilities of people and create conditions and incentives to promote rural transformation. Governments have special responsibilities for financial and administrative support and for putting in place relevant strategies and policies. The benefits and opportunities offered by the modern digital communication and information technology yet to be exploited and harnessed. All these efforts contribute to the establishment of a learning society and empower the rural poor.

Source: Contributed by Wang, Li based on Wang, Li (2005), A Comparative Study on the Role of Universities in Rural Development—Agricultural University of Hebei and Charles Darwin University, Northern Territory, Australia. Ph.D. thesis, Charles Darwin University, Australia.

Case 6
Skills for Rural Entrepreneurs in Australia

Background

This story about entrepreneurship development in Australia is written in a question and answer mode. The entrepreneur in this story is Tahn and his business is Tahn's Spraying Services (TSS). The context for the development and transformation from employee to entrepreneur is a small rural town, Picton in the state of New South Wales, Australia which is a small service centre for a larger farming community that has mixed fruit growing, tourism enterprises, family accommodation enterprises, dairy farming, bee keeping, mixed farming and a small shopping service centre. This town is situated just off a major Freeway which joins up a number of much bigger centres. The business was established to cater to the small rural town and to expand into the much larger market centres located within close proximity.

Rather than writing the case as a descriptive account of the development of a rural enterprise, this case study is written as a training device for entrepreneurship promotion in a rural setting.

As an example of identifying the salient features of entrepreneurship, two people, the trainer/community facilitator and the trainee/rural worker, could role-play the scenarios in the question and answer (Q&A) exchange, either on a one to one basis, or in front of a community group. This approach will enable the "apprentice entrepreneur" to gain valuable knowledge and the skills needed in his or her quest to become an entrepreneur.

In a second stage, the trainee/rural worker can identify a particular business he or she wishes to develop and use the same critical questions to determine the skills they will need to start up and develop a particular business enterprise. The trainer/community facilitator interviewer asks questions to the potential entrepreneur and the entrepreneur gives answers from his or her perspective. The questionnaire elicits content from which skills development issues and training can be identified for successful transformation from a rural employee to a rural employer.

The Q&A format helps the learner to understand and identify the nature and character of skills required for rural entrepreneurs and to develop the content and process of skills formation. This learning stage is followed by a skill deduction exercise. This is an iterative process and all the necessary skills for a particular business are not necessarily identified in one stage. It is necessary to reflect on the answers and further consider the skill needs and skills development issues, activities and processes, which may be indicated by the answers, as illustrated by the Q&A below.

Q&A for an entrepreneurship development exercise

Q: What was your motivation to start your own business?

A: I decided to start my own business because I am a hard and focused worker and I always gave 110 percent to any employer that employed me. I felt, however, that most employers did not appreciate the time and effort that I put into my work for them. So I thought I would be better off using this drive and focus in my own business. That way I would have complete control over my own future. I would also be able to provide a better future for my family in these rapidly changing and unstable times.

Lessons learned: A focus and drive to succeed are needed to develop entrepreneurship, transforming lifestyle and work skill.

Q: Did your parents understand what your business was about?

A: Yes, but they were concerned about how I was going to be able to build the business and create an income out of it. My parents come from non-business backgrounds and no one had owned and operated a business before; so I was heading into new territory. While I could get help and advice on certain issues, I had to research and develop myself a lot of the information about running and conducting a business.

Lessons learned: Research skills have to be identified and applied to know the market; lifelong learning and computer and e-net skills are important in this context.

Q: Any negative comments about starting your own business? Did people say just get a normal job or keep working for wages?

A: Many people at first sight told me that I was silly starting my own business because of the risk. They told me I would be better off and better able to provide for my family if I had a secure job. But the idea of a secure job made me feel insecure. For example, if I needed more money how could I find it in a job, if there was no paid overtime, etc. In rural environments nothing is secure. I felt that in a management consulting style business like TSS I could earn money without actually doing the physical fieldwork all the time, once I had the contracts in from the hired professional experts. I could have money coming in while I was on holidays with my family, which would never be possible as an employee.

Lessons learned: It is Important to identify business and personal life spaces and have a realistic belief in oneself/persistence.

Q: After you began your business was there any doubts about this decision?

A: No. There was never a point when I thought I should get a job as an employee, but there certainly were times when I was not sure I had done the right thing in starting my own business. In the early days business debt levels seemed overwhelming and unserviceable, but I kept pushing forward, knowing that as my business grew a lot of these early issues would become much easier. The more time I spent in my own business, the more the thought of ever working for someone else again seemed impossible. I had to secure credit that was manageable not only in repayments but also in stress levels that I could live with.

Lessons learned: Overcoming anxiety/stress, belief in the business, establishing realistic credit facilities are important skills for an entrepreneur.

Q: What goals did you set for yourself and business?

A: I imagined it to be much bigger than where it is now. I will always imagine any business I own in the future to be bigger and succeed more than what it is at the present time. Without this imagination the business would never grow.

Lessons learned: How to build a brand name is a critical success skill, as is, belief in one's self-judgements.

Q: Did you have formal training for this business?

A: Many years ago, I had a feeling that my future would be in running my own business and that the rural environment was being transformed. I had decided to take courses in business studies at a Technical and Further Education College. This then led to being employed by a firm to develop and build up a number of small businesses for sale to potential buyers. This was extremely hard due to the fact that no one had ever seen a business of this nature in the rural–urban fringe areas. There was a large amount of work put in by me to build up the brand name and the services that the company provided. This for me was a great learning experience as it let me develop a large number of business skills with minimal or no risk for myself. I was an employee for a larger company. It was not only formal theoretical training, but also the practical implementation and experience. And it didn't end there. I was learning all the time as products and techniques changed.

Lessons learned: Learning, formal/informal, practical/theoretical, on/off the job in an apprenticeship model are critical components of successful business.

Q: In your business model you developed a partnership. Was this a difficult decision to take, for example, to give ownership of 50 percent of the business to someone else?

A: The thought of giving up half the company to someone else seemed hard, but as there was only one of me there is only so much one can achieve. So once that decision was made, it freed up a large amount of time for me to concentrate on building the business rather than just running it. Also the partner brought new skills to the business that I did not have. With the partnership, the company has gone ahead in leaps and bounds. Its client base now covers residential homes, city, industrial landscapes, corporate bodies, gated residential communities, a life style company, larger urban blocks and a rural–urban fringe, farming properties, school and council playing fields, etc.

Lessons learned: Time management, networking and financing are essential developmental skills in developing a business.

Q: How did you raise the capital for your business?

A: I had no money to start things up. This is often the case when you are young and living in a rural area. I borrowed the start-up money from my parents. In the first few years I also had to sell some of my possessions to help fund the business until I could build up the client base. Because of this I decided that I would create any future businesses with minimal debt or debt I could manage realistically. Now because we are a contracting firm most of our contractors carry their own debt and all we need is small amounts of money as we start-up new clients. As the work gets completed we pay contractors and then we get paid. So there is only limited exposure to debt. The capital equipment that the business owns basically is used for back-up work should a contractor default or get behind a specific deadline for the contract to be completed.

Lessons learned: Developing contingency plans, consolidating debt strategies, preparing quotations and writing contracts are all basic entrepreneurial skills.

Q: Has your business focus changed since you began it?

A: The core of the business still is the same, but over the years we have developed the company and the way it operates into a much larger business. When we first started, we did a lot of physical work ourselves to build up a significant cash flow, so that we could develop the company without debt. It also enabled us to understand the needs of the business and get to know the client base. This has done us extremely well as now we have no debt and we are able to grow the business with no debt and pay the partners a return.

Lessons learned: Policy development, assessing options, debt management and setting long-term planning goals are skill requirements.

Q: What strategies did you adopt to expand your business?

A: There was never a formal business plan in place, but there were ethical guidelines that we decided to operate the business on. Over the years we modified the guidelines to suit the growing demands of the business. We knew that there was a large market for our business. We were not new to the industry; we were just modifying the way we conducted business and the scale of it.

Lessons learned: Adaptation and expanding the business and developing flexible plan outlines are needed.

Q: Initially did you raise the money for the business from internal sources or venture capital or banks?

A: We did not approach a venture capitalist or banks. We raised the capital from our private resources. This is not to say that we will not seek venture funds or credit lines from the banks in the future, but the only reason we would do this is if we saw opportunities to take over other businesses in the future that would make that decision worthwhile. We are always looking for new ways to expand the company.

Lessons learned: Raising operating capital/finance, securing capital, identifying lines of credit and other varieties of credit must be sourced.

Q: Was there a big gap in time between thinking about starting your business and actually doing it?

A: It took about six months from the initial concept before the first day of business. This was because we had to make sure we had all our ideas set in the way we were going to conduct our business and how we were going to target our clients.

Lessons learned: Policy and concept development, planning and scoping skills are essential skill components for successful entrepreneurs.

Q: Where did your customers come from originally?

A: The large majority of our customers are from communities where there is interest to develop and maintain the community and its assets. Businesses like ours are paid to maintain the community assets—from the lawns and gardens to pool complexes, cleaning and other form of building

maintenance, weeding, irrigation development and so on. We also look after maintenance of wealthy private estates as well as farms in the rural–urban fringes.

Lessons learned: Adaptation and expanding the business, building a data base and identifying potential market share are part of the skill base for success.

Q: Were there many difficulties in starting up the business?

A: There were no real crisis moments during the start-up phase. There were certainly many, many sleepless nights and a large amount of hours put in to the start-up and also the continuous running and development of the business. Although decisions were made and policies put in place to reduce the amount of hours that I put into the business, there are still the odd sleepless night and 100-hour weeks put in to continue growing the business.

Lessons learned: There is a need for both strategic and tactical planning and crisis management skill.

Q: What stresses did you encounter in the business?

A: Running a business is stressful. I don't think there is ever a time when it is not so, but when you are starting a business from scratch there is a lot more stress due to the fact that you are stepping into uncharted waters and you really don't know what the future has in store for you and your company.

There are also a number of other thoughts that run through your head when starting up—for example, will it succeed, where will it take us, how long, etc.? There are also the general day-to-day stresses of running a business, for example, customer problems, contractor problems, sourcing new and paying the bills as they become due, etc.

Lessons learned: Importance of time management, developing contingency plans and confidence in communication with people.

Q: Did your business face problems when it expanded?

A: It is always difficult to adjust to any form of expansion whether it is rapid or not, because new policies have to be put in place to protect the business as it grows. But with rapid expansion you have to adapt and introduce policies extremely quickly, which makes it very difficult.

Lessons learned: Adaptation and expanding the business must be always on the agenda for success.

Q: So the people you have working with you are very important?

A: The people in any business are the key to the success of the business. This is why we only employ the services of experts and quality trades people and business owners to work for us. We think that this is the reason for our continued success.

Lessons learned: Staff selection and recruitment skills are critical for success in business.

Q: When you look back, what comes to mind about your business efforts?

A: Looking back, I hope the best moments are still to come and that as we continue to expand our brand we will see more and more of these moments. In regards to the worst moments, there is no particular one that stands out. It is probably more those weeks and months when you felt you couldn't possibly fit another task in, but you had no choice if you wanted to succeed. You do need to find that bit of extra time and the strength to push forward, because you know that if you do, the rewards are only around the corner.

Lessons learned: Focus and drive to succeed and the development of time management skill are very important skills to have or learn.

Q: What are critical factors for a business to succeed?

A: In my view a business needs a great product/service that is needed and wanted by the community. Then you need the right people to sell it to them and carry out what needs to be done. I guess in my opinion the keys are great people, great product and great delivery to the market place.

Lessons learned: Staff recruitment and selection and being able to identify and target the market are vital skills for the entrepreneur.

Q: What qualities are needed for business success?

A: The ability to work under a large amount of pressure and still stay calm and focused; to be able to adapt to changing markets; and be focused on what the customer needs and wants, because without the customer there is no business.

Lessons learned: Being able to build customer loyalty is an essential prerequisite skill for success.

Q: What are your plans for the next five years phase?

A: Over the next five years I plan to expand my existing business. I plan to offer much more services and expand our contractor network. We plan to introduce membership fees to be able to practice as one of our contractors. This has been one of our goals since the beginning, but it was not realistic until now. We are now able to do so because now we are able to provide constant work to all our contractors.

TSS plans to expand into other parts of the rural areas over the next five years as well as adding Pest Management services for residential and commercial properties in rural and rural–urban development zones. I'm also working on starting up an import/export business. This will be used to provide products for my companies at much lower cost than at present.

Lessons learned: Goal setting, implementing plans and cost reduction strategies are essential skills.

Q: What advice would you give to people thinking of starting their own business within a rural transformation zone?

A: The first piece of advice is that they must be prepared to put in the hours of hard work to make the company succeed. Second, make sure you have researched the market place as to the product or service that they want; because if you don't, all the hard work will result in failure.

Make sure you have done a business plan even if it is simple with a few points outlined, for example—What is the product/service to be sold? What is the target market? What is the cost of the finished product/service? What will you charge (costs and profits)? What other costs are involved (insurances, taxes, factory rental, etc.)? What is the profit going to be and how long will it take to get to a breakeven point and start turning a profit?

When you are looking to finance your project, be sure that you do not leave yourself short. For example, within six months of turning your first profit after 2–3 years of hard work, you would not want to have it all taken away because at the last moment you ran out of money. If you believe that it will work and you are passionate about it, just go for your research before you jump in.

Potential skills identified from the interview

The following list of skills for successful entrepreneurship has been deduced from the interview question and answers. A selection of them could be used to identify a training package for entrepreneurs starting up a new business as part of transformation within rural economies. The skills necessary for entrepreneurship in this case study are generalisable to any business. The trainer and the trainee should re-read the paragraphs above and try and deduce an expanded set of skills and to see if there are any general principles of entrepreneurialism that could be identified that might apply to their own business. A training package including support material, such as videos, hand out sheets, role play, interview schedules, showing the skills in action and how to develop the skills should be developed for each particular small business.

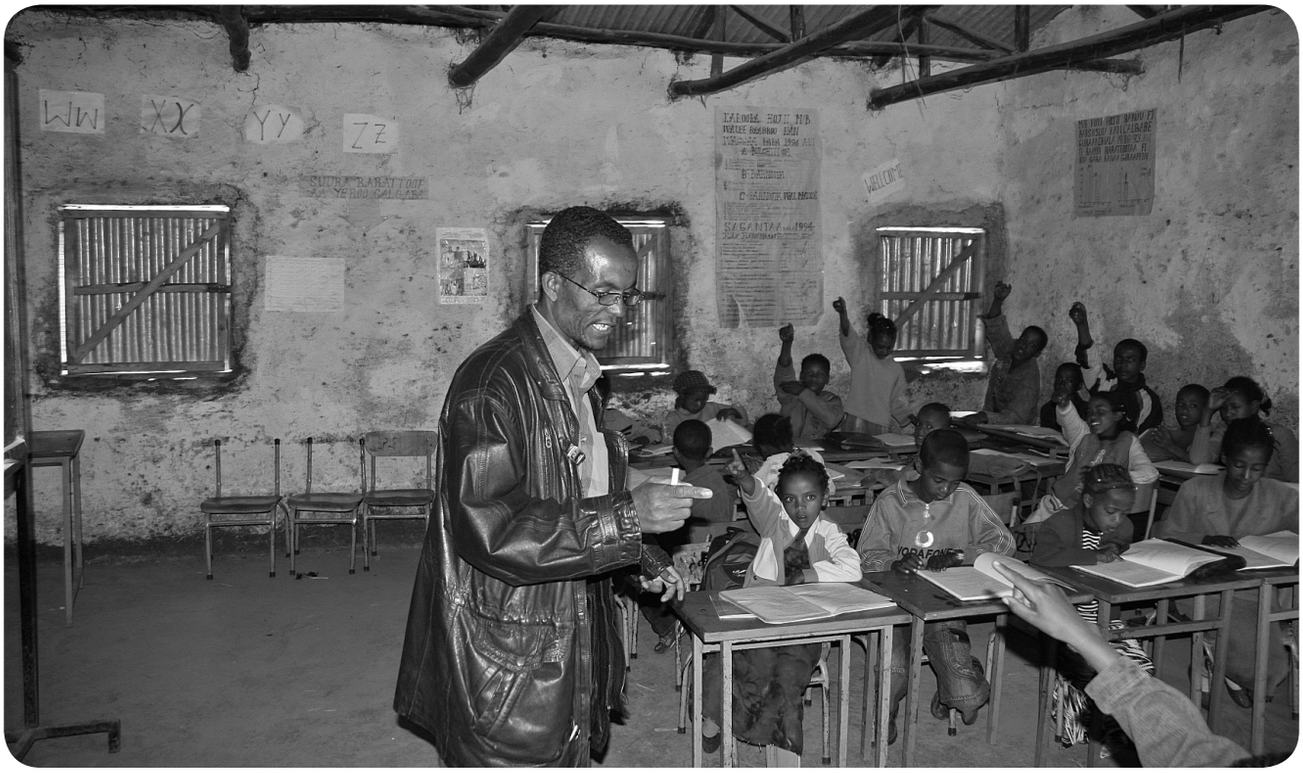
On re-reading the content base of the interview the deduced skill base for entrepreneurial activity for rural transformation through education and training is listed below. Of course the budding entrepreneur will have some of the skills listed below. The deficits can then be quickly identified by the trainer and various short-term developmental units of study can be developed to help the learner overcome any shortages in the skill base.

- Research skill to know the market;
- Networking skill with people (staff, customers, suppliers, officials);

- Ethical and legal skill;
- Developing synergy for expansion and planning;
- Focus skill (drive to succeed);
- Identifying business and personal life spaces skill;
- Realistic belief in oneself/ persistence skill;
- Overcoming anxiety/ stress;
- Learning—formal/informal, practical/theoretical, on/ off the job;
- Building the brand name;
- Time management skill;
- Developing contingency plans;
- Consolidating debt strategies;
- Developing concepts and project proposals;
- Raising operating capital/financial skill;
- Risk management skill;
- Policy and concept developments skill;
- Adaptation and expanding the business skill;
- Staff selection and recruitment;
- Building customer loyalty;
- Strategic and tactical planning skill;
- Human relations/development skill;
- Goal setting skill and
- Implementing plans.

The Q&A, as a case study, shows an approach to diagnosing and analysing what is possible and what is needed to succeed in changing from an employee to running your own business. This transformation from employed to a small rural business entrepreneur does not happen by chance. It is a conscious effort to transform one's life and life style. To do this requires a range of skills. Some of the skills are innate to the individual. Others need to be learned. The list above indicates the scope and nature of the skills and capabilities necessary for starting a successful enterprise in an urban–rural fringe community. The training content, method and process have to be adapted to the specific contexts and the needs and personal circumstances of the would-be entrepreneur.

Source: Cavanagh, Darol M. (2012): "Rural Transformation: Skills for Entrepreneurs," Australia.



Case 7

Rural Transformation through Human Development: BRAC in Bangladesh

Introduction

BRAC (previously known as Bangladesh Rural Advancement Committee) was founded in Bangladesh in 1972, just after the war of liberation of Bangladesh. In the course of its evolution it has established itself as a pioneer in recognising and tackling the many different realities of poverty. Over the years, BRAC has given priority to enhancing the capacities of those who are disadvantaged, powerless and outside the reach of many development programmes. In Bangladesh, BRAC works to combat poverty in over 70,000 villages and 2,000 urban slums, reaching three quarters of the communities in the country with a package of services, support and capacity building, BRAC employs more than 150,000 people,—programme organisers, development managers, teachers, health staff, paraprofessionals and entrepreneurs—reaching the doorsteps of poor families.

In the last 10 years, BRAC has become an international organisation. In response to demands from other developing countries, BRAC has taken its experience and programmes to Afghanistan, Sri Lanka, Pakistan in Asia and Sierra Leone, Uganda, Tanzania, Liberia and South Sudan in Africa. BRAC thus has become a significant actor in south-to-south development cooperation.

Vision, Mission and Values

BRAC's vision is to create a world free from all forms of exploitation and discrimination where everyone has the opportunity to realise their potential. Its mission is to empower people and communities in situations of poverty, illiteracy, disease and social injustice. Its interventions aim to achieve large-scale positive changes through economic and social programmes that enable men and women to realise their potential. Learning from own extensive experience over four decades, BRAC has developed certain values that guide its work. The four "core values" which BRAC relies on are listed as: innovation, integrity, inclusiveness and effectiveness.

Major Programmes

BRAC takes pride in calling itself and being a "learning organisation." It has tried to listen to the people in designing and developing practical and meaningful programmes to address the problems of poverty and powerlessness. It has, for example, learned that poverty is not a one-dimensional issue of income only, but a very complex phenomenon with many facets. Poverty has been understood as "lack of access to resources"—lack of access to capital, land, rights, health, education, capacity and capabilities, government resources and services and many other resources. This understanding compelled BRAC to become a multifaceted and comprehensive development organisation focusing on human resource development among the disadvantaged people. The major programmes representing the understanding of the complex web of causes and consequences of poverty and disadvantage are briefly explained in this case study.

Bangladesh is a country of 150 million, more than thirty percent of whom are in the category of the poor below the poverty line. However, a larger proportion, more than forty percent of the population, are regarded as poor who lack a steady income and sustained livelihoods. There are many reasons for such poverty, but dense population, lack of resources and capabilities are the major ones.

Microfinance

The poor are a diverse group with diverse livelihoods, needs and potentials, which change over time due to lifecycle, new opportunities and external shocks. This varied and dynamic reality of the poor peoples' lives forms the basis of BRAC's conceptualisation and designs of its development programmes, in which microfinance is a core element. Microcredit, or microfinance, is banking the unbankables, bringing credit, savings and other essential financial services within the reach of millions of poor people. They are too poor to be served by regular banks, in most cases because they are unable to offer a collateral. Banks, conventionally, are for people with money, not for people without.

BRAC delivers its microfinance through its branch offices and multitude of programme organisers and programme

assistants at the grassroots. Each village has a village organisation (VO), which is formed with the poor in the village as members. Each VO has around 40 members, most of them are women. The VO is divided into small groups of 5 each who are responsible for taking, utilising and paying back the microfinance. The loan size may be between $100 and $5,000. If the graduates of BRAC required loans of higher amounts, they may avail themselves that opportunity from the BRAC Bank which was founded in 2001 to cater to needs of Small and Medium Enterprises (SMEs).

The micro loans are usually provided for one year, payable in weekly instalments. Although the individual is responsible for these loans, the group remains the overall guarantor and the "moral and supportive collateral." Therefore, the group pressure is used when there are problems in getting repayments.

A highly organised and efficient management system has been developed and fine-tuned over the years to implement the microfinance programmes. The loans are primarily provided for non-agricultural, non-farm activities, such as poultry, fisheries, livestock, horticulture, small business and cottage industries. However, there are activities also in agriculture. BRAC is also contributing in developing high-yielding varieties of rice and making those available through the microfinance programmes and technical assistance to the rural farmers. Capacity building through training is a vital input from BRAC to enhance the effectiveness of cultivation and productivity of land and labour.

BRAC's microfinance has so far covered approximately 9 million women in Bangladesh, disbursing on an average US$ 2 billion annually. It is an enormous management challenge for BRAC and, therefore, BRAC has emphasised staff and managers' training on a continuing basis.

Health

Health care services are another area of service provision that BRAC has undertaken for villagers. The objective of this service is to provide quality services to the poor keeping in mind the practicality, needs and the constraints in the country. The services include but are not limited to water and sanitation, immunisation, oral rehydration, family planning, health education and basic curative care through small clinics. Through its network of area offices and health staff, BRAC is covering the poor in almost all the villages, numbering more than 70,000 villages. The country has 85,000 villages.

One of the most effective programmes is the "Village Health Volunteers" programme. In a village of an average population of 2,000 people in 300–400 households, a health volunteer is trained by BRAC on 10 basic diseases. This volunteer takes care of the health needs of the villagers around her home. Typically a woman, she has some basic medicines which she sells to the villagers. However, no antibiotics are provided to the Health Volunteer. She usually takes care of 300 households around her home. She is also linked up with the union (regional division) or district and sub-district health facilities, so that she can refer difficult cases to a higher level.

BRAC learned this approach and adapted it from the older Chinese experience of "barefoot doctors." While China has moved beyond this approach, Bangladesh still finds it relevant as a mechanism for providing basic health care to the villagers. A whole human infrastructure has been built by BRAC from the village level, with an effective linkage with the BRAC Training and Learning division and its rural centres.

Education

From the very inception of BRAC in early 1970's, the organisation has placed emphasis on education: initially for the adults in the poorer communities, then for children. In the 1970s BRAC implemented a "Functional Education" programme for the adult members of BRAC in the villages. The purpose of the programme was to build social awareness among the poor, combining this with basic literacy and numeracy. In the 1980s, responding to demand from the grassroots for children's primary education, since the children of the poor were mostly not served by the inadequate public system, BRAC designed and tried out a "second chance" non-formal primary education programme. The BRAC education activities evolved into two mutually complementary parts (i) social awareness through the social development programmes (see below) and (ii) the second chance Non-formal Primary Education programme for the disadvantaged children.

BRAC probed into the realities of the educational services for children from poor families and found: (i) the main dropouts from the regular primary schools were the poor children, girls first and (ii) the way the schools functioned, a parent wanting to educate her children either had to have money for private tuition or be highly literate herself. Neither of these conditions applied to the poor families. BRAC designed and experimented with a programme to address these obstacles. The non-formal model that emerged was distinctive with the following features:

- One-class, one-teacher school of four years duration compressing five years of primary cycle with ensured contact hours with the slightly older children than in a regular school;
- Small class size (33 children in each), which met for 3 hours, six days a week at hours decided by parents;
- A school within a village, so that the distance was not much and girls could comfortably attend; mothers meet once a month with teachers to discuss children's progress;
- Intensive two-week hands-on initial training of teachers on active learning, participatory methods and commitment to the poor followed by monthly refresher and intensive supervision. The teacher typically is a married woman from the village with secondary education;
- Co-curricular activities, e.g. singing, dancing, art work, exercises, games, social programmes etc. that makes learning joyful;
- Intensive management and supervision. Supervisor and quality assurance specialists visited schools regularly with specific quality criteria and improvement agenda;
- A development unit prepared, tested and updated learner friendly materials and teacher's guides;
- Intensive monitoring and management information system that provided monitoring data actually used in managing the system; and
- The classroom is a purposefully renovated rented room from the village; with all learning materials and teacher's salary paid by BRAC, parents have no cash cost.

In 1985, BRAC started with 22 pilot non-formal schools, but with very little dropout, better learning performance than formal school, and close community-school contact, the BRAC school became a runaway success.

A one-year preschool programme was added in 1997 which prepared children to attend the regular primary school. Over the years the number of schools varied depending on available donor support (since parents were charged no fee). On an average 1.5 million children were served in primary and pre-school programmes annually in recent years. In 2011, BRAC ran more than 55,000 schools of which 35,000 were 4-year primary schools and over 20,000 were one-year pre-schools.

The government has also recognised the value of the programme. BRAC primary school completers participate in the national primary school completion examination. With over 99 percent success in the examination, the large majority of the students have moved on to the secondary school at grade six.

Social development

Moving away from a conventional adult literacy approach, BRAC has looked at education and empowerment in a broader perspective. BRAC's social development programme focuses on legal and human rights, and awareness raising, including legal literacy and support.

It was observed that the poor in the village faced many social and legal problems, including, those related to marriage, divorce, land ownership and inheritance. In the "Para (Neighbourhood) Legal programme." a woman in the village was trained on the legal issues regarding laws on the above issues. She would then train a class of 20 village women on the legal provisions and remedies on these vital social issues. Participants of the course shared the cost of the para-legal teachers' remuneration. Booklets in simple language and flip charts were prepared on citizen's rights and legal recourse. There is now one BRAC-trained woman serving as a paralegal teacher in almost every village in Bangladesh. In addition to this programme, BRAC also established linkages with supportive lawyers at the rural level to give pro-bono support to the poor villagers should the need arise.

Training and Capacity Building

From the beginning, BRAC has paid particular attention to training and capacity building of the people as well as its own workers. It has established training programmes and rural training centres all over the country. The aim is two-fold: (i) to build the capabilities, skills and capacities of the poor and (ii) to continually train the staff and managers of BRAC to build their capabilities, skills and capacities to face the changing management challenges.

BRAC now has established 24 training centres all over the country for its rural and urban staff, and also its village members, each with the residential capacity to train 100 participants at a time. The villagers are trained in both human relations and occupational skills. Human relations skills are taught in the fields of management, leadership, accounting and communications. Occupational skills include technical skills in agriculture, poultry and livestock, fisheries, sericulture and small business management. Once the poor get training, they are supported by the microfinance programme to take on economic activities.

Over the years, the BRAC Training Division (now named Learning Division) has played a big role in building the skills of the poor villagers in taking up activities in social and economic fields, which has helped them in dealing with solutions regarding social and economic poverty.

In the last 10 years, BRAC has also embarked on building national leadership and management and technical skills of the younger generation. With this end in view, the BRAC University was founded in 2001. It now has more than 5,000 students studying at undergraduate and graduate levels management, architecture, literature, law, economics, education, bio-technology, mathematics, physics and other subjects. Graduate schools in public health, education, governance studies and development studies have been established. BRAC University has earned a reputation as one of the top private universities among 50 in Bangladesh.

BRAC organisation, management and programmes demonstrate that it has given primacy to human resource development. Skills and leadership development has been imparted successfully for people at all levels. The approach has been to build the skills and capabilities of both the participants at the grassroots and at the organisational levels. The approach has been based on research, people's views on their needs and aspirations, long-term thinking, planning and strategising and focused on human capacity enhancement.

Rural Transformation Lessons and Looking Ahead

The experience of BRAC for over forty years in the field of poverty alleviation and rural development has taught BRAC and the development community useful lessons. Some key ones are listed below:

- Human resource development is absolutely necessary for poverty alleviation, rural development and the overall development of a country;
- Programmes should be developed with "ears and eyes open" to the people who will be affected by the programmes. The poor themselves can be the best teachers;
- Training is vital for implementing and scaling up programmes. Training of trainers and teachers can make a skills development programme more effective;
- Leadership at the top and down the line is required for successful implementation of any programme;
- Education should be taken as a broader concept. For the poor, all facets of education are required, for example, literacy, numeracy, accounting, legal and human rights, leadership, management, communication and occupational skills. Skills development is absolutely necessary for ultimately solving the poverty problems;
- "Small is beautiful, but big is necessary." To solve gigantic problems of the poor, small programmes may not have the full effectiveness. The need is to solve big problems with big interventions. That is why scaling-up of programmes is the challenge;
- The poor, especially women, have inherent talent and capacity. The need is to nurture and expand those inherent capacities through making opportunities available. Programmes should be built on the already existing human strength;
- Developing a down-to-earth management system is

necessary to make a programme effective and successful;

- Microfinance is not a panacea for development, human resource development is more critical; and
- Mindsets of both the elites and the poor in a society have to change from a feudalistic one to a developmental and supportive one.

Living up to its reputation as a learning organisation, BRAC has looked at its successes and constraints, has attempted to draw the lessons from its remarkable record, as it looks to the challenges of the future. The Executive Director of BRAC, in a new year's "reflections" at the beginning of the Chinese Year of the Ascending Dragon (2012), affirmed: "We must focus on our core values—innovation, inclusiveness, integrity and effectiveness—to make BRAC larger and stronger." He also underscored some new goals, on which BRAC must concentrate and which indicate the scope and depth of BRAC's engagement:

- Developing a model for comprehensive health insurance for members of village organisations and upscaling the maternal health programme;
- Developing computer based learning materials for all classes for difficult school subjects and place them in the website for open access in the public school system; as well as initiating a model of quality secondary schools in rural areas;
- Strengthening village organisations for awareness raising in social development in selected districts including *monga* (food shortage) affected the northwest region of Bangladesh;
- Providing financial education and training on skill development for more active involvement of women in income generating activities;
- New initiatives to reach tenant farmers with credit and extension, and experiments with models of microinsurance against external shocks;
- Establishment of bio-gas factories for recycling wastes;
- Developing an ICT based agricultural extension model and early warning system for agriculture;
- Reducing the cost of serving the ultra-poor households through engaging the village elites in asset transfer;
- Piloting an integrated programme in the Haors (underwater and flood-prone low land) in the Sylhet region;
- Developing an integrated programme for the adolescents and the youth in rural areas and urban slums and
- Developing a results based framework for integrating gender in specific programmes and raising significantly the regular and fulltime staff ratio for women in BRAC from the current 20 percent (Internal memo on 31 December 2011).

Concluding Comments

BRAC has, over the last forty years, become a comprehensive development organisation addressing the problems of poverty from multidimensional perspectives. In all its endeavours the main focus has been developing the capabilities, skills and capacities of the poor. It has always based its interventions on interacting with and learning from the community and the workers; then initiating programmes which addressed both the felt needs and the emerging needs of the poor.

To achieve its goals and objectives, BRAC has built an organisation which has imbibed a culture of empathy with the poor, discipline, innovation and scaling up of tested solutions. BRAC has taken the phrase "small is beautiful, but big is necessary" as a motto. It continues to operate on the premise that to solve multifaceted poverty problems affecting large proportions of the population, it is not enough to initiate small "hot-house" programmes. It is essential to scale-up tested approaches in order to make a significant contribution to solving major problems.

Source: Adapted from contribution by Salehuddin Ahmed, International Poverty Reduction centre in China (IPRCC), Beijing, 2012.

Case 8
Rural Radio in Agricultural Extension: Ghana

Background

Diverse traditional channels of communication and dissemination of information are used in Sub-Saharan African countries. Common channels include the market place, town crier, traditional leaders, village square, drama, music, local churches and village meetings. In all rural areas, there are "markets" which operate on certain fixed days. People, gathering to buy and sell, also share information and gossip and feedbacks are received. The town crier goes around with a metal gong to draw the attention of members of the community to vital information.

The traditional channels of communication and information have obvious limitations in scope and coverage of audience. As a complement to the traditional channels, the Government of Ghana set up Simli Community FM Radio station (FM station) for minority communities in the north of the country in the early 1980s.

The Simli Community Radio project encouraged active participation of the audience in the making and scheduling of programmes. It employed members of the community both as station staff, such as radio presenters, correspondents and programme facilitators or animators, and as resources for providing programme material and content.

Programme Design and Content

The broadcast content of Simli Radio was of two types: technical information and business knowledge and news. Technical information related to the cropping practices and the related activities, including agro-environment analysis, land preparation, nursery, irrigation and fertilisation, crop protection, harvesting, post-harvest handling and product processing. Business information and news related to economical aspects of agriculture, including capital, finance and market information and movement in market prices.

Experience at Simli Radio showed that the most popular programmes were those which helped provide farmers with income-earning opportunities. This frequently involved discussion and tips on combining traditional crops with a supplementary activity that did not require high levels of investment or risk-taking since farmers did not have to give up existing activities.

One core programme approach was to present topics in a dramatised form. The programmes were produced in a magazine format, featuring dramatic episodes and topical talk and discussion, interspersed with jingles and traditional music. An hour-long script was prepared by a team of expert writers and copies were distributed to the radio producers as well as to extension workers and NGO representatives who were all involved in producing the programme.

Well-known scepticism of the wary farmer is played up in the script to air various points of view about farming methods and conservation techniques such as using organic fertilisers or green manures, reducing bush burning, controlling chemical inputs for cash crops and issues about migration to the city. Extension officers and the educated farmer are challenged by ordinary farmers as to why they should change their current practices. The local extension service, NGO personnel and local farmers engaged in discussions after the drama is broadcasted to build on the themes and explain to listeners who they should contact for more information.

Programme Evaluation

Simli undertook periodic impact evaluations of its programme activities in order to:

- Identify target communities where farmers follow radio broadcasts in their local language;
- Assess the general level of knowledge about soil and water conservation (SWC) methods prior to the broadcast;
- Discover what level of knowledge or understanding of SWC had been gained from the radio programme immediately after the broadcast; and
- Gauge the extent to which farmers enjoyed the programme format and felt the information was readily accessible.

Impact evaluation revealed that rural farmers, in general, liked the radio programme. The parts they enjoyed most were the drama and the group discussion among the presenter, extension agents, NGO representative and the invited farmers. Understanding of soil and water conservation practices, agro-forestry and organic manures improved in the area since the radio programme began.

Bush burning was recognised as a negative practice by almost all the respondents, even before the programme was transmitted. The broadcast, however, increased the farmers' resolve to reduce this practice on their own farms and in the immediate environment.

Briefly speaking, the radio programme was well received by the target audience, and the format in which it was presented was popular and easily understood. Drama, which formed a large part of the programme, contributed to its popularity. It was evident that almost any type of information and advice can be prepared for radio transmission.

Lessons Learned

The experience of agricultural extension at Simli Radio has shown that the most popular programmes were those that helped farmers to take advantage of a direct income-earning opportunity. Rural radio has developed over the years into a well-established tool for both community empowerment and improving the information and communication capacity of remote rural populations.

Timing, sustainability and continuity of programmes must be taken into consideration in using rural radio as an extension and communication tool to serve rural communities. For example, the programme would have a cumulative effect if continued over several cultivation seasons. The broadcasts should be timed to coincide with the start of the farming season and repeated at regular intervals, until harvest time.

Establishment of rural radio networks requires attention to creating three enabling conditions: First, a legal framework has to be set out providing for the authority to operate independent broadcasting at the local level. Second, a cross-sectoral budgetary planning has to be undertaken to mobilise necessary resources and attract donor funding. National strategies that allow for the combined development impact of rural radio across a range of sectors such as health, education and agricultural extension could help to ensure the longer term sustainability of local broadcasting through stable and longer term funding. Finally, the coordination of technological development and building the information network needs to retain local autonomy whilst ensuring that the potential of the technology available is harnessed.

Digital satellite radio receivers, for example, are at present expensive to be used individually by farmers but could be employed strategically by the rural radio networks and extension services to maximise information sharing. With a national strategy, the state-run information networks could be complemented effectively by community-based, participatory communication through rural radio.

Source: Adapted from Robert Chapman, Roger Blench, et al. (2003): "Rural Radio in Agricultural Extension: The Example of Vernacular Radio Programmes on Soil and Water Conservation in Ghana." Agricultural Research & Extension Network, Network Paper No. 127, January 2003.

Case 9
Junior Farm Field and Life Skills Schools (JFFLS) in Mozambique

Background

The goal of the Junior Farmer Field and Life Schools is to increase short- and long-term food security and well-being of children in households made vulnerable by HIV and AIDS. In JFFLS, the children, mainly between 12 and 17 years old, attend a one-year programme, which follows the cycle of the farming season. The model for the young people has been adapted from a similar Farmer Field School (FFS) promoted and supported by FAO.

In Mozambique, the Junior Farmer Field and Life Schools (JFFLS) expanded from a pilot project in 2003 working with 100 children in four Community Based Organisations (CBOs) to a full-fledged and diversified programme by 2007 benefiting 840 children per year. The direct beneficiaries of this pilot project are children. Their families, caretakers and communities also benefit indirectly from this project.

By the mid-2000s, over 325,000 children in Mozambique lost one or both parents to AIDS. As AIDS claimed more lives, children were left orphaned, vulnerable and risked malnutrition, disease, abuse and sexual exploitation. In response to the orphan crisis, the Food and Agriculture Organisation (FAO) and the World Food Programme (WFP) set up Junior Farmer Field and Life Schools (JFFLS) in Mozambique.

Main Features of the Project

All aspects of farming are taught, from land preparation to harvesting in the school. Normally the children would have learned from their parents, but AIDS disrupted that cycle. Agricultural extension workers and teachers in the school use an innovative integrated curriculum to show the children how to experiment with traditional and new techniques on crops grown in small learning fields.

