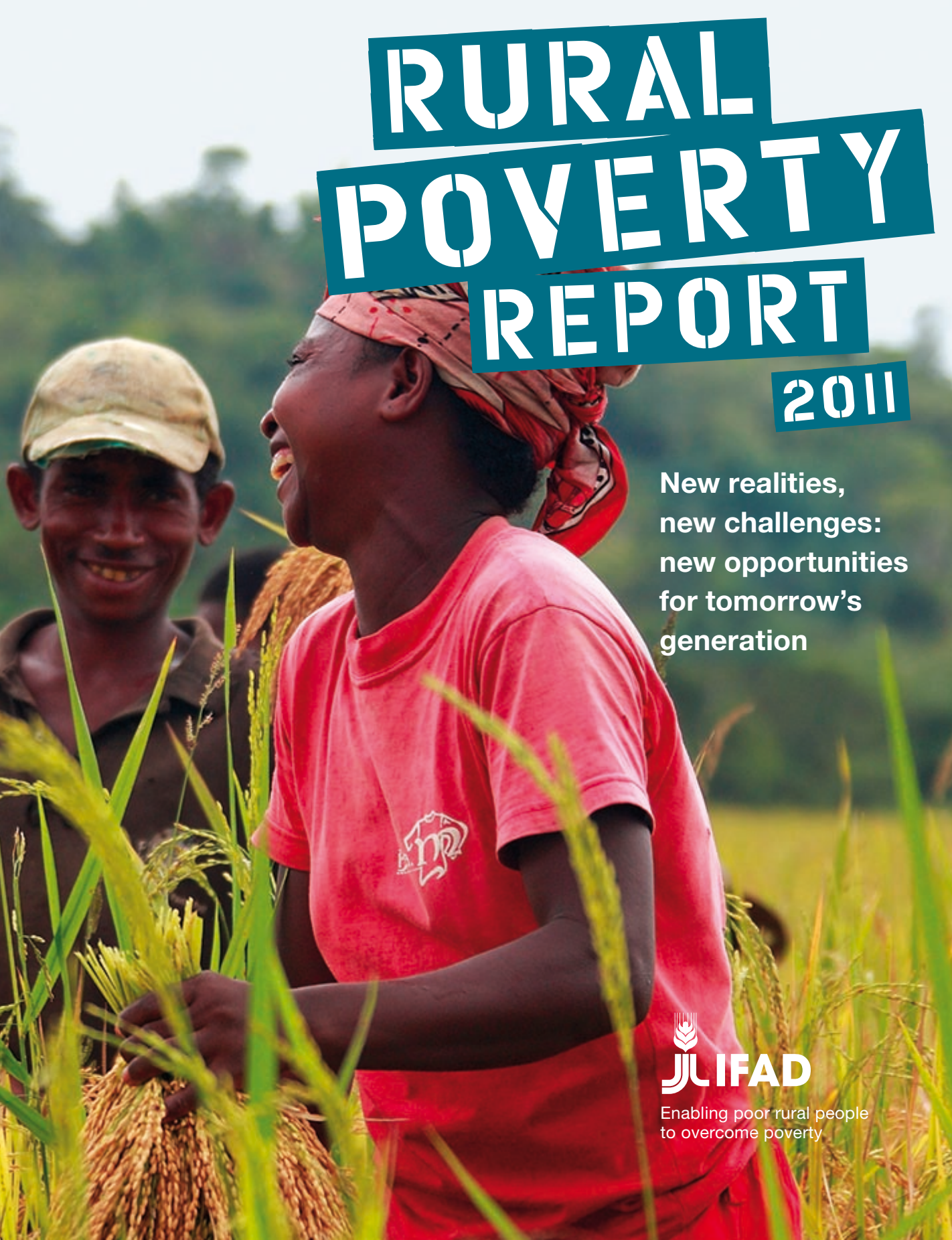


RURAL POVERTY REPORT 2011

New realities, new challenges: new opportunities for tomorrow's generation

IFAD

Enabling poor rural people to overcome poverty

"The *Rural Poverty Report 2011* is a valuable contribution to the effort to restore this critical topic to the global development agenda. It provides a clear assessment of the problems that poor rural people face in their struggle for a better life, and offers practical advice on setting priorities and policies for changing the overall economic environment in rural areas so that it supports investment, innovation and risk-taking. I have high hopes that the Rural Poverty Report will help open the door to transformative change, enabling multitudes to leave behind subsistence farming, run their farms as businesses and market their surpluses – and to collectively deliver large-scale results that will put an end to hunger and poverty."

Mr Kofi A. Annan

Chairman of the Alliance for a
Green Revolution in Africa (AGRA)

"In addition to being an in-depth evaluation of the status of rural poverty and its consequences for all people, this report makes important recommendations on policies and investments that will help rural women and men move out of poverty and, in the process, become part of the solution to the global food security challenges of the next several decades."

Sir Gordon Conway

Professor of International Development
Centre for Environmental Policy
Imperial College London

RURAL POVERTY REPORT 2011

New realities, new challenges: new opportunities for tomorrow's generation

IFAD

Enabling poor rural people
to overcome poverty

ISBN 978-92-9072-200-7

Printed by Quintily, Rome, Italy, November 2010

Printed on ecological paper

Table of contents

Annexes

Tables

Figures

Boxes

Abbreviations and acronyms

AET	agricultural education and training
CSR	corporate social responsibility
FAO	Food and Agriculture Organization of the United Nations
FFS	farmer field school
ICT	information and communication technology
IFPRI	International Food Policy Research Institute
IPM	integrated pest management
MDG	Millennium Development Goal
MFI	microfinance institution
NEPAD	New Partnership for Africa's Development
OECD	Organisation for Economic Co-operation and Development
PES	payment for environmental services
PRS	poverty reduction strategy
REDD	reduced emissions from deforestation and degradation
RIGA	Rural Income Generating Activities (FAO/World Bank)
RuralStruc	Structural Dimensions of Liberalization in Agriculture and Rural Development (World Bank, French Cooperation, IFAD)
TVSD	technical and vocational skills development
UNFCCC	United Nations Framework Convention on Climate Change
WDR	World Development Report
WFP	World Food Programme

Foreword

"The problem today is that no matter how hard you work, it's never enough to feed the family…"
"For about a year, perhaps more, there have been no rains… That is why people are suffering…"
"Without education a person can do nothing…"
"The men have left to work outside the village. The main labour force here is women…"

These are first-hand accounts of just a few of the men, women and young people who were interviewed for this report. Their stories give us vital insight into what it is like to live in today's changing reality of rural poverty. Listening to their experiences – and learning from them – is essential if we are to comprehend that reality. And it is the first step in identifying appropriate and effective solutions to turn rural areas from backwaters into places where the young people of today can find opportunities to work their way out of poverty, and where they will want to live and to raise their own children.

We need a clear understanding of what the face of poverty looks like now, a basket of practical solutions to today's myriad challenges and a coherent approach for tackling the evolving challenges of the future. This report provides all three.

IFAD's *Rural Poverty Report 2011 – New realities, new challenges: new opportunities for tomorrow's generation*, is an in-depth study of rural poverty. The findings in the report come from a collaboration among dozens of experts in the field of poverty reduction – both inside and outside IFAD. They also come from the poor rural people themselves.

The result of this collaboration is a comprehensive resource for policymakers and practitioners, especially those in developing countries. The report looks at who the poor rural people are, what they do and how their livelihoods are changing. It explores the challenges that make it so difficult for rural people to overcome poverty, and identifies opportunities and pathways that could lead towards greater prosperity – now and in the future. Finally, it highlights policies and actions that governments and development practitioners can take to support the efforts of rural people themselves, today and in the coming years.

Why is this publication important?

The world has changed dramatically since IFAD released its last Rural Poverty Report in 2001. Over that period, progress has been made towards achieving the Millennium Development Goals. But some 1.4 billion people continue to live in extreme poverty, struggling to survive on less than US$1.25 a day. More than two thirds of them reside in rural areas of developing countries.

Strikingly, current forecasts estimate a 50 per cent population increase by 2050, with most growth expected in developing countries. Feeding the projected 9.1 billion will require overall global food production to increase by 70 per cent, while production in developing countries may well have to almost double.

How will we do this?

This becomes an even more pressing challenge when we consider the escalating risk factors that have emerged in the past decade. These include increased natural resource degradation and climate change, the growing insecurity of access to land, the crisis of common property resources and related institutions, and increasingly volatile food prices. In this new reality, the long-standing risks that poor rural people face in relation to ill health, climate variability, the costs of important social ceremonies and poor governance are all the more difficult to manage.

The population of the developing world is still more rural than urban, and in the rural areas four out of every five households farm to some degree. Smallholder agriculture can offer a route out of poverty for many of them – but only if it is productive, commercially oriented and well linked to modern markets. But at the same time, agriculture today must use the scarce and fragile natural resources on which it is based more carefully: it must be environmentally sustainable and more resilient to increasing climatic variability.

Yet we also know that smallholder agriculture will not provide a route out of poverty for all rural people. In all developing regions, people are increasingly looking to the non-farm economy to provide them with new and different opportunities. Agriculture has a key role to play in stimulating the growth of the non-farm economy, but there are other new drivers of rural economic growth emerging in many developing countries that can also be tapped.

So promoting rural economic growth and reducing rural poverty requires a broad approach, based on an understanding of the way in which rural economies evolve and develop. It demands a focus on agriculture: on assisting smallholder farmers to develop production systems that are productive, profitable, sustainable and resilient. It also requires support for the rural non-farm economy, and for the creation of new economic opportunities that rural people – and particularly young rural people – can grasp.

In pursuing this agenda for rural economic growth, the report highlights four key issues.

First, it is essential to improve the overall environment of rural areas, including infrastructure, utilities, services and governance.

Second, it is vital to enable poor rural people to manage risk and to reduce the level of risk that they face.

Third, it is fundamental to invest in education to enable women, men, young people and children to develop the skills they need to take advantage of new economic opportunities.

Fourth, there is an ongoing need to strengthen the collective capabilities of rural people, particularly through their membership-based organizations. These organizations give people confidence, security and power – all invaluable attributes for overcoming poverty.

A report that looks at rural poverty across the developing world as a whole necessarily has to synthesize the issues it covers. And sometimes it also has to simplify. In reality, across different regions and countries, and even within the same country, poor rural people face problems that are extremely varied. And in the same way, they also have very different opportunities to escape from poverty. This means that there are no template solutions that can be universally applied. Each solution has to create opportunities tailored to specific situations.

There has never been a more important time to address rural poverty in developing countries. It looks likely that global food security and climate change will be among the key issues of the 21st century. As agricultural producers and custodians of a large share of the world's natural resources, poor rural people have key roles to play, contributing not only to global food security and economic growth, but also to climate change mitigation efforts. National governments have the principal responsibility for giving them the tools they need to fulfil their potential. National stakeholders and the international development community also have important supporting roles to play.

I am always in awe that so many of the people I meet – those who have next to nothing – never give up on seeking ways to build a better life for themselves and their families.

One of the young people quoted in this report, 19-year-old Manantane Babay from Madagascar, sums up this spirit:

"I really hope to have improved in the future, with some livestock, and my family all healthy… I'd have a few head of cattle, sheep, goats and chickens, many chickens. Then my life would have changed. And then I'd feel better about myself. I always believe that it will be different; I do believe that it will be better."

So does 25-year-old Javed Iqbal, from Pakistan:

"The wages which I will get from daily labour, I will spend on my children's education. I will enrol my children in a good school, [using] the savings from daily wage labour or from selling a goat kid…"

A very large proportion of those now living in poverty in rural areas are children and young people. They are the ones who will have to deal with the impact of today's transformations. And they are the ones who most need to see rural areas as places where they can fulfil their aspirations. First and foremost, this report is for them – for their future, and as the caretakers of our planet's future.

Kanayo F. Nwanze
President
International Fund for Agricultural Development

Acknowledgements

Many people, both within and outside the International Fund for Agricultural Development (IFAD), were instrumental in preparing this Rural Poverty Report.

The report was prepared under the guidance of IFAD's senior management. Early work was managed by Jean-Philippe Audinet assisted by Patricia Parera. The report was then prepared by a team comprising Edward Heinemann and Bettina Prato, and Andrew Shepherd at the Overseas Development Institute in the United Kingdom, supported by Emily Darko, Carla de Donato, Henri Leturque, Simon O'Meally and Brett Shapiro. A group from the NGO Panos London, led by Siobhan Warrington, coordinated overall collection and supported local partner organizations in recording the first-hand accounts of men and women living in rural areas of China, Egypt, Madagascar, Pakistan, Peru and Senegal. These men and women freely gave their time to share their experiences and knowledge of poverty.

The following IFAD staff members and consultants contributed to the preparation of background papers and early draft chapters, provided comments on the draft report, or contributed their time and energy in one way or another: Jamie Anderson, Tom Anyonge, Kaushik Barua, Kevin Cleaver, Rodney Cooke, Michael Hamp, Sappho Haralambous, Maria Hartl, Atalia Howe, Gary Howe, Karim Hussein, Ian Jones, Mylene Kherallah, Henock Kifle, Roberto Longo, Annina Lubbock, Vineet Raswant, Philippe Remy, Francesco Rispoli, Antonio Rota, Laura Silici, Jennifer Smolak, Rosemary Vargas-Lundius and Doug Wholey. Many others participated in review meetings and workshops. Khalid El-Harizi and Claudio Casadio-Tarabusi developed a database of case studies, and a large number of other staff members contributed individual case studies to the database.

The team is grateful to the many people outside IFAD who contributed to the preparatory work or draft chapters, served as external reviewers of the draft report, or provided comments on particular chapters. They include: Gustavo Anríquez, Kathryn Bach, Aditya Bahadur, Elisabetta Basile, Julio Berdegué, Robbie Blake, Savitri Bobde, Arnoud Braun, Anne-Sophie Brouillet, Derek Byerlee, Lidia Cabral, Nicola Cantore, Teresa Cavero Gómez, Renée Chao Béroff, Merritt Cluff, Jacinto Coelo, Chris Coles, Benjamin Davis, Priya Deshingkar, Deborah Duveskog, Gonzalo Fanjul, William

Foster, Raghav Gaiha, Kevin Gallagher, Lavinia Gasperini, Thierry Giordano, Duncan Green, Arantxa Guereña, Mamadou Bara Gueye, Ali Arslan Gurkan, Peter Hazell, Willem Heemskerk, Anne Jellema, Janice Jiggins, Ritika Kapur, David Lee, Leslie Lipper, Bruno Losch, Eva Ludi, Jacques Marzin, Madelon Meijer, Andres Mejia Acosta, Peter Messerli, Suzanne Nederlof, Bernardete Neves, Tony Peacock, Lucien Peppelenbos, Leo Peskett, Felicity Proctor, Mireille Razafindrakoto, Arantcha Sanchez, Kostas Stamoulis, Andy Sumner, J. Edward Taylor, Carolina Trivelli Avila, Peter Utting, Alberto Valdés, Kevin Watkins, Bertus Wennink, Keith Wiebe, Steve Wiggins, Simon Winter, Massimiliano Zandomeneghi, Alberto Zezza and Monika Zurek.

The team benefited greatly from a wide range of consultations with policymakers, academics, researchers and representatives of civil society and the private sector in developing countries. Regional workshops were held for Latin America and the Caribbean, Asia and the Pacific, the Middle East and North Africa, and sub-Saharan Africa. Thanks are due to the IFAD staff who assisted in organizing the workshops, and the following organizations: the Latin American Center for Rural Development (RIMISP), the American University of Beirut and the African Rural and Agricultural Credit Association, which organized and managed three of the regional consultations on the first draft report. The team also wishes to thank all of the participants in these workshops.

The team also gratefully acknowledges the generous financial support of the following IFAD partners and Member Governments: the Arab Center for the Studies of Arid Zones and Dry Lands (ACSAD); and the Governments of Italy, The Netherlands, Sweden and Switzerland.

Overview

Chapter 1. Introduction

Between 2006 and 2008, international food prices doubled. The effects of the price surge reverberated globally, though the worst hit were low-income, food-deficit countries with meagre stocks. In total, about 100 million poor rural and urban people were pushed into the ranks of the world's hungry. While international food prices have declined since mid-2008, they are still substantially higher than prior to the price surge, and they are likely to remain at 2010 levels or higher for the next decade. To date, much of the production response to higher prices has come from rich countries. Looking to the future, however, it is calculated that feeding a global population of just over 9 billion in 2050 will require a 70 per cent increase in global food production, while ensuring food security for all will demand that issues of access and affordability are also addressed. This will require that agriculture – particularly smallholder agriculture – play a much more effective role in these countries, and that greater and more effective efforts are made to address the concerns of poor rural people as food buyers.

For decades, agriculture in developing countries has operated in a context of low global prices for food products coupled, in many countries, with unfavourable domestic environments. Low levels of investment in agriculture, inappropriate policies, thin and uncompetitive markets, weak rural infrastructure, inadequate production and financial services, and a deteriorating natural resource base have all contributed to creating an environment in which it has frequently been risky and unprofitable for smallholders to participate in agricultural markets. Today, higher prices for agricultural products at the global level are contributing to creating a new environment within which smallholders must operate, and these may provide new incentives for them to engage profitably in markets. However, for this to happen, the domestic environment also needs to improve. In many countries, there remains an urgent need to develop appropriate policies, adopt or scale up successful approaches, and invest more and better in agriculture and in rural areas.

An enabling environment for agriculture needs to respond not only to long-standing issues and challenges, but also to newer realities. The natural resources on

which agriculture is based – land and water above all – are becoming degraded and there is growing competition for their use. Climate change is already exacerbating this situation, making agriculture more risky, and it will have an even greater impact in the future. Domestic food markets are expanding rapidly and becoming more differentiated in many countries, offering new economic opportunities as well as risks for smallholders. International trade and market opportunities are also changing, with growing integration of global agricultural supply chains, and the emergence of large economies like Brazil, China and India as massive sources of both demand and supply of agricultural products. In many developing countries, rural and urban areas are ever more interconnected, and the changing nature of 'rurality' offers new opportunities for rural growth and poverty reduction. Democratization and decentralization processes have also created new opportunities in many developing countries, particularly for the emergence of organizations representing poor rural people, for better governance of rural areas, and for the empowerment of poor rural individuals and communities. Finally, in all regions the proportion of people of working age in the population is increasing, and this can create the conditions for higher economic growth, in rural as well as urban areas.

In recent years, there has been renewed interest in agriculture as a key driver of development and poverty reduction. And in the aftermath of the food price surge, a number of global initiatives have emerged that seek to revitalize agriculture in developing countries. At the same time, growing attention is being given both to issues of adaptation to climate change in smallholder agriculture, and to ways in which poor rural people can participate in, and benefit from, market opportunities linked to environmental services and climate change mitigation. Also, the role of the state in agriculture and rural poverty reduction is being reassessed, and there is new interest in thinking through the role that public policies and investment can play in mitigating market volatility and assuring national food security.

There is broad agreement that growth in agriculture usually generates the greatest improvements for the poorest people – particularly in poor, agriculture-based economies. This report recognizes that agriculture, if better suited to meeting new environmental and market risks and opportunities facing smallholders, can remain a primary engine of rural growth and poverty reduction. And this is particularly true in the poorest countries. In all countries, however, creating new opportunities for rural poverty reduction and economic growth requires a broad approach to rural development, which includes the rural non-farm economy as well as agriculture. A healthy agricultural sector is often critical for stimulating diversified rural growth. But there are also new, non-agricultural drivers of rural growth emerging in many contexts, which can be harnessed.

The basic premise put forth in this report is that the need of poor rural people to manage the multiple risks they face constrains their ability to take up new opportunities, in agriculture and the non-farm economy alike. Throughout the report,

emphasis is placed on the crucial role that policies, investments and good governance can play in reducing risk and helping poor rural people to better manage them as a way of opening up opportunities. However, new forms of collaboration between state and society also need to be cultivated, involving rural people and their organizations, the business sector and a variety of civil society actors. These are crucial for the development of effective tools for risk management and mitigation.

Chapter 2. The state of rural poverty today

The population of the developing world is still more rural than urban: some 3.1 billion people, or 55 per cent 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.

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 per cent of the world's very poor people are rural, and a large proportion of the poor and hungry are children and young people. Neither of these facts is likely to change in the immediate future, despite widespread urbanization and demographic changes in all regions. 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. Levels of poverty vary considerably however, not just across regions and countries, but also within countries.

The livelihoods of poor rural households are diverse across regions and countries, and within countries. Livelihoods are derived, to varying degrees, from smallholder farming – including livestock production and artisanal fisheries – agricultural wage labour, wage or self-employment in the rural non-farm economy and migration. While some households rely primarily on one type of activity, most seek to diversify their livelihood base as a way to reduce risk. Agriculture plays a vital role in most countries – over 80 per cent of rural households farm to some extent, and typically it is the poorest households that rely most on farming and agricultural labour. However, non-farm income sources are increasingly important across regions, and income gains at the household level are generally associated with a shift towards more non-agricultural wages and self-employment income.

Rural poverty results from lack of assets, limited economic opportunities and poor education and capabilities, as well as disadvantages rooted in social and political inequalities. Yet large numbers of households move in and out of poverty repeatedly,

sometimes within a matter of years. So while there are rural households that find themselves in chronic, or persistent, poverty, relatively large proportions of people are poor only at specific points in time. Households fall into poverty primarily as a result of shocks such as ill health, poor harvests, social expenses, or conflict and disasters. Mobility out of poverty is associated with personal initiative and enterprise. It is highly correlated with household characteristics such as education and ownership of physical assets, and it is also dependent on good health. Beyond household-level factors, economic growth, and local availability of opportunities, markets, infrastructure and enabling institutions – including good governance – are all important. All these factors tend to be unequally distributed within each country.

Certain groups – particularly rural women, youth, indigenous peoples and ethnic minorities – are often disproportionately held back by disadvantages rooted in inequalities. Addressing these disadvantages requires building people's assets and strengthening their capabilities – both individual and collective, while creating locally available opportunities and mitigating or helping them to better manage risks they face. Until recently, rural people's capabilities have often been treated separately from investment in creating opportunities for rural development. However, these issues need to be tackled together in order to facilitate broad-based mobility out of poverty and to achieve inclusive, pro-poor rural growth.

Chapter 3. The importance of addressing risk

Avoiding and managing risk is a prerequisite for poor rural households to move out of poverty, and it is thus central to their livelihood strategies. At the household level, decisions about how to allocate and use cash, land and labour are a function not only of available opportunities, but also of the need to minimize the possibility of shocks that can throw the household into poverty, prevent it from moving out of it, or reduce its ability to spend on its primary needs. In many cases, however, the need to minimize these possibilities undermines people's ability to seize opportunities, which generally come with a measure of risk. Rural households typically manage risk through diversification: smallholders may use highly diversified cropping or mixed farming systems. And many households use non-farm activities to complement and reduce the risks attached to farming – or vice versa. Asset accumulation – including money, land, livestock and other assets – is also critical to build a buffer against shocks, and a crucial component of risk management strategies at the household level.

Shocks are the major factor contributing to impoverishment or remaining in poverty. Poor rural people have less resilience than less-poor people because they have fewer assets to fall back on when shocks occur. When they do occur, poor people may have to resort to coping strategies that involve incurring debt, selling assets, or foregoing on education opportunities for children and youth – all of which leave them that much more vulnerable to future shocks.

The risk environment confronting poor rural people is becoming more difficult in many parts of the world. Not only do poor rural people face long-standing risks related to ill health, climate variability, markets, the costs of important social ceremonies and poor governance – including state fragility – but today they must also cope with many other factors. These include natural resource degradation and climate change, growing insecurity of access to land, increasing pressure on common property resources and related institutions, and greater volatility of food prices. In this environment, new opportunities for growth in rural areas are likely to be beyond the reach of many poor rural people. In many cases, innovative policies and investments are needed to address the new or growing risks, and to enhance responses to long-standing ones.

Putting a proper appreciation of risks and shocks at the centre of a new agenda for rural growth and poverty reduction requires a multi-pronged approach. On the one hand, it involves strengthening the capacity of rural people to manage risk by supporting and scaling up the strategies and tools they use for risk management and for coping, and helping them to gain skills, knowledge and assets to develop new strategies. On the other hand, it requires that the conditions they face be made less risky, be it in terms of markets, health care and other essential services, natural environment, or security from conflict. Specific areas of focus include strengthening community-level organizations and assisting them to identify new mechanisms of social solidarity; promoting the expansion and deepening of a range of financial services to poor rural people; and supporting social protection programmes that can help poor households to build their assets, reduce risks and more easily invest in profitable income-generating activities.

Chapter 4. Agricultural markets for increased incomes

Well functioning agricultural markets are essential for rural growth and poverty reduction. Most rural households are connected with markets, as sellers of produce, buyers of food, or both. However, the extent to which they are involved varies considerably. Market participation is often uncertain, risky and conducted on unfavourable terms. Under such conditions, many households seek to grow their own food rather than buying it in local markets, while others limit their investments in market-oriented crops in the absence of reliable produce markets. By contrast, access to remunerative and reliable produce markets can enable farming households to commercialize their production systems and increase their farm incomes. The rewards, costs and risks of doing so are all context- and value chain-specific, and they vary for different producers. However, it is generally a challenge for poor rural people to seize rewarding opportunities in produce markets and to cope well with the attached risks.

Agricultural produce markets have undergone profound transformations in the past two or three decades, in terms of the scale and nature of demand, and the organization of supply or market governance. In most developing countries, demand for agricultural products, particularly high-value ones, is increasing rapidly, with the

demand driven by the growing numbers and increased incomes of consumers in urban areas. The rapid emergence of supermarkets is spurring the establishment of modern value chains, particularly for high-value foodstuffs. These are typically better organized, coordinated, and have higher standards than traditional markets, though the latter continue to play an important role in national food supply systems in most countries. Restructured or modern markets and value chains offer a new environment for smallholders, with potentially profitable opportunities set against higher entry costs and risks of marginalization. But traditional markets can offer an important alternative, and sometimes a fall-back option.

Global and regional agricultural markets are also becoming more integrated and concentrated in their structure. The map of global trade in agriculture has been changing, with some fast-rising economies playing a growing role. Many export markets tend to exclude small-scale suppliers, a process that has intensified with the imposition of higher product and process standards by northern retailers. But some global value chains offer important opportunities for smallholder suppliers – and for other rural people working in agro-processing or in ancillary industries. Smallholders need to be able to identify the costs and benefits of participating in modern, traditional, domestic and global markets on a case-by-case basis, and to respond accordingly.

Reducing risk and transaction costs along value chains is important for determining whether or not smallholders can engage profitably in modern agricultural markets. Strengthening their capacity to organize is a key requirement to participating in markets more efficiently and to reducing transaction costs for them and for those that they do business with. Infrastructure is also important – particularly transportation, and information and communication technology – for reducing costs and uncertainty, and improving market information flows. Contracts can help as they often build trust between smallholders and agribusiness. They also facilitate farmers' access to input credit and other financial services. The growing importance of a corporate social responsibility agenda within the global food industry provides an increasingly positive context for the establishment of such contracts.

Policymakers, civil society organizations, NGOs and donors can play a key role, working with smallholder farmers and market intermediaries to help them establish and scale up sustainable market relations. At the same time, there is a need to look at agricultural value chains not only as a source of opportunities for smallholder farmers, but also as a means of creating demand for labour and services from other rural people. And to give policy attention to creating opportunities and reducing risks for rural people as employees and service providers.

Chapter 5. Sustainable agricultural intensification

For food production in developing countries to double by 2050 it will require, above all, more intensive land use and higher yields. Over the past 40 years, growth in food

production has more than kept pace with population growth, with enhanced agricultural productivity resulting in substantially increased global food supplies and, until recently, lower food prices. Yet there are concerns as to the environmental externalities of approaches to agricultural intensification based exclusively on the use of improved seeds and high levels of agrochemicals. Against a backdrop of a weakened natural resource base, energy scarcities and climate change, there is today a growing consensus that a more systemic approach is required. Improved inputs remain critical for increasing productivity, as do supportive policies and robust investment in agricultural research and development, and infrastructure development. However, today's circumstances require an approach that better preserves or restores the natural resource base and increases the resilience of farming systems to climatic variation and change.

An agenda for sustainable agricultural intensification has been emerging for some time, and a growing number of sustainable intensification practices – some of them building on traditional techniques – have been taken up by farmers in the past couple of decades. The emerging agenda is characterized by a more systemic approach to sustainably managing natural resources. These include using an agroecological perspective and with more selective recourse to external inputs, striving to maximize synergies within the farm cycle, and seeking adaptation to climate change. The practices typically aim at improving soil fertility, structure and water-retaining capacity using a combination of organic, biological and mineral resources, and at using water more sparingly and efficiently. All complement, rather than represent an alternative to external input-driven intensification, and none of them – individually or collectively – constitutes a blueprint. Indeed, the agenda requires that farmers develop their own practices, capitalizing on their local knowledge as well as scientific research to address their specific problems. These three features – a systemic approach, context adaptation, and linking farmers' and scientific knowledge – are key to the emerging agenda.

The agenda has much to offer smallholders. Where market conditions provide an incentive for doing so, it can enhance productivity, make the most effective use of local resources, help build resilience to climate stress, and deliver environmental services – including some linked to climate change mitigation. Because sustainable agricultural intensification can be adapted to different requirements and levels of assets that men and women farmers have at their disposal, it can therefore be seen as a route through which they can broaden their options to better capture market opportunities while reducing risks, or strengthening their capacity to manage them.

Adequate incentives and risk mitigation measures need to be in place to enable smallholder farmers to make a shift to sustainable agricultural intensification. This requires, in particular, more secure land tenure and expanded markets for environmental services. Smallholder farmers must also develop the skills to combine

their experience and knowledge with modern science-based approaches, and develop effective solutions to their problems. This will require strengthening agricultural education, research and advisory services, and fostering greater collaboration, innovation and problem-solving among smallholders, researchers and service providers. It will also require building coalitions, sharing responsibilities and creating synergies among governments, civil society, the private sector – and above all – farmers and their organizations.

Chapter 6. Creating opportunities in the rural non-farm economy

Participation in the rural non-farm economy – both wage employment and non-farm self-employment – is an increasingly important element of the risk management strategies of large numbers of rural households. It is an important route out of poverty for growing numbers of rural people, particularly for today's youth. Although this sector has been neglected by policymakers in many countries, today there is a new interest in promoting its development as a source of growth and of employment, in agricultural-based as well as transforming and urbanized countries.

Agriculture remains a key driver of non-farm economic development, with each dollar of additional value added in agriculture generating another 30 to 80 cents in second-round income gains elsewhere in the economy. However, nowadays there are four other important drivers that play a role in stimulating the growth of the non-farm economy. First, urbanization, and particularly the growth of small or medium-sized centres and the growing integration of rural and urban economies. Second, the processes of liberalization and globalization, which can create new employment and service opportunities in rural areas. Third, improved communication and information systems, particularly the diffusion of mobile phone coverage in rural areas. Finally, increasing investment in decentralized and renewable-based energy systems. These drivers may be present and combine differently within and across countries, creating different opportunities for the development of the rural non-farm economy.

If people are to harness these new drivers, there must be better incentives and fewer risks for everyone involved. This requires investment in rural infrastructure and services such as energy and transportation, and better governance. Prerequisites for encouraging private investments include improving the business climate, and providing business development and financial services suited to the needs of both men and women small entrepreneurs. For firms, the possibility of acquiring a labour force with appropriate skills is crucial. For rural workers, an improved environment is one in which they find decent employment opportunities and their rights and ability to organize are recognized, and in which efforts are made to address the prevalence of poorly paid, insecure and unregulated jobs – taken up predominantly by women – in the informal sector. Rural migrants want their rights to be recognized and their ability to organize supported, and they want to be able to send home

remittances easily and at low cost. The role of government actors in creating an improved environment for the rural non-farm economy is important. However, an important part of that role may be to facilitate and catalyse initiatives taken by others such as firms or rural workers' organizations.

Strengthening the capabilities of rural people to take advantage of opportunities in the rural non-farm economy is essential. Education and skills are particularly important, because they enable rural youth and adults to access good employment opportunities, and enhance their capacity to start and run their own businesses. Technical and vocational skills development in particular needs to be expanded, strengthened and better tailored to the current needs of rural people. These include microentrepreneurs, workers who wish to remain in their areas of origin and those who may seek to migrate. Strengthening capabilities on all these fronts requires various, often innovative forms of collaboration, in which governments play effective roles as facilitators, catalysers and mediators; and the private sector, NGOs and donors are significantly engaged.

Chapter 7. What needs to be done, and how?

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 marginalization 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 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 be able to fulfil their aspirations. How can all this be achieved? There is of course no simple answer. Countries vary profoundly in their level of economic development, their growth patterns, their breadth and depth of rural poverty, and the size and structure of their agricultural and rural sectors. Within countries, different areas can vary greatly, resulting in widely differing levels of opportunity for growth. As a result, there can be no generic blueprints for rural development and rural poverty reduction. The areas of focus, the issues to address and the roles of different actors will all vary in different contexts.

Nevertheless, there is a need to go beyond narrow or rigidly sequential sectoral approaches to rural growth. Agriculture continues to play a major role in the economic development of many countries, and to represent a major source of opportunities to move out of poverty for large numbers of rural women, men and young people – particularly those who can make it a 'sound business'. In addition, in all developing regions smallholder farmers face major – if profoundly different – challenges. A focus on agriculture, aimed at assisting them to address these challenges, must remain a major thrust of efforts to reduce poverty and promote economic development alike. In all circumstances, the ultimate aim must be the development of smallholder farming

systems that are productive, integrated into dynamic markets (for environmental services as well as food and agricultural products), and environmentally sustainable and resilient to risks and shocks. All three elements are essential features of a viable smallholder agriculture, particularly as a livelihood strategy for tomorrow's generation. A vibrant agricultural sector as well as a variety of new factors can also drive the expansion of the non-farm rural economy, in a wide range of country circumstances. In order to broaden the opportunities for rural poverty reduction and economic growth, there is need for a broad approach to rural growth and emphasis on the larger rural non-farm economy. A focus on these two areas – smallholder agriculture and the rural non-farm economy – requires particular attention to, and increasing investment in, four issues:

- **Improving the overall environment of rural areas** to make them places where people can find greater opportunities and face fewer risks, and where rural youth can build a future. Greater investment and attention are needed in infrastructure and utilities: particularly roads, electricity, water supply and renewable energy. Also important are rural services, including education, health care, financial services, communication and information and communication technology services. Good governance too is critical to the success of all efforts to promote rural growth and reduce poverty, including developing a more sustainable approach to agricultural intensification.
- **Reducing the level of risk that poor rural people face and helping them to improve their risk management capacity** needs to become a central, cross-cutting element within a pro-poor rural development agenda. It needs to drive support both to agriculture – and sustainable intensification reflects this concern – and to the rural non-farm economy. It involves developing or stimulating the market to provide new risk-reducing technologies and services for smallholders and poor rural people. It requires an expansion of social protection, and it needs to strengthen the individual and collective capabilities of rural women, men and youth.
- **Advancing individual capabilities** needs far more attention in the rural development agenda. Productivity, dynamism and innovation in the rural economy depends on there being a skilled, educated population. Rural women, men, youth and children all need to develop the skills and knowledge to take advantage of new economic opportunities in agriculture, in the rural non-farm economy, or in the job market beyond the rural areas. Investment is particularly needed in post-primary education, in technical and vocational skills development, and in reoriented higher education institutes for agriculture.
- **Strengthening the collective capabilities of rural people** can give them the confidence, security and power to overcome poverty. Membership-based organizations have a key role to play in helping rural people reduce risk, learn new techniques and skills, manage individual and collective assets, and market their produce. They also negotiate the interests of people in their interactions with

the private sector or government, and can help to hold them accountable. Many organizations have problems of governance, management or representation, and yet they usually represent the interests of poor rural people better than any outside party can. They need strengthening to become more effective, and more space needs to be made for them to influence policy.

In the aftermath of the food crisis, the international donor community has taken a number of initiatives to support developing countries' efforts to promote smallholder agriculture. It has also signalled a commitment to support developing countries' efforts to mitigate and adapt to climate change. But investment in agriculture and the rural non-farm economy remains well below needed levels, and the momentum of these recent initiatives must be maintained. The proposed agenda in this report responds to the growing international concerns, while offering up ideas for concrete initiatives. Increasing investments in the areas highlighted in this report – some of which have been badly neglected in recent years – can support the piloting of new approaches and ways of working as a route for learning, promoting policy analysis and reform, and financing the scaling up of successful small-scale initiatives. In addition, many developing and recently developed countries have grappled with the issues addressed in this report. There is, therefore, enormous scope for increased levels of knowledge-sharing between developing countries.

There are today approximately one billion poor rural people in the world. Yet there are good reasons for hope that rural poverty can be reduced substantially, if new opportunities for rural growth are nurtured, and the risk environment improved. This report identifies an agenda for action around a broad approach to rural growth, which needs to be appropriated and adapted to different countries' needs and local contexts. However, the report also makes it clear that implementing this agenda requires 'joined-up' government across different ministries, and a breaking down of some traditional distinctions between social and economic policies and programmes. It also requires a collective effort, including new partnerships and accountabilities, and new ways of working between governments, the private sector, civil society and rural people's organizations, with the international development community playing a supporting or facilitating role as needed. If all of these stakeholders want it enough, rural poverty can be substantially reduced. What is at stake is not only improving the present for one billion rural people and the prospects for food security for all, but also the rural world and the opportunities within it that tomorrow's rural generation will inherit.

“In their own words”: introducing the testimonies

Listening to poor rural people is essential if we are to understand rural poverty and identify appropriate and effective solutions to overcome it. Throughout this report, you will find first-hand accounts from men and women living in rural areas in six countries around the world: China, Egypt, Madagascar, Pakistan, Peru and Senegal. Panos London coordinated the interviews, working with local partner organizations in each country.[1] A total of 30 interviews with 15 men and 15 women between the ages of 15 and 82 were recorded between November 2009 and May 2010.[2] These individuals are referred to as narrators; their accounts provide a glimpse into the lived reality of rural poverty today and of these people’s hopes and aspirations for their children’s future. A brief background to the six locations is presented below.

These first-hand accounts are not intended to be representative of rural poverty in any particular country. They do however help us appreciate how these men and women have been affected by poverty and the strategies they have developed to try to overcome it.

Short first-hand accounts from all 30 people are interspersed throughout this document to complement the main text. (The full transcripts of their testimonies are available at: http://www.ifad.org/rpr2011.) Each chapter begins with a brief biography of two narrators, highlighting aspects of their own lives that reflect the content of that chapter.

China

Narrators: **Li Guimin**, **Zhang Guobao**

The narrators come from Donghao village, in Hebei Province, northern China. The village has a population of around 2,500. Most households only have small areas of land where they grow vegetables, wheat and maize for home consumption and limited marketing, and some also keep pigs, chickens and rabbits. Most young male villagers and unmarried women – up to 50 per cent of the population – have left to find jobs in other places, leaving mainly the elderly and women and children in the village. There is only one primary school; while there are five health clinics, they provide only basic care. The poor condition of the roads makes accessing emergency health care difficult.

Egypt

Narrators: Nawal Mohamed Khalil, Ibrahiem Abo Zeid

The narrators come from the town of Dondeed, approximately 5 kilometres from the city of Meet Ghamr and 60 kilometres from Cairo. Dondeed's population is close to 40,000, with a further 35,000 living outside the town for employment. What was once a village is now more of a peri-urban area of multi-storey buildings with water, electricity and sewage facilities. Farming as a livelihood is in decline because of the lack of available land; most men work as employees in factories or as traders, and most women work as housekeepers or sell different products in the market. There are seven schools in the village, including secondary schools, and a considerable number of residents have gone on to university education. Despite these education opportunities, the most pressing concern in Dondeed is unemployment.

Madagascar

Narrators: Manantane Babay, Francoise Haova, Ranaivo Jean Noelson, Randriamahefa, Ranotenie, Tovoke, Suzanne Tsovalae

All seven narrators come from Tanandava (formerly known as Bema), a collection of small villages in the remote Androy region. This makes up the most southerly point of Madagascar, which has a harsh dry climate. Livelihoods centre on subsistence farming and fishing. Bad roads and restricted access to markets limit economic opportunities even in good years, but harvests have been poor for many years, affected by drought and high winds. Temporary economic migration is another livelihood option, with young men travelling to urban centres as far away as the capital Antananarivo, close to 1,000 kilometres way, to work as unskilled labourers.

Pakistan

Narrators: Salma Bibi, Shazia Bibi, Javed Iqbal, Rawela Jan, Rasib Khan, Miandad, Muhammad Naveed

All seven narrators come from Akhoon Bandi village, Haripur district, in Khyber Pakhtunkhwa (formerly known as the North West Frontier Province). There are some 300 households in the village. The main source of livelihood is agriculture. Crops cultivated include wheat, maize, garlic, onion and several varieties of fruit. Other sources of livelihood are casual wage labour including agriculture and construction, and some have found jobs in the cities, for example as drivers. The village has no health facility, and people travel to the nearby towns of Haripur (15 kilometres away) and Abbottabad (30 kilometres away) to access health care. Akhoon Bandi has two primary schools, one for girls and one for boys. The need to travel to Haripur for secondary schooling has restricted educational opportunities, especially for girls. The village has been suffering from problems with its water supply, both for domestic consumption (maintenance problems) and for irrigation (diminishing quantities).

Peru

Narrators: Elsa Espinoza Delgado, Williams Serafin Novoa Lizardo, Eliany Portocarrero Novoa, Doris Consuelo Sánchez Santillán, José del Carmen Portocarrero Santillán

The Peru interviews come from two locations, Ramos and Cheto, in the Amazonas region, northern Peru. Some of the narrators are descendants of the Aguarunas and Chachapoya indigenous groups. Ramos is a remote village of approximately 130 inhabitants, located 30 minutes away on foot from the larger community of Santa Rosa. Most people are subsistence farmers, and the main source of cash income is the cultivation and marketing of pineapples. No one in the village owns a vehicle and so the community is dependent on intermediary buyers coming to their village to purchase the pineapples. The village has a primary school but villagers have to walk to Santa Rosa to access the nearest health post. Cheto is larger in size than Ramos and more accessible, and it has a secondary school and a health post. Livelihood options are mainly farming and animal husbandry. However, many travel to the provincial capital Chachapoyas, 125 kilometres away, to improve their education and to access better health services.

Senegal

Narrators: Abdoulaye Badji, Pascaline Bampoky, Bakary Diédhiou, Oumar Diédhiou, Abibatou Goudiaby, Safiétou Goudiaby, Bintou Sambou

The seven narrators come from different villages in Senegal's southern province of Casamance. For the last 28 years Casamance has been plagued by armed conflict between the government and Casamance's movement for independence. Once a thriving agricultural area, the province has become the poorest in the country. Thousands of people have been killed by the conflict and many more have been injured or maimed by land mines. Many young men have fled to the capital, Dakar, to find work. For those who remain, agriculture is still the main source of livelihood. Key crops include rice, groundnuts, corn, millet, sorghum and beans.

Amazonas Region, Peru: Eliany Portocarrero Novoa feeds poultry on her family farm. Eliany belongs to a youth association that promotes environmental protection and sustainable farming. Concerned about the low standards of education in local schools, she also helped set up a mobile library.

Chapter 1

Introduction

What's new for rural economies and agriculture?

The food price hike of 2006-2008 awakened the world to the urgency of finding new solutions for ensuring food security for a global population set to exceed 9 billion people by 2050. As the price hike subsided, the issue appeared to lose some of its immediacy, as other problems came to vie with it for the attention of policymakers in developing countries. These included, in particular, the impact of the financial crisis on prospects for attaining the Millennium Development Goals (MDGs) in some regions – notably in sub-Saharan Africa, where it was calculated that the crisis would leave an additional 20 million people living in extreme poverty by 2015.[3] However, in several countries food prices actually kept rising over 2009. Moreover, even as recently as mid-2010, a global surge in wheat and other cereal prices has brought back fears of a new food price crisis. All this suggests that what happened around the food price hike is part of a set of broader, longer-term changes in the global environment for agriculture and for rural economies in developing countries. Understanding these broader changes and their implications for rural women and men is critical for everyone interested in rural development and poverty reduction.

During the period between September 2006 and June 2008, international food prices almost doubled. The Food and Agriculture Organization of the United Nations (FAO) price index for all major foods rose by 78 per cent, with the indices for cereals and edible oils more than doubling. The effects of the price surge reverberated globally – including in food-rich, wealthy countries. The worst hit, however, were low-income, food-deficit countries with meagre stocks. For instance, from July 2007 the price of rice doubled in just one year in Senegal. In Eritrea, the price of wheat flour in Asmara more than doubled in the same period, while wheat prices grew by 60 per cent in The Sudan and in Sri Lanka. Rice prices rose 66 per cent in Bangladesh and doubled in Haiti between August 2007 and August 2008.[4] Many other countries were similarly affected.

The price surge had different impacts across as well as within countries, but poor households – rural as well as urban – were particularly hard hit. In many countries, low-income people found themselves unable to properly feed themselves or their children. Across the world, poor households resorted to taking children (often especially girls) out of school, selling their livestock assets, switching to less nutritious, more filling and cheaper food and cutting down on non-food expenses. FAO estimated in 2008 that the price spike had added about 100 million to the global number of hungry people. Those affected were not just in Asia, which is home to the largest number of hungry people (640 million) or sub-Saharan Africa, which has the highest prevalence of under-nourishment relative to its population (32 per cent). The largest percentage increases in the number of hungry people in 2009 relative to 2008

were actually in the Middle East and North Africa (an increase of 14 per cent) and Latin America and the Caribbean (an increase of 13 per cent).[5] This is not, of course, only due to the price surge itself, but rather to broader underlying problems. In the Middle East and North Africa, for example, the crisis happened within an environment characterized by long-term growing pressure on food security linked to economic growth, rising demand for foods (especially high value products), a declining farming population and a deteriorating resource base.[6]

While international food prices have declined since mid-2008, they remain substantially higher than they were prior to mid-2007, and there is now broad recognition that rising demand combined with growing natural resource and energy scarcities will likely drive a steady reversal of long-established low price trends – at least for certain commodities (notably basic food commodities). Most recently, for example, the Organisation for Economic Co-operation and Development (OECD) and FAO have projected that international prices for most agricultural commodities (including crop and livestock products) are set to remain at 2010 levels or higher, at least for the next decade.[7]

Following the food price surge, a number of development initiatives emerged to address the threats and opportunities that higher prices presented for agriculture and food security in developing countries. In this context, smallholder agriculture has received unprecedented global attention. In the summer of 2008, for example, the United Nations High-Level Task Force on the Global Food Security Crisis produced the Comprehensive Framework for Action, which recommended support to smallholders among the immediate actions meant to help vulnerable people and build more resilient food systems. Other initiatives have followed, including the 2009 G8 L'Aquila Food Security Initiative and the subsequent Global Agriculture and Food Security Programme, which also emphasize smallholder farming in developing countries as part of the solution to feeding the populations of these countries and the world.

"Every year, prices become higher. For example, the price of a butter plate (about 0.5 kilograms) was six pounds ten years ago. Today, the price reached forty pounds. After all, the income is limited. You can see we are now destitute. We do not feel secure."

Ibrahiem Abo Zeid,
male, 55 years, Egypt

"In the past people would cultivate cabbage and garlic, as there were better seeds. At the time seeds cost Rs. 400 to 600 per maund (40 kilograms), but now they cost Rs. 6,000 to 12,000. As people are poor, they do not grow vegetables but only grow wheat and maize. They do not cultivate any other crop. They cultivated [other crops] in the past but don't do so now due to the price hike."

Rasib Khan,
male, 28 years, Pakistan

At the global level, much of the response to growing demand and higher prices has been through increased production in rich countries and/or through large-scale commercial farming. Thus developed countries were able to expand their cereal output by over 13 per cent, whereas developing countries were able to increase theirs by only 2 per cent.[8] However, higher production in rich countries alone cannot be a long-term, sustainable response to global food security. It does not address the issue of the access to food by all people, and moreover, feeding a global population of over 9 billion in 2050 (up 33 per cent from the current 6.9 billion) will require a 70 per cent increase in global food production,[9] and perhaps a doubling of production in developing countries. Agriculture in developing countries will thus need to play a much greater role than it does today in contributing to global food supply and distribution. In addition, agriculture in developing countries – notably in those that are agriculture-based – will need to play a greater role in supplying national and regional food markets. In most countries, this will need to be agriculture that is largely or entirely based upon smallholder production.

The prospects for smallholders from developing countries to play a greater role in meeting the growing demand in their national markets and beyond are not yet clear. However, higher prices signal a marked change in the global environment in which small-scale farmers and livestock producers operate. For decades, agriculture in developing countries has operated in a global environment shaped by highly subsidized, high-cost production in OECD countries and by restrictive international trade rules. Beyond OECD farmers, others have managed to thrive in this environment: notably efficient large-scale producers, particularly in Latin America, and the many smallholder producers, especially in Asian countries, who responded to Green Revolution technologies, supportive policies and public investments by massively increasing their productivity. On the other hand, many agriculture-dependent countries remained marginal in the global scenario up to the early to mid-2000s, and many also became increasingly dependent on food imports – even very often of commodities that they themselves produced, or had the capacity to produce.

Of course, global low prices are not the full story of the persisting marginalization of agriculture and, more broadly, of rural economies in the developing world. There are also contributing domestic factors. While these have varied considerably in different contexts, they include low and declining public and private investments in agriculture, thin and uncompetitive local markets, weak rural infrastructure, inadequate production and financial services for farmers, and a declining resource base. All this has resulted, among other things, in the limited, risky, and/or relatively unprofitable engagement of smallholders in particular in growing food and agriculture markets in their countries. Not surprisingly, for instance, surveys conducted

under the World Bank-led RuralStruc research programme in seven countries (Kenya, Madagascar, Mali, Mexico, Morocco, Nicaragua and Senegal) have found a large proportion of smallholders only marginally engaging with markets.[10] All these factors also contributed to the overall minimal response of smallholders in developing countries to the price surge in the 2006-2008 period. Not only did higher prices fail to reach the farm gate in many cases, but even where they did, smallholders were in many cases unable to seize the opportunity because of long-standing production and marketing constraints, coupled with higher costs for fuel and fertilizers.

What has changed in this environment since the time of the food price crisis? First, to the extent that higher prices reach smallholders and are not cancelled out by higher input prices, they can provide stronger incentives and greater opportunities for smallholders to engage profitably in markets – notably rural and urban markets in their countries, as well as export markets. In addition, high prices and fears about the availability of cereals on global markets have prompted some governments to strive to boost their production capacity; they and other actors may have greater incentives to make the needed investments – in infrastructure, services and improved governance and institutions – for agriculture (including smallholder agriculture) to thrive, and more broadly for rural areas to come into the mainstream of country-level growth.

Another important dimension of change is that higher prices have come at a time when protectionist policies around agriculture in OECD countries have come under growing scrutiny. The food crisis that resulted from the price hike fed into these concerns and highlighted the fact that many existing agricultural trade policies at the country level, and current world trade rules as agreed upon in the World Trade Organization Agreement on Agriculture, may not be adequate to prevent such crises in the future.[11] Views on how agricultural markets can be better managed, at both national and global levels, are changing, and more governments are giving attention to how they can assure their national food security in the future.

Higher global prices, moreover, have come at a time of growing scarcity in energy and the natural resources on which agriculture is based – notably water and arable land, but also rangeland, fisheries and forests. Scarcities are partly resulting from decreasing availability and degradation, which will intensify in many areas as a result of climate change. However, they also reflect growing demand and competition, particularly over water as a result of urbanization and industrialization, and over agricultural land as a result of growing interest among private and public investors. In the future, continued population growth, urbanization and climate change are all likely to continue to put pressure on an already scarce resource base. This may, on the one hand, contribute to stabilizing agricultural and food prices at relatively high levels, and continue to provide incentives for greater investment in agriculture and in rural areas. On the other

hand, this is also likely to put ever greater pressure on agriculture and on rural people to adapt to new environmental conditions, to pay much greater attention to environmental sustainability and efficient use of scarce resources, and to deal with climatic risks and increasing volatility.

High global prices have also come at a time when the geography of the global economy has changed dramatically from what it was a few decades ago. Today, the lines separating north and south and developed and developing countries are quite different from even a decade ago. Fast-growing, large economies like Brazil, China and India are now important pillars of global markets, and massive sources of both demand and supply of agricultural products. This has brought about change in some traditional determinants of global prices, as well as in country-level prices in the regions where new trade flows and agreements are taking root. This opens up a host of new opportunities for agriculture, including smallholder agriculture, in developing countries to tap new markets. These opportunities are in international and also increasingly in domestic markets; however, smallholder farmers face new risks of marginalization in all of these markets.

To sum up, the global environment of agricultural and food markets is evolving in a direction that appears to provide greater incentives for investment in rural areas of developing countries and greater opportunities for agriculture – including smallholder agriculture – to play a key role in driving rural growth and ensuring food security. However, this same environment also poses new risks for rural economies and rural people, notably because of growing resource scarcities and competition, climate change, and the globalization of agricultural value chains. While the new opportunities should provide incentives to address the long-standing factors of economic marginalization of rural areas in developing countries, these same factors also compound the new risks, and undermine rural people's ability to manage them and to seize new opportunities. Policymakers seeking to promote rural economic growth and food security need to focus on the new opportunities available in today's environment, but they must also realize that seizing those opportunities requires mitigating the risks faced by smallholders and other rural people, enhancing their risk management capacity and tackling the traditional factors that have marginalized rural areas. In the process, policymakers also need to look at rural women and men – and, above all, the youth in rural areas – with fresh eyes, as key agents of economic growth and food security, as well as key contributors to better managing and preserving an increasingly scarce natural resource base in the context of a changing climate.

The changing context for rural poverty reduction

Many countries have experienced significant growth over the past decade or two, but it has not always been accompanied by commensurate poverty reduction – especially where the growth has been driven by sectors other than agriculture. Growth in agriculture usually generates the greatest improvements for the poorest people – and particularly in the poorest, most agriculture-based economies. One study shows, for example, that a 1 per cent growth in GDP originating in agriculture increases the expenditures of the poorest 30 per cent of the population at least 2.5 times as much as growth originating in the rest of the economy.[12] Another study shows that agricultural growth is up to 3.2 times better at reducing US$1/day poverty than growth in non-agriculture.[13] Despite this, agriculture has received little attention in most developing countries in the past few decades – including in many of the poorest of them, and equally, limited interest from the international development community.

At the same time, governments and donors have given little attention to the importance of diversifying rural economies for sustained growth, which capitalizes on the dynamic interplay among different sectors. Success in linking economic growth to poverty reduction typically occurs in a country in which agriculture makes substantial contributions to both economic growth and poverty reduction, but which also diversifies. Diversification is very important for poverty reduction, whether at the household, community or country level. In fact, rural populations in all developing regions are deriving more and more of their incomes from non-farm sources. Today, the existence of new incentives for investment in rural areas, driven in large part by the growing value of agriculture goods and services, can also help put in place a conducive environment for diversified rural growth. The process can be further aided by the availability of some new drivers of rural growth, including dispersed urbanization and closer rural-urban linkages in many countries, the globalization of many value chains, new and improved communication technologies, and the decentralization of energy development and supply systems.

As countries undergo their demographic transition from high to low rates of fertility and mortality, they pass through a period in which the fertility rate falls and the youth dependency rate declines. During this period the share of working age people in the population rises, and this can create the conditions for the 'demographic dividend' of rising output per capita and higher economic growth. Putting in place a conducive environment for both agriculture and diversified rural growth is important for capturing the demographic dividend in a way that does not overburden urban economies and continues to ensure food security. East Asia is currently in the middle of this demographic phase, and all other regions, except for sub-Saharan Africa, are shortly expected to experience it; benefits in terms of economic growth and poverty

reduction are expected to peak between 2025 and 2040. In sub-Saharan Africa, current trends suggest that this phase will occur later in this century, which means that a dividend may become available somewhat later than in other regions.[14] While in many countries urbanization and urban-based growth have played a key role in capturing the demographic dividend, elsewhere urbanization is not bringing about the kind of opportunities that can directly absorb a growing rural workforce and provide pathways out of poverty. In much of sub-Saharan Africa, in particular, a demographic dividend is likely to be realized only if rural economies become much more dynamic spaces – through both agriculture and the rural non-farm economy, both for today's and for tomorrow's rural generations.

Meanwhile, changes in the market, governance and natural environments facing smallholders and other poor rural people, as well as changes in mainstream discourses on rural development and rural poverty reduction, contribute to creating a different context for rural poverty reduction than existed just a decade before the food price crisis. As concerns the market environment, for instance, growing urban populations and the emergence of new middle and industrial working classes in many countries have resulted in an enormous expansion of urban food markets at the national level. Much of the global food trade and supply is now managed through global value chains controlled, to a large degree, by a limited number of large corporate actors. In many developing countries, modern markets for high-value foodstuffs are emerging, in which the same large corporate actors play a major role and exercise substantial power within the chain. However, these markets coexist with traditional markets, which in most developing countries remain important elements of the national food supply system. Both modern and traditional markets offer opportunities for profitable engagement by smallholders and other poor rural people; however, they come with a whole set of risks. The risks and costs of engaging in the modern markets, in particular, are sometimes too significant for smallholders to address without adequate support.

Changing patterns of rural-urban integration also contribute to a new environment for rural poverty reduction. In many parts of the developing world, rural and urban areas are becoming increasingly interconnected socially and economically, which means that the nature of 'rural' is changing. Rural societies and economies are no longer so distinct; increasingly they interact on a regular basis with urban society – something made possible in large part by mobile telephony. They also depend on it: migration is a reflection of this interconnectedness, and remittances drive rural economies in many contexts. Conversely, sometimes large numbers of people living in urban and peri-urban areas live in conditions similar to those in rural areas in terms of services, infrastructure, markets and at least partial reliance on agriculture. For the future, this report argues that the changing nature of 'rurality' and the changing relations between rural and urban spaces and populations are together likely to be a

key element in the process of rural growth and rural poverty reduction. For the time being, rural-urban linkages already constitute key aspects of the livelihood strategies of rural poor households; however, they need to be able to better harness these linkages to overcome poverty.

Another key change concerns the governance environment. Since the 1990s, many developing countries have taken steps towards more democratic governance, which has enabled the emergence of organizations and political movements representing poor rural people, both as providers of services to their members and as interest groups with a voice in policy processes. At the same time, decentralization processes have sometimes made space for new governance arrangements in which poor rural communities and rural people's organizations have found new roles and increased recognition – whether by the state or by other actors. Donors have in some cases played an important role in these processes (e.g. by supporting community-driven development approaches, or by supporting local institutional reform processes).

The global governance environment has also changed towards greater political visibility and importance of new powers (notably the BRIC countries – Brazil, Russia, India and China – and the G20 group), and greater collaboration among developing countries. There are now more than 20 political and economic groupings in Africa, Asia and Latin America, as well as regional initiatives, such as the New Partnership for Africa's Development (NEPAD); South-South development cooperation is growing rapidly and is likely to reach US$15 billion in 2010;[15] and South-South trade currently accounts for about 20 per cent of total world trade, as compared with 7 per cent in 1985.[16] All this provides potential new opportunities to advance the interests of developing countries and poor rural people in these countries in international fora, and for new market and investment opportunities to open up for the benefit of rural areas and poor rural people.

Significant changes have also occurred in mainstream discourses on development and rural poverty reduction. First, there is now greater interest in agriculture as a key driver of development and poverty reduction. One of the catalysts for this greater interest was the publication of the 2008 World Development Report (WDR). The WDR, which marked the World Bank's rediscovery of agriculture after a 20 year decline in its assistance to the sector, focused particularly on the role of agriculture in development and in different types of countries; the different pathways out of poverty open to poor rural people; and instruments for agriculture for development. Shortly after the appearance of the WDR, the comprehensive 2008 International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD) highlighted the importance of a changed agricultural agenda in development. The IAASTD argued that agriculture needs to deliver not only increased production, but also sustainable environments, rural poverty reduction and secure livelihoods; and

that to respond to these different goals and values, agricultural knowledge, science and technology need to be transformed. Both the greater interest in the developmental and poverty reduction value of agriculture and the recognition of the need for a transformation of the agricultural agenda to achieve these goals, are important elements of the background for this report, and both can have profound implications for today's and tomorrow's rural women and men – particularly but not only those engaged in agriculture.

Second, at the start of the new millennium, the international community committed itself to achieving the eight MDGs, the first of which is to halve the proportion of people living in extreme poverty and hunger by 2015. At the country level, poverty reduction strategies (PRSs) and national development strategies have been used to prioritize national poverty reduction efforts and pursue the MDG targets. Yet the new attention to poverty reduction and to the MDGs in general, did not initially involve an explicit focus on *rural* poverty, or on agriculture, even where the latter is clearly important for the reduction of poverty and hunger. In part, this has been linked to a decline in support to agriculture by governments and international donors from the early 1980s until very recently. While the figure has since risen somewhat, between 2003 and 2006 around 3 per cent of total Official Development Assistance went to agriculture. In addition, a series of studies from the mid-2000s revealed that PRSs, and particularly the first-generation PRSs, gave only limited attention to the rural economy, had typically weak analyses of rural poverty and provided little opportunity for engagement by rural stakeholders.[17] Today, integrating agriculture and a rural focus into intersectoral efforts to achieve the MDGs remains a challenge for many countries and donors.

Third, rural development and poverty reduction discourse has been increasingly shaped by climate change and environmental sustainability concerns. The Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) was issued in 2007. It stated that "warming of the climate system is unequivocal" and that "most of the observed increase in global average temperatures since the mid-20th century is *very likely* due to the observed increase in anthropogenic greenhouse gas (GHG) concentrations."

In the three years since the report was issued, public awareness of climate change has grown enormously. On the one hand, the impacts of climate variability and change on rural economies in developing countries, and the risks that they pose for poor rural people's livelihoods, are increasingly being understood. On the other, the increasingly recognized need to include agriculture in international climate negotiations as a major source and absorber of greenhouse gas emissions, has meant that the environmental consequences of agriculture are under the spotlight as never before. Today, governments and donors (among others) are giving growing attention to the importance of climate change as a driver of environmental stresses

in relation to agriculture, and as a multiplier of risk in the livelihoods of poor rural people as managers of a large share of the world's natural resources. Adaptation to climate change is becoming an important part of rural poverty reduction discourses, and so is attention to ways in which poor rural people can participate in, and benefit from, markets for environmental services generally, and climate change mitigation specifically.

Fourth, the role of the state in agriculture and rural poverty reduction is being reassessed both in development discourse and in many developing countries. In the aftermath of the 2006-2008 price surge, for instance, several governments have reconsidered their commitment to liberal market policies, and some have sought to free themselves of market uncertainties by producing food in third countries. This has led to fears of 'land grabbing' and of poor rural people being displaced – although this report supports the view that new land investments for agriculture may, under certain conditions, hold promise of benefit for marginal rural economies and for many rural women and men.[18]

More generally, it is increasingly recognized that not only western countries, but also more recently a number of transforming economies in Asia, have intervened extensively in their rural economies; and indeed, robust government policies have been a critical factor in their development. There is thus new interest in thinking through the role that state policies and investments can play in mitigating market volatility and promoting rural poverty reduction. Increasingly, that role is seen as being not just one of setting regulatory frameworks and investing in basic public goods and services, but also in stimulating the emergence of markets, improving the incentives and reducing the risks faced by smallholders, facilitating the operation of food markets to ensure food security, influencing land distribution patterns to maximize productivity and equity, and generating or contributing to the generation of the knowledge, information systems and education necessary to develop agrarian and rural economies.[19]

Key themes of this report

IFAD's 2001 Rural Poverty Report emphasized the importance for rural poverty reduction of ensuring the access of poor rural people to physical and financial assets; making markets and institutions work for them; and technology and natural resources. This report acknowledges the continuing importance of all such factors. However, its entry point is the recognition that today's circumstances present a series of new opportunities and risks for rural growth and rural poverty reduction, and that rural poor women and men need to be less exposed to such risks – and better able to manage them – in order to seize the opportunities and participate in rural growth.

Without a mitigated, better managed risk environment, and without improved risk management capabilities, access to the assets and resources flagged by the previous Rural Poverty Report cannot sustain stable mobility out of poverty for rural women and men, nor can pro-poor rural growth take place. The basic notion put forth by this report is that reducing and better managing risks and increasing resilience are critical for sustainable growth in the rural economies, and for growth to enable rural people to move out of poverty. This requires appropriate investments in rural areas to help generate new opportunities, capture those that are emerging in a changed environment, and reduce or better manage risks – those that result from new circumstances and those that result from the long-standing marginalization of rural economies and rural people.

How can rural economies become sites of pro-poor growth at a time of increasing resource scarcities, and amidst changes in the climate, demographics, governance and market context of rural areas? This report argues that agriculture – and specifically a kind of agriculture that is better suited to meeting new environmental and market risks and opportunities – is likely to remain a primary engine of pro-poor growth across the developing world, critically so in the poorest countries. This includes agriculture that is smallholder-based, but also that can increasingly provide employment opportunities for part of today's rural population. We will also argue that, in all countries, overcoming the marginality of rural economies and creating new opportunities for rural poverty reduction requires a comprehensive approach to rural development that includes both agriculture and the rural non-farm economy. It seeks to make the most of local drivers of rural growth and poverty reduction – some of which are linked to the new environment described above.

Supporting a comprehensive approach to rural development requires effective public policies and investments in rural areas and agriculture, and an improved overall environment (physical, economic and institutional) for rural economies to enhance opportunities and mitigate risks. It requires robust investment in the human and social capital of rural areas – women, men and youth in particular, and their individual and collective capabilities – both to generate and seize opportunities and to mitigate, or better manage, the risks they face. It also requires new and, in many cases, innovative ways for different stakeholders to work together across sector boundaries and mandates. In this regard, better appreciating the links between risk and poverty in today's environment for agriculture and rural poverty reduction requires bridging traditional separations between initiatives targeting poor rural people's human capital (e.g. through health and education) and those targeting them as economic agents (e.g. through support to agriculture, organization and infrastructure). It requires much better appreciation of the roles that agriculture and non-farm livelihoods play in the risk management strategies of poor rural people and in their mobility out of poverty. It also requires focusing not only on household

livelihood strategies, but also on improving the broader environment of rural economies as a source of both risks and opportunities.

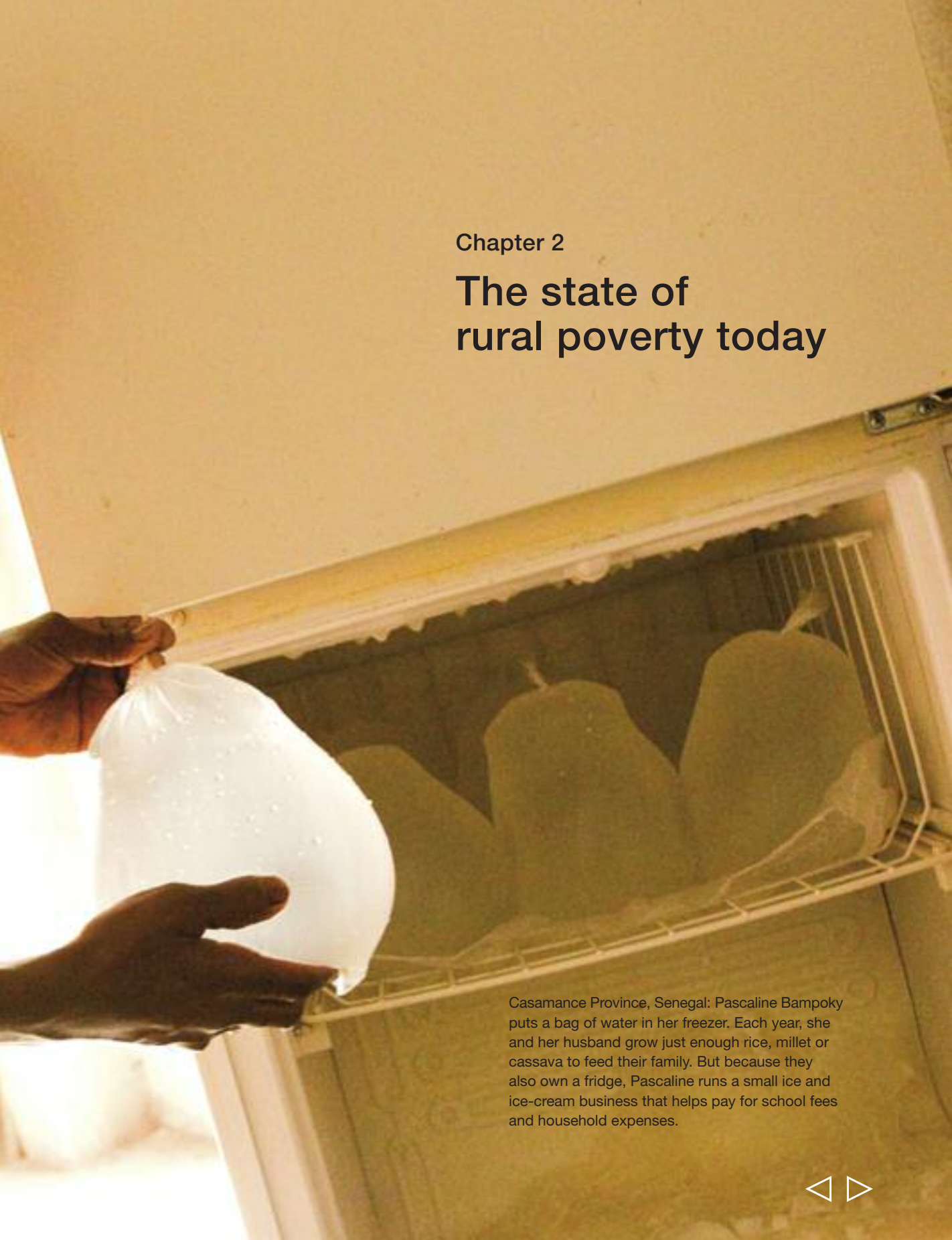
Throughout the report, continuous emphasis will be placed on the crucial role that policies, investments and good governance can play in harnessing new opportunities and helping reduce and better manage risks underlying rural poverty. However, new forms of collaboration between state and society also need to be cultivated, involving rural people and their organizations, the business sector and a variety of civil society actors. We will see, for instance, that these are crucial to develop effective tools to manage or mitigate risks related to climate change, market volatility or market power asymmetries, and also to develop context-specific solutions for a more sustainable kind of agriculture, or to strengthen individual capabilities in terms of rural people's access to good quality education.

Creating spaces for such collaborations is important, but may be particularly difficult where states have limited capacity in policymaking and/or implementation, or where they face substantial legitimacy challenges. However, engagement of state and non-state actors around specific issues of importance for rural development (e.g. infrastructure, financial services, agricultural research and development, or education) can contribute not only to achieving better solutions for rural development, but also to better governance and more effective states. In addition, facilitating this engagement requires that the conditions for 'active citizenship' are created,[20] by strengthening the individual and collective capabilities of poor rural people, and by strengthening approaches and tools for accountability for public policies, institutions and investments that are relevant for rural growth and for rural women and men. We will return to this theme throughout the report, stressing the importance of strengthening the individual and collective capabilities of the primary stakeholders in rural development, in an overall context of improved governance.

Turning to the structure of the report itself, the link between vulnerability and rural poverty will be discussed in chapter 2, in the context of a brief overview of the state of rural poverty, including an analysis of the interlocking disadvantages underlying the multidimensionality of poverty. Chapter 3 will address this link more specifically, stressing the renewed importance of confronting it in a changed environment characterized by new risks for poor rural people. Chapter 4 will address vulnerabilities and opportunities for smallholder producers related to participation in agricultural markets; and chapter 5 will look at how smallholder producers can intensify their farming systems at a time of growing demand for agricultural products and growing concerns about environmental sustainability and climate change. Chapter 6 will look at the rural non-farm economy as an important source of growth and opportunities for mobility out of poverty. Finally, chapter 7 will outline an agenda for action around the need for a comprehensive approach to developing rural economies as sites of growth and opportunities to move out of poverty.

Chapter 2

The state of rural poverty today



Casamance Province, Senegal: Pascaline Bampoky puts a bag of water in her freezer. Each year, she and her husband grow just enough rice, millet or cassava to feed their family. But because they also own a fridge, Pascaline runs a small ice and ice-cream business that helps pay for school fees and household expenses.

Pascaline Bampoky is a 30-year old mother of three living in Senegal. She had a hard start in life: **"I am an orphan. I lost my parents at a tender age. I was brought up by my aunt."** She had a primary education but nothing more: **"No one was there to pay for my secondary education."** Her aunt got her a job as a housemaid in Dakar: **"It was the only thing I was good at. There was no alternative."** It was there she met her husband, who ran a small shop.

When his father died, they moved back to Bignona, Casamance, to look after her husband's grandfather and they transferred the business there. Together the couple also work the grandfather's rice fields. He raises the seedlings and ploughs the land; she plants the rice and gathers the harvest. They grow just enough to feed the family for three months. **"We don't have enough resources or land to produce more."** One year they tried millet in addition to the rice, another year cassava: **"But it [produced] really very little, for our own consumption and not for sale."**

Although she deeply regrets her lack of education and training, Pascaline believes **"women are naturally good managers"** and she is pursuing other means of making a living. She raises chickens and pigs for sale, and uses the income for school fees and medical expenses. She has also started a small ice-cream business: **"Well, after the harvests I am in my kitchen and my house as a wife and a mother. But I also have a small trade activity that I carry out from time to time. We have a refrigerator, so I make ice cream to sell."** She buys the fruits at market, makes the ice cream at home and sells it at schools and **"sometimes at church"**. Her husband gave her the start-up money.

Pascaline is a member of the local women's association. During the rainy season they offer their labour, planting or harvesting rice. The fee for fellow members is lower than for those outside the association. The rate, she explains, "**may sound cheap to you, but remember the basic objective of the association is solidarity."** The money raised is shared among the members, and often used to buy cloth, and also to create a fund to assist members in difficulty. Such assistance is provided as loans, which she says are always paid back: **"It is a question of honour."**

Muhammad Naveed, 22, is from a large family in Akhoon Bandi, Pakistan. Five married siblings live separately, the three brothers having their own share of the family's land. Four younger unmarried brothers, including Muhammad, live with their parents and farm together. Although agriculture remains central to the extended family's survival, it does not produce enough to meet their living costs. The expense of hiring tractors, transporting produce to market, purchasing inputs, and occasionally extra labour, all eat into slim profits – but the **"biggest problem"** says Muhammad, **"is that of water."** Irrigation is extremely labour-intense – **"we work day and night on irrigation"** – and their non-irrigated fields produce nothing when rainfall is low.

The family have two buffaloes, and a few cows and goats, largely looked after by Muhammad's mother. The milk of one buffalo is sold; that of the second is for the family, including the children of the married brothers. The latter all have other jobs as well as farming: two as drivers, one as a tailor. Muhammad and his older brother Sheraz, still living at home, also take waged work when they can. Sheraz, like his father, finds occasional work with local masons and has tried for a job on the railways. Muhammad worked in a milk shop in Karachi for a year, but city living expenses eroded any savings. He then got work as a driver and managed to save a little: **"I was able to save about 4,000 rupees… I would keep 1,500 rupees for my own expenses and the rest I sent home to my father."** The two youngest brothers are still studying.

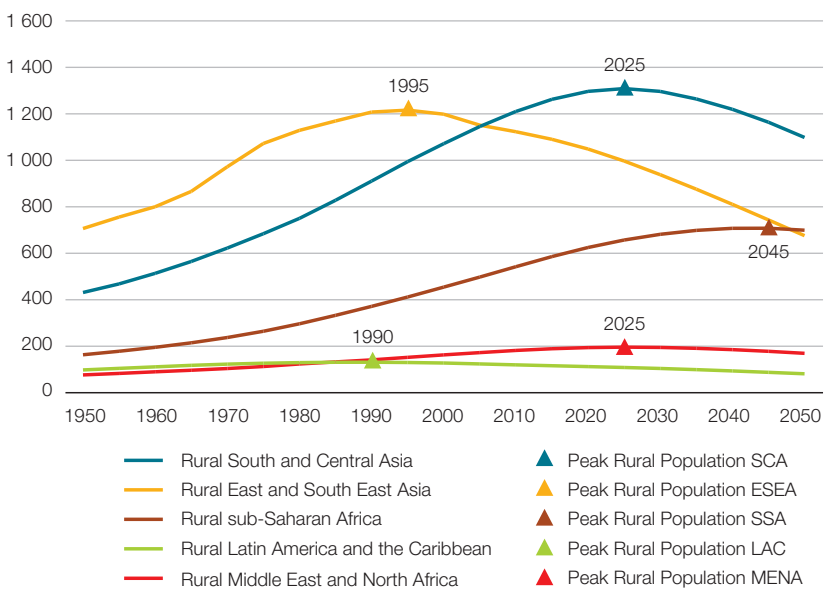
With the money he made from the sale of another buffalo, Muhammad did a training course in plumbing and invested in a 'middleman' who is trying to find him work abroad. He has heard nothing so far, but says, **"I have also applied to the army, and also the police."**

Despite their need for off-farm work, Muhammad is convinced that farming is indispensable, and preferable to unreliable and exploitative waged labour: **"We want to continue [farming]. Without it we cannot run our household… And it's one's own work and so one works hard… When we do labour outside… they stand on our heads to make sure we work… They also give salary at their own discretion… Sometimes they give it after a month. Sometimes 10 to 15 days after the month-end. The household is not run this way…"** He concludes: **"That's why working outside is very difficult. We are better at home. We are better off farming."**

Measuring rural poverty and hunger

A starting point for understanding rural poverty is having an idea of who is rural and who is urban. This is less straightforward than it seems: the definition of what is urban and what is rural is fraught with difficulties.[21] Having said that, it is clear that urbanization is happening rapidly in developing countries – in all regions urban populations increased between 20 per cent and 60 per cent between 1995 and 2005.[22] For the moment, the population of the developing world remains more rural than urban: around 55 per cent of the total population, or 3.1 billion people, are rural, and the numbers continue to grow. In the years between 2020 and 2025 two major demographic changes will take place: first, the rural population will peak, after which the total number of rural people will start to decline; and second, the developing world's urban population will overtake the rural population.[23] In Latin America and the Caribbean, and in East and South East Asia, the numbers of rural people are already in decline, and eventually they will be everywhere. Although the rural population will not start to decline until around 2025 in the Middle East and North Africa and in South and Central Asia, and around 2045 in sub-Saharan Africa, the rates at which rural populations are growing are already slowing down in all regions (figure 1).

FIGURE 1 **Rural population trends**
(Millions of people)

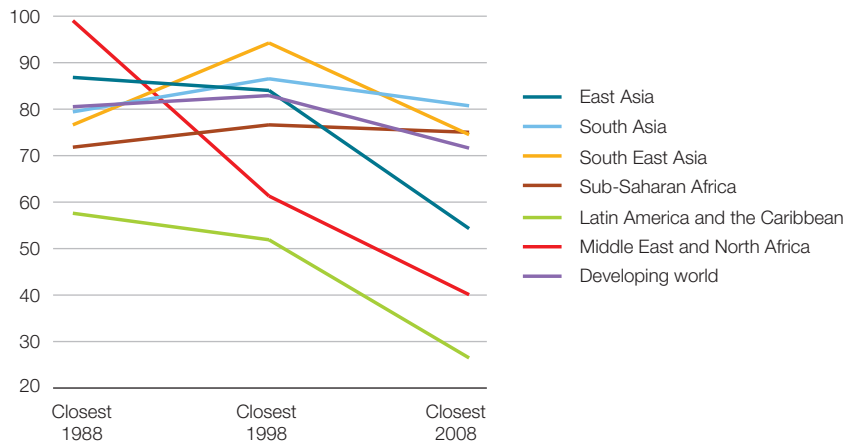


Sources: FAOSTAT available at: http://faostat.fao.org/, and originally from the World Population Prospects available at: http://esa.un.org/unpp/

Despite this historic shift towards urbanization, poverty remains largely a rural problem, and a majority of the world's poor will live in rural areas for many decades to come.[24] Of the 1.4 billion people living in extreme poverty (defined as those living on less than US$1.25/day) in 2005,[25] approximately 1 billion – around 70 per cent – lived in rural areas. In East Asia the rural share of total poverty has been reduced to just over 50 per cent, and in Latin America and the Caribbean, and the Middle East and North Africa, the most urbanized regions, a majority of the poor now live in urban areas. In South Asia, South East Asia and sub-Saharan Africa, by contrast, over three-quarters of the poor live in rural areas, and the proportion is barely declining, despite urbanization (figure 2).