Children are encouraged to use what limited resources they have. Courses in nutrition and medicinal plants help them stay as healthy as possible. Children are motivated to develop into confident young adults. Lessons in singing and dancing, as well as agriculture, help keep cultural traditions alive. Teaching children through dance and music stimulates participation and helps them concentrate better.

Skilled facilitators hold theatre and discussion groups to tackle sensitive, difficult yet potentially life-saving issues, like HIV prevention and gender equality under the careful guidance of skilled facilitators.

Children not only learn better farming practices, they also learn what they have to do in their lives—diseases, how to cope, better nutrition, good foods for HIV-positive persons. So they all have this knowledge and they transmit the knowledge at home.

No one can learn on an empty stomach; so nutritious energy-giving meals provided by WFP are a vital element of the Junior Farmer Field and Life Schools. Rice, beans and fish are supplemented at harvest time with vegetables from the fields, giving children a sense of achievement, as they begin to feed themselves.

Evaluation

The Junior Farmer Field and Life Schools began in Mozambique with four pilot schools in 2003, but expanded fast with remarkable results.

An evaluation carried out in 2005 showed that the JFFLS (known locally as "Celeiro da Vida"—Granaries for Life) had an important impact on the empowerment of the beneficiaries and for increased and sustainable food production. Local schools hosting JFFLS activities were expected to include JFFLS activities in the 20 percent of the school term devoted for the "local curriculum." A major impact of the activities in Mozambique was improved diet. The production of vegetables in the JFFLS learning fields improved the food diet of the children who sometimes were not accustomed to eating vitamin rich vegetables. For instance, a community around a JFFLS in Mozambique reported improved nutrition because of the introduction of new vegetables for home consumption (lettuce and green

peppers).

JFFLS have transformed the agricultural sector and hence the life of rural people in the communities where they operate. With the new knowledge, farmers now plant in rows, and a small patch of land yields a reasonable amount of production. JFFLS experience affirmed that knowledge, livelihood skills, gender-equal attitudes and the confidence to make a living are vital if the next generation is to escape the cycle of poverty and HIV/AIDS-infection.

Lessons Learned

The following question and answers highlights the impact of the project.

Q: Why are these additional activities for orphans and vulnerable children necessary?

A: At the end of 2005, there were 24.5 million people in Sub-Saharan Africa living with HIV and AIDS. This has left 12 million children in the region without one or both parents. By 2010 over 18 million children will have lost one or both parents as a consequence of the HIV epidemic. Millions more will be made vulnerable even before they become orphans. Junior Farmer Field and Life Schools (JFFLS) help fill knowledge and skills gaps left by the premature death of parents.

Lessons learned: Need to make the project demand-driven.

Q: What is the difference between the JFFLS and attaching social workers to children, or creating a school garden?

A: The difference lies in philosophy and approach. A JFFLS is a living classroom and a school without walls. Through an integrated curriculum of agriculture and life skills, JFFLS aim to empower children, build their self-esteem and foster gender equal attitudes. JFFLS promote livelihood approaches which are more than the traditional psychosocial support that is usually institutional, and can be costly and hand-out oriented.

Lessons learned: Importance of integrated curriculum of agriculture and life skills; promotion of livelihood skills and cost-effectiveness.

Q: Do the JFFLS replace conventional schooling?

A: No. JFFLS are meant to complement the existing schooling and social structures, not replace them. JFFLS target the most vulnerable children both in and out of school. The curriculum follows the crop cycle of one year, and usually classes are held two or three times a week. In areas where most children attend school, JFFLS take place on weekends or after school. In Mozambique, where the most vulnerable children are not attending school, most of the JFFLS are attached to a conventional school in an effort to encourage children to attend regular schooling.

Lessons learned: Ensure making vulnerable children both in and out-of-school direct beneficiary; programme timing; mainstreaming out-of-school children and youth.

Q: How are the facilitators at the JFFLS paid?

A: For sustainability reasons, the JFFLS have a voluntary character and except for a small incentive, no payment is involved. In some cases, community facilitators run the programme, and they receive a small monthly cash stipend amounting to US$ 8.50 and like the children who attend, they are given a take-home ration by WFP. Teachers and agricultural extension workers facilitate the programme in Mozambique, and as food provided by WFP is cooked on site, the children and facilitators, as well as all the children in attached schools, benefit from nutritious meals each day.

Lessons learned: Importance of active community participation and involvement; teachers and extension workers main facilitators.

Q: Is this part of a wider plan for the problem of orphans and vulnerable children in Africa?

A: Yes. JFFLS are part of the United Nations and Partners' Alliance that aims to strengthen the livelihoods of orphans and vulnerable children through social protection interventions in the region. Through this process, the United Nations and its partners identify promising initiatives and build an evidence base for bringing successful initiatives to full scale. Countries in the region have government policies and plans of action for orphans and vulnerable

children, but in practice they are often inadequate and implementation and delivery face significant challenges. This process helps identify promising activities for the target group that governments can adopt, support and bring to scale to help more children in need.

Lessons learned: Attention to programme sustainability; development of partners support.

Q: What are the roles of the United Nations agencies?

A: FAO is the lead agency and is responsible for the quality of the activity. FAO oversees provision of agricultural skills, seeds, tools and agricultural inputs. The World Food Programme provides food rations for the children, their families and linked institutions. UNICEF is tasked with promoting life skills and educating children on nutrition, sanitation and HIV/AIDS prevention issues. UNFPA is involved in most countries to provide support on sexual and reproductive health and gender issues. In addition, the Peace Corps and NGOs are key partners in this activity.

Lessons learned: Mobilising donors' support and commitment.

Concluding Comments

Overall, the JFFLS are successful examples of skills training and agricultural extension services for young rural residents. The pilots started in a number of countries in east and southern Africa; it is now a programme that runs in nine countries.

Farmer field schools, the model after which the junior version has been designed, consist of groups of people with a common interest, who get together on a regular basis to study the "how and why" of a particular topic. The farmer field school is particularly suited and specifically developed for field-based learning, where hands-on management skills and conceptual understanding (based on non-formal adult education principles) is required. The popularity of JFFLS programme relies on the responsiveness to needs of farmers, trainers and organisers who facilitate farmer field schools. The key to success, apart from the relevance of the learning objectives, are the JFFLS trainer/facilitators, who must have skills in managing participatory, discovery-based learning as well as technical knowledge to guide the groups' learning and action.

The gender and development service of FAO has put considerable effort into adapting the approach in the area of health, particularly in HIV/AIDS programmes and in work with young children.

Source: FAO Emergency and Rehabilitation Programme in Southern Africa, Regional Interagency Coordination Support Office (RIACSO), http://www.fao.org/reliefoperations

Case 10
Training to Empower Women Entrepreneurs in Pune, India

Background

The Indian Institute of Education (IIE), Pune, India, which is one of the 10-member institutes of the APPEAL Research and Training Consortium (ARTC) of UNESCO in the Asia Pacific Region, has emphasised innovative approaches to non-formal education for sustainable development. IIE has been engaged over the last quarter of a century in experimenting with innovative ideas for the development of tailor-made skills for empowering women and other oppressed people particularly in rural areas as part of its overall poverty alleviation strategy through both formal and non-formal modes.

One of the projects initiated by IIE provides vocational education on the principle of learning by doing, emphasising knowledge and practice of science and technology (Vigyan Ashram). Another is an action research project for education and development of rural women with a view to empowering them to become agents of rural transformation (CEDRW).

The Vigyan Ashram

The Vigyan Ashram near the village of Pabal in Maharashtra has developed a system capable of educating and empowering school dropouts through training in basic science and technology at affordable cost and in an acceptable time frame (The word vigyan means "science" and ashram denotes a "place of simple living and high thinking"). The experimental activity of IIE started in 1983. In 1985, it was approved by the Board of Secondary Education, Maharashtra, as a rural technology course and is still implemented in schools as a part of the secondary technical stream. A similar course is also conducted exclusively for non-formal learners on a full-time basis at the ashram.

The main areas covered in this programme include: skill training in the areas of agriculture, animal husbandry, food processing, food preservation, soil science, sewing and knitting, electrical assembly and equipment maintenance. It also emphasises ability to take appropriate management decisions, quantify and document and do simple accounting, quality measurement and quality analysis. Attention is given to developing individual self-confidence and self-respect.

The ashram offers a course titled Introduction to Basic Technology exclusively for non-formal education students. This course lasts one year. At present, schools in 15 villages also offer this course. In addition, there is the course in rural technology, which lasts almost a year (300 days) and is open to 20 students aged 17–25. This course consists of four themes, with related topics and skills, as indicated in the table below.

The students are divided into four groups, one for each of the course themes. They are rotated through all four themes for the duration of the course. Each student is required to undertake a project related to each of the themes. In addition, all students receive training in financial management skills such as estimating a budget, maintaining accounts, managing stock and analysing costs.

The Vigyan Ashram provides vocational and technical education to NFE learners directly at the grass-roots level. It makes the course content locally relevant by emphasising the dignity of all labour and the cultivation of both the head and the hand. Vigyan Ashram also intends to move into the area of information communication technology by developing and applying computer software applicable for rural development programmes. Adaptation and use of various software have already been tried out.

Centre for Education and Development of Rural Women (CEDRW)

In 1993, Indian Institute of Education's (IIE) priorities—action research, social and economic development, improvement of the status of women—led to the establishment of the Centre for Education and Development of Rural Women (CEDRW) in the village of Shivapur, about 25 kilometres south east of Pune in Maharashtra state. The centre focuses on education and empowerment of rural women and girls, viewing them as both participants in development and subjects of development.

Course on "Introduction to Basic Technology"			
Theme	**Topic**	**Resource Centre**	**Skills Development**
Living (Human and Society)	Home	Food Lab	• Preparing preservative food products, for example, jam, pickles, biscuits • Sewing and knitting
	Health	Rural Lab	• Provide first-aid • Conduct pathological tests • Home remedies for common ailments • Oral rehydration therapy
Living Plants	Agriculture	3 acre Plot	• Planting and growing vegetables crops • Use of pesticides • Irrigation
	Animals		• Poultry and cattle raising • Artificial insemination • Diagnosing pregnancy
Non-living Materials	Engineering	Workshop	• Measurement • Soldering and welding • Carpentry tools • Tractor repair • Building, and dams construction • Prepare energy devices; pressure stoves and bio-gas stoves
Non-living (Non-Material)	Energy and Environment	Water Resource Unit	• Maintenance of energy (diesel) • Install water pipeline, hand pump, etc. • Make electric circuits
		Electrical Lab	

A significant feature of the project is that it adopts an ethnological research approach combining the ideas of Paulo Freire about critical consciousness and Gandhian principles of education for the rural masses. Freire argued that oppressed people had to reflect on their existing social condition and take action to bring about required changes. The Gandhian principles urge modification of the Anglo-Saxon model of education to include active participation by learners themselves.

CEDRW's current activities include women's savings and credit groups, vocational programmes for dropout girls and for women 15–45 years of age, camps promoting health, nutrition and personality development and the training of local farmers and artisans through farmers clubs.

The Centre

CEDRW, which became functional in 1994, occupies one hectare of land outside the village of Shivapur. The infrastructure is simple and designed to be in harmony with the rural setting. It consists of a workshop, administrative office, lecture-cum-dining hall, agro-exhibition hall and a pre-school or child recreation centre. Apart from this, hostel facilities for 40 trainees, two self-contained guestrooms for visiting faculty, quarters for two academic staff and a residence for support staff are available.

One third of the ground is for the building and the remainder is used for tree plantation and experimental plots for various kinds of horticulture, including the cultivation of flowers, vegetables and medicinal plants.

The Centre has the following objectives:

- To develop a new system of rural education and vocational training that will empower women to become agents of rural transformation; and
- To evolve integrated activities for women's personal development and women's educational development; and overall socio-economic change in the villages for sustainable development.

For achieving these broad objectives the centre emphasises that:

- Education and skill development that go beyond formal schooling has a major role to play in the process of development. This education, which is a lifelong process, is required to preserve human dignity and stimulate creativity among individuals;
- The process of development must be given a holistic perspective and hence the community as a whole must be involved in this process; and
- Women's development cannot be considered in isolation from the development of men.

Mode of Participation

During informal meetings and discussions, community members initially identify the local problems faced by the community. The identified problems are prioritised according to the needs of the community. Subsequently, local representatives or animators are chosen from the community in order to establish linkages between the institute and the community. With the assistance of the animators and the community, and in consultation with the research team, an intervention or strategy is selected to tackle the problems. After implementation, the community itself evaluates the intervention on the basis of its success.

Adult vocational course

CEDRW, in response to the demand from many villagers, developed a vocational education programme for school dropout girls and women aged 15 to 45 years. The programme was introduced in 1997 and is presently being conducted at the Centre with assistance from the Department of Education of the Ministry of Human Resource Development, Government of India. The minimum qualification for the course is literacy and numeracy skills equivalent to Grade 3. At present, 34 students are attending the course, which lasts 6 months.

The course focuses on developing skills related to the use of modern farming and agricultural production skills, sewing, tailoring, embroidery, hand and machine knitting, and the preparation of items such as bags, purses and coverlets. In addition, there are lectures and discussions on topics related to social legislation, women's rights, work ethics, budget and accounts maintenance, marketing skills, personal health and hygiene, family education, environmental health and labour law.

Self-help (savings and credit) groups

Another major achievement of the CEDRW is the formation of savings and credit groups for women, which have now spread to 17 villages. The success of these groups has led to the formation of a consortium, where two members, the chairman and treasurer of each group, meet occasionally to review the work and provide guidance to others. It is interesting to note that the success of the women's groups has motivated the men to form their own.

Health education camps

These camps were arranged especially for women who experience health problems. Simultaneously, there were attempts to make the community aware of the requirements of basic personal as well as environmental health and hygiene. For this purpose, doctors at the Primary Health Centre as well as private physicians offered their assistance. Later on, the villagers themselves requested information related to vision and oral hygiene, areas that posed special problems in the village. Village women, who volunteered and worked in teams, were responsible for convening the health education camp for these topics.

Child Recreation Centre

In 1997 the CEDRW set up this centre to show that the parents and the community play a major role in the integrated development of children during the pre-school stage. In addition to preschool activities for young children (i.e., storytelling, games), the Centre also has a training programme for rural women to serve as pre-school staff members. Parents are actively involved through regular parent meetings.

Farmers club

This club, established by villagers in Shivapur and nearby communities, arranges meetings with visiting experts in order to keep up with advances in agricultural technology, especially as related to the cultivation of rice, a major crop in the area.

Lessons Learned

The activities described above and their results show that the interventions made by the CEDRW have been successful

in mobilising the rural community, especially in regard to education and women's development. The series of camps that were conducted in response to the demand of the village women are sufficient proof of the growing awareness in the community. Furthermore, researchers observed that the women also participated actively at Centre meetings by expressing their views on certain issues raised.

The case study demonstrates the success of using innovative, unconventional methods to reach populations mostly excluded from formal schooling. This success rests largely on two factors. First, the programmes feature non-standardised, locally developed curricula that correspond to the priorities and life circumstances of both children and adult learners. Second, innovations in programme content and delivery occur directly in response to the needs of the local community. Instead of directives from government authorities, demand as expressed by local community members largely determines the input of the education and training programmes.

The activities show the need to contextualise and decentralise education and training, especially in the rural areas. There should be rural development centres established at the grass-roots level to facilitate decentralisation and to make the education activities relevant for sustainable development. Similarly, adequate funding is needed for materials development at the local level, especially in regard to the preparation of appropriate science materials.

Finally, this innovative project illustrates the importance of reaching out to those who have previously been neglected or under-served. Whether they are ethnic minorities in remote parts or rural women and girls in conservative India, the marginal sections of society deserve the same opportunities for education and social betterment that others in more favourable circumstances already receive.

Source: http://www2.unescobkk.org/elib/publications/INFE/p34-51.pdf

Case 11

Forging through Adversity: The Minority Blacksmiths in Darfur, South Sudan

Background

The blacksmiths of El-Fashir are among the most socially excluded minority castes in Darfur, South Sudan. Only a few generations ago they were still congregating at the outskirts of towns and villages, practicing their trade in an isolated, subsistence manner. In addition to existing on Darfur's marginalised social periphery, the blacksmiths faced the added vulnerabilities of drought, famine, armed conflict and displacement.

With the support of Practical Action, a project of the British NGO Oxfam, the El-Fashir blacksmiths cooperative now produces agricultural implements and tools. These are sold across Darfur and nearby states through institutional contracts with international agencies such as the Food and Agriculture Organisation of the United Nations (FAO) and through local markets.

Cultivating an Appropriate Technology

A year after the 1984–1985 famine in western Sudan, the British NGO Oxfam began a seed distribution programme in Darfur to enhance agricultural production. Oxfam became aware that there was a lack of appropriate agricultural tools for small farm holders in North Darfur. The traditional hand hoe was especially a time and energy consuming constraint to expanding agricultural yields. Oxfam explored the feasibility of furthering the development of appropriate animal traction ploughs in Darfur.

While Practical Action of Oxfam began providing blacksmiths with the material and the necessary training in metal working to enhance their skills, the Kebkabiya charity (set-up by Oxfam to assist war-affected people in South Sudan) provided for the costs of labour and took responsibility for the distribution of the ploughs on credit. From the mid-to-late 1990s, under the guidance of Practical Action, blacksmiths began to train other blacksmiths in numerous villages across North Darfur and expanded direct sales of ploughs to farmers with noticeably higher profit margins.

The Business Model

The El-Fashir blacksmiths cooperative creates numerous forms of value through its operations and direct and indirect relationships with other stakeholders. The cooperative model provides members with a culturally relevant collective structure through which they can gain economies of scale in both inputs and production.

The cooperative currently (c. 2010) has 73 members. They own and operate 75 workshops. These are all located in a metalworking area of the market where they produce, sell and store their work. This is also the area where the cooperative office is located and collective storage of supplies and finished products can be found. As blacksmithing was associated with low-castes and thus an unattractive livelihoods option, the cooperative members are now the only practitioners of their trade in the market and surrounding area.

Each workshop is generally operated by two individuals, usually a combination of members, employees or apprentices. Workshops specialise in particular tools, including a diversity of hand-tools, animal drawn ploughs, and traditional knives and handicrafts. Inputs such as metal and charcoal are either purchased through the markets with cash or through barter; or—if available—they are purchased from the cooperative supply via cash or on credit.

The cooperative model provides strength to individual members, allowing them to gain economies of scale through jointly sourcing inputs and selling their production. The cooperative collects the completed tools from its members for large contracts and reimburses members for their work, most often when contracts are fulfilled and funds received. Reimbursement is determined by taking into consideration a fixed price for labour per tool created, with the variable costs of metal, charcoal and the contract.

In order to overcome the constraint of knowledge and skills, the cooperative members are upgrading their education and the education of their children. Management-production- and work-related training takes place with the assistance of Practical Action. The workshops also offer apprenticeships. From 1988 to the mid-1990s, Practical Action trained approximately 200 blacksmiths in different

villages of North Darfur, mostly in Kebkabiya and Dar es Salaam areas. In order to sustain the production of ploughs, the capacities and skills of the blacksmiths were strengthened with training and material support.

As the blacksmiths cooperatives grow and change, Practical Action initially takes on the burden of responsibilities associated with new operating dynamics of the cooperative and the dealings with international agencies and donors. Eventually, the cooperative itself is expected to strengthen its capacity to be self-reliant.

Impact and Outcome

The cooperative business model has created an economically attractive option for blacksmiths to practice their trade through individual workshops and retail spaces and collective contracts.

The diversity of tools—especially ploughs—produced by the cooperative and sold through local markets or distributed by NGOs contributed to the ability of farmers to harvest a wider variety of crops.

The El-Fashir blacksmiths cooperative has also created positive economic results for the wider Darfur community. Economic benefits are injected into the local economy through investment, spending, incomes and creation of employment. Products distributed by members or merchants throughout local markets in Darfur contribute to the incomes of those retailers. This aids in the stimulation of local markets and especially agricultural-related economic development.

Through their activity and partnerships the blacksmiths have realised tremendous social improvements. From suffering extreme marginalisation in the past, they are becoming increasingly accepted by the society at large due to their economic success, visible interactions with international agencies, and the attribution and recognition that they are a key driver of agricultural improvements in Darfur through their work. Some of the current generation of blacksmiths are among the first who are able to afford to send their children to secondary schools and universities.

Their improved economic and social status also directly benefits the women pottery-makers of the same group who benefit by creating pottery used for storing foodstuffs and water. These products are sold through local markets.

Lessons Learned

The experiences of the blacksmiths cooperative and Practical Action highlight a number of important themes for strengthening enterprise capacity at social, economic and political margins.

A flexible and dynamic partnership which change and evolve based on capacity strengthening needs and objectives as well as political, social and environmental contexts are required. Adoption of culturally and environmentally-appropriate technologies deeply embedded within existing social values is extremely important.

The case demonstrates the importance of a clear step-by-step approach to development, where the beneficiary-partner slowly takes ownership and control over key business functions when prepared to do so.

Finally, the joint formulation of broad development objectives, beyond economic indicators, with partners is crucial. For these objectives to be meaningful, they must be created by those who have a deep cultural and social understanding and commitment to the beneficiary-partner and wider communities in which they live and work.

The blacksmiths of El-Fashir have demonstrated strength and capacity to grow and change. Meeting the challenges of growth and the desires of the future generations will continue to be both difficult and rewarding for the blacksmiths. Moving towards greater self-reliance and sustainable socio-economic development for the blacksmiths cooperative beyond the present special relationship with Practical Action will be just as challenging and critical.

Source: Samer Abdelnour (2011): "Forging through Adversity: The Minority Blacksmiths of North Darfur, Sudan." United Nations Development Programme, New York, USA.

Case 12
NFE for Sustainable Development: Community Shop in Rural Thailand

Background

An innovative approach to non-formal adult education (NFE) in Thailand is community retail shop linked with the community learning centre (CLC) as the setting for learning and an instrument for improving community's economic life. It is a joint effort of government agencies and NGOs. In this case, the Department of Internal Trade, Ministry of Commerce, guided the sub-district administrative organisations (SDAOs) in setting up the shops. The Department of Non-formal Education (DNFE) collaborated with the SDAOs in supporting the education activities.

The NFE approach was tried out in communities in U-Thong District, Suphanburi Province. This district, about 100 kilometres from Bangkok, is typical of central Thailand in terms of geographical, economic and social conditions. Farmers constitute most of the population in the province. A large number of the working age population, who have not gone to formal secondary schools, are interested in continuing their post-primary education at non-formal education centres. Many of them work in small or medium sized agricultural processing factories.

The people of Suphanburi have an edge over others in matters of communication. The roads and other infrastructure in this province are better than in other provinces of central Thailand. The provincial government is keen to improve education services at the community level.

The major target groups for the project were young adults and community leaders including housewife groups, farming leaders and community learning centre (CLC) facilitators. The DNFE delegated its Centre for Educational Technology (CET) the task of co-ordinating with the Suphanburi NFE Centre. The U-Thong District Non-formal Education Service Centre (UDNFESC) was selected as the location for the trial. UDNFESC in turn chose Don Kaa and Ban Kong Community Learning Centres as sites for the project.

The two places were selected because of the suitability of their locations, buildings and surroundings, as judged by the representatives of the Department of Internal Trade from Bangkok as well as its branch representatives in Suphanburi. The shops were large enough to store consumer goods and were readily accessible to customers.

Objectives

The objective of this project was to develop knowledge and skills in the management of small community shops, enabling community members to understand principles of trade and improve their economic situation. The members pooled their resources. They acquired knowledge related to running a retail shop. They were trained in accountancy and stock keeping. The products in the community shop were of good quality and sold at reasonable prices. It protected its customers from being cheated by unscrupulous merchants.

Operational Model and Learning Innovations

A Shop Executive Board consisted of (i) a member of the sub-district administrative organisation (SDAO), (ii) the administrator from the District NFE Service Centre (DNFESC) and (iii) an official from the provincial Internal Trade Department. The Administrative Work Section is headed by the chairperson of the NFE learners group for the particular year. This section is responsible for overall management of the shop, especially in regard to ordering and stocking goods.

An Academic Work Section is chaired by the CLC facilitator. This section is responsible for receiving and disbursing money, checking the store accounts, pricing, serving as intermediary in buying and selling, encouraging people to patronise the store and rotating learners through the various posts (manager, clerk, etc.) so that everyone had some experience of the different jobs. The shop manager is a registered NFE learner approved by the CLC facilitator.

Each CLC offered a variety of NFE activities. These include vocational skills training, informal learning from radio programmes and videos, supplementary tutoring for basic education and quality of life (QL) activities. The latter have become important in all NFE programmes and at all levels.

These activities enable learners to build self-respect and to work with others as a group. They include (i) religious and cultural activities, (ii) social and community development activities and (iii) activities that promote NFE, such as literacy campaigns.

The Community Shop Project, involving cooperation between the DNFE and the Department of Internal Trade, provided learners at CLCs with an opportunity to participate in QL activities related to operating small retail shops for the benefit of the local community. Participation in the project was an option available to any CLC learner who wished to acquire the skills needed in running a small shop. They received training in the basic principles of shop operations, which included management and basic accounting. In addition, the CLC gave them information on drug addiction and ways to prevent it. The learners were assigned work in the shop according to their interests and aptitudes. They received skill training and accumulated credits for NFE course based on the time spent and experience gathered in different activities.

Initial project planning

The officials from the Department of Internal Trade and the Department of Non-Formal Education at both provincial and local levels worked together in devising the operational model for the project. They also helped prepare the communities to be involved in the project working with the community leaders and the NFE learners.

The responsible staff from the central offices of DNFE and DIT prepared documents containing information on shop administration, management and methods of accounting. Then they arranged a meeting for the board members of the shops, the CLC facilitators and the NFE learners explaining everything they needed to know about the community shop and how to make them a success.

The DIT of the Ministry of Commerce made available a sum of 30,000 baht support fund to each community shop through the provincial office. The executive board had to choose wholesalers and obtain goods from the distributors in the province. Then they bought the goods for 30,000 baht in a single purchase. Once the goods were delivered, they were inventoried and put on the shelves for sale. When the shelves were full, the shop was open for business.

Supervision and follow-up

The administrators from central and provincial levels, together with the officials involved locally, supervised and followed up on the activities of the shops, once every two weeks, at the inception stage. They gave advice, helped solve problems and followed up on events generally. DNFE also produced a television film, *Learning Outside the Fences*. The two community shops provided the setting. This film highlighted NFE innovations for sustainable development with a view to strengthening local communities.

When officials in course of supervision learned of problems encountered in the operations of the shops related to understanding of procedures and rules, DNFE contacted DIT and organised specific training to solve the problems. Resource persons from the central and provincial offices were called to offer day-long sessions, which took place at the U-Thong District NFE Service Centre.

A Study of the Community Shop Operations

The case study approach was used by DNFE to examine operations and learn lessons at the two experimental sites, Don Kaa CLC and Ban Kong CLC in U-Thong District, Suphanburi. The study focused on (i) the shop operations involving the cooperation and participation of community members, particularly community leaders, NFE learners and members (shareholders) of the shops, (ii) the knowledge and skills acquired by NFE learners who worked in the shops and (iii) community success in conducting business-oriented activities.

Ban Kong CLC

It was found that the participants received cooperation and assistance from community leaders and the agencies concerned in this case. A large number of NFE learners joined the project. The community shop functioned continuously. Each day two or three NFE learners worked at the store. It was open every day. It sold quality goods at reasonable price to village housewives according to their demand.

The Ban Kong CLC encouraged the NFE learners to take up the community shop activity as their quality of life (QL) subject in the NFE curriculum. They gained knowledge and skills related to managing a shop, doing accounts, serving customers, locating and stocking goods and other related tasks. They could take it up as a future vocation. Additionally they had the convenience of buying things at cheap and fair prices, and received small sums as a dividend from their shareholding.

Don Kaa CLC

The enterprise in Don Kaa was considered less successful than the one in Ban Kong. There was less cooperation amongst its members. The selection of the location was inappropriate. It turned out that an already existing privately owned shop sold similar goods at cheaper prices. In the matter of administration, the advisory board members as well as the officials concerned were lacking in commitment and enthusiasm. This resulted in difficulties in dealing with community leaders and solving problems related to procedures and rules in requesting assistance from the DIT. The CLC learners involved in the community shop became discouraged.

Lessons Learned

The case study of the community shops regarded as a Quality of Life (QL) activity according to the NFE curriculum showed that success depended on the following factors:

- Active participation of community members: Active involvement of community leaders such as the kamnan (sub-district chief), phu yai baan (village chief), the head of the village housewives group, and other respected persons and NFE learners in the community in the executive board of the shop was vitally important to foster a sense of belonging of the community and ensure the ongoing operation of the enterprise;
- The joint pooling of resources from members: Community members who invested in the enterprise benefited in the form of a periodic dividend. Thus they are encouraged to buy goods from their own shop creating a chain reaction benefiting the consumers and causing the shop to thrive.
- Support from district administration and government services: This includes assistance from education agencies such as the district NFE service centre as well as help from the SDAO, the Sub-district Agricultural Technology Transfer Centre and community development groups. The varying outcomes from the two shops illustrated the difference in this respect; and
- Attention to the Thai cultural norms of community cooperation: Working as a single team, the executive board members and the NFE learners made the community shop a success. When problems were encountered, they helped one another to solve them, invoking cultural norms of community cooperation. In addition, the project helped the learners to acquire responsible work habits. They had to take on the duties of manager, accountant and clerk during the shop operations. These work place discipline and habits were also valuable for future community development efforts.

Source: "The Community Store Project: Thailand." Innovations in Non-Formal Education, Department of Non-Formal Education, Ministry of Education, Thailand.

ANNEXURE II

Measurement of Skills for People in Rural Transformation

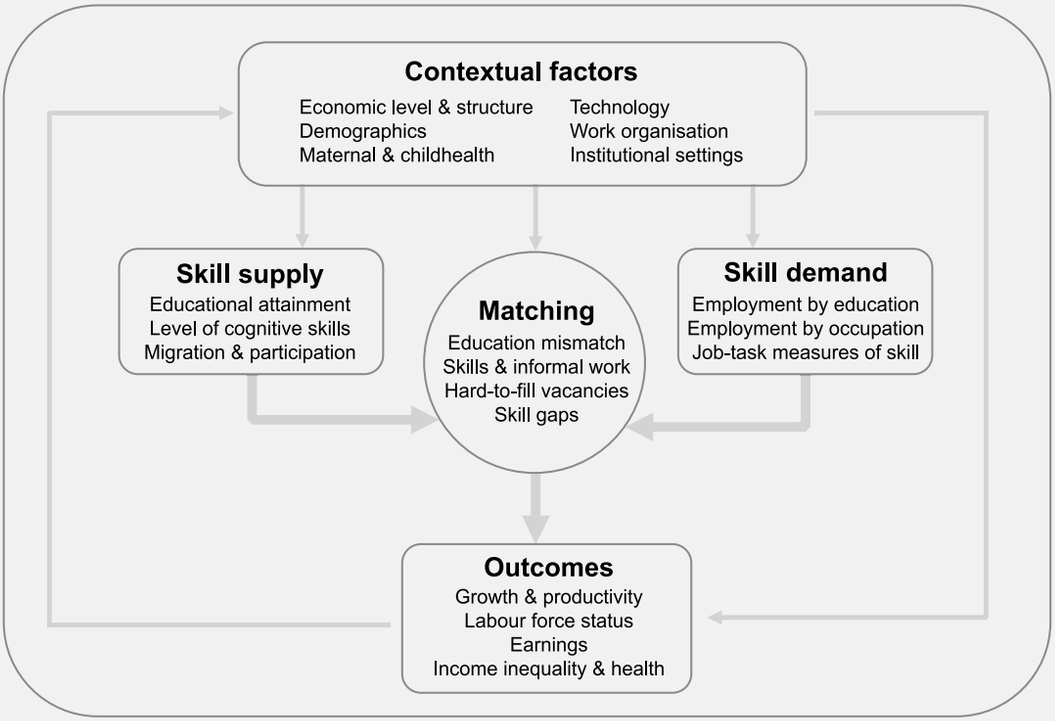
Skills policies that are effective in supporting rural transformation need to be based on sound evidence. This annexure sets out a conceptual framework for the development of instruments to measure skills for people in rural transformation. It describes both the traditional measurement instruments presently available, and a new tool for the direct assessment of skills currently being developed at the international level. It concludes by discussing the need for a strategic approach to skills policy-making and implementation based on evidence from measurement instruments suggested in this chapter.

I. A Conceptual Framework for Measuring Skills in the Context of Rural Transformation

A broad range of measurement instruments is necessary to guide skills policies for rural transformation beyond a simple estimation of the stock of skills (expressed in terms of educational attainment) available to an economy at any given point in time. It is important to think of skills for rural transformation as involving both the supply and the demand side perspective. The conceptual framework for the measurement of skills, therefore, needs to cover several dimensions as presented in Figure A2.1.

There are various sources for the supply of skills comprising the education and training system as well as migration of skilled workers and participation in the labour market. The demand for skills on the other hand is affected by a number of factors. Skills measures also need to consider the match of skills demand and supply which in turn will have an impact on economic performance as well as on

Figure A2.1 Conceptual Framework for the Measurement of Skills



individual economic and social outcomes. Finally, there are a number of contextual factors underpinning skills development which vary from one country to the other and need to be taken into consideration in the design of skills measures.

II. Development of Realistic and Targeted Skills Measures for Rural Transformation

Ideally, measures of skills should comprise all dimensions set out in the conceptual framework. However, different countries are in different phases of their development trajectories and capacities to collect and analyse skills data vary accordingly. The challenge for many developing and emerging countries is to establish a statistical infrastructure to ensure that the range of statistics needed for policy purposes are collected on a regular and timely basis. Then they can gradually move to the collection of more complex data that are comparable internationally.

Recognising this need to build up capacity to gather data, the G20 leaders have endorsed the development of an Action Plan which aims to provide a basic indicator framework for monitoring skills issues that should guide least developed countries in the development of their statistical collections according to a set of realistic criteria over the next years (Box A2.1).

International organisations (OECD, UNESCO, ILO and The World Bank) are jointly committed to working towards the implementation of this Action Plan and a stepwise improvement of the skills data in least developed countries. As a first step some of these indicators might need to be developed at the national level but with the later aim to link them to international data collection in order to allow benchmarking.

Furthermore, as mentioned in this report (Chapter 1), one of the serious obstacles to the analysis of rural–urban differences regarding to skills relates to the lack of disaggregated data. Therefore, in order to make measures of skills meaningful for the purpose of rural transformation, it is essential that data collection is designed to provide reliable estimates for rural areas.

III. Skills Supply

The domain of skills supply has several dimensions. The first dimension covers the stock of human capital in the economy which has been acquired through past investments in skills through education and training as well as the future supply of skills derived from ongoing investments in skill formation. Not all of this investment in education and training takes place through formal channels. In many developing and emerging economies, skills are often acquired informally, on-the-job and through experience. This has to be taken into consideration when assessing the skills supply. In addition, other factors affecting skills supply in rural areas, in particular, immigration and emigration, movements of population between regions and the level of labour force participation should equally be considered in a comprehensive framework.

Box A2.1 Criteria for the Development of Skills Indicators in Least Developed Countries

- Relevance. The indicators should furnish information that provides a useful comparative backdrop for assisting developing countries, particularly least developed countries (LICs) to identify priorities for skills development and to monitor the impact of their strategies in this regard.
- Feasibility. The focus of the indicators should be on those for which data are available for a reasonable number of countries from existing international and national data collections; or that are feasible to generate from (low-cost) new data collection initiatives and/or modifications to existing surveys.
- Comparability. The indicators should be internationally comparable in concept and measurement. This criterion rules out the use of a number of potential sources such as national employer surveys which are rarely implemented in a comparable way across countries.
- Timeliness. The indicators should include those for which data are available or can be collected for a recent year such that the current or future situation in each country is represented in a reasonably accurate manner.

Source: OECD and World Bank (in collaboration with ILO and UNESCO) (forthcoming), "Indicators of Skills for Employment and Productivity in Low-Income Countries: An Interim Report."

Skills development through education and training

The traditional measure to assess the stock of skills available to the economy is educational attainment in the population. In most countries, including developing and emerging economies, labour force and other household surveys provide basic information on the proportion of population by gender and age group at each level of education. However, to be meaningful for the purpose of developing skills for rural transformation, data needs to be disaggregated by region because typically, the gap between rural and urban educational attainment is high and a national average hides important local variation.

In addition, measures of current enrolment in education and training at different levels, including primary, secondary, post-secondary or tertiary education as well as participation in adult education and training provides information on the kind of skills which will be available to the economy in the near future. More comprehensive data sets provide additional levels of detail, for instance data which distinguishes between the different orientations of post-compulsory education and training programmes (general vs. vocational) and the field of study (e.g., science and technology).

Quality of education and training provision

The Millennium Development Goals for developing countries refer, amongst other things, to participation in education and aim for universal primary education by 2015. Many countries have made considerable and indeed successful efforts to reach this goal. As a consequence, enrolment in education and educational attainment has risen substantially over the last decade. However, assessing the quantity of education is not enough: more schooling (meaning more years of education or higher levels of education qualifications attained) does not necessarily mean more learning (i.e. more skills), and a certain share of students in developing countries and emerging economies, in particular in rural areas, might leave primary school without actually being literate.

What is more, one of the reasons why students in rural areas do not enrol in education in the first place or drop out prematurely is the poor quality of the education they receive. Hence, the provision of poor-quality education can constitute a significant barrier to learning. In rural areas in particular, parents prefer encouraging their children to work rather than sending them to poor-quality schools which do not provide them with a strong learning benefit.

Poor motivation of teachers leads to teacher absenteeism and ill-equipped schools deteriorate the quality of schooling. Measures with respect to student-teacher ratio, teacher absenteeism and learning conditions (school infrastructure and availability of learning material) add important information on the quality of education provision. Thus, ultimately only a direct assessment of skills can provide a meaningful measure for the quality of skills supply.

Towards a direct measure of skills

Measures of skills presently available and used in OECD countries as well as developing and emerging economies focus primarily on quantitative proxies for skills such as years of education or the level of qualification attained. However, these quantitative measures are based on the assumption that each additional year of education adds the same amount of skills in all countries and that qualifications acquired in different countries equip people with exactly the same amount of skills. They also ignore the fact that skills can be acquired informally and outside the education and training system through work experience and that skills decline over time if they are not used.

Recognising the limitations of these approaches, methods have been developed to assess skills directly. In the past, school level direct assessments (including PIRLS, TIMMS, SAQMEC and PISA) have been used to test performance of pupils at different ages in foundation skills, in particular literacy, numeracy and sciences. The OECD PISA study (Box A2.2) is the most comprehensive study having so far been carried out every three years over the period of a decade and covering now more than seventy countries, including a number of emerging economies. The results of these studies give an indication of the skills of new entrants to the labour force in many countries where progression beyond school is low.

In addition, OECD is currently developing a method to

assess skills in the adult population thus contributing to the understanding of how skills are acquired, used and translate into economic and social outcomes. While these methods are complex and resource intensive, they increase our knowledge on skills considerably and can set standards for future development of skills measures also for developing countries. This section explains how a direct measure of foundation skills as envisaged by OECD's Programme for the International Assessment of Adult Competencies (Box A2.3) can complement existing evidence as described above to support the development of effective skills policies.

Assessing foundation skills on a continuum

PIAAC focuses on a limited set of general skills, not including an assessment of a broad range of occupation specific skills necessary for rural transformation (as set out in Chapter 2). However, the survey is based on a broad conception of literacy as a foundation skill which can add complementary value to a simple binary measure of literacy or illiteracy.