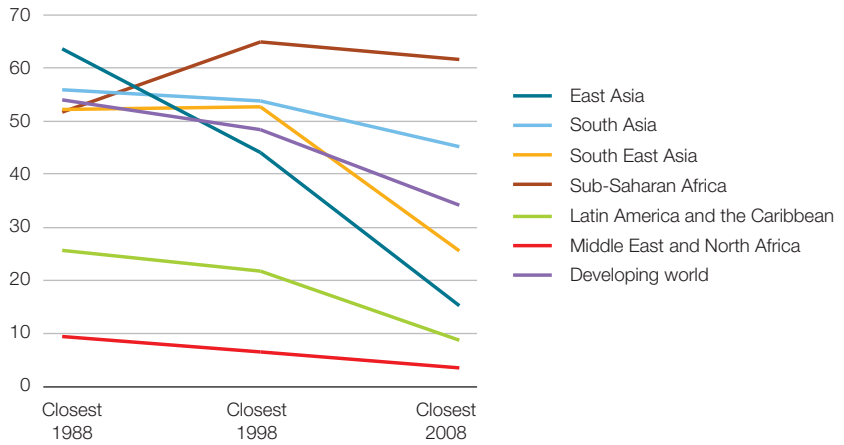
Today, a little less than 35 per cent of the total rural population of developing countries is classified as extremely poor, down from around 54 per cent in 1988; while the corresponding percentage for the US$2/day poverty line is now just above 60 per cent, down from over 80 per cent in 1988.[26] This is mainly due to a massive reduction in rural poverty in East Asia, where today the incidence of rural poverty is around 15 per cent for the US$1.25/day line and 35 per cent for the US$2/day line. Rural poverty has declined more slowly in South Asia, where the incidence is still more than 45 per cent for extreme poverty and over 80 per cent for US$2/day poverty, and in sub-Saharan Africa, where more than 60 per cent of the rural population lives on less than US$1.25 a day, and almost 90 per cent lives on less than US$2/day. In Latin America and the Caribbean, and the Middle East and North Africa the incidence

FIGURE 2 **Rural share of total poverty**
(Rural people as percentage of those living on less than US$1.25/day)



Source: Annex 1

FIGURE 3 **Incidence of extreme rural poverty**
(Percentage of rural people living on less than US$1.25/day)



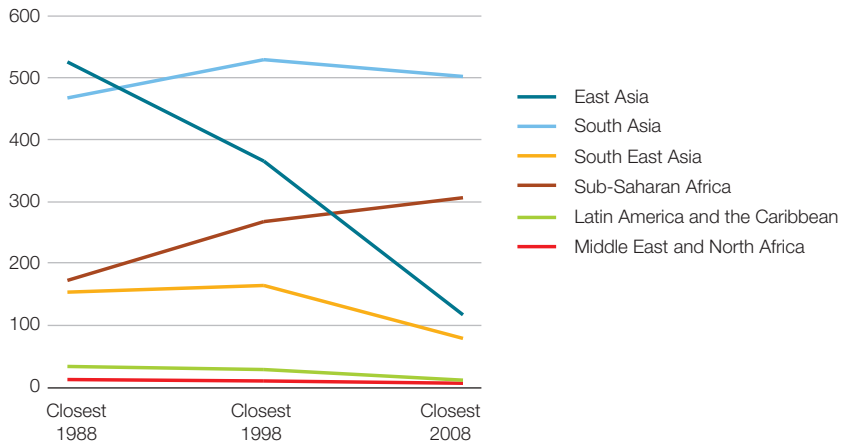
Source: Annex 1

of extreme rural poverty is less than 10 and 5 per cent respectively, with declines 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) (figure 3). Within each region, some countries and subregions 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.

The figure of 1 billion poor rural people represents a substantial decline in rural poverty numbers – down from almost 1.4 billion in the late 1980s. This has been largely due to the extraordinarily fast decline in the numbers of rural poor in East Asia (particularly China), to about 120 million poor rural people today; and in South East Asia, where numbers have declined to around 80 million. South Asia has by far the largest number of poor rural people (over 500 million), though in sub-Saharan Africa, where the numbers are increasing, there are now some 300 million poor rural people (figure 4). In Latin America and the Caribbean, and the Middle East and North Africa there are only 11 and 6 million people respectively living in extreme poverty; although the figures are likely to be considerably higher when poverty is measured against national poverty lines rather than against the internationally comparable US$1.25/day poverty line.[27]

Among the 1.4 billion people living in extreme poverty, there is a significant group, sometimes known as the 'ultra-poor', who are well below the poverty line. According

FIGURE 4 **Rural people living in extreme poverty**
(Millions of rural people living on less than US$1.25/day)

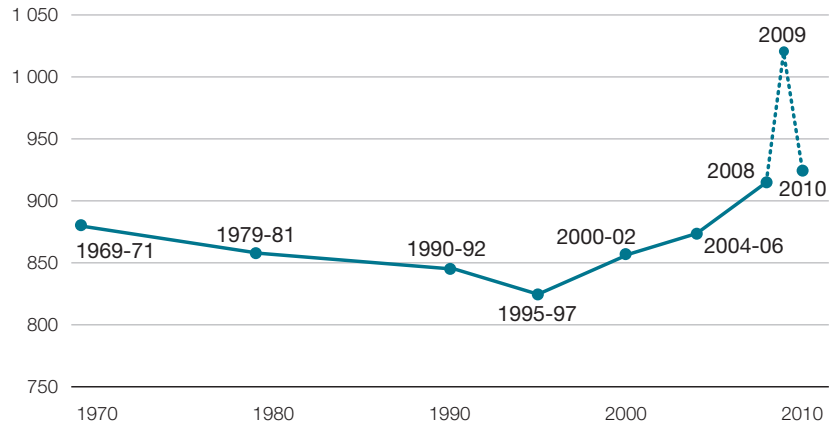


Source: Annex 1

to the International Food Policy Research Institute (IFPRI), there were half a billion people living on less than US$0.75 a day in 2004. Around 80 per cent of these people lived in sub-Saharan Africa and South Asia, and the very poorest overwhelmingly in sub-Saharan Africa; most of them are rural. The RuralStruc data gives an indication of the depth of that poverty: in the poorest 5 per cent of households in the poorest areas of countries such as Kenya, Senegal and Mali, the incomes per person are a barely imaginable US$30 to US$50 per annum.[28] A large proportion of the ultra-poor suffer from a variety of disadvantages (an issue we discuss further below) that make escaping from poverty that much harder. Indeed, progress for these people since 1990 has been slower than for other groups among the poor, both in terms of income poverty and of hunger.[29]

According to FAO, the numbers of undernourished people have been on the increase since the mid-1990s. Following the food price and economic crises, in 2009 the number of hungry people reached a billion for the first time in history. With improved economic growth and a decline in food prices, the figure declined in 2010 to 925 million (figure 5). However, this was still higher than the figure in 2008 and, at 16 per cent of the total population in the developing world, the rate was scarcely any lower than it had been a decade earlier. South Asia and sub-Saharan Africa are the regions where hunger is most concentrated. In South Asia, in particular, malnutrition has been remarkably stubborn.[30] If the first MDG of halving hunger by 2015 is to be achieved, the number of undernourished people will need to be 436 million less than in 2009.[31] This requires immediate and massive efforts in countries hosting large

FIGURE 5 **Number of undernourished people in the world**
(Millions of people)



Source: FAO (2009c); FAO (2010c)

numbers of hungry people, and achieving the goal is likely to be increasingly difficult in an environment characterized by higher food prices, insufficient support to smallholder agriculture in many countries, climate change and increasing water scarcity.

Children are disproportionately among the malnourished, a fact that has severe consequences for their future development and that of their households and societies. In all developing regions children in rural areas are more likely to be hungry than children living in cities and towns. In 2008, the ratio was 1.4 underweight rural children for every 1 underweight urban child in South Asia and sub-Saharan Africa; around 2.5:1 in Latin America and the Caribbean, and in the Middle East; and in East Asia, where the ratio was most unbalanced, children in rural areas were almost five times as likely to be underweight as children in urban areas.[32] Child malnutrition is highly correlated with gender inequalities at the household level, and linked to other factors such as poor availability of safe water and sanitation infrastructure.

The 2008 WDR developed a typology of developing countries according to how they rely on agriculture as a source of growth and an instrument for poverty reduction.[33] This yielded three types of countries: agriculture-based, transforming and urbanizing. There are considerable structural differences across these country types: GDP per capita ranges from US$380 in agriculture-based to US$1,070 in transforming and US$3,490 in urbanizing countries, while the share of agriculture in GDP declines from 29 per cent in agriculture-based to 13 per cent in transforming and only 6 per cent in urbanizing countries. There are also important differences in performance *within* the WDR categories, specifically in terms of levels of hunger and progress in reducing

TABLE 1 **Country performance in reducing hunger**

Country group	Progress on vulnerability, 1990s to 2000s				
	Low level of hunger and rapid progress in improving it	**Low level of hunger and slow progress in improving it**	**High level of hunger and rapid progress in improving it**	**High level of hunger and slow progress in improving it**	**High level of hunger and deterioration in level of hunger**
Urbanizing	Algeria Bolivia (Plurinational State of) Dominican Republic Ecuador Guyana Jamaica Mexico Nicaragua Peru Turkey	Argentina Brazil Chile Colombia Costa Rica El Salvador Jordan Panama Uruguay Venezuela (Bolivarian Republic of)			
Transforming	China Honduras Iran (Islamic Republic of) Swaziland Thailand Tunisia	Egypt Morocco	Guatemala Indonesia Mauritania Sri Lanka Viet Nam	India Pakistan Philippines Senegal	Lesotho Yemen
Agriculture-dependent			Bangladesh Benin Burundi Ethiopia Gambia (The) Ghana Guinea-Bissau Lao People's Democratic Republic Mali Nigeria Rwanda United Republic of Tanzania	Chad Democratic Republic of the Congo Côte d'Ivoire Kenya Malawi Mozambique Nepal Sudan Uganda Zambia	Burkina Faso Cameroon Central African Republic Comoros Guinea Madagascar Niger Togo

Note:
Low level of hunger = underweight < 15% in latest year
LV / Rapid progress = progress rate > 0.3% / year
LV / Slow progress = progress rate < 0.3% / year
High level of hunger = underweight > 15% in latest year
HV / Rapid progress = progress rate > 0.5% / year
HV / Slow progress = 0 < progress rate < 0.5% / year
HV / Deteriorating = negative progress rate

Data on hunger drawn from:
http://unstats.un.org/unsd/mdg/Data.aspx
http://www.measuredhs.com/
http://www.statcompiler.com/
http://www.unicef.org/statistics/index_24302.html
http://www.childinfo.org/

it. Table 1 looks at hunger in the three WDR country types, superimposing on them not only measurements of the prevalence of underweight children[34] (where low and high levels are defined as less than 15 per cent and more than 15 per cent underweight children, respectively), but also differing rates of progress in reducing hunger over time (rapid, slow and deteriorating).

The table is based on those countries for which there are sufficient data to develop this country categorization. The results clearly show that the urbanizing and agriculture-dependent groups are independent of each other in terms of the level of, and progress on, hunger. Most urbanizing countries have low levels of hunger, but are making slow progress in reducing it further. The agriculture-dependent countries instead all have high levels of hunger, and are split among those that are making fast progress in reducing it, those that are making slow progress and those that are experiencing deterioration in the level of hunger. However, the transforming group has countries in all five categories of change, and performance is highly varied within the group. We can conclude from this that there is a significant number of countries – both agriculture-dependent and transforming – in which hunger is on the increase; and second, that there are very different levels of performance within WDR country categories. Such differences may in part reflect different natural resource endowments, but sources of economic growth and issues of governance also clearly play key roles in shaping performance.

The livelihoods of poor rural households

What do poor rural households do?

In large part, the livelihoods of poor rural households reflect on one hand the opportunities and constraints characterizing the areas where they live (e.g. related to the natural resource base, market access opportunities, infrastructure), and on the other, their own profiles and characteristics as households.

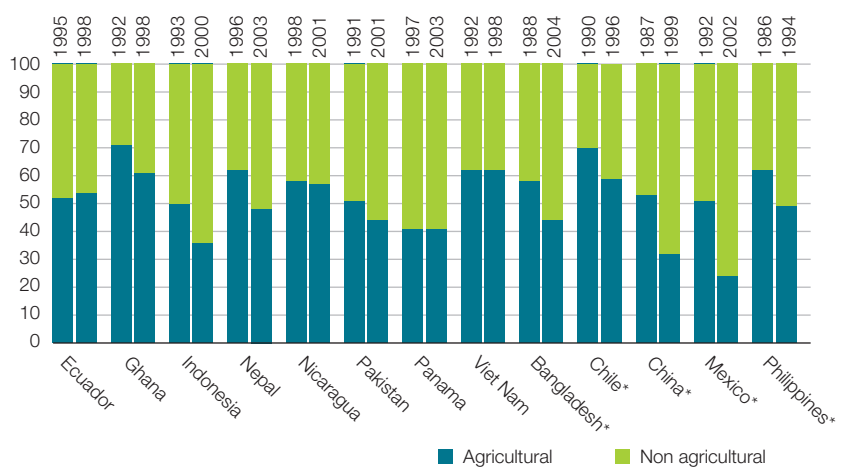
Landlocked states are significant hosts to the rural poor;[35] and within countries, the highest rates of rural poverty (though not necessarily the largest numbers of poor rural people) are often found in remote, low potential, marginal or weakly integrated areas. These territories typically exhibit a combination of an unfavourable natural resource base, poor infrastructure, weak state and market institutions and political isolation – all of which result in a higher risk environment for poor rural people.[36] For instance, a majority of the poor in China appear to live in remote, mountain areas.[37] In India, tribal peoples, most of whom live in degraded forest areas, are disproportionately represented among the poor. In Viet Nam too, poverty rates are higher in relatively remote hill areas in the north-west and central highlands, even though greater *numbers* of the poor live in the more densely populated, better-off

delta lowlands.[38] Similar findings apply in other parts of Asia. In Latin America as well, rural poverty tends to be very unequally distributed in spatial terms, which is the result of a long history of the poor being pushed into areas of low agricultural potential, which have subsequently received only limited public investments. In many countries, these are also the areas where indigenous peoples are concentrated today, which contributes to their over-representation among the poor.

A profile of poor households in 15 countries in Africa, Asia, Eastern Europe and Central Asia, and Latin America and the Caribbean (the Rural Income Generating Activities – or RIGA – database)[39] yields a consistent picture across countries, showing that, compared with non-poor households, poor rural households generally have more members, a greater share of dependents (non-working age), less education, less land and less access to running water and electricity. Depending on circumstance, rural households can derive their incomes from a range of sources: from their own on-farm production (crops and livestock), from employment (agricultural and non-agricultural), from self-employment and from transfers, including remittances and social transfers.

The households of Pascaline and Muhammad, whose testimonies introduced the chapter, are engaged in numerous activities to secure their livelihoods. Indeed, diversified income sources are virtually the norm among poor rural households, and diversification is often a key aspect of households' strategies to reduce and manage risks of failure in any single income source. In most of the RIGA sample countries, between 30 and 60 per cent of rural households depended on at least two sources of

FIGURE 6 **The share of non-farm income over time in total rural household incomes**
(Percentage of income)



Source: RIGA data; *non-RIGA

income to make up three-quarters of their total income. However, there are variations across regions and countries. On-farm production is a particularly important income source in sub-Saharan Africa: at the national level, between 40 and 70 per cent of rural households earn more than three-quarters of their income from on-farm sources. In other regions, livelihoods are more diversified: in Asia, between 10 and 50 per cent earn more than three-quarters of their income from on-farm sources (and in India, for example, only 1 in 5 agricultural households now earns all of their income from agriculture),[40] while in Latin America only 10 to 20 per cent do. Yet, while specialization in agriculture may be the exception rather than the rule in much of the world, agriculture continues to play a key role in the economic portfolios of rural households: in 11 of the 15 sample countries, about 80 per cent of rural households continue to engage in farm activities of some sort, even if it is only part-time and to grow some of their own food requirements.[41]

Access to wage employment is an important component of household income in some regions. It is of greatest importance in the countries from Latin America and Asia,

Who are 'the poor'? Some views from different regions

"The [extremely poor] are those that have no field to go to. In the morning the children aren't herding cattle, in the evening there are no chickens fluttering in their yard. That's how they are known. They never go to a field, they're always in the village and the children don't herd, morning, noon or night. They just sit there."

Manantane Babay,
male, 19 years, Madagascar

"[Poverty] means the person is stuck. You cannot go anywhere or do anything to get out of the situation. You are not in a mood to rejoice. You can get rough with your children. You fear the future."

Abibatou Goudiaby,
female, 21 years, Senegal

"Physical strength is our capital and can support the family. But I cannot do that because of my present situation [as a disabled person]. If my wife was alive, she could earn some income and we could cope."

Zhang Guobao,
male, 43 years, China

"Being poor means not having money, an income… Peasants, they are paid their daily wage, and that serves them for food. But when they get sick, they don't have money to afford [medical] expenses… and the health staff treat them badly."

Doris Consuelo Sánchez Santillán,
female, 36 years, Peru

"The poor worker is the poorest. If he loses his ability to work, he won't be able to feed his children. God knows [the reason for his poverty]. Sometimes it is because there is no work, or because he depends on his physical strength. And so if he loses it, he won't be able to work."

Nawal Mohamed Khalil,
female, 47 years, Egypt

where between 20 and 40 per cent of rural households participate in agricultural wage labour, and the same proportion participate in non-farm wage labour. In Latin America, agricultural or non-agricultural wages make up three-quarters of the total income for between 24 and 31 per cent of rural households. Non-farm self-employment is important everywhere, with typically between 20 and 40 per cent of rural households relying on it.[42] In almost all countries, the share of non-farm income in total rural household income is increasing, and in some countries this is happening rapidly (figure 6).

In virtually all of the countries in the RIGA dataset from sub-Saharan Africa, Latin America and Asia, the poorer rural households derive the highest proportion of their incomes from farming and agricultural labour, while the better-off households derive the most from non-farm activities. In all cases, income gains at the household level are associated with a shift towards more non-agricultural wage and self-employment income. Access to non-agricultural labour and higher wages is largely dependent on higher levels of education. Low-return agricultural wage labour is associated with no or low levels of education, and is therefore of greatest importance to the poorest households (see annex 3).

"[Out of the 45 families here] about 10 families are poor, they don't work the land. They cannot because they are too old or handicapped or the like. Yes, we do [consider ourselves poor], because we cannot supply our needs. When we have to go to Mendoza, or to the health post if we fall sick, we cannot get money because we haven't sold enough – it's complicated…"

José del Carmen Portocarrero Santillán, male, 82 years, Peru

"Those that are landless and have no other source of income [are the poorest]. Some are labourers… They survive with great difficulty. If they get a wage one day they may be without work for three to four days. Their household runs with support from neighbours – if they are better off – and others in the village. They help out. And those that earn well in farming give wheat grain. Some people also give money. That is how the poor survive. There is a lot of poverty in this village."

Muhammad Naveed, male, 22 years, Pakistan

"*Rarake* means having no wealth, having no relatives, having no animals… like me, myself! I am truly *rarake* at this time. First of all I have no field, secondly I have no father, and I have no mother. My mother died, my father died… My family is just myself, so I'm truly what's called *rarake*."

Tovoke, male, 44 years, Madagascar

"When a dust-devil year goes by, a time of famine, you can see the rich in the market purchasing food… So they are living… The have-not is not purchasing… in fact the have-not will be begging."

Randriamahefa, male, 49 years, Madagascar

Rural to urban and international migration are also important for many rural households as a livelihood strategy and as a tool for managing risk related to agriculture and other rural-based activities. Migration can provide opportunities for more secure incomes and for better access to education, especially beyond the primary level. A recent study finds that, while it may not be the people from the poorest households who migrate, it is people from the poorest areas who do so.[43] Remittances have become a significant element of household incomes in much of the developing world; in most of the countries in the RIGA dataset from sub-Saharan Africa, Latin America and Asia, between 20 and 80 per cent of rural households received private transfers. There is also a very mixed pattern of transfers by level of income: although wealthier households generally gain more in absolute terms, poor households count remittances as a vital component of their income and a key element of their strategies to reduce their vulnerability to food insecurity and address sources of risk.

The discussion so far has focused on livelihood strategy patterns and differences among them at regional and country levels. Yet it is also important to bear in mind that economic opportunities within and outside agriculture and, as a result, household

"A person believes he'll relinquish some of his poverty, that he'll find something small [to help him] when he migrates. To find relief from poverty, to find something small, to purchase a cow, which would bear offspring… that's what one looks for in migration."

Manantane Babay,
male, 19 years, Madagascar

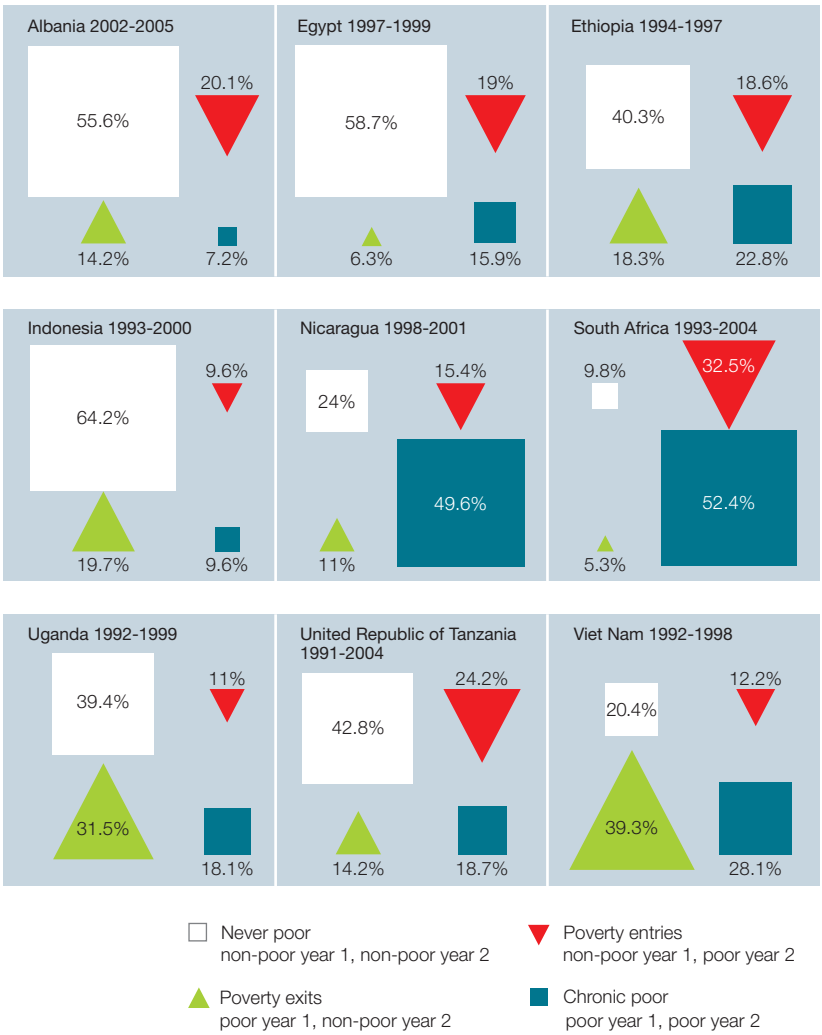
livelihood strategies, can vary enormously *within* countries. The RuralStruc analysis brings out some of these differences.[44] In Mali, the proportion of households participating in agricultural markets as sellers ranges from less than 10 per cent to almost 90 per cent in different areas of the country. In Senegal, the average share of on-farm income sources (as compared with off-farm income sources) in total household income ranges from around 30 to 70 per cent, according to the area; in countries such as Morocco and Nicaragua, it varies from about 60 to 90 per cent; and in Mexico the range is 10 to 60 per cent. The differences in opportunities and strategies are reflected in different levels of household income: in Madagascar, mean incomes vary by a factor of 3.5:1 – that is, household incomes in the most well-off of the sampled areas are 3.5 times higher on average than in the poorest sampled areas. In Kenya, the ratio is even higher at 3.7:1; in Senegal it is 2.8:1. In middle income countries such as Mexico and Morocco, the rates are, not surprisingly, lower, at 1.8:1 and 1.7:1; this may be assumed to be a result of better infrastructure and communications, and greater mobility.

Moving in and out of poverty

By no means are all poor rural people stuck in poverty as a permanent state. Indeed, 'the poor' are not a stable, identifiable group of people.[45] Some have become poor, some formerly poor have moved out of poverty, and some may have moved in and out of poverty several times in their lives. Data from countries as varied as Argentina, Bangladesh, Chile, China, Egypt, Ethiopia, Indonesia, the Islamic Republic of Iran and Uganda indicate that there are more people who are sometimes poor than always poor.[46] The degree of movement in and out of poverty, and the speed with which people's conditions change, are remarkable. Figure 7, presenting data on rural poverty dynamics from nine countries in Asia, sub-Saharan Africa and Latin America, shows that it is very typical for 10 to 20 per cent of the population to fall into poverty (as defined by national poverty lines) or move out of poverty within a period of five to ten years. In the most extreme cases, more than 30 per cent of the population may fall into or move out of poverty.

In figure 7, countries doing relatively well in development over the focal periods (e.g. Indonesia, Uganda) were characterized by more upward mobility and less downward mobility, although there was still significant downward mobility, especially in Uganda. In other economies (Egypt, Ethiopia, the United Republic of Tanzania), there was upward mobility but also higher levels of downward mobility and chronic poverty. Households frequently fall into poverty as a result of an external shock, such as exposure to important illnesses, market volatility, failed harvests, natural disasters or conflict – which shows the importance of reducing or better managing risk as a crucial part of efforts to reduce mobility into poverty. The data also show that the household characteristics associated most often and most strongly with downward

FIGURE 7 **Rural poverty dynamics**



Source: Annex 4

mobility into poverty appear to be the number of household members (the costs of additional mouths are greater than the benefits of the additional labour) and dependency ratios – the more children and/or old people present in the household. Assets such as land and livestock are important factors associated with moving out of poverty, as are education, participation in non-farm wage labour and the share of income generated from non-agricultural self-employment (see annex 4 for relevant data and analysis).

Beyond the household level, there are substantial differences in mobility among communities, which can be attributed to local conditions and the opportunities that these present: the ease in finding jobs locally, the physical presence of markets in villages, proximity to roads and cities and the responsiveness of local government. Upward mobility is not as easy when there are large numbers of poor people in a village or deep social divisions. These characteristics can reduce opportunities for growth, and they can also reinforce the impoverishing impact of shocks – by undermining the social and economic foundations of local solidarity networks that may help people manage risk and buffer the impact of shocks.

Drawing together the results of discussions with 60,000 rural people in 15 countries across the developing world, the World Bank-sponsored "Moving out of Poverty" study highlights the importance of economic growth to create opportunities for people to move out of poverty, but notes that access to those opportunities is far from equal, and there are wide differences among localities. This study also stresses the importance of local economic opportunities and the quality of local governance. It confirms that people do not resign themselves to poverty: they are repeatedly taking initiatives to improve their lot, and those who succeed attribute their success to those initiatives. Interestingly, very few people in this study credited external programmes with being instrumental in their move out of poverty. Feeling confident and empowered appeared to be both a factor behind, and a consequence of, moving out of poverty. Good health never suffices to move out of poverty, but poor health can wipe out a household financially. Overwhelmingly, while poor rural people face enormous problems of access to opportunity, they did not generally see themselves as trapped in poverty. Finally, the study noted that because the poor are such a disparate and fluid group, effectively targeting programmes at 'the poor' is extremely difficult.[47]

Such conclusions are important for this report: they highlight the importance of focusing at a level lower than country to identify and cultivate opportunities for growth; of nurturing those drivers of growth that are the most likely to create opportunities in areas where poor rural people are concentrated; of strengthening people's individual capabilities and supporting their confidence and empowerment; and of giving urgent attention to shocks as factors of impoverishment.

The multidimensionality of poverty

Rural poverty is rooted not just in asset levels and in different spatial distribution of opportunities for growth, but also in historical factors and social and political relations among classes and castes, ethnic groups, men and women, and different market actors. These can contribute to poverty by creating and/or perpetuating a variety of 'interlocking

disadvantages' that limit people's opportunities to improve their livelihoods, undermine their assets and capabilities and their efforts to improve them, and increase the risks they face. These disadvantages can include a variety of forms of exclusion, discrimination and disempowerment, unequal access to and control over assets, lack of education and limited collective capabilities. They all contribute to making poverty a multidimensional phenomenon, and some or all of them can sometimes be the main features of poverty, over and above income considerations. Indeed, in some regions – particularly Latin America and parts of Asia – rural poverty can be defined primarily in terms of non-income deprivations. In addition, interlocking disadvantages often reinforce each other, and thus contribute to making it more difficult to move out of poverty.

Mutually reinforcing forms of deprivation rooted in social and political relations of course affect certain groups of people more than others in each society. However, across rural societies, women, youth and indigenous peoples are often disproportionately affected by disadvantages that tend to make mobility out of poverty harder, access to existing opportunities more limited and the risks involved in accessing them greater. This is not to say that people in these three groups are equally affected by the same kinds or levels of disadvantage contributing to poverty. In addition, people in all three groups can have distinctive assets and capabilities of great importance for overcoming poverty. For instance, rural women often have specific forms of knowledge and social capital, and they play crucial roles in the rural economy – both on- and off-farm. Rural youth often have greater capacity for innovation and entrepreneurship than older adults, which may better equip them for addressing some of the requirements of both agriculture and the rural non-farm economy today. Indigenous peoples have unique forms of knowledge, practices and social capital, and they are often the custodians of territorial resources and environmental goods of immense value. What is common to all three groups, however (and to others in different societies, depending on how power and exclusion mechanisms operate in each), is that social and political power distribution tends to undermine their ability to use their assets and capabilities to seize existing opportunities to move out of poverty.

Rural women

In virtually all rural societies, women are the primary caregivers, but they also perform a large part (and often most) of the agricultural work and produce the bulk of the developing world's food crops. The income they earn is generally invested in household welfare. Their working hours are longer than men's, and they often include considerable drudgery – for instance, in many areas women spend significant time and great energy fetching water and fuel for their households, with important consequences for women's time-poverty and health.[48] Despite their major contribution to agricultural work and other rural economic activities, women's economic roles

BOX 1 **Gender inequalities in agriculture – some examples**

- Men's landholdings average almost three times the size of women's landholdings (globally).
- Fertilizer 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 per cent of snow pea production contracts but contribute more than one-third of total field labour and virtually all processing labour.

Source: World Bank, FAO and IFAD (2008)

remain largely invisible and unrecognized in statistics and in public policy. Some of the inequalities that women face in agriculture are shown in box 1.

There is debate on whether gender inequalities may result in women's over-representation among the income poor. It is certainly the case that women tend to earn less than men in terms of rural wages. A recent study analysing gender gaps in rural wages from 13 countries from sub-Saharan Africa, Asia and Latin America[49] found that in almost all cases, women's hourly wages ranged between 50 and 100 per cent of men's. This can be seen largely as a result of overlapping disadvantages at the household and social levels, which result in fewer, lower skilled, less stable or less rewarding employment opportunities being available to women. Also, girls have less access to education and skills development opportunities, particularly beyond primary schooling. Despite the contested value of comparing income levels between male- and female-headed households as a proxy indicator for gender-differentiated poverty,[50] there are a number of studies that have looked at this in different regions. Not surprisingly, given the diversity of female-headed households in terms of composition, livelihoods and income base, the results are inconclusive. A household headed by a widow may be particularly disadvantaged in many contexts, whereas a household headed by a woman with an absent husband or son sending remittances from the city may be among the better-off households in the community.[51]

Irrespective of the gender of the household head, women's income poverty is largely a function of who has control over assets (including financial assets) and how

decisions are made within the household. This depends on gender relations and bargaining within the household, and on the social and economic context and the characteristics of the household and its members. In most cases, 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 types of households, they have relatively secure access and control over certain types of livestock – which is often a key risk-mitigating and risk-management asset for rural women and their households; yet women may not always have direct control over the income generated through the livestock, or over the income generated through all kinds of livestock products (e.g. meat as opposed to dairy or eggs).

Beyond the household, rural women are less represented than men in governance processes and in rural organizations, particularly in leadership roles – in fact, participation may expose women to increased risk of a social backlash or even violence. This lack of representation contributes to the fact that the voices and concerns of rural women are little heard at national and global levels. This is despite the fact that, in many countries, rural women are very active mobilizers and

"I may be an old woman but I have to plough with the *kadiandou* (traditional tilling instrument) and use the machete to clear bushes. I am left-handed and if you see me using the machete, you will not believe that I am a woman. I clear the rice field before it is ploughed and then I plant the rice… I have to get up before dawn and start cooking. Depending on what you cook, you may have to prepare that food the night before you go to bed. When you finish cooking in the morning you leave part of it at home for those who are staying there, and take the rest with you. At noon you stop for a while, you eat, and you resume work till the evening."

Safiétou Goudiaby
female, 70 years, Senegal

participants in their own organizations, particularly at the local level, and often in a wide range of functions – social, economic and financial. In many countries, rural women also are constrained from migrating or from accessing stable and rewarding employment opportunities by social norms, low assets, lack of education and lack of time. The OECD Social Institutions and Gender Index highlights the key role played by social institutions and their corresponding societal practices and legal norms in creating inequalities between women and men.[52] The variables it draws on are shown in figure 8.

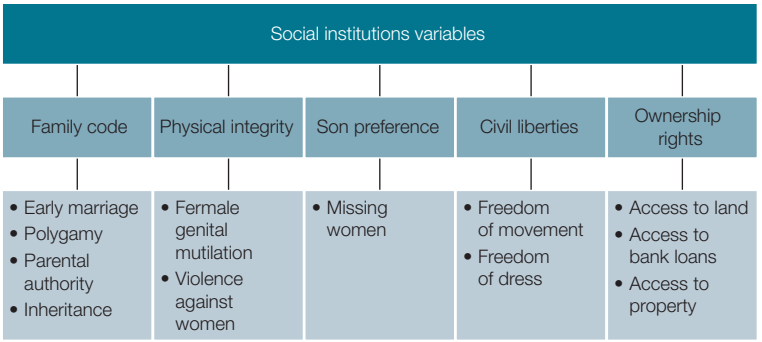
Country scores on the Index (annex 2, table 3) show that women in many parts of the world face discrimination resulting from social institutions in a range of areas, and that this has strong material consequences. Early marriage is particularly damaging to educational chances; strong discrimination reduces women's participation in good quality, non-farm wage employment, which is a critical pathway out of poverty (see chapter 6); violence against women – a critical factor of risk and vulnerability – is associated with a higher total fertility rate, which in turn may prevent access to education and employment; and low access to land and credit is linked to working often as unpaid family labour rather than in self- or wage employment. According to the Index, gender inequalities are particularly pronounced in sub-Saharan Africa, South Asia and the Middle East and North Africa. Lower levels of 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 equalize access to education and other services.[53] Nevertheless, although Latin American countries are leading the way in establishing women's land rights,[54] gender inequalities in asset distribution are very prominent here too – for example, women comprise only between 11 and 27 per cent of all landowners across the region.[55]

"… if I had been to school, I could have had a good job in town. Of course I would still come to the village because there are so many fruits and other things to eat here. But it would be my decision. I would not be forced to stay here. I could be in a nice office, writing down things for other people to do. But you see, I am illiterate and I got married too early. That is precisely the problem of being illiterate. You have no way of knowing what the possibilities are out there. I can't know. All I know is farming."

Abibatou Goudiaby,
female, 21 years, Senegal

The general implication of these findings is that achieving gender equality requires challenging social institutions, and that doing so is crucial to address interlocking deprivations which result in poverty – not only for women, but poverty more broadly. Thus the Index finds that women's access to better paid, more secure jobs is not only beneficial to them and their families, but also to the growth of the wider economy. There are cases where governments have taken important initiatives to change norms and institutions contributing to poverty through gender inequalities, for instance, by reforming

FIGURE 8 **The OECD Social Institutions and Gender Index: social institutions variables**



Source: OECD Social Institutions and Gender Index

family codes regulating marriage and inheritance matters (e.g. in Tunisia) and by promoting gender-equalizing land legislation (e.g. in China, Mozambique). However, at the local level gender norms tend to change slowly,[56] even in the presence of progressive policy changes. Change at this level occurs usually as a result of a combination of: women's economic empowerment; women's growing awareness of their rights as individuals and citizens (including through better access to education); capacity-building for women and women's organizations; and sensitization and debate involving women, men and local authorities. In other words, policy change is very important, but it also needs to be accompanied by efforts to strengthen individual and collective capabilities on the ground.

Since the 1995 Beijing Platform for Action was launched, attention to gender inequality in development has been unprecedented. For example, biases against women in accessing health and education services – a key aspect of vulnerability to risk and shocks for poor rural women – have been a major focus of development activities, not least because of the MDGs. Today, it is increasingly evident that more progress towards gender equality is a major precondition for achieving success on the MDGs in general. Over the past decade, the gender

Li Guimin is the head of the local Women Health Support Group, which is one outcome of the project Community Action to Prevent Rural Women's Suicide set up by the Beijing Cultural Development Center for Rural Women. "Before the group was set up, women in our village had nothing to do, just stay at home… you wanted to have some activities, but there was no place to go. Now, the group organizes activities… We have training sessions, lectures, often sing songs and dance… Women gather together and can chat to exchange ideas. [If one] has some problems, they can talk with others, then get rid of their worries. [It helps] to speak out what is in one's mind, to share the depressions of one's heart."

Li Guimin,
female, 50 years, China

gap has narrowed significantly in primary education (but still much less so in rural than in urban areas) and in the achievement of literacy, but less progress has been made on other educational indicators. Other MDG targets where gender equality is a *major* factor (e.g. maternal mortality, hunger, sanitation) have not seen dramatic performance improvement yet, and in some countries in Asia the preference for the male child has led to significant demographic imbalances as a result of female abortion and infanticide.[57] And while women are participating in the labour market more in most societies, they do so often in informal, low-paying jobs with low security, little or no social security and few chances of upward mobility. In fact, it has been argued that gender discrimination in labour markets has led to a 'feminization of bad jobs' (both agriculture-related and not) in rural areas of developing countries.[58]

Doris was voted the first ever female municipal officer in Cheto and has been involved in community development projects for children and youth. She notes: "Many people would have never voted for a woman. They questioned why I had been elected, and argued that women shouldn't be in charge of those matters."

Doris Consuelo Sánchez Santillán, female, 36 years, Peru

Children and youth

Across the developing world, children (0 to 14 years) make up between 19 and 42 per cent (in East Asia and sub-Saharan Africa, respectively) of the total population. When youth (15 to 24 years) are added, children and youth comprise between 35 and 62 per cent of the total population; among poor rural populations, their proportions are likely to be even higher. In Bangladesh, 50 per cent of the poor are 18 years old or younger; in Senegal the figure is 57 per cent.[59] In Latin America and the Caribbean, poverty among children below the age of 15 is 1.7 times higher on average than among adults.[60]

Children thus represent a substantial proportion of the poor in rural areas, and the highest proportions of children and youth are found in the poorest regions, above all sub-Saharan Africa and South Asia. Most will go on to become poor adults. The reasons for child poverty are complex. To begin with, poor households in most countries tend to have higher dependency ratios, which also makes it harder for children born in these households to get the care, nutrition and education they need to escape poverty in the future. Many poor households also rely on child labour, which further limits the opportunities available to children to build their capabilities and overcome poverty. Girls from poor households are particularly affected by the reliance on child labour for care work and for activities like fetching fuel and water for household use. Moreover, girls almost everywhere suffer the consequences of gender inequalities in schooling and/or early marriage and childbearing practices, which themselves are important factors of risk related to their health.

In some regions, rural children are particularly affected by the consequences of HIV/AIDS; many grow up as orphans, they become heads of households or members

of households headed by elderly people. In many circumstances, orphaned children lose whatever asset base their households previously had, notably land; this severely undermines their capacity to cope with any kind of shocks. More generally, in areas where there has been growing land scarcity and fragmentation, children and youth are at a particular disadvantage as they are less likely than their parents' generation to inherit sufficient land assets to build a livelihood. Moreover, children and youth are always particularly affected by the direct and indirect impact of conflict, which may lead to displacement, disruption of schooling patterns and food insecurity.

Deprivations affecting human capital and individual capabilities are of particular importance for children, as they are likely to have lasting effects on their future. Primary school education rates have improved all over the developing world: in 2007 net enrolment rates in primary education ranged from 74 per cent in sub-Saharan Africa to more than 90 per cent in all other developing regions, and the gap between girls' and boys' enrolment rates closed to between 90 and 100 per cent everywhere.[61] There has been less improvement in enrolment rates for secondary

The importance of education for the children of rural people

"When you are educated you can understand and do certain things yourself. That's why I urge my children to study and do everything for them to do their homework, like buying kerosene for the lamp. Even when I don't have money myself, I will go out and look for some way of getting kerosene. It's for their future. It can improve the life of a peasant. Any knowledge you have from your education can help you be more efficient in your work, be it agricultural production or cattle breeding… Suppose you want to raise sheep… If a sheep falls ill and the veterinarian prescribes a medicine – if you don't know how to give the medicine to the sheep you can kill it. But if you can read the prescription, you will do the right thing."

Abibatou Goudiaby, female, 21 years, Senegal

"My daughter is receiving a much better education. When I was her age, I had to do all the household chores at my home, but she doesn't [do those]… My son attends a private school because his former government school didn't guarantee enough for us [about the quality of education]. He is a hyperactive kid, and has fallen two or three times to the floor. So we made a big effort and enrolled him in a private school, so that he would feel better."