First, literacy—defined in PIAAC as "the ability to understand and use information from written texts in a variety of contexts to achieve goals and further develop knowledge and potential"—is a skill, along with numeracy and problem-solving, which provides a foundation for the development of other higher order cognitive skills as well as constituting a pre-condition for gaining access to and understanding of specific domains of knowledge.

Second, it provides a foundation for acting in an extremely broad range of contexts, from education through work to everyday life. Literacy is also viewed in PIAAC as an enabling skill. Literacy is valuable and valued because it enables people to do things. In other words, literacy is not seen as an end in itself but as a means by which people realise goals and achieve their aims in the various contexts (i.e., home, education, civil society and work) in which they

Box A2.2 The OECD's Programme for International Student Assessment (PISA)

The OECD's Programme for International Student Assessment (PISA) launched in 2000 is a triennial survey of 15-years-old students in OECD member and partner countries that measures the extent to which students near the end of compulsory education have acquired some of the knowledge and skills that are essential for full participation in modern societies.

74 countries participated in the PISA 2009 cycle. Between 4,500 and 10,000 students are tested in each cycle. Students are selected from a random sample of schools (public and private) and are selected according to their age (from 15 years and 3 months to 16 years and 2 months at the beginning of the assessment) as opposed to which grade they belong to.

Focusing on reading, mathematics and science, PISA assesses not merely whether students can reproduce knowledge, but also how well they can extrapolate from what they have learned and apply it to unfamiliar situations, both in and outside of school.

Factors influencing their performance and potential for lifelong learning are also explored in the background questionnaire in which they are asked about their approaches to learning and their social background. The organisation of schools is also taken into account through a questionnaire filled out by school principals.

Box A2.3 The OECD's Programme for the International Assessment of Adult Competencies (PIAAC)

PIAAC is OECD's international assessment of adult foundation skills. The survey is based on interviews with a sample of adults aged 16–65 years in their homes to assess their literacy and numeracy skills and their ability to solve problems in technology-rich environments. It also collects a broad range of information on the antecedents, outcomes and contexts of skill development and use. In addition, as part of the assessment of literacy, an assessment of the mastery of the basic building blocks of reading is administered to respondents with low literacy in order to provide detailed information about this important group.

Currently, 25 countries from Europe, North America and the Asia/Pacific region are in the process of collecting data as part of the first round of the study. A number of additional countries have expressed an interest in the study and a second round is now planned. An important element of the 'added value' of PIAAC compared with national surveys is its international comparative dimension. The PIAAC assessments and questionnaires will be designed to maximise their cross-cultural, cross-national, and cross-language validity. Hence, while the test is administered in one or more national languages, the results are still comparable to a number of countries allowing for international benchmarking of skills.

PIAAC has been developed as a computer-based assessment. However, a pencil and paper version of the assessment focusing on the assessment of literacy for implementation in countries in which relatively high proportions of the population have little familiarity with computers has been developed.

act. PIAAC thus does not seek so much to measure knowledge as the ability to appropriately use information in context.

Moreover, PIAAC conceives literacy (as well as numeracy and problem-solving) as a continuum of proficiency involving the mastery of increasingly difficult cognitive operations as well as the ability to respond appropriately to texts containing increasingly complex features. In other words, PIAAC treats literacy as a skill that one can have more or less and does not try to define a threshold which distinguishes literacy from illiteracy. The downside of such a binary definition is that a share of 100 percent literacy is easily reached when people have acquired basic literacy skills. However, this does not tell much about how well these people are equipped to operate in more complex situations. A continuous scale in contrast allows the assessment of the level of skills on a scale and to track developments from a low skills equilibrium towards a higher skills equilibrium which is what rural transformation aims to achieve.

In reporting results, PIAAC will use a framework which defines five levels of proficiency and describes the features which distinguish proficiency at each level. Therefore, the information provided by PIAAC will go well beyond knowing the proportions of the population regarded as illiterate and literate. It will be possible to identify the proportion of the population, for example, who are accomplished readers and are fully equipped to handle complex information processing tasks.

At the other end of the scale, it will be possible to identify the proportion of adults who possess basic skills but struggle with coping with many of the reading tasks required to function effectively in modern society. In the case of the poorest readers, the reading components assessment will provide a wealth of information on their strengths and weaknesses, for example in terms of basic vocabulary, basic comprehension and fluency.

In order to read effectively, one requires basic skills such as word recognition, decoding skills, vocabulary knowledge and fluency: these are the building blocks of literacy and the basic reading component skills. Previous literacy surveys have found substantial proportions of the adult population unable to demonstrate adequate levels of skills needed to retrieve and understand written information and apply it to real life situations. However, previous surveys have not been able to distinguish between those who lack basic reading component skills from those who have mastered the mechanics of reading but are not skilled at comprehension.

The PIAAC measures aim to support policy-makers in identifying and understanding the extent and dimensions of illiteracy and poor literacy. Having a detailed picture of the spectrum of ability will aid policy-makers target and design programmes, not only to eradicate illiteracy but also to improve the skills of adults with some basic literacy. The latter, in particular, is an area which will become increasingly important as a component of a comprehensive strategy to develop the human resources necessary to underpin continued economic growth and development and raise productivity in rural areas.

Finally, since PIAAC assesses foundation skills in a technologically rich environment, it will provide useful information on the mastery of Information and Communication Technology (ICT) skills which are of increasing importance for 21st century economies. Even in the rural areas access to ICT and skills enabling people to use it are essential as explained earlier (Chapter 2). PIAAC will enable a detailed examination of who has access to ICTs and the extent to which different groups of adults use computers and the Internet both at home and at work. Most important, for the first time, PIAAC will directly assess adults' abilities to solve problems in the context of technology rich environments.

Understanding skills acquisition, maintenance and use

PIAAC contributes to our knowledge about the factors that facilitate the acquisition and maintenance of foundation skills recognising that skills can be gained both inside and outside the formal education system and decline again over time.

PIAAC will enhance the understanding of the effectiveness of education and training systems in developing basic cognitive skills and key generic work skills. In particular, it will be possible to examine the extent to which the formal education system has been effective in developing broad

based cognitive skills. PIAAC will also allow exploring the sources of skills acquisition and maintenance beyond formal education which is relevant in particular in developing countries and rural areas where much of the skills acquisition happens informally.

For older cohorts, PIAAC will allow the examination and analysis of the processes of skills loss and maintenance and the effectiveness of education and skill formation systems in supporting skills development over the lifecycle. Findings from previous data on adult skills have helped to reveal a consistently negative relationship between foundation skills and age. However, data also shows that the depreciation of skills may be offset by what people do at work and in their daily lives. For example, evidence from previous data on adult skills suggests that frequent engagement in reading at work and at home may help to mitigate the proficiency declines associated with ageing.

Other sources of skills supply: migration and labour force participation

Skills development comprises more than just the education and training system. To get a comprehensive picture of the supply of skills available in a rural area it is necessary to consider also data on migration and on participation in the labour market. Investments in skills which take place locally are not necessarily available to the local (rural) labour market later because individuals migrate. In many developing countries, people migrate to urban centres to continue their education and training or to find a job. Or they leave the country altogether to seek opportunities abroad. Therefore, a measure of migration between localities and international migration can provide valuable information on the skills supply. Similarly, skilled workers might become inactive for various reasons so that their skills are not available to the labour market at all, neither locally or elsewhere. A measure of the share of inactivity in the local rural population complements the information on skills supply.

IV. Skills Demand

Increased access to good quality education and training does not automatically lead to better economic outcomes. Skills development above all has to be relevant to the current and future needs of the economy in order to trigger the desired outcome of rural transformation. The primary aim of skills development in rural areas is not to equip people with the skills they need to move to urban areas to find a job there or to continue with further studies at higher education institutions—or even to migrate from developing countries to advanced economies. If the aim is much rather a transformation of the rural areas and avoiding rural exodus, then the supply of skills through education and training has to be structured according to the local demand. In countries like China, migration between rural and urban areas is a big issue but one which can be mitigated by equipping people with the skills necessary to transform the rural sector and move from subsistence farming to agro-business.

Moreover, the relevance of education provision can have a direct impact on skills supply. The reason why participation in education and training in rural areas is weak in the first place might have to do with the (perceived) lack of relevance of the education provision for the rural population. Lack of relevance of educational programmes and curricula can range from a focus on occupations which are not in demand in rural areas to the language of instruction which is not the one spoken by the local population. In order for education and training provision to be relevant, and hence to be taken up, it is important to assess the specific demand for skills in rural areas and the kinds of skills necessary to foster rural transformation.

In order to make skills supply relevant for the economy, information needs to be acquired about the demand for skills in the first place. Two key measures indicators might be used to assess the demand of skills in rural areas: employment shares by education background and by occupation. Typically, census, labour force and other household surveys provide this kind of information. In addition, it might be considered to measure the importance of self-employment, as this form of employment is very common in many developing countries and requires its own set of skills, particularly entrepreneurial skills.

One important challenge for measuring the demand for skills in developing and emerging economies arises from the fact that big shares of the economy are in the informal sector. Hence, the demand for skills is equally informal and,

due to its very nature, difficult to measure or to include in official statistics. This should be taken into consideration when estimating the relative demand for different skills and developing skills policies based on these estimates.

Responding to radical changes in skills demand

Skills demand might change radically if an economy undergoes a sudden transformation. In particular some emerging economies are currently experiencing fast and radical growth and related changes in their demand for skills: new sectors emerge requiring new skills, while traditional sectors, especially the agriculture sector, are disappearing making some previously needed skills obsolete. This can lead to problems of skills shortages which if they are genuine and persist can put a brake on economic growth, primarily through their negative effect on labour productivity. Therefore, it is important to monitor the changing demand for skills and to feed this information into the education and training system so that the supply of skills can be adapted to the changing demand.

V. Matching of Skills Demand and Supply and Outcomes

An important issue in all countries is to ensure that on the one hand the education and training system produces skills that are relevant for the labour market and on the other hand that there is effective matching of workers and jobs to ensure that the skills that exist are productively used. In principle, a good match of the skills required in the labour market and skills supplied supports productivity. Higher productivity in turn leads to better outcomes and returns to education both for the individual and the economy as a whole. Rural areas however might be stuck in a low-skills equilibrium where demand and supply of skills do match but at a very low level, preventing further development. In such a situation, only an over-supply of skills can trigger a change in the economy towards a higher value-added production and an adaption of the demand for skills to the higher level skills available locally. Moreover, even if the demand for skills in the economy does not follow the supply leading to a higher skills equilibrium, equipping people with foundation skills is desirable as it enables people to acquire the knowledge, skills and values which allow them to improve the quality of their present and future lives.

Measures are, therefore, also required to assess the match of skills that have been obtained through education and training with those required by employers including those in self-employment. Indicators of over- and under-qualification from census, labour force and other household surveys can be used as one way to measure this, although a more direct measure of skills rather than qualification levels can add complementary value.

Two other, more indirect, measures of the matching process might be considered. These are changes in unemployment rates and earnings differentials by educational attainment. All else equal, a rise in the returns to higher education or a drop in the unemployment rate associated with this level would suggest that the demand for workers with these qualifications is outstripping supply. Ideally, it would be useful to supplement these measures with information based on employer surveys of skill gaps and shortages.

A number of measures of economic performance and labour market and health outcomes may provide information on the links between skills and these outcomes. In terms of economic performance, measures could focus on production growth and the level and growth of labour productivity at the local level. Labour market outcomes are represented by measures of employment rates, unemployment and underemployment rates, and earnings. The measures of health outcomes could cover general health status and HIV prevalence.

As with all other measures, to be meaningful for the purpose of assessing the role of skills development for rural transformation, it is essential that these statistics are gathered at a local level which might be a challenge even for more advanced countries where the local statistical infrastructure is not available and information is accessible only in form of a national average hiding a lot of local variation.

Foundation skills and economic outcomes

Traditionally, indirect quantitative measures of skills such as years of education or qualifications attained have mostly

served as proxies to assess the impact of skills on economic and social outcomes. In the future, direct measures of skills from PIAAC for a broad range of countries will provide policy-makers with a better understanding of the role of proficiency in foundation skills in improving the labour market prospects of individuals as well as of its relationship with other outcomes such as participation in training, use of information technology and health.

VI. Contextual Factors Having an Impact on Skills Development

A set of contextual indicators is required to capture the main drivers of skill supply and demand as well as the key factors affecting the efficiency of the matching process between them. Many of these factors will also affect the outcomes of skill use. Accordingly, a range of measures can be considered including demographics, early childhood development and health, aggregate economic conditions, technology and work conditions, and education and labour-market institutions and policy settings in rural areas. Moreover, it has to be stressed that skills policies are only part of factors supporting productivity and growth along with other policy measures aiming at rural transformation, technological change and innovation and more efficient markets.

The supply of skills from education and training is influenced by the quality and relevance of the education offered. But there are a range of contextual factors that can also have an impact on skills acquisition in particular in poorer rural areas. These factors include the cost of education and the access in terms of availability of transportation or density of education institutions. Data on the GDP per capita in rural areas as well as the cost of education and the local infrastructure to access education institutions help to understand the reasons for weak skills development. Other impediments to skills development, in particular in rural parts of developing and emerging economies, are health related. Therefore, data on the health status of mothers and children at different ages are required.

Demographic transformations can have a profound impact on the demand and supply of skills. Some economies, in particular many African countries are currently experiencing rapid expansion of their youth populations. While this presents an opportunity for boosting growth rates, ensuring that these young people contribute productively depends to a considerable extent on implementing skill formation and labour market policies which support the expansion of employment.

Conversely, in other countries like China, the combined effects of people living longer and low fertility rates will lead to growth in the proportion of those aged 65 and over compared to the working population of 15–64 year-olds. As a result, the demand for skills is expanding in the health sector. More broadly, this means that economies cannot afford to waste talent and exclude people from the labour market. Consequently, basic data on demographic development (share of people living in rural areas, fertility and mortality and share of the young population) provide useful information on the current and future availability of human capital in rural areas.

There are also a number of context factors that need to be taken into consideration when it comes to assessing the demand for skills for rural transformation and the contribution of skills to economic development and social well-being. These include the structure of the economy (in particular features of the economy in rural areas), employment in different sectors of the economy and the share of informal employment. Furthermore, developing ICT skills is only useful if there is demand for such skills and access to ICT (Internet and mobile phones) is ensured. Likewise, entrepreneurship is unlikely to develop even if entrepreneurship skills are fostered if the conditions are not appropriate to do business. Therefore, indicators on the ease of doing business are helpful to supporting skills development for rural transformation.

VII. Implementing a Strategic Approach to Skills Policies Based on Sound Evidence

All these measures of skills need to be analysed and operationalised to support the development of sound skills policies leading to rural transformation. As mentioned at the outset of the chapter, many countries currently do not have the statistical infrastructure necessary to gather and process many of the measures suggested in the framework. One of the essential tasks for the future will, therefore, be to support countries in efforts to improve the evi-

dence base. OECD's work on skills and the G20 Action Plan to develop skills indicators for least developed countries are important steps towards this goal.

Developing sound measures of skills demand, supply, match and outcomes as well as contextual factors having an impact on skills is only a first step. Data and evidence need to be used and applied strategically to support a structured approach to skills policy-making for rural transformation.

Skills policies are complex and involve a broad range of stakeholders. They concern on the one hand a number of supply side actors (typically the ministries of education, science and technology, but also education providers as well as actors concerned with migration and labour market policies). On the other hand, they concern those actors dealing with skills demand, including ministries of labour and industry but also the private sector as well as institutions having as their mission to link the two such as employment offices responsible for reinserting the unemployed in the labour market.

In rural areas health status can have an important impact on whether individuals participate and succeed in education and, conversely, education can have a strong influence on health outcomes of individuals. In these circumstances, it is important to consider actors dealing with issues of welfare and health in conjunction with skills policies.

Given the range of actors involved in skills policies for rural transformation and the linkages between different policy fields, a systematic approach is needed to avoid duplication of effort and take advantage of possibilities for synergies. Similarly, to optimise the efficiency of investments in skills from private and public sources and maximise the returns to such investment, a strategic and coordinated funding approach based on sound principles (Box A2.4) helps to avoid underinvestment on the one hand and deadweight on the other. Finally, the evidence on skills which is often collected and managed by different institutions and not always available to all relevant actors needs to be drawn together and used to support a strategic approach to skills policy-making.

Box A2.4 Principles for Financing Skills Formation

Principle 1: Systems to finance skills formation should be efficient, providing the necessary resources to respond to the demand by individuals and employers.

Principle 2: Skills development should be financed by a mix of sources, reflecting the benefits to individuals, employers and society as a whole.

Principle 3: Public spending should be allocated in ways that encourage the responsiveness of educational providers to the preferences of learners and the needs of the economy.

Principle 4: Financing incentives, including through taxes, should underpin private investment in education and training, both from individual households and from employers.

Principle 5: Financial instruments, such as loans, should be available to ensure that up-front costs are not a barrier to accessing skills formation for disadvantaged students.

Principle 6: Financing mechanisms should be designed with the whole system in mind, so as to avoid distorting student choice, such as that between vocationally-oriented and general education at the post-secondary level.

Principle 7: Financing systems should be simple and transparent.

Source: OECD (2011), Towards an OECD Skills Strategy (http://www.oecd.org/dataoecd/58/27/47769000.pdf).

Recognising this, the OECD has embarked on the task to develop a global Skills Strategy, a systematic approach to skills policies aiming to support countries in their effort to formulate sound skills policies on the ground. This strategic approach to skills policies integrates the available evidence on the supply, demand, match and outcomes of skills under a common framework and suggests policy measures on all these areas as well as the financing of skills development and steering of skills systems derived from international best practice.

This blueprint provides guidelines for countries or localities not only regarding which kind of information they would need in order to evaluate their current supply and demand of skills, skills match and outcomes of investment in skills, but also on how to deploy this information to support policies that make the most of each country's or region's human capital by nurturing, and using, the skills of its citizens to foster development and promote rural transformation.

ANNEX III

Statistical Tables

It is necessary to collect and present relevant statistical information globally and regionally which would support, illustrate, elaborate and explain as much as possible the key points being made in this report. However, as noted in this report, reliable urban–rural breakdown, that is up-to-date and comparable internationally, for relevant indicators is not available. The best we can do at present is to look at national aggregate values for the indicators and observe how they vary in relation to proportions of rural population in the countries. Accordingly a series of statistical tables based on available international sources is presented in this annexure. Existing international databases have been relied upon and an attempt has been made to make these as comprehensive as possible in terms of coverage of countries and regions and relevant indicators.

Various relevant social and economic indicators for countries ranked by the proportion of rural population in the respective countries are presented (Table S4). In addition to the ranking of countries for different indicators, statistical table showing actual values for the indicators ranked by proportion of rural population are presented in other tables in this annexure.

These statistics primarily make the point that a high proportion of rural population is associated with low human development indicators. The scatter diagrams and trendlines on individual indicators against proportion of rural populations for selected countries shown in Figures S2 to S5 make the same point. These also support the argument that high rural population ratios are both the cause and the consequence of low development indicators of a country.

1. Notes on Data Sources

The statistical tables are based on the latest available data from UNESCO Institute of Statistics (UIS), supplemented by other sources, as noted further. They present trends observed during 1999–2010.

The UIS data are supplemented by demographic and economic statistics collected or produced by other international organisations, including the United Nations Development Programme (UNDP), the United Nations Children's Fund (UNICEF), the United Nations Population Division (UNPD), the World Bank and the World Health Organisation (WHO). Unless indicated otherwise, projections are based on current trends. They, therefore, do not take into account the possible impact of shifts in policy and programmes that may occur in various countries from time to time.

The most recent data on pupils, students and education expenditure presented in these statistical tables are for the school year ending in 2008. They are based on survey results reported to and processed by the UNESCO Institute for Statistics (UIS) before the end of May 2010. For further details, refer to statistical tables in EFA Global Monitoring Report 2011.

The statistical tables list a total of 194 countries and territories. The data on demographic and population indicators are based on the 2008 revision of population estimates produced by the United Nations Population Division (UNPD). Because of possible differences between national population estimates and those of the United Nations, these indicators may differ from those published by individual countries or by other organisations. The UNPD does not provide data by single year of age for countries with a total population of fewer than 50,000. Where no UNPD estimates exist, national population figures, when available, or UIS estimates were used to calculate enrolment ratios.

Countries with population of less than half a million and countries belonging to the category of "developed region" have not been included in the statistical tables and in analysing correlation trends.

Composition of Regions

Arab States (20 countries/territories)

Algeria, Bahrain, Djibouti, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libyan Arab Jamahiriya, Mauritania, Morocco, Oman, occupied Palestinian territory, Qatar, Saudi Arabia, Sudan, Syrian Arab Republic, Tunisia, United Arab Emirates and Yemen.

Central and Eastern Europe (21 countries)

Albania, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Montenegro, Poland, Republic of Moldova, Romania, Russian Federation, Serbia, Slovakia, Slovenia, the former Yugoslav Republic of Macedonia, Turkey and Ukraine.

Central Asia (9 countries):

Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Mongolia, Tajikistan, Turkmenistan and Uzbekistan.

East Asia and the Pacific (33 countries/territories)

East Asia (16 countries/territories)

Brunei Darussalam, Cambodia, China, Democratic People's Republic of Korea, Indonesia, Japan, Lao People's Democratic Republic, Macao (China), Malaysia, Myanmar, Philippines, Republic of Korea, Singapore, Thailand, Timor-Leste and Vietnam.

Pacific (17 countries/territories)

Australia, Cook Islands, Fiji, Kiribati, Marshall Islands, (Federated States of) Micronesia, Nauru, New Zealand, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu and Vanuatu.

Latin America and the Caribbean (41 countries/ territories)

Caribbean (22 countries/territories)

Anguilla, Antigua and Barbuda, Aruba, Bahamas, Barbados, Belize, Bermuda, British Virgin Islands, Cayman Islands, Dominica, Grenada, Guyana, Haiti, Jamaica, Montserrat, Netherlands Antilles, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Suriname, Trinidad and Tobago, and Turks and Caicos Islands.

Latin America (19 countries)

Argentina, (Plurinational State of) Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay and (Bolivarian Republic of) Venezuela.

North America and Western Europe (26 countries / territories)

Andorra, Austria, Belgium, Canada, Cyprus, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Israel, Italy, Luxembourg, Malta, Monaco, Netherlands, Norway, Portugal, San Marino, Spain, Sweden, Switzerland, United Kingdom and United States.

South and West Asia (9 countries)

Afghanistan, Bangladesh, Bhutan, India, Islamic Republic of Iran, Maldives, Nepal, Pakistan and Sri Lanka.

Countries in transition (12)

Countries of the Commonwealth of Independent States, including four in Central and Eastern Europe (Belarus, Republic of Moldova, Russian Federation and Ukraine) and the countries of Central Asia minus Mongolia.

Developed countries (44)

North America and Western Europe (minus Cyprus and Israel); Central and Eastern Europe (minus Belarus, Republic of Moldova, Russian Federation, Turkey and Ukraine); Australia, Bermuda, Japan and New Zealand.

Developing countries (148)

Arab States East Asia and the Pacific (minus Australia, Japan and New Zealand) Latin America and the Caribbean (minus Bermuda) South and West Asia Sub-Saharan Africa and Cyprus, Israel, Mongolia and Turkey.

Sub-Saharan Africa (45 countries)

Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Cape Verde, Central African Republic, Chad, Comoros, Congo, Côte d'Ivoire, Democratic Republic of the Congo, Equatorial Guinea, Eritrea, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritius, Mozambique, Namibia, Niger, Nigeria, Rwanda, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, Somalia, South Africa, Swaziland, Togo, Uganda, United Republic of Tanzania, Zambia and Zimbabwe.

Symbols used in the Statistical Tables

The following symbols are used in the statistical tables:

* National estimate

** UIS estimate

… Missing data

— Magnitude nil or negligible

. Category not applicable

Before presenting the country tables (S3 to S7), a brief discussion of statistical trends on relevant demographic factors and socio-economic deprivation is presented below (Tables S1 and S2 and Figures S1 to S11).

2. Rural People—Some Empirical Trends

2.1 Mounting Demographic Pressure

The population of the developing world is still more rural than urban: some 3.1 billion people, or 55 percent of the total population, live in rural areas. However, between 2020 and 2025, the total rural population will peak and then start to decline, and the developing world's urban population will overtake its rural population. In Latin America and the Caribbean, and in East and South east Asia, the number of rural people is already in decline. Elsewhere, the growth of rural populations is slowing. Numbers will start to decline around 2025 in the Middle East and North Africa and in South and Central Asia, and around 2045 in Sub-Saharan Africa (IFAD: 2011). Thus, the population in developing regions will remain predominantly rural until 2020. After that, the size of the rural population is expected to decline due to slower population growth and rapid urbanisation in most countries. The share of the population living in rural areas is declining on all continents, although it is projected to remain above 50 percent in South and Central Asia and Sub-Saharan Africa until 2030 (Figure S1).

Figure S1(A) shows that the world population increased from 6 billion in 1999 to 6.9 billion in 2010—the highest increase (269.6 million) being recorded by the South and West Asian region followed by East Asia and the Pacific (170.3 million). Central and Eastern Europe is the only region recording a decline (one million) in total population reflecting sustained reductions in fertility in this region during the period under consideration.

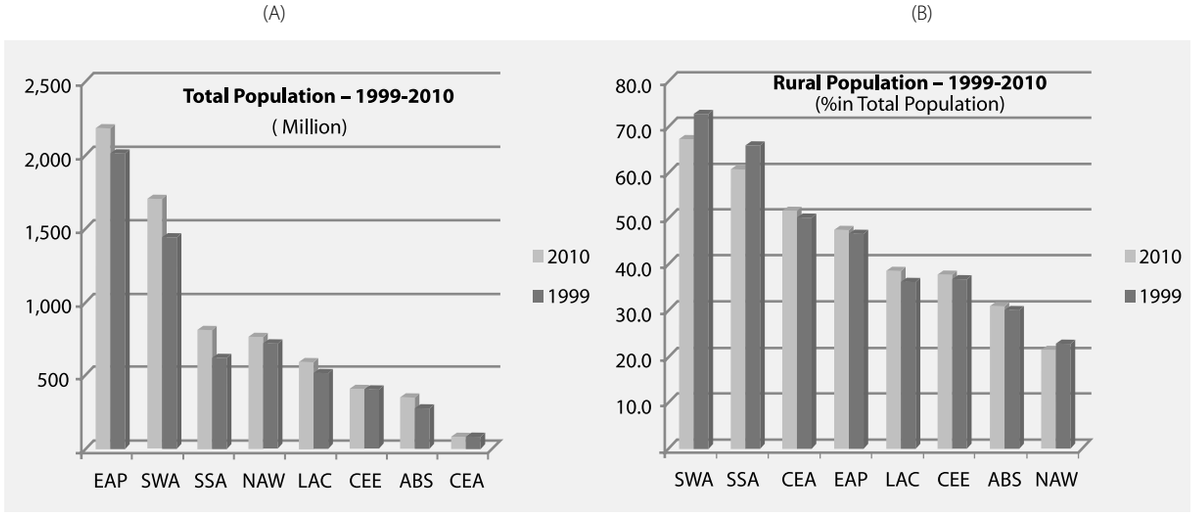
Figure S1(B) represents the proportion of rural population in the total population during 1999–2010. Among the developing regions, South and West Asia and Sub-Saharan Africa are the only regions with mounting rural population. Rural population in these two regions accounts for nearly one-third of total population. Rural population has also grown in the North American and Western European region. However, this increase can be associated with recent efforts in the European Union (EU) towards changes in the concept of rural areas. It is also explained by the prevalence of the current financial crisis as a result of which migrant workers in the European Union are returning back to

Table S1 World Population 1999–2010

Regions	Population (Million) Total		Rural Population (% in Total)	
	1999	2010	1999	2010
Arab States	271.6	347.6	29.9	30.9
South & West Asia	1,434.6	1,704.2	72.8	67.2
Central & Eastern Europe	401.6	400.6	36.7	37.7
Central Asia	73.3	80.1	50.1	51.5
East Asia & Pacific	2,006.3	2,176.6	46.7	47.4
Latin America & the Caribbean	508.6	584.8	36.1	38.5
North America & Western Europe	704.2	763.3	22.5	21.3
Sub-Saharan Africa	614.8	807.2	65.8	60.8
WORLD	6,015.0	6,908.7	53.1	50.1

Note: The total of regions may not add to the World total as countries with half a million or less population are not included in the regional totals.
Source: Human Development Report, 2011.

Figure S1 Total and Rural Population—1999 and 2010



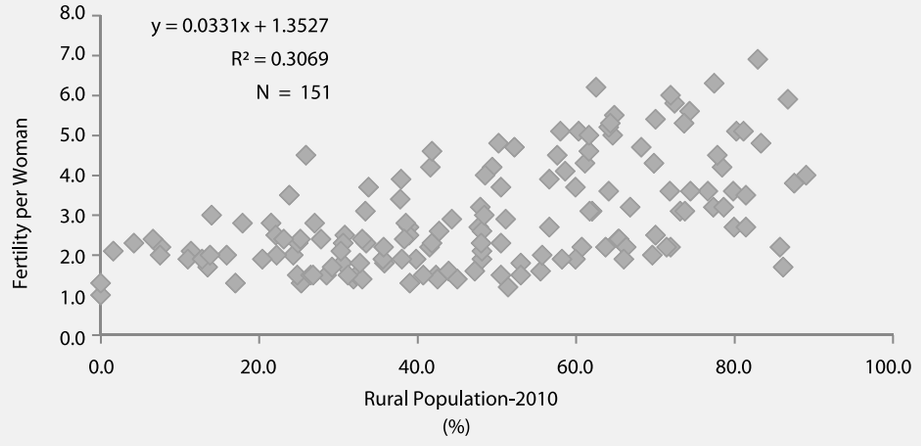
SWA = South West Asia; SSA = Sub-Saharan Africa; CEA =Central Asia; EAP = East Asia and the Pacific;
LAC = Latin America and the Caribbean; CEE= Central and Eastern Europe; ABS =Arab States;
NAW = North America and Western Europe

Source: Human Development Report, 2011.

rural areas (OECD: 2008).

Figure S2 shows the relationship between rural population and women fertility. It highlights that high rural population proportions are positively and significantly related with each other. Rural areas are generally characterised with high fertility rates which in turn have historically been strongly correlated with poverty, high childhood mortality rates, low status and educational levels of women, deficiencies in reproductive health services, and inadequate availability and acceptance of contraceptives. Falling fertility rates and the demographic transition are generally associated with improved standards of living, such as increased per capita incomes, increased life expectancy, lowered infant mortality, increased adult literacy and higher rates of female education and employment.

Figure S2 Rural Population and Fertility per Woman

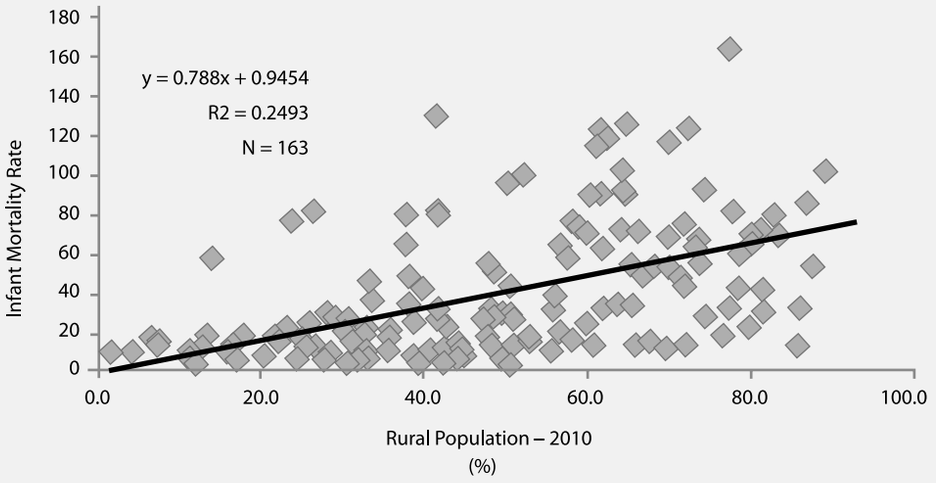


Source: Trend line based on data from Human Development Report, 2011.

Even with improved economic conditions, nations, regions and societies will experience different demographic patterns due to varying cultural influences. The value placed upon large families (especially among underprivileged rural populations in less developed

countries who benefit least from the process of development), the assurance of security for the elderly, the ability of women to control reproduction, and the status and rights of women within families and within societies are significant cultural factors affecting family size and the demand for family planning services.

Figure S3 Rural Population and Infant Mortality



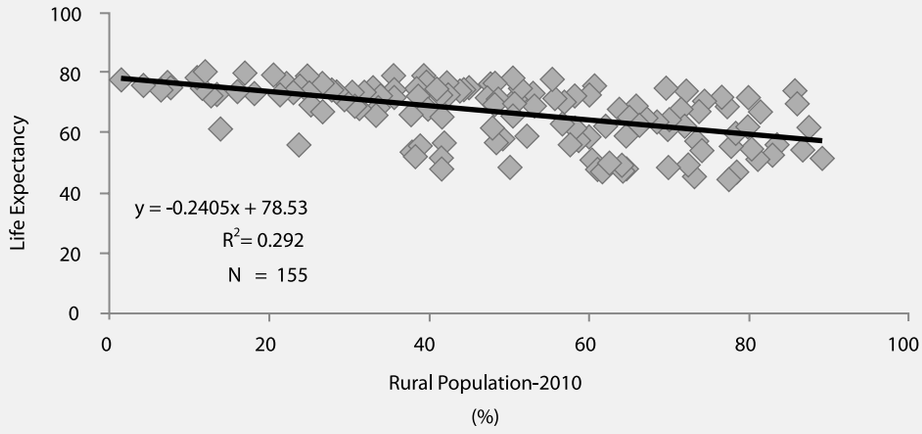
Source: Correlation trend line based on data from Human Development Report, 2011.

Even with a demand for family planning services, the adequate availability of and access to family planning and other reproductive health services are essential in facilitating slowing of the population growth rate. Also, access to education and the ability of women to determine their own economic security influence their reproductive decisions.

The relationship between infant mortality and size of rural population is shown in Figure S3. The figure clearly shows a significant direct relation between the two. That is, developing countries with high infant mortality rates are those having relatively high rural population.

The World Health Organisation (WHO) estimates that in 2005 over 500,000 women died from pregnancy- and birth-related causes. A woman in a developing country is 97 times more likely to die as a result of pregnancy than a woman in a developed country. The majority of these deaths occur during and immediately following birth: 25 percent are caused by severe bleeding, 15 percent by infection, 12 percent by eclampsia (a seizure disorder) and 8 percent by obstructed labour. The remaining deaths are due to unsafe abortion (13%), other direct causes (8%) and indirect causes such as HIV and malaria which may be aggravated by pregnancy. The technologies needed to prevent deaths from most of these causes exist (WHO: 2009).

Figure S4 Rural Population and Life Expectancy at Birth



Source: Correlation trend line based on data from Human Development Reports.

Figure S4 highlights the

relationship between rural population and the average expectancy of life. The graph clearly shows a negative relationship between them.

Population ageing is poised to become a major issue in developing countries, which are projected to age swiftly in the first half of the 21st century. The proportion of older persons is expected to rise from 8 to 19 percent by 2050, while that of children will fall from 33 to 22 percent. This demographic shift leading to increased dependency ratios presents a major resource challenge. Though developed countries have been able to age gradually, they face challenges resulting from the relationship between ageing and unemployment and sustainability of pension systems, while developing countries face the challenge of simultaneous development and population ageing (UN/DESA: 2002).

While today the overwhelming proportion of older persons in developed countries live in areas classified as urban, the majority of older persons in developing countries live in rural areas. Demographic projections suggest that, by 2025, 82 percent of the population of developed countries will live in urban areas, while less than half of the population of developing countries will live there. In developing countries, the proportion of older persons in rural areas is higher than in urban areas. Although further study is needed on the relationship between ageing and urbanisation, the trends suggest that in the future in rural areas of many developing countries there will be a larger population of older persons (UN/DESA: 2002).

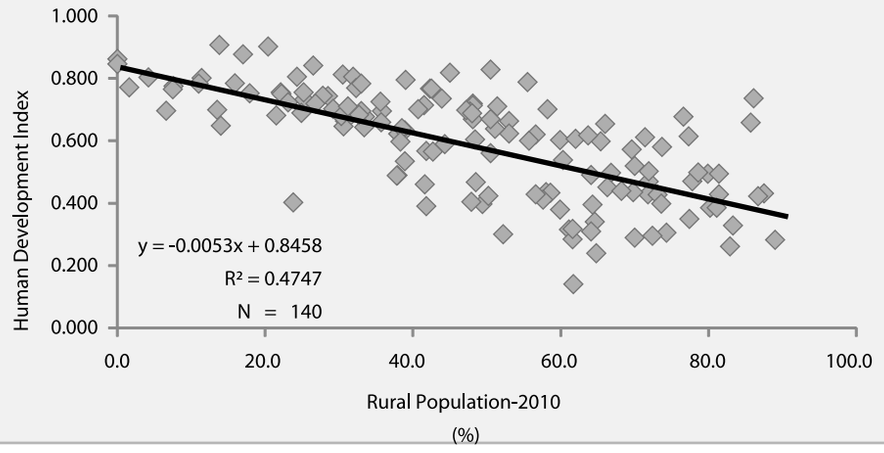
Significant differences also exist between developed and developing countries in terms of the kinds of households in which older persons live. In developing countries a large proportion of older persons live in multigenerational households. These differences imply that policy actions will be different in developing and developed countries.

2.2 Rural Poverty and Deprivation

The Human Development Index (HDI) decreases with every increase in rural population in developing countries (Figure S5). However, it is difficult to demonstrate precisely the magnitude of rural poverty in term of HDI as it contains several indicators and gives the measurement of development in relation to those indicators.

The IFAD Rural Poverty Report 2011 states that today a little less than 35 percent of the total rural population of developing countries is classified as extremely poor, down from around 54 percent in 1988; while the corresponding

Figure S5 Rural Population and Human Development Index

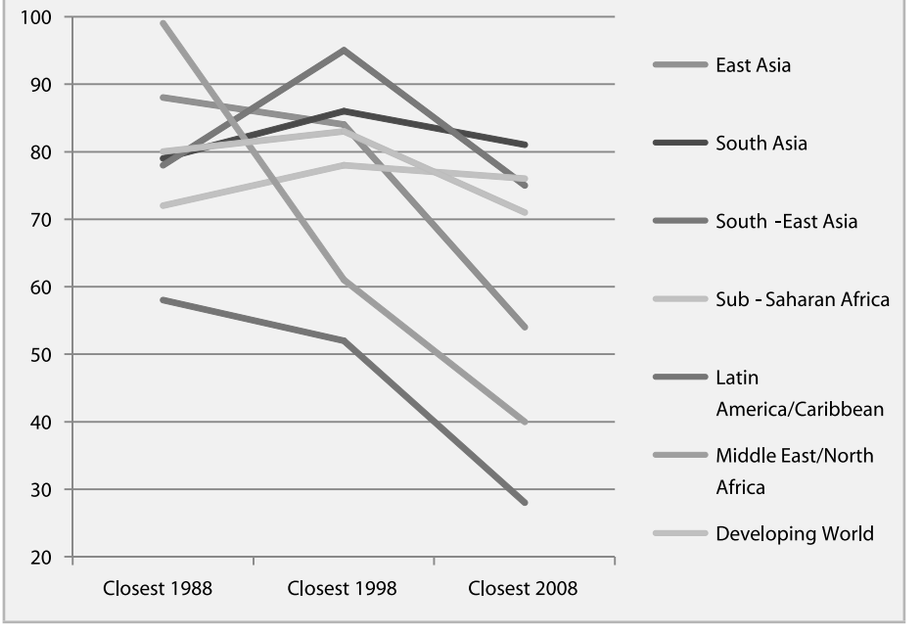


Source: Trend line based on data from Human Development Report, 2011.

percentage for the US$ 2/day poverty line is now just above 60 percent, down from over 80 percent in 1988 (see Figures S6, S7 and S8.). This is mainly due to a massive reduction in rural poverty in East Asia, where today the incidence of rural poverty is around 15 percent for the US$ 1.25/day line and 35 percent for the US$ 2/day line (IFAD Rural Poverty Report 2011).

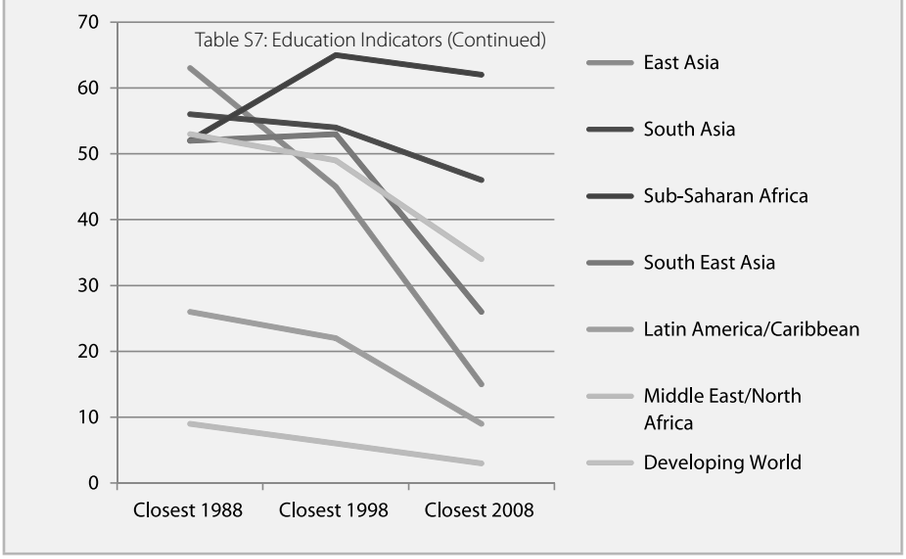
Rural poverty has declined more slowly in South Asia, where the incidence is still more than 45 percent for extreme poverty and over 80 percent for US$ 2/day and in Sub-Saharan Africa, where more than 60 percent of the rural population lives on less than US$ 1.25 a day, and almost 90 percent lives on less than US$ 2/day. In Latin America and the Caribbean, and the Middle East and North Africa the incidence of extreme rural poverty is less than 10 and 5 percent, respectively, with declines occurring in both regions over the past decade (even though one-fifth of the rural population in Latin America and the Caribbean, and one in eight in the Middle East and North Africa, live on less than US$ 2/day). Within each region, some countries and sub-regions performed better than others over the past two decades. In Sub-Saharan Africa, for instance, rural poverty declined in much of East and West Africa but increased in Middle Africa; in North Africa rural poverty declined, while it increased in the conflict-affected Middle East (IFAD: 2011, pp.47–48).

Figure S6 Rural Share of Total Poverty
(Rural People as Percentage of Those Living on Less Than US$ 1.25/day)



Source: Rural Poverty Report, 2011.

Figure S7 Incidence of Extreme Rural Poverty
(Percentage Living on Less Than US$1.25/day Amongst Rural People)

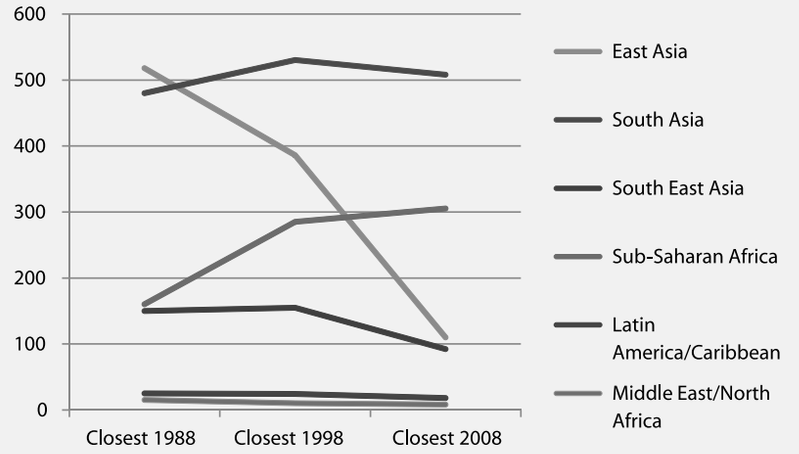


Source : Rural Poverty Report, 2011.

Despite massive progress in reducing poverty in some parts of the world over the past couple of decades—notably in East Asia—there are still about 1.4 billion people living on less than US$ 1.25 a day, and close to 1 billion people suffering from hunger. At least 70 percent of the world's very poor people are rural, and a large propor-

tion of the poor and hungry are children and young people (IFAD: 2011). Neither of these facts is likely to change in the immediate future, despite widespread urbanisation and demographic changes in all regions. South and West Asia, with the greatest number of poor rural people, and Sub-Saharan Africa, with the highest incidence of rural poverty, are the regions worst affected by poverty and hunger. Levels of poverty vary considerably however, not just across regions and countries, but also within countries.

Figure S8 Numbers of Rural People Living in Extreme Poverty
(Millions of rural people living on less than US$1.25/day)



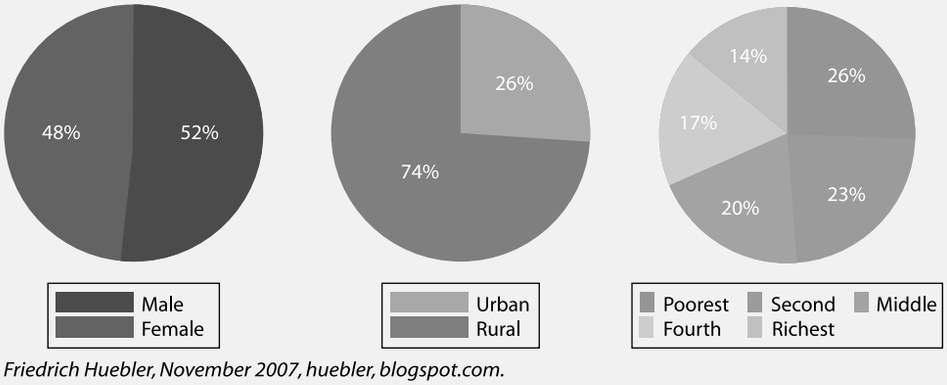
Source: Rural Poverty Report, 2011.

As noted, nearly one-sixth of the world total population is living in abject poverty and suffering from hunger and illiteracy—majority of them finding their abode in the Sub-Saharan African and the Asia/Pacific regions. Within the Millennium Development Goals (MDGs) framework, education and training policies play a crucial role in reducing poverty and ensuring an equitable distribution of economic resources. The UNESCO Education for All Global Monitoring Report 2011 estimates worldwide some 72 million children of primary school age are still out-of-school (Figure S9) and over four out of five of them live in rural areas.

A comparison of the composition of the total population of primary school age and the population of children out of school in India, for instance, shows which group of children are disproportionately more likely to miss out on education. Figure S9 shows the composition of the Indian population aged 6–10 years. Fifty-two percent of all children in this age group are boys and 48 percent are girls. About one-quarter of all children of primary school age live in urban areas and the remaining three-quarters in rural areas (Hueber: 2007).

Wealth quintiles are constructed by ranking the entire population of India, regardless of age, according to household wealth and dividing them into five equally sized groups with 20 percent each of the total population. As Figure S10 shows, households from poorer quintiles are

Figure S9 Population of Primary School Age by Sex, Area of Residence, and Wealth Quintile, India 2006



Friedrich Huebler, November 2007, huebler, blogspot.com.

Source: India Demographic and Health Survey 2005–2006.

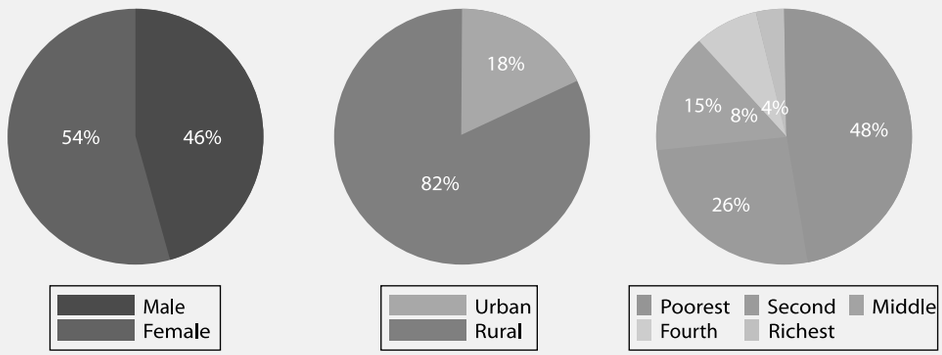
more likely to have more children than households from richer quintiles. Overall, 26 percent of all children between 6 and 10 years live in the bottom quintile and a further 23 percent in the second quintile.

Figure S10 shows the composition of the group of children aged 6 to 10 years that are out of school in India. Although girls only account for 48 percent of the total number of children in this age group, they make up 54 percent of the children out of school. Rural children are disproportionately more likely to be out of school than urban children. Most strikingly, children from the poorest quintile make up almost half of all children out of school. Forty-eight percent—10 million of the 21 million children out of school—live in the poorest quintile. Seventy-four percent of all children out of school live in the two poorest quintiles.

These numbers emphasize the close link between poverty and school attendance in India. School attendance rates have increased among the poorest households between 2000 and 2006 but the increase was not large enough to keep pace with population growth. Unless India places more emphasis on school attendance among the poor, the country will miss the Millennium Development Goal of universal primary education by 2015.

(To be continued on page No. 268)

Figure S10 Children of Primary School Age Out of School by Sex, Area of Residence, and Wealth Quintile, India 2006

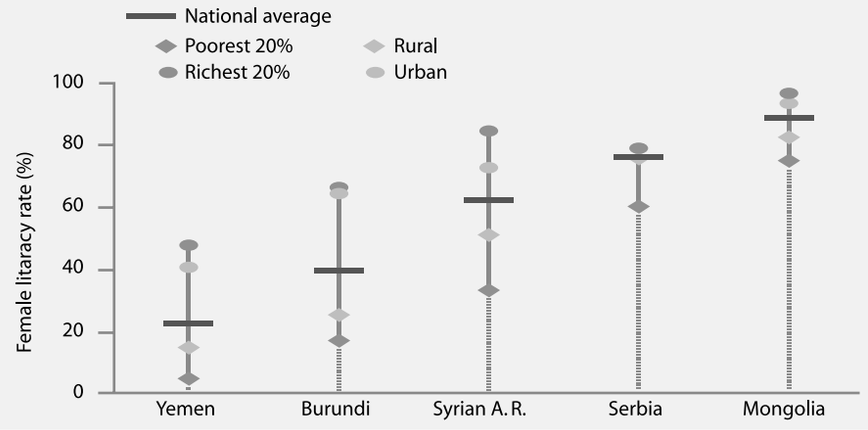


Friedrich Huebler, November 2007, huebler, blogspot.com.

Source: India Demographic and Health Survey 2005–06.

Figure S11 Patterns of Literacy Related to Household's Location and Wealth in Five Countries

Percentage of females aged 15 to 49 who are literate, by location and wealth, selected countries, 2005.



Note : The female literacy rate indicates woman aged 15 to 49 able to read all or part of a simple sentence.

Source: UNESCO et al. (2010).

Table S2 Percentage Point Change in Rural Population in Selected Developing Countries (1999–2010)

Arab States		Central Asia		Central & Eastern Europe		East Asia & Pacific		Latin America & the Caribbean		South and West Asia		Sub-Saharan Africa	
Yemen	-7.3	Turkmenistan	-4.8	Albania	-10.9	Malaysia	-15.5	Panama	-18.8	Bhutan	-27.8	São Tomé & Príncipe	-40.7
Algeria	-7.0	Kazakhstan	-2.1	Hungary	-4.3	China	-15.4	El Salvador	-18.0	Maldives	-14.0	Gambia	-26.4
Sudan	-5.0	Kyrgyzstan	-1.0	Belarus	-4.0	Thailand	-12.8	Haiti	-17.0	Iran	-9.7	Angola	-25.0
Jordan	-4.9	Uzbekistan	0.9	Bulgaria	-2.2	Vietnam	-10.7	Costa Rica	-16.8	Nepal	-7.0	Ghana	-13.6
Qatar	-3.5	Mongolia	1.0	Romania	-1.6	Lao P.D.R.	-10.3	Guatemala	-10.1	Bangladesh	-4.2	Rwanda	-12.8
Morocco	-2.9	Tajikistan	1.2	Ukraine	-0.9	Myanmar	-6.4	Venezuela	-6.8	India	-1.9	South Africa	-11.6
Tunisia	-2.5	Azerbaijan	5.0	Moldova.	-0.8	Cambodia	-4.5	Paraguay	-6.2	Pakistan	0.6	Botswana	-11.4
Syria	-1.7	Armenia	5.5	Estonia	-0.7	Indonesia	-4.5	Brazil	-5.8	Sri Lanka	9.0	Togo	-10.7
Kuwait	-1.0	Georgia	7.4	Croatia	-0.4	Brunei	-4.0	Dominican R.	-4.8			Cameroon	-10.4
Egypt	1.6			Slovenia	0.8	Fiji	-3.3	Bolivia	-4.7			Burkina Faso	-7.8
Lebanon	2.1			Czech Rep.	1.2	Korea, R.	-1.9	Peru	-4.5			Namibia	-7.6
Saudi Arabia	3.0			Latvia	1.3			Mexico	-3.6			Guinea-Bissau	-6.7
Bahrain	3.2			Lithuania	1.4			Chile	-3.6			Nigeria	-6.7
UAE	5.9			Slovakia	2.3			Argentina	-2.8			Mali	-6.5
Djibouti	6.8			Macedonia	2.3			Ecuador	-2.7			Gabon	-5.7
Oman	9.2			Russian Fed.	4.1			Colombia	-1.6			Congo, D.R.	-5.2
Libya	9.3			Poland	4.2			Nicaragua	-1.5			Cote d'Ivoire	-4.9
Mauritania	15.0			Turkey	4.4			Uruguay	-1.5			Chad	-4.1
								Belize	1.3			Zimbabwe	-3.7
								Jamaica	3.6			Guinea	-3.4
								Bahamas	3.8			Eritrea	-3.2
								Suriname	4.1			Sierra Leone	-2.5
								Barbados	5.0			Burundi	-2.3
								Guyana	9.0			Madagascar	-1.2
								Trinidad/Tobago	59.7			Cape Verde	-0.7
												Mauritius	-0.7
												Benin	-0.5
												Congo	-0.4
												Lesotho	0.2
												Ethiopia	0.5
												Mozambique	0.5
												Uganda	0.5
												Central African Republic	1.9
												Niger	3.0
												Malawi	3.7
												Zambia	3.8
												Senegal	4.3
												Comoros	4.5
												Swaziland	4.7
												Tanzania	5.2
												Equatorial Guinea	7.2
												Kenya	9.9

(In Continuation to page No. 267)

Literacy programmes are often organised as single interventions to impart literacy and numeracy skills only and participation in these are related to the economic status of the families and where they reside. as shown in Figure S11.

Table S2 shows the trend in the shift of the proportions of rural and urban populations in selected countries from 7 developing regions between 1999 and 2010. There has been a continuing decline in the proportion of the rural population in all regions, but in a small number of countries in six regions (the exception is East Asia and Pacific), there has been an increase in the proportion of rural population. The causes for this counter-trend appear to be related to specific circumstances including conflicts and natural calamities which have forced people to move as well as economic difficulties that may have led migrant workers to return to rural homes.

Table S3 Rural Population and Selected Development Indicators

S. No.	Country/Region	Rural Population (%)		Total Population (in millions)		Human Development Index (HDI)	Gross Nationall Income (GNI) Per Capita (US $)	Life Expectancy at Birth (in Years)	Infant Mortality Rate	Adult Literacy Rate (15 Years and Over) (%)		Net Enrolment Primary Level Education		GER Combined (Pri+Sec+Ter) Total	Population without Access to Services (%)	
										Total	Female	Boys	Girls		Water	Sanitation
		1999	2010	1999	2010	2010	2010	2010	2008	2005–2008		2008		2008	2008	
1	Afghanistan	..	77	22	31	0.300	1,419	45	165	…	…	…	…	...	52	63
2	Albania	59	48	3	3	0.700	7,976	77	13	99	99	…	…	...	3	2
3	Algeria	41	34	30	36	0.700	8,320	73	36	73	64	96	94	…	17	5
4	Andorra	..	12	-	-	0.800	38,056	81	3	…	…	81	79	67	-	-
5	Angola	67	42	14	19	0.400	4,941	48	130	70	57	…	…	...	50	43
6	Antigua & Barbuda	..	70	-	-	..	17,924	..	11	99	99	90	86	...	30	6
7	Argentina	10	8	37	40	0.800	14,603	76	15	98	98	…	…	92	..	..
8	Armenia	30	36	3	3	0.700	5,495	74	21	100	99	83	86	74	3	10
9	Australia	15	11	19	22	0.900	38,692	82	5	…	…	96	97	115	4	10
10	Austria	35	32	8	8	0.900	37,056	80	3	…	…	…	…	90	-	-
11	Azerbaijan	43	48	8	9	0.700	8,747	71	32	100	99	97	95	70	-	-
12	Bahamas	12	16	-	-	0.800	25,201	74	9	…	…	90	92	...	20	55
13	Bahrain	8	11	1	1	0.800	26,664	76	10	91	89	98	97	...	..	-
14	Bangladesh	76	72	127	149	0.500	1,587	67	43	55	50	85	86	...	..	..
15	Barbados	51	56	-	-	0.800	21,673	78	10	…	…	…	…	...	20	47
16	Belarus	29	25	10	10	0.700	12,926	70	11	100	100	93	96	...	-	-
17	Belgium	3	3	10	11	0.900	34,873	80	4	…	…	98	99	94	-	7
18	Belize	46	48	-	-	0.700	5,693	77	17	…	…	98	98	...	-	-
19	Benin	59	58	6	9	0.400	1,499	62	76	41	28	99	86	...	1	10
20	Bhutan	93	65	1	1	..	5,607	67	54	53	39	86	88	61	46	76
21	Bolivia	38	33	8	10	0.600	4,357	66	46	91	86	93	94	...	25	88
22	Bosnia & Herzegovina	..	51	4	4	0.700	8,222	76	13	98	96	…	…	...	8	35
23	Botswana	50	39	2	2	0.600	13,204	56	26	83	84	86	88	...	14	75
24	Brazil	19	14	172	195	0.700	10,607	73	18	90	90	95	93	87	1	5
25	Brunei Darussalam	28	24	-	-	0.800	49,915	77	6	95	93	93	93	78	5	40
26	Bulgaria	31	29	8	8	0.700	11,139	74	9	98	98	96	96	78	3	20
27	Burkina Faso	82	74	12	17	0.300	1,215	54	92	29	22	67	59	37	..	..
28	Burundi	91	89	6	8	0.300	402	51	102	66	60	100	99	55	-	-
29	Cambodia	84	80	12	14	0.500	1,868	62	69	78	71	90	87	...	24	89
30	Cameroon	52	42	15	20	0.500	2,197	52	82	76	68	94	82	57	28	54
31	Canada	23	19	30	34	0.900	38,668	81	6	…	…	…	…	...	39	71
32	Cape Verde	40	39	-	1	0.500	3,306	72	24	84	79	85	84	...	26	53
33	Central African Republic	59	61	4	4	0.300	758	48	115	55	41	77	57	38	-	-
34	Chad	77	72	8	11	0.300	1,067	49	124	33	22	…	…	43	16	46
35	Chile	15	11	15	17	0.800	13,561	79	7	99	99	95	94	85	33	66

Table S3 (continued)

S. No.	Country/Region	Rural Population (%)		Total Population (in millions)		Human Development Index (HDI)	Gross Nationall Income (GNI) Per Capita (US $)	Life Expectancy at Birth (in Years)	Infant Mortality Rate	Adult Literacy Rate (15 Years and Over) (%)		Net Enrolment Primary Level Education		GER Combined (Pri+Sec+Ter) Total	Population without Access to Services (%)	
										Total	Female	Boys	Girls		Water	Sanitation
		1999	2010	1999	2010	2010	2010	2010	2008	2005–2008		2008		2008	2008	
36	China	68	53	1,260	1,341	0.700	7,258	74	18	94	91	…	…	68	50	91
37	Colombia	27	25	39	46	0.700	8,589	73	16	93	93	90	90	83	4	4
38	Comoros	67	72	1	1	0.400	1,176	66	75	74	68	…	…	...	11	45
39	Congo	38	38	3	4	0.500	3,258	54	80	…	…	62	56	...	8	26
40	Congo, D.R.	70	65	48	66	0.200	291	48	126	67	…	…	…	51	5	64
41	Costa Rica	52	36	4	5	0.700	10,870	79	10	96	96	…	…	...	29	70
42	Cote d'Ivoire	54	49	16	20	0.400	1,625	58	5	55	44	…	…	...	54	77
43	Croatia	43	42	5	4	0.800	16,389	77	4	99	98	91	90	80	3	5
44	Cuba	..	25	11	11	..	..	79	5	100	100	99	99	104	2	4
45	Cyprus	44	30	1	1	0.800	21,962	80	3	98	97	99	98	81	20	77
46	Czech Rep.	25	27	10	11	0.800	22,678	77	81	…	…	88	91	86	1	1
47	Denmark	15	13	5	6	0.900	36,404	79	4	…	…	95	96	101	6	9
48	Djibouti	17	24	1	1	0.400	2,471	56	76	…	…	44	39	...	-	-
49	Dominica	..	33	-	-	..	8,549	..	9	…	…	69	76	74	-	11
50	Dominican Republic	36	31	9	10	0.700	8,273	73	27	88	88	80	80	...	-	2
51	Ecuador	36	33	12	15	0.700	7,931	75	21	84	82	96	97	82	-	-
52	Egypt	55	57	67	81	0.600	5,889	71	20	66	58	95	92	...	8	44
53	El Salvador	54	36	6	6	0.700	6,498	72	16	84	81	93	95	73	..	..
54	Equatorial Guinea	53	60	1	1	0.500	22,218	51	90	93	89	…	…	...	14	17
55	Eritrea	82	78	4	5	..	643	60	41	65	55	42	36	...	31	50
56	Estonia	31	31	1	1	0.800	17,168	74	4	100	100	95	94	89	6	8
57	Ethiopia	83	83	64	83	0.300	992	56	69	36	23	81	75	55	1	6
58	Fiji	51	48	1	1	0.700	4,315	69	16	…	…	90	89	...	13	13
59	Finland	33	15	5	5	0.900	33,872	80	3	…	…	96	96	101	..	..
60	France	25	15	59	63	0.900	34,341	82	3	…	…	98	99	95	39	86
61	Gabon	20	14	1	2	0.600	12,747	61	57	87	83	…	…	...	2	5
62	Gambia	68	42	1	2	0.400	1,358	57	80	45	34	67	71	57	62	88
63	Georgia	40	47	5	4	0.700	4,902	72	26	100	100	100	98	75	..	..
64	Germany	13	26	82	82	0.900	35,308	80	4	…	…	98	98	...	-	-
65	Ghana	62	49	19	24	0.500	1,385	57	51	66	59	76	77	...	-	-
66	Greece	40	39	11	11	0.900	27,580	80	3	97	96	99	100	...	13	67
67	Grenada	..	61	-	-	..	7,998	76	13	…	…	94	93	...	40	88
68	Guatemala	61	51	11	14	0.600	4,694	71	29	74	69	97	94	...	8	33
69	Guinea	68	65	8	10	0.300	953	59	90	38	26	76	66	51	2	5
70	Guinea-Bissau	77	70	1	2	0.300	538	49	117	51	37	…	…	...	-	-

Table S3 (continued)

S. No.	Country/Region	Rural Population (%)		Total Population (in millions)		Human Development Index (HDI)	Gross Nationall Income (GNI) Per Capita (US $)	Life Expectancy at Birth (in Years)	Infant Mortality Rate	Adult Literacy Rate (15 Years and Over) (%)		Net Enrolment Primary Level Education		GER Combined (Pri+Sec+Ter) Total	Population without Access to Services (%)	
										Total	Female	Boys	Girls		Water	Sanitation
		1999	2010	1999	2010	2010	2010	2010	2008	2005–2008		2008		2008	2008	
71	Guyana	62	71	1	1	0.600	3,302	68	47	…	…	95	95	81	18	87
72	Haiti	65	48	9	10	0.400	949	62	54	…	…	…	…	…	-	2
73	Honduras	48	48	6	8	0.600	3,750	73	26	84	83	96	98	72	..	3
74	Hong Kong (China)	-	-	7	7	0.900	45,090	83	..	…	…	…	…	83	6	19
75	Hungary	36	32	10	10	0.800	17,472	74	5	…	…	90	89	90	29	81
76	Iceland	8	7	-	-	0.900	22,917	82	2	…	…	97	98	97	39	79
77	India	72	70	1,036	1,225	0.500	3,337	64	52	63	51	91	88	…	6	19
78	Indonesia	60	56	211	240	0.600	3,957	72	31	92	89	97	94	75	37	83
79	Iran, I.R.	39	29	64	74	0.700	11,764	72	27	82	77	…	…	69	14	29
80	Iraq	..	34	23	32	..	..	69	36	78	69	…	…	…	-	4
81	Ireland	41	38	4	5	0.900	33,078	80	3	…	…	96	98	100	..	..
82	Israel	9	8	6	7	0.900	27,831	81	4	…	…	97	98	90	-	-
83	Italy	33	32	57	61	0.900	29,619	81	3	99	99	99	98	92	-	-
84	Jamaica	44	48	3	3	0.700	7,207	72	26	86	91	82	79	87	12	69
85	Japan	21	33	126	127	0.900	34,692	83	3	…	…	…	…	88	20	48
86	Jordan	26	22	5	6	0.700	5,956	73	17	92	89	89	90	78	..	..
87	Kazakhstan	44	42	15	16	0.700	10,234	65	27	100	100	91	90	91	21	27
88	Kenya	68	78	31	41	0.500	1,628	56	81	87	83	81	82	…	-	1
89	Kiribati	..	56	-	-	..	3,715	..	38	…	…	…	…	73	6	8
90	Korea, D.P.R.	..	40	23	24	..	..	68	42	100	100	…	…	…	6	15
91	Korea, Rep.	19	17	46	48	0.900	29,518	80	5	…	…	100	98	100	-	-
92	Kuwait	3	2	2	3	0.800	55,719	78	9	94	93	89	87	…	-	..
93	Kyrgyzstan	66	65	5	5	0.600	2,291	68	33	99	99	84	83	77	6	17
94	Lao P.D.R.	77	67	5	6	0.500	2,321	66	48	73	63	84	81	59	-	-
95	Latvia	31	32	2	2	0.800	12,944	73	8	100	100	…	…	88	4	2
96	Lebanon	11	13	4	4	..	13,475	72	12	90	86	91	89	80	1	10
97	Lesotho	73	73	2	2	0.400	2,021	46	63	90	95	71	74	…	5	3
98	Liberia	..	52	3	4	0.300	320	59	100	58	53	…	…	…	41	69
99	Libyan A.J.	13	22	5	6	0.800	17,068	75	15	88	81	…	…	…	..	..
100	Liechtenstein	..	86	-	-	0.900	81,011	80	2	…	…	…	…	72	-	..
101	Lithuania	32	33	4	3	0.800	14,824	72	6	100	100	93	91	92	2	-
102	Luxembourg	9	15	-	1	0.900	51,109	80	2	…	…	95	97	…	1	-
103	Macedonia	38	41	2	2	0.700	9,487	75	10	97	95	86	87	72	11	74
104	Madagascar	71	70	15	21	0.400	953	61	68	71	65	98	99	66	10	7
105	Malawi	77	80	11	15	0.400	911	55	65	73	66	88	93	…	43	47

Table S3 (continued)

S. No.	Country/Region	Rural Population (%)		Total Population (in millions)		Human Development Index (HDI)	Gross Nationall Income (GNI) Per Capita (US $)	Life Expectancy at Birth (in Years)	Infant Mortality Rate	Adult Literacy Rate (15 Years and Over) (%)		Net Enrolment Primary Level Education		GER Combined (Pri+Sec+Ter) Total	Population without Access to Services (%)	
										Total	Female	Boys	Girls		Water	Sanitation
		1999	2010	1999	2010	2010	2010	2010	2008	2005–2008		2008		2008	2008	
106	Malaysia	43	28	23	28	0.700	13,927	75	6	92	90	96	96	70	1	22
107	Maldives	74	60	-	-	0.600	5,408	72	24	98	98	97	95	...	-	..
108	Mali	71	64	11	15	0.300	1,171	49	103	26	18	79	66	50	15	71
109	Malta	10	5	-	-	0.800	21,004	80	6	92	94	91	92	79	32	83
110	Marshall Islands	..	28	-	-	..	..	..	30	...	...	67	66	...	..	2
111	Mauritania	44	59	3	4	0.400	2,118	57	75	57	50	74	79	...	..	3
112	Mauritius	59	58	1	1	0.700	13,344	72	15	88	85	93	95	76	..	..
113	Mexico	26	22	99	113	0.800	13,971	77	15	93	91	98	98	82	..	..
114	Micronesia	..	77	-	-	0.600	3,266	69	32	...	...	...	...	...	-	-
115	Moldova, Rep.	54	53	4	4	0.600	3,149	69	15	98	98	88	87	71	59	89
116	Monaco	..	-	-	-	..	..	..	3	...	...	...	...	...	3	16
117	Mongolia	37	38	2	3	0.600	3,619	67	34	97	98	89	88	...	20	44
118	Montenegro	..	39	1	1	0.800	12,491	75	7	...	...	...	...	...	-	4
119	Morocco	45	42	28	32	0.600	4,628	72	32	56	44	92	87	...	9	2
120	Mozambique	61	62	18	23	0.300	854	48	90	54	40	82	77	...	44	64
121	Myanmar	73	66	45	48	0.500	1,596	63	71	92	89	...	...	...	-	-
122	Namibia	70	62	2	2	0.600	6,323	62	31	88	88	87	91	...	6	27
123	Nauru	..	-	-	-	..	..	..	36	...	...	72	73	56	33	52
124	Nepal	88	81	24	30	0.400	1,201	68	41	58	45	...	...	...	51	74
125	Netherlands	11	17	16	17	0.900	40,658	80	4	...	...	99	98	98	1	9
126	New Zealand	14	14	4	4	0.900	25,438	81	5	...	...	99	100	107	6	15
127	Nicaragua	44	43	5	6	0.600	2,567	74	23	78	78	92	92	...	..	..
128	Niger	80	83	11	16	0.300	675	53	79	29	15	60	48	29	10	21
129	Nigeria	57	50	121	158	0.400	2,156	48	96	60	49	64	58	...	-	-
130	Norway	25	21	5	5	0.900	58,810	81	3	...	...	99	99	97	24	50
131	Oman	18	27	2	3	..	25,653	76	10	87	81	67	69	...	-	3
132	Pakistan	64	64	141	174	0.500	2,678	67	72	54	40	72	60	42	2	8
133	Palau	..	17	-	-	..		..	13	...	...	...	...	...	-	-
134	Palestinian O.T.	..	26	3	4	..	..	74	24	94	91	75	75	77	2	5
135	Panama	44	25	3	4	0.800	13,347	76	19	94	93	99	98	79	19	31
136	Papua New Guinea	83	88	5	7	0.400	2,227	62	53	60	56	...	...	...	53	83
137	Paraguay	45	39	5	7	0.600	4,585	72	24	95	93	90	90	...	29	19
138	Peru	28	23	26	29	0.700	8,424	74	22	90	85	94	95	...	8	67
139	Philippines	42	51	76	93	0.600	4,002	72	26	94	94	91	93	80	..	..
140	Poland	35	39	38	38	0.800	17,803	76	6	...	...	95	96	88	12	69

Table S3 (continued)

S. No.	Country/Region	Rural Population (%)		Total Population (in millions)		Human Development Index (HDI)	Gross Nationall Income (GNI) Per Capita (US $)	Life Expectancy at Birth (in Years)	Infant Mortality Rate	Adult Literacy Rate (15 Years and Over) (%)		Net Enrolment Primary Level Education		GER Combined (Pri+Sec+Ter) Total	Population without Access to Services (%)	
										Total	Female	Boys	Girls		Water	Sanitation
		1999	2010	1999	2010	2010	2010	2010	2008	2005–2008		2008		2008	2008	
141	Portugal	37	39	10	11	0.800	22,105	79	3	95	93	99	98	94	-	-
142	Qatar	8	4	1	2	0.800	79,426	76	9	93	90	…	…	61	-	..
143	Romania	44	43	22	22	0.800	12,844	73	12	98	97	91	90	85	15	48
144	Russian Fed.	23	27	147	143	0.700	15,258	67	12	100	99	…	…	84	52	91
145	Rwanda	94	81	8	11	0.400	1,190	51	72	70	66	95	97	65	42	68
146	Saint Kitts & Nevis	..	68	-	0	..	14,196	..	14	…	…	…	…	76	1	-
147	Saint Lucia	..	72	0	0	..	8,652	74	13	…	…	92	91	75	-	-
148	Saint Vincent & the Grenadines	..	51	0	0	..	8,535	72	12	…	…	98	92	...	13	-
149	Samoa	..	80	0	0	..	4,126	72	22	99	99	93	93	...	17	48
150	San Marino	..	6	-	-	..	..	..	1	…	…	…	…	...	..	..
151	São Tomé & Príncipe	79	38	0	0	0.500	1,918	66	64	88	83	95	97	67	-	-
152	Saudi Arabia	15	18	20	27	0.800	24,726	73	18	86	80	85	84	81	9	11
153	Senegal	53	58	9	12	0.400	1,816	56	57	42	33	72	74	46	12	..
154	Serbia	..	44	10	10	0.700	10,449	74	6	…	…	95	95	78	10	55
155	Seychelles	..	45	0	0	..	19,128	..	11	92	92	…	…	83	6	25
156	Sierra Leone	64	62	4	6	0.300	809	48	123	40	29	…	…	...	..	..
157	Singapore	-	-	4	5	0.800	48,893	81	2	95	92	…	…	...	7	31
158	Slovakia	43	45	5	6	0.800	21,658	75	7	…	…	…	…	81	60	55
159	Slovenia	50	51	2	2	0.800	25,857	79	3	100	100	97	97	94	14	30
160	Solomon Islands	..	81	0	1	0.500	2,172	67	30	…	…	67	67	...	18	32
161	Somalia	..	63	7	9	..	..	50	119	28	15	…	…	...	38	48
162	South Africa	50	38	44	50	0.600	9,812	52	48	89	88	87	88	...	9	24
163	Spain	23	23	40	46	0.900	29,661	81	4	98	97	100	100	99	-	10
164	Sri Lanka	77	86	19	21	0.700	4,886	74	13	91	89	99	100	...	1	-
165	Sudan	65	60	33	44	0.400	2,051	59	70	69	60	…	…	...	-	-
166	Suriname	27	31	1	1	0.600	7,093	69	25	91	88	91	90	...	..	28
167	Swaziland	74	79	1	1	0.500	5,132	47	59	87	86	82	84	...	4	13
168	Sweden	17	15	9	9	0.900	36,936	81	2	…	…	95	94	92	35	46
169	Switzerland	32	26	7	8	0.900	39,849	82	4	…	…	94	94	86	1	4
170	Syrian A.R.	46	44	16	20	0.600	4,760	75	14	84	77	…	…	...	2	..
171	Tajikistan	73	74	6	7	0.600	2,020	67	54	100	100	99	95	72	..	..
172	Tanzania	68	74	33	45	0.400	1,344	57	67	73	66	100	99	...	..	-
173	Thailand	79	66	62	69	0.700	8,001	69	13	94	92	91	89	72	..	..
174	Timor-Leste	..	72	1	1	0.500	5,303	62	75	…	…	77	74	...	..	..
175	Togo	67	57	5	6	0.400	844	63	64	65	54	98	89	...	31	49

Table S3 (continued)

S. No.	Country/Region	Rural Population (%)		Total Population (in millions)		Human Development Index (HDI)	Gross Nationall Income (GNI) Per Capita (US $)	Life Expectancy at Birth (in Years)	Infant Mortality Rate	Adult Literacy Rate (15 Years and Over) (%)		Net Enrolment Primary Level Education		GER Combined (Pri+Sec+Ter) Total	Population without Access to Services (%)	
										Total	Female	Boys	Girls		Water	Sanitation
		1999	2010	1999	2010	2010	2010	2010	2008	2005–2008		2008		2008	2008	
176	Tonga	..	77	-	-	0.700	4,038	72	17	99	99	…	…	...	1	8
177	Trinidad and Tobago	26	86	1	1	0.700	24,233	70	31	99	98	92	91	...	..	..
178	Tunisia	35	33	9	11	0.700	7,979	74	18	78	71	97	98	78	51	87
179	Turkey	26	30	63	73	0.700	13,359	72	20	89	81	96	94	74	-	-
180	Turkmenistan	55	51	4	5	0.700	7,052	65	43	100	99	…	…	...	-	-
181	Tuvalu	..	50	-	-	..	..	..	30	…	…	…	…	...	40	51
182	Uganda	86	87	24	33	0.400	1,224	54	85	75	67	96	98	66	1	-
183	Ukraine	32	31	49	45	0.700	6,535	69	14	100	100	89	89	91	..	..
184	United Arab Emirates	15	20	3	8	0.900	47,094	80	7	90	91	92	91	...	-	-
185	United Kingdom	11	16	59	62	0.800	35,087	80	5	…	…	99	100	89	9	23
186	United States of America	23	18	279	310	0.800	58,006	78	7	…	…	91	93	93	70	77
187	Uruguay	9	8	3	3	0.800	13,808	77	12	98	98	97	98	90	10	9
188	Uzbekistan	63	64	25	27	0.600	3,085	68	34	99	99	89	87	71	43	66
189	Vanuatu	..	74	-	-	..	3,908	71	27	…	…	…	…	...	18	56
190	Venezuela	13	7	24	29	0.700	11,846	74	16	95	95	90	90	89	7	16
191	Vietnam	80	70	78	88	0.600	2,995	75	12	93	90	…	…	...	31	45
192	Yemen	76	68	17	24	0.400	2,387	64	53	61	43	79	66	...	-	-
193	Zambia	61	64	10	13	0.400	1,359	47	92	71	61	95	96	...	-	-
194	Zimbabwe	65	62	12	13	0.100	176	47	62	91	89	89	91	...	11	4
195	Malawi	77	80	11	15	0.400	911	55	65	73	66	88	93	...	43	47

Table S4 Countries Ranked by Percent of Rural Population (2010) and Selected Development Indicators