Doris Consuelo Sánchez Santillán, female, 36 years, Peru

"We have to think about our children. We say that if we can save even a straw we will definitely educate our children. Our parents didn't think so. They definitely thought about it but they didn't have the resources. Their condition was such that they didn't have anything. So they couldn't educate us. Our children, we are trying to educate them, educate them well, send them to good schools, make them into good human beings. It is not necessary only that they have permanent employment… [but also that they] become good human beings."

Shazia Bibi, female, 37 years, Pakistan

education, particularly in the poorest countries, and rates today range from just over 30 per cent in sub-Saharan Africa to almost 90 per cent in Latin America. In all regions, moreover, rural children have less access to education at all levels than their urban peers – in some countries rural enrolment rates are only half those in urban areas,[62] and out-of-school rates for rural children are twice as high as those for children living in urban areas.[63] This is partly linked to lesser availability and quality of education infrastructure (particularly in remote areas, and especially beyond the primary level) and partly to reliance on child labour in poor households, in addition to gender inequalities. Education systems need to take into consideration the specific needs of poor and working children in order to ensure their inclusion, but this is rarely the case – even though there are some important exceptions, such as the Escuela Nueva in Colombia and the Bangladesh Rural Advancement Committee.[64]

Due to their limited assets and overall poor access to education, poor rural children and youth are generally vulnerable and face high risks in labour markets and mostly work in informal employment, often in very low-skilled, insecure and,

"Education is very good, it enlightens the minds of girls and boys. It makes them know how to live. In the past, we sat at home and watched our fathers die of exhaustion… We are more comfortable than our fathers and our sons are more comfortable than us."

Nawal Mohamed Khalil,
female, 47 years, Egypt

sometimes, hazardous jobs. This vulnerability is greater in situations where large cohorts of young people are entering the labour market, when they have left school early and when social institutions discriminate against girls working.[65] The rural non-farm economy is often a major source of employment for youth, and young people are also more likely than older people to migrate to urban areas, where they may not compete well with urban residents because they have lower education levels. Failure to secure employment or to move beyond low-skilled, informal jobs feeds into other disadvantages affecting poor youth, such as their continued inability to build an asset base, access financial services, or enhance their skills and education.

The MDGs' focus on children – primary education, gender equality in primary education, infant and child mortality, and a range of relevant health services – has ensured that substantial progress has been made in these areas. By contrast, the international, and in many cases national, development communities have given only limited attention to youth, despite the 2007 WDR's focus on the 'next generation'. Most public policies and programmes addressing rural poverty do not mention youth; and conversely, most reports on youth give only limited attention to the very specific issues that rural youth face. As a consequence, there is a dearth of public policies that can serve as a model to address the specific, mutually reinforcing disadvantages affecting rural young men and women.

Indigenous peoples

Indigenous and tribal peoples and ethnic minorities constitute roughly 5 per cent of the world's population, but they are 15 per cent of the world's poor.[66] In Latin America, poverty rates for indigenous peoples are substantially higher than for non-indigenous: in Paraguay, poverty is almost eight times higher among indigenous peoples, in Panama almost six times higher and in Mexico three times higher.[67] As with rural women, poverty for indigenous peoples is rooted in multiple forms of disadvantage and deprivation. Virtually everywhere, indigenous peoples suffer from discrimination, violation of their rights (social, political, human and economic) and exclusion (or self-exclusion) from mainstream social, economic and political processes. For indigenous women and youth, there is typically an overlap of these and other forms of deprivation specific to their gender or age groups.

In addition, indigenous peoples in many parts of the world suffer from precarious control over their natural resource base, particularly in the face of commercial interests in, for example, timber exploitation, food or biofuel production or mining on their land. In Asia, for instance, where 70 per cent of the world's indigenous peoples live, their ancestral territories are often threatened by deforestation and takeover of resources. In many countries, indigenous children and youth face discrimination in access to education – notably in their own languages and based on their cultures – and adults face discrimination in labour markets. The disadvantages faced by

indigenous populations in Asia come from many sources: topography, limited access to infrastructure and services, low human capital, poor land and very limited access to credit.[68] While poverty rates have declined substantially over time among indigenous peoples in Asia, a poverty gap persists between indigenous and non-indigenous populations. Other than in China, this gap at best remains unchanged and at worst is widening. This is the case even in countries that have experienced a rapid decline in the incidence of poverty: in Viet Nam, for example, during periods of pro-poor growth during the 1990s and early 2000s, the incidence of poverty among ethnic minority groups only dropped slowly, compared with a rapid decline of poverty among the majority Kinh population.[69]

Many countries, notably in Latin America and Asia, have established policies and institutions to support the rights and capabilities of indigenous peoples. Several countries have passed legislation and established public programmes to recognize indigenous languages and cultures, develop appropriate educational curricula, enhance indigenous children's access to schooling in their languages, and improve access to health-care services among indigenous communities. Some countries have legislation recognizing indigenous land rights, although implementation of such legislation can be challenging because of the powerful interest groups that often compete with indigenous peoples in their claims over their ancestral territories.

A number of international donors, including IFAD, have supported indigenous groups in gaining title to land and management of ecosystems.[70] Some also have policies or strategies for operating in indigenous peoples' territories, which aim to address multiple forms of deprivation affecting these communities and to strengthen their capabilities – including by leveraging indigenous knowledge, practices and institutions. IFAD's policy on engagement with indigenous peoples, for example, focuses particularly on empowering indigenous peoples in rural areas to overcome poverty by building upon their identity and culture. The policy sets out nine principles of engagement – including free, prior and informed consent – that IFAD adheres to in its work with indigenous peoples.[71] The recent proclamation of the United Nations Declaration on the Rights of Indigenous Peoples has been a landmark event laying out a framework for protecting and strengthening indigenous peoples' rights and capabilities. However, turning this landmark event into a foundation for progressive change at the national and subnational level is a challenge in many countries.

Key messages from this chapter

First, despite massive progress in reducing poverty in some parts of the world (notably East Asia) over the past couple of decades, 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.

In large parts of the developing world, the numbers of people who are poor and hungry are increasing. Fully 70 per cent of the world's very poor people – around one billion – are rural, and a large proportion of the poor and hungry amongst them are children and youth. Neither of these facts is likely to change in the immediate future, despite widespread urbanization and ongoing or approaching demographic transitions across regions. *Now and for the foreseeable future, it is thus critical to direct greater attention and resources to creating new economic opportunities in the rural areas for tomorrow's generations.*

Second, poor rural households' livelihoods are very diverse across regions, countries and territories within countries. These households may rely to varying degrees on smallholder farming, agricultural wage labour, wage or self-employment in the rural non-farm economy and migration. While some households rely primarily on one type of livelihood, most share a tendency to diversify their livelihood base, to the extent possible, as a way to reduce risk and to maximize income. The livelihood mix of each household depends on a range of factors, including its assets – particularly its land and livestock or lack of these – the educational levels of its members, its composition, its perception of the risk associated with different choices, and the opportunities available in the national and local economy. *The diversity of rural people's livelihoods calls for differentiated agendas for rural growth and rural development in different contexts, with robust attention to smallholder agriculture, but also greater recognition of the importance of non-farm self-employment and wage labour (both in agriculture and off-farm).*

Third, there is often great dynamism around poverty lines, with large numbers of households moving in and out of poverty repeatedly, sometimes as rapidly as every few years. While chronic poverty also is present among rural households in all regions, often remarkably large proportions of people are poor only at specific points in time. Households primarily fall into poverty due to a range of types of shocks (e.g. ill health, poor harvests, debt contracted to face social expenses). Mobility out of poverty is associated with personal initiative and empowerment, and is highly correlated with household characteristics such as education and ownership of physical assets. Beyond the household level, mobility out of poverty is associated with economic growth and with the local availability of opportunities, markets, infrastructure and enabling institutions – including good governance. These factors tend to be unequally distributed across the territory of each country. *All this calls for greater attention to risks and shocks and territorial and local factors to better understand mobility around poverty, and to create a more enabling environment for people to overcome poverty in a stable way.*

Fourth, rural poverty is a multidimensional phenomenon that may result from lack of assets, limited economic opportunities, poor education and capabilities, and a variety of disadvantages rooted in social and political relations. Interlocking

disadvantages hinder mobility out of poverty for any rural individual or group. However, some groups (e.g. rural women, youth, indigenous peoples and ethnic minorities) are often disproportionately held back by disadvantages and exclusion rooted in the power inequalities revolving around gender, age and ethnic identity in many societies. Addressing such disadvantages as well as other aspects of poverty involves action on several fronts at the same time. In particular, it requires strengthening people's assets and capabilities – both individual and collective – while also enhancing locally available opportunities and mitigating or helping to better manage the risk environment facing rural people. *Until recently, rural people's capabilities have often been treated separately from investment in creating opportunities for rural development. However, in order to address the multidimensionality of poverty, these issues need to be tackled together, as part of a new agenda for pro-poor, inclusive rural growth.* In the next chapters, we will illustrate some elements of this agenda, starting from a discussion of risk and shocks as critical factors of poverty.

Chapter 3

The importance of addressing risk

Casamance Province, Senegal: Bintou Sambou builds a fence around her house. Her husband was killed during violence following the elections in 2007. Since then, Bintou and her four children have lived at her father's compound, where she struggles to support the family by growing groundnuts and millet.

Tovoke, aged 44, lives in Androy, southern Madagascar. His two main sources of livelihood have been **"since childhood, only the sea and the spade."** But both fishing and farming are precarious in the face of drought, landlessness, depleted fishing stocks and environmental pollution.

As a farmer Tovoke tried to manage risk by growing a variety of crops – sweet potatoes, maize, cassava and sorghum. But, he says, **"the land will not yield as there is no rain."**

fish [even] for us to eat today." He is clear that overfishing is to blame, as declining agricultural production has made more people turn to fishing. And it is middlemen – not fishermen – who benefit from the higher prices that result from diminishing catches.

Recently the community's situation has become even more critical. Pollution of the sea from a ship that ran aground off their shore has led to a temporary ban on fishing.

Having no land of his own means further vulnerability: **"I had to plant on [other] people's fields. But the landowner… wanted his son to use the land – so they wouldn't let me farm there anymore."**

For over 20 years Tovoke has mainly relied on **"working the sea"** – fishing, diving for lobster, collecting shells to sell to tourists. Now, though, fish stocks have become depleted: **"It's an intense search to find anything, and we're lucky to find**

Like many others, Tovoke has been forced at times to migrate for temporary jobs:

"Suffering was what moved me to go… I had no work to do, not even day labour…" But being away from home brought its own suffering: **"… if one gets in trouble there is no one to save you in that land of no family… there is no one who sees you not having eaten for two or three days… [and says] here's some hot water, drink that and you will see the morning…"**

Bintou Sambou is a 45-year-old widow. She lives at her father's compound in Bignona, Senegal, together with her four children, and supports the family by growing groundnuts and millet. She also sells *moukirr* (a bitter traditional healing ointment).

Bintou explains that in 2007, the year of the national elections, her husband was **"caught up in the conflict at Casamance" and "was among those killed by the army in the village of Belaye."** The news of the shooting came as a complete shock to her. She describes how the continuing violence has affected the community: **"You know, this conflict has disrupted life here. It has made it impossible for people here. You cannot go to the fields without fear… I am always worried about what can happen to my children. My mind is never at rest… this situation is really a burden for people, especially the poor."**

Bintou finds it very difficult to look after her children on her own: **"Sometimes I get stuck. I don't know what to do for food… I tell them that their father is no longer here and that I am alone to fend for them and that for that very day I don't have a solution."** Bintou indicates that she is thinking of marrying again: **"When you are assaulted from every angle by difficulties, you can't avoid thinking of marriage… I believe [marriage] is a shelter against poverty… For instance when you are sick there is someone beside you; you can turn to someone for all the other problems: education, clothing, food, I can't list them all."**

Introduction

Everyone's life is subject to shocks and stresses, from the daily difficulties that undermine our ability to pursue our goals, to major events that disrupt the normal course of life and demand extraordinary attention, energy and resources. However, people have different levels and combinations of assets, human capital, social networks and institutions on which they can rely to face shocks and stresses, which determine their resilience. In general, limited or lack of resilience is an important aspect of the multidimensionality of poverty. As a result, mitigating or better managing the *probability* of shocks occurring – what we define as 'risk' – is just as critical in the lives of poor rural women and men as improving their resilience to these events when they occur. In order to create an environment conducive to pro-poor rural growth, it is necessary to better appreciate the importance of risk mitigation and risk management in the livelihood strategies of poor rural people. This is also a precondition for strengthening people's ability to overcome interlocking disadvantages and move out of poverty.

In this chapter we look at how exposure to risk and shocks, and people's inability to deal effectively with them, can contribute to poverty and prevent people from seizing opportunities to overcome it in the current environment. We illustrate this with reference to risks that are particularly prevalent across contexts and types of livelihoods, including risks related to ill health, bearing the costs of social ceremonies, changes in the natural resource base, and the market and governance environment facing rural people. The remainder of the report will focus on some of the specific implications of addressing risks related to agricultural markets, agricultural production and the rural non-farm economy. We will highlight three types of responses that have cross-cutting significance, namely strengthening community-level social solidarities, financial institutions and social protection.

How risk and shocks affect poverty dynamics

Taking risks is a critical component of all strategies to escape poverty. Investing in fertilizers in an area of uncertain rainfall, adopting a new seed variety, growing a crop for sale rather than for food self-sufficiency, starting up a microenterprise, migrating to the city: these are all decisions that can enable poor rural people to increase their income, yet all involve risks. Poor households have fewer buffers to fall back on than less poor households, hence it is critical for them to adopt strategies that reduce their risks to the greatest extent possible. Yet in doing so, they will often pass by opportunities that could help them increase their income. Studies in south India and the United Republic of Tanzania confirm this: since poor households deploy their assets more conservatively than wealthy households, their return on assets is lower.[72]

Risk avoidance strategies thus have high opportunity costs: some studies estimate that average farm incomes could be 10 to 20 per cent higher in the absence of risk.[73]

Poor rural households seek to manage risks in a variety of ways. Above all, their strategies are based on diversification, i.e. diversifying the use of the factors of production at their disposal – land, labour and capital. For instance, different household members may invest their time and cash in a range of income-generating activities on- and off-farm to avoid overexposure to the risks of agriculture or non-farm activities alone.[74] For an ever-increasing number of households, farming represents a buffer against shocks, while off-farm activities are the vehicle for increasing household income. For many others, non-farm activities – including migration – complement and reduce the risks attached to agriculture. Within agriculture itself, smallholders may use highly diversified cropping or mixed livestock and cropping (or farming and aquaculture) systems to reduce risk. For instance, not only may they use different crops but also different varieties of the same crop, which they may plant at different times to reduce the risk of total crop failure in the event of drought. In drought-prone areas of India, for example, farmers carefully choose rice varieties, a planting date, a method for crop establishment, and weeding and fertilization practices to minimize the impact of drought.[75] The cultivation of home gardens and the collection of wild foods and herbs, which are generally rural women's responsibilities, can also play an important role in buffering risks by securing production of crops that can supplement household nutrition and generate complementary income.

Asset accumulation (including money, land, livestock and other assets) is also critical to build a buffer against shocks, and a crucial component of risk management strategies at the household level. Even the poorest rural people save, often as part of a group. Building up a reserve against unforeseen shocks is an important motivation for saving. Livestock represent a key asset in this regard, not only in pastoralist communities but more broadly. Animal products, such as eggs and milk, can be produced, processed and sold throughout the year without seasonal restrictions, which helps the household cash flow, including when there are unforeseen expenses.[76] Rural women are often primarily responsible for this particular aspect of rural households' risk management strategies; they tend to small livestock and collect, process and sell eggs and dairy products. Accumulation of livestock assets can also serve as a buffer to face shocks, because livestock are relatively easy to sell in order to smooth consumption when food prices rise, expenditure needs increase or incomes fall. On the other hand, livestock are not immune to risks and shocks related to climate, environmental degradation, water scarcity and diseases, for instance. A worsening risk environment for livestock production and asset accumulation can severely tax the resilience of poor rural households.

When shocks strike, people employ a wide range of coping strategies. These include increasing their reliance on wage income or seasonal out-migration; drawing down

savings or borrowing, sometimes by mortgaging assets; increasing use of social networks; increasing dependence on forests for food, livestock pasturing and income; reducing expenditures on items such as clothing, social functions, food, medical treatment and children's education – and often also taking children out of school and putting them to work; and relying on public relief.[77] As a last and most desperate step, productive assets such as livestock or land may be sold. Reducing the number of meals the household eats per day is often part of coping strategies; where this is the case, it is most likely to be women and children who disproportionately bear the burden. Each one of these strategies may increase household poverty, and in some cases they may also lead to further impoverishment and vulnerability in the future. Cutting down on food intake, for example, can be a source of further vulnerability in terms of reduced resistance to illness, reduced energy for work and thus foregone income opportunities.

Even relatively small shocks can push into poverty people who live just above any given poverty line. However, it is often combinations and sequences of shocks and stresses that cause the most permanent damage: although a poor or near-poor person

Risk management and coping strategies of poor rural people – some examples

"Raising animals is important. Say a relative dies, then you fetch [one] of those cattle to bring and bury the dead. If one has nothing to eat, he can sell a head of cattle for food. A family member is sick, so an animal is sold to take him/her to the hospital. Then there is that item one has been looking [to buy], so the animal is sold and that's how one gets out of his troubles, that's what raises one up."

Manantane Babay,
male, 19 years, Madagascar

"One should have his own cattle, because milk costs 10 rupees for 250 grams. If one has his own, then this is also a saving. One has curd and his own butter. Or if one is desperate for money, one can sell a buffalo or cow and make do. If a brother or sister falls ill then the cattle can be sold to pay for treatment."

Rasib Khan,
male, 28 years, Pakistan

"Now everything is lost that's planted, be it corn, or sorghum, or beans, nothing succeeds. Yes, if the rains are good some will produce, but without rain they die and are just cattle feed. No harvest is seen, so then when the exhaustion comes on: 'Ho! There's a chicken. Let's take this chicken away.' What's to be done? We don't have anything to eat from the fields. Better that we part with that one chicken, better that we sell that one kettle, better that piece of clothing that's still okay we take away, we sell it for the sake of life."

Ranotenie,
female, 46 years, Madagascar

or household may be resilient to one shock or stress, it is much harder to withstand a succession or combination of them – particularly once they have been weakened by the first one. In some cases, combinations of shocks can trap people in poverty by eroding their assets and capabilities to a point that they are unable to accumulate enough to move out of poverty (again). So, for instance, in 2001, many households in rural Zimbabwe had not recovered from the previous major drought of the early 1990s when a new and even worse drought struck. This made it all the harder for rural households to rebuild their assets, and it led to a massive decline in well-being and consumption.[78] Deep shocks such as drought, where all community members suffer at the same time, also undermine

"Drought and poverty have consequences. Amongst the consequences you have the breakdown of traditional solidarity systems. The level of poverty is such that no one thinks of helping others… It is true that times are hard but all the same some people in the community have the capacity to support those who are vulnerable. If we kill these practices, it is not poverty that will destroy us, but it is the strong who will eat the weak as happens in the aquatic world. But we are humans and those who have should come to the rescue of the have-nots. It is a matter of solidarity, not competition."

Abdoulaye Badji,
male, 50 years, Senegal

"I grow a lot of crops. You know, here, you cannot grow just one crop. If it doesn't work, you will be in an impossible situation for that year. So I grow millet, groundnuts, maize, beans and sorghum. I also grow rice because I go to rice fields to help my wife."

Abdoulaye Badji,
male, 50 years, Senegal

"If I'm sick in the night I'll go to look for… *befelañe* (rosy periwinkle) and *varantsihe* (medicinal plant found only in southern Madagascar)… I boil and drink [them]. If the disease is serious, and I'm able, I'll go and borrow, and when I'm healed I'll go to find work, a daily job, to pay off my debt."

Tovoke,
male, 44 years, Madagascar

"When famine comes there will be only one meal a day, if one finds it… Only in the evening will one eat. If he doesn't find [anything to eat], then he won't even eat that evening… but will wait for the next day… If there is *raketa*, (prickly pear) then it will be prickly pear for lunch and the *kapoake* (grain) for dinner. But if the *raketa* isn't ripe and the famine is rife, one will only eat an evening meal… Otherwise, not finding, one just sits. But I'll make a quick trip to the sea to [fish with a] net, dive for sea urchins… I might make a catch and run home with that and it'll be boiled, and there's the broth to drink and we're free today."

Manantane Babay,
male, 19 years, Madagascar

"I plan carefully. I know that school is coming and that I have to put up the money to send the kids there. Sometimes I pay school fees in advance to avoid the risk of children not going to school because I couldn't pay. For the rest it is a constant struggle."

Bintou Sambou,
female, 45 years, Senegal

whole local economies, because after the initial shock there may be an associated collapse in local agricultural employment and wages, non-farm income and asset prices.[79] In addition, in many societies traditional social solidarity has weakened and has not been replaced by new social contracts between the state and citizens. For example, during the food shortages in the Niger in 2005, it was reported that in many villages those who were less badly hit showed little willingness to provide food to neighbours who had suffered more acutely.[80]

Some of the key risks for poor rural people today

Personal and household-level risks: ill-health and ceremonial costs

Ill health represents a major risk factor for poor individuals and households in all areas. This is because of lack of adequate health services in many rural areas, the direct and indirect costs of accessing them, the loss of the ill person's contribution to the household economy and the diversion of time – particularly of women in poor rural households – from productive activities to caring for the ill. These costs may have a particularly severe impact in case of chronic ill health due, for instance, to HIV/AIDS or tuberculosis; respiratory illnesses from continuous exposure to the fumes of household stoves (particularly affecting women and children); chronic exhaustion from insufficient nutrient intake and continuous physically taxing labour (such as collecting and carrying fuelwood and water – again particularly affecting women and children); poor access to safe water and sanitation; and gender-based violence. Malaria too can take a very heavy toll on poor rural households, and it is spreading to new areas as a result of warming climates. In the future, climate change is expected to multiply risks of exposure to illness in many parts of the developing world as well as elsewhere. In conflict or post-conflict areas, ill health can also result from exposure to violence, displacement and loss, often with particularly heavy, long-term costs for youth and children.

Soon after marrying, Shazia became ill with a blocked heart valve and remained in hospital for three years. Her continuing medical needs have resulted in considerable debts, yet to be paid off. "Illness didn't give us a break so that we might be able to save something. Every week I had to be taken to hospital. Every week we used to go and spend 1,500 rupees. And also from here the fare to Rawalpindi… So we used up so much money. The loan we have, it has to be returned."

Shazia Bibi,
female, 37 years, Pakistan

A large proportion of people affected by HIV/AIDS depend on agriculture, and since 1990 the effects of the epidemic on rural health and impoverishment have been dramatic in many countries, especially in sub-Saharan Africa. The productive capacity of HIV-positive people is substantially reduced, while AIDS-related deaths

lead to a significant reduction in household food production, which represents a major shock for households relying on production for food self-sufficiency. The death of an adult member of the household is always a major shock, not only as a personal tragedy but also in terms of loss of income and of labour, and in the case of the death of a male household head also in terms of risks of loss of land, livestock and other household assets. In the case of HIV/AIDS deaths, these risks are often particularly great for widows and children. In some countries and areas within countries, HIV/AIDS has also undermined the overall environment for economic growth and social development by disrupting or weakening important services. For instance, in some areas government services have been weakened by HIV-induced sickness and AIDS-related deaths among the staff of line ministries and service agencies. At the household level, lower agricultural earnings and reduced nutrition increase the likelihood of contracting HIV. In terms of health care, the provision of anti-retroviral drugs has substantially increased during this decade: one-third of Africans with advanced HIV infections had access to them by 2007, although this rate is likely to be lower in rural areas.[81] However, progress on this front has been uneven,

"We sold the fields at the death of our father… at that time we hadn't a single chicken when that death caught us… we didn't have anything ourselves, so we sold the field. It was auctioned, not for its value… but quickly, carelessly so he wouldn't be left to rot. At that time, we sought money from other people but the people didn't give. So we had to sell the field."

Ranotenie,
female, 46 years, Madagascar

and it is now threatened by the possibility of reduced international funding due to the global recession.

Most developing countries have struggled to support adequate publicly-funded health services – particularly in rural areas, which are almost always less well-served than urban areas. There are large differences in the rate of increase of public health expenditures among urbanized and transforming countries; among agriculture-dependent countries there are fewer differences and expenditures are at a lower average level. Maternal mortality is a good indicator of functioning health services: country scores on this measure are extremely varied, with China and India, for example, having improved significantly,[82] and many countries – including some with strong economic performance – experiencing worsening trends. However, health outcomes are not only determined by the performance of services, but also by general economic and social progress. Moreover, the *supply* of quality services has to be met by *demand* – which is affected by affordability, local availability and institutions such as social norms, which may limit women's access to health services in many areas.[83] Finally, other kinds of services and infrastructure – notably safe water supply, sanitation and energy – are also crucially important for mitigating the risk environment confronting rural households in relation to ill health.

The costs of social ceremonies are another major, but often overlooked, risk factor and source of shocks and stresses for poor rural households. In particular, burials, marriage ceremonies and dowry payments are all part of the social capital of rural communities, yet they represent a major element of the risk profile of poor rural households because the expenses involved in these events can be ruinous. In Madagascar, for instance, the cost of a funeral can compel households to sell their land to pay for

BOX 2 **The impact of dowry and marriage ceremony costs in Bangladesh**

In 116 focus group discussions held in 2006 with men and women in rural Bangladesh, dowry and wedding expenses were mentioned as the most important cause of impoverishment, alongside illness and medical expenses. In 293 life history interviews conducted in 2007, problems with dowry payments and wedding costs were also raised with similar frequency. Among the interviewees in the later study, 39 per cent cited dowry payments and wedding expenses as one of the three or four most damaging causes of decline in their lives. Most commonly, this was due to loss of land, livestock and indebtedness to confront these expenses. The study shows that for most poor families, large dowries relative to their means are unavoidable if their daughters are to be married. Poor families often agree to pay dowry in instalments after the wedding, and this can leave a woman in a condition of vulnerability. New brides can be abandoned by their husbands and sent home with demands for additional dowry payments and threats of divorce. The impact of dowry and wedding costs on a household can be so large that they will never recover from it, especially when land and livestock are lost.

Source: Davis (2009)

them. In South Asia, dowries can be prohibitively expensive, pushing households heavily into debt. In a study conducted in Bangladesh, the costs of dowries and marriage ceremonies were the second biggest source of impoverishment after ill health (box 2).

Natural resource-related risks

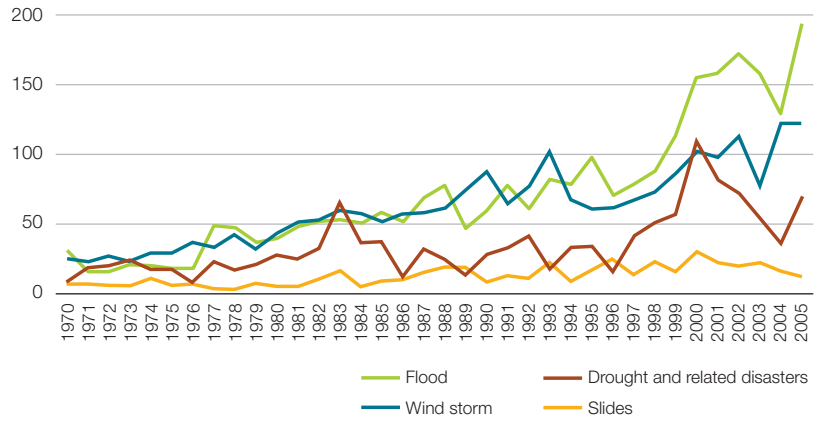
A change of climate in Mongolia

Natural resource degradation and climate change. Across large parts of the developing world, the natural resources from which poor rural populations derive their livelihoods are being degraded or becoming increasingly scarce. As much as 5 to 10 million hectares of agricultural land are lost each year to severe degradation[84] through overuse, poor land management or soil nutrient mining. This not only has a direct negative impact on agricultural productivity, making farming a more hazardous activity, it also leaves the land more vulnerable to extreme weather patterns. Almost one-third of the rural populations of developing countries – and a significantly higher proportion of the poor rural population – live in less-favoured marginal areas, many of which are either hillside or mountainous regions, or arid and semi-arid drylands. Many of these lands are environmentally fragile, and their soils, vegetation and landscapes are easily eroded. Population growth combined with extreme poverty pushes people into more marginal areas, and compels them to overuse the fragile resource base; the results include deforestation, soil erosion, desertification and reduced recharge of aquifers. As a result, resource degradation represents an increasing risk factor for many poor households.

Extreme weather events and climate change can be considered 'risk multipliers' in relation to natural resource degradation, as they exacerbate the fragility of the natural resource base – particularly in environments prone to degradation and desertification, in areas of widespread or intense water stress and wherever poverty undermines the capacity of poor rural people to take the needed preventative steps. Many people already have to cope with increased climate variability. As temperatures increase in the longer term, entire farming systems will have to change, in some cases radically. Poor rural people everywhere will be affected by climate change, yet certain groups are likely to face particular threats (e.g. women because of their roles as primary producers of food and collectors of fuel and water in most developing countries, and indigenous peoples because of their high dependence on the natural resource base). Everywhere, tomorrow's rural generations will be particularly affected by a worsening risk environment because of the combination of natural resource degradation and climate change.

Climate variability and extremes have long been a major source of disaster-related food insecurity, which also affects poor rural people. Climate change is increasing the scale and incidence of extreme weather events such as droughts, floods and cyclones, which have increased significantly during the 1990s and 2000s (figure 9). Between 1991 and 2005, the number of people in developing countries killed by these events, as well as by the landslides that result from heavy rain on unprotected

FIGURE 9 **Number of hydrometeorological natural disasters, 1970-2005**



Source: International Strategy for Disaster Reduction

slopes, amounted to over 180,000, while vast numbers of additional people were affected by them in one way or another. Among the most affected are poor rural people living on steep slopes, people in low-lying areas subject to floods, or those in semi-arid areas subject to drought or windstorms. In recent years, Asia has been the region most affected by disasters linked to climate change: in 2008, there were over 230,000 deaths, or 97 per cent of the global total, in Asia.[85]

The economic impact of climate change may be massive – for instance, in Latin America it is projected that in the absence of robust mitigation initiatives, the region may suffer losses costing up to 137 per cent of its current GDP by the end of the century.[86] In South East Asia, the impact of climate change, notably in terms of extreme weather events and droughts, is likely to reduce the GDP of countries in the region by 2.2 to 6.7 per cent a year by the end of the century;[87] while in South Asia, the minimum forecasted increase in temperatures, or 2°C, could result in permanent reductions of 4 to 5 per cent of GDP.[88] Such economic losses will have a direct bearing on the level of opportunities for rural people to move out of poverty. However, climate change will also impact poor rural people in economic terms more directly, particularly by affecting the natural resource base for agriculture. There is broad agreement that agricultural production is likely to decline in most of the developing world as a result of reduced water availability, increased temperatures, uncertain or shorter growing seasons, less arable land and new pest and disease patterns. IFPRI's scenario work to 2050 indicates that agricultural yields and incomes will decline, especially in South Asia. Malnutrition rates will increase as calories per capita decrease to pre-2000 levels. And the costs of adapting to this situation will reduce public budgets for other pro-poor development

spending.[89] Although South Asia's agriculture is expected to be most affected by the impacts of temperature change, the World Food Programme (WFP) has projected that 65 per cent of climate-related hunger will be in Africa.[90]

In such conditions, conflict over scarce land and water resources – within and among rural communities and even among nations[91] – is likely to become more frequent. In some areas, climate change is also projected to lead to displacement of sizeable populations – for instance, in Egypt an increase of global temperatures by 3 to 4 degrees may lead to floods of 4,500 square kilometres of agricultural land in the Nile Delta and to sea level rises of about 1 metre, putting 12 per cent of the country's agricultural land at risk and displacing 6 million people.[92] Many poor rural people will migrate in search of resources or opportunities, yet migration may itself fuel conflict between different groups with competing claims to the same resource.

Poor rural people are already experiencing climate change and its effects. Ecosystems and biodiversity that sustain agricultural production are changing: for example, scarce and variable rainfall has already decreased the resilience of the high plateau ecosystem in eastern Morocco; the land is severely degraded and the carrying capacity of rangelands is no longer able to sustain growing demand. Fragile rural infrastructure, such as rural roads, drainage and irrigation systems, storage and processing will come under increasing pressure, but already countries are experiencing damage. In Viet Nam, for example, flooding has already led to widespread damage of irrigation systems and other agricultural infrastructure; in Mozambique it has extensively damaged the rural roads network.

"Yes, the climate has changed indeed. Before, the rain span was long. Now it is very short. The bushes dry up and catch fire every year. The shortage of rain also has an effect on the fruit trees. If you take mangos for instance, they all get ripe at the same time and are wasted. Yes, I am aware that our environment has changed because of climate change."

Oumar Diédhiou,
male, 22 years, Senegal

Agricultural production is also already being affected: communities have noticed changes in the duration of heat and cold waves, and in their patterns and predictability. In Mongolia, for example, where average temperatures have risen 1.8°C over the last 60 years, the high mountain glaciers are melting and permafrost is degrading. The groundwater table is decreasing in arid regions, and degradation and desertification of the land have been intensifying due to the shortage of water and precipitation. More insidiously, smallholders in all regions are facing growing uncertainties as to when the first rains will fall and whether they will continue throughout the growing season, or whether floods will come this year.[93]

Poor rural people – and particularly smallholders – need support in adapting to climatic variation and change. There are a range of possible measures for adaptation in agriculture, including improved management of scarce water resources, building up soil fertility and structure, and adopting new crop and livestock varieties, breeds and

species. In southern Zimbabwe, for example, repeated drought has meant that today more resistant donkeys are strongly preferred over cattle for draught power. Many of these elements fall within the agenda of 'sustainable agricultural intensification' described in chapter 5, and some can also contribute to climate change mitigation. For some rural people, the higher level of risk in agriculture may prompt them to seek opportunities in the rural non-farm economy; assisting them to do so is part of an adaptation response (see chapter 6).

In addition to assisting rural households to adapt to climate change in an environment characterized by deteriorating natural resources, there is also a need to moderate the impact of disasters on them. Better preparedness, early warning and appropriate response mechanisms are all part of a broader approach to disaster risk management.[94] Measures may include drought contingency plans, weather-indexed insurance and better agro-meteorological warning systems – which ideally also strengthen the individual and collective capacity of poor rural people to participate in disaster preparation. An example of how this may be possible is provided by the Manila Observatory, which works with a national mobile phone service provider to

"… there is not as much rain today as there used to be. You know, before the rainy season was long enough for you to grow successively millet, sorghum, groundnuts and rice. But today rain stops almost as soon as you start ploughing."

Bakary Diédhiou,
male, 60 years, Senegal

make available telemetric rain gauges and phones in disaster-prone areas. These allow farmers to phone in rain gauge readings to the Observatory, which can in turn use the phones for early storm warnings to farmers.[95] In Bangladesh, IFAD is working with the government to support the construction of embankments, polders, cyclone shelters and *killas* – raised land where livestock can be brought in times of floods. Across the world, there are examples of rural municipalities, community-based associations and other organizations working together to strengthen disaster preparedness capacity.

Overall, mitigating and better managing risks related to climate variation and change in a context of natural resource degradation and growing scarcities requires four types of measures. The first is mainstreaming risk management as a core element of sectoral policies – notably agriculture (see chapter 5). Second, there is a need for informed decision-making that takes into account scientific evidence, the knowledge and experiences of rural people themselves, and best practices in terms of response. Third, the overall environment of rural areas needs to be improved to be less exposed to risk and more resilient to climate-related shocks. And fourth, there is a need to build the individual and collective capacity of rural people and of local governance institutions to enable them to strengthen the resilience of local production systems, and to better prepare for, and more effectively respond to, shocks.

Land tenure insecurity. For hundreds of millions of rural people depending on agriculture, livestock production or forestry, secure access to productive land – including the water and other natural resources on it – is critical. Weak access and insecure tenure are key risk factors that have a direct impact on people's willingness and capacity to invest in their farming practices and on the productivity and sustainability of these practices.

Land dispossession of smallholder producers, pastoralists, indigenous peoples and other rural communities has been a continuous process over centuries. Yet the new attractiveness of agriculture resulting from higher commodity prices and subsidies for biofuel production are leading to increases in domestic and transnational demand for agricultural land, bringing new risks for poor rural people. Increased demand for land from other sectors, such as tourism, mining, timber and carbon

"We are not using the forests in an adequate and proper way; we cut down trees and burn our woods every day, we are destroying nature… What future can we expect that way? Within some years we won't even have air to breathe, or water to drink, and you know that… if there is no water everything will die… Climate changes are occurring because of our activities, we are causing that to happen, so the weather is not the same as it used to be before, now it gets sunny and rainy alternatively, and the seasons don't follow one another orderly, so the crops get spoiled… Firstly, we should receive some guidance… so people would become aware about the damages. People should know what they can do; and then we should set goals and put them into effect; for instance, we could sow plants and reforest…"

Eliany Portocarrero Novoa,
female, 15 years, Peru

sequestration, compounds the problem. The amount of land under negotiation for acquisition or leasing by foreign investors is unknown, though preliminary estimates range from 15 to 20 million hectares.[96] Most of the land being considered is in Africa, Latin America and certain parts of Asia. Emerging evidence suggests that many reported land deals have not materialized, and for many of those that have, only a small portion of the land acquired (sometimes less than 10 per cent) is actually being exploited. In addition, much of the research done to date has focused on acquisitions of greater than 1,000 hectares or even 5,000 hectares, which ignores a large number of smaller acquisitions. Research has also focused on acquisitions by foreigners, even though in certain countries acquisitions by domestic investors are more significant in contributing to land concentration and growing inequalities.

There is still little information on the impacts that realized land deals have had on the livelihoods of rural communities in the affected countries – whether negative or

BOX 3 **Promoting good land governance and responsible investment in agriculture**

Two recent international initiatives focus on promoting good land governance and responsible investment in agriculture. The first is the process of developing *Voluntary guidelines for responsible governance of tenure of land and other natural resources*. Initiated and facilitated by FAO, with the support of a wide range of stakeholders including IFAD, the guidelines aim to be of value to governments, international development organizations and other stakeholders. The guidelines process is relatively advanced, and it is expected that they will be endorsed by government representatives in 2011. The second is the process for developing *Principles for responsible agricultural investment* being facilitated by the World Bank, FAO, IFAD and the United Nations Conference on Trade and Development. A draft set of principles has been developed, and preliminary consultations have begun. As with the guidelines, the principles aim to give guidance and a framework for dialogue among private investors, governments, intergovernmental organizations and civil society organizations. They could become a common reference framework, but there are no plans for submitting them for formal approval by governments or other bodies.

Both initiatives have sought to address a range of issues concerning land governance and investments. These include the critical issue of large-scale foreign land acquisitions in developing countries, the need to protect the rights of rural communities against all forms of land grabbing, and other issues including corruption, transparency, accountability of land governance and affordability of land access. Both initiatives support the view that responsible investment in agriculture is about promoting sustainable agriculture, reducing poverty and meeting the world's food needs, particularly the food needs of the rural poor in developing countries.

Although different in nature, both initiatives recognize that mandatory international regulations on land governance are difficult and slow to negotiate and often difficult to enforce. Voluntary frameworks can be developed with greater multistakeholder engagement in a relatively short space of time and, hopefully, with stronger content. While neither the guidelines nor the principles are enforceable, they can mobilize support against bad practices and for good practices. They can also draw on or refer to existing treaties, laws and codes for enforcement.

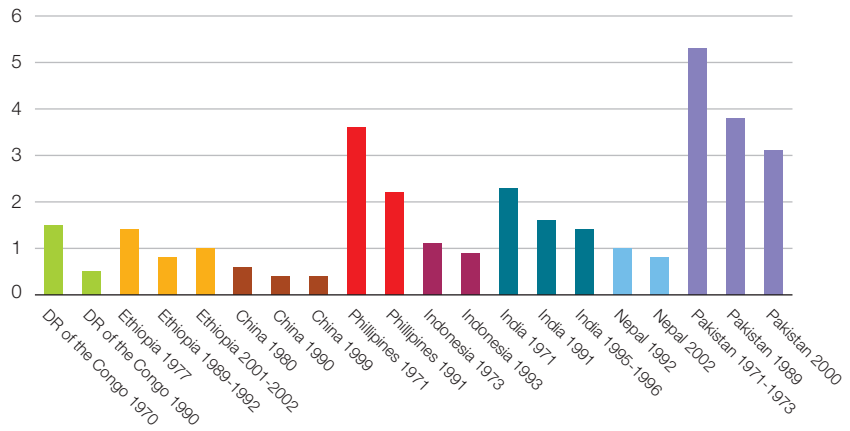
positive. Many deals contain promises of financial investment, employment, technology transfers and income generation, but the evidence is scant as to whether these have been fulfilled. Initial research suggests that at least some large-scale acquisitions (e.g. for monoculture plantations in some areas) have not met expectations and have had a negative impact. But there is also evidence that some foreign investments in agriculture (typically smaller deals that do not necessarily include land acquisition) are having a positive impact. The balance of benefits and costs to poor rural people depends on the details of land deal negotiations. However, many of the long-term leases negotiated recently in Africa between states and foreign companies, including sovereign funds, are very unspecific on a range of key issues including how the investments will benefit holders of local land use rights and local communities more broadly.[97] Box 3 describes two recent initiatives aimed at promoting good land governance and responsible investment in agriculture.

In many countries, the increasing value of land is leading to the concentration of landholdings into the hands of a few owners. For example, Peru now has greater disparities in land ownership than before the agrarian reform of the mid-1970s.[98] As the population grows, this leaves less land available for poor producers, and contributes to the fragmentation of landholdings among those most dependent on land for their survival. In such circumstances, and compounded with land degradation in many areas, the risks of insufficient production on existing landholdings, if not of outright landlessness, are magnified. Fragmentation has resulted in a rapid decline in average smallholder farm sizes over the past 50 years: in India, for example, average landholding size fell from 2.6 hectares in 1960 to 1.4 hectares in 2000 and it is still declining. In Bangladesh, the Philippines and Thailand, average farm sizes have declined and landlessness has increased over approximately 20 years. In Cambodia, rural landlessness went from 13 per cent in 1997 to 20 per cent in 2004. Similarly, in Eastern and Southern Africa, cultivated land per capita has halved over the last generation and, in a number of countries, the average cultivated area today amounts to less than 0.3 hectares per capita.[99] In some countries, farm sizes are so small that people have to either farm part-time and look for income elsewhere or, where market opportunities permit, adopt more intensive, commercialized production systems.

> "The richest farmer in this village 20 years ago owned about 40 acres [of land]. Today those that have more than one acre are deemed to be rich… the farming area has shrunk considerably because people are building houses in this area and the village is no longer enough to accommodate the growing numbers of people."
>
> Ibrahiem Abo Zeid,
> male, 55 years, Egypt

Land legislation (and its implementation) has a mixed record in protecting the interests of poor people and thus reducing risks of land dispossession or fragmentation. Land reforms have worked for poor rural people when they have been characterized by strong local accountability, due attention to secondary use rights and support to poor

FIGURE 10 **Trends in farm sizes**
(Average farm size, hectares)



Sources: FAO World Census of Agriculture: Main results by country at: http://www.fao.org/economic/ess/world-census-of-agriculture/main-results-by-country/en/; Data for China from Fan and Chan-Kang (2003)

rural people's (both men's and women's) access to complementary assets, services and productive opportunities and markets.[100] Such reforms have been rare in recent decades. On the other hand, strengthening communal tenure systems can be potentially more beneficial for poor individuals and households.[101] However, this requires reaching arrangements about sharing responsibilities and checks and balances on land governance among communities, local authorities and government. These may face obstacles both in terms of government willingness to devolve power on land issues and in terms of capacity and representativeness of local authorities and organizations.[102]

As noted, unequal and insecure access and control over land – both under state laws and, though differently across contexts, under a variety of customary institutions – is one of the ways that poor rural women are most often disadvantaged. In many countries, women's movements have organized and campaigned around issues of land and water access and related rights. Some countries, such as Bangladesh and Uganda, have also attempted to introduce gender-equalizing land or inheritance policies. In Ghana, Mozambique, Zimbabwe and elsewhere, progressive legislation has been passed, but implementation often remains problematic because of: women's inadequate access to information; their poor representation on local decision-making bodies; their lack of access to the complementary assets and capital to make productive use of ownership of land or independent access to it; and social resistance. To date, the record in terms of such land reforms is rather poor – with few exceptions, notably China.

Experience suggests that more attention to the political and legal empowerment of women is needed to actualize the good legislation already in existence. In addition, group-based approaches have, in some cases, proven effective to improve women's access to, and secure entitlements over, land assets and to strengthen their capacity to make productive use of these entitlements. In Nepal, for instance, an IFAD-funded leasehold forestry initiative enables groups of poor households – primarily women – to take on 40-year leases of degraded public forestland to regenerate it and improve their income. This has given poor rural women an opportunity to have land registered in their name and to be more active in the management of local forests and in local governance more broadly.

"My husband had some land he got from his father after he married me. But in the Jola tradition land is inherited only by men. Daughters and widows cannot inherit. So when my husband died his plots were redistributed to his brothers."

Bintou Sambou,
female, 45 years, Senegal

Growing pressure on common property resources. Common property resources – forests, grazing land, fisheries and water bodies – are critical to poor people in many parts of the world. They provide income and a range of products, and they represent an important source of food, particularly when agricultural production fails. Some common property resources are the foundations of certain types of rural livelihoods, such as grazing lands for pastoralism. In recent decades, these resources have come under increased pressure around the world. In some cases, the governance institutions created for managing them are unable to deal effectively with a growing number or variety of users and to regulate resource use, which can lead to overexploitation, degradation or conflict between different users. In other cases, the growing scarcity or value of specific resources has led to their privatization. In many areas, for instance, forest-based indigenous peoples have seen their common asset base threatened and reduced by private logging, land clearing to make space for plantations or large-scale livestock farms. Climate change and its effects – higher temperatures and reduced or more uncertain rainfall – further undermine the natural resource base. The result is that across the developing world these resources are shrinking, and many of those that remain are overexploited and degraded.[103] This not only creates new risks for poor rural people who depend on these resources, but also undermines their ability to use these resources to deal with other risks and shocks.

The case of fisheries provides a good illustration of current challenges. Fisheries are of great importance for food security for a substantial number of rural poor households, as well as for others. In sub-Saharan Africa, for instance, fish supplies approximately 20 per cent of the total animal protein intake of the population.[104] Many poor rural people rely on inland, freshwater fisheries and aquaculture as their primary livelihood strategy. In terms of numbers of people involved, small-scale and/or subsistence fishing is the globally dominant form of fishing.[105] Fishing may

also supplement other livelihood strategies: for instance, in the Lower Mekong river basin of South East Asia, a study estimated that around 40 million farmers are also engaged in fishing.[106] Since fishers can access cash year-round by selling fish, some refer to fisheries as a 'bank in the water' for rural populations that lack access to formal financial systems.[107] Today, however, fisheries are threatened by unsustainable harvest levels, habitat degradation, increasing sedimentation, interference with water flow by construction and insecure or inequitable access rights. Climate change will likely create new threats, affecting the distribution of fish and seasonality of biological processes, resulting in decreases in the availability of fish for food.

"…schooling is good, but he must learn how to fish at the same time to have an avenue of making a living in the difficult times. There are days that they aren't at school, so he will be here learning this, and become good at both. The first would be fishing though agriculture can't be neglected… But in fishing he must be an expert, for when the rains don't come and there's nothing to eat, he can go to sea for some urchin, net for some fish, and be free of want that day…"

Manantane Babay,
male, 19 years, Madagascar

One recent response to the crisis of fisheries (as well as of other common property resources) has been 'co-management', under which government and local resource users are given specific decision-making and monitoring rights and responsibilities. NGOs and local businesses may also be involved. Successful approaches to co-management need complex political and institutional negotiation and change. The more effective co-management regimes respect and work through existing local institutions, while building legitimate and representative bodies responsive to poor people's needs.[108] They also provide clear and immediate economic incentives for groups to participate, and ensure equitable sharing of costs and benefits. Co-management processes also need to address issues of power and marginalization. They can benefit poor rural people by improving their access to resources and decision-making, and thereby reduce risks related to poor governance of common property resources. However, to ensure their *influence* in decision-making, poor rural people need to be well-organized, represented, and aware of the issues and stakes involved.[109]

In addition to co-management, there are a variety of other approaches aimed at strengthening local governance of common property resources, such as community-based forestry, multistakeholder approaches to rangeland management and others. Under community forestry, for instance, rights and duties for managing and protecting forest resources are shifted from relevant state agencies to community groups, which are legally recognized and operate under well-defined legal frameworks. In some countries, this approach also has been instrumental in achieving greater

recognition of the territorial entitlements of indigenous and tribal peoples. Community-based approaches to rangeland management have also been the focus of much innovation and public support in recent years, with a view to addressing risks related to natural resource degradation, water stress, conflict and adaptation to climate change (see box 4). In such contexts, the existence of clear economic incentives (e.g. through improved veterinary and breeding services) for poor households to participate in improved management of natural resources is also important, and so is institutional change towards more inclusive governance.

Increasingly it is being realized that some types of common property resources can provide important environmental services. There is a rapidly expanding range of schemes making payments for environmental services such as biodiversity functions, carbon sequestration, landscape beauty and watershed functions; common property resources such as forests and grazing lands can greatly contribute to these. Participation in such schemes can strengthen the ability of communities to manage risks related to environmental changes – including climate change – through better adaptation and more resilient practices. However, as we will discuss in chapter 5, in order for poor rural people to participate in such schemes, some of the challenges they face also need to be mitigated, notably by securing their land entitlements and by strengthening their capabilities.

BOX 4 **Community-based rangeland management in Morocco**

In 1995, more than 12 per cent of rangelands in Morocco were degraded, and it was realized that if this was not addressed, rangeland degradation would jeopardize the livelihood of millions of pastoral households. It was in this context that an IFAD-supported project in Eastern Morocco sought to develop a community-based rangeland management approach in an area covering four communes with 3 million hectares and a population of about 58,000 people.

The project approach was based on five principles: (a) taking rural communes and tribal affiliation as the two bases for the creation of cooperatives; (b) reorganizing tribal institutions into pastoral management cooperatives responsible for choosing technology options and managing their resources; (c) requiring tribal members to purchase 'social shares' in the cooperatives to access cooperative services and improved pastures; (d) supporting pastoralist mobility through new, flexible livestock management systems; and (e) engaging in consensual decision-making processes.

Through the project, 44 cooperatives were created, involving 9,000 households in 15 rural communes. The project had a positive impact on the environment – by increasing dry matter from 150 kilograms to 800 kilograms per hectare; on the nomadic pastoral system – by reducing transhumance to shorter distances; and on animal health – by delivering health and veterinary services. Critically, government technical institutions supported a process that reduced their control over the development of rangelands. Today, all new range development efforts in Morocco are being implemented using this approach, which is also being adopted by other countries in the region.

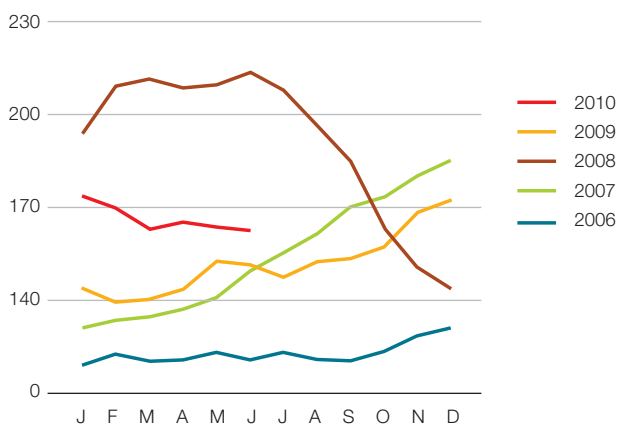
Source: IFAD, IFPRI and ICARDA (2004)

Market-related risks: food price volatility

Food price volatility creates a highly risky environment for poor rural women and men, both as producers and consumers. It is not a new phenomenon in developing countries. Particularly in poor, food-deficit countries, significant seasonal or annual fluctuations in prices and scarcities at particular times of the year remain features of rural life; inter-annual price fluctuations can also be severe. In countries where the infrastructure is weak and internal transportation costs are high, local prices may be subject to substantial variation. Hence price volatility is in part structural, but it is also a function of the interplay between global and domestic factors. The combination of international trade practices associated with the open-ended nature of the World Trade Organization's Agreement on Agriculture and some bilateral and regional trade protocols, as well as the domestic agricultural policies of OECD countries, have long represented an obstacle for development. They have not only limited the access of developing countries to rich countries' markets, but they have also aggravated price volatility in local markets and restricted the policy space of poor economies. Of particular interest here are the import surges of food and agricultural products into developing countries (where an import surge is defined as a 30 per cent increase from a three-year moving average of import data).[110]

An FAO study of 102 developing countries found that they had undergone more than 7,000 import surges over a 23-year period.[111] Examples include rice, poultry and tomato paste in Ghana, onions and rice in the Philippines, potatoes and dairy in Sri Lanka, poultry and onions in Jamaica, oilseeds in India and soya beans and cotton

FIGURE 11 **FAO food price index**
(2002-2004 = 100)



Source: http://www.fao.org/worldfoodsituation/FoodPricesIndex/en/

in Mexico. Not all import surges can be attributed to trade policies: although lower trade barriers and other liberalization measures in developing countries play a role, there are many other factors at play, such as currency fluctuations, elimination of support to a sector, shortfalls in domestic production, food aid, and the agricultural policies of other countries – production and export subsidies and destocking policies. The impact for developing country producers in terms of reduced prices or loss of markets can be dramatic. Again, a few examples: in Burkina Faso and Senegal multi-fold increases in tomato paste imports in the 1990s (much of it from the European Union) led to 50 per cent declines in local production; in Chile, a three-fold increase in vegetable oils resulted in a 50 per cent decline in local production; in Jamaica a doubling of imports resulted in a two-third reduction in local production.

By contrast, the global food price crisis of 2006-2008 was associated with dramatic increases in commodity prices. By mid-2008 maize and wheat prices were more than double the level they had been in 2006, while rice prices tripled in less than a year.[112] The increases were partly the result of a variety of supply and demand factors (e.g. expansion in biofuel production, droughts, oil prices, growing global demand and low global stocks). Speculation also played its part, yet it seems likely that further price increases were also driven by national policies – in particular export restrictions by exporting countries and demand surges by importing countries.

The impact of the crisis on poor rural people varied considerably, by country, by location and by their position in the market as either net sellers or buyers. Diet also mattered, and in countries where diets were more diversified and less dependent on rice, maize or wheat, people were typically less affected. A number of surveys confirm that poor rural households suffered as a result of the price increases: as net food consumers, they faced high food prices themselves. Meanwhile, since in many countries the high global prices were only weakly transmitted to local produce markets, poor rural households risked losing out as producers too.[113] Prices of inputs – particularly phosphate fertilizers and fuel – also increased rapidly, and these squeezed farmers' margins and pushed many into production systems that were less dependent on purchased inputs. While in some countries in Asia, such as Viet Nam and Pakistan, rural households gained on average from the price surge, everywhere the lowest quintiles in the rural areas – and particularly the landless – were among the worst affected.[114] In addition, even where farm gate prices did rise, their subsequent – and equally rapid – decline meant that farmers had no opportunity to respond to the new market conditions. For instance, a survey of farmers in the Middle East and North Africa found that more than 60 per cent would have expected to increase the area under cereals if the prices had remained at the levels of early 2008, yet the sharp reduction in prices created uncertainty and complicated farmers' decision-making.[115]

Governments' reactions to the food price increases were varied. Responses included export bans; the management and release of public stocks; price control and

anti-speculation measures; and safety nets – including subsidized food sales and a range of cash and food transfer programmes. While these were targeted principally at the urban poor, many countries also introduced measures to support food production (e.g. subsidies on, and public distribution of, agricultural inputs; subsidies on fuel for irrigation; minimum guaranteed prices for producers; public procurement for food distribution, subsidized sales and national stocks; support for credit and cancellation of farmer debt; support to value chain management and market information; and support to irrigation and storage infrastructures).[116] These have been supported by international donors and development agencies including IFAD, which rapidly made available resources to support agricultural production in countries affected by high prices.

It is widely predicted that price volatility will be long-lasting, both in international markets and in developing countries,[117] so learning how to manage it is critical for poor rural people. As noted, there is now a growing interest in the role that public policy can play in promoting food production and stabilizing food markets, in part because of the successful experiences of some countries in which public policies and institutions have played an active role. In Indonesia, the role played by BULOG, the government-controlled National Food Logistics Agency, in defending a floor price for rice was cited as a key factor in promoting increased rice production between the 1960s and 1980s and in fostering economic growth.[118] In Viet Nam too, floor prices for producers were key to creating a low-risk environment in which smallholder producers could invest in increasing production, and to enabling the country to become one of the world's largest exporters of rice. More recently, in Malawi, the Agricultural Input Subsidy Programme has been considered a pioneer of a new generation of large-scale 'smart subsidies' to agriculture, and while implementation of the programme has not been without challenges, in 2006 Malawi's maize harvest was the highest on record; a year later, it was nearly a third larger again.[119] Some governments have taken measures to reduce imported market risks for farmers in recent years: in Guinea, for example, in 1992 the government placed an import ban on potatoes during the local potato marketing season; it lifted the ban six years later when potato production had increased to 2,400 tons from only 15 to 20 tons in 1991, and local producers were ready to face external competition.[120] In Honduras, starting in 1999, the government effectively imposed various procurement rules aimed at regulating rice imports, a measure that is seen as having allowed domestic production to pick up and the domestic sector to become competitive.[121]

All these are locally developed, targeted policies aimed at responding to specific policy priorities and built in line with local institutional capacities. On the other hand, there are also many examples of heavy-handed government intervention in the sector, resulting in an ever-growing fiscal burden, disincentives to smallholders as a result of low administered prices and late payments and – as in the case of the 2006-2008 food crisis – a tension between resolving domestic problems and exacerbating global market volatility. Ultimately, however, there are very few, if any, countries in the world in which

public policy does not play some role in supporting agricultural production. In the OECD countries, price subsidies for agricultural producers are pervasive and, combined with the current global trade regime, they offer few benefits to poor smallholder farmers in developing countries. On the contrary, they increase the farmers' risks and uncertainty, constrain their access to global markets and lower the prices they can obtain.

Under these circumstances, public policy measures to create a stable market environment for smallholder farmers may represent an important set of tools for developing country governments to stimulate food production and reduce rural poverty. The issue is not one of whether governments should or should not engage in food markets. Rather, it is one of ensuring that the policies and interventions are sustainable and that they are appropriate for, and effectively contribute to, reducing risk and promoting on-farm investment. They therefore need to be identified on a case-by-case basis, respond to context-specific (and often time-bound) issues, have clearly defined and circumscribed goals, and be based on government institutional capacity for effective implementation. Finally, they must also have a strong governance framework, and be financially sustainable.

The state as a source of risk

Effective public policies and investments can play critical roles in addressing all the discussed risk factors and shocks for poor rural people. In part, this is a matter of the policies and initiatives taken to address specific risks, or to mitigate the broader risk environment in specific areas (e.g. climate change or agricultural markets). More broadly, it is a matter of governance – the traditions and institutions by which authority in a country is exercised.[122]

Governance arrangements, and the nature of the social contract that determines the relations between state and society, vary in different contexts, and there is no standard arrangement that is most likely to reduce the risk environment. However, governance characterized by rule of law, accountability and institutionalized opportunities for participation can contribute to mitigating risks faced by rural people. Since the 1990s there have been moves towards democratization in all developing regions. On the other hand, there remain countries in which poor rural people's participation in rural governance – including of natural resources or public services that are critical for risk mitigation – is very limited. Particularly where

"Some peasants have abandoned their best land. Sometimes after ploughing, you cannot go back to your land to harvest. There are mines there or risks of bad encounters. Activities like cattle breeding are impossible because of insecurity. The cattle are stolen or lost because you cannot go deep into the forest to look for your cattle… In these circumstances they dare not raise cattle. In fact, negative values have crept into our way of life because of the troubles. People now steal cattle, there are acts of sheer banditry. So those who have cattle keep it at home. We overexploit the same land. The conflict has also reduced labour because people have run away, have been killed or maimed."

Abdoulaye Badji,
male, 50 years, Senegal

the rule of law is weak, active citizenship can expose poor people to risks of repression or even violence. Marginalized groups are usually the most exposed to the resulting risks: in many countries the human and civil rights of indigenous peoples continue to be subject to violations. The same is often true of other groups such as pastoralists, forest communities and sometimes landless people. More generally, lack of respect for the rule of law, poor accountability and limited opportunities for participation create a high risk environment for the activities of poor rural people both as producers and as citizens, for their organizations and for other actors who seek to work with them – including the private sector and NGOs.

Normally, protecting citizens from major insecurities is a basic feature of social contracts in all states. However, not all states are able to deliver on this, for reasons ranging from poor capacity to enforce the rule of law to authoritarian or even predatory forms of government. These problems are widespread. In an analysis of human development in Arab countries, for example, the United Nations Development Programme (UNDP) reports that, in some countries of the region, human insecurity is not only linked to the presence of conflict, but also to the prevalence of authoritarian rule, accompanied by constitutional weaknesses and by the wide margins of manoeuvre enjoyed by state security apparatuses.[123] At the worst extreme, there are states across different regions that fail even to exercise a monopoly of force within their territorial boundaries, and that are subject to widespread and often protracted conflict. Those with particularly poor governance, weak state capacity and legitimacy and, in some cases, frequent or protracted exposure to conflict, are known often as fragile states. Fully 30 per cent of the world's poor people live in such states. Most are economically dependent on natural resources and/or agriculture. Poor rural people living in fragile states are particularly vulnerable to risks linked to conflict (including local, natural resource-based conflict), insecurity, and disruption of social relations and solidarities.[124]

Conflict is a significant source of vulnerability and risk for poor people. In 2006, for example, 25 out of 39 food emergencies were linked to conflict.[125] Livelihoods are eroded in conflict, as are institutions, including those regulating land and other natural resources, local government and markets. Basic services – health, education, water and sanitation – may break down, or their provision may become dominated by humanitarian approaches, which lack a focus on supporting the critical institutions that can put societies on track towards stability, coexistence and reconciliation. When longer-term development approaches are

"You know – this conflict has disrupted life here. It has made it impossible for people here. You cannot go to the fields without fear. Because I, Bintou, I am always worried about what can happen to my children. My mind is never at rest. I wonder what they are doing, because children are innocent, you know. So this situation is really a burden for people, especially the poor."

Bintou Sambou,
female, 45 years, Senegal

used to preserve or reconstruct vital services after conflict, they are often implemented by NGOs rather than government, which can, over the long term, undermine the process of creating an environment of reduced risk for poor rural people through solid public services and legitimate public institutions.

Beyond state fragility and conflict, poor governance more broadly can be a factor of risk, particularly when lack of accountability and corruption – or the misuse of public power and resources for private or political gain – are widespread. Unaccountable public authorities and institutions introduce an element of unpredictability into public life that can significantly increase transaction costs associated with market investments and contracts, access to services and utilities, and practices of citizenship. These affect particularly poor rural people due to their lack of power, but lack of accountability can also increase the costs and risks faced by the less poor and the wealthy – including private investors. Lack of public accountability by government authorities and institutions can increase the risks that poor rural people face when deciding, for instance, whether to invest in a piece of land over which they hold customary (or even formal legal) entitlements, how to

"Regrettably, we perceive – and that makes me feel angry – that teachers in charge are not of a high quality… And those who live in rural areas suffer from this… when you go to a distant village, you realize that the teachers don't comply with their work. They only stay two or three days, and are not concerned about training themselves. The level of health, justice and education doesn't reach everyone equally… I get angry that such things happen in our country."

Elsa Espinoza Delgado, female, 23 years, Peru

solve possible conflicts over access to or use of natural resources, or whether to invest in increasing productivity to tap market opportunities resulting from public policies or initiatives.

The costs of corruption can also be substantial for rural people. They may, for instance, include higher costs and risk associated with using public roads; applying for licences and permits to set up enterprises or to create rural producers' organizations; protecting community or individual rights to use local resources vis-à-vis private investors or government agencies; or protecting local interests in large-scale land deal negotiations. A recent World Bank study looks at the pervasive impact of 'quiet corruption' in countries in Africa – the malpractices of teachers, doctors, inspectors and other government representatives that do not involve monetary exchange. The study finds that this contributes to undermining the impact of investments to meet the MDGs, and that it directly affects poor rural people – the farmer who prefers not to buy fertilizers because s/he is unsure of the quality, or the child whose education suffers because the teacher fails to show up.[126] In West and Central Africa, IFAD has found that the countries with the poorest performance in terms of food security are those with unstable governments, weak rule of law and higher prevalence of corruption – all of which result in a high risk environment for rural investments.[127] In Asia, UNDP has found that in some countries corruption undermines law enforcement in rural areas – where police may routinely demand bribes, or be in the pay of the landed elites who use it to control their tenants or workforce.[128] Bribery is also used to gain illegal access to or use of natural resources, as well as in providing health and education services – those who are unable to bear the costs of bribery have no access to the services. In parts of the Middle East and North Africa, corruption has been linked to non-democratic government and to the presence of large, often overstaffed public sectors. Also important is the prevalence of informal patronage systems that can undermine the work of formal governance institutions.[129]

Nawal Mohamed Khalil describes how poor the quality of health care services is at government hospitals. "When you go there, you find nothing. It is better not to go. There is no care at the hospital… [my son] got sick once and we went to the hospital. They did nothing for him. He came out half dead, and so we took him to a private doctor who saved him. We don't rely on government hospitals…
If somebody falls sick and… if she has money, she will go to a private doctor."

Nawal Mohamed Khalil,
female, 47 years, Egypt

"The villagers don't know how much [they should pay] for the medicines and how much for an injection. How can we know these prices? They do not ask the price, they feel embarrassed to ask. They just pay the money that the village doctors ask for. In fact, the price of medicines in the village is the result of a lack of transparency. The state should take some measures… The prices should be posted out to let everybody know…

Li Guimin,
female, 50 years, China

Some institutional responses to risk

The risks discussed in this chapter do not represent an exhaustive list of those faced by rural households. Yet they cover some of the most prevalent ones across regions. Everywhere, poor rural households seek to manage the risks they face to the best of their abilities, as we have seen. To support their efforts, risk mitigation and risk management considerations need to be mainstreamed into policies and investments (public and private) in rural development and growth. In the next chapters, we will see what this may entail in the domains of agricultural markets, agricultural production and the rural non-farm economy. Across domains, however, there are also three types of institutions that deserve strengthening to support rural poor households to better manage a variety of types of risks. We briefly review these below.

Community-level institutions

A range of local organizations and networks play important roles in mitigating and managing risks facing poor rural households. Examples include extended families that allow better provision of food and shelter than might be possible through nuclear families, especially for those unable to engage fully in the productive economy; savings and credit groups; cooperative labour arrangements, where a group works together on different farmers' land; a group sharing the costs and benefits of livestock herding; a group jointly storing grain, or neighbours sharing produce. Local food, fodder and seed banks, some of them collectively managed and/or funded by membership-based poor people's organizations (such as the Self Employed Women's Association in India, for instance) also exist in rural areas in many countries. In the Niger, for instance, village cereal banks established under an IFAD-supported project help poor households get through the hungry season preceding harvest. Households can take cereal loans from the cereal stock and pay them back after harvest with 25 per cent interest. The cereal banks are credited with improving nutrition, reducing levels of out-migration and thereby increasing agricultural production, and empowering local women and their organizations. In some contexts, sharecropping may also represent a traditional form of risk sharing, as long as rents are set at a reasonable level. Patron-client bonds with local elites may also be important sources of social protection for poor rural people, although with mixed effects in terms of local development, good governance, social inclusion and equity.

"I know that in old times, when children lose their parents, they go to their uncles and grow up there. But nowadays things have changed. It seems that everyone fends for himself. Life is so hard now. You cannot take care of your family and add to your burden the family of your deceased brother. So it's up to orphan children to stick together and help each other. But when we have a big problem we do go to our uncles so that they can help us find a solution. And also they have given us the land our father used to plough."

Oumar Diédhiou,
male, 22 years, Senegal

The possibility of participating in risk mitigating arrangements may be one of the most prominent reasons for people to join a local organization; this was a conclusion of a study in rural Chad.[130] Yet many local mechanisms for risk mitigation and risk management based on social solidarity also have their limitations. They may cater only to certain groups within rural communities; other groups, such as widows, AIDS-affected households, internally displaced people or ethnic minorities can find themselves marginally or insufficiently supported by such mechanisms. In addition, with weakening traditional cultures and high levels of migration from rural areas, some local institutions and organizations based on social solidarities increasingly have come under strain. Finally, local institutions and organizations can typically do little *on their own* to help households cope with the risks that affect large numbers of people, such as drought, flood, conflict or growing market volatility. Governments and development agencies have important roles to play to improve the risk environment in which these institutions and organizations operate, to strengthen them whenever possible and appropriate, and to help their transformation to better serve the needs of poor rural people in a changing environment. In many cases, both governments and donors can help pilot, support or replicate positive institutional innovations – one example of how this may occur is seen in IFAD's support to cereal banks in the Niger. Other examples concern the development of co-management and community-based management arrangements around common property resources, support to membership-based organizations to address market- and environment-related risks, and work with local stakeholders to reform local conflict management institutions or to promote gender equality.

Pascaline belongs to a women's association/savings club whose members hire out their labour, pool their earnings and provide members with cheap loans in times of need:
"We provide our services for a fee during the rainy season… Essentially we plant rice or harvest it… The rates depend on whether our services are required for half a day or a whole day, and also on whether we are working for a member of the association or not. The member of the association will pay 5,000 CFA for half a day and 10,000 CFA for a whole day. For somebody who is not a member of the association we charge 7,500 CFA for half a day and 15,000 CFA for a whole day. There is an average of 20 members each time we work for someone. It may sound cheap to you, but remember the basic objective of the association is solidarity. So these are social rates…

Financial institutions

Financial institutions play a critical role in enabling poor rural households to cope with shocks and to manage risks. Poor rural households have low incomes that are also irregular and uncertain, and in many cases, tied to the agricultural seasons. In addition, frequent financial emergencies for poor households can result from illness or death, loss of income or assets, theft or the costs of important social ceremonies. To manage these, people typically employ a variety of financial tools, often simultaneously, and many of them are linked to informal networks

and family ties. In a study of 250 households in Bangladesh, India and South Africa, for instance, those households were found to use, on average, ten different types of financial instruments in a year.[131] Some of these were universal: almost every household borrowed informally from family and friends, and many reciprocated by offering such loans to others. Other instruments were based on a variety of informal and – more rarely – formal institutions. They included microfinance saving accounts and loans, savings held with a money guardian, holding savings for others, credit from shopkeepers, informal insurance and the like.

Sometimes a member who is in serious difficulties may need help. We use the fund to assist the person, usually in the form of a loan. It is a question of honour. They always pay back. In fact if they didn't they would never get another loan if ever they got into difficulties. The fund works as a form of social insurance… Above all my personal interest is the solidarity aspect of the association. We help each other as much as we can."

Pascaline Bampoky,
female, 30 years, Senegal

There is thus a substantial demand for financial services among poor rural households, and there are an estimated 2.2 billion adults in developing countries, including most of the rural poor, who do not have access to formal financial services.[132] The greatest demand is often for diverse, safe and affordable savings services. Given the scarcity of accessible, formal financial institutions in most rural areas, people have devised alternative solutions. Some people use savings collectors (people who, for a small fee, look after the savings of others), though rotating savings and credit associations (ROSCAs) are the most common arrangement. Found all over the world, and known by different names, an example of this sort of locally-led financial services association is the Indian self-help groups (SHGs). Since their establishment in the 1980s to provide financial services to the poor, approximately 3 million SHGs have formed and become a movement for social empowerment, particularly for poor women. A 2006 study of these groups shows that they play an important social and political role and enable huge numbers of poor families to access bank credit – 24 million poor families between 1992/1993 and 2004/2005. The SHGs were found to help large numbers of poor rural women manage their often precarious finances, and most were reasonably well managed and sustained over significant periods of time.[133] There are many other examples of such valuable movements which, while not necessarily of the same scale, have as their net effect the prevention of impoverishment.

Microfinance institutions (MFIs) have multiplied since 1990; despite the high transaction costs and risks associated with operating in the rural areas, they are getting ever-better at reaching out and responding to demand there. The most innovative are experimenting with ways of enabling the poorest rural people to access financial services. Working with the poorest clients to 'graduate' them into mainstream financial services requires time to develop savings and repayment habits, training to understand financial services and to plan for savings and the use of credit, and the

construction of a pathway from receiving grants or food aid to an independent relationship with financial service providers.[134] All of these are major challenges for MFIs. In addition, poor people often need small-scale savings with the right to instant withdrawal; they need help with building savings – beyond the limited lifespan of the rotating savings club; and they need loans for all sorts of uses, including consumption as well as investment in microenterprise.[135] Finally, poor rural households need financial services to reduce the costs that family members incur in transferring remittances to the rural areas where the rest of the household lives. In this regard, there is much scope for collaboration between money transfer services and MFIs to expand savings services in rural areas.

There are a variety of informal insurance schemes that are accessible by poor rural people, including insurance products for small shopkeepers in Bangladesh, funeral cost funds in Ethiopia and marriage funds in India.[136] In recent years, the microinsurance sector has developed rapidly, and today an estimated 15 million low-income people are covered by some form of health insurance sold through partnerships with MFIs.[137] There is also growing interest in using index insurance as a

BOX 5 **Lessons learned in weather index insurance**

The joint IFAD-WFP Weather Risk Management Facility has reviewed 36 experiences with index insurance programmes around the world. The results suggest that index insurance could provide an effective, market-mediated solution to insurance needs in agriculture, as well as make disaster relief more effective. Drawing from a diversity of experiences, these case studies highlight some key principles for successful programmes, and suggest avenues for reaching scale. These include:

- create a proposition of real value to the insured, and offer insurance as part of a wider package of services;
- build the capacity and ownership of implementation stakeholders;
- increase client awareness of index insurance products;
- graft onto existing, efficient delivery channels, engaging the private sector from the beginning;
- access international risk-transfer markets;
- improve the infrastructure and quality of weather data;
- promote enabling legal and regulatory frameworks; and
- monitor and evaluate products to promote continuous improvement.

To widely expand index insurance, governments and donors will need to play important enabling and facilitating roles, particularly in these key areas:

- providing technical assistance, training and product development;
- educating clients about insurance;
- promoting innovation;
- facilitating access to reinsurance;
- developing national weather services, infrastructure, data systems and research;
- creating an enabling legal and regulatory environment, and designing sound national rural risk-management strategies; and
- supporting impact studies.

Source: IFAD and WFP (2010)

way of protecting small farmers against the effects of severe weather shocks, where payments are triggered by pre-specified patterns of the index (which is usually defined in terms of objective, measurable assessments of weather events like rainfall). Pilot schemes have been undertaken in all developing regions, and while in many countries there are only hundreds of smallholder farmers who benefit, in India some 2.1 million index insurance policies have been sold through private insurance schemes since 2003.

While index insurance has potential as a risk management tool, its implementation faces challenges. Contract design is very expensive and must be tailored to the agroecological conditions of each area. Experience with insurance is limited among poor rural people, and organizations that know these clients, like farmers' associations and MFIs or other delivery channels, must be used to reach out to them. In addition, there are few weather stations to provide data for the index, and private insurers initially may be reluctant to move into this field, since they would bear the costs of developing new products that could be relatively easy for competitors to copy. As such, it remains up to the public sector and NGOs to finance the public goods and establish the preconditions that will enable private insurers to invest in this area.[138] This suggests that significant institutional development and investments (including private-public partnerships) are needed. Key lessons learned to date are shown in box 5.

Social protection

Besides mainstreaming risk management in government sectoral policies and investments for rural poverty reduction, states can develop policies and institutions that specifically aim to enhance resilience among poor households. Social protection in particular is concerned with the ways in which individuals' or households' resilience to adverse events can be strengthened, and it can be defined as the public actions taken in response to levels of vulnerability, risk and deprivation that are deemed socially unacceptable within a given society.[139]

Since the 1980s, social protection programmes have multiplied – not only in middle-income countries but also in least developed countries – and many governments have begun to see them as a leading tool in reducing poverty, especially for the poorest. A wide range of social protection measures are being implemented. Conditional cash transfers are widespread in Latin America: they include Mexico's Oportunidades and Brazil's Bolsa Família, as well as Honduras's Programa de Asignación Familiar and Nicaragua's Red de Protección Social, well-known programmes that are typically targeted at very poor families and seek to combine the short-term goal of poverty alleviation with the long-term objective of breaking intergenerational poverty by making transfers conditional on things such as school attendance or immunization of children. They also include employment guarantee and public works schemes, such as India's National Rural Employment Guarantee Act (NREGA), which by 2007/2008 provided 100 days' employment to 30 million poor rural households, or Ethiopia's

BOX 6 **The National Rural Employment Guarantee Act and its impact on rural women**

The National Rural Employment Guarantee Act is a landmark piece of legislation enacted in India in 2005. It guarantees that each rural household has a right to unskilled manual work for 100 days a year at the minimum wage accepted at the state level, to be paid equally to men and women. The focus is on work in water and soil conservation, land development and forestation. Implementation involves the entire government machinery, from the federal to the local level. With significant variation among states, the Act has stimulated the rural economy through increased incomes, demand and investments, and it has strengthened the coping mechanisms of poor rural households. Already in 2007/2008, more than 30 million households were provided employment under the Act. Decreased out-migration has been recorded in areas where projects have been implemented – along with a rise in agricultural wages owing to a tightening of labour markets in some areas – although these results may not be rigorous, due to lack of a control group.

According to a 2009 study of the Act based on a survey with women in six states, NREGA also contributed to women's access to better-paid employment. For instance, women were 44 per cent of NREGA participants in 2007/2008 in India, and considerably more in Kerala, Tamil Nadu and Rajasthan. The Act itself stipulates that women should be at least one-third of participants. Compared with the irregular, poorly paid and often hazardous labour opportunities usually available to poor rural women, NREGA offers better and more socially acceptable work, better working conditions, regularity and predictability of working hours, locations close to women's homes and better pay. The survey found that women's average wages ranged from 47-58 rupees a day in the private labour market to an average of 85 rupees under NREGA. Two-thirds of respondents reported greater food security and half reported being able to better cope with family illnesses. Some women were able to buy agricultural inputs and equipment through their wages. However, the experience of NREGA shows the persistence of social barriers to women's access to good wage opportunities. In some areas, women reported facing discrimination and being crowded out of NREGA projects by men drawn by decent wages. Elsewhere, households headed by single women have been denied registration in Act schemes.

Source: Khera and Nayak (2010)

Productive Safety Net Programme (PSNP), which provides 5 days' employment per month for six months, to some 6 million people. In sub-Saharan Africa in recent years, a number of countries such as Kenya, Malawi, Mozambique and Zambia have, with donor encouragement, piloted or established social cash transfer schemes. While most of these governments have shown only limited interest in expanding these, a number of other priorities have been pursued, including national social pension schemes (Lesotho and Swaziland) and subsidies on agricultural inputs (Malawi and Zambia).[140]

There is growing interest in the convergence between agricultural growth and social protection policies in many countries. There is evidence that by reducing vulnerability, cash transfers promote savings and investment in agriculture or non-farm business. Predictable and regular transfers perform an effective insurance function and encourage moderate risk taking by otherwise uninsured small farmers in marginal areas. Farmers

who participated in NREGA in Maharashtra State planted higher-yielding rather than drought-tolerant crop varieties, unlike farmers in neighbouring states.[141] Participation in Ethiopia's PSNP has meant that significant numbers of beneficiaries are now able to avoid selling food to pay for short-term needs, and many now feel sufficiently secure in their income to take productive loans which they previously found too risky.[142] The Agricultural Inputs Subsidy Programme in Malawi is credited – along with good rains – for the record harvests achieved in 2006 and 2007.

The benefits of such schemes can be wider however. The NREGA has benefited many women, for example (see box 6). It has also resulted in decreased rates of out-migration in areas where projects have been implemented, and higher rates for agricultural wages because of tightening labour markets in some areas.[143] The conditional cash transfer schemes have increased both primary and secondary enrolment rates by 4 to 8 per cent (the schemes have also increased the enrolment rates of non-participants), raised attendance rates and reduced drop-outs; reduced the incidence of child illness; and led to improvements in child height.[144] The pilot Kalomo cash transfer scheme in Zambia was found to reduce hunger, improve diets, reduce sickness, increase asset ownership (particularly goats) and promote investment.