S. No.	Country/Region	Rural Population Rank		Total Population (in millions)		Human Development Index (HDI)	Gross Nationall Income (GNI) Per Capita (US $)	Life Expectancy at Birth (in Years)	Infant Mortality Rate	Adult Literacy Rate (15 Years and Over) (%)		Net Enrolment Primary Level Education		GER Combined (Pri+Sec+Ter) Total	Population without Access to Services (%)	
										Total	Female	Boys	Girls		Water	Sanitation
		1999	2010	1999	2010	2010	2010	2010	2008	2005–2008		2008		2008	2008	
1	Afghanistan	...	171	141	149	155	156	183	193	...	...	...	...	...	7	96
2	Albania	105	103	53	51	57	92	39	68	16	12	...	...	...	102	3
3	Algeria	71	71	152	154	57	86	76	129	99	103	37	52	...	52	19
4	Andorra	...	14	1	1	26	15	7	7	...	...	117	117	82	...	...
5	Angola	122	90	127	131	133	109	173	192	105	110	...	...	...	11	72
6	Antigua & Barbuda	...	155	1	1	...	47	...	59	16	12	86	105	...	33	25
7	Argentina	9	8	157	156	26	55	46	78	26	24	...	...	17	...	...
8	Armenia	47	73	53	51	57	105	62	97	1	12	113	105	66	102	36
9	Australia	19	11	137	137	1	13	3	29	...	...	37	30	1	98	36
10	Austria	56	61	98	93	1	16	16	7	...	...	...	...	23	...	...
11	Azerbaijan	74	103	98	99	57	80	102	123	1	12	28	44	78	...	...
12	Bahamas	14	24	1	1	26	35	62	49	...	...	86	68	...	43	92
13	Bahrain	3	11	25	23	26	31	46	54	61	61	19	30	...	...	...
14	Bangladesh	140	161	180	181	117	154	120	136	122	116	108	105	...	...	...
15	Barbados	93	123	1	1	26	43	36	54	...	...	...	...	...	43	79
16	Belarus	46	41	110	103	57	67	106	59	1	1	64	37	...	...	...
17	Belgium	1	2	110	110	1	21	16	20	...	...	19	6	13	...	27
18	Belize	87	103	1	1	57	103	39	87	...	...	19	13	...	...	...
19	Benin	105	128	89	99	133	155	137	168	131	131	6	105	...	114	36
20	Bhutan	159	146	25	23	...	104	120	146	127	126	105	94	87	13	113
21	Bolivia	64	65	98	103	93	116	127	138	61	72	64	52	...	39	125
22	Bosnia & Herzegovina	...	114	63	59	57	88	46	68	26	35	...	...	...	78	70
23	Botswana	90	81	44	41	93	65	154	107	89	77	105	94	...	57	112
24	Brazil	27	17	183	184	57	75	76	90	66	57	47	61	33	114	19
25	Brunei Darussalam	44	39	1	1	26	7	39	36	39	43	64	61	54	95	71
26	Bulgaria	48	53	98	93	57	73	62	49	26	24	37	37	54	102	54
27	Burkina Faso	151	167	123	128	155	162	160	180	136	134	134	137	102	...	...
28	Burundi	158	190	89	93	155	180	166	184	109	106	1	6	93	...	...
29	Cambodia	155	177	123	121	117	149	137	159	91	92	86	99	...	40	128
30	Cameroon	95	90	128	132	117	141	164	175	95	96	60	113	90	37	91
31	Canada	31	31	152	153	1	14	7	36	...	...	...	...	...	21	108
32	Cape Verde	68	81	1	23	117	127	85	102	84	88	108	109	...	38	90
33	Central African Republic	105	135	63	59	155	176	173	186	122	123	123	139	101	...	...
34	Chad	142	161	98	110	155	167	170	190	135	134	...	...	99	54	77
35	Chile	19	11	128	128	26	60	30	43	16	12	47	52	37	27	99

Table S4 (continued)

S. No.	Country/Region	Rural Population Rank		Total Population (in millions)		Human Development Index (HDI)	Gross Nationall Income (GNI) Per Capita (US $)	Life Expectancy at Birth (in Years)	Infant Mortality Rate	Adult Literacy Rate (15 Years and Over) (%)		Net Enrolment Primary Level Education		GER Combined (Pri+Sec+Ter) Total	Population without Access to Services (%)	
										Total	Female	Boys	Girls		Water	Sanitation
		1999	2010	1999	2010	2010	2010	2010	2008	2005–2008		2008		2008	2008	
36	China	125	121	187	188	57	94	62	90	44	52	...	...	81	11	130
37	Colombia	42	41	159	161	57	82	76	83	50	43	86	80	40	98	13
38	Comoros	122	161	25	23	133	165	127	165	97	96	...	...	...	67	75
39	Congo	64	76	53	59	117	130	160	171	...	...	140	140	...	78	60
40	Congo, D.R.	130	146	164	169	168	182	173	191	108	...	...	...	95	95	97
41	Costa Rica	95	73	63	71	57	74	30	54	38	35	...	...	...	34	107
42	Cote d'Ivoire	99	110	132	132	133	152	149	29	122	120	...	...	...	5	114
43	Croatia	74	90	75	59	26	52	39	20	16	24	76	80	49	102	19
44	Cuba	...	41	117	110	...	...	30	29	1	1	6	6	3	107	13
45	Cyprus	78	55	25	23	26	42	16	7	26	32	6	13	45	43	114
46	Czech Rep.	35	48	110	110	26	39	39	173	...	...	100	73	35	114	1
47	Denmark	19	15	75	79	1	18	30	20	...	...	47	37	4	85	33
48	Djibouti	24	39	25	23	133	136	154	168	...	...	142	142	...	...	...
49	Dominica	...	65	1	1	...	83	...	49	...	...	133	122	66	...	41
50	Dominican Republic	59	57	105	103	57	87	76	112	73	68	120	116	...	...	3
51	Ecuador	59	65	123	123	57	93	54	97	84	82	37	30	43	...	...
52	Egypt	102	126	173	173	93	102	102	95	109	109	47	68	...	78	73
53	El Salvador	99	73	89	79	57	99	85	83	84	83	64	44	69	...	...
54	Equatorial Guinea	97	132	25	23	117	40	166	177	50	61	...	...	...	57	49
55	Eritrea	151	174	63	71	...	178	145	133	112	112	143	143	...	30	86
56	Estonia	48	57	25	23	26	50	62	20	1	1	47	52	27	85	29
57	Ethiopia	153	183	171	175	155	168	154	159	134	133	117	123	93	114	25
58	Fiji	93	103	25	23	57	117	108	83	...	...	86	88	...	61	43
59	Finland	54	20	75	71	1	24	16	7	...	...	37	37	4	...	...
60	France	35	20	167	168	1	23	3	7	...	...	19	6	12	21	122
61	Gabon	29	17	25	41	93	69	143	149	78	78	...	...	...	107	19
62	Gambia	125	90	25	41	133	159	150	171	129	128	134	129	90	2	125
63	Georgia	68	102	75	59	57	110	85	107	1	1	1	13	63	...	...
64	Germany	15	45	176	174	1	19	16	20	...	...	19	13	...	...	...
65	Ghana	113	110	137	140	117	157	150	142	109	108	125	120	...	...	...
66	Greece	68	81	117	110	1	30	16	7	35	35	6	1	...	61	101
67	Grenada	...	135	1	1	...	90	46	68	...	...	60	61	...	19	125
68	Guatemala	110	114	117	121	93	113	102	116	97	94	28	52	...	78	69
69	Guinea	125	146	98	103	155	169	146	177	133	132	125	132	95	107	19
70	Guinea-Bissau	142	155	25	41	155	179	170	187	128	127	...	...	...	...	...

Table S4 (continued)

S. No.	Country/Region	Rural Population Rank		Total Population (in millions)		Human Development Index (HDI)	Gross Nationall Income (GNI) Per Capita (US $)	Life Expectancy at Birth (in Years)	Infant Mortality Rate	Adult Literacy Rate (15 Years and Over) (%)		Net Enrolment Primary Level Education		GER Combined (Pri+Sec+Ter) Total	Population without Access to Services (%)	
										Total	Female	Boys	Girls		Water	Sanitation
		1999	2010	1999	2010	2010	2010	2010	2008	2005–2008		2008		2008	2008	
71	Guyana	113	160	25	23	93	128	115	139	...	...	47	44	45	49	123
72	Haiti	118	103	105	103	133	171	137	146	...	...	...	...	...	...	3
73	Honduras	89	103	89	93	93	123	76	107	84	78	37	13	71	...	9
74	Hong Kong (China)	...	...	95	88	1	10	1	...	...	...	...	...	40	85	51
75	Hungary	59	61	110	103	26	49	62	29	...	...	86	88	23	34	118
76	Iceland	3	6	1	1	1	38	3	2	...	...	28	13	10	21	117
77	India	134	155	186	187	117	126	133	143	114	115	76	94	...	85	51
78	Indonesia	109	123	184	185	93	121	85	120	55	61	28	52	63	25	119
79	Iran, I.R.	67	53	171	172	57	72	85	112	90	90	...	...	80	57	64
80	Iraq	...	71	143	150	...	...	108	129	91	94	...	...	...	...	13
81	Ireland	71	76	63	71	1	25	16	7	...	...	37	13	6	...	...
82	Israel	6	8	89	88	1	29	7	20	...	...	28	13	23	...	...
83	Italy	54	61	166	166	1	27	7	7	16	12	6	13	17	...	...
84	Jamaica	78	103	53	51	57	95	85	107	82	52	114	117	33	64	104
85	Japan	30	65	179	179	1	22	1	7	...	...	...	...	30	43	81
86	Jordan	38	34	75	79	57	101	76	87	55	61	94	80	54	...	...
87	Kazakhstan	78	90	128	126	57	77	131	112	1	1	76	80	21	42	61
88	Kenya	125	174	154	157	117	151	154	173	78	78	117	113	...	...	1
89	Kiribati	...	123	1	1	...	124	...	132	...	...	...	...	69	85	29
90	Korea, D.P.R.	...	88	143	140	...	...	115	135	1	1	...	...	...	85	45
91	Korea, Rep.	27	26	163	163	1	28	16	29	...	...	1	13	6	...	...
92	Kuwait	1	1	44	51	26	5	36	49	44	43	94	99	...	...	...
93	Kyrgyzstan	121	146	75	71	93	139	115	126	16	12	111	112	59	85	49
94	Lao P.D.R.	142	152	75	79	117	138	127	140	99	104	111	115	89	...	...
95	Latvia	48	61	44	41	26	66	76	48	1	1	...	...	30	98	3
96	Lebanon	11	15	63	59	...	61	85	62	66	72	76	88	49	114	36
97	Lesotho	135	166	44	41	133	146	182	153	66	38	132	125	...	95	9
98	Liberia	...	120	53	59	155	181	146	183	118	114	...	...	...	18	104
99	Libyan A.J.	15	34	75	79	26	51	54	78	73	83	...	...	...	...	...
100	Liechtenstein	...	185	...	...	1	1	16	2	...	...	...	...	71	...	...
101	Lithuania	51	65	63	51	26	54	85	36	1	1	64	73	17	107	...
102	Luxembourg	6	20	1	23	1	6	16	2	...	...	47	30	...	114	...
103	Macedonia	64	89	44	41	57	79	54	54	35	38	105	99	71	67	110
104	Madagascar	132	155	128	135	133	169	143	158	103	102	19	6	84	70	27
105	Malawi	142	177	117	123	133	172	159	156	99	99	100	61	...	15	79

Table S4 (continued)

S. No.	Country/Region	Rural Population Rank		Total Population (in millions)		Human Development Index (HDI)	Gross Nationall Income (GNI) Per Capita (US $)	Life Expectancy at Birth (in Years)	Infant Mortality Rate	Adult Literacy Rate (15 Years and Over) (%)		Net Enrolment Primary Level Education		GER Combined (Pri+Sec+Ter) Total	Population without Access to Services (%)	
										Total	Female	Boys	Girls		Water	Sanitation
		1999	2010	1999	2010	2010	2010	2010	2008	2005–2008		2008		2008	2008	
106	Malaysia	74	51	143	145	57	58	54	36	55	57	37	37	78	114	56
107	Maldives	138	132	1	1	93	106	85	102	26	24	28	44	...	...	...
108	Mali	132	142	117	123	155	166	170	185	139	136	121	132	97	55	108
109	Malta	9	4	1	1	26	45	16	36	55	41	76	68	52	29	119
110	Marshall Islands	...	51	1	1	...	...	...	117	...	...	134	132	...	...	3
111	Mauritania	78	131	53	59	133	144	150	165	120	116	128	117	...	...	9
112	Mauritius	105	128	25	23	57	64	85	78	73	75	64	44	61	...	...
113	Mexico	38	34	177	178	26	57	39	78	50	52	19	13	43	...	...
114	Micronesia	...	171	1	1	93	129	108	123	...	...	...	...	...	...	...
115	Moldova, Rep.	99	121	63	59	93	131	108	78	26	24	100	99	76	4	128
116	Monaco	...	...	...	...	...	...	...	7	...	...	...	...	...	102	47
117	Mongolia	62	76	44	51	93	125	120	127	35	24	94	94	...	43	73
118	Montenegro	...	81	25	23	26	70	54	43	...	...	...	...	...	...	13
119	Morocco	85	90	151	150	93	114	85	123	121	120	71	99	...	74	3
120	Mozambique	110	137	136	139	155	173	173	177	125	124	114	120	...	14	97
121	Myanmar	135	150	162	163	117	153	135	162	55	61	...	...	...	...	...
122	Namibia	130	137	44	41	93	100	137	120	73	68	103	73	...	85	61
123	Nauru	...	...	...	...	...	...	...	129	...	...	129	128	92	27	89
124	Nepal	157	180	146	148	133	163	115	133	118	119	...	...	...	9	110
125	Netherlands	11	26	132	128	1	11	16	20	...	...	6	13	9	114	33
126	New Zealand	18	17	63	59	1	34	7	29	...	...	6	1	2	85	45
127	Nicaragua	78	96	75	79	93	135	62	101	91	89	71	68	...	...	...
128	Niger	149	183	117	126	155	177	163	170	136	137	141	141	103	70	55
129	Nigeria	104	112	178	182	133	143	173	182	116	118	139	138	...	...	...
130	Norway	35	33	75	71	1	3	7	7	...	...	6	6	10	40	86
131	Oman	26	48	44	51	...	33	46	54	78	83	134	130	...	...	9
132	Pakistan	116	142	181	183	117	134	120	163	125	124	129	136	100	107	29
133	Palau	...	26	...	...	...	...	...	68	...	...	...	...	...	...	...
134	Palestinian O.T.	...	45	53	59	...	...	62	102	44	52	127	123	59	107	19
135	Panama	78	41	53	59	26	63	46	94	44	43	6	13	52	48	66
136	Papua New Guinea	153	189	75	88	133	140	137	144	116	111	...	...	...	6	119
137	Paraguay	85	81	75	88	93	115	85	102	39	43	86	80	...	34	51
138	Peru	44	37	150	146	57	85	62	99	66	75	60	44	...	78	101
139	Philippines	73	114	174	177	93	120	85	107	44	41	76	61	49	...	...
140	Poland	56	81	158	155	26	48	46	36	...	...	47	37	30	64	104

Table S4 (continued)

S. No.	Country/Region	Rural Population Rank		Total Population (in millions)		Human Development Index (HDI)	Gross Nationall Income (GNI) Per Capita (US $)	Life Expectancy at Birth (in Years)	Infant Mortality Rate	Adult Literacy Rate (15 Years and Over) (%)		Net Enrolment Primary Level Education		GER Combined (Pri+Sec+Ter) Total	Population without Access to Services (%)	
										Total	Female	Boys	Girls		Water	Sanitation
		1999	2010	1999	2010	2010	2010	2010	2008	2005–2008		2008		2008	2008	
141	Portugal	62	81	110	110	26	41	30	7	39	43	6	13	13	...	...
142	Qatar	3	3	25	41	26	2	46	49	50	57	...	...	87	...	...
143	Romania	78	96	141	137	26	68	76	62	26	32	76	80	37	55	81
144	Russian Fed.	31	48	182	180	57	53	120	62	1	12	...	...	39	7	130
145	Rwanda	160	180	98	110	133	164	166	163	105	99	47	30	86	17	103
146	Saint Kitts & Nevis	...	153	...	1	...	56	...	75	...	...	...	...	61	114	...
147	Saint Lucia	...	161	1	1	...	81	62	68	...	...	71	73	63	...	...
148	Saint Vincent & the Grenadines	...	114	1	1	...	84	85	62	...	...	19	68	...	61	...
149	Samoa	...	177	1	1	...	118	85	99	16	12	64	61	...	52	81
150	San Marino	...	5	...	...	...	...	...	1	...	...	...	...	...	...	...
151	São Tomé & Príncipe	147	76	1	1	117	148	127	154	73	78	47	30	82	...	...
152	Saudi Arabia	19	29	140	143	26	36	76	90	82	87	108	109	45	74	41
153	Senegal	97	128	105	118	133	150	154	149	130	129	129	125	98	64	...
154	Serbia	...	98	110	103	57	76	62	36	...	...	47	44	54	70	92
155	Seychelles	...	100	1	1	...	46	...	59	55	49	...	...	40	85	59
156	Sierra Leone	116	137	63	79	155	175	173	189	132	130	...	...	...	...	...
157	Singapore	...	...	63	71	26	8	7	2	39	49	...	...	...	83	66
158	Slovakia	74	100	75	79	26	44	54	43	...	...	...	...	45	3	92
159	Slovenia	90	114	44	41	26	32	30	7	1	1	28	30	13	57	65
160	Solomon Islands	...	180	1	23	117	142	120	117	...	...	134	131	...	49	68
161	Somalia	...	141	95	99	...	...	169	188	138	137	...	...	...	24	81
162	South Africa	90	76	161	165	93	78	164	140	71	68	103	94	...	74	58
163	Spain	31	37	160	161	1	26	7	20	26	32	1	1	8	...	36
164	Sri Lanka	142	185	137	135	57	111	62	68	61	61	6	1	...	114	...
165	Sudan	118	132	155	158	133	145	146	161	107	106	...	...	...	...	...
166	Suriname	42	57	25	23	93	96	108	106	61	68	76	80	...	...	63
167	Swaziland	138	176	25	23	117	108	179	151	78	72	114	109	...	98	43
168	Sweden	24	20	105	99	1	17	7	2	...	...	47	52	17	26	77
169	Switzerland	51	45	95	93	1	12	3	20	...	...	60	52	35	114	13
170	Syrian A.R.	87	98	132	132	93	112	54	75	84	90	...	...	...	107	...
171	Tajikistan	135	167	89	88	93	147	120	146	1	1	6	44	71	...	...
172	Tanzania	125	167	155	159	133	160	150	157	99	99	1	6	...	...	...
173	Thailand	147	150	169	170	57	89	108	68	44	49	76	88	71	...	...
174	Timor-Leste	...	161	25	23	117	107	137	165	...	...	123	125	...	...	...
175	Togo	122	126	75	79	133	174	135	154	112	113	19	88	...	30	85

Table S4 (continued)

S. No.	Country/Region	Rural Population Rank		Total Population (in millions)		Human Development Index (HDI)	Gross Nationall Income (GNI) Per Capita (US $)	Life Expectancy at Birth (in Years)	Infant Mortality Rate	Adult Literacy Rate (15 Years and Over) (%)		Net Enrolment Primary Level Education		GER Combined (Pri+Sec+Ter) Total	Population without Access to Services (%)	
										Total	Female	Boys	Girls		Water	Sanitation
		1999	2010	1999	2010	2010	2010	2010	2008	2005–2008		2008		2008	2008	
176	Tonga	...	171	1	1	57	119	85	87	16	12	...	...	...	114	29
177	Trinidad and Tobago	38	185	25	23	57	37	106	120	16	24	71	73	...	...	...
178	Tunisia	56	65	105	110	57	91	62	90	91	92	28	13	54	9	123
179	Turkey	38	55	170	171	57	62	85	95	71	83	37	52	66	...	...
180	Turkmenistan	102	114	63	71	57	97	131	136	1	12	...	...	...	...	...
181	Tuvalu	...	112	...	...	...	...	...	117	...	...	...	...	...	19	88
182	Uganda	156	188	146	152	133	161	160	176	96	98	37	13	84	114	...
183	Ukraine	51	57	165	159	57	98	108	75	1	1	94	88	21	...	...
184	United Arab Emirates	19	32	53	93	1	9	16	43	66	52	71	73	...	...	...
185	United Kingdom	11	24	167	167	26	20	16	29	...	...	6	1	27	74	57
186	United States of America	31	29	185	186	26	4	36	43	...	...	76	61	16	1	114
187	Uruguay	6	8	53	51	26	59	39	62	26	24	28	13	23	70	33
188	Uzbekistan	115	142	149	143	93	132	115	127	16	12	94	99	76	15	99
189	Vanuatu	...	167	1	1	...	122	102	112	...	...	...	...	...	49	95
190	Venezuela	15	6	146	146	57	71	62	83	39	38	86	80	27	83	47
191	Vietnam	149	155	175	176	93	133	54	62	50	57	...	...	...	30	75
192	Yemen	140	153	135	140	133	137	133	144	115	122	121	132	...	...	...
193	Zambia	110	142	110	119	133	158	179	180	103	105	47	37	...	...	...
194	Zimbabwe	118	137	123	119	169	183	179	152	61	61	94	73	...	67	13

Table S5 Demographic Indicators

S. No.	Country/Region	Total Population (in millions)		Population Average Annual Growth Rate (%)	Rural Population (%)		Life Expectancy at Birth (in Years)	Total Fertility Rate per Woman	Infant Mortality Rate	Maternal Mortality Rate
		1999	2010	1999–2010	1999	2010	2010	1995–2000	2008	2003–2008
	Arab States									
1	Algeria	30.1	35.5	1.5	40.5	33.5	72.9	3.3	36	180
2	Bahrain	0.6	1.3	6.6	8.2	11.4	76	2.6	10	32
3	Djibouti	0.7	0.9	2.0	17.0	23.8	56.1	6.1	76	650
4	Egypt	66.5	81.1	1.8	55.0	56.6	70.5	3.4	20	130
5	Iraq	23.1	31.7	2.9	..	33.8	68.5	..	36	300
6	Jordan	4.8	6.2	2.4	26.4	21.5	73.1	4.7	17	62
7	Kuwait	1.9	2.7	3.6	2.6	1.6	77.9	2.9	9	4
8	Lebanon	3.7	4.2	1.2	10.7	12.8	72.4	2.3	12	150
9	Libyan A.J.	5.1	6.4	2.0	12.8	22.1	74.5	3.8	15	97
10	Mauritania	2.6	3.5	2.8	43.6	58.6	57.3	6.0	75	820
11	Morocco	28.4	32.0	1.1	44.7	41.8	71.8	3.4	32	240
12	Oman	2.3	2.8	1.9	17.8	27.0	76.1	5.9	10	64
13	Palestinian O.T.	3.1	4.0	2.5	..	25.9	73.9	..	24	..
14	Qatar	0.6	1.8	10.8	7.7	4.2	76	3.7	9	12
15	Saudi Arabia	19.6	27.4	3.1	14.9	17.9	73.3	6.2	18	18
16	Sudan	33.4	43.6	2.5	64.9	59.9	58.9	4.9	70	450
17	Syrian A.R.	15.6	20.4	2.5	46.0	44.3	74.6	4.0	14	130
18	Tunisia	9.4	10.5	1.0	35.2	32.7	74.3	2.3	18	100
19	United Arab Emirates	2.9	7.5	9.1	14.5	20.4	79.6	3.2	7	37
20	Yemen	17.2	24.1	3.1	75.5	68.2	63.9	7.6	53	430
	South West Asia									
21	Afghanistan	22.2	31.4	3.2	..	77.4	44.6	..	165	1,800
22	Bangladesh	127.2	148.7	1.4	76.1	71.9	66.9	3.8	43	570
23	Bhutan	0.6	0.7	2.5	93.1	65.3	66.8	5.5	54	440
24	India	1,036.3	1,224.6	1.5	71.9	70.0	64.4	3.3	52	450
25	Iran, I.R.	64.3	74.0	1.3	38.9	29.2	71.9	3.2	27	140
26	Maldives	0.3	0.3	1.5	73.9	59.9	72.3	5.8	24	120
27	Nepal	23.8	30.0	2.1	88.4	81.4	67.5	4.8	41	830
28	Pakistan	141.3	173.6	1.9	63.5	64.1	67.2	5.5	72	320
29	Sri Lanka	18.6	20.9	1.0	76.7	85.7	74.4	2.1	13	58
	Central and Eastern Europe									
30	Albania	3.1	3.2	0.4	59.0	48.1	76.9	2.6	13	92
31	Belarus	10.1	9.6	-0.5	29.3	25.3	69.6	1.3	11	18
32	Bosnia & Herzegovina	3.6	3.8	0.4	..	51.4	75.5	..	13	3
33	Bulgaria	8.1	7.5	-0.7	30.7	28.5	73.7	1.1	9	11
34	Croatia	4.5	4.4	-0.3	42.7	42.3	76.7	1.7	4	7
35	Czech Rep.	10.3	10.5	0.2	25.3	26.5	76.9	1.2	81	4
36	Estonia	1.4	1.3	-0.3	31.2	30.5	73.7	1.2	4	25
37	Hungary	10.2	10.0	-0.2	36.2	31.9	73.9	1.4	5	6
38	Latvia	2.4	2.3	-0.6	31.0	32.3	73	1.1	8	10
39	Lithuania	3.5	3.3	-0.5	31.6	33.0	72.1	1.4	6	11
40	Moldova, Rep.	4.2	3.6	-1.4	53.8	53.0	68.9	1.6	15	22
41	Montenegro	0.6	0.6	-0.1	..	38.5	74.6	..	7	14
42	Poland	38.3	38.3	-	34.8	39.0	76	1.5	6	8
43	Romania	22.3	21.5	-0.3	44.1	42.5	73.2	1.3	12	24
44	Russian Fed.	147.3	143.0	-0.3	22.7	26.8	67.2	1.2	12	28
45	Serbia	10.2	9.9	-0.3	..	43.9	74.4	..	6	14
46	Slovakia	5.4	5.5	0.1	42.7	45.0	75.1	1.4	7	6
47	Slovenia	2.0	2.0	0.2	49.7	50.5	78.8	1.2	3	6

Table S5 (continued)

S. No.	Country/Region	Total Population (in millions)		Population Average Annual Growth Rate (%)	Rural Population (%)		Life Expectancy at Birth (in Years)	Total Fertility Rate per Woman	Infant Mortality Rate	Maternal Mortality Rate
		1999	2010	1999–2010	1999	2010	2010	1995–2000	2008	2003–2008
48	Macedonia	2.0	2.1	0.3	38.4	40.7	74.5	1.9	10	10
49	Turkey	62.7	72.8	1.4	25.9	30.3	72.2	2.7	20	44
50	Ukraine	49.4	45.4	-0.8	32.1	31.2	68.6	1.3	14	18
	Central Asia									
51	Armenia	3.1	3.1	-	30.3	35.8	74.2	1.4	21	76
52	Azerbaijan	8.0	9.2	1.2	43.1	48.1	70.8	1.9	32	82
53	Georgia	4.8	4.4	-0.9	39.8	47.2	72	1.6	26	66
54	Kazakhstan	15.1	16.0	0.6	43.6	41.5	65.4	2.1	27	140
55	Kyrgyzstan	4.9	5.3	0.8	66.4	65.4	68.4	2.9	33	150
56	Mongolia	2.4	2.8	1.3	37.0	38.0	67.3	2.7	34	46
57	Tajikistan	6.1	6.9	1.1	72.5	73.7	67.3	3.7	54	170
58	Turkmenistan	4.4	5.0	1.1	55.3	50.5	65.3	3.6	43	130
59	Uzbekistan	24.5	27.4	1.1	62.8	63.7	68.2	2.9	34	24
	East Asia and Pacific									
60	Australia	18.9	22.3	1.5	15.3	10.9	81.9	1.8	5	4
61	Brunei Darussalam	0.3	0.4	2.0	28.3	24.3	77.4	2.8	6	13
62	Cambodia	12.2	14.1	1.3	84.4	79.9	62.2	5.3	69	540
63	China	1,259.5	1,341.3	0.6	68.4	53.0	73.5	1.8	18	45
64	Fiji	0.8	0.9	0.6	51.4	48.1	69.2	3.2	16	210
65	Hong Kong (China)	6.7	7.1	0.5	-	-	82.5	1.2	..	..
66	Indonesia	210.6	239.9	1.2	60.2	55.7	71.5	2.6	31	420
67	Japan	125.5	126.5	0.1	21.4	33.2	83.2	1.4	3	6
68	Kiribati	0.1	0.1	1.7	..	56.1	..	..	38	..
69	Korea, D.P.R.	22.7	24.3	0.6	..	39.8	67.7	..	42	370
70	Korea, Rep.	45.7	48.2	0.5	18.9	17.0	79.8	1.5	5	14
71	Lao P.D.R.	5.2	6.2	1.6	77.1	66.8	65.9	5.3	48	660
72	Malaysia	22.9	28.4	2.0	43.3	27.8	74.7	3.3	6	62
73	Marshall Islands	0.1	0.1	0.3	..	28.2	..	..	30	..
74	Micronesia	0.1	0.1	0.3	..	77.3	69	..	32	..
75	Myanmar	44.5	48.0	0.7	72.7	66.3	62.7	3.3	71	380
76	Nauru	-	-	0.2	..	-	..	..	36	..
77	New Zealand	3.8	4.4	1.2	14.3	13.8	80.6	2.0	5	9
78	Palau	-	-	0.7	..	16.6	..	..	13	..
79	Papua New Guinea	5.2	6.9	2.5	82.9	87.5	61.6	4.6	53	470
80	Philippines	75.7	93.3	1.9	42.3	51.1	72.3	3.6	26	230
81	Samoa	0.2	0.2	0.4	..	79.8	72.2	..	22	..
82	Singapore	3.8	5.1	2.6	-	-	80.7	1.6	2	14
83	Solomon Islands	0.4	0.5	2.8	..	81.4	67	..	30	220
84	Thailand	62.4	69.1	0.9	78.8	66.0	69.3	2.1	13	110
85	Timor-Leste	0.8	1.1	2.9	..	71.9	62.1	..	75	380
86	Tonga	0.1	0.1	0.6	..	76.6	72.1	..	17	..
87	Tuvalu	-	-	0.4	..	49.6	..	..	30	..
88	Vanuatu	0.2	0.2	2.6	..	74.4	70.8	..	27	..
89	Vietnam	77.9	87.8	1.1	80.3	69.6	74.9	2.5	12	150
	Latin America and the Caribbean									
90	Antigua & Barbuda	0.1	0.1	1.4	..	69.7	..	..	11	..
91	Argentina	36.5	40.4	0.9	10.4	7.6	75.7	2.6	15	77
92	Bahamas	0.3	0.3	1.4	12.1	15.9	74.4	2.4	9	16
93	Barbados	0.3	0.3	0.2	50.5	55.5	77.7	1.5	10	16
94	Belize	0.2	0.3	2.2	46.4	47.7	76.9	3.4	17	52

Table S5 (continued)

S. No.	Country/Region	Total Population (in millions)		Population Average Annual Growth Rate (%)	Rural Population (%)		Life Expectancy at Birth (in Years)	Total Fertility Rate per Woman	Infant Mortality Rate	Maternal Mortality Rate
		1999	2010	1999–2010	1999	2010	2010	1995–2000	2008	2003–2008
95	Bolivia	8.1	9.9	1.8	38.1	33.4	66.3	4.4	46	290
96	Brazil	171.9	194.9	1.2	19.3	13.5	72.9	2.3	18	110
97	Chile	15.2	17.1	1.1	14.6	11.0	78.8	2.4	7	16
98	Colombia	39.1	46.3	1.6	26.5	24.9	73.4	2.8	16	130
99	Costa Rica	3.8	4.7	1.8	52.4	35.6	79.1	2.8	10	30
100	Cuba	11.1	11.3	0.2	..	24.8	79	..	5	45
101	Dominica	0.1	0.1	-0.3	..	32.8	..	..	9	..
102	Dominican Republic	8.5	9.9	1.5	35.6	30.8	72.8	2.9	27	150
103	Ecuador	12.1	14.5	1.6	35.7	33.0	75.4	3.1	21	210
104	El Salvador	5.9	6.2	0.4	53.7	35.7	72	3.2	16	170
105	Grenada	0.1	0.1	0.3	..	60.7	75.8	..	13	..
106	Guatemala	11.0	14.4	2.5	60.6	50.5	70.8	4.9	29	290
107	Guyana	0.7	0.8	0.3	62.4	71.4	67.9	2.5	47	470
108	Haiti	8.5	10.0	1.5	64.9	47.9	61.7	4.4	54	670
109	Honduras	6.1	7.6	2.0	48.4	48.4	72.6	4.3	26	280
110	Jamaica	2.6	2.7	0.6	44.4	48.0	72.3	2.5	26	170
111	Mexico	98.5	113.4	1.3	25.8	22.2	76.7	2.8	15	60
112	Nicaragua	5.0	5.8	1.4	44.2	42.7	73.8	4.3	23	170
113	Panama	2.9	3.5	1.8	44.0	25.2	76	2.6	19	130
114	Paraguay	5.2	6.5	1.9	44.7	38.5	72.3	4.2	24	150
115	Peru	25.5	29.1	1.2	27.6	23.1	73.7	3.0	22	240
116	Saint Kitts & Nevis	-	0.1	1.3	..	67.6	..	..	14	..
117	Saint Lucia	0.2	0.2	1.1	..	72.0	74.2	..	13	..
118	Saint Vincent & the Grenadines	0.1	0.1	0.1	..	50.7	72	..	12	..
119	Suriname	0.5	0.5	1.2	26.5	30.6	69.4	2.2	25	72
120	Trinidad and Tobago	1.3	1.3	0.4	26.4	86.1	69.9	1.7	31	45
121	Uruguay	3.3	3.4	0.2	9.0	7.5	76.7	2.4	12	20
122	Venezuela	23.9	29.0	1.8	13.4	6.6	74.2	3.0	16	57
	North America and Western Europe								32	..
123	Andorra	0.1	0.1	2.6	..	12.0	80.8	..	3	..
124	Austria	8.0	8.4	0.5	35.4	32.4	80.4	1.4	3	4
125	Belgium	10.1	10.7	0.5	2.7	2.6	80.3	1.5	4	8
126	Canada	30.4	34.0	1.0	23.0	19.4	81	1.6	6	7
127	Cyprus	0.9	1.1	1.6	43.8	29.7	80	2.0	3	10
128	Denmark	5.3	5.6	0.4	14.7	13.1	78.7	1.7	4	3
129	Finland	5.2	5.4	0.4	33.3	14.9	80.1	1.7	3	7
130	France	58.8	62.8	0.6	24.6	14.7	81.6	1.7	3	8
131	Germany	82.3	82.3	-	12.7	26.1	80.2	1.3	4	4
132	Greece	10.9	11.4	0.3	40.1	38.6	79.7	1.3	3	3
133	Iceland	0.3	0.3	1.3	7.6	6.6	82.1	2.0	2	4
134	Ireland	3.8	4.5	1.6	41.2	38.1	80.3	1.9	3	1
135	Israel	5.9	7.4	2.1	8.9	8.1	81.2	2.9	4	4
136	Italy	56.9	60.6	0.6	33.1	31.6	81.4	1.2	3	3
137	Liechtenstein	-	-	1.0	..	85.7	79.6	..	2	..
138	Luxembourg	0.4	0.5	1.5	9.0	14.8	79.9	1.7	2	12
139	Malta	0.4	0.4	0.5	9.7	5.3	80	1.9	6	8
140	Monaco	-	-	0.2	..	-	..	..	3	..
141	Netherlands	15.8	16.6	0.5	10.7	17.1	80.3	1.5	4	6
142	Norway	4.5	4.9	0.8	24.9	20.6	81	1.8	3	7
143	Portugal	10.3	10.7	0.3	37.3	39.3	79.1	1.5	3	11

Annexure III

Statistical Tables

Table S5 (continued)

S. No.	Country/Region	Total Population (in millions)		Population Average Annual Growth Rate (%)	Rural Population (%)		Life Expectancy at Birth (in Years)	Total Fertility Rate per Woman	Infant Mortality Rate	Maternal Mortality Rate
		1999	2010	1999–2010	1999	2010	2010	1995–2000	2008	2003–2008
144	San Marino	-	-	1.6	..	5.9	..	..	1	..
145	Spain	39.9	46.1	1.3	22.6	22.6	81.3	1.2	4	4
146	Sweden	8.9	9.4	0.5	16.7	15.3	81.3	1.5	2	3
147	Switzerland	7.1	7.7	0.7	32.3	26.4	82.2	1.5	4	5
148	United Kingdom	58.7	62.0	0.5	10.6	15.9	79.8	1.7	5	8
149	United States of America	279.3	310.4	1.0	23.0	17.7	77.7	2.0	7	11
	Sub-Saharan Africa									
150	Angola	13.5	19.1	3.2	66.5	41.5	48.1	7.2	130	1,400
151	Benin	6.3	8.8	3.1	58.5	58.0	62.3	6.1	76	840
152	Botswana	1.7	2.0	1.4	50.3	38.9	55.5	4.4	26	380
153	Burkina Faso	12.0	16.5	3.0	82.1	74.3	53.7	6.9	92	700
154	Burundi	6.3	8.4	2.7	91.3	89.0	51.4	6.8	102	1,100
155	Cameroon	15.3	19.6	2.3	52.0	41.6	51.7	5.1	82	1,000
156	Cape Verde	0.4	0.5	1.3	39.6	38.9	71.9	3.6	24	210
157	Central African Republic	3.6	4.4	1.8	59.2	61.1	47.7	5.3	115	980
158	Chad	7.9	11.2	3.2	76.5	72.4	49.2	6.7	124	1,500
159	Comoros	0.5	0.7	2.7	67.3	71.8	66.2	5.4	75	400
160	Congo	3.1	4.0	2.6	38.3	37.9	53.9	6.3	80	740
161	Congo, D.R.	48.4	66.0	2.9	70.0	64.8	48	6.7	126	1,100
162	Cote d'Ivoire	16.2	19.7	1.8	54.3	49.4	58.4	5.1	5	810
163	Equatorial Guinea	0.5	0.7	3.0	53.1	60.3	51	5.9	90	680
164	Eritrea	3.5	5.3	3.7	81.6	78.4	60.4	5.7	41	450
165	Ethiopia	63.9	82.9	2.4	82.8	83.3	56.1	6.8	69	720
166	Gabon	1.2	1.5	2.0	19.7	14.0	61.3	5.4	57	520
167	Gambia	1.3	1.7	2.9	68.2	41.8	56.6	5.2	80	690
168	Ghana	18.7	24.4	2.4	62.1	48.5	57.1	4.6	51	560
169	Guinea	8.2	10.0	1.8	68.0	64.6	58.9	6.3	90	910
170	Guinea-Bissau	1.2	1.5	2.0	76.7	70.0	48.6	6.0	117	1,100
171	Kenya	30.5	40.5	2.6	67.9	77.8	55.6	4.6	81	560
172	Lesotho	1.9	2.2	1.1	72.9	73.1	45.9	4.8	63	960
173	Liberia	2.7	4.0	3.6	..	52.2	59.1	..	100	1,200
174	Madagascar	14.9	20.7	3.1	71.0	69.8	61.2	6.1	68	510
175	Malawi	10.9	14.9	2.9	76.5	80.2	54.6	6.8	65	1,100
176	Mali	11.0	15.4	3.1	70.6	64.1	49.2	7.0	103	970
177	Mauritius	1.2	1.3	0.8	58.9	58.2	72.1	2.0	15	15
178	Mozambique	17.7	23.4	2.6	61.1	61.6	48.4	6.3	90	520
179	Namibia	1.9	2.3	1.9	69.6	62.0	62.1	5.3	31	210
180	Niger	10.5	15.5	3.6	79.9	82.9	52.5	8.0	79	1,800
181	Nigeria	120.8	158.4	2.5	56.9	50.2	48.4	5.9	96	1,100
182	Rwanda	7.6	10.6	3.1	93.9	81.1	51.1	6.2	72	1,300
183	São Tomé & Príncipe	0.1	0.2	1.6	78.5	37.8	66.1	4.5	64	..
184	Senegal	9.3	12.4	2.7	53.3	57.6	56.2	5.6	57	980
185	Seychelles	0.1	0.1	1.0	..	44.7	..	..	11	..
186	Sierra Leone	4.0	5.9	3.5	64.1	61.6	48.2	6.5	123	2,100
187	Somalia	7.2	9.3	2.4	..	62.5	50.4	..	119	1,400
188	South Africa	44.1	50.1	1.2	49.9	38.3	52	3.1	48	400
189	Swaziland	1.0	1.2	1.1	73.9	78.6	47	4.8	59	390
190	Tanzania	33.2	44.8	2.8	68.4	73.6	56.9	5.5	67	950
191	Togo	4.7	6.0	2.4	67.3	56.6	63.3	5.8	64	510
192	Uganda	23.5	33.4	3.3	86.2	86.7	54.1	7.1	85	550
193	Zambia	9.9	13.1	2.5	60.5	64.3	47.3	6.1	92	830
194	Zimbabwe	12.4	12.6	0.1	65.4	61.7	47.0	5.0	62	880