Social protection is most powerful as a force for poverty reduction when linked to other measures. For instance, a simulation of the effects of cash transfers on Cambodian rural society showed that, combined together, social protection and agricultural growth measures produced better results for poverty reduction as well as growth, and that the highest economic returns were generated by combining health and education subsidies with support to agricultural growth.[145] These findings confirm a thesis of this report: that state initiatives are needed on a variety of fronts to reduce risks in order to protect livelihoods and in order to enable poor rural people to create and seize opportunities for growth and poverty reduction. The implications in relation to agriculture, markets and stimulating opportunities in the non-farm rural economy will be addressed in subsequent chapters. The precise combination of protective and promotive policies must, however, vary from context to context. For instance, *conditional* cash transfers, which have been successful in Latin America,[146] may not work in Africa, where health and education services are not sufficiently accessible to the rural poor. Market-based solutions in turn depend on functioning markets. Policymakers need to assess the appropriate mix of interventions and evaluate and change programmes as circumstances change, without undermining people's confidence by changing policy unpredictably. Finally, one of the lessons emerging out of a number of studies is that a social protection agenda has to be driven internally, rather than by donors, and it has to be built on already-existing policies, institutions and political structures.[147]

Key messages from this chapter

First, avoiding and managing risk is a prerequisite for poor rural households to move out of poverty, and it is thus central to their livelihood strategies. At the household level, decisions about how to allocate and use cash, land and labour are a function not only of available opportunities, but also of the need to minimize the possibility that the household will be exposed to shocks that can throw it into poverty, prevent it from moving out of poverty or significantly reduce its ability to spend on its primary needs. In many cases, however, the need to minimize the possibility and impact of shocks undermines people's ability to seize opportunities – notably by preventing or discouraging them from taking the risks involved in investing resources in pursuing the opportunities. *Understanding that avoiding or effectively managing risk is a priority for poor rural people is a necessary starting point for designing policies and investments to enable rural women and men to benefit from new opportunities.*

Second, shocks are a primary factor contributing to impoverishment or remaining in poverty. Poor rural women and men are especially exposed to a range of types of shocks because of their kinds of livelihoods, the areas in which they live and their assets and capabilities. In addition, they have less resilience than less poor households because they have a more limited asset base to use for coping, fewer opportunities to accumulate enough to face significant shocks, and a weaker institutional, infrastructural and service network on which to rely. When shocks do occur, people employ a wide range of coping strategies, but these may involve incurring debt or selling assets, which will leave them more vulnerable to future shocks. *To support more individuals and households in steadily climbing out of poverty, it is important both to reduce their exposure to shocks and to strengthen their resilience by enhancing their individual and collective capabilities and by addressing these interlocking disadvantages.*

Third, the risk environment is becoming worse for poor rural people in many parts of the world. The increasing risk factors affecting poor rural people include natural resource degradation and climate change; the growing insecurity of their access to land; the crisis of common property resources and related institutions; and the greater volatility of food prices. In addition to these, more long-standing risks are related to ill health, climate variability, the costs of important social ceremonies and poor governance (including state fragility), among others. In this environment, new opportunities for growth in rural areas are likely to be beyond the reach of many poor rural households and individuals – especially those whose resilience is undermined by inequalities and disadvantages organized around, for example, age, gender or ethnicity. *In many cases, innovative policies and investments are needed to address the new or growing risks, and to enhance responses to long-standing risks. This often entails collaboration among a variety of actors, from state actors to the private sector and civil society.*

Fourth, *putting a proper appreciation of risks and shocks at the centre of a new agenda for rural growth and poverty reduction requires a multi-pronged approach.* On the one hand, this involves strengthening the capacity of poor rural people to manage risk: supporting and scaling up the strategies and tools that they already use for risk management and for coping, and helping them to develop new ones. On the other hand, it requires that the environment they face be made less risky. This involves better governance of the risk environment, particularly concerning changes in markets and in the natural environment, but also concerning poor rural people's health capabilities, and the right to enjoy security from conflict. Areas of particular focus include: strengthening community-level organizations and assisting them to identify new mechanisms of social solidarity; promoting the expansion and deepening of systems for delivering a range of financial services to poor rural people; and providing social protection to the most vulnerable. When well designed, such programmes can reduce the risk that many households face and enable them to invest in more profitable income-generating activities.

Khyber Pakhtunkhwa Province, Pakistan: Shazia Bibi gazes out from her home's courtyard. She and her husband keep a buffalo, some goats and a hen to provide milk and eggs for their three children. They also grow vegetables and grain, and market part of their crop, but the small unpredictable profits barely pay for the children's education.

Chapter 4

Agricultural markets for increased incomes

Shazia Bibi, in her mid-thirties and a mother of three, lives in Khyber Pakhtunkhwa (formerly the North West Frontier Province), Pakistan. She and her husband grow vegetables, garlic, taro, maize and wheat, and market part of their crop. But the small, unpredictable profits generated are scarcely enough to pay for the children's education and the long-term medical treatment Shazia needs for a heart condition.

Once the crops are ready to harvest, they check market prices and calculate whether their costs – including land rental, seeds, fertilizer, pesticides and some hired labour – will be covered if they sell straightaway. **"If all our costs are covered,"** Shazia says, **"we immediately take [the crop] out of the land and take it to the market in Abbottabad."** If they predict selling at a loss they store the harvest at home, a time-consuming process as the crops must be cleaned and shifted from room to room every 15 days to avoid termite infestation.

Taking the example of garlic, Shazia explains how the market system works – or doesn't work – for them: **"Sometimes one makes a profit and sometimes the loss is doubled… [that is] we do not get as much money as we have spent. When other garlic from China or India arrives our garlic loses all its value… We hold on to our garlic in our houses, for the reason that maybe our condition improves and it sells at a good price…"**

According to Shazia, not only does imported garlic drive down the price of local garlic, it also cannot be conserved in the way that local garlic can. **"Ours is small and long-lasting,"** she says. **"If we store it for one and half years it remains fresh."**

They also keep a buffalo, some goats and a hen, mostly using their products themselves, but also selling the buffalo milk: **"With this we try to improve our condition to some extent."** Using the buffalo manure also saves them from having to purchase so much fertilizer.

Oumar Diédhiou, aged 22 and single, is a farmer in Badiana, Casamance Province, Senegal. His main income is from selling peanuts to the state marketing board. Oumar also does market gardening, growing mostly fruit and selling the produce locally. But as he explains, marketing is problematic: "Buyers are not easy to find. And fruits rot fast. So you have to cooperate with other people in the village to have a large enough quantity to convince buyers to come to the village. The problem is when you get them here, they impose their prices. If you don't sell, your products can go bad and you lose… Actually, we don't really like telling people that we have goods to sell – that is like telling them that you have a problem of money. Whoever comes to buy will believe you are ready to sell at any price in order to get money to solve your problem. So we wait for someone to turn up. But if no one turns up, we form a delegation and go to town to look for a buyer."

In Oumar's opinion, farmers need to market collectively in towns: "If we had somebody in the village who could buy from us and take the goods to sell them in town, that would be good… Villagers should organize themselves. That way we can designate people who can buy our goods and take them to cities."

Having been educated to secondary level, Oumar has acquired valuable skills that he uses as a farmer: "I understand the logic behind whatever activity I carry out. And I am more efficient. I know how to use fertilizers for instance. I can make projections and set objectives for myself." He has several ideas about how to improve agriculture and advance rural development generally. "It's impossible to continue with the way our ancestors used to work," he insists. Good seeds, fertilizers and "infrastructure such as small dams," are all needed. "First we have to work hard," he says. "Then we will need help from outside partners."

Introduction

Economic life in the modern world is constructed largely on the operation of markets: virtually every household has at least someone who either sells their labour for a wage or salary, or sells products or services of some sort; they use their earnings to buy what they need, from housing, to food, clothing, consumer goods, health care and other services. Access to markets is just as compelling for poor rural households in developing countries, and for exactly the same reasons. In addition, without good access to markets, rural households cannot use their scarce resources like land and labour efficiently, and their decision-making may be constrained – possibly forcing them into self-sufficiency, whether for food, labour or other items.

In a situation in which demand for food and agricultural products is increasing and agricultural markets at national and global levels are changing profoundly, improving poor rural people's market participation is especially important. If these markets work well and are inclusive of smallholder farmers, they can provide strong incentives for poor rural people to make the necessary investments and take the necessary risks to enhance their ability to respond to market demand. Moreover, if poor rural people are able to benefit from their participation in markets, they can gradually save and accumulate assets, increasing not only their prosperity, but also their capacity to deal with risks and shocks. However, for this to occur, the overall risk environment affecting poor rural people's engagement in agricultural markets needs to be mitigated. In this chapter, we will look in more detail at how agricultural market opportunities are changing as a result of the modernization and globalization of value chains for food and agricultural products. We will then review a number of factors of particular importance for strengthening poor rural people's ability to engage in agricultural value chains. These include: improved market infrastructure; strengthened individual and collective capabilities; improved access to market information; improved market supporting services (e.g. financial services); and greater investment (including through public-private partnerships) in win-win contractual arrangements among actors within value chains.

Why agricultural markets matter to poor rural people

As noted at the outset, the agricultural market conditions surrounding the 2006-2008 food price crisis are part of a new environment characterized by new incentives for investment in rural economies and rural growth. For many rural poor households, agricultural markets have long been of particular importance – and these are the focus of this chapter, particularly as *produce* markets. They are especially critical for households whose livelihoods are based on smallholder crop and livestock

production, which are also at the centre of this chapter. Most farm households are connected with agricultural produce markets as sellers, sellers and buyers (either net sellers or net buyers) or as buyers only. The degree to which they are involved with agricultural markets varies greatly, depending particularly on household asset levels and location. In many countries, only between one- and two-fifths of the rural population are *significant* participants in agricultural markets,[148] while some households, particularly in the most remote rural areas, may have little or no interaction with markets. A majority of poor rural households are, however, buyers of food – either net or absolute – and thus food markets are critical for them as consumers. And as non-farm income sources make up an ever-greater share of rural incomes, well-functioning agricultural and food markets will be even more important for food security in the future.

Finding good market opportunities to make agriculture a remunerative business is of major importance for smallholders. Looking forward, the rural youth of today will consider farming a viable life choice, and will *aspire* to farm, only if it is profitable. The example of the Kapchorwa Commercial Farmers Association in Uganda is instructive. Over the past ten years it has grown from 27 to over 5,000 members. It has entered into group procurement of fertilizers, hired its own extension officers, obtained delivery contracts with breweries and with WFP, and established a warehouse receipt system for its members. When asked what they considered their most important achievement, members answered that since farming was becoming more profitable for them, youth are increasingly interested in agriculture and in agricultural training, and entrepreneurial young association members have even rented land to expand their production.[149]

Addressing risks to better engage with markets

Farm households confront a range of risks in engaging with agricultural produce markets, which affect their decisions both as sellers and as buyers. For instance, although, as noted, most poor rural households are net food buyers, many poor farming households seek to grow their own food as a response to unfavourable or unreliable conditions in food markets which result in volatile prices or periodic lack of available commodities in local markets. Moreover, in the absence of reliable opportunities for engaging in produce markets, poor farming households are likely to limit their investments in market-oriented crops and generally avoid the risks and costs associated with increasing productivity in their crop, livestock and fishery production systems.

By contrast, access to remunerative and reliable produce markets can enable farming households to commercialize their production systems and focus on market-oriented crops and livestock products, which can increase and secure their cash income and reduce the need for self-sufficiency. In another example from Uganda, the

"We don't carry the pineapples to Chachapoyas by ourselves because we need to have trucks or big vans for that; besides, the highway is bad, and as we don't want the fruits to get spoiled, we collect them all and sell them to the Huambinos [people from the neighbouring province of Huambo]."

José del Carmen Portocarrero Santillán, male, 82 years, Peru

"About eight or nine people hire a vehicle collectively. If a single person transports the loquat then the expense on it is too high. A single person cannot afford the 500 rupees fare to Abbottabad market."

Muhammad Naveed, male, 22 years, Pakistan

Nyabyumba United Farmers Group received external substantial support to get to the point where it could become a supplier of potatoes to Nando's fast food restaurants in Kampala. Having done so, its members, 60 per cent of whom are women, have gone from being reliant on off-farm labour and farming for their household food needs, to becoming specialized, fully commercialized producers who are able to use the income they earn to purchase their food needs.[150] In Kenya too, a well-functioning dairy market has made it possible for smallholder producers on very small holdings to fully commercialize their production systems, zero-graze their animals using bought-in fodder and produce milk first and foremost for the Nairobi market.[151] Producing market-oriented crops can also enable poor farming households to earn the income they need to purchase inputs for food crop production. Improved and less risky market access thus provides an important incentive for increased on-farm investment and higher productivity.

Agricultural produce markets typically work better when they are competitive, when they are served by good transport and communications infrastructure, when information flows freely among participants, when access is unrestricted, when power asymmetries among participants are low, and when supply and demand do not fluctuate wildly. Unfortunately, such circumstances rarely apply. Poor smallholder farmers typically have limited amounts of produce to sell, and what they have may be only occasional or of low value or quality. They face high transport costs, are often dependent on buyers coming to them, lack information on market prices beyond their nearest small town and typically need cash from sales immediately. This creates high levels of risk and uncertainty for smallholder producers and high transaction costs for buyers, in a situation that is typically characterized by low trust between the two sides.

Many value chains for food and agricultural products involve many intermediaries between producer and consumer, and at each step there are further risks and transaction costs, all of which reduce market efficiency. Market power is rarely equally distributed along the value chain, and this enables the more powerful to pass costs

and risks to the weaker actors – typically smallholder farmers (but also casual workers in agriculture and agro-processing). In some cases, market power asymmetries are intensified by a high degree of concentration of control over specific value chains. In Latin America, for example, four firms control 75 per cent of the Brazilian hybrid maize market, and four control the same percentage of the coffee market. In Colombia, four companies make up 72 per cent of the market for oils and four others comprise 94 per cent of the market for potatoes, yucca and bananas. In El Salvador, two mills dominate 97 per cent of the market for wheat, and four companies control 87 per cent of the dairy market.[152] Harnessing agricultural markets to boost rural economies and help people move out of poverty thus requires understanding how different value chains work; the constraints and sources of risk for smallholder farmers and other poor rural people; and how engaging in specific value chains can become less risky and more profitable for them.

"… I have an ambition. I hope to have a good income-generating activity to protect my children and myself from hardship… I wish I could increase the volume of the *moukirr* (a bitter traditional healing ointment) that I sell… It can sell fast if you take it and walk around to look for potential customers. You know I sell it at a very small profit because this area is poor. And I can't leave my children to go somewhere else to sell it."

Bintou Sambou,
female, 45 years, Senegal

How markets have changed in the past few decades

There have been major policy shifts in the governance of agricultural markets in many developing countries over the past 30 years or so. Prior to the early 1980s, agricultural marketing systems were characterized by extensive government intervention aimed at minimizing the risk of food shortages in urban areas, assuring foreign exchange earnings and tax revenues from strategic agricultural commodities, and securing the participation of smallholder farmers in food and cash crop production.[153] Marketing activities were typically carried out by parastatal marketing boards, which offered farmers pan-territorial and pan-seasonal prices for their products; the private sector was usually excluded from marketing activities. In some countries, the system provided strong incentives for increased production; in others, it served as a form of taxation on small farmers and existed above all to ensure cheap food in the urban areas.

By the early 1980s, the broad-brush wisdom was that this model had become an unsustainable fiscal burden, had contributed to real declines in producer prices and had failed to promote agricultural growth. With strong encouragement from the World Bank, many countries carried out major reforms of input and produce marketing systems. Domestic marketing systems for traditional export crops such as cocoa, coffee and cotton were liberalized to a greater or lesser extent, and international

stocks and price management mechanisms were dismantled, leading to increased short-term variability in commodity prices.[154] For major food staples too, the role of the state in marketing and price setting was rolled back – although there are many notable exceptions, especially in Asia. Marketing was opened to the private sector, and barriers on imports of foodstuffs were reduced. Many smallholder farmers benefited from these changes; however, many others – especially those in the more remote, poorly connected areas – lost reliable markets and incomes and faced a worsened risk environment.

In parallel with the dismantling of state-centred marketing governance systems, a whole set of new factors have reshaped agricultural markets in developing countries in recent years. At the national level, these include urbanization and population growth, growing per capita incomes, changes in consumer preferences, the modernization of food processing and retailing, and improvements in transport and communications infrastructure.[155] At the global level, developing countries have become increasingly attractive sources of markets and agricultural supply for large, multinational agro-food companies.

The trade environment has also changed – partly through slow, incremental changes in the global trade regime, in public and private quality standards, and in bilateral and regional trade agreements, and partly through the increasing importance of fast-growing, non-OECD economies as importers and exporters of agricultural products. Particularly in Asia and the Pacific, there has been substantial growth in agricultural trade. By 2007/2008, Asian agricultural imports made up a quarter of global trade, mostly for cereals, oil crops, meat and horticultural products.[156] India and China have dominated these trade flows, both as exporters and as importers. As a result of all these factors, agricultural produce markets are increasingly differentiated in many countries. They range from, at one extreme, village markets selling locally produced, locally consumed products to, at the other extreme, global markets selling packaged, off-season vegetables. There are both traditional and modern markets, with varying degrees of integration at the local, urban, national, regional and global level. Market differentiation offers new opportunities for smallholder farmers, along with new risks and barriers.

Urban markets

Urban markets have changed profoundly over the past 30 to 40 years as a result of rapid growth in urban populations, both in large cities and in smaller urban centres. In many countries, this has been accompanied by higher incomes and the emergence of a sizeable middle class with changing tastes and consumption patterns; in some areas, it is also linked to women's growing participation in labour markets, to the wider availability of electrical home appliances and other factors. Overall, in most countries there has been increasing demand for food, and particularly for higher-value produce such as vegetables, fruit, meat and dairy (see table 2). More people

TABLE 2 **Changing food consumption patterns** (kilogram/capita/year)

Country	Product	1980	2005	Increase (percentage)
China	Cereals	154	156	1
	Vegetables	49	271	453
	Milk	3	24	700
El Salvador	Cereals	139	133	-4
	Vegetables	30	63	110
	Milk	84	103	29
Ghana	Cereals	58	95	90
	Vegetables	26	30	15
	Milk	3	7	133
India	Cereals	140	146	4
	Vegetables	48	74	54
	Milk	39	65	67
Kenya	Cereals	147	128	-13
	Vegetables	25	44	76
	Milk	65	76	17
Peru	Cereals	102	140	37
	Vegetables	27	44	63
	Milk	62	50	-19
Tunisia	Cereals	207	207	0
	Vegetables	140	185	32
	Milk	66	98	48

Source: FAOSTAT http://faostat.fao.org/site/345/default.aspx

want guaranteed high-quality food and processed or convenience foods. Many want to shop in supermarkets and eat at fast-food outlets and restaurants.

Following market liberalization, and both as a response to changing urban food demands and as a driver of those changes, there has been rapid restructuring of national food markets; substantial new investments have occurred in processing and retailing, and new market arrangements and standards have emerged to varying degrees across countries. Supermarkets have grown rapidly across much of the developing world. The growth started in Latin America, where supermarkets now typically account for 60 per cent or more of retail food sales; Asia followed, starting with East and South East Asia and more recently South Asia, and then Africa – first Southern and then Eastern Africa.[157] Yet there is much variation among countries: compare Brazil, where supermarkets have a 75 per cent share of retail food sales, and the Plurinational State of Bolivia, where they have only 10 per cent.[158] There are also differences between larger cities and smaller towns and among different products, with supermarkets typically having a larger share of the market for processed and packaged foods than for fresh fruit and vegetables. In addition, supermarkets are extremely heterogeneous, encompassing both family businesses and global retail chains.

While supermarkets often prefer to purchase produce either from large processing firms or directly from production units, in some settings they also work in preferred supplier relationships with small farmers, sometimes offering inputs on credit, providing technical assistance and collecting the products.[159] There are many examples of smallholder farmers supplying supermarkets, directly or indirectly, particularly in South East Asia.[160] Smallholders are most likely to be integrated into modern food retail markets where there is a receptive or inclusive business sector with a stake in engaging with them on fair terms; where there are organized and empowered smallholder farmers capable of upgrading and organizing their production and marketing processes; and where there is a facilitating public sector to create the needed conditions for the business sector and smallholder farmers to engage.[161] However, those who cannot meet the exacting standards of supermarkets, particularly for consistency of supply and volume, are generally excluded from these value chains. Moreover, many supermarkets explicitly seek to reduce their number of suppliers,[162] which may mean eliminating small producers.

In the early 2000s, there was concern that supermarkets would eventually dominate emerging food markets.[163] More recent evidence suggests that those fears may have been overstated,[164] and that there remains an important role for other types of retailing – including through traditional markets. In all regions, these markets with

BOX 7 **Main features of traditional versus modern supply chains for agricultural and food products**

Traditional	Modern
• Low own-price elasticity of demand	• High own-price elasticity of demand
• Trader or processor-led supply chains	• Retailer-led supply chains
• Low value to volume ratio	• High value to volume ratio
• Quality defined by basic grades	• Quality defined by private standards
• Limited need for quality and safety assurance infrastructure	• Quality and safety assurance infrastructure critical
• Many products have low perishability	• Can be high levels of product transformation and processing prior to export
• Low levels of product processing and transformation prior to export	• High levels of supply chain integration or coordination, with preferred suppliers
• Limited coordination of supply chains, with high risk and transaction costs throughout	• Low risk and transaction costs within a short supply chain
• Numerous specialist small businesses	• Limited numbers of specialized businesses
• Little or no traceability/identity preservation through supply chain	• Enhanced need for traceability/identity preservation through supply chain
• Need for basic logistical capacity	• Need for advanced logistical capacity

Source: Adapted from Henson (2006)

their lower entry costs continue to play an important role for consumers and for producers, particularly poorer ones. RuralStruc found that in most areas of the seven countries they surveyed, traditional marketing arrangements remained dominant, with sales to modern markets important in only a limited number of areas where agribusinesses are based.[165] In contrast to modern and restructured markets, traditional markets are typically dispersed, multi-layered and fragmented. They are often inefficient; they may be characterized by periodic shortages and gluts and high price volatility; produce quality may be poor; and there are high levels of risk and transaction costs along the chain, resulting in low prices for producers. Where traditional and modern markets operate in parallel, they allow smallholder producers to develop more sophisticated and diversified strategies for marketing their products. Although the modern markets typically offer higher prices, producers may find that the traditional market offers them advantages in terms of cash flow, or they may use the traditional market to sell – albeit at a lower price – those products that do not meet the standards of the modern market.

Global markets

Just as domestic markets are changing rapidly, so too are global markets. The traditional 'tropical products' (i.e. coffee, cocoa, tea, textile fibres, nuts, spices, sugar and confectionary) fell by half as a proportion of the total value of developing country agricultural exports, from 39 to 19 per cent, through the 1980s and 1990s. Over the same period, the share of fruits and vegetables increased from 15 to 22 per cent and fish and seafood from 7 to 19 per cent (over a third of it from aquaculture). These 'non-traditional' products now dominate agriculture and food exports from developing countries, and they remain the most dynamic markets, with relatively low rates of trade protection in industrialized country markets. Exports are dominated by a small number of countries, mainly from Latin America and Asia, although some countries have been able to gain a dominant position in specific product markets – examples include Kenya for green beans and Peru for asparagus.[166]

However, capturing opportunities in global agricultural markets remains very difficult for smallholder producers in developing countries. They face a number of constraints. The first is related to current trade policies and domestic support for agriculture in developed countries, which limit the opportunities that export markets can offer to smallholder farmers in developing countries. The global cost of these policies is expected to reach somewhere between US$70 billion and US$200 billion by 2015 – more than 90 per cent of it comes from market access restriction and tariffs on agricultural products; a sizeable proportion of the total cost is borne by developing countries. Full liberalization would increase the prices by over 5 per cent for primary agricultural products: by 10 to 20 per cent for cotton and by 15 per cent for oil seeds. It would also increase by around 9 per cent developing countries' share of global

agricultural exports, with the greatest gains in cotton and oil seeds, but also in wheat, processed meat, sugar, dairy products, coarse grains, and fruit and vegetables. Latin America and sub-Saharan Africa would be the major beneficiaries.[167]

The second constraint for smallholder producers is the imposition of ever-more stringent food safety and quality regulations, applied particularly to the high-value products in export markets. For example, major retailers in Europe (and increasingly beyond) demand that crop, livestock and aquaculture products from developing countries comply with their GLOBALGAP standard (formerly EurepGAP – where GAP stands for 'good agricultural practices'), which has definitive rules for growers and requires each production unit to be assessed by independent third-party auditors working for licensed certification companies. Complying with GLOBALGAP may demand capital expenditures – in chemical stores, spraying equipment and grading sheds; and there are quality management systems to establish and the cost of certification to meet. In addition, farmers need training in standards, practices, controls and traceability requirements. These costs all create barriers to entry, and the costs for many smallholders may be too high. For those who succeed in conforming to the standards, however, group membership is an important way of overcoming the high transaction costs.[168]

Many studies show that high-value export markets tend to exclude smallholder producers,[169] a process that has intensified as a result of the establishment of higher product and process standards. Two examples demonstrate this. The first concerns Kenya's fresh vegetable export market. Following rapid growth in the vegetable export industry through the 1970s and 1980s, this market was restructured in the 1990s to reflect the standards of European supermarkets. The high cost of certification (US$20,000 for a group of 45 growers)[170] led to a collapse in the number of smallholder producers engaged in the market. In just one district (Machakos) the number of farmers supplying one major exporter of green beans fell from over 1,200 to fewer than 400 between 1991 and 2004; their place was taken by exporter-owned estate production and purchases from large- and medium-scale farmers.[171] In Viet Nam, small-scale producers of *pangasius* catfish received substantial support from An Giang University to be able to supply a large processing firm that then exported the filleted product to Europe. However, the combination of volatile prices and the high cost of compliance with the standards required for exporting fish to Europe meant that the export market was not attractive to the participating producers, who eventually downgraded their production system to sell small volumes of *pangasius* to the local fresh fish market.[172]

Niche markets, particularly for agricultural products certified as organic or Fair Trade, remain a miniscule proportion of agricultural trade: the total global organic market, which is the larger of the two, was worth US$52 billion in 2008,[173] which was 1 to 2 per cent of total food sales worldwide. Yet these markets are of interest for smallholders because they can provide environmental or social benefits to producers

as well as price premiums and/or long-term contracts. However, both markets have significant costs for smallholders, since both require complex and costly certification. While organic standards are generally strong on environmental and health considerations, they do not promote smallholder participation per se, and much organic produce is produced in large units. A 2008 study in three Asian countries found two main types of organic agriculture systems: one largely led by NGOs and working primarily with small farms for the domestic market, the other promoted by governments and the private sector, usually involving large farms.[174] The latter model was found to prevail in China, the former in India and a combination of the two in Thailand. Fair Trade, by contrast, promotes production from small units and is therefore more likely to benefit smallholders. In recent years, elements of these niche markets have been taken up in the growing corporate social responsibility agenda of global companies in agrifood chains.

Opportunities and costs in different markets

Both domestic and international markets can be important for smallholder producers. Yet it is clear that domestic urban markets are offering ever greater opportunities. First, they are substantially larger than export markets for most products, and they are growing faster. Africa's total urban market was estimated to be worth close to US$17 billion for smallholder producers in 2002, compared with US$4 billion for the export market (both tropical products and high-value).[175] In Kenya, the domestic horticultural system is four to five times larger by value, and involves many times more smallholder farmers and small traders.[176] In China, the domestic fresh produce system was 40 to 50 times larger than exports by the early 2000s. Second, the nature of the products demanded in domestic urban markets has changed. In many countries – particularly, but not only, the transforming economies – demand for staples is now stagnant, while demand for the highest-value products is growing fast. These products are also labour-intensive to produce, which is good news for agricultural employment. Third, urban markets are creating new opportunities for regional intra-trade: in large parts of Asia regional markets are already important; in sub-Saharan Africa they are recognized as offering enormous potential. Overall, there is significant potential in developing countries for urban markets to create new opportunities for agriculture-driven rural growth domestically and within regions, with a major role for smallholder producers; however, the precise nature and scope of these opportunities vary in different contexts and in different value chains.

Given growing market diversification, smallholders in many countries may seek to engage in various alternative markets. Their choices need not be exclusive, as there may be advantages in being involved in different markets at the same time. In general, their choices are shaped by expected returns, accessibility, costs and risks. Typically, the higher the value of a market and the returns from participating in it, the more difficult it is

likely to be to access. Restructured domestic markets can be particularly remunerative for smallholders, yet they are challenging because the institutions, standards and organizational forms that characterize them are those more typically associated with global markets than with traditional domestic markets. In general, capturing opportunities in restructured markets requires that smallholders are able to invest in continuous improvement and to innovate in their products, technologies and marketing strategies. It also requires stable and adequate access to complementary assets, services (notably financial services), support from NGOs and private-sector organizations, a receptive business sector and conducive public policies and programmes.[177] Finally, it is evident that opportunities will be shaped by context and market conditions, not only at the country level but also by the specific conditions of individual value chains and the circumstances in different localities and territories. Nevertheless, a number of generic factors that facilitate market engagement for smallholders can be identified.

Cultivating long-term peace in Rwanda

Key market factors for poor rural people

Rural producers' organizations

In interviews with private companies and smallholder producers in Colombia, both highlighted how important it is for producers to be organized into groups to establish commercial relations with each other.[178] This is not surprising, since groups reduce risk and transaction costs for both sides. The principal marketing benefit that groups – and producers' organizations more broadly – offer their members is the bulking up of input purchases and produce sales, so that they can engage in markets with much larger transactions and with lower collection and transportation costs. Organizations also offer more reliable relationships with larger buyers, including through contracts, which may be associated with input credit and production support services. Access to financial services can also be improved through organizations. In addition, these can play a key role in ensuring required quality and desired quantity of production. Producer organizations also typically have greater power in the market than do individuals, and they can help them negotiate better prices and payment terms for inputs and produce. Finally, organizations make it easier for the many smallholders who are not entrepreneurial in character to engage effectively in commercial relations.

There are many cases where rural producers' organizations have made it possible for smallholders to enter or improve their position in the market and benefit from higher prices and more favourable payment terms. The example of Faso Jigi in Mali (box 8), an association of cooperatives, shows the powerful role that such organizations can play.

Producer organizations can take many forms, ranging from formal institutions such as cooperatives, to informal producer groups and associations. They may be legally registered or not, and there may be good circumstantial reasons for both choices.

BOX 8 **Faso Jigi and the cereal market in Mali**

Faso Jigi was established in 1995 with the support of the Canadian International Development Agency (CIDA) and the Quebecois agri-agency L'Union des producteurs agricoles – Développement international (UPA-DI), in the framework of a programme for restructuring cereal markets. Created as an association of farmer cooperatives, it aimed to facilitate smallholders' access to markets and to obtain better and more stable prices for cereals (i.e. rice, sorghum and millet) and shallots.

Over time, the collective marketing system set up in Faso Jigi gathered together important volumes of product, earning the organization significant bargaining power in local and national markets, and reducing transaction costs for both the farmers and other market actors thanks to economies of scale in storage and transportation. The system also guaranteed stable farm prices and wide dissemination of market information on prices to smallholders, which also strengthened them with buyers. Faso Jigi also enabled members to have access to technical advice, which improved the quantity and quality of their yields, and to collective purchase of fertilizers, which ensured better prices and quality. Finally, the association has developed a mechanism of advanced payments to help its members address the problem of accessing working capital at the beginning of the agricultural season. Through the system, farmers receive loans against a delivery commitment to Faso Jigi. Faso Jigi then requests a loan from a financial institution based on the aggregated credit needs of its members, using its marketing fund as guarantee. An insurance fund has also been established to cover possible damages and price shocks.

Since its establishment, Faso Jigi has become a remarkably successful organization, gathering more than 5,000 farmers grouped into more than 134 cooperatives. It sells more than 7,000 tons of cereals annually, valued at more than 2.5 million euros. It has gained significant capacity to influence both markets and agriculture policies. Wholesalers prefer sourcing from Faso Jigi and are willing to pay higher prices because the association offers centralization of stocks, better quality in storage facilities and accessibility. However, cereal markets are in permanent change in the region, thus Faso Jigi must adapt its marketing system to stay competitive.

Source: "Faso Jigi: A people's hope" http://www.acdi-cida.gc.ca/acdi-cida/acdi-cida.nsf/eng/FRA-42715145-QBN

Their roles in agricultural markets can vary, from facilitating smallholders' participation in a particular part of value chains (e.g. production, post-harvest handling, marketing) to controlling entire chains through vertical integration. In different contexts, different types or combinations of roles can be most appropriate.[179] The success of a producer organization is critically dependent on at least three factors: first, there must be a strong economic rationale and common interest for its formation; second, its geographical space, size, structure, governance, management arrangements and legal status must all reflect the purpose for which it has been established; and third, its members must be actively committed to pursuing agreed objectives and abiding by an agreed set of rules. It follows, among other things, that groups formed for community or social purposes may find particular challenges in representing the specifically economic interests and playing the economic roles that producer organizations seek to play. Moreover, producer

Abdoulaye is a member of his district's agricultural association. "All services rendered by the association (labour for cultivating, harvesting, etc) are paid for and the money is used for the needs of the district. For instance, the village may ask for a certain amount of money from each district because that money is needed to buy seeds. We take it from the association's funds… There is a chairman, a treasurer, an organizer who is in charge of information about the association's activities. They are chosen by the district on the basis of trust… After each rainy season… the leaders call a meeting. And everybody can hear details of the financial situation. You know beneficiaries do not always pay in cash. They may pay in kind: rice, peanuts, cattle, etc. The first benefit is the acquisition of equipment and seeds. Alone I could not get a single bag brought all the way from Bignona to Sindia. There is also the solidarity aspect of these types of associations. If you are not a member it will be difficult for you to benefit from their services."

Abdoulaye Badji,
male, 50 years, Senegal

organizations may not be the solution for every market relationship (e.g. they may have little value in some forms of outgrower schemes), but where they are needed, their form and role should reflect the specific requirements of the market conditions.

In practice, producer organizations face many challenges. These typically include issues of governance and the probity of their leadership, heterogeneous membership and potentially divergent interests, the trade-off between equity and efficiency, their capacity to effectively manage the collective action of their members and the compromises and loss of vision that can result from outside support. The developing world is littered with groups and cooperatives that were supported by governments, NGOs or donors, and that remained unsustainable or simply collapsed after the withdrawal of that support. The case of Chile shows how difficult it can be for producers' organizations to achieve institutional and economic sustainability. In the 1990s and early 2000s, the Chilean Government put much effort into promoting rural producers' organizations, and in less than a decade 780 were formed. Nearly half of them were successful in accessing national markets, and 13 per cent succeeded in exporting their products. Yet only 20 per cent were considered viable: about 45 per cent had annual expenses that were higher than their revenues, one-third had extremely high debts, and one-third were dependent on subsidies and grants for more than 60 per cent of their total income. Those that were successful shared three common attributes: they served as vehicles for members to innovate and change their farming practices; they networked, linking their members to ideas, resources, incentives and new opportunities; and they sought to transmit undistorted market signals – costs and benefits – to their members who could then respond.[180] Box 9 presents two stories of cooperatives with contrasting success in produce marketing.

Infrastructure and information

Improved infrastructure is strongly associated with better functioning markets as well as with reduced poverty. Mobility out of poverty happens most easily in places where infrastructure is better established. In India, for example, households escaping poverty

BOX 9 **Two stories of cooperatives from Central America**

Cuatro Pinos is a successful cooperative in Guatemala with nearly 30 years experience in the vegetable export business. Recently, the cooperative has succeeded in tapping large markets for several products in the United States through an alliance with a specialized wholesaler. Demand significantly outstrips the capacity of cooperative members, and new producers and areas are needed. To achieve this, Cuatro Pinos identifies existing farmer groups including associations, cooperatives and lead farmer networks, among others, in favourable environmental niches, works with them to test production schemes and then contracts those that show an ability to meet quantity and quality targets. The cooperative signs a contract with the producer group that specifies quantity, quality and a production schedule, and fixes a price for the product. Credit in the form of inputs and technical assistance is provided. This is later discounted from the first few product deliveries. Using this model, Cuatro Pinos has achieved an annual growth rate of 50 per cent in vegetable exports over the past three years.

Hortifruti, a private vegetable distribution company, works with a variety of suppliers in Honduras and Nicaragua and often purchases product from existing farmer cooperatives. However, it has experienced significant difficulties with these organizations in terms of lengthy decision-making processes. As a result, Hortifruti Honduras has developed and promoted an alternative 'lead farmer' model of organization, through which it identifies and builds the capacity of individual farmers who can meet their quality needs in a consistent fashion. After demonstrating such capacity, the lead farmers receive increasingly larger orders for products or new products and are invited to work with neighbouring farmers to meet this demand. The lead farmer provides access to technology, technical assistance and market access as embedded services. The cost of these services is then recouped via the sales margin. The expansion of this model is organic and depends on the identification of new lead farmers. It is low-cost, easily scaleable and sustainable.

Source: Lundy (2007)

have been found to be more likely to live in or near villages with better infrastructure and closer to towns. Investment in rural roads can have a positive impact in a range of areas. In Bangladesh, for example, villages with better road access were associated with higher levels of input use and agricultural production, increased incomes, better indicators of access to health services and greater wage earning opportunities. A World Bank roads project in Morocco was found to have led to higher agricultural production and land productivity, increased use of agricultural inputs and extension services, and a shift towards high-value crops and off-farm employment opportunities.[181] In India, every additional million rupees (around US$23,000) spent on rural roads during the 1990s was found to lift 881 people out of poverty.[182] On the other hand, market-related infrastructure, notably transportation infrastructure, is poor in many rural areas in developing countries. In Africa in particular, expansion of infrastructure related to energy, water and transport is occurring only slowly. The region continues to suffer from a large infrastructure gap (the density of paved

roads in low-income countries in sub-Saharan Africa is only one-quarter of low-income countries in other regions); and infrastructure services remain twice as expensive as in other regions.[183]

Urban-rural linkages, facilitated by improved transportation infrastructure, are a driver of new market opportunities for rural people. Being easily linked to the urban economy, and being connected to the wider world, can of course have many other advantages – including better or easier access to education opportunities, health services, and other public and financial services. Over time, these linkages can also contribute to reducing urban-rural income and wage gaps. For instance, India's casual workers have seen their real wages rise gradually over the years, partly as a result of improved transportation (and other) infrastructure: where infrastructure is better, real wages are higher.[184]

Not only do transportation costs increase with the distance travelled, typically costs per kilometre are higher on dirt roads than on tarmac roads, and higher still where the dirt road turns into a footpath. The overall impact on marketing costs can be major. For instance, surveys from Benin, Madagascar and Malawi find that transport costs can account for 50 to 60 per cent of total marketing costs.[185] Getting road transport working is partly a matter of investment in and maintenance of roads, but also involves getting the systems to work. Arbitrary road blocks, adulterated fuel, problems getting imported spare parts, and monopolies and cartels all add to the costs of transportation and to the risk environment facing smallholder farmers. Addressing these problems, as well as improving the physical infrastructure, is an essential part of the enabling good governance environment that needs to be in place to reduce the costs and risks facing smallholders as they seek to access new market opportunities.

In the past, one of the reasons that roads were so important for market access is that they were needed to bring information to rural areas. Today, however, information and communication technology (ICT), particularly mobile phones, is bringing a revolution in information even to remote rural areas. Use of mobile phones is expanding exponentially, and handsets are now affordable for many poor rural people. Mobile phones have greatly reduced market transaction costs for smallholder farmers, making it possible to find out product prices from markets (thus reducing risks related to unequal access to information), contact buyers, transfer money and arrange loans. More and more (short message service [SMS]-based) services of relevance to poor rural people are now provided by mobile phone. They provide information on agricultural markets, disease outbreaks and job markets, weather forecasts and technical advice – all important for strengthening rural people's risk management and coping strategies. Banking services too are supplied through mobile phones: in India and in the Philippines, for instance, mobile technology is widely used for money transfer. In Kenya, the M-PESA scheme offers savings, domestic money transfers and other services through local agents on commission, and it is now used by 40 per cent of the adult

population.[186] Building on the M-PESA facility, a new project enables farmers to insure as little as one kilogram of maize seed or fertilizer against drought with an index insurance product: customers buy the policy through local agro-vets and receive confirmation of their purchase as well as any payouts through M-PESA.[187]

Although rural women are less likely than men to own mobile phones, extending ownership brings multiple benefits. For example, mobile phones can facilitate women's market engagement and autonomy. In Bangladesh, women poultry farmers are using their mobile phones to contact final buyers, thereby cutting out men's intermediation and circumventing social sanctions on their direct engagement in the market place.[188] In India, ownership of mobile phones has been found to increase women's economic independence and make it easier for them to travel alone; the mobile phones are worth the equivalent of two to four extra years of women's education in terms of reducing gender inequalities.[189]

Information systems for agricultural markets have been around for a long time, although they have a history of being ineffective, particularly when run by the public sector. ICT now makes it possible to provide real-time information on prices and volumes of commodities in different locations, and to broker deals between buyers and sellers. The potential outreach of such service systems can be massive, in both geographical terms and social terms, because of the low and decreasing costs of supporting infrastructure and equipment. Though literacy requirements may present a barrier to accessing such services for many poor rural people, this may be shortly overcome by newer technologies that can translate text to voice and back again.

BOX 10 **Market information in Zambia: ZNFU 4455**

The Zambia National Farmers Union's market information system (ZNFU 4455) was designed in 2006 with the assistance of the IFAD-supported Smallholder Enterprise and Marketing Programme, to enable its smallholder membership to find the actual prices available in the market.

To find the best price on offer, farmers send an SMS message containing the first four letters of the commodity and the district or province, to the number 4455. They immediately receive a text message listing the best prices and codes designating the buyers offering them. After selecting the buyer that best responds to their needs, farmers can send a second SMS with the buyer's code. A text message is returned with the contact name and phone number. Farmers are then able to phone the buyer and start trading. Each message costs around US$0.15.

The system works for 14 commodities and lists over 180 traders. Between its launch in August 2006 and August 2009, the system received over 165,000 hits. An estimated 15 per cent of initial SMS messages to the system led directly to farmers selling their produce, and over 90 per cent of the calls to buyers led to transactions.

Source: Milligan et al. (2009)

There are many examples of successful ICT and mobile phone-based market information services, most of them run outside governments and by bodies with an immediate interest in promoting market transactions. For example, the web-based e-Choupal information system in India serves more than 4 million farmers and provides information on farming practices, market prices and district-level weather forecasts. The system is also used for buying and selling agricultural produce and for procuring good quality farm inputs. Other examples include Esoko, the West African trading platform based in Ghana, which offers real-time prices for more than 80 commodities from 400 markets across West Africa; the Self Employed Women's Association in India, which sends members SMSs with spot and future commodity prices; Agroportal, an Internet and SMS-based system in Chile; and ZNFU 4455, the SMS-based Zambia National Farmers Union market information system, described in box 10.

Farming under contract

Data from RuralStruc suggests that smallholder farmers producing under contract is not widespread: overall, only 7 per cent of farmers in their sampled countries had contracts, although the percentage was substantially higher in specific geographic areas where an agribusiness was located.[190] Nevertheless, contract farming is becoming increasingly important as markets restructure. It usually involves a large agribusiness firm – typically a processor or exporter – contracting (either in writing or verbally) with groups of smallholder producers to deliver produce of a specified quality, often at a predetermined price.[191] Contracts often include embedded services such as discounted bulk input supply, access to credit (usually in kind), supply of capital equipment and technical support to the production process. For both the producer and the agribusiness, formal contracts can help manage risk, reduce transaction costs and, over time, build trust. They can, although not in all cases, bring advantages to smallholders, including increased productivity (made possible by the inputs and technical support) and a stable, assured market with guaranteed prices that often exceed the market going rate and that are less prone to volatility.[192] By improving capacity and providing the stability of assured income, contracts over the longer term can enable and create the incentives for producers to invest underutilized resources – particularly labour – in increasing production levels and quality.

For contracting firms, the benefits include assurance of quality and supply, reputational and marketing gains,[193] risk transfer and gaining the capacity to rapidly expand supply without making major investments (e.g. to acquire additional land). Agribusinesses specialized in high-value crops may also find it expedient to engage with small producers when there are new market opportunities that are less profitable, but sufficiently attractive for them to engage in, while not changing the use of their own land base. Contracting also represents a response where the company has a general business strategy favouring specialization in a specific part of a market chain

BOX 11 **Swift Co., Ltd. – vegetable and fruit exporter to global markets**

Swift Co., Ltd. is a Thai company established in 1986. Today it is one of the region's leading exporters of quality vegetables and fruits. Its core product line includes asparagus, baby corn, mangoes, mangosteen, ginger, galangal and lemon grass. The company exports about 220 tons of fresh vegetables and fruit per month to key retail and foodservice markets in Japan, the United Kingdom, Australia and the Middle East.

Typically, fresh produce from small producers in the region can change hands up to five to seven times before it reaches consumers, and with each passing layer there is an addition to the price, leaving small returns for the growers while consumers have to pay high prices. Swift's contract-farming business model and supply-chain system provides a guaranteed market for growers, and it also cuts out inefficient logistics, costs and profit-taking along a multi-tier chain.

The company buys produce from contracted growers at guaranteed prices that are negotiated annually, to be paid in full regardless of the market situation facing the company. Swift also offers interest-free financial assistance to the growers to enable them to shift to Good Agricultural Practices (GAP) and organic farming practices. This, together with the technical support that the company provides, enables the growers to increase their yields and incomes.

To ensure delivery of high-quality, safe produce to customers, Swift operates a quality assurance programme that covers activities in the field, packing and transportation operations. It organizes groups of growers to grow and supply premium fresh produce to its packing houses; it conducts risk assessments on all major factors from land use to soil, water and cross contamination; and the company's agronomists train the growers on the farm practices needed to cultivate the crops and adhere to Swift's guidelines on quality and standards. The agronomists also regularly audit growers' farms; independent internal auditing is carried out from Swift's head office; and certification of GLOBALGAP and organic farming practices is conducted by a licensed certifying board annually.

Daily harvests from small growers are combined into lots just large enough to meet logistics costs for Swift's collection stations to gather and deliver via temperature-controlled trucks to packing houses. Collection stations are set up near every growing area to cut transport costs, maintain freshness and minimize damage to produce. Weighing and grading are transparently carried out at the stations; and labelling of plot-codes and growers' names is part of the traceability system.

Swift's packing facilities are built to accommodate different types of processing, and organic and conventional products are processed separately. Packing line personnel monitor fruit for appearance, colour, shape and size uniformity, absence of damage and consistency in weight. Fruit are pre-cooled according to the level of maturity, and temperatures, humidity and cooling rates are closely monitored. Swift's quality assurance team inspects every truck and container and their refrigeration systems, and they verify all documentation, from arrival to the packinghouse to post-transportation.

Sources: Adapted from http://www.thaifreshproduce.com/ and Bangkok Post 29 August 2009 http://www.bangkokpost.com/business

over vertical integration.[194] Where effectively managed, such arrangements can represent a genuine 'win-win' situation for smallholder producers and the agribusiness alike, as shown in box 11.

Certainly, contract farming has pitfalls, and it can also be a source of risks both for smallholders and agribusinesses. Contract arrangements can be costly to set up, to

operate and to enforce. Smallholders can face the risk of the buyer failing to deliver on contracts in terms of agreed prices or embedded services – particularly if they are growing products that cannot easily be sold on the local market. Agribusinesses too face risks in working with smallholder farmers. In a study of contract schemes in Kenya, Mozambique and Zambia, three issues were found to threaten their viability. First was side-selling and side-buying: opportunistic competitors in all three countries bought actively and systematically from the contracted farmers. Second, in a number of cases, despite the provision of inputs, smallholder producers had difficulties in meeting the quality standards required for export production. A third issue was weak law enforcement and the lack of an appropriate code of conduct among both the companies and farmers in all the reviewed countries.[195] There are also real costs for the agribusiness: a study of 30 different contracts with farmers' cooperatives in Viet Nam concluded that including poor producers requires significant support to them – especially training and financial support.[196] As a result of these sorts of issues, many agribusiness companies find it easier and more profitable to deal with fewer larger farmers who incur lower transaction costs, and thus the benefits may bypass smaller farmers.[197] For example, in the State of Punjab in India, since the 1980s a rapidly growing number of global and domestic companies have been using contract farming as a way of sourcing their products or inputs. However, the evidence suggests that they have largely excluded the smaller farmer: fewer than 15 per cent of the farmers participating in contract farming have less than 2 hectares of land.[198]

There is a wide variety of contract farming arrangements, and their varied success in benefiting smallholders suggests that there are many factors that can determine their success or failure. The national and locally applied institutional and legal environment is important. So too are the capacities of the producers and their organizations; the motivations of the agribusiness; the nature of the commodities being produced; and the characteristics of the transactions in terms of volume, frequency and standards. The form and terms of the contractual arrangements themselves and the accompanying services that agribusiness companies offer to smallholders are also critical, as are the resulting costs and returns to both parties. Some lessons on how to minimize transaction costs and maximize benefits to both parties include: designing contracts with marketing and price premium guarantees to incentivise investment in high-quality production;[199] having the agribusiness firm make a long-term commitment to work with smallholder farmers; dealing with smallholder groups that are well established, functional and well-led; supporting internal handling of grievances and compliance issues through group contracting;[200] and using social collateral (honesty and trustworthiness) rather than physical collateral to maximize participation of all wealth groups. Collaboration with an external party, such as a specialized NGO, that can provide support to producers' groups may also be necessary and, where externally financed, can help to make entering into a contract more attractive for agribusiness firms.

Financial services for market participation

Smallholder farmers need access to financial services in order to reach markets, particularly restructured markets, and to sustain their participation in them.[201] They require: savings to respond to external shocks, smooth their income and make investments over time; working capital to finance their production costs; investment capital and access to leasing and insurance services (discussed in chapter 3); and liquidity for their normal and extraordinary household expenditures. Given the limited availability of agricultural credit in many developing countries, marketing arrangements that integrate financial services can help smallholder farmers participate in those markets.

There are three sets of financial instruments used within agricultural value chains that can assist smallholder farmers to leverage credit.[202] The first is the direct provision of credit by traders to whom the smallholder producer undertakes to sell his/her produce at harvest, by input suppliers who will be repaid at harvest, by a marketing or agro-processing company, or by a contracting agribusiness company. The credit is frequently provided in kind, as inputs, and the repayment also is often made in kind, as produce. In Kenya, Mozambique and Zambia, for example, contract farming has been shown to be the major source of agricultural credit for smallholder producers (the likelihood is that it is in many other developing countries too), and the evidence suggests that the terms on which smallholders have been able to access credit through this system have not been disadvantageous to them. This is because the prices at which they were able to access the inputs through agribusiness contractors – which purchased them in bulk – were considerably lower than they would have paid as individual buyers on the open market. One important advantage of access to finance through contract farming is that linking credit provision to the end-market for agricultural products makes feasible the high numbers of small-scale loan transactions to smallholder farmers. Marketing cooperatives acting as market intermediaries can also play a role in providing short-term credit to their members: for example, the Kenya Union of Savings and Credit Co-operatives pays farmers immediately upon delivery, even though the supermarket that buys the produce may pay the cooperative only some time later.[203]

Second are loan guarantees, which are provided by a third party to enable the smallholder farmer to access credit from a formal financial institution. Here too, rural producers' organizations can play an important role: Faso Jigi, for example, provides guarantees to commercial banks to enable its members to access credit. Less commonly, guarantees can also be provided by contractors. For example, in Peru the firm Sunshine, together with the bank Caja Sipán and a research, capacity-building and consulting institute, have set up a joint scheme to facilitate access to financing for mango producers, who can then access the services of the bank for other activities.[204]

Third is the use of physical assets as collateral for accessing credit. Here, of greatest relevance to smallholder farmers are warehouse receipt systems (see box 12). Under this system, a third-party warehouse operator stores the produce delivered by farmers

BOX 12 **The United Republic of Tanzania's warehouse receipt system**

Tanzania's warehouse receipt system allows smallholder farmers to store their product safely, access credit using the product as collateral, and wait until prices are favourable before selling. First piloted in 2001, the system's development was supported by two IFAD-funded programmes: the Agricultural Marketing Systems Development Programme, and the Rural Financial Services Programme. The former financed the construction of safe, managed storage facilities for farmers that fulfil all the requirements for maintaining the quality of the product; while the latter supported the creation and expansion of Savings and Credit Cooperative Societies (SACCOs) formed by local communities, which allow poor rural people to get much-needed credit at reasonable rates.

Once the harvesting season begins, the SACCO managers submit a loan application to the bank. The warehouse manager issues a receipt to the farmer when the produce has been deposited in the warehouse. The farmer can use this receipt as collateral to obtain a loan from the SACCOs of up to 70 per cent of the value of the deposited stock.

Crop prices usually decrease drastically during the harvest season, but after three to six months the prices may double or triple. Because smallholder farmers have limited cash flow and in any case have inadequate storage facilities, they typically sell their produce at harvest time, when the prices are lowest. The warehouse receipt system solves two problems for the farmer: the lack of local storage facilities, and difficulties in accessing credit. By solving both of these problems, the system gives smallholder farmers more power in the market place and enables them to realize substantially higher prices for their produce.

The project was piloted in Babati district, where it reached over 1,000 producer groups, benefiting 25,000 households. The results were so positive that the Government of the United Republic of Tanzania pushed through the Warehouse Receipt System Act 2005 to provide a legal framework for the system, and in order to replicate the system country-wide.

Source: IFAD (2008c)

after the harvest, according to agreed quality standards, and issues them a receipt that they can then use as collateral to get a loan. This system not only eases farmers' access to finance from formal institutions; it also helps to reduce market transaction costs through the independent enforcement of produce standards. It also shortens the value chain, making it possible for farmers to bulk their produce and deliver to end-users.[205]

While important, agricultural value chain finance does not replace conventional finance services. As highlighted in chapter 3, rural households usually need a wide range of financial products. A safe place to store cash, reliable transfer services to receive remittances from family members, a range of loan facilities and different types of insurance may all be critical to support the different strategies households employ to accumulate assets and minimize vulnerability. The development of a well-functioning rural financial system able to provide sustainable access to demand-responsive financial services therefore remains critical for enabling rural households to manage risk, reduce their vulnerability and seize economic opportunities, as well as for the broader economic development of rural areas.

The global corporate sector in agriculture value chains

Large companies can play a fundamental role in restructured markets by using their purchasing power to create and enhance market opportunities for smallholders and post-harvest entrepreneurs in developing countries. They can do so by committing to long-term supply contracts with smallholders, providing them with inputs on credit and with access to technical and industrial knowledge, practices and training, and offering internships or apprenticeships.[206] Large multinational corporate businesses are increasingly under pressure from consumers, NGOs and governments in their countries of origin or registration to show a socially responsible face in developing countries. This means not only following the laws of those countries, but also leading the way to more socially beneficial business practice. The corporate social responsibility (CSR) movement has for some time been moving from a philanthropic approach to one that recognizes the need to change business models for strong business reasons. This involves particularly brand name companies concerned about protecting their reputations in the glare of public scrutiny and media attention, companies wishing to gain market share or competitive advantage among 'ethical' or 'green' consumers, companies vulnerable to public liability risks, and others with a history of engagement with civil society.

Many global companies are involved in the CSR agenda, either actively or at least at a rhetorical level: for example Nestlé now has a line of Fair Trade coffee; Starbucks aims to have 100 per cent of its coffee "… responsibly grown, ethically traded…" by 2015; McDonalds "envisions… engaging in equitable trade practices…"; and Chiquita "cares about the people who live and work on the farms." Coca-Cola, working in collaboration with an NGO, TechnoServe, and the Bill and Melinda Gates Foundation, has launched a partnership with over 50,000 small mango and passion fruit farmers in Uganda and Kenya, which is intended to create new market opportunities for them to supply the fruits for Coca-Cola's locally produced juice. CSR is also being institutionalized through numerous standards and codes for food products. Some are business-led (e.g. the Ethical Tea Partnership, Business for Social Responsibility, World Cocoa Foundation), while others are multistakeholder-driven (e.g. the Ethical Trading Initiative, the International Cocoa Initiative, the Common Code for the Coffee Community, the Rainforest Alliance agricultural certification and the Sustainable Agriculture Initiative). There can be significant differences between company-led and multistakeholder initiatives in terms of substance, credibility and application, and the impact of each still has to be evaluated.[207]

It tends to be the top-tier companies who are most engaged with CSR and related standards, and engagement progressively declines both geographically – companies need to do less in developing countries where consumers are typically less active than in advanced economies – and down the value chain, with suppliers often under pressure to cut costs and shorten lead times. What existing CSR standards do not address very

well are the broader consequences of market changes – the gradual transference of risk down the chain; the crowding out of small producers unable to cope with higher standards; and the need to assure 'decent work' in agricultural value chains. There are also concerns that as the corporate sector takes on board aspects of the Fair Trade agenda, the movement's progressive market agenda of producers' empowerment, cooperative organization and sustainable development may get lost; and that these companies may gradually transfer more and more costs (for example, of certification) to producers and raise the bar ever higher in terms of what qualifies for premium prices.[208] On the other hand, the combined effects of mainstreaming at least aspects of the Fair Trade agenda and of diffusing CSR, can lead to a widening up of markets in which premium prices are increasingly available to growing numbers of producers.

These developments in markets offer a substantial new agenda, which can be defined in terms of two challenges.[209] First, there is the 'developmental' challenge. Governments, NGOs and donors can actively explore opportunities to work with selected private-sector partners and promote collaborative programmes that create positive role models. At the same time, there is a need to address the tensions and blind spots within the CSR agenda that particularly affect developing countries. These include a whole range of issues related to corporate taxation, employment generation, labour rights, crowding out smallholder farmers/enterprises, ignoring various issues of concern to women, and imposing additional costs on suppliers and corporate lobbying for 'regressive' policies. Second, there is the regulatory challenge. The focus on voluntarism and corporate self-regulation should not detract from recognizing the key role of regulatory pressures associated with public policy, law and effective states. Appropriate national and international regulations, as well as stricter sanctions, are required to enforce these kinds of agreements and hold corporations to account. Community-based movements and civil society organizations can also help to build stronger accountabilities.

Labour opportunities in agricultural value chains

The development community has so far placed overwhelming focus on the role of smallholders in the production node of product value chains – this is, indeed, the main focus of this chapter. However, input suppliers, agricultural labourers and those engaged in post-harvest activities such as trading, processing and transportation often greatly outnumber producers; in artisanal fisheries, for example, the ratio of those employed in direct downstream and upstream activities to small-scale fishers and fish farmers (from fish net sales to fish smoking) is generally assumed to be 3 to 1.[210] Employment in and along value chains is of enormous importance as a livelihood strategy, particularly for the poorest rural households. For those households without land, it is often the main source of income, while for those with small farms it may be a secondary, seasonal source. Opportunities for wage employment in agricultural value chains vary considerably according to the nature of the value chain and its

labour requirements in production and processing. At the production link of the chain, a prerequisite is the existence of either larger farms that are unable to meet all of their own labour needs within the family, or commercial farms or agribusinesses relying only on an external workforce.[211]

If poor rural producers are not all potential entrepreneurs who can take advantage of market opportunities, and many – both farmers and landless people – do not have the minimum level of assets required to access the restructured agricultural markets as producers, then more attention is needed to create opportunities and reduce risks for rural people as service providers and employees in agricultural produce markets. Indeed, one of the key lessons of a study of agricultural value chains in Latin America was the importance of "avoiding obsessing about the production node in agricultural value chains: poor people engage with value chains at all nodes, as producers, intermediaries, workers and consumers."[212]

The restructuring of agriculture product markets is opening up new opportunities for poor rural people to find wage employment along agricultural value chains. For instance, the case study from Mozambique reported in box 13 shows how the redevelopment of the cashew industry has provided new jobs for poor rural people in cashew processing factories. In the 'milk territory' in Chile, small dairy producers who failed to stay the course when the dairy industry expanded and the value chain was restructured, have been able to find employment in the growing urban economic sectors driven by the industry's success. In Senegal, the French bean export sector has gone through substantial consolidation, yet created new jobs.[213] A limited number of smallholder and medium-to-large producers are able to produce on contract and to exacting standards, while former smallholder contractors now work on larger farms as labourers and have benefited from it significantly. They have retained their smallholdings as well, in many cases no longer growing beans on contract, but wage labour has become a larger proportion of their growing household incomes.[214] So while the consolidation of agricultural value chains can result in exclusion of

BOX 13 **The cashew industry in Mozambique**

Since 2001, the number of cashew processing factories has increased from 1 to 25 and the share of raw nuts processed in-country increased from nothing to 36 per cent. The 25 factories have created jobs for 4,700 poor rural people, roughly one-third of them women, and paid out US$1.6 million in wages. In many cases, these factories provide the only formal-sector jobs available to the non-skilled workers in rural areas.

"By working in the factory, you can get by from month to month on the salary. Once you harvest your crops from your plot of land, you can save a few hundred meticais for when you can't work or have an emergency."

Source: TechnoServe (2009)

smallholders, particularly at the production end, the overall rural poverty impact may ultimately be positive because of the opening up of new opportunities.

On the other hand, in restructured markets, the issue of the *quality* of employment has taken on great significance. Work is often seasonal, it may be poorly paid, uncertain and dangerous, and because it is frequently unregulated, labourers may be exploited or cheated by their employers without redress. There may be other risks for wage labourers. In Latin America, for example, the recent economic and financial crisis appears to have impacted poor rural people mostly through reduced employment opportunities (in some cases feeding return migration), particularly in sectors and value chains depending on external demand – such as export-oriented agriculture and agro-processing.[215] Casual agricultural labourers are the poorest and most exploited of workers in most developing countries. Frequently they are immigrants with few rights. Laws to regularize contracts are in place in most countries, but are very variably observed. In the horticulture sector, casual labourers are often employed on small farms that sell to neighbouring big farms, and there is often downward price pressure from buying companies and intense competition among farmers, which leads to cutting costs by employing casual workers. These are matters for codes of practice, governments and trades unions to resolve with the companies involved. In some cases, ethical certification in labour markets may also help. In Fair Trade banana plantations in Ghana, the collective labour arrangement signed with the Fair Trade company proved to provide the regional floor conditions for hiring wage labour. Stipulations on salaries, working conditions and fringe benefits were all incorporated by the labour union into the contract with other private plantations one year after they were signed by the Fair Trade company, which represented a major scaling up of impact.[216]

How the emergence of pro-poor agricultural markets can be supported

Different value chains offer different costs, opportunities and risks for smallholder producers, as well as for workers and market intermediaries. This is related partly to how they are governed, which may vary not only from country to country, but also from commodity to commodity and from area to area. Enhancing opportunities and reducing risks requires carefully identifying those value chains in which smallholders have a comparative advantage, improving the efficiency of the value chain (i.e. reducing the level of risk and transaction costs associated with each step of the chain through improved integration and coordination) and reducing the number of steps in the chain. It also requires changing power relations within value chains: helping smallholders to acquire greater power so that they can capture a higher share of the

value added. Analysing value chains in a systematic manner helps to identify blockages along the value chain and determine who in the chain benefits and who does not. It is also essential for identifying where initiatives and investments can have greater impact on smallholder engagement.

Women and men usually pursue distinct activities in agricultural markets and value chains, as a result of differentiated patterns of land and livestock ownership, access to financial and technical services, time availability and household responsibilities, mobility, education and custom. Quite often, however, gender roles in value chains change when market opportunities and rewards for different kinds of activity change; for example, men may take what was previously 'women's work' when greater market demands and rewards for it emerge.[217] On the other hand, women are often well-placed to capture certain opportunities in restructured markets: there are niches, for example, where women's use of traditional farming practices allows easy organic certification; in certain labour-intensive production techniques women have physical advantages over men; and agro-processing industries typically create employment opportunities – albeit of variable quality – for women rather than men.[218] Understanding how opportunities and risks in agricultural value chains and markets are gendered, and promoting gender equality in accessing emerging opportunities, are important factors in supporting the emergence of pro-poor agricultural markets.

Governments have important roles to play in supporting the development of agricultural value chains in which smallholder farmers can find profitable, yet low-risk market opportunities. They need to develop enabling policies and regulations; invest in activities that promote the expansion and transformation of agricultural markets and specific value chains; support the capacity of poor rural people to engage in them more profitably; and encourage the private sector to invest in and source from smallholders and offer decent employment opportunities. They can also do much to reduce the risks and transaction costs for smallholders and other market actors. Support is needed in each of the various areas described above: the organization of rural producers, infrastructure and information, the development of contract farming, the expansion and deepening of rural financial systems, and the promotion of labour opportunities. As highlighted in chapter 3 in the case of food crops, there may on occasions be a case for governments to play a more proactive role in reducing market risk for smallholder farmers, as the example of COCOBOD in Ghana shows clearly (box 14). The caveats require restating however; there is need for interventions to be context-specific and with clearly defined goals, and to be effectively implemented and to remain financially sustainable.

There is also a need to work towards ensuring that international market conditions are more conducive for profitable, low-risk smallholder engagement, both through trade policies and by representing national (and smallholders') interests in global and regional trade negotiations and agreements.[219] Finally, governments have a crucial

BOX 14 **Ghana's cocoa marketing board**

Resisting calls for liberalization in the 1980s, Ghana, the world's second largest producer of cocoa, defended the value of its cocoa marketing board (COCOBOD). However, it liberalized small portions of the cocoa supply chain while streamlining COCOBOD's operations so as to reduce its bloated costs and other implied taxes. Between the mid-1980s and early 2000s, COCOBOD reduced its workforce from 100,000 to 10,500; it spun off non-core activities to more appropriate government ministries; its rigorous quality-control procedures have ensured that Ghana's cocoa continues to earn a premium on world markets; and it has significantly increased the share of the export price that goes to smallholder cocoa producers, using forward contracts to stabilize prices.

Source: IISD (2008)

role to play in ensuring the good governance that is essential for the smooth, fair and effective operation of markets.

NGOs and donors can also play key roles in supporting smallholder farmers to engage in product markets on more equitable terms, and to realize the best price possible for their produce. Smallholders need significantly enhanced capacities, organization and assets to produce for markets with rapidly evolving standards. Private-sector market intermediaries at all levels, from small businesses and microenterprises to global corporations, need support to expand, to focus their business relations on smallholder producers and to create employment opportunities in agricultural markets. Some NGOs may be well placed to do this. Donors can encourage and support the emergence of public-private partnerships around agricultural markets (box 15). In many cases, aid agencies and NGOs can also play an important role as honest brokers, building trust by bringing together different parties – producer organizations, private-sector representatives and governments – to share their perspectives and identify issues of common interest.

There are many examples of innovative multi-actor collaborative relationships involving the private sector, NGOs and governments.[220] Yet intermediation remains a scarce factor in linking small producers (or labourers) successfully with markets – especially in Africa and the Middle East. Many NGOs in particular have lacked the business skills and models required for success, and they have given insufficient attention to creating the conditions for smallholder producers to engage in sustainable business relations with markets. What is critical is that, in assisting smallholders to engage profitably in value chains, the roles played by external actors, such as governments, donors and NGOs, are catalytic and enable, rather than substitute for, private sector commercial relations. These roles are likely to change significantly as value chains develop: when a sector or specific chain is only slowly or very partially becoming integrated into restructured markets, for instance, stimulus

BOX 15 **Public-private partnerships to create new market opportunities for smallholders**

Public-private partnerships can be an important component of strategies to expand market opportunities for smallholders. In Uganda, for instance, starting in the mid-1990s IFAD has promoted the concept of public-private partnerships for the oil palm sector. This sector had great market potential because crude palm oil represented 90 per cent of national vegetable oil imports, in turn covering over 60 per cent of national requirements.

While Uganda has favourable agroecological conditions to grow palm oil, a public-private partnership has been needed to bring together the necessary know-how and funds to develop the sector and to ensure that smallholders were part of the process. In this context, IFAD cofinanced the Vegetable Oil Development Project, which was designed to reduce Uganda's reliance on imported vegetable oils while also increasing smallholders' income by expanding their involvement in this sector.

Under the project, the Government signed a direct foreign investment agreement with Bidco, a large private investor, which covered the construction of an oil palm refinery and the development of oil palm plantations and supporting infrastructure. Bidco brought to the partnership technical expertise and investment capital, while IFAD supported smallholders to contribute their land and labour to the partnership. Bidco was drawn to the initiative by the profitable market opportunities in this sector, as well as by the advantages that partnering with the Government and with smallholders could offer in terms of enabling access to a large consolidated area of land to establish production at a sufficient scale to be profitable. At full development, the project will result in 10,000 hectares of land being under oil palm production, about one third of them belonging to smallholders.

The catalytic role of the donor in this public-private partnership has been substantial since the preparatory phase, including helping Government to prepare an environmental impact assessment, ensuring that equitable pricing for inputs and produce for smallholders was included in the framework agreement with the firm, developing mechanisms to ensure that negotiated prices were applied, and financing the establishment of farmers' organizations and smallholder oil palm plantation development.

According to an interim evaluation of the project, Bidco has been a good partner in the project, and investments have had significant economic and financial impact, on both producers and consumers, who have benefited from the improved local availability of affordable vegetable oil of an assured quality.

Smallholders benefit in particular from the stable demand and prices for their produce, set on the basis of an established pricing formula linked to world market prices, as well as from access to credit and extension services. They also benefit more indirectly from investment in local infrastructure (including electricity and transportation infrastructure) brought about by the project. The project has also set up an innovative institutional mechanism to facilitate the involvement of small farmers and to manage the interplay of different interests around the plantation (notably those of small farmers, Government and Bidco), namely the Kalangala Oil Palm Growers Trust – which also provides extension services and access to loans for farmers.

Source: IFAD (2010b)

interventions may be required from third parties, including pilot projects with public-private partnerships. As value chains evolve, however, donors and NGOs should play a far more limited role, to allow for sustainable commercial relations and avoid market distortions.

Key messages from this chapter

First, agricultural markets are essential for economic growth and for rural poverty reduction, but participation in these markets is often uncertain, risky and less profitable than it could be for small rural producers. Rewards, costs and risks are all context and value chain specific, and they vary for different producers (depending for instance on location, gender, individual capabilities, assets and organization). However, it is generally a challenge for poor rural people to seize rewarding opportunities in produce markets and to manage the attached risks well, whether as smallholder producers or as workers in agricultural value chains. *As a result, it is not enough to invest in developing new market opportunities for smallholders and other poor rural people; the challenges and risks they face in seizing these opportunities also need to be at the centre of attention.*

Second, agricultural produce markets have undergone profound transformations in the past two or three decades, in terms of the scale and nature of demand, the organization of supply or the market governance. At the national level, there is a trend towards increasing demand for agricultural products, including high-value ones, with much of the demand coming from urban areas. Agricultural value chains have become restructured towards greater integration and/or coordination, although differently and to varying degrees across chains and contexts. In most countries, modern value chains and markets are growing in scope and importance. They are typically better organized, coordinated, and have higher quality and quantity standards (and therefore higher entry costs) than traditional markets. *While in many cases they coexist with traditional markets, restructured or modern markets and value chains represent a new environment for smallholders both in terms of new, profitable opportunities and in terms of higher entry costs and risks of marginalization.*

Third, agricultural produce markets have changed at the global level. Global and, in some cases, regional value chains are becoming more integrated, often with growing centralization of control by a relatively small number of firms. The map of global trade in agriculture also has been changing, with some fast-rising economies playing a growing role. Within global markets, smallholders from poor countries remain by and large disadvantaged because of high transaction costs, entry barriers and large power asymmetries. However, some global value chains can offer important opportunities to smallholders and poor rural people working in other links in the chains. While domestic modern markets are likely to offer greater, broader and more

stable opportunities for smallholder producers in most cases, this does not constitute the rule. *Smallholders need to be in a better position to identify the costs and benefits of participating in modern and/or traditional, domestic and/or international markets on a case-by-case basis, and to respond accordingly.*

Fourth, reducing risk and transaction costs along value chains is critical for determining whether or not smallholders can engage profitably in modern agricultural markets. Strengthening their capacity to organize collectively to participate in markets more efficiently and reduce the transaction costs to those they do business with, is a key requirement. Infrastructure is important – particularly transportation and communication infrastructure and technology, including ICTs – to reduce market transaction costs and ensure better knowledge of market conditions. Contracts can help, by managing risk, reducing transaction costs and building trust between smallholder farmers and agribusiness; and they can also facilitate improved access to financial services, particularly with input credit, which can help farmers increase their productivity. The changing engagement of the global corporate sector in agricultural value chains can play a positive role in this regard. *All these factors need to be part of a more robust public policy agenda to improve the market environment and the ability of smallholders to engage in it. The precise nature of the agenda, however, needs to be defined in context, and from a perspective not only of pro-poor market development but also of economic and institutional sustainability of policies.*

Finally, whether or not smallholders can engage profitably and with low risk in modern agricultural markets also depends on the willingness of the private sector to engage with them – and vice versa. This is partly a function of the factors just listed, and partly a function of the possibility of setting up marketing arrangements between smallholders and other value chain actors that are beneficial and low risk for all parties. Both of the latter conditions are increasingly, although unevenly, present in many parts of the world, and in both domestic and international value chains. *However, there is a need for policymakers, civil society organizations, NGOs and donors to work together and with these market actors in supporting the development of innovative and sustainable contractual arrangements, in developing complementary and supportive institutions, in providing adequate incentives around these arrangements, and in strengthening and replicating those that prove successful.*

Chapter 5

Sustainable agricultural intensification

Casamance Province, Senegal: Abdoulaye Badji works in his cassava field. He provides for his two children and the children of two of his brothers, who work abroad. Abdoulaye believes that diversification is a key strategy for managing risk, so he also grows rice, groundnuts, maize, sorghum, beans and various types of fruit.

Abibatou Goudiaby, 21 years old, belongs to a polygamous farming family in Kagnarou village, Casamance, Senegal. Although she would have liked to do "something better" than farming, she says, "Agriculture is all I know… So I have to take farming seriously."

Abibatou is concerned that animal husbandry practices have deteriorated. "Nowadays people don't bother," she says. "They find it hard to get water for cattle to drink, let alone washing their sheep and other chores. People devote themselves to activities that bring immediate money. They don't have the patience and the long-term work of our fathers."

She observes that because of the short rain cycle, people have to plan carefully and work fast. "You need to hire help from the agricultural associations to plant fast… So you tell them in advance while you are working on the groundnut fields, after the millet. Then it is time to plough rice fields and plant your rice. You have to plan your work very tightly, otherwise you will have nothing."

The traditional tilling tool is inadequate in current climatic conditions, Abibatou says. "We should also adapt our working equipment… now that the rainy season is shorter, the *kadiandou* doesn't allow you to work fast enough." Significantly, the improved working equipment she desires is not sophisticated machinery but a cart drawn by oxen: "If I had a cart with oxen, proper equipment to weed the grass, our lives would improve fast, and we could forget poverty… "

Illiterate herself, she believes education helps people farm more efficiently, as well as giving them wider opportunities. "Any knowledge you have from your education can help you be more efficient in your work, be it agricultural production or cattle breeding… For instance you get to know what fertilizers or what seeds to use or how to use them… Suppose you want to raise sheep. If you are educated you can know what the best feed for the sheep is. If a sheep falls ill and the vet prescribes a medicine… you will do the right thing."

She also sees agricultural associations as valuable and mentions one that gave her high-quality rice seeds. "I got the best crop I have ever had out of those seeds," she remarks.

Abdoulaye Badji, age 50, also lives in Casamance. His livelihood is agriculture: **"That's what I rely on to sustain myself and feed my family."** He provides for his own two children and the children of two of his brothers, who work abroad.

Abdoulaye grows rice, groundnuts, maize, sorghum, beans and various types of fruit. Diversification is a key strategy for managing risk. **"You cannot grow just one crop,"** he explains. **"If it doesn't work, you will be in an impossible situation for that year."**

Most local farmers lack adequate equipment, according to Abdoulaye: **"There are not enough ploughs [and cattle] to go around… Throughout these difficult years people have sold all to sustain their families."** He believes: **"the real way forward"** is to have mechanized equipment: **"You cannot meet the challenge of development if you stick to traditional ways."**

However, he maintains his father's generation used to get more out of the land than people do now. He explains, **"People don't practise fallowing land anymore, because due to insecurity [as a result of conflict] you keep using the same land, which is safe. Well, that land cannot take it anymore. Secondly, we used cattle dung [before] to fertilize the soil. Today we don't have cattle."** Farmers' problems are also intensified by water shortages.

Abdoulaye has adapted his farming to respond to these changes: **"I have decided to produce only short-cycle crops to adapt to the reduced rainy season: beans, maize, millet."** He says the whole community is adapting: **"They know that if they carry on with old ways, rain will stop before the crops mature and it is a disaster."** He has also started fallowing his land.

As a member of a local agricultural association, Abdoulaye has been able to access better equipment and seeds. He also appreciates **"the solidarity aspect of these types of associations,"** for example in providing support to members in times of sickness.

Abdoulaye says he would never drop agriculture because **"you would have to buy what other people have cultivated to eat."**

To make farming viable in the long term, he says people need better equipment and seeds, a system of retaining water and marketing support.

Introduction

If agriculture – particularly smallholder agriculture – is to provide one of the principal routes out of poverty for the next generation of rural men and women, and create the sectoral growth that provides non-farm opportunities for others, it must be an agriculture that is productive, profitable and sustainable. It must be linked to consumers through efficient markets, and it must be able to respond to market opportunities and requirements in terms of the products demanded, the quantities required and ever-higher specifications and quality standards. In addition, it needs to be an agriculture that helps reduce the vulnerabilities of poor rural people to risks and shocks. Finally, it needs to be an agriculture that can support the livelihoods of future generations – one that does not deplete, but rather helps to protect or restore, the natural resource base.

"The way of farming in the old days was with human beings pulling the plough. The young people have never seen that, nor have they done that. They don't want to farm, only the old ones do… If we continue to farm using the old ways of ploughing… who will be willing to farm?"

Li Guimin,
female, 50 years, China

The world population is expected to grow to over 9 billion people by 2050, and with growing urbanization and increasing incomes, there will be a need to raise food production by some 70 per cent. It may be possible to increase the total arable area in developing countries by no more than 12 per cent by 2050,[221] the bulk of which would be in sub-Saharan Africa and Latin America. Therefore, future increases in agricultural production will have to come mostly from more intensive land use and higher crop yields; in land-scarce countries almost all growth will have to be achieved in this way.[222] Given growing natural resource constraints in many areas, future increases in livestock and fishery production will also need to be based on more efficient and sustainable use of available resources. Although the challenge is a global one, the appropriate responses need to be context-specific. Farming systems vary enormously across the developing world, resulting from a combination of natural resource endowments, population densities, social and political relations, market opportunities and generation upon generation of innovation, learning and refinement. They span the production of crops, livestock and fish, and they offer different opportunities for intensification, have different requirements and face different constraints. This chapter recognizes that diversity, and looks at how different agricultural systems can most effectively be intensified in a way that minimizes cost and risk and offers the greatest opportunities to smallholder farmers – both women and men, today and for future generations.

Agricultural technology and smallholder production

Between 1961 and 2007, crop production in developing countries grew at 3.0 per cent per year. In East Asia, it grew at an impressive 3.5 per cent per year, in the Middle East and North Africa, Latin America and the Caribbean, and South Asia it grew at 2.6 per cent per year, and in sub-Saharan Africa at over 2.5 per cent.

Over the past 50 years in large parts of the developing world, low-input, low-output farming systems have been transformed into high-input, high-output systems. In South Asia and in Mexico in particular, farmers' increased production came primarily from higher yields resulting from the technology package and policies associated with the Green Revolution. This included the introduction of semi-dwarf high-yielding varieties of wheat and rice, associated with irrigation and higher levels of inputs such as inorganic fertilizers and pesticides. In Asia, the Green Revolution led to dramatic leaps in agricultural productivity from the late 1960s onwards: wheat yields increased at over 4 per cent a year and rice by 2.5 per cent between 1967 and 1982.[223] While rural income disparities were heightened in some countries (larger producers were more easily able to adopt the new technologies while the poorer farmers were often left behind), the Green Revolution contributed to a decline in poverty levels, driven by reduced prices of staple foods and increased real wages in the rural areas: by 1995 fewer than one in three Asians lived on less than US$1/day, as compared with three out of every five in 1975.

Green Revolution technologies drove intensification in much of Asia: as of 2002, South Asia had the most cropland (almost 40 per cent) under irrigation; improved varieties covered around 80 per cent of the land under cereals in Asia; and in East Asia fertilizer was applied at a rate of 190 kilograms of nutrients per hectare of cropland, almost twice the rate of any other region.[224] Within 20 years, cereal production doubled and per capita income increased 190 per cent, improving livelihoods for an estimated 1.8 billion rural people.[225] In other regions too, farmers rapidly intensified their production systems: by 2002 the Middle East and North Africa had one-third of its cropland under irrigation; in both that region and in Latin America and the Caribbean, improved varieties of cereals more than doubled as a proportion of the total area under cropland between 1982 and 2002, to almost 50 per cent and 60 per cent respectively; and in both regions fertilizer use had almost or actually doubled, and in 2002 was being applied at rates of 70 to 80 kilograms of nutrients per hectare of cropland.[226]

The story of increasing productivity is not simply one of the spread of improved technology. In Asia in particular, the adoption of improved seeds and fertilizers and the gradual and sustained intensification of production systems by small farmers was made possible by supportive policies and investments that provided them with a secure, remunerative and low-risk environment. On average, Asian countries were

spending over 15 per cent of their total budgets on agriculture by 1972, and the real value of that expenditure doubled by 1985. Governments invested in infrastructure – roads, irrigation and power. They ensured that farm credit got to farmers and subsidized and, in some cases distributed, inputs (i.e. fertilizer and water). They also invested substantially in agricultural research, provided farmer extension services and intervened in markets to stabilize farm gate prices. In China, land and market reforms also played a vital role.