Table S5 Demographic Indicators (Continued)

Country/Region	Total Population (in millions)		Population Average Annual Growth Rate (%)	Rural Population (%)		Life Expectancy at Birth (in Years)	Total Fertility Rate per Woman	Infant Mortality Rate	Maternal Mortality Rate
	1999	2010	1999–2010	1999	2010	2010	1995–2000	2008	2003–2008
Regions									
Arab States	271.6	347.6	3.2	29.9	30.9	54.3	4.2	68.9	869.0
South & West Asia	1,434.6	1,704.2	1.8	72.8	67.2	66.2	4.3	54.6	525.3
Central & Eastern Europe	401.6	400.6	(0.2)	36.7	37.7	73.6	1.5	12.7	18.1
Central Asia	73.3	80.1	0.7	50.1	51.5	68.8	2.5	33.8	98.2
East Asia & Pacific	2,006.3	2,176.6	1.2	46.7	47.4	72.2	2.8	26.9	215.4
Latin America & the Caribbean	508.6	584.8	1.1	36.1	38.5	73.5	3.0	19.9	153.2
North America & Western Europe	704.2	763.3	0.9	22.5	21.3	80.4	1.7	3.5	6.1
Sub-Saharan Africa	614.8	807.2	2.4	65.8	60.8	55.0	5.7	74.8	837.0
WORLD	6,015.0	6,864.4	1.3	45.1	44.5	68	3.4	36.9	340.3

Annexure III

Statistical Tables

Table S6 Economy and Quality of Life Indicators

S. No.	Country/Region	Rural Population (%)		Human Development Index (HDI)	Gross National Income (GNI) Per Capital (US $)	Labour Force Participation Rate (%)		Population Average Annual Growth Rate (%)	
						Total	Female	Water	Sanitation
		1999	2010	2010	2010	2008		2008	
	Arab States								
1	Algeria	40.5	33.5	0.700	8,320	43	38.2	17	5
2	Bahrain	8.2	11.4	0.800	26,664	73.8	74.3	..	-
3	Djibouti	17.0	23.8	0.400	2,471	63.9	64.5	-	-
4	Egypt	55.0	56.6	0.600	5,889	50.6	63.2	8	44
5	Iraq	..	33.8	..	..	64.3	56	-	4
6	Jordan	26.4	21.5	0.700	5,956	43.2	32.5	..	..
7	Kuwait	2.6	1.6	0.800	55,719	49.2	51.6	-	..
8	Lebanon	10.7	12.8	..	13,475	47.6	26.9	1	10
9	Libyan A.J.	12.8	22.1	0.800	17,068	…	..	..	..
10	Mauritania	43.6	58.6	0.400	2,118	54	25.1	..	3
11	Morocco	44.7	41.8	0.600	4,628	64.9	58.3	9	2
12	Oman	17.8	27.0	..	25,653	78.4	42.5	-	3
13	Palestinian O.T.	..	25.9	..	..	58.5	62.3	2	5
14	Qatar	7.7	4.2	0.800	79,426	68.1	72.1	-	..
15	Saudi Arabia	14.9	17.9	0.800	24,726	42.8	16.7	9	11
16	Sudan	64.9	59.9	0.400	2,051	85.5	49.3	-	-
17	Syrian A.R.	46.0	44.3	0.600	4,760	69.4	55.3	2	..
18	Tunisia	35.2	32.7	0.700	7,979	67.5	67.1	51	87
19	United Arab Emirates	14.5	20.4	0.900	47,094	58.9	63.2	-	-
20	Yemen	75.5	68.2	0.400	2,387	64.2	77.1	-	-
21	Afghanistan	..	77.4	0.300	1,419	48.9	33.3	52	63
	South West Asia								
22	Bangladesh	76.1	71.9	0.500	1,587	69.1	33.5	..	..
23	Bhutan	93.1	65.3	..	5,607	89.4	88.8	46	76
24	India	71.9	70.0	0.500	3,337	60.2	49.2	6	19
25	Iran, I.R.	38.9	29.2	0.700	11,764	61.7	43.4	14	29
26	Maldives	73.9	59.9	0.600	5,408	45.5	24.1	-	..
27	Nepal	88.4	81.4	0.400	1,201	52.9	60.4	51	74
28	Pakistan	63.5	64.1	0.500	2,678	…	..	2	8
29	Sri Lanka	76.7	85.7	0.700	4,886	62.6	69	1	-
	Central and Eastern Europe								
30	Albania	59.0	48.1	0.700	7,976	60.5	55.5	3	2
31	Belarus	29.3	25.3	0.700	12,926	70.3	76.5	-	-
32	Bosnia & Herzegovina	..	51.4	0.700	8,222	71	54.1	8	35
33	Bulgaria	30.7	28.5	0.700	11,139	69.6	64	3	20
34	Croatia	42.7	42.3	0.800	16,389	62.7	48.8	3	5
35	Czech Rep.	25.3	26.5	0.800	22,678	53.2	58.9	1	1
36	Estonia	31.2	30.5	0.800	17,168	67.9	48.1	6	8
37	Hungary	36.2	31.9	0.800	17,472	71.3	82.3	29	81
38	Latvia	31.0	32.3	0.800	12,944	41	24.7	4	2
39	Lithuania	31.6	33.0	0.800	14,824	60.8	54.5	2	-
40	Moldova, Rep.	53.8	53.0	0.600	3,149	86.3	86	59	89
41	Montenegro	..	38.5	0.800	12,491	61	46.7	-	4
42	Poland	34.8	39.0	0.800	17,803	83.9	65.9	12	69
43	Romania	44.1	42.5	0.800	12,844	62.2	48.6	15	48
44	Russian Fed.	22.7	26.8	0.700	15,258	64.6	37.9	52	91
45	Serbia	..	43.9	0.700	10,449	52.9	21.8	10	55
46	Slovakia	42.7	45.0	0.800	21,658	72.6	72.1	60	55
47	Slovenia	49.7	50.5	0.800	25,857	70.8	58	14	30
48	Macedonia	38.4	40.7	0.700	9,487	58.9	46.9	11	74

Table S6 (continued)

S. No.	Country/Region	Rural Population (%)		Human Development Index (HDI)	Gross National Income (GNI) Per Capital (US $)	Labour Force Participation Rate (%)		Population Average Annual Growth Rate (%)	
						Total	Female	Water	Sanitation
		1999	2010	2010	2010	2008		2008	
49	Turkey	25.9	30.3	0.700	13,359	66.4	60.6	-	-
50	Ukraine	32.1	31.2	0.700	6,535	66.9	24.6	..	..
	Central Asia								
51	Armenia	30.3	35.8	0.700	5,495	61.5	57	3	10
52	Azerbaijan	43.1	48.1	0.700	8,747	60.7	68.3	-	-
53	Georgia	39.8	47.2	0.700	4,902	59.8	40.2	..	..
54	Kazakhstan	43.6	41.5	0.700	10,234	41	14.2	21	27
55	Kyrgyzstan	66.4	65.4	0.600	2,291	66.8	62.2	6	17
56	Mongolia	37.0	38.0	0.600	3,619	83.3	74.6	20	44
57	Tajikistan	72.5	73.7	0.600	2,020	66.6	61.4	..	..
58	Turkmenistan	55.3	50.5	0.700	7,052	59.4	61.3	-	-
59	Uzbekistan	62.8	63.7	0.600	3,085	53.4	32.3	43	66
	East Asia and Pacific								
60	Australia	15.3	10.9	0.900	38,692	57.1	68.6	4	10
61	Brunei Darussalam	28.3	24.3	0.800	49,915	76.2	75.1	5	40
62	Cambodia	84.4	79.9	0.500	1,868	83.8	79.7	24	89
63	China	68.4	53.0	0.700	7,258	72.2	64	50	91
64	Fiji	51.4	48.1	0.700	4,315	61.4	50.5	13	13
65	Hong Kong (China)	-	-	0.900	45,090	67	50	6	19
66	Indonesia	60.2	55.7	0.600	3,957	64.4	58.4	37	83
67	Japan	21.4	33.2	0.900	34,692	67.3	53.3	20	48
68	Kiribati	..	56.1	..	3,715	65.1	59.4	6	8
69	Korea, D.P.R.	..	39.8	..	..	46.9	27.7	6	15
70	Korea, Rep.	18.9	17.0	0.900	29,518	56.7	61.1	-	-
71	Lao P.D.R.	77.1	66.8	0.500	2,321	60.4	62.1	-	-
72	Malaysia	43.3	27.8	0.700	13,927	62.4	70.6	1	22
73	Marshall Islands	..	28.2	..	..	60.5	65.3	..	2
74	Micronesia	..	77.3	0.600	3,266	55.2	58.1	-	-
75	Myanmar	72.7	66.3	0.500	1,596	50.3	41.3	-	-
76	Nauru	..	-	..	..	78.1	80.5	33	52
77	New Zealand	14.3	13.8	0.900	25,438	61.8	46.3	6	15
78	Palau	..	16.6	..		62.4	69.2	-	-
79	Papua New Guinea	82.9	87.5	0.400	2,227	85	85.7	53	83
80	Philippines	42.3	51.1	0.600	4,002		..	..	..
81	Samoa	..	79.8	..	4,126	71.4	79.7	17	48
82	Singapore	-	-	0.800	48,893	65.9	52.6	7	31
83	Solomon Islands	..	81.4	0.500	2,172	75.1	61.3	18	32
84	Thailand	78.8	66.0	0.700	8,001	…	..	..	..
85	Timor-Leste	..	71.9	0.500	5,303	50.4	21.8	..	..
86	Tonga	..	76.6	0.700	4,038	54.5	..	1	8
87	Tuvalu	..	49.6	..	..	79.7	60.4	40	51
88	Vanuatu	..	74.4	..	3,908	86.2	60.8	18	56
89	Vietnam	80.3	69.6	0.600	2,995	56.4	55.2	31	45
	Latin America and the Caribbean								
90	Antigua & Barbuda	..	69.7	..	17,924	65.4	59.1	30	6
91	Argentina	10.4	7.6	0.800	14,603	…	..	..	..
92	Bahamas	12.1	15.9	0.800	25,201	63.5	66.3	20	55
93	Barbados	50.5	55.5	0.800	21,673	70.7	61.4	20	47
94	Belize	46.4	47.7	0.700	5,693	53.8	60.9	-	-
95	Bolivia	38.1	33.4	0.600	4,357	72.4	68.1	25	88

Table S6 (continued)

S. No.	Country/Region	Rural Population (%)		Human Development Index (HDI)	Gross National Income (GNI) Per Capital (US $)	Labour Force Participation Rate (%)		Population Average Annual Growth Rate (%)	
						Total	Female	Water	Sanitation
		1999	2010	2010	2010	2008		2008	
96	Brazil	19.3	13.5	0.700	10,607	45.7	65.4	1	5
97	Chile	14.6	11.0	0.800	13,561	78.5	71.6	33	66
98	Colombia	26.5	24.9	0.700	8,589	57.7	48.1	4	4
99	Costa Rica	52.4	35.6	0.700	10,870	70.1	62.4	29	70
100	Cuba	..	24.8	..	..	72.8	70.7	2	4
101	Dominica	..	32.8	..	8,549	55.1	50.4	-	11
102	Dominican Republic	35.6	30.8	0.700	8,273	58.6	61.1	-	2
103	Ecuador	35.7	33.0	0.700	7,931	66.1	77.2	-	-
104	El Salvador	53.7	35.7	0.700	6,498	…	..	..	..
105	Grenada	..	60.7	..	7,998	80.6	64.6	40	88
106	Guatemala	60.6	50.5	0.600	4,694	77.5	71.2	8	33
107	Guyana	62.4	71.4	0.600	3,302	69	75.2	18	87
108	Haiti	64.9	47.9	0.400	949	53.9	55.4	-	2
109	Honduras	48.4	48.4	0.600	3,750	…	..	..	3
110	Jamaica	44.4	48.0	0.700	7,207	57.6	35.7	12	69
111	Mexico	25.8	22.2	0.800	13,971	56.8	65.5	..	..
112	Nicaragua	44.2	42.7	0.600	2,567	..	..	..	..
113	Panama	44.0	25.2	0.800	13,347	50.7	28.7	19	31
114	Paraguay	44.7	38.5	0.600	4,585	78.3	64.2	29	19
115	Peru	27.6	23.1	0.700	8,424	63.8	53.5	8	67
116	Saint Kitts & Nevis	..	67.6	..	14,196	65.1	68.7	1	-
117	Saint Lucia	..	72.0	..	8,652	65.1	64.4	-	-
118	Saint Vincent & the Grenadines	..	50.7	..	8,535	60.3	61.7	13	-
119	Suriname	26.5	30.6	0.600	7,093	55.8	55.3	..	28
120	Trinidad and Tobago	26.4	86.1	0.700	24,233	…	..	..	..
121	Uruguay	9.0	7.5	0.800	13,808	56.2	38.5	10	9
122	Venezuela	13.4	6.6	0.700	11,846	53.7	41.8	7	16
	North America and Western Europe								
123	Andorra	..	12.0	0.800	38,056	…	…	-	-
124	Austria	35.4	32.4	0.900	37,056	65.6	69.9	-	-
125	Belgium	2.7	2.6	0.900	34,873	55.4	68.1	-	7
126	Canada	23.0	19.4	0.900	38,668	82.8	75.6	39	71
127	Cyprus	43.8	29.7	0.800	21,962	66.7	51.3	20	77
128	Denmark	14.7	13.1	0.900	36,404	55	48.6	6	9
129	Finland	33.3	14.9	0.900	33,872	86.6	39.4	..	..
130	France	24.6	14.7	0.900	34,341	84.4	61.6	39	86
131	Germany	12.7	26.1	0.900	35,308	61.9	73.9	-	-
132	Greece	40.1	38.6	0.900	27,580	60.2	71.1	13	67
133	Iceland	7.6	6.6	0.900	22,917	72.6	61.2	39	79
134	Ireland	41.2	38.1	0.900	33,078	60.3	60.5	..	..
135	Israel	8.9	8.1	0.900	27,831	50	54.8	-	-
136	Italy	33.1	31.6	0.900	29,619	75.8	81.7	-	-
137	Liechtenstein	..	85.7	0.900	81,011	78	60.7	-	..
138	Luxembourg	9.0	14.8	0.900	51,109	67.3	45.6	1	-
139	Malta	9.7	5.3	0.800	21,004	60.7	69.1	32	83
140	Monaco	..	-	..	..		..	3	16
141	Netherlands	10.7	17.1	0.900	40,658	58.4	46.3	1	9
142	Norway	24.9	20.6	0.900	58,810	58.7	70	24	50
143	Portugal	37.3	39.3	0.800	22,105	66.3	73.4	-	-
144	San Marino	..	5.9	..	..	65.3	54	..	..

Table S6 (continued)

S. No.	Country/Region	Rural Population (%)		Human Development Index (HDI)	Gross National Income (GNI) Per Capital (US $)	Labour Force Participation Rate (%)		Population Average Annual Growth Rate (%)	
						Total	Female	Water	Sanitation
		1999	2010	2010	2010	2008		2008	
145	Spain	22.6	22.6	0.900	29,661	54.5	56.9	-	10
146	Sweden	16.7	15.3	0.900	36,936	85.3	87.9	35	46
147	Switzerland	32.3	26.4	0.900	39,849	…	..	1	4
148	United Kingdom	10.6	15.9	0.800	35,087	55.3	51	9	23
149	United States of America	23.0	17.7	0.800	58,006	57	58	70	77
	Sub-Saharan Africa								
150	Angola	66.5	41.5	0.400	4,941	69.1	76.3	50	43
151	Benin	58.5	58.0	0.400	1,499	63.9	49	1	10
152	Botswana	50.3	38.9	0.600	13,204	71.8	64.1	14	75
153	Burkina Faso	82.1	74.3	0.300	1,215	66.6	62.6	..	..
154	Burundi	91.3	89.0	0.300	402	55.6	63.4	-	-
155	Cameroon	52.0	41.6	0.500	2,197	82.8	91.5	28	54
156	Cape Verde	39.6	38.9	0.500	3,306	70.1	54	26	53
157	Central African Republic	59.2	61.1	0.300	758	67.3	74.3	-	-
158	Chad	76.5	72.4	0.300	1,067	65.7	56.2	16	46
159	Comoros	67.3	71.8	0.400	1,176	74.5	74.5	11	45
160	Congo	38.3	37.9	0.500	3,258	64.3	43.3	8	26
161	Congo, D.R.	70.0	64.8	0.200	291	57	74.6	5	64
162	Cote d'Ivoire	54.3	49.4	0.400	1,625	71.3	57.4	54	77
163	Equatorial Guinea	53.1	60.3	0.500	22,218	64.9	54.6	14	17
164	Eritrea	81.6	78.4	..	643		61.6	31	50
165	Ethiopia	82.8	83.3	0.300	992	48.4	24.4	1	6
166	Gabon	19.7	14.0	0.600	12,747	61.7	70.2	2	5
167	Gambia	68.2	41.8	0.400	1,358	84.3	80.8	62	88
168	Ghana	62.1	48.5	0.500	1,385	56.3	65.8	-	-
169	Guinea	68.0	64.6	0.300	953	63.5	59.8	2	5
170	Guinea-Bissau	76.7	70.0	0.300	538	59.4	70.8	-	-
171	Kenya	67.9	77.8	0.500	1,628	62.8	62.8	-	1
172	Lesotho	72.9	73.1	0.400	2,021	70.6	73.9	5	3
173	Liberia	..	52.2	0.300	320	65.7	77.6	41	69
174	Madagascar	71.0	69.8	0.400	953	65.9	60.9	10	7
175	Malawi	76.5	80.2	0.400	911	78.3	81.4	43	47
176	Mali	70.6	64.1	0.300	1,171	65.5	71.9	15	71
177	Mauritius	58.9	58.2	0.700	13,344	…	..	..	..
178	Mozambique	61.1	61.6	0.300	854	52.5	38.1	44	64
179	Namibia	69.6	62.0	0.600	6,323		..	6	27
180	Niger	79.9	82.9	0.300	675	44.2	53.4	10	21
181	Nigeria	56.9	50.2	0.400	2,156	…	..	-	-
182	Rwanda	93.9	81.1	0.400	1,190	55.2	39.5	42	68
183	São Tomé & Príncipe	78.5	37.8	0.500	1,918	67.4	77.3	-	-
184	Senegal	53.3	57.6	0.400	1,816	57.8	26.1	12	..
185	Seychelles	..	44.7	..	19,128	77	74.2	6	25
186	Sierra Leone	64.1	61.6	0.300	809	..	..	..	..
187	Somalia	..	62.5	..	..	47.8	20.1	38	48
188	South Africa	49.9	38.3	0.600	9,812	63.8	50.2	9	24
189	Swaziland	73.9	78.6	0.500	5,132	62.7	68.7	4	13
190	Tanzania	68.4	73.6	0.400	1,344	61.3	41.8	..	-
191	Togo	67.3	56.6	0.400	844	76.7	65.3	31	49
192	Uganda	86.2	86.7	0.400	1,224	59.3	67.5	1	-
193	Zambia	60.5	64.3	0.400	1,359	68.3	76.6	-	-
194	Zimbabwe	65.4	61.7	0.100	176	44	22	11	4

Table S6 Economy and Quality of Life Indicators (Continued)

Country/Region	Rural Population (%)		Human Development Index (HDI)	Gross National Income (GNI) Per Capital (US $)	Labour Force Participation Rate (%)		Population Average Annual Growth Rate (%)	
					Total	Female	Water	Sanitation
	1999	2010	2010	2010	2008		2008	
Regions								
Arab States	29.9	30.9	…	8,150	60.1	52	14.4	23.2
South West Asia	72.8	67.2	…	1,348	61.3	50.2	21.5	38.4
Central & Eastern Europe	36.7	37.7	…	3,337	65.5	54.1	14.6	33.5
Central Asia	50.1	51.5	…	12,944	61.4	52.4	13.3	23.4
East Asia & Pacific	46.7	47.4	…	4,902	65.5	60	15.2	31.9
Latin America & the Caribbean	36.1	38.5	…	4,126	63.4	59.5	12.7	28.9
North America & Western Europe	22.5	21.3	…	8,542	66	62.1	13.8	31
Sub-Saharan Africa	65.8	60.8	…	35,087	63.9	59.6	15.9	28.8
WORLD	45.1	44.5	…	1,351	63.4	56.3	15.2	29.9

Table S7 Education Indicators

S. No.	Country/Region	Rural Population (%)		Adult Literacy Rate (15 and over)		NER in Pre-Primary Education (%) School Year Ending in 2008		Population Average Annual Growth Rate (%)	
				Total	Female			Water	Sanitation
		1999	2010	2005–2008		Male	Female	2008	
	Arab States								
1	Algeria	40.5	33.5	73	64	23	23	95.8	94
2	Bahrain	8.2	11.4	91	89	…	…	91.6	97
3	Djibouti	17.0	23.8	…	…	…	…	45.3	39
4	Egypt	55.0	56.6	66	58	84	83		92
5	Iraq	..	33.8	78	69	…	…		…
6	Jordan	26.4	21.5	92	89	99	91	93.8	90
7	Kuwait	2.6	1.6	94	93	66	66	93.4	87
8	Lebanon	10.7	12.8	90	86	68	69	89.3	89
9	Libyan A.J.	12.8	22.1	88	81	…	…		…
10	Mauritania	43.6	58.6	57	50	98	100	76.9	79
11	Morocco	44.7	41.8	56	44	52	51	89.9	87
12	Oman	17.8	27.0	87	81	…	…		69
13	Palestinian O.T.	..	25.9	94	91	22	23	77.5	75
14	Qatar	7.7	4.2	93	90	…	…		…
15	Saudi Arabia	14.9	17.9	86	80	53	53	84.6	84
16	Sudan	64.9	59.9	69	60	…	…		…
17	Syrian A.R.	46.0	44.3	84	77	…	…		…
18	Tunisia	35.2	32.7	78	71	90	89	99.5	98
19	United Arab Emirates	14.5	20.4	90	91	100	100		91
20	Yemen	75.5	68.2	61	43	37	39	73	66
	South West Asia								
21	Afghanistan	..	77.4	…	…	73	73		…
22	Bangladesh	76.1	71.9	55	50	…	…	99.3	86
23	Bhutan	93.1	65.3	53	39	…	…	84.2	88
24	India	71.9	70.0	63	51	51	51	96.9	88
25	Iran, I.R.	38.9	29.2	82	77	…	…		…
26	Maldives	73.9	59.9	98	98	…	…	96.2	95
27	Nepal	88.4	81.4	58	45	…	…		…
28	Pakistan	63.5	64.1	54	40	36	39	66.1	60
29	Sri Lanka	76.7	85.7	91	89	10	10	99.5	100
	Central and Eastern Europe								
30	Albania	59.0	48.1	99	99	…	…		…
31	Belarus	29.3	25.3	100	100	…	…	94.8	96
32	Bosnia & Herzegovina	..	51.4	98	96	…	…		…
33	Bulgaria	30.7	28.5	98	98	40	40	97.4	96
34	Croatia	42.7	42.3	99	98	…	…	98.6	90
35	Czech Rep.	25.3	26.5	…	…	12	13		91
36	Estonia	31.2	30.5	100	100	50	50	96.5	94
37	Hungary	36.2	31.9	…	…	80	88	95.4	89
38	Latvia	31.0	32.3	100	100	63	66	94.1	…
39	Lithuania	31.6	33.0	100	100	78	76	96.1	91
40	Moldova, Rep.	53.8	53.0	98	98	12	13	90.5	87
41	Montenegro	..	38.5	…	…	2	2		…
42	Poland	34.8	39.0	…	…	…	…	95.4	96
43	Romania	44.1	42.5	98	97	17	18	96.5	90
44	Russian Fed.	22.7	26.8	100	99	…	…	94.1	…
45	Serbia	..	43.9	…	…	56	57	98	95
46	Slovakia	42.7	45.0	…	…	91	95		…
47	Slovenia	49.7	50.5	100	100	4	4	97.5	97

Table S7 (continued)

S. No.	Country/Region	Rural Population (%)		Adult Literacy Rate (15 and over)		NER in Pre-Primary Education (%) School Year Ending in 2008		Population Average Annual Growth Rate (%)	
				Total	Female			Water	Sanitation
		1999	2010	2005–2008		Male	Female	2008	
48	Macedonia	38.4	40.7	97	95	…	…	91.5	87
49	Turkey	25.9	30.3	89	81	52	54	94.7	94
50	Ukraine	32.1	31.2	100	100	…	…	89.4	89
	Central Asia								
51	Armenia	30.3	35.8	100	99	43	44		86
52	Azerbaijan	43.1	48.1	100	99	…	…		95
53	Georgia	39.8	47.2	100	100	12	13	99	98
54	Kazakhstan	43.6	41.5	100	100	…	…	99.1	90
55	Kyrgyzstan	66.4	65.4	99	99	…	…	91	83
56	Mongolia	37.0	38.0	97	98	…	…	99.2	88
57	Tajikistan	72.5	73.7	100	100	52	50	97.5	95
58	Turkmenistan	55.3	50.5	100	99	97	97		…
59	Uzbekistan	62.8	63.7	99	99	73	73	90.6	87
	East Asia and Pacific								
60	Australia	15.3	10.9	…	…	…	…		97
61	Brunei Darussalam	28.3	24.3	95	93	…	…	97.3	93
62	Cambodia	84.4	79.9	78	71	91	93	88.6	87
63	China	68.4	53.0	94	91	2	2		…
64	Fiji	51.4	48.1	…	…	…	…	91.7	89
65	Hong Kong (China)	-	-	…	…	…	…	99	…
66	Indonesia	60.2	55.7	92	89	…	…	98.7	94
67	Japan	21.4	33.2	…	…	16	15	100	…
68	Kiribati	..	56.1	…	…	50	52		…
69	Korea, D.P.R.	..	39.8	100	100	30	31		…
70	Korea, Rep.	18.9	17.0	…	…	67	69	99	98
71	Lao P.D.R.	77.1	66.8	73	63	…	…	82.4	81
72	Malaysia	43.3	27.8	92	90	90	91	94.1	96
73	Marshall Islands	..	28.2	…	…	3	3		66
74	Micronesia	..	77.3	…	…	15	15		…
75	Myanmar	72.7	66.3	92	89	65	65		…
76	Nauru	..	-	…	…	100	100		73
77	New Zealand	14.3	13.8	…	…	…	…	99.5	100
78	Palau	..	16.6	…	…	41	50		…
79	Papua New Guinea	82.9	87.5	60	56	…	…		…
80	Philippines	42.3	51.1	94	94	48	50	92.1	93
81	Samoa	..	79.8	99	99	93	97		93
82	Singapore	-	-	95	92	28	28		…
83	Solomon Islands	..	81.4	…	…	9	9		67
84	Thailand	78.8	66.0	94	92	…	…	90.8	89
85	Timor-Leste	..	71.9	…	…	71	71	77.3	74
86	Tonga	..	76.6	99	99	27	27		…
87	Tuvalu	..	49.6	…	…	87	86		…
88	Vanuatu	..	74.4	…	…	98	98		…
89	Vietnam	80.3	69.6	93	90	…	…		…
	Latin America and the Caribbean								
90	Antigua & Barbuda	..	69.7	99	99	…	…	90.5	86
91	Argentina	10.4	7.6	98	98	…	…		…
92	Bahamas	12.1	15.9	…	…	91	93	84	92
93	Barbados	50.5	55.5	…	…	97	95	88.4	…
94	Belize	46.4	47.7	…	…	79	82	99.7	98

Table S7 (continued)

S. No.	Country/Region	Rural Population (%)		Adult Literacy Rate (15 and over)		NER in Pre-Primary Education (%) School Year Ending in 2008		Population Average Annual Growth Rate (%)	
				Total	Female			Water	Sanitation
		1999	2010	2005–2008		Male	Female	2008	
95	Bolivia	38.1	33.4	91	86	35	32		94
96	Brazil	19.3	13.5	90	90	39	39	95.1	93
97	Chile	14.6	11.0	99	99	64	62	95.1	94
98	Colombia	26.5	24.9	93	93	14	14	93.5	90
99	Costa Rica	52.4	35.6	96	96	13	14		…
100	Cuba	..	24.8	100	100	87	86	99.5	99
101	Dominica	..	32.8	…	…	74	74	98.3	76
102	Dominican Republic	35.6	30.8	88	88	…	…	82.4	80
103	Ecuador	35.7	33.0	84	82	21	20	97.4	97
104	El Salvador	53.7	35.7	84	81	8	7	95.6	95
105	Grenada	..	60.7	…	…	72	71	98.5	93
106	Guatemala	60.6	50.5	74	69	87	85	96.4	94
107	Guyana	62.4	71.4	…	…	…	…	98.5	95
108	Haiti	64.9	47.9	…	…	9	9		…
109	Honduras	48.4	48.4	84	83	…	…	97.2	98
110	Jamaica	44.4	48.0	86	91	58	63	80.5	79
111	Mexico	25.8	22.2	93	91	84	84	99.5	98
112	Nicaragua	44.2	42.7	78	78	…	…	93.4	92
113	Panama	44.0	25.2	94	93	…	…	98.9	98
114	Paraguay	44.7	38.5	95	93	89	92	88.1	90
115	Peru	27.6	23.1	90	85	96	97	97.3	95
116	Saint Kitts & Nevis	..	67.6	…	…	…	…	84	…
117	Saint Lucia	..	72.0	…	…	…	…	93.5	91
118	Saint Vincent & the Grenadines	..	50.7	…	…	45	49	97.5	92
119	Suriname	26.5	30.6	91	88	…	…	90.1	90
120	Trinidad and Tobago	26.4	86.1	99	98	83	63	95.3	91
121	Uruguay	9.0	7.5	98	98	…	…	99	98
122	Venezuela	13.4	6.6	95	95	6	6	92.1	90
	North America and Western Europe								
123	Andorra	..	12.0	…	…	…	…	85	79
124	Austria	35.4	32.4	…	…	58	57	97.1	…
125	Belgium	2.7	2.6	…	…	…	…	98.6	99
126	Canada	23.0	19.4	…	…	…	…		…
127	Cyprus	43.8	29.7	98	97	100	100	99	98
128	Denmark	14.7	13.1	…	…	92	95	95.4	96
129	Finland	33.3	14.9	…	…	55	56	96.2	96
130	France	24.6	14.7	…	…	2	2	99.1	99
131	Germany	12.7	26.1	…	…	…	…	99.7	98
132	Greece	40.1	38.6	97	96	…	…		100
133	Iceland	7.6	6.6	…	…	94	95	97.6	98
134	Ireland	41.2	38.1	…	…	26	26	97.1	98
135	Israel	8.9	8.1	…	…	23	26	97.1	98
136	Italy	33.1	31.6	99	99	…	…	99.3	98
137	Liechtenstein	..	85.7	…	…	…	…	89.7	…
138	Luxembourg	9.0	14.8	…	…	…	…	97.5	97
139	Malta	9.7	5.3	92	94	61	61	91.3	92
140	Monaco	..	-	…	…	…	…		…
141	Netherlands	10.7	17.1	…	…	31	32	98.9	98
142	Norway	24.9	20.6	…	…	69	70	98.7	99
143	Portugal	37.3	39.3	95	93	39	38	98.7	98

Table S7 (continued)

S. No.	Country/Region	Rural Population (%)		Adult Literacy Rate (15 and over)		NER in Pre-Primary Education (%) School Year Ending in 2008		Population Average Annual Growth Rate (%)	
				Total	Female			Water	Sanitation
		1999	2010	2005–2008		Male	Female	2008	
144	San Marino	..	5.9	…	…	58	59		…
145	Spain	22.6	22.6	98	97	78	80	99.8	100
146	Sweden	16.7	15.3	…	…	45	47	94.6	94
147	Switzerland	32.3	26.4	…	…	51	51	99.1	94
148	United Kingdom	10.6	15.9	…	…	72	71	99.8	100
149	United States of America	23.0	17.7	…	…	72	72	93.1	93
	Sub-Saharan Africa								
150	Angola	66.5	41.5	70	57	7	8		…
151	Benin	58.5	58.0	41	28	50	50	93.6	86
152	Botswana	50.3	38.9	83	84	85	88		88
153	Burkina Faso	82.1	74.3	29	22	4	4	61.2	59
154	Burundi	91.3	89.0	66	60	…	…	99.4	99
155	Cameroon	52.0	41.6	76	68	…	…	88.3	82
156	Cape Verde	39.6	38.9	84	79	82	80	84.8	84
157	Central African Republic	59.2	61.1	55	41	…	…	66.3	57
158	Chad	76.5	72.4	33	22	…	…		…
159	Comoros	67.3	71.8	74	68	…	…		…
160	Congo	38.3	37.9	…	…	99	100		56
161	Congo, D.R.	70.0	64.8	67	…	…	…		…
162	Cote d'Ivoire	54.3	49.4	55	44	…	…		…
163	Equatorial Guinea	53.1	60.3	93	89	80	80	56.8	…
164	Eritrea	81.6	78.4	65	55	…	…	40.2	36
165	Ethiopia	82.8	83.3	36	23	100	100	83	75
166	Gabon	19.7	14.0	87	83	75	74		…
167	Gambia	68.2	41.8	45	34	10	9	71.9	71
168	Ghana	62.1	48.5	66	59	7	6	77	77
169	Guinea	68.0	64.6	38	26	37	37	72.3	66
170	Guinea-Bissau	76.7	70.0	51	37	80	80		…
171	Kenya	67.9	77.8	87	83	…	…	82.3	82
172	Lesotho	72.9	73.1	90	95	7	8	73.7	74
173	Liberia	..	52.2	58	53	…	…		…
174	Madagascar	71.0	69.8	71	65	…	…		99
175	Malawi	76.5	80.2	73	66	66	66	91.2	93
176	Mali	70.6	64.1	26	18	…	…	74.7	66
177	Mauritius	58.9	58.2	88	85	18	17	93.1	95
178	Mozambique	61.1	61.6	54	40	…	…	89.3	77
179	Namibia	69.6	62.0	88	88	…	…	90.7	91
180	Niger	79.9	82.9	29	15	84	100	49.5	48
181	Nigeria	56.9	50.2	60	49	10	10		58
182	Rwanda	93.9	81.1	70	66	…	…	95.9	97
183	São Tomé & Príncipe	78.5	37.8	88	83	63	61	96.7	97
184	Senegal	53.3	57.6	42	33	75	76	75.2	74
185	Seychelles	..	44.7	92	92	34	35	94.4	…
186	Sierra Leone	64.1	61.6	40	29	53	54		…
187	Somalia	..	62.5	28	15	72	73		…
188	South Africa	49.9	38.3	89	88	17	18	91.1	88
189	Swaziland	73.9	78.6	87	86	5	5		84
190	Tanzania	68.4	73.6	73	66	…	…	97.4	99
191	Togo	67.3	56.6	65	54	65	65	87.3	89
192	Uganda	86.2	86.7	75	67	…	…		98
193	Zambia	60.5	64.3	71	61	…	…	96.8	96
194	Zimbabwe	65.4	61.7	91.0	89.0	…	…		91.0

Table S7 Education Indicators (Continued)

Country/Region	Rural Population (%)		Adult Literacy Rate (15 and over)		NER in Pre-Primary Education (%) School Year Ending in 2008		Population Average Annual Growth Rate (%)	
			Total	Female			Water	Sanitation
	1999	2010	2005–2008		Male	Female	2008	
Regions								
Arab States	29.9	30.9	80.4	74.1	66.0	65.6	84.2	82.5
South & West Asia	72.8	67.2	69.3	61.1	42.5	43.3	90.4	86.2
Central & Eastern Europe	36.7	37.7	71.2	64.6	44.9	45.4	303.4	89.3
Central Asia	50.1	51.5	73.6	66.6	51.1	51.4	621.5	86.0
East Asia & Pacific	46.7	47.4	68.2	61.1	48.8	50.2	244.3	84.8
Latin America & the Caribbean	36.1	38.5	91.3	90.2	56.9	56.2	93.8	92.1
North America & Western Europe	22.5	21.3	96.5	96.0	57.0	57.7	96.6	96.5
Sub-Saharan Africa	65.8	60.8	64.8	57.3	49.4	50.2	81.2	79.8
WORLD	45.1	44.5	76.9	71.4	52.1	52.5	201.9	87.1

Table S7 Education Indicators (Continued)

S. No.	Country/Region	School Life Expectancy (Expected Number of Years of Formal Schooling from Primary to Tertiary Education) 2008		Survival Rate to Grade 5 (Primary Education)		NER in Secondary Education	Enrolment in Technical Education (as % of Total Secondary Enrolment)	GER Combined (Pri+Sec+Ter)	Total Aid to Education Constant 2008 Prices US$ millions	Share of Basic Education in Total Aid to Education (%)
				Total	Female	Total				
		Male	Female	2007		2008	2008	2008	2008	2008
	Arab States									
1	Algeria	…	…	96	97	...	15.4	…	156	8.3
2	Bahrain	13.6	15.1		…	89	4.9	...	…	…
3	Djibouti	5.3	4.1		…	24	…	...	23	43.5
4	Egypt	…	…		…	...	…	...	257	63
5	Iraq	…	…		…	...	4	...	129	43.4
6	Jordan	12.9	13.3		…	82	1.6	78	97	42.3
7	Kuwait	…	…	100	99	80	16.1	...	…	…
8	Lebanon	13.3	14.2	97	97	75	…	80	141	29.1
9	Libyan A.J.	…	…		…	...	…	...	7	14.3
10	Mauritania	…	…	82	83	...	5.6	...	38	44.7
11	Morocco	…	…	83	82	...	…	...	293	15.7
12	Oman	11.1	11.2		…	...	1	...	…	…
13	Palestinian O.T.	12.6	13.6		.	87	0.9	77	85	42.4
14	Qatar	11.9	14.8		…	79	…	61	…	…
15	Saudi Arabia	13.8	13.1	97	94	...	1.5	81	…	…
16	Sudan	…	…	94	100	...	3.8	...	63	68.3
17	Syrian A.R.	…	…		.	68	10.5	...	83	3.6
18	Tunisia	14	15	96	96	...	…	78	130	3.1
19	United Arab Emirates	…	…	100	100	...	…	...	…	…
20	Yemen	…	…		…	...	…	...	78	78.2
	South West Asia									
21	Afghanistan	…	…	…	…	...	2.4	...	233	57.5
22	Bangladesh	…	8.3	55	58	...	…	...	217	76.5
23	Bhutan	…	11	96	99	45	0.8	61	24	58.3
24	India	…	9.8	66	65	...	10.2	...	508	61.4
25	Iran, I.R.	…	15.2	…	…	...	…	69	61	1.6
26	Maldives	…	12.3	94	93	...	0.7	...	8	12.5
27	Nepal	…	…	62	64	...	3.7	...	91	76.9
28	Pakistan	…	6		…	33	…	42	128	68.8
29	Sri Lanka	…	…	98	98	...	…	...	51	23.5
	Central and Eastern Europe									
30	Albania	…	…	…	.	...	0.6	...	66	6.1
31	Belarus	…	15	…	.	...	34.8	...	22	4.5
32	Bosnia & Herzegovina	…	…	…	.	...	29.7	...	43	11.6
33	Bulgaria	…	14	…	.	83	38.2	78	…	…
34	Croatia	…	14	…	.	89	38.6	80	22	4.5
35	Czech Rep.	…	16	99	99	...	17.9	86	…	…
36	Estonia	…	17	99	98	89	14.2	89	…	…
37	Hungary	…	16	…	.	91	19.7	90	…	…
38	Latvia	…	17	96	95	85	9.8	88	…	…
39	Lithuania	…	17	…	.	92	…	92	…	…
40	Moldova, Rep.	…	13	…	.	83	33.9	71	29	27.6
41	Montenegro	…	…	…	.	...	24.5	...	5	40
42	Poland	…	16	98	…	94	11	88	…	…
43	Romania	…	15	…	.	80	6.7	85	…	…
44	Russian Fed.	…	15	…	.	...	36	84	…	…
45	Serbia	…	14	…	.	90	34.9	78	62	21
46	Slovakia	…	16	…	.	...	36.7	81	…	…
47	Slovenia	…	18	…	…	91	27.9	94	…	…

Table S7 (continued)

S. No.	Country/Region	School Life Expectancy (Expected Number of Years of Formal Schooling from Primary to Tertiary Education) 2008		Survival Rate to Grade 5 (Primary Education)		NER in Secondary Education	Enrolment in Technical Education (as % of Total Secondary Enrolment)	GER Combined (Pri+Sec+Ter)	Total Aid to Education Constant 2008 Prices US$ millions	Share of Basic Education in Total Aid to Education (%)
				Total	Female	Total				
		Male	Female	2007		2008	2008	2008	2008	2008
48	Macedonia	…	12	…	…	...	2.6	72	32	46.9
49	Turkey	…	11	94	94	74	8.1	74	143	13.3
50	Ukraine	…	15	…	.	85	1	91	79	3.8
	Central Asia									
51	Armenia	…	…	…	.	...	13.6	74	26	19.2
52	Azerbaijan	…	15	…	.	92	0.7	70	11	18.2
53	Georgia	…	…	95	…	...	6.2	75	84	34.5
54	Kazakhstan	…	14	…	.	85	3	91	20	10
55	Kyrgyzstan	…	14	…	.	80	9.1	77	22	36.4
56	Mongolia	…	16	95	95	...	2.1	...	34	41.2
57	Tajikistan	…	17	…	.	83	…	72	14	57.1
58	Turkmenistan	…	16	…	.	...	26.6	...	3	0
59	Uzbekistan	…	17	…	.	91	40.5	71	28	10.7
	East Asia and Pacific									
60	Australia	…	21		…	88	6.4	115	…	…
61	Brunei Darussalam	…	14	100	99	88	2.2	78	…	…
62	Cambodia	…	9	62	65	...	18.6	...	42	50
63	China	…	12	100	99	...	…	68	842	4.8
64	Fiji	…	…	95	…	...	15	...	9	44.4
65	Hong Kong (China)	…	…		…	75	…	83	…	…
66	Indonesia	…	13	86	89	68	12.1	75	471	58.2
67	Japan	…	15		…	98	…	88	…	…
68	Kiribati	…	…	…	…	...	0.7	73	3	33.3
69	Korea, D.P.R.	…	…	…	.	...	3	...	2	50
70	Korea, Rep.	…	16	99	99	95	…	100	…	…
71	Lao P.D.R.	…	9	67	68	...	2.6	59	41	41.5
72	Malaysia	…	13	94	94	68	4	70	38	5.3
73	Marshall Islands	…	…	…	…	...	…	...	14	50
74	Micronesia	…	…	…	…	...	…	...	29	51.7
75	Myanmar	…	…	74	…	49	…	...	29	69
76	Nauru	…	9	…	…	...	…	56	1	100
77	New Zealand	...	20	…	…	...	…	107	…	…
78	Palau	…	…	…	…	...	…	...	3	66.7
79	Papua New Guinea	…	…	…	…	...	…	...	40	57.5
80	Philippines	…	12	77	81	61	12.3	80	69	43.5
81	Samoa	…	…	…	…	...	11.7	...	6	16.7
82	Singapore	…	…	…	…	...	…	...	…	…
83	Solomon Islands	…	9	…	…	...	16.1	...	11	72.7
84	Thailand	…	13	…	…	71	…	72	38	10.5
85	Timor-Leste	…	…	…	…	...	…	...	28	53.6
86	Tonga	…	…	92	92	...	…	...	7	28.6
87	Tuvalu	…	…	…	…	...	…	...	2	0
88	Vanuatu	…	…	82	83	...	6.4	...	14	35.7
89	Vietnam	…	…	92	…	...	…	...	269	34.9
	Latin America and the Caribbean									
90	Antigua & Barbuda	…	…		…	...	35.1	...	2	0
91	Argentina	…	…	96	98	80	14.3	92	34	32.4
92	Bahamas	…	…	92	93	85	…	...	…	…
93	Barbados	…	…	96	…	...	3.2	...	1	0

Table S7 (continued)

S. No.	Country/Region	School Life Expectancy (Expected Number of Years of Formal Schooling from Primary to Tertiary Education) 2008		Survival Rate to Grade 5 (Primary Education)		NER in Secondary Education	Enrolment in Technical Education (as % of Total Secondary Enrolment)	GER Combined (Pri+Sec+Ter)	Total Aid to Education Constant 2008 Prices US$ millions	Share of Basic Education in Total Aid to Education (%)
				Total	Female	Total				
		Male	Female	2007		2008	2008	2008	2008	2008
94	Belize	…	…	93	93	...	…	...	1	0
95	Bolivia	…	…	83	83	69	4.8	...	82	57.3
96	Brazil	…	…		.	82	20	87	94	22.3
97	Chile	…	14.6	96	97	85	6.5	85	31	19.4
98	Colombia	…	…	88	…	71	15.5	83	58	25.9
99	Costa Rica	…	…	96	98	...	26.3	...	10	40
100	Cuba	…	…	96	96	84	1.4	104	9	22.2
101	Dominica	…	…	94	91	...	74.5	74	2	50
102	Dominican Republic	…	…	73	77	58	23.6	...	27	40.7
103	Ecuador	…	…	83	84	...	19.3	82	46	50
104	El Salvador	…	…	80	82	55	…	73	27	40.7
105	Grenada	…	…		…	89	28	...	4	75
106	Guatemala	…		71	70	40	6.7	...	47	63.8
107	Guyana	…			…	...	…	81	10	90
108	Haiti	…	…	…	…	...	46	...	51	54.9
109	Honduras	…	…	78	80	...	…	72	58	58.6
110	Jamaica	…	…	…	…	77	16.2	87	10	80
111	Mexico	…	…	94	95	72	…	82	56	16.1
112	Nicaragua	…	…	51	55	...	16.1	...	68	58.8
113	Panama	…	12.9	87	88	66	9.6	79	4	25
114	Paraguay	…	…	84	84	59	1.6	...	15	60
115	Peru	…	…	87	88	71	…	...	57	42.1
116	Saint Kitts & Nevis	…	…	82	82	89	1.3	76	4	50
117	Saint Lucia	…	…	97	99	...	…	75	3	66.7
118	Saint Vincent & the Grenadines	…	…	…	…	90	47.9	...	4	50
119	Suriname	…	…	80	81	...	…	...	6	33.3
120	Trinidad and Tobago	…	…	98	99	...	…	...	1	0
121	Uruguay	…	15	94	96	70	5.6	90	8	25
122	Venezuela	…	13.1	84	87	69	7.5	89	14	14.3
	North America and Western Europe									
123	Andorra	…	10.8	98	97	70	38.9	67	…	…
124	Austria	…	15	…	.	...	38.4	90	…	…
125	Belgium	…	15.7	91	92	...	…	94	…	…
126	Canada	…	…	…	…	...	6.2	...	…	…
127	Cyprus	…	14.2	99	100	96	26.5	81	…	…
128	Denmark	…	16.2	…	…	90	29.5	101	…	…
129	Finland	…	16		…	96	20	101	…	…
130	France	…	15.8	…	…	98	22	95	…	…
131	Germany	…	…		.	...	16	...	…	…
132	Greece	…	16.4	98	98	...	20	...	…	…
133	Iceland	…	17.1	94	…	90	16.7	97	…	…
134	Ireland	…	17.7	…	…	88	20.3	100	…	…
135	Israel	…	14.9	…	…	86	37.1	90	…	…
136	Italy	…	15.8	100	100	95	30.8	92	…	…
137	Liechtenstein	…	…	…	…	66	…	72	…	…
138	Luxembourg	…	13.2	98	100	84	16.2	...	…	…
139	Malta	…	14	…	…	80	20	79	…	…
140	Monaco	…	…	…	…	...	46.9	...	…	…

Table S7 (continued)

S. No.	Country/Region	School Life Expectancy (Expected Number of Years of Formal Schooling from Primary to Tertiary Education) 2008		Survival Rate to Grade 5 (Primary Education)		NER in Secondary Education	Enrolment in Technical Education (as % of Total Secondary Enrolment)	GER Combined (Pri+Sec+Ter)	Total Aid to Education Constant 2008 Prices US$ millions	Share of Basic Education in Total Aid to Education (%)
				Total	Female	Total				
		Male	Female	2007		2008	2008	2008	2008	2008
141	Netherlands	…	16.7	100	100	88	31.1	98	…	…
142	Norway	…	16.7	…	…	96	18.4	97	…	…
143	Portugal	…	15.2	…	…	...	25	94	…	…
144	San Marino	…	…	…	…	...	16.3	...	…	…
145	Spain	…	15.9		…	95	30.5	99	…	…
146	Sweden	…	14.9		…	99	32.9	92	…	…
147	Switzerland	…	15.6		…	85	13.4	86	…	…
148	United Kingdom	…	15.6	…	…	93	…	89	…	…
149	United States of America	…	15.1	…	…	88	0.7	93	…	…
	Sub-Saharan Africa									
150	Angola	…	…	…	…	...	…	...	36	52.8
151	Benin	…	…	…	…	...	6.3	...	74	55.4
152	Botswana	…	12.3	89	89	...	5.6	...	17	35.3
153	Burkina Faso	…	6.8	82	83	14	5.3	37	150	68
154	Burundi	…	…	62	65	...	18.9	55	40	45
155	Cameroon	…	10.6	63	63	...	…	57	143	19.6
156	Cape Verde	…	…	91	92	62	4.3	...	38	7.9
157	Central African Republic	…	7.8	53	48	10	1.3	38	7	28.6
158	Chad	…	…	38	34	...	…	43	17	52.9
159	Comoros	…	…	…	…	...	…	...	15	26.7
160	Congo	…	…	77	80	...	…	...	26	26.9
161	Congo, D.R.	…	…	80	…	...	…	51	…	…
162	Cote d'Ivoire	…	…	94	…	...	19.2	...	35	20
163	Equatorial Guinea	…	…	…	…	...	0.9	...	4	50
164	Eritrea	…	…	73	69	26	6.2	...	16	56.3
165	Ethiopia	…	9	47	49	...	…	55	…	…
166	Gabon	…	…	…	…	...	…	...	26	0
167	Gambia	…	…	72	72	...	3.9	57	11	72.7
168	Ghana	…	10	…	…	47	2.1	...	130	56.9
169	Guinea	…	10	70	65	...	1.8	51	45	28.9
170	Guinea-Bissau	…	…	…	…	...	1	...	16	50
171	Kenya	…	…	…	…	49	…	...	111	61.3
172	Lesotho	…	10.1	62	69	27	…	...	15	40
173	Liberia	…	…		…	...	3.5	...	18	83.3
174	Madagascar	…	10.4	42	43	24	…	66	98	46.9
175	Malawi	…	9	43	43	25	13	...	81	64.2
176	Mali	…	9.4	87	85	29	…	50	186	68.8
177	Mauritius	…	13	99	100	...	5.7	76	36	33.3
178	Mozambique	…	…	60	58	12	…	...	271	57.2
179	Namibia	…	11.6	87	90	...	2	...	19	63.2
180	Niger	…	5.3	69	66	10	4.3	29	60	66.7
181	Nigeria	…	…	…	…	...	…	...	104	38.5
182	Rwanda	…	…	…	…	...	2	65	112	63.4
183	São Tomé & Príncipe	…	10.7	79	75	...	5.9	67	8	12.5
184	Senegal	…	7.8	71	72	...	…	46	169	37.9
185	Seychelles	…	14.3		…	97	5	83	1	0

Table S7 (continued)

S. No.	Country/Region	School Life Expectancy (Expected Number of Years of Formal Schooling from Primary to Tertiary Education) 2008		Survival Rate to Grade 5 (Primary Education)		NER in Secondary Education	Enrolment in Technical Education (as % of Total Secondary Enrolment)	GER Combined (Pri+Sec+Ter)	Total Aid to Education Constant 2008 Prices US$ millions	Share of Basic Education in Total Aid to Education (%)
				Total	Female	Total				
		Male	Female	2007		2008	2008	2008	2008	2008
186	Sierra Leone	…	…	…	…	…	…	…	34	64.7
187	Somalia	…	…	…	…	…	…	…	19	89.5
188	South Africa	...	...	...	...	...	...	...	81	43.2
189	Swaziland	...	10.6	82	88	...	7.8	...	4	75
190	Tanzania	...	…	87	89	...	9	...	204	45.6
191	Togo	...	…	54	50	...	5	...	21	28.6
192	Uganda	...	10.6	59	59	21	…	66	139	57.6
193	Zambia	...	…	90	88	...	…	...	139	56.1
194	Zimbabwe	...	...	...	...	...	...	...	7.0	28.6

Table S7 Education Indicators (Continued)

Country/Region	School Life Expectancy (Expected Number of Years of Formal Schooling from Primary to Tertiary Education) 2008		Survival Rate to Grade 5 (Primary Education)		NER in Secondary Education	Enrolment in Technical Education (as % of Total Secondary Enrolment)	GER Combined (Pri+Sec+Ter)	Total Aid to Education Constant 2008 Prices US$ millions	Share of Basic Education in Total Aid to Education (%)
			Total	Female	Total				
	Male	Female	2007		2008	2008	2008	2008	2008
Regions									
Arab States	12.1	12.7	94	94	73	5.9	75.8	1,580	35.7
South West Asia	10.9	10.8	76	75	42	6.4	65.5	4,873	42.6
Central & Eastern Europe	14.0	14.9	97	97	87	21.3	83.6	503	17.9
Central Asia	14.3	15.4	95	95	86	12.7	75.8	242	25.3
East Asia & Pacific	13.1	13.1	86	87	76	8.5	80.3	2,008	42.5
Latin America & the Caribbean	12.7	13.9	87	87	73	18.7	82.9	844	39.5
North America & Western Europe	15.4	16.3	97	98	89	23.9	90.8	…	…
Sub-Saharan Africa	10.0	9.3	71	70	32	5.8	55.1	2,783	46.0
WORLD	12.8	13.3	88	88	70	12.9	76.2	12,833	35.7

References

Acker, D. and Gasperini, L. (2009): Education for Rural People: The role of education, training and capacity development in poverty reduction and food security, Rome, Food and Agriculture Organisation.

ADB (2006): "Special Evaluation Study on Pathways out of Rural Poverty and the Effectiveness of Poverty Targeting", Manila: ADB.

African Development Bank, Food and Agriculture Organisation, International Fund for Agricultural Development, International Water Management Institute, and World Bank (2007): "Investment in Agricultural Water for Poverty Reduction and Economic Growth in Sub-Saharan Africa", World Bank, Washington, DC.

Ahmed, M. (2009): The State and Development of Adult Learning and Education in Asia and the Pacific—Regional Synthesis Report, CONFINTEA VI. Hamburg, UNESCO Institute for Lifelong Learning.

Ahmed, M. (2010): "Economic Dimensions of Sustainable Development, the Fight against Poverty and Educational Reponses," International Review of Education, 56:2–3, pp.235–253.

Ahmed, Mohiuddin (2011): "Amar shontan jeno thakey dudhe-bhate" [Bangla], (Milk and rice aplenty for my child), Daily Pothom Alo, 17 October, 2011.

Alderman, Harold, Peter F. Orazem, and Elizabeth M. Paterno (2001): "School Quality, School Cost, and the Public/Private School Choices of Low-Income Households in Pakistan", Journal of Human Resources 36 (2), pp.304–326.

Atchoarena, D. and Gasperini, L. (2003): Education for rural development: towards new policy responses. A joint study conducted by FAO and UNESCO, Paris, International Institute for Educational Planning.

Babu, S. C. (2003): "Social Safety Nets for Poverty Reduction in South Asia—Global Experiences", Sri Lankan Journal of Agricultural Economics, Vol. 5, No. 1, 2003.

BBC (2010): "Special Report, the Cost of Food," 19 January, 2010.

Behrman, J. R., Ross, D. and Sabot, R. (2002): "Improving the Quality versus Increasing the Quantity of Schooling: Evidence from Rural Pakistan", PIER Working Paper No. 02–022, Pennsylvania Institute for Economic Research, Department of Economics, University of Pennsylvania, Philadelphia.

Bennell, P. (1999): "Learning to change: Skills development among the economically vulnerable and socially excluded in developing countries", Employment and Training Papers 43, Employment and Training Department, ILO, Geneva.

Bennell, P. (2007): Promoting Livelihood Opportunities for Rural Youth, Rome, International Fund for Agricultural Development.

Besley, T. and Cord, L., eds. (2006): Delivering on the Promise of Pro-Poor Growth Palgrave Macmillan and the World Bank, New York.

Brandenburg, U. and Zhu, J. (2007): "Higher Education in China in the light of massification and demographic change: Lessons to be learned for Germany", Arbeitspapier Nr. 97, Oktober 2007, CHE Centrum für Hochschulentwicklung gGmbH.

Brookfield, H. (2008): "Family farms are still around: time to invert the old agrarian question", Geography Compass 2, pp.108–126.

Brown, L. (2008): Plan B.3, Mobilizing to Save Civilization. London and New York, W.W. Norton and Company.

Cai, Y. L., and Smit, B. (1994): "Sustainability in Chinese agriculture: challenge and hope, Agriculture, Ecosystems and Environment, 49(3), pp.279–288.

Cedefop (2010): "Skills for green jobs: European synthesis report," Luxembourg, Publications Office of the European Union, 2010.

Chambers, R. and Conway, G.R. (1992): "Sustainable Rural Livelihoods: Practical Concepts for the 21st Century", Discussion Paper 296. Brighton, UK, Institute of Development Studies.

Chambers, R. (2008): Whose reality counts? Putting the first last, London, ITDG Publishing.

Chant, S. (2006): "Re-visiting the 'feminisation of poverty' and the UNDP gender indices: what case for a gendered poverty index?" New York, UNDP, March 2006.

Clay, J. W. (2010): Agriculture from 2000 to 2050—The Business as Usual Scenario, Washington, D.C., The Global Harvest Initiative.

DANIDA (2000): "Workshop Papers: Improving the Urban Environment and Reducing Poverty," December 5, 2000, Copenhagen.

Das, N. C. and Misha, F. A. (2010): "Addressing Extreme Poverty in a Sustainable Manner: Evidence from CFPR Programme," CFPR Paper 19, BRAC Research and Evaluation Division, Dhaka.

Annexure

Delors, J. *et al.* (1996): Learning: Treasures Within, Report of the International Commission on Education for the Twenty-first Century, Paris, UNESCO.

Dev, S.M. and Sharma, A.N. (2010): Food Security in India: Performance, Challenges, and Policies, Delhi, Oxfam India.

DFID (1997): "Eliminating World Poverty: A Challenge for the 21st Century", White Paper on International Development, Cm 3789, London, H.M. Stationery Office.

DFID (undated): "Global Food Security Strategic Plan 2011–16", London, DFID.

European Commission (2000): "Women active in rural development: Assuring the Future of Rural Europe," Directorate General of Agriculture, Luxembourg.

Ellis, F. and Biggs, S. (2001): "Evolving Themes in Rural Development 1950s-2000s," Development Policy Review, 19(4), pp.437–448.

ESCAP (2001): "Reducing Disparities: Balanced Development of Urban and Rural Areas and Regions within the Countries of Asia and the Pacific", UNESCAP, 2001, ST/ESCAP/2110.

ESCAP (2005): "Rural-urban linkages for poverty reduction: A review of selected approaches from Asia and the Pacific", Bangkok, ESCAP, United Nations.

ETF (European Training Foundation) (2011): "Vocational Education and Training, The New Skills Agenda: Developing Short-Cycle Tertiary Vocational Education and Training in Partnerships for the Future," in European Training Foundation Yearbook 2011, Social Partners in Vocational Education and Training, ETF Communication Department, Torino.

Fan, S. (1991): "Effects of Technological Change and Institutional Reform on Production Growth in Chinese Agriculture", American Journal of Agricultural Economics, Vol. 73(2), pp.266–275.

Fan, S. (1999): "Technological Change, Technical and Allocation Efficiency in Chinese Agriculture: the Case of Rice Production in Jiangsu", EPTD, Discussion Paper No.39, IFPRI.

Fan S. and P. G. Pardy (1997): "Research, productivity, and output growth in Chinese agriculture", Journal of Development Economics, Vol. 53(1), pp.115–137.

Fan, S., Zhang, L. and Zhang, X. (2004): "Reforms, Investment and Poverty in Rural China", Economic Development and Cultural Change, Vol. 52:395–420.

FAO (1996): "Rome Declaration on World Food Security and World Food Summit Plan of Action", World Food Summit 13–17 November 1996, Rome.

FAO (2003): Best Practices for Education and Training of Rural Youth—Lessons from Asia, Bangkok, FAO.

Fasih, T. (2008): "Linking Education Policy to Labor Market Outcomes", Washington, D.C., World Bank.

Fields, G.S. (2007): "Dual Economy", Working Papers, Available at: http://works.bepress.com/gary_fields/5

Fontana, M. and Paciello, C. (2009): "Gender dimensions of rural and agricultural employment: Differentiated pathways out of poverty", paper presented at the FAO-IFAD-ILO Workshop on Gaps, Trends and Current Research in Gallagher, M., Hasan, A. *et al.* (2009): OECD Reviews of Tertiary Education, China 2009, Paris, OECD.

Foster, A.D. and Rosenzweig, M. R. (2004): "Agricultural productivity growth, rural economic diversity and economic reforms," in Economic Development and Cultural Change, 52:3.

Gallagher, M., Hasan, A. *et al.* (2009): OECD Reviews of Tertiary Education, China 2009, Paris, OECD.

GAO (2008): "International Food Security: Insufficient Efforts by Host Governments and Donors Threaten Progress to Halve Hunger in Sub-Saharan Africa by 2015", GAO-08–680, Washington, D.C., US Congress, Government Accounting Office, May 29, 2008.

Gibson, K., Cahill, A. and McKay, D. (2010): "Rethinking the dynamics of rural transformation: pursuing different development pathways in a Philippine municipality", Transactions of the Institute of British Geographers, April 2010, pp.237–255.

Gomes, C.A. (2003): in Atchoarena, D. and Gasperini. L. (eds.): Education for rural development: towards new policy responses, Chapter 4, Part 4, pp.289–310.

Government of Bangladesh (2010): "Bangladesh Country Investment Plan: A Road Map Towards Investing in Agriculture, Food Security and Nutrition", Dhaka, June 2010.

Government of India (2002): "Report of the High Level Committee on Long -Term Grain Policy", Delhi.

Government of India (2007): "Performance Evaluation of Targeted Public Distribution System", Programme Evaluation Organisation, Delhi, Planning Commission.

Government of Ireland (2008): "Report of the Hunger Taskforce", Dublin.

Greenwood, A. M. (2008): "Updating the International Standard Classification of Occupations," ISCO-08, Geneva, ILO Bureau of Statistics.

Guyomard, H. and Forslund, A. (2011): "Hungry for Land? Potential Availability of Arable Land, Competition between Alternative Uses, and the Impact of Climate Change", Paris Tech Review, March 3rd, 2011, www.paristechreview.com

Hanstad, T; Nielsen, R. and Brown, J. (2004): "Land and livelihoods making land rights real for India's rural poor", LSP Paper 12, Rome, FAO.

Hartl, M. (2009): "Technical and vocational education and training (TVET) and skills development for poverty reduction—do rural women benefit?" Paper presented at the FAO-IFAD-ILO Workshop on Gaps, trends and current research in gender dimensions of agricultural and rural employment: differentiated pathways out of poverty, Rome, 31 March-2 April 2009, Rome, FAO.

Hayami, Y. and Godo, Y. (2002): Agriculture Economics (nogyo keizai ron), in Japanese, New Edition, Tokyo, Iwanami Shoten Publishers.

Hayami, Y. and Godo, Y. (2005): Development Economics, Third Edition, New York, Oxford University Press.

Hickey, S. (2007): "The politics of what works in tackling chronic poverty", CPRC Working Paper 91, Manchester, Chronic Poverty Research Centre.

Hossain. M. and Bayes, A. (2009): Rural Economy and Livelihoods: Insights from Bangladesh, Dhaka, A H Development Publishing House.

Huang J., Rozelle, S., Pray, C. and Wang, Q. (2002): "Plant Biotechnology in China", Science, Jan. 25, 2002, Vol. 295, pp.674–677.

IFAD (undated): "Rural Enterprises and Poverty Reduction: Discussion Paper", Governing Council, Twenty-Seventh Session, Asia and the Pacific Division, p.14.

IFAD (2007): "Enabling the Rural Poor to Overcome Poverty", proceedings of the Round Table on Migration and Rural Employment in Conjunction with the Thirtieth Session of IFAD's Governing Council, February 2007.

IFAD (2010): Rural Poverty Report 2011, Rome, IFAD.

ILO (2001): "Safety and Health in Agriculture Convention," Paper No. 184, Geneva.

ILO (2003): "Global Employment Agenda", Geneva, ILO.

ILO (2005): "Global employment trends for youth", Geneva, ILO.

ILO (2007): "Implementation of Decent Work Country Programmes: Checklist of policy areas on social protection", GB.297/ESP/7, Geneva.

ILO (2008): "International Labour Conference, 97th Session, 2008, Report IV, Promotion of rural employment for poverty reduction", Geneva, International Labour Office.

ILO (2009): "Employment in the informal sector", Key Indicators of the Labour Market (KILM) 6th edn., Geneva, ILO.

ILO (2010): "A G20 Training Strategy", Geneva, International Labour Office.

ILO (2011): "Green Jobs Programme for Asia and the Pacific", Background Brief no.1, August 2011.

ILO (2011a): "Skills for Green Jobs: A Global View", Synthesis Report Based on 21 Country Studies, Geneva.

INRULED (2001): "Educational Chances of Rural Communities in South-East Asia", International research and Training Centre for Rural Education (INRULED). Baoding, China.

International Energy Agency (2008): World Energy Outlook 2008–2030, Paris.

IOM (2004): "Migration from Latin America to Europe", IOM Migration Research Series N. 16.

IOM (2005): "Internal Migration and Development: a global perspective", IOM Migration Research Series, N. 19.

IOM (2005a): "Competing for Remittances", in draft, IOM Tirana, June 2005.

IPCC (2007): "Climate Change 2007, Fourth assessment report", Geneva.

International Conference on the Dynamics of Rural Transformation (2010): "New Delhi Declaration on the Rural Transformation of Emerging Economies", International Conference on the Dynamics of Rural Transformation in Emerging Economies, New Delhi, India, April 16, 2010. www.ruraltransformation.in

Jacobs, G. and Slaus, I. (2011): "Global Prospects for Full Employment," World Academy of Arts and Science, Cadmus, 1:2, pp.60–89. www.mssresearch.org

Jin S., Huang, J. Hu, R. and Rozzelle, S. (2002): "The Creation and Spread of Technology and Total Factor Productivity in China's Agriculture", American Journal of Agricultural Economics, Vol. 84(4) pp.916–930.

Annexure

Jolliffe, D. (1998): "Skills, Schooling, and Household Income in Ghana," World Bank Economic Review, 12, pp.81–104.

Jones, N., Mukherjee, M., Galab, S. (2007): "Ripple Effects or Deliberate Intentions? Assessing Linkages between Women's Empowerment and Childhood Poverty", UNICEF/Young Lives Social Policy Paper 002, New York.

Jütting, J., and Morrisson, C. (2009): "Women, bad jobs, rural areas: What can 'SIGI' tell us?" paper presented at the FAO-IFAD-ILO Workshop on Gaps, Trends and Current Research in Gender Dimensions of Agricultural and Rural Employment: Differentiated Pathways out of Poverty, 31 March-2 April, 2009, Rome.

Khan. Q. and Chatterjee, B. (1997): "Impact of Non-Formal Education: A Synthesis of four Country case Studies", New Delhi, Indian Council of Social Science Research.

Khan Q. (2009): "Impact of Global Financial and Economic Crisis on Education and Training," International Research and Training Centre for Rural Education (INRULED), Beijing, China.

Khera, R. (2009): "Right to Food Act: Beyond Cheap Promises", Economic and Political Weekly, July 18, Vo.42, No.29.

King, K. (2007): "A View from the Development Agencies, Post-Primary Education and Skills Development, Debates in Skill Development," Working Group for International Cooperation in Skills Development, Geneva, ILO.

King, K. and Palmer, R. (2010): "Picking the Low Hanging Fruits, and Preparing to Reach those a Little Higher Up: Looking Ahead to 2012—What EFA GMR Indicators of Skill?", in NORRAG Newsletter, NN43, February 2010.

Koppel B. and Hawkins J. (1994): Development or Deterioration? Work in Rural Asia. Boulder, Colorado, Lynne Rienner Publishing.

Korten, D. (2006): The Great Turning: From Empire to Earth Community, Bloomfield, CT, Kumarian Press.

Kulabako, F. (2011): "Uganda: Agriculture and Manufacturing Hold High Job Creating Potential", The Monitor, 25 October 2011.

Kusek, J.Z. and Rist, R.C. (2004): Ten Steps to a Result-based Monitoring and Evaluation System. Washington, D.C., World Bank.

Lin J. Y. (1987): "The Household Responsibility System Reform in China: A Peasant's Institutional Choice", American Journal of Agricultural Economics, Vol. 69(2), pp.410–415.

Lin J. Y. (1992): "Rural Reforms and Agricultural Growth in China", The American Economic Review, Vol. 82(1), pp.34–51.

Lin, J.Y. (2009): "Economic Development and Structural Change", Lecture at Cairo University, Cairo, Egypt, November 5, 2009.

Liu, Z., Zhuang, J., (2000): "Determinants of Technical Efficiency in Post-Collective Chinese Agriculture: Evidence from Farm-level Data", J. Comparative Economics, 28, pp.545–564.

Lakin, M. and Gasperini, L. (2003): "Basic education in rural areas: status, issues, and prospects" in Atchoarena, D. and Gasperini, L. (eds.): Education for rural development: towards new policy responses, Rome and Paris, FAO and UNESCO, Ch. 2, pp.77–174.

Long, H., Zou, J., Pykett, J. and Li, Y. (2011): "Analysis of rural transformation development in China since the turn of the new Millennium", Applied Geography, 31, pp.1094–1105.

Long, H. L., Liu, Y. S., Li, X. B., and Chen, Y. F. (2010): "Building new countryside in China: a geographical perspective", Land Use Policy, 27. (2), pp.457–470.

Lucas, R.E.B. (2005): "Migration and Economic Development in Africa: A Review of Evidence", Paper prepared for the African Economic Research Consortium Biannual Research Workshop, Nairobi.

Maddison, D. (2006): "The Perception of and Adaptation to Climate Change in Africa", Discussion Paper Series 10, Pretoria, Centre for Environmental Economics and Policy in Africa (CEEPA).

Maes, J.P. and Reed, L.R. (2012): "State of the Microcredit Summit Campaign Report 2012", Microcredit Summit Campaign (MCS), Washington, DC.

Mancebo, T., Frances M. L., Tuquero, S., Hazelman, M. eds. (2004): Best Practices for Education and Training of Rural Youth—Lessons from Asia, Bangkok, FAO.

Mao, W. and Koo, W. W. (1997): "Productivity Growth, Technological Progress, and Efficiency Change in Chinese Agriculture after Rural Economic Reforms, A DEA Approach", China Economics Review, Vol. 8(2), pp.157–174.

MARG (2011): "Marg to kick start PURA pilot project at Karaikal district", India Infoline News Service / 15:21, Aug 08, 2011. http://www.indiainfoline.com/Markets/News/MARG-to-kick-start-PURA-pilot-project-at-Karaikal-district/5216904924

Mathur, P. (2006): "Media, Technology and Rural Development", Indian Media Studies Journal, 1(1), pp.53–63.

Mayoux, L. (2005): "Learning and Decent Work for All: new directions in training and education for pro-poor growth In Focus", Programme on Skills, Knowl-

edge and Employability, ILO, Geneva.

McCulloch, N., Timmer, P., Weisbrod, J (2007): "Pathways out of Poverty during an Economic Crisis: An Empirical Assessment of Rural Indonesia", Working Paper 115, Centre for Global Development, Washington D.C.

McGrath, S. (2007): "Looking beyond Primary Education", in Working Group for International Cooperation in Skills Development, "Post-Primary Education and Skills Development, Debates in Skill Development," Paper 12, 2007, Geneva, ILO.

McMillan, M. and Rodrik, D (2011): "Globalisation, Structural Change and Productivity Growth," ILO-WTO publication, Geneva.

Mellor, W.J. and Lele, U.(1973): "Growth Linkages of the new food grain technology" in Indian Journal of Agricultural Economics, 28:1, pp.33–55.

Mexico, Government of (2004): "Mexico's Oportunidades Program Case Study Summary," Shanghai Poverty Conference, 26–27 May, 2004, Shanghai, China.

Middleton, J., Ziderman, A. and van Adams, A. (1993): "Skills for productivity: vocational education and training in developing countries", Washington D.C., World Bank.

Mihalynuk, T. and Seifer, S. D (2007): "Community Campus Partnerships for Health, Higher Education Service-Learning in Rural Communities", Learn and Serve, America's National Service Learning Clearinghouse, USA.

Mudahar, M. S. and Ahmed, R. (2010): Government and Rural Transformation: Role of Public Spending and Policies in Bangladesh, Dhaka, The University Press Limited.

Murray, J. and Ferguson, M.: (2001): Women in Transition Out of Poverty, Toronto, Women and Economic Development Consortium, January. http://www.cdnwomen.org/eng/3/3h.asp

Nakhooda, S. et. al. (2011): "Climate Finance Fundamentals, Brief 3," Overseas Development Institute and Heinrich Boll Stiftung. www.climatefundsupdate.org

National Advisory Council, India (2011): "Draft National Food Security Bill—Explanatory Note", New Delhi, 21 February 2011.

Nepal Central Bureau of Statistics (2002): Statistical Pocket Book 2002, Kathmandu.

New Economics Foundation (NEF) (2006): "Migration and the Remittance Euphoria: Development or Dependency?", London.

Norton A. and Foster M. (2000): "The Potential of Using Sustainable Livelihoods Approaches in Poverty Reduction Strategy Papers—A Discussion Paper for DFID," Centre for Aid and Public Expenditure, London, Overseas Development Institute.

OECD (2011): "Towards an OECD Skills Strategy", http://www.oecd.org/dataoecd/58/27/47769000.pdf

OECD-FAO (2009): "Agriculture Outlook 2009–2018", Highlights, Paris.

Osmani, S.R. (2011): "Asset Accumulation and Poverty Dynamics in Rural Bangladesh: The Role of Microcredit," Seminar at the Institute of Microfinance, Palli Karma-Sahayak Foundation (PKSF), Dhaka, 24 August, 2011. http://www.thedailystar.net/newDesign/news-details.php?nid=200119, August 25, 2011.

Oxfam (1999): "Education for All: A Compact for Africa," Oxfam GB/Action Aid, November 1999.

Palmer, R. (2005): "Skills Development and Poverty Reduction", PowerPoint Presentation at FAO, Rome, 11 September 2005, Edinburgh Centre of African Studies, University of Edinburgh.

Palmer, R. (2007): "Skills for work? From skills development to decent livelihoods in Ghana's rural informal economy", International Journal of Education Development, 27, pp.397–420.

Paudyal, D. P. (2007): "An Overview of Rural Development in Asia", Asia-Pacific Journal of Rural Development, 17(1), pp.1–16.

Pichayasathit, S. (1997): "Education as a Tool for the Empowerment of the Poor", A Review of Formal and Non-Formal Education and its Impact in Thailand, 1997, mimeo, Department of Non-Formal Education, Ministry of Education, Bangkok, Thailand, in Basic Education for Empowerment of the Poor, Bangkok, UNESCO-PROAP.

Pieck, E. (2000): "Educacion de jovenes y adultos vinculada con et trabajao", in OREALC/CEAAL/CREFAL/INEA (eds.), La educacion de personas jovenes y adultas en America Latina y el Caribe, Prioridades de accion en el siglo XXI, Santiago, OREALC.

Population Reference Bureau, (2011): "World Population Data Sheet: the World at 7 Billion", Washington, D.C.

Prakash, D. (2003): "Rural Women, Food Security and Agricultural Cooperatives", ICA-Japan Agricoops Management Training Project for Asia, Tokyo.

Pritchett, L. (1996): "Where Has all the Education Gone?", Policy Research Working Paper no. 1581, Washington, D.C. World Bank.

Annexure

Qiao, F., Lohmar, B., Huang, J., Rozelle, S. and Zhang, L. (2003): "Producer Benefits from Input market and Trade Liberalisation: The Case of Fertiliser in China", American Journal of Agricultural Economics, Vol. 85, pp.1223–1227.

Quan, J. (2006): "Land access in the 21st century Issues, trends, linkages and policy options", Working Paper 24, Food and Agriculture Organisation of the United Nations, Rome, FAO.

Quisumbing, A.R., and L. Pandolfelli (2010): "Promising approaches to address the needs of poor female farmers: Resources, constraints, and interventions", World Development, 38(4), pp.581–592.

Rabbani, M. *et al.* (2006): "Impact assessment of CFPR/TUP: A descriptive analysis based on 2002–05 panel data", CFPR/TUP Working Paper Series No. 12, Dhaka, BRAC Research and Evaluation Division.

Rao, C.H.H. (2005): Agriculture, Food Security, Poverty and Environment, New Delhi, Oxford University Press.

Ravallion, M. (2004): "Pro-Poor Growth: A Primer", World Bank Policy Research Working Paper No. 3242, Washington, D.C.

Ravallion, M, Shaohua, C. and Sangraula, P. (2007): "New Evidence on the Urbanisation of Global Poverty", Population and Development Review, 33(4), pp.667–701.

Reed, D. (2002): "Poverty and the environment: Can sustainable development survive globalisation?" , Natural Resources Forum, vol. 26: no. 3, 2002.

Reeler, D. (2007): "A Three-fold Theory of Social Change and Implications for Practice, Planning, Monitoring and Evaluation", Cape Town, Community Development Resource Association.

Rogaly, B., Daniel C., Abdur. R., Sengupta, A. and Biswas, J. (2002): "Seasonal Migration and Welfare in Eastern India", Brighton, UK, University of Sussex.

Rola, A.C., Jamias, S.B. and Quizon J.B. (2002): "Do farmer field school graduates retain and share what they learn? An investigation in Iloilo, Philippines", Journal of International Agricultural and Extension Education 9(1), pp.65–76.

Rozelle S., G. Veeck and J. Huang (1997): "The Impact of Environmental Degradation on Grain Production in China, 1975–1990", Economic Geography, Vol. 73, No. 1. (Jan., 1997), pp.44–66.

Samiullah, Y. and Rao, S. (2002): "Role of ICTs in Urban and Rural Poverty Reduction", A Paper in the CII-MoEF-TERI-UNEP Regional Workshop for Asia and Pacific on ICT and Environment, 2–3 May, 2002, New Delhi.

Sen, A. (1981): Poverty and Famines, Oxford, Clarendon Press.

Sen, A. (2006): Poverty and Inequality, Stanford University Press.

Serrat, O. (2008): "The Sustainable Livelihoods Approach, Knowledge Solutions", Manila, Asian Development Bank.

Sjoblom, D. and Farrington, J. (2007): "The Indian National Rural Employment Guarantee Act in relation to Agricultural Growth and Social Protection", in ODI Social Protection Project Briefing Note 1, London, Overseas Development Institute.

Smith, L.C., Alderman, H. and Aduayom, D. (2006): "Food Insecurity in Sub-Saharan Africa New Estimates from Household Expenditure Surveys", Washington, DC, International Food Policy Research Institute.

Stern, N. (2006): The economics of climate change, The Stern Review, Cambridge and New York, Cambridge University Press.

Strietska-Ilina, O. (2008): "Skill shortages", in Cedefop, Modernising vocational education and training. Fourth report on vocational training research in Europe, Background report, Vol. 1, Luxembourg, Office for Publications of the European Communities.
Tiwari, S. (2010): " Rural Business Hubs—Promoting Rural prosperity", India Current Affairs, August 20, 2010. http://indiacurrentaffairs.org/rural-business-hubs-%E2%80%93-promoting-rural-prosperity-sudhir-tiwari/

Todaro, M.P. and Smith, P.S (2007): "Agricultural Transformation and Rural Development, Chapter 9 PowerPoint Presentation", Economic Development, 8th Edition, Pearson Edison Wesley, http://www.csub.edu/~agrammy/Courses/econ410/Chapt09.ppt—42k.

Torres, R.M (undated): "Lifelong Learning: A New Momentum and a New Opportunity for Adult Basic Learning and Education (ABLE) in the South." Berlin: IIZ/DVV.

Turton, C. (2000): "Sustainable Livelihoods and Project Design in India," London, Overseas Development Institute.

UN (1987): Our Common Future, the Brundtland Report, United Nations World Commission on Environment and Development.

UN (1999): "Report of the Inter-sessional Ad Hoc Working Group on Consumption and Production Patterns and on Tourism", Commission on Sustainable Development, Economic and Social Council, Seventh session, 19–30 April 1999.

UN (2008): "UN Hunger Taskforce, 2008", http://alliancetoendhunger.org.

UN (2009): UN News Centre, "Economic Crisis Rolling Back Asia's Development Gains", UN Press Release, 15 July 2009.

UN-DESA: "World population prospects: The 2006 revision", Population database on http://esa.un.org/unpp/p2k0data.asp

UN Population Division (2007): "World Population Prospects, 2007 Revision," http://esa.un.org/unup. October 1, 2011.

UNDP (2004): "Unleashing Entrepreneurship: Making Business Work for the Poor", Report to the Secretary-General of the United Nations.

UNDP (2010): China Human Development Report 2009–10, China and a sustainable future: Towards a low carbon economy and society, New York.

UNDP (2011): Human Development Report 2011, New York.

UNESCO (2000): "Education for All: Meeting Our Collective Commitment, The Dakar Framework for Action", World Education Forum, 26–28 April 2000, UNESCO Paris.

UNESCO (undated): "Education for sustainable development, available at: http://www.unesco.org/new/en/education/themes/leading-the-international-agenda/education-for-sustainable-development/ (accessed 1 Apr. 2011).

UNESCO (2010): "Harnessing the power and potential of adult learning and education for a viable future", CONFINTEA VI Belem Framework for Action, Paris, UNESCO.

UNESCO-GMR (2004): EFA Global Monitoring Report 2005—The Quality Imperative. Paris, UENESCO.

UNESCO-GMR (2005): EFA Global Monitoring Report 2006: Literacy for Life, Paris, UNESCO.

UNESCO-GMR (2007): EFA Global Monitoring Report 2008—Overcoming Inequality; Why Governance matters? Paris, UNESCO.

UNESCO-GMR (2010): EFA Global Monitoring Report 2011- The Hidden Crisis: Armed Conflict and Education, Paris, UNESCO.

UNESCO-INRULED (2003): Education for Rural Transformation: Towards a Policy Framework, Baoding, China.

UNESCO-PROAP (1998): "Basic Education for Empowerment of the Poor", Bangkok, UNESCO.

UN-Energy (2007):"Sustainable bio-energy: A framework for decision makers", Rome, Food and Agriculture Organisation.

UNEP, ILO, IOE, ITUC (2008): "Green jobs: Towards Decent Work in a Sustainable, Low-Carbon World", Geneva, 2008, available at: http://www.ilo.org/wcmsp5/groups/public/---dgreports/ dcomm/documents/publication/wcms_098504.pdf. The background country reports are available at http://www.ilo.org/skills/what/projects/lang--en/WCMS_144268/index.htm

UNICEF (2005): "Progress for Children", A Report Card on Gender Parity and Primary Education, Number 2, April 2005.

United Nations (2000): "United Nations Millennium Declaration," General Assembly Fifty-fifth Session, New York.

United Nations (2010): "Population Density and Urbanisation", Statistics Division, New York.

United Nations (2011): Millennium Development Goals Report 2011, New York, U.N.

USAID (2009): "Bangladesh Food Security Country Framework 2010–14", Dhaka.

Watanabe T. (1996): Development Economics: Economics and Contemporary Asia, Second Edition (Japanese), Tokyo, Nihon Hyoron Shya.

WCEFA (1990): "Framework for Action", World Conference on Education for All, 1990, New York, Inter-Agency Commission.

WFP (2009): "Annual Report 2008", Rome, World Food Programme.

WFP (undated): "Winning the War against Hunger", Brochure, Rome, World Food Programme.

WGICSD (Working Group for International Cooperation in Skills Development) (2007): "Post-Primary Education and Skills Development, Debates in Skill Development", Paper 12, 2007, Geneva, ILO.

WHO (2011): "Global Strategy on Diet, Physical Activity and Health", Geneva.

Wiens, T. B., (1983): "Price Adjustment, the Responsibility System, and Agricultural Productivity", American Economic Review, Vol. 73, pp.319–325.

Annexure

Wijayaratna, C. M. (2004): "Role of Local Communities in Integrated Rural development", Tokyo, Asian Productivity Organisation.

World Bank (1991): Vocational and technical education and training, A World Bank Policy Paper, Washington D.C. 1991.

World Bank (2000): "Higher Education and Society 2000, Higher education in developing countries, peril and promise," World Task Force, Washington, DC.

World Bank (2004): Skills Development in Sub-Saharan Africa, Washington D.C.

World Bank (2006): The Rural Investment Climate: It Differs and It Matters, World Bank, Washington, DC.

World Bank (2006a): World Development Report 2007: The next generation, Washington D.C.

World Bank (2006b): "Clean Energy and Development: Towards an Investment Framework", Washington, DC.

World Bank (2007): World Development Report 2008: Agriculture for development, Washington, D.C.

World Bank (2008): World Development Indicators 2008, Washington D.C.

World Bank (2009): "Awakening Africa's Sleeping Giant: Prospects for Commercial Agriculture in the Guinea", Washington, DC.

World Bank (2009a): "Savannah Zone and Beyond", Agricultural and Rural Development Notes, Issue 48, June 2009, Washington, DC.

World Bank (2010): "Stepping up skills for more jobs and higher productivity", Washington, DC.

World Bank (2011): "Evidence and Lessons Learned from Impact Evaluations on Social Safety Nets", Independent Evaluation Group (2011), Washington, D.C.

Xu, X., Jeffrey, S.R., (1998). Efficiency and Technical Progress in Traditional and Modern Agriculture: Evidence from Rice Production in China, Agric. Econ. 18, pp.157–165.

Ye, Q. and Rozelle, S. (1994) "Fertiliser Demand in China's Reforming Economy", Canadian Journal of Agricultural Economics, Vol.42(2), pp.191–207.

Yu X. and Zhao, G. (2009): "Chinese Agricultural Development in 30 Years: A Literature Review", Frontiers of Economics in China, Vol.4 (4), pp.633–648.

Yunus, M. (2003): Banker to the Poor: Micro-Lending and the Battle against World Poverty, New York, Public Affairs.

Yunus, M. (2010): Building Social Business: The New Kind of Capitalism that Serves Humanity's Most Pressing Needs, New York, Public Affairs.

Zhang, L., Rozelle, S., Huang, J.(2001): "Off-Farm Jobs and On-Farm Work in Periods of Boom and Bust in Rural China," Journal of Comparative Economics, 29, pp.505–526.

Zheng, C. (2009): "Grameen Shakti: Using Solar Power to Transform Bangladeshi Villages", at Getsolar.com, posted 18 August, 2009.

Acronyms

ADB	Asian Development Bank
ADEA	Association for the Development of Education in Africa
AFEJ	Asia-Pacific Forum of Environmental Journalists
AMIC	Asian Media Information and Communication Centre
CBO	Community-based Organisation
CEDEFOP	European Centre for the Development of Vocational Training
CGD	Centre for Global Development
CHF	Canadian Hunger Foundation
CIDA	Canadian International Development Agency
CIS	Commonwealth of Independent States
CLC	Community Learning Centre
CSO	Civil Society Organisation
DHS	Demographic and Health Survey
EFA	Education for All
ETF	European Training Foundation
ERDF	European Regional Development Fund
ESCAP	Economic and Social Commission for Asia and the Pacific
FAO	Food and Agriculture Organisation
GCF	Green Climate Fund
GDP	Gross Domestic Product
GMR	Global Monitoring Report
GO	Government Organisations
HDI	Human Development Index
HIV/AIDS	Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome
IAD	Integrated Agriculture Development
ICT	Information and Communication Technology
IEA	International Energy Agency
IFFAD	International Fund for Agricultural Development
IIEP	International Institute for Educational Planning
ILO	International Labour Organisation
INRULED	International Research and Training Centre for Rural Education
IPCC	Intergovernmental Panel on Climate Change
ISCED	International Standard Classification of Education
LDCs	Least Developed Countries
MDG	Millennium Development Goals
MPI	Multidimensional Poverty Index
NGO	Non-governmental Organisation
NRI	Natural Resources Institute
OECD	Organisation for Economic Cooperation and Development
PPP	Purchasing Power Parity
PROAP	Principal Regional Office for Asia and the Pacific
PRSP	Poverty Reduction Strategy Papers
RCRE	Research Centre for the Rural Economy
SENAR	Brazil's National Rural Learning Service
TVET	Technical and Vocational Education and Training
UIS	UNESCO Institute for Statistics
UN	United Nations
UNDP	United Nations Development Programme
UNECA	United Nations Economic Commission for Africa
UNEP	United Nations Environmental Programme
UNESCO	United Nations Education, Scientific and Cultural Organisation
UNFCC	United Nations Framework Convention on Climate Change
UNICEF	United Nations International Children's Emergency Fund
USDA	United States Department of Agriculture
VET	Vocational Education and Training
WB	World Bank
WCEFA	World Conference on Education for All
WFP	World Food Programme

Glossary

Absolute Poverty: refers to being unable to afford basic human needs, which commonly include clean and fresh water, nutrition, health care, education, clothing and shelter. A level of income below that required to obtain a basket of minimum food (2124 kilo calories per person per day) or other non-food essentials such as clothing and shelter. Ten million people currently live in absolute poverty.

Adult Education: educational activities, offered through formal, non-formal or informal frameworks, targeted at adults (generally 15 years and above) aimed at advancing, or substituting for, initial education and training.

Basic Education: whole range of educational activities taking place in various settings (formal, non-formal and informal) that aim to meet basic learning needs; in the Dakar Framework for Action the term is synonymous with the broad Education for All agenda. Similarly, the OECD/DAC and standard aid classifications use a definition that includes early childhood education, primary education and basic life skills for youth and adults, including literacy. According to the International Standard Classification of Education (ISCED), basic education comprises primary education (first stage of basic education) and lower secondary education (second stage).

Basic Learning Needs: essential tools for learning (e.g., literacy, oral expression, numeracy, problem-solving) as well as basic learning content (e.g., knowledge, skills, values, attitudes) that individuals should acquire in order to survive, develop personal capacities, live and work in dignity, participate in development, improve quality of life, make informed decisions and continue the learning.

Basic Needs: basic goods and services, such as food, shelter, clothing, sanitation and education, necessary for a minimum standard of living.

Basic Skills: refers to some minimum competence in reading, writing and calculating (using numbers). The term is synonymous in many uses with basic learning needs.

Best Practices: planning and/or operational practices that have proven successful in particular circumstances. Best practices are used to demonstrate what works and what does not and to accumulate and apply knowledge about how and why they work in different situations and contexts.

Biodiversity: the variety of all forms of life, from genes to species, through to the broad scale of ecosystems.

Capacity Building: development of an organisation's core skills, such as leadership, management and fundraising.

Carbon Trading: a scheme where firms (or countries) buy and sell carbon permits as part of a programme to reduce carbon emissions.

Civil Society Organisations: multitude of associations around which society voluntarily organises itself and which represent a wide range of interests and ties. These can include community-based organisations, indigenous peoples' organisations and NGOs.

Civil Society: institutions, organisations and voluntary participants outside of the state, the business world and the family. Specifically, civil society includes voluntary and non-profit organisations of many different kinds, philanthropic institutions, social and political movements and other forms of social involvement.

Community Based Organisations: small, local, non-profit organisations that address community needs. Typically they have first-hand knowledge of the problems they are addressing and a personal stake in the success of their solutions.

Community Participation: refers to a wide range of degrees of local involvement in external development interventions, from token and passive involvement to more empowerment-oriented forms of local decision-making.

Conservation: management of the natural world and its resources. Conservationist aims for sustainable benefit without inflicting damage to the environment.

Continuing (or Further) Education: a general term referring to a wide range of educational activities designed to meet the basic learning needs of adults.

Cooperative: an autonomous association of persons who voluntarily cooperate for their mutual, social, economic and cultural benefit.

Decent Work: decent work emphasises four elements: employment, social security, workers' rights and social dialogue. Employment refers to work of all kinds and has both quantitative and qualitative dimensions. Thus the notion of decent work is applicable not just to workers in the formal economy but also to "unregulated wage workers, the self-employed and home workers." Further, it refers to both adequate opportunities and remuneration for work (in cash or kind). Decent work also embraces safety at work and healthy working conditions. The social security component of decent work is intended to protect against the risk of losing income.

Deforestation: process of clearing of forests. This is seen generally as a negative thing due to the fact that forests and trees protect soil, regulate the climate and contain the greatest biodiversity.

Desertification: process of land becoming desert due to climatic change or human action, especially in arid or semi-arid regions bordering existing deserts.

Digital Divide: refers to the gap between individuals, households, businesses and geographic areas at different socio-economic levels with regard both to their opportunities to access information and communications technologies (ICT's) and to their use of the Internet for a wide variety of activities.

Early Childhood Care and Education (ECCE): programmes that, in addition to providing children with care, offer a structured and purposeful set of learning activities either in a formal institution (pre-primary or ISCED 0) or as part of a non-formal child development programme. ECCE programmes are usually designed for children from age 3 and include organised learning activities that constitute, on average, the equivalent of at least 2 hours per day and 100 days per year.

Ecosystem: a community of organisms interacting with each other and with their environment such that energy is exchanged and system-level processes, like the cycling of elements, emerge.

Employment: can be defined from either the supply or the demand side of the labour market. From the supply side, it refers to the total number of employed persons during a given reference period. From the demand side, employment refers to the total number of filled jobs which, owing to the existence of multiple job holding, tends to be higher than the total number of employed persons. Employment includes paid employment as well as self-employment, including unpaid work in an enterprise owned and operated by another member of the household or family, and the production of goods for own final use by households. The production of services (e.g., housework, caring for family members) for own final consumption by households is excluded.

Empowerment: ability of individuals or community to do things for themselves gained by increased ability and strength, skills, confidence, more effective organisation and the opportunity to participate in decision-making.

Enterprise: a unit engaged in the production of goods or services for sale or barter. In terms of legal organisation, enterprises may be corporations (including quasi-corporate enterprises), non-profit institutions, unincorporated enterprises owned by government units, or private unincorporated enterprises. The term "enterprise" is used in a broad sense. It covers not only production units which employ hired labour, but also those that are owned and operated by individuals working on their own account as self-employed persons, either alone or with the help of unpaid family members. The activities may be undertaken inside or outside the enterprise owner's home, and they may be carried out in identifiable premises or without fixed location. Accordingly, self-employed street vendors, taxi drivers, home-based workers, etc. are all considered enterprises.

Environment: complex set of physical, geographic, biological, social, cultural and political conditions that surround an individual or organism and that ultimately determines its form and nature of its survival.

Evaluation: a systematic (and as objective as possible) examination of a planned, ongoing or completed project. It aims to answer specific management questions and to judge the overall value of an endeavour and supply lessons learned to improve future actions, planning and decision-making. Evaluations commonly seek to determine the efficiency, effectiveness, impact, sustainability and the relevance of the project or organisation's objectives. An evaluation should provide information that is credible and useful, offering concrete lessons learned to help partners and funding agencies make decisions.

Functional Literacy: a person is functionally literate who can engage in all those activities in which literacy is required for effective functioning of his or her group and community and also for enabling him/her to continue to use reading, writing and calculation for his/her own and the community's development.

Gender Equality: gender equality occurs when women and men have equal access to socially valued goods and resources.

Gender Equity: fair treatment for women and men according to their respective needs. A gender equity goal often requires built-in measures to compensate for the historical and social disadvantages of women.

Global Warming: increased temperature of Earth's surface, including land, water and near-surface air.

Globalisation: is the system of interaction among the countries of the world in order to develop the global economy. Globalisation refers to the integration of economics and societies all over the world. Globalisation involves technological, economic, political and cultural exchanges made possible largely by advances in communication, transportation and infrastructure.

Grass-roots Organisations: organisations based in communities that (may) represent the primary stakeholders vis-à-vis the project and can be implementing partners.

Green Future: the vision of the planet and communities which are cleaner, safer and greener than today.

Green Jobs: jobs that reduce the environmental impact of enterprises and economic sectors to levels that are sustainable.

Greenhouse Gas Emissions: greenhouse gases that allow sunlight to enter the atmosphere freely and contribute to the greenhouse effect, which many believe is the cause of global warming.

Gross National Product (GNP): gross domestic product plus net receipts of income from abroad. As these receipts may be positive or negative, GNP may be greater or smaller than GDP.

Human Development Index: a yearly assessment produced by the United Nations Development Programme (UNDP) on the progress made by nations in improving living standards. The Human Development Index assesses a country's average achievements in three basic aspects of human development: longevity (life expectancy), knowledge—measured by a combination of adult literacy rate and combined primary, secondary and tertiary enrolment rates—and a decent standard of living using GDP per person. The HDI was created to place people and their capabilities as the ultimate criteria for assessing the development of a country, rather than economic growth.

Human Poverty Index 1 (HPI1): Human Poverty Index for developing countries which measures deprivations in the same three aspects used by the Human

Development Index (HDI): longevity, knowledge and a decent standard of living.

Illiterate: someone who cannot, with understanding, both read and write a short, simple statement on his or her everyday life. A person who can only read but not write, or can write but not read is considered to be illiterate. A person who can only write figures, his or her name or a memorised ritual phrase is also not considered literate.

Impact: changes in the lives of rural people, as perceived by them and their partners at the time of evaluation, plus sustainability-enhancing change in their environment to which the project has contributed. Changes can be positive or negative, intended or unintended. In the log-frame terminology these "per-

ceived changes in the lives of the people" may correspond either to the purpose level or to the goal level of a project intervention.
Implementation: individual steps taken when attempting to reach a specific goal. The implementation phase occurs after goals have been set and a strategy has been agreed upon.

Indicator: quantitative or qualitative factor or variable that provides a simple and reliable basis for assessing achievement, change or performance. A unit of information measured over time that can help show changes in a specific condition. A given goal or objective can have multiple indicators.

Indirect Effects: unplanned changes brought about as a result of the intervention.

Informal Economy: exchange of goods and services not accurately recorded in government figures and accounting. The informal economy, which is generally untaxed, commonly includes goods and services including day care, tutoring, or black market exchanges.

Informal Education: learning that takes place in daily life without clearly stated objectives. The term refers to a lifelong process whereby every individual acquires attitudes, values, skills and knowledge from daily experiences and the educative influences and resources in his/her environment—for example, family and neighbours, work and play, the market place, the library, the mass media.

Informal Employment: total number of informal jobs, whether carried out in formal or informal enterprises, or the total number of persons engaged in informal jobs during a given reference period. It comprises the activities of own-account workers and employers in informal enterprises; the activities of all contributing family workers (whether working in formal or informal enterprises); the employment of all employees in informal jobs in formal enterprises, informal enterprises or households; members of informal producers' cooperatives; and the activities of persons engaged in the own-account production of goods for own final use by their households.

Informal Job: own-account workers, employers and members of producers' cooperatives are considered to have an informal job if their enterprise is an informal enterprise. All contributing (unpaid) family workers are considered to have informal jobs, irrespective of the characteristics of the enterprise for which they work. Activities of persons engaged in the production of goods for own final use by their household (e.g., subsistence farmers) is also considered informal jobs. Employees (including paid domestic workers employed by households) are considered to have informal jobs if their employment relationship is not subject to standard labour legislation, taxation, social protection or entitlement to certain employment benefits (e.g., advance notice of dismissal, severance pay, paid annual or sick leave) for reasons including the following: the job or employee is undeclared (the latter refers, for example, to the employment of illegal immigrants); the job is casual or of a short duration; hours of work or wages are below a certain threshold; the employer is an unregistered enterprise or a person in a household; or the employee's place of work is outside the premises of the employer's or customer's enterprise.

Input: financial, human and material resources necessary to produce the intended outputs of a project.

Job: a set of tasks and duties meant to be executed by one person. A person can have more than one job at a time (e.g., a teacher driving a taxi during evening hours and weekends).

Labour Force: is the sum of the number of persons employed and the number of persons unemployed.

Land Tenure: the relationship, whether legally or customarily defined, among people, as individuals or groups, with respect to land.

Landless Labourers: those in the developing world, mainly small-scale or subsistence farmers, who are effectively without land.

LDCs (Least Developed Countries): some of the world poorest countries designated by the UN as "least developed" on the basis of health care, literacy and per capita income. Most of them are in Africa, few in Asia and Pacific and one (Haiti) in the Caribbean. They are generally characterised by subsistence agriculture and varying degrees of lack of competitive industries and exploitable natural resources. Many of them suffer from droughts, floods, hurricanes and pests, have little prospect of any significant improvement in economic prospects in the foreseeable future and are likely to remain heavily dependent on external aid for many years.

Learning: reflecting on experience to identify how a situation or future actions could be improved and then using this knowledge to make actual improvements. This can be individual or group-based. Learning involves applying lessons learned to future actions, which provides the basis for another cycle of learning.

Lifelong Learning: the concept of learning as a process that continues throughout life to address an individual's learning needs. The term is used widely in adult education to refer to learning processes in many forms and at many levels. See also adult education and continuing education.

Literacy: the ability to identify, understand, interpret, create, communicate and compute, using printed and written materials associated with varying contexts. Literacy involves a continuum of learning in enabling individuals to achieve his or her goals, develop his or her knowledge and potential and participate fully in community and wider society.

Malnutrition: not having enough nourishing food with the adequate amounts of protein, vitamins, minerals, calories, etc. to support human growth and development.

Microcredit: small loans, usually under US$ 5,000, to individuals, most often the rural poor, to allow them to escape the poverty trap. The aim is to help them start small businesses or sustain self-employment.

Migration: is the movement of people across a specified boundary for the purpose of establishing a new or semi-permanent residence. External migration is where residence changes between a residential unit in the Demographic Surveillance System (DSA) and one outside it, and internal migration is where residence changes from one residential unit to another in the same DSA. Movement from one household to another household within the same compound, home or homestead is internal movement. It is not classified as internal migration and it is treated separately from internal migration.

Millennium Development Goals (MDGs): a set of eight goals, together with specific, quantifiable and time bound targets, that were agreed and adopted

by 189 countries at the UN Millennium Summit in September 2000. The MDGs involve a shared commitment to reduce poverty, hunger, disease, illiteracy, environmental degradation and discrimination against women and ensure human development and economic progress in all countries by 2015 or sooner.

Monitoring: regular collection and analysis of information to assist timely decision-making, ensure accountability and provide the basis for evaluation and learning. It is a continuing function that uses methodical collection of data to provide management and the main stakeholders of an ongoing project or programme with early indications of progress and achievement of objectives.

Non-formal Education: learning activities typically organised outside the formal education system. The term is generally contrasted with formal and informal education. In different contexts, non-formal education covers educational activities aimed at imparting adult literacy, basic education for out-of-school children and youth, life skills, work skills and general culture.

Non-government Organisation (NGO): any local, national, or international organisation, profit or non-profit, whose members are not employed by a government. Most are charitable, research or educational in nature. They are concerned with a wide range of social, economic and environmental issues. (see also civil society organisation and non-profit organisation).

Numeracy: the ability to add, subtract, multiply and divide. More broadly, it means the knowledge and skills required to effectively manage and respond to mathematical demands posed by diverse situations, involving objects, pictures, numbers, symbols, formulas, diagrams, maps, graphs, tables and text. Encompassing the ability to order and sort, count, estimate, compute, measure and follow a model, it involves responding to information about mathematical ideas that may be represented in a range of ways.

Objective: a specific statement detailing the desired accomplishments or outcomes of a project at different levels (short to long term). A good objective meets the criteria of being impact oriented, measurable, time limited, specific and practical. Objectives can be arranged in a hierarchy of two or more levels.

Outcome: results achieved at the level of "purpose" in the objective hierarchy.

Out-of-School Children: children in the official primary school age range who are not enrolled in either primary or secondary school.

Outputs: tangible (easily measurable, practical), immediate and intended results to be produced through sound management of the agreed inputs. Examples of outputs include goods, services or infrastructure produced by a project and meant to help realise its purpose. These may also include changes, resulting from the intervention, that are needed to achieve the outcomes at the purpose level.

Paradigm: general conception, model, or worldview that may be influential in shaping thinking on a particular subject.

Participation: one or more processes in which an individual (or group) takes part in specific decision-making and action, and over which s/he may exercise specific controls. It is often used to refer specifically to processes in which primary stakeholders take an active part in planning and decision-making, implementation, learning and evaluation. This often has the intention of sharing control over the resources generated and responsibility for their future use.

Partnership: collaboration among institutions to achieve mutually shared and agreed upon objectives and goals that draws on individual strengths and maximises synergies . Effective partnerships, where there is a clear understanding of the contribution of each partner to agreed outcomes, are central to achieving results.

Performance: degree to which a development intervention or a development partner operates according to specific criteria/standards/guidelines or achieves results in accordance with stated goals or plans.

Pesticides: substances or mixture of substances intended for preventing, destroying, repelling or mitigating any pest.

Plan: A scheme, programme, or method worked out beforehand for the accomplishment of an objective:

Policies: are broad statements of intent that reflect and focus the political agenda of a government and initiate a decision cycle.

Policy Reform: a process in which changes are made to the formal "rules of the game"—including laws, regulations and institutions—to address a problem or achieve a goal such as economic growth, environmental protection or poverty alleviation. Usually involves a complex political process, particularly when it is perceived that the reform redistributes economic, political, or social power.

Population Density: The number of inhabitants per unit area of land, for example, per square kilometer.

Post-literacy Programmes: programmes designed to maintain and enhance basic reading, writing and numeracy skills. Like initial literacy programmes, they are usually of short duration (less than one year) and organised to develop specific skills for specific purposes. The "post" is not intended to convey the idea that there is a "pre" and "post" state to literacy acquisition and skill development, but rather refers to the sequencing in programmatic terms for courses and programmes.

Poverty Gap: roughly the sum of the difference between the poverty line and actual income levels of all those living below that line.

Poverty Line: the level of income below which a person is considered not to be able to satisfy their basic needs. This level varies across time and societies, and each country buses lines which are appropriate to its level of development and its social values.

Poverty Reduction Strategy Papers (PRSP): describes the economic and social policies and programmes that a country has agreed to undertake over several years to promote growth and reduce poverty. It describes the country's macroeconomic, structural and social policies and programmes over a three-year or longer horizon to promote broad-based growth and reduce poverty, as well as associated external financing needs and sources.

Poverty: as the total absence of opportunities, accompanied by high levels of undernourishment, hunger, illiteracy, lack of education, physical and mental

ailments, emotional and social instability, unhappiness, sorrow and hopelessness for the future. Poverty is also characterised by a chronic shortage of economic, social and political participation, relegating individuals to exclusion as social beings, preventing access to the benefits of economic and social development and thereby limiting their cultural development.

Programme: a series of steps to be carried out or goals to be accomplished.

Project: an intervention that consists of a set of planned, interrelated activities designed to achieve defined objectives within a given budget and a specified period of time.

Purchasing Power Parity (PPP): an exchange rate adjustment that accounts for price differences between countries, allowing international comparisons of real output and income.

Recommendation: proposal for action to be taken in a specific circumstance, including the parties responsible for that action. Example: As a strategy to ensure the acceptability of its research results by target users, the Agricultural Science and Technology Institute should establish a centre for sharing of information between the target users and the Institute. Through a systematic information exchange programme, the Institute should provide target users with information on new technologies being developed and obtain their views on how to improve such technologies.

Relevance: extent to which the objectives of a project are consistent with the target group's priorities and the recipient and donors' policies.

Resources: items that a project has or needs in order to operate, such as staff time, managerial time, local knowledge, money, equipment, trained personnel and socio-political opportunities.

Review: an assessment of the performance of a project or programme, periodically or on an as-needed basis. A review is more extensive than monitoring, but less so than evaluation.

Rural Development: development that encompasses agriculture, education, infrastructure and health, capacity building for other than on-farm employment, rural institutions and the needs of vulnerable groups. Rural development aims at improving rural people's livelihoods in an equitable and sustainable manner, both socially and environmentally, through better access to assets (natural, physical, human, technological and social capital) and services, and control over productive capital (in its financial or economic and political forms), that enable people address and improve their livelihoods on a sustainable and equitable basis.

Rural Exodus: is a term used to describe the migratory patterns that normally occur in a region following the mechanisation of agriculture. In such a situation, there tends to be a movement of peoples from rural areas into urban areas. This trend can be particularly disruptive and enfeebling to rural life if the out-migrants tend to be younger adults, which are viewed as if they were an invested resource.

Rural Transformation: seeks to convey a vision of proactive and positive process of change and development of rural communities in the context of national and global changes in which education is a key instrument for shaping and fulfilling the goal of rural transformation.

Rural: a rural area comprises human settlements with relatively small populations and the space is dominated by farms, forests, water, mountains and/or deserts. Typically, rural people have agriculture as their main occupation; they are farmers, nomads, pastoralists, or fishermen. They deal with animal production, transformation and marketing of land and forest products and services.

School-Age Population: population of the age group officially corresponding to a given level of education, whether enrolled in school or not.

Sector: a sector groups together similar kinds of enterprises which, in terms of their economic objectives, functions and behaviour, have certain characteristics in common. The result is not necessarily a homogeneous set of enterprises.

Skill Development: refers to the acquisition of knowledge, practical competencies, knowhow and attitudes necessary to perform a certain trade or occupation in the labour market.

Skills: expertise needed to perform a task or to do a job, or as a product of education, training and experience which, together with relevant knowledge is the characteristic of a competent worker.

Stakeholders: an agency, organisation, group or individual who has a direct or indirect interest in the project/programme, or who affects or is affected positively or negatively by the implementation and outcome of it. In this Guide, primary stakeholders is the term used for the main intended beneficiaries of a project.

Strategic Planning: a broad description of the activities that would normally be carried out as part of project development, from start to finish, and the milestones that would generally be achieved along the way, such as implementation agreements, registration, etc. The plan should also explain the different aspects that need to be addressed as part of project development, and illustrate basic principles that are to be followed. The sequence of and relationship between main activities and milestones should also be described. The appraisal report should be used as a starting point for refinement of the strategic plan as well as detailed operational planning.

Subsidy: a payment made by government to producers to contribute towards production costs. Subsidies are usually given either to keep the prices of goods low and/or stable, or as a transfer from taxpayers to producers of particular goods.

Supervision: a process in which the legally responsible organisation administers the loan, periodically reviews progress towards objectives, identifies key obstacles, helps find workable solutions and makes strategic changes, as required.

Sustainability: likelihood that the positive effects of a project (such as assets, skills, facilities or improved services) will persist for an extended period after the external assistance ends.

Sustainable Development: development that meets the needs of people today without compromising the ability of future generations to meet their own needs.

Target Groups: main beneficiaries of a programme or project that are expected to gain from the results of that programme or project; sectors of the population that a programme or project aims to reach in order to address their needs based on gender considerations and their socio-economic characteristics.

Target: a specified objective that indicates the number, timing and location of that which is to be realised.

Technical and Vocational Education and Training (TVET): programmes designed mainly to prepare students for direct entry into a particular occupation or trade (or class of occupations or trades).

Technical Assistance: foreign aid (either bilateral or multilateral) that takes the form of the transfer of expert personnel, technicians, scientists, educators, economic advisers, consultants, etc. rather than a simple transfer of funds.

Technology Transfer: disseminate knowledge and technology in order to develop expertise in both products and processes.

Under-development: an economic situation characterised by absolute poverty, low per capita incomes, low rates of economic growth, low consumption levels, poor health services, high death rates, high birth rates and vulnerability to and dependence on foreign economies.

Under-employment: a situation in which a worker is employed, but not in the desired capacity, whether in terms of compensation, hours, or level of skill and experience. While not technically unemployed, the underemployed are often competing for available jobs.

Unemployed: comprise all persons above a specified age who, during the reference period, were: (a) without work; (b) currently available for work; and (c) actively seeking work.

Unemployment Rate: percentage of the labour force (the employed and unemployed population) ages 15 years and older who are not in paid employment and also not self-employed but who are available for work and have taken specific steps to seek paid employment or self-employment.

Unemployment: an economic condition marked by the fact that individuals actively seeking jobs remain un-hired.

Urbanisation: an increasing concentration of the population in cities and a transformation of land use to an urban pattern of organisation. It is caused by the migration of people from the countryside to the city in search of better jobs and living conditions. Urbanisation is also defined by the United Nations as movement of people from rural to urban areas with population growth equating to urban migration.

Vector-Borne Disease: one in which the pathogenic micro-organism is transmitted from an infected individual to another individual by an arthropod or other agent, sometimes with other animals serving as intermediary hosts.

Voucher: a document recording a liability or allowing for the payment of a liability, or debt.

Work Plan: a detailed document stating which activities are going to be carried out in a given time period, how the activities will be carried out and how the activities relate to the common objectives and vision. The work plan is designed according to the logical framework and contains a description in each cell of the work plan table of each activity and output, its verifiable indicators, the means of verification and its assumptions.

Index

This index covers Chapters 1 to 5 and the overview. The index is in word-by-word order taking into account items in three levels of classification. The first level classification shows the major titles whereas sub-headings within each of them are shown at the second level classification. The key words are presented at the third level and they also come from tables, boxes and figures.

Sub-headings are arranged alphabetically by the significant term, ignoring prepositions and insignificant words (e.g., "causes of poverty" is indexed as "poverty").

Definitions and terms can be found in the glossary and additional information can be found in the statistical annexure.

M

N

O

P

Annexure

R

S

T

U

W

图书在版编目（CIP）数据

教育培训与农村转型 = Education and Training for Rural Transformation: 英文 / 曼殊、王力等著
. -- 北京 : 北京师范大学出版社 , 2012.4
ISBN 978-7-303-09096-9

Ⅰ. ①教… Ⅱ. ①曼… ②王… Ⅲ. ①乡村教育－研究报告－世界－英文 Ⅳ. ① G725

中国版本图书馆 CIP 数据核字 (2012) 第 074810 号

出版发行：北京师范大学出版社　　www.bnup.com.cn
　　北京新街口外大街 19 号
　　邮政编码：100875
印刷：
经销：全国新华书店
开本：215mm×280mm
印张：
字数：千字
版次：2012 年 4 月第 1 版
印次：2012 年 4 月第 1 次印刷
定价：150.00 元

责任编辑：何　琳　　装帧设计：
责任校对：李　菡　　责任印制：李　丽

About the Authors

Wang Li is currently Professor and Deputy Director at UNESCO International Research and Training Centre for Rural Education (INRULED) in Beijing, China. His areas of interest include rural education and rural development, water resources, rural and town planning and geothermal utilisation. He has contributed to more than 60 books and papers, undertaken about 50 international research projects, and participated in more than 100 international conferences, symposia, forums and workshops. Professor Wang Li has represented INRULED and Chinese Ministry of Commerce in projects in Cambodia and Pakistan and in many international conferences, forums and meetings.

Manzoor Ahmed is Professor Emeritus at BRAC University, Dhaka. He was the Founding Director of the Institute of Educational Development at BRAC University. He served for over two decades in different positions in UNICEF including those of Senior Education Adviser and Country Director in China, Ethiopia and Japan. He has been closely associated with the work of the UNESCO International Centre for Training and Research on Rural Education located in Beijing Normal University. He is the author of several books and has written extensively on education and development, educational planning, and non-formal education.

Qutub Khan started his career as Associate Professor of Economics in Jamia Millia Islamia, New Delhi, and Delhi University in 1967. After working for about 10 years, he joined UNESCO International institute for education planning (UNESCO–IIEP) in 1979 as a Consultant. He worked at UNESCO headquarters and its regional and field offices and retired from UNESCO in 2009 as the Regional EFA and Literacy Coordinator for the Arab States. During his service with UNESCO, he participated in several international and national conferences, prepared policy documents and provided technical assistance to the Member States of UNESCO. Dr Khan lives in New Delhi and is an adviser to INRULED.

Meng Hongwei received the bachelor degree in 1968 from Beijing University, China, Master's degree in Education and Psychology in 1981 from Beijing Normal University and PhD in Educational Evaluation in1992 from the University of Hong Kong. From 1995 to 2000, he was President-elect for Asia-Pacific Association of Educational Assessment; and from 2000 to 2003, he was a member of the Governing Board of UNESCO Institute of Statistics.

He has 32 years of professional experience as international and national consultant on education monitoring and evaluation projects in China, DPRK, Lao PDR, Mongolia, Namibia, Ethiopia, Sri Lanka and Vietnam for national governments and international agencies such as ADB, the European Commission, ILO, OECD, UNDP, UNESCO, UNICEF, World Bank, WFP and several international consultant firms such as the Cambridge Education. He was also acting as an adviser of UNESCO (INRULED).