While agricultural production in sub-Saharan Africa was growing almost as fast as the other regions, increased yields accounted for less than 40 per cent of the increase; the remainder – more than 60 per cent of the increase – could be attributed to expansion of land under cultivation and shorter fallow periods. There were a number of technological successes, such as the rapid spread of improved maize in Eastern and Southern Africa, which now covers more than three-quarters of the land under cereal cultivation in Kenya, Malawi, Zambia and Zimbabwe;[227] the adoption of high-yielding varieties of NERICA rice, combining the best properties of Asian and African rice, on more than 200,000 hectares across Africa;[228] and improved disease-resistant strains of cassava, which cover more than half of the cassava areas in Nigeria, now the world's largest producer.[229] Yet despite these real achievements, by 2002 improved varieties were planted on less than 25 per cent of the land under cereal across the region; fertilizer was applied at less than 10 kilograms of nutrients per hectare (a figure unchanged since 1980); and only 4 per cent of total cropland in this region was irrigated.

Livestock production in developing countries has also increased rapidly over the past 30 years. There has been substantial growth in production of meat, eggs and milk. This has resulted both from increased numbers of animals – above all poultry (6 per cent or more annual growth in numbers in all regions except sub-Saharan Africa); and increased yields – particularly for milk and poultry, and above all in

Tovoke was able to join an association that provided him with sorghum seeds. The harvest was successful and Tovoke plans to plant more sorghum next year with the seeds he has saved from the previous harvest. "I was attracted by this *ampemba* (sorghum) cooperative… I requested one *kapoake* (standard measure for grain) of seed. And so I planted that sorghum, and harvested a little… I didn't have a large harvest like those with big fields, but according to its size the land did yield… From that one *kapoake* of seed I received three gunnies of produce (200 *kapoake* make up one gunny sack)… I saved 20 *kapoake* of seed… I sold one gunny, for all my clothes had tattered, and I had nothing to wear, and so I purchased some. Then a close friend died and I had nothing to give, so I sold that second gunny to take to [the burial ceremony]. The last gunny I ate and saved for seed… And I decided this sorghum is really good, considering it produced food as well as giving me a livelihood. And that single *kapoake* that was given to me, allowed me to face my problem… That's why I held back that amount to be able to plant the next year when the rains fall, because the sorghum was good to me. It raised me up."

Tovoke,
male, 44 years, Madagascar

Asia (between 3 and 4 per cent per year). Today, most meat and eggs produced globally are produced in developing countries. Production growth has been made possible by cheap inputs (including grains for feeds), technological change and gains in scale efficiency, all of which have resulted in lower prices for livestock products and stimulated rapidly growing demand among urban consumers.[230] However, much of the increased production has come from vertical integration, which has sometimes led to the marginalization of small-scale and subsistence livestock production. Asia has seen the greatest transformation of production systems: poultry and pig production have both witnessed rapid growth and vertical integration. In the 1990s, production in these subsectors almost doubled in China, Thailand and Viet Nam, and by 2001 these countries produced one-third of the chickens and half of the pigs in the world. The dairy sector too has grown rapidly, particularly in countries with a strong tradition in this area, like India and Pakistan. Here, however, smallholders with two to five cows (or buffalos) remain dominant, supplying about 80 per cent of the regional milk market.

While increased agricultural productivity in developing countries has required more than improved seed varieties, these have been fundamental to those increases: in the 1980s and 1990s, improved varieties are estimated to have accounted for half the yield growth.[231] Poor consumers have been significant beneficiaries – without the yield increases achieved in the 1980s-1990s, world cereal prices would have been 18 to 21 per cent higher in 2000, calorie availability would have been lower and more children would have been malnourished; more forests would have been cut down for less productive agriculture. Productivity growth has been greater for the three major crops (rice, wheat and maize) than for the other, largely rainfed crops that many poor rural people produce and consume. However, high-yielding varieties have been developed for other important food crops, including sorghum, millet, cassava, potatoes and beans. Over the past 40 years, public breeding programmes have released over 8,000 varieties, and private seed companies have also become significant sources of hybrid seeds for some crops.

Recent advances in agricultural biotechnology have provided many benefits to farmers – including smallholders in developing countries. Tissue culture has revolutionized the production of disease-free planting material of vegetatively propagated crops, and the breeding of new crop varieties has become less hit and miss, thanks to marker-assisted selection using marker genes. However, much recent discussion on improved crop varieties has focused on the development and use of genetically modified organisms (GMOs). The first generation of GMOs were engineered by introducing genes to impart pest and/or herbicide resistance in the crop, and initially, genetically engineered seed was available only for maize, soya, cotton and oilseed rape. The first GMO crops were planted in 1996, and by 2009 the area under cultivation of GMOs had reached over 130 million hectares in

25 different countries. While these varieties were not developed with small and resource-poor farmers in mind, by 2009 13 million smallholder farmers in developing countries were growing GMOs. Most of these grew cotton – 7 million in China and 5.6 million in India. More recently, it has also been taken up in Burkina Faso, where in 2009 smallholder farmers grew it on 115,000 hectares,[232] or a quarter of the total area under cotton.

Among an emerging second generation of transgenic crops, some are being developed through public-private partnerships and/or north-south partnerships to target smallholder farmers in developing countries. These include disease-resistant banana plants, a staple food in Uganda; maize for disease resistance, insect resistance and improved protein content; cassava for enhanced starch production; potatoes for viral disease and pest resistance; and rice for disease and pest resistance. Progress in developing crop varieties that perform well under drought, flood, heat and salinity has generally been slower than it has been in developing varieties with disease and pest resistance. In the future, GMOs may play a greater role in addressing this set of issues, which can greatly contribute to reducing the risks faced by smallholder farmers.

Much of the debate around GMOs has been polarized between proponents overstating the benefits and detractors emphasizing only the negative aspects of GMOs. Developing countries need to make their own decisions about whether to allow the introduction of transgenic crops, based on an informed assessment of possible risks and benefits. The results are likely to be very context- (and crop-) specific. Information flows on GMO issues are often poor, and little space has been given to the voices of small farmers. This needs to change for countries to be able to assess more effectively the potential benefits of GMOs in terms of increased productivity, reduction in the risks faced by small producers and contribution to poverty reduction in different contexts. Equally, at present, many countries need to strengthen their biosafety assessment and management processes if they are to adequately assess the risks involved.[233]

Finally, the limited relevance of this debate for many smallholder farmers must be borne in mind. In many contexts, poor farmers face enormous difficulties accessing improved seeds (and livestock producers improved animal breeds); and when they do, the yields that they achieve are frequently below potential. In most situations, there is a gap between farmer yields and potential yields on the order of 40 to 50 per cent for wheat, which can reach over 100 per cent for rice, and as much as 200 per cent for maize in sub-Saharan Africa.[234] The implications of this are important. First, it means that there is much that needs to be done now to improve farmers' access to improved seed of all sorts; and second, the size of the gap between actual and potential yields makes it clear that there is substantial scope for increased productivity by bridging the yield gap for existing technologies.

Enhancing agricultural productivity today – some key challenges

Over the past 40 years, growing agricultural productivity has resulted in increased global food supplies and, until recently, lower food prices. In many countries poverty has been reduced and macroeconomic growth promoted. Cereal yields have continued to rise, but in the last 20 years the rate at which they are increasing has slowed. By 2001, developing country yields of wheat, maize and rice were growing at an average of between 1 and 2 per cent per year, down from rates of between 3 and 5 per cent in the early 1980s.[235] Indeed, there is talk of cereal yields plateauing. The reasons include declining levels of investment in agricultural research,[236] diminishing returns to high-yielding varieties when irrigation and fertilizer use are already at high levels, and the fact that, until recently, produce prices have been low relative to input costs, making further intensification less profitable. However, there is also concern that the slowdown reflects a deteriorating crop-growing environment, and this is supported by growing evidence of soil degradation and build-up of toxins in the soil.[237]

"It is very tiring when it's time for irrigation, because each person irrigates their land in turn, and there is not enough water… We have to spend nights and also days [waiting]… We keep trying for three days, and then get some water in our turn. And that too after making 10 visits… [to make sure] that no other person stops our water…"

Muhammad Naveed,
male, 22 years, Pakistan

"The problem of irrigation has occurred in the village over the last 15 years. Previously, irrigation canals met the needs of the farmers, but then water became scarce… I think the government diverted the water to the desert to serve the plots of investors, rather than [those of] poor peasants."

Ibrahiem Abo Zeid,
male, 55 years, Egypt

Broader concerns about the Green Revolution have also arisen. A key issue is poor irrigation management that results in the build-up of salt in the soil (salinization). Without effective drainage to leach salts, they accumulate in the topsoil where they affect crop growth and yields, and in extreme cases result in the abandonment of formerly productive arable lands. In Asia, for instance, nearly 40 per cent of irrigated land in dry areas is now thought to be affected by salinization.[238] Excessive irrigation also results in water scarcity in major river basins and declining levels of groundwater, as a result of more water being pumped than can be naturally replenished. Another issue is the planting of new crop varieties in place of traditional ones, which can result in the loss of crop biodiversity if there is no system to conserve germplasm. The excessive and inappropriate use of fertilizers and pesticides and pollution of waterways and aquifers has led to beneficial insects and other forms of wildlife being killed along with pests. There have also been negative consequences for human health: pesticides poisonings are frequent[239] and

in India rising rates of cancer are blamed on the heavy applications of pesticides that farmers apply to cotton.[240]

Water scarcity is a major issue in other regions too. In the Middle East and North Africa, it poses a serious challenge to agricultural development and the potential of agricultural growth to reduce rural poverty – a problem that is likely to be further exacerbated by climate change. Overexploitation of water tables is also leading to groundwater salinization as seawater seeps through freshwater aquifers. As additional, affordable sources of water supply are reaching their limits, the region has to focus on conserving its existing scarce resources and increasing the efficiency of water use. Since water for irrigation accounts for about 85 per cent of water use in the region, water-savings and improving water-use efficiency in the agricultural sector are critical for effectively conserving and managing the water resources of the region.

"Previously there was more rainfall. Water was easily available and people cultivated multiple crops. For about a year, or perhaps more, there have been no rains. We don't have a natural spring in the area. The nearby storm water drain is nearly dry – the water level has gone down. That is why people are suffering. People don't have enough water for crops these days. People go in search of water in the night, but do not find any. They block the channels in the fields belonging to others and divert the water to their own fields in the darkness of the night. It's very difficult."

Rasib Khan,
male, 28 years, Pakistan

"The reason for my inability to attain a harvest here is that the land is exhausted… The land doesn't produce, for loss of vigour. Even though I cultivate a wide area, I can't get a harvest due to the loss of nutrients in that soil."

Randriamahefa, male, 49 years, Madagascar

In large parts of sub-Saharan Africa, the problem is a different one, related in part to the lack of intensification of production systems. Africa's soils are often of low inherent fertility and they have been degrading. Shorter – or non-existent – fallow periods and poor cultivation practices, combined with low use of inorganic fertilizers and organic manure, have all resulted in reduced levels of soil fertility, reduced soil organic matter and increased occurrences of acidified soils. In many parts of the region, the long-term productivity of soil is projected to decline considerably unless soil management practices improve, involving measures to increase both the fertility and organic structure of soils.[241]

There is also concern about the interactions between livestock production systems and the environment. Issues associated with extensive grazing systems include deforestation and the growing degradation of rangelands and water sources due to unsustainable management practices. The change from traditional mixed and extensive systems to intensive production systems has probably had negative effects on energy consumption, genetic diversity and water pollution.[242] Particularly in Asia, animal wastes have been polluting waterways. In the 1990s, China, Thailand and Viet Nam almost doubled their production of pigs and poultry, and in coastal areas of the

South China Sea these operations have become a major source of nutrient pollution. Amid concerns over climate change, livestock is increasingly being recognized as a contributor to the process (as well as a potential victim of it).

In all regions of the developing world, there is a need for crop and livestock production systems to become more intensive if the world's growing population is to be fed, now and in the future. In the different regions, smallholder farmers will have to confront different problems. Yet everywhere, intensification approaches need to make more efficient use of resources: particularly fertilizers, pesticides and – above all – water. Indeed, *without* changes in the way water is used for agricultural production, there will be crises in many parts of the world.[243] New approaches also need to be non-polluting and environmentally sustainable, preserving or enhancing soil fertility and protecting biodiversity. The alternative is the loss of the very assets on which smallholder farmers depend for their livelihoods. Increased climatic variability and climate change are expected to result in an escalation in extreme weather-related events – floods, drought, high temperatures, as well as shorter and more uncertain growing seasons and new pest and disease patterns. Intensification, of both crop and livestock production systems, also needs to render farming systems more resilient to shocks and stresses.

"The soil is no longer fertile. And there is not enough rain. We try to use organic fertilizers like dead leaves, cattle dung, and so on. Still it doesn't improve very much… You see, working the land is difficult. But since it is the only thing I have, it is my livelihood."

Bakary Diédhiou,
male, 60 years, Senegal

"The problem today is that no matter how hard you work, it's never enough to feed the family… The land was more fertile [in my father's time]. They used to get more out of the land. They didn't need to cultivate big areas. Crops were healthy. Their cattle used to walk around and fertilize the soil. In fact today we cultivate more land, for fewer crops. We don't have the means to buy fertilizers to increase yields."

Abdoulaye Badji,
male, 50 years, Senegal

If agriculture is to be a way out of poverty for at least some rural people, then new approaches to increased productivity should be accessible to poor smallholder farmers and livestock producers, and provide attractive opportunities for youth. They also need to be more accessible than traditional approaches to rural women, who play critical roles in smallholder agriculture. Particularly in low income countries, women make up a substantial majority of the agricultural workforce and produce most of the food that is consumed locally; but even in some countries in the Middle East and North Africa, the percentage of economically active women operating in agriculture is larger than the percentage of men – in Algeria, for example, it is 40 per cent for women compared with 16 per cent for men.[244] As discussed in chapter 2, the productivity of women farmers is constrained by the same factors that affect small agricultural producers in general, but this is compounded by a range of gender-specific factors such as unequal control over key productive assets, unequal access to

agricultural services, and women's frequent involvement in activities that involve great drudgery. New approaches therefore need to take account of these constraints and respond to the specific constraints that women farmers face.

Finally, the accessibility of new approaches to increasing productivity in agriculture is of little value in itself if there are no short-term incentives for poor rural people to adopt them. This is an issue that depends both on access to remunerative and reliable markets and on enhanced agricultural productivity. In addition, the approaches must help people manage risk: at a minimum, new technologies and approaches need to offer benefits that more than outweigh the risks associated with their adoption. Typically, small and incremental changes are easiest for risk-averse smallholder producers to make, with the limited resources they have at their disposal.

An emerging agenda for sustainable agricultural intensification

Agriculture has to become less risky for smallholder farmers, and it must be more sustainable as well as more productive. The question is how. Since the 1970s, when the first concerns about the unintended impacts of the Green Revolution emerged, there has been interest in an agricultural development agenda that is environmentally and socially sustainable as well as productive; and by the 1990s there were eminent scientists calling for an 'evergreen revolution' that makes it possible to produce more on less land and less water and in a sustainable way,[245] or for a 'doubly green' revolution that exploits biology and ecology and "conserves the environment while producing more food."[246] In the last decade or so, more and more scientists and social scientists have become interested in these ideas, and a whole range of terms, such as 'agroecological approaches',[247] 'ecologically intensive agriculture',[248] 'low external input technology'[249] and 'sustainable agricultural intensification'[250] have been coined to refer to this agenda of agricultural productivity with sustainability. Organizations of rural producers have also become supportive of a sustainable agriculture agenda, for a variety of reasons including concern with climate change or its role in a food sovereignty agenda; while farmers' groups and NGOs too, particularly in Latin America and in Asia, have been experimenting with, and advocating greater institutional and policy space for, agricultural practices emphasizing sustainability.

There have also been a number of initiatives aimed at using these ideas as a basis for a transformation of agricultural research. The International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD) was a multistakeholder initiative sponsored by FAO, the World Bank and other United Nations agencies between 2002 and 2009. The comprehensive Assessment, which was prepared by many scientists, lawyers and representatives of civil society, advocated for the

relationships between food production, hunger, poverty and environmentally sustainable development to be placed at the centre of agricultural research and technology development. It gives particular prominence to the importance of local and indigenous knowledge and innovation in today's agricultural knowledge systems.[251] More recently, in 2010, a historic first meeting of the Global Conference on Agricultural Research for Development (GCARD) took place in Montpellier, France. The meeting was born of the widely recognized need for strengthening and refocusing agricultural innovation around the world so as to bring real change in the lives of the poor. It brought together some 600 agricultural researchers, policymakers, farmers, donors and members of civil society from all over the world. Its outcome was a strong call for national agricultural research systems to be strengthened to respond to this agenda, for bottom-up research agenda setting, and for the needs of developing country smallholders to be the focus of agricultural research at all levels.

There are differences of emphasis in the various terms used to describe the agenda referred to here as 'sustainable agricultural intensification', yet there are clear common features. They include a focus on: improved soil and water management; soil fertility

"The earth is utilized for two to three years; once a year we harvest the crops, and after that, you let the earth rest… We work by portions; first we sow in one corner and harvest in the opposite, and we go on alternating. We don't sow on all the land at the same time, because if we did, we wouldn't have anything to eat."

José del Carmen Portocarrero Santillán, male, 82 years, Peru

enhancement through the harnessing of agroecological processes; a selective and frugal use of external inputs; the use of crop varieties and livestock breeds that are resistant to stress (e.g. drought, salinity, disease) and have a high ratio of productivity to use of externally-derived inputs; minimal use of technologies or practices that have adverse impacts on the environment and human health; and productive use of human capital in the form of knowledge and capacity to adapt and innovate, and social capital to resolve common landscape-scale problems.

In Androy, Madagascar, a local NGO (ALT) has been promoting the reintroduction of sorghum as a sustainable and drought-resistant crop and has also provided training for farmers in how to plant and look after the crop. IFAD has supported ALT to extend this reintroduction to more communities. "This is how they trained us… I didn't follow the plough with the *ampemba* (sorghum), but tossed the seed over the ploughed area and covered it with my foot… Then after three days they sprouted… I didn't plant it with corn… or where there was cassava. I didn't plant it deep, or in places where there are ponds, and I didn't drop many [seeds in each hole], but three or four… I found many young plants. I'd thin them out so that they won't be dense. And if I found one with an insect in the head, I'd kill that and inspect the lower stalk also. So I'd cut that out, and it would re-sprout from the base, and I'd discard the wormy one at the edge (of the field). Then I'd look after the one I'd cut off, and it would produce other fine heads. So I had a good harvest, because I followed closely the discipline that those people gave us…"

Randriamahefa,
male, 49 years, Madagascar

There is great diversity of practices associated with sustainable agricultural intensification. Conservation agriculture practices involve reduced or no tillage and the use of cover crops to improve soil fertility and water retention, reduce soil erosion and improve recharge of aquifers. Integrated pest management (IPM) uses the pest's natural predators as an alternative to pesticide use. Integrated plant nutrient management promotes the combined use of mineral, organic and biological resources to ensure ecosystem sustainability. Well-integrated crop and livestock/fish systems increase the diversity and environmental sustainability of smallholder production systems, while reducing waste and pollution. Improved water management, including drainage, micro-irrigation and in-field rainwater management, increases agricultural productivity, reduces waste and prevents salinization. Crop rotation prevents the build-up of pathogens and pests, balances the fertility demands of various crops, replenishes nitrogen through the growing of legume crops, and improves soil structure and fertility by alternating deep-rooted and shallow-rooted plants. Agroforestry combines agricultural and forestry technologies to create more diverse, productive, healthy and sustainable land-use systems. A whole range of techniques, such as gulley reclamation, terracing, bunding and planting pits can be used to conserve water and prevent soil erosion. These practices can be used concurrently, and substantial synergies may be realized by doing so.

None of these practices represent stark alternatives to conventional approaches to intensification based primarily on use of irrigation water, improved seeds and

agrochemicals. Rather, the inclusion of such practices within an intensification agenda represents a broader, more systemic approach to technological change, and can also help ensure that intensification approaches are better adapted to local or specific circumstances. The diverse practices listed above require that the appropriate combination of technology and practices to achieve higher productivity and sustainability be defined in context, in light of the characteristics of local farming and ecosystems, and of the resources, concerns and risks that small farmers face. Thus, for instance, integrating sustainability-oriented practices into conventional approaches to intensification in many local contexts in sub-Saharan Africa may involve increased use of fertilizer as a necessary adjunct to organic-based plant nutrient management. In many parts of Asia, instead, better integration of crop and livestock systems and improved organic-based plant nutrient management may lead to reduced fertilizer use. Everywhere, moreover, improved varieties may eliminate the need for pesticides, fix biological nitrogen, improve resilience to pests or drought – and thereby reduce the need for supplementary irrigation.

While the interest in an agenda of sustainable agricultural intensification is relatively new, smallholder farmers are already applying many of the practices and principles associated with it. Take IPM as an example. While rice production in Asia increased substantially during the 1970s, it was increasingly threatened in the 1980s by outbreaks of insects, to which farmers responded with ever-higher applications of pesticides. By the mid-1980s, a number of governments used a combination of the removal of the pesticide subsidies and promotion of IPM methods through farmer field schools and other methods of farmer education, to reduce levels of pesticide use. In countries such as India, Indonesia and the Philippines, overall levels of pesticide use fell substantially over the 1990s, while production continued to increase.[252]

Conservation agriculture is now widely used in Latin America, where more than 50 million hectares are now under no-tillage systems in Argentina and Brazil,[253] and in parts of Paraguay 70 per cent of the land is under no tillage.[254] In the Indo-Gangetic plains of India, some 620,000 farmers are applying no-tillage systems for winter wheat, using locally made zero-tillage drills, on some 1.8 million hectares.[255] In sub-Saharan Africa too, conservation agriculture is spreading, and in countries such as Ghana and Zambia, between 200,000 and 300,000 farmers are applying elements of conservation agriculture practices. In all regions, the results are similar: immediately higher and more stable yields that are less susceptible to crop failure due to better water absorption and more timely operations; and in the medium term, improved soil structure and fertility gains and reduced requirements for labour and machinery.

In parts of Burkina Faso and the Niger, the rediscovery and diffusion of traditional agroforestry and soil and water management practices such as stone bunds, half-moons and planting pits, combined with the use of manure and compost, have

BOX 16 **Applying the principles – the System of Rice Intensification**

The System of Rice Intensification (SRI) is a resource-conserving, but intensifying set of practices designed for well-watered environments. Developed in 1983 in Madagascar, its key principles are that rice seedlings should be transplanted when young, and widely spaced to permit more growth of roots and canopy. Rice field soils should be kept moist rather than saturated. Farmers are encouraged to experiment with these, to adapt them to local conditions and satisfy themselves that they are beneficial. Although some varieties respond better than others to SRI methods, it is claimed that increased yield is achieved with 80 to 90 per cent reductions in seed requirements and 25 to 50 per cent less irrigation water. Supporters of SRI report other benefits – resistance to pests and diseases, resistance to drought and storm damage, less pollution of soil and water resources, and reduced methane emissions. The benefits of SRI have now been documented in more than 40 countries in Asia, Africa and Latin America. In Cambodia, more than 80,000 families now use SRI practices, which are reported as leading to a doubling of rice yields, substantial reductions in the use of fertilizers and agrochemicals, and increases in farm profits of 300 per cent. Governments in the largest rice producing countries (China, India and Indonesia) are now supporting SRI extension and committed to significant expansion of SRI rice.

Sources: Prasad (2009); Uphoff (2009); Smale and Mahoney (2010)

transformed what were formerly degraded lands. Several hundred thousand hectares have been rehabilitated, leading to increased crop yields; increased investment in livestock and intensification of livestock management systems; rising water tables; increased land values; declines in the rate of migration, combined with a large increase in the number of local institutions created relative to natural resource management and related issues; and substantial reductions in poverty.[256]

The broadest assessment of sustainable agricultural approaches in developing countries to date is based on a study of 286 initiatives in 57 poor countries, covering 12.6 million farms on 37 million hectares.[257] According to this study, virtually all these initiatives have increased productivity, while improving the supply of critical environmental services. Out of 198 sampled yield comparisons, the mean yield increase over four years was 79 per cent; all crops showed water-use efficiency gains; the practices sequestered carbon; and most of those projects with data substantially reduced pesticide use while increasing yields. Yield increases occurred through one or more of three mechanisms: introduction or intensification of a single component of the farm system (a dairy cow, fish ponds, fish/shrimp in paddy rice, new crops, a vegetable garden, agroforestry); better use of natural resources to increase total farm production, be it water (water harvesting, better use of irrigation water) or land (reclaiming degraded land); and improvements in yields of staple crops by introducing new regenerative elements such as legumes or integrated pest management. The study singles out three changes introduced under sustainable agriculture as especially important: more efficient water use, improvements in organic

matter and better pest and weed control through in-field biodiversity and reduced pesticide use.

What sustainable agricultural intensification can bring to poor rural people

For poor rural women and men, farming – crop and livestock production and aquaculture – has to deliver food, incomes and decent employment, as well as provide a safety net and a tool to cope with risk. In addition, small farmers manage a large share of the world's ecosystem resources, which they should be able to hand on to their children in as good or better shape than they received it. For all these reasons, sustainable agricultural intensification is very relevant to their interests, and all of the practices described above can, under the right circumstances, contribute to maximizing the economic and environmental sustainability of their farming systems. That there are so many examples of smallholder farmers using practices associated with sustainable intensification – both traditional and new – provides clear evidence of their value and relevance.

Smallholder farmers may be more or less able and willing to invest in their production system; they have different assessments of the risk involved, different capacity to handle risk and different levels of knowledge. They may also have different priorities regarding what each approach can bring – increased yields, greater resilience to climatic variation or to pests, lower costs, reduced labour. Men and women will have different perspectives in terms of what they see as priorities: women may look for different qualities in crops, and they are likely to have a particular interest in approaches that reduce drudgery, improve water availability for farm and household use, or are of particular value for them for economic or nutrition purposes (e.g. small livestock rearing). Sustainable agricultural intensification must provide a menu of options tailored to the specific opportunities and constraints of different farmers – men and women. Some practices may involve increased labour, which may fall particularly on women: in Burkina Faso, for example, half the women involved in the construction of stone bunds indicated that the bunds added to their workload.[258] Hence, not all practices will be easily adopted by labour-scarce households. Yet as we saw in chapter 2, most rural households are only part-time farmers; the rest of the time they engage in a range of non-farm activities. If sustainable intensification approaches, linked to remunerative market opportunities, are able to succeed in reducing risk and improving the profitability of agriculture, then households may be increasingly willing to dedicate a greater share of their labour to it – effectively, to become increasingly specialized as farmers.

One key characteristic of sustainable agricultural intensification is that the knowledge required is generally greater than in most conventional approaches. Sustainable agriculture has, in fact, been defined as a 'social learning' approach rather

than a precise set of technologies.[259] Small farmers' local knowledge often has an important role in it, particularly when sustainable intensification builds on pre-existing practices based on holistic approaches to managing natural resources. However, as shown in box 17, sustainable intensification also requires that smallholders develop the skills to understand how the different technological and ecological elements of a context-adapted intensification agenda fit together, and to make informed choices as to how to use the tools at their disposal. While this may be challenging, the results can broaden substantially the opportunities available to

BOX 17 **Towards a social movement of farmer innovation: Campesino a Campesino**

The Campesino a Campesino (CaC) or Farmer-to-Farmer programme started in 1987 with exchange visits between farmers from Nicaragua and Mexico in order to promote and disseminate appropriate technologies among poor farmers. The programme, a reaction to the top-down technology transfer model of the 1980s, sought to improve soil fertility, productivity and living standards, while reducing production costs and external dependency. The method has taken root throughout Central America and is applied by many NGOs and in some research and development projects. Today, the Movimiento Campesino a Campesino has several hundred thousand farmer-promoters, and has helped farming families in the rural villages of Latin America improve their livelihoods and conserve their natural resources.

The movement offers its members a vision of farmer-led sustainable agriculture, and it seeks to promote a culture of enquiry and experimentation. Its focus is particularly on strengthening the agro-ecosystem and enabling farmers to reduce, and where possible, eliminate the use of purchased inputs. Protection of the environment is a crucial part of the farm's function according to the movement, which is also underpinned by a spiritual element: members are motivated by deeply held beliefs in the divine, in family, in nature and the community.

CaC uses a diversity of approaches, including exchange visits and Participatory Rural Appraisal tools, and traditional communication media such as socio-drama, theatre, poetry and music. Farmers learn by sharing wisdom, creativity, knowledge, information and techniques. Farmer- promoters play a key role. These are volunteers who conduct experiments in their own fields to find solutions to agricultural problems they face, and then share their knowledge and experience with other farmers from their community, visiting them regularly and acting as mentors who provide suggestions and ideas to stimulate experimentation among other farmers. They also organize exchanges between farmers and give training on topics that might include soil conservation, cover crops, forestry, organic agriculture, cropping systems and diversification. Farmers themselves define the research agenda, manage the experiments and assess the results, either individually or in groups. Generally, they do not apply formal scientific methods.

The CaC process can result in radical change in farmers' perceptions of their role in technology generation and diffusion. Through their involvement, farmers realize that they are capable of experimenting, offering solutions, communicating and transmitting technological options to others. The attitude of dependency on external actors thus diminishes as farmers begin to identify themselves as experimenters. In fact, some farmers actually see CaC as a way of breaking the monopoly of the technology development process held by agricultural professionals.

Source: Hocdé et al. (2000)

smallholders to overcome poverty. The premium that sustainable intensification puts on knowledge and on innovation may also make it particularly well-suited to young farmers, who need to be in the forefront of adopting this agenda. For youth to be attracted to this agenda, however, it is also important to develop a new narrative around agriculture that highlights the modern and innovative character of the proposed agenda, and the potential of agriculture itself as a profitable activity in today's natural and market environment.

Moving the agenda forward: policy and institutional conditions

If there is broad agreement on the importance of sustainable agricultural intensification, and there are many smallholder farmers who have shifted their practices in this direction, there remain substantial challenges to scaling up these approaches in terms of policy and institutional change. High-level political support is critical, yet there is much scepticism about the profitability of sustainable agriculture,[260] and in many situations there may be commercial interests lobbying against it. In many countries, "sustainable agriculture policies remain at the margins, with recognition of need not yet to be translated into actual policies."[261] So a first challenge is to convince policymakers that a sustainable intensification agenda has an important role to play in complementing conventional approaches to intensification, and that it is not only necessary from an environmental point of view, but also *economically* sustainable. A starting point for promoting a shift in policy is ensuring that, at the national level, PRSs or national development plans not only address agriculture and rural development more substantively than in the past,[262] but also prioritize sustainable intensification approaches, and address issues of agricultural technology in that context.

A limited number of countries have made significant policy shifts towards sustainable agriculture. China's 11th Five-Year Plan (2006-2010) emphasizes the need to reduce the environmental impact of agriculture, and calls for the development of the production base for green and organic foods, greater adoption of water-saving and conservation agriculture, and the promotion of 'ecological agriculture' – a combination of environmentally beneficial integrated traditional and modern techniques. The Ministry of Agriculture has developed a certification framework for agricultural products, and a range of subsidies to promote organic fertilizer use and conservation tillage.[263] In Cuba, the Soviet Union's collapse led to severe shortages of petroleum products, agrochemicals and food; the government response was to declare an 'alternative policy' – an agriculture focused on resource-conserving technologies that substituted local knowledge, skills and resources for the imported inputs.

It emphasized the diversification of agriculture, the breeding of oxen to replace tractors, the use of IPM, the introduction of new practices in science and widespread training. Biopesticides and vermicomposts were locally produced; crop rotations, green manuring, intercropping and soil conservation were all incorporated into farming systems;[264] and the policy contributed to a 40 per cent increase in food production between 1995 and 2000.[265]

Many other countries have policies relative to some elements of sustainable intensification: the Philippines' government stopped its fertilizer subsidy programme in 2009 and it has introduced a 'balanced fertilization strategy', aimed at promoting the use and management of location-specific combinations of inorganic and organic fertilizers; in Bangladesh, the first of four new large-scale waste composting plants opened in November 2008;[266] in Brazil, three southern states support zero-tillage and conservation farming; in India, the state of Rajasthan provides support for watershed and soil management and incentives for biofertilizers; and Indonesia has banned selected pesticides and has a national programme for farmer field schools and IPM in rice. Finally, a number of countries have policy provisions supportive of organic agriculture, organic agriculture units in their ministries of agriculture, dedicated programmes and/or certification bodies. Bhutan even has a vision to 'go organic' nationwide by 2020.

As the examples above show, there is a wide range of policy and institutional measures that governments can take to provide an enabling framework for sustainable agricultural intensification. The framework, and the measures required, may differ drastically from one country to another, reflecting the challenges and opportunities facing smallholder agriculture in the country, the current institutional and policy framework, and the shared vision of national stakeholders about the degree and orientation of the transformation required. In this section, we review six possible elements of such a framework: land tenure, as a precondition for small farmers to adopt these practices; pricing and regulation, as a way of shaping farmers' technology choices; payment for environmental services (PES), for providing incentives to farmers to adopt sustainable agricultural practices; agricultural education, to build and transform the skills of rural children, youth, agricultural scientists and service providers; agricultural research, which needs to be better shaped for a sustainable intensification agenda; and agricultural advisory services, which can assist small farmers to develop their understanding of sustainable intensification practices.

Land tenure

Land access and tenure security influence the extent to which farmers are prepared or able to invest in improvements in production and sustainable land management, adopt new technologies and promising innovations, or access finance for on-farm investment and working capital. Since the full benefits of many sustainable practices accrue over

several years rather than immediately, secure tenure that provides the incentive for farmers to invest their labour and capital is vital for their success. Success of future endeavours to promote agricultural technologies for climate change mitigation and/or adaptation will also be predicated on security of tenure for rural men and women.[267] Security of access to land and other resources is also paramount for livestock producers to be able to participate in more sustainable intensification practices, including those that require better integration between livestock and crop production systems.

Acquiring more land is often part of the process of escaping poverty.[268] In most cases, this is most easily done by renting in land. On the other hand, small landowners who want to diversify out of farming need to be able to rent out their land without losing it – since it often represents important capital and a safety net. Land tenure systems that allow renting in and out easily, can contribute to creating an enabling environment for more farmers to take up sustainable intensification approaches, and there is also some evidence that they can facilitate poverty reduction. For example, land rental markets in China have improved tenant household welfare by a quarter, enabled landlords to diversify occupationally, and increased plot productivity by around 60 per cent. Poorer groups have also benefited, because as better educated people join the non-farm labour force, poorer, less educated farmers are able to rent in land from them. This suggests that land rental systems should be facilitated also in other regions.[269]

Randriamahefa tells how he migrated to rent land and how he had different deals with two owners. It was through the second, more beneficial contract that he finally made a breakthrough and returned home as someone who had succeeded. "I'd heard that the land up there was productive, so I headed for the fields and left the rickshaw pulling behind… I rented land [for] 50,000 ariary per hectare [but] we still split the harvest with the owner… So there I was, sitting on that land, paying the rent, and dividing the harvest with the owner… My friend supplied the oxen to turn the soil. Then… having stayed there, after two years things turned [out well], and I had seed after that harvest… with that I purchased two head of cattle and a single ox. Then my friend said to me, 'Even though you've made a little on this land, leave this land that is making you suffer. There is some land of a friend of mine [and] there it's only an even split [of the harvest], and without rent for the land as well.' So I went and planted that field that year, and it was a massive harvest! I'd planted two gunnies [of seed], and harvested 40 gunnies. And there is a buyer, a factory that receives the produce there… My suffering was relieved, I was happy… I bought a barrel again, a plough again, and brought them home, and my relatives said I was very successful for having brought home those possessions!"

Randriamahefa,
male, 49 years, Madagascar

Pricing and regulation

With agricultural technologies as with all else, prices influence demand. Subsidies on agrochemicals and inorganic fertilizers, or on agricultural water, all encourage their use, and indeed those subsidies played an important role during the Green Revolution. In some regions, phasing out those subsidies makes much sense (see box 18). In Asia, it has been suggested that doing

so, combined with introducing subsidies for biofertilizers, could be part of a targeted government policy for promoting ecologically sound, economically viable and sustainable food production.[270] As noted, China has already moved in this direction, with a series of incentives and subsidies aimed at guiding the technology choices of the country's farmers.

Pricing of technologies goes only so far; there is also need for regulation. Input-intensive agriculture has resulted in environmental costs in terms of groundwater depletion, agrochemical pollution, deforestation, greenhouse gas emission and health

BOX 18 **India's withering Green Revolution – how policies can provide the wrong incentives**

In the 1970s, India dramatically increased food production, which enabled it to achieve food self-sufficiency. However, over time, state efforts to continue the Green Revolution have backfired. In particular, three decades of heavily subsidized fertilizer provision have encouraged its overuse. Particularly in the case of urea, this has resulted in soil degradation that is negatively impacting yields on some crops.

In an effort to boost food production, win farmer votes and encourage the domestic fertilizer industry, the government has been increasing subsidies on urea over the years since the times of the Green Revolution, when the subsidies were needed to make fertilizers affordable to poor farmers. Over time, it has evolved to the point that the government pays about half of the domestic industry's cost of production. Last year, India's annual subsidy bill amounted to US$20 billion, due in part to the soaring price of hydrocarbons. Also last year, the government announced that it intended to adopt a new subsidy plan. However, allowing urea's price to increase significantly would almost certainly trigger protests in rural India. Hence, while the announced new plan ostensibly aims to give farmers incentives to use a better mix of nutrients, the government also left in place the old subsidy on urea.

Already in 1991, with the cost of the subsidies weighing heavily on India's finances, the finance minister pushed to eliminate them. Fertilizer companies lobbied fiercely to retain the programme, and many legislators also resisted, fearing a backlash from farmers. A last-minute compromise eliminated the subsidies on all fertilizers except for urea. That's when the imbalanced use of fertilizers began. With urea selling for a fraction of the price of other fertilizers, farmers began using substantially more of the nitrogen-rich material than more expensive potassium and phosphorus products. In the state of Haryana, for instance, farmers used 32 times more nitrogen than potassium in 2008-2009, much more than the recommended 4-to-1 ratio.

In Punjab, Bhupinder Singh, a turbaned, grey-bearded 55-year-old farmer, stood barefoot in his wheat field and pointed to where he had just spread a 110-pound bag of urea. "Without the urea, my crop looks sick," he said, picking up a few stalks of the young wheat crop and twirling them in his fingers. "The soil is getting weaker and weaker over the last 10 to 15 years. We need more and more urea to get the same yield." Land also needs to be watered more when fertilizer is used, and Singh worries about the water table under his land. When his parents dug the first well here in 1960, the water table lay 5 feet below the ground, he says. He recently had the same well dug to 55 feet to get enough water. "The future is not good here," he said, shaking his head.

Source: Anand (2010)

risks through indiscriminate agrochemical use. Environmental regulations must respond to the risks involved and provide effective control of non-point source pollution. They must establish penalties for pollution and environmental degradation that are commensurate with the costs they pose to society and – above all – the regulatory framework must be enforced, nationally and locally. Indonesia's banning of 57 pesticides in 1986 shows that such policies are feasible.

Product and process standards provide a mechanism through which national authorities can regulate the food system to pursue food safety and quality objectives, including promoting public health. Food safety and quality standards are also central to meeting consumers' demands.[271] The pursuit of both objectives can play an important role in promoting an agenda of sustainable intensification. Regulations relative to agrochemical residues in foods can encourage reduced use of fertilizers and pesticides; while food market regulations that respond to urban consumers' growing demand for high-quality and nutritious food and growing concern for sustainability, can also provide a stimulus to sustainable farming. Given the overlay of public and private food safety and quality standards that shape access to global export markets, it is essential to ensure that national standards are consistent with these, and to assist smallholder producers of crop, livestock and fish products to gain entry to these markets. This is also a policy area that may benefit significantly from interactions between governments and civil society.

Payment for environmental services

Some of the practices associated with sustainable agricultural intensification and improved rangeland management can provide important environmental services. They include watershed functions such as providing a reliable high-quality water supply, biodiversity functions and, above all, carbon sequestration. If smallholder farmers, livestock producers and poor rural communities were to receive payment (or other forms of compensation) for providing such services, this could be a significant financial incentive for adopting sustainable practices. The mechanism of payment (or compensation) for environmental services (PES) could be used as a vehicle for doing so.

Among national governments, China has perhaps the most extensive and well-developed system of payments and markets for ecosystems services, covering watershed ecosystem services, forestry, carbon, timber, landscape amenities, biodiversity conservation and anti-desertification services. Most of the programmes are domestically driven and funded. By 2007, over RMB 130 billion (around US$19 billion) had been spent on the flagship Conversion of Croplands to Forests and Grasslands, and over 9 million hectares of cropland had been afforested.[272] While the scale and range of China's ecosystem services are not easily replicable elsewhere, international opportunities for PES are growing. Increased resources are becoming available for

climate change mitigation under the so-called voluntary carbon market, which includes funding from the private sector and donors such as the World Bank's BioCarbon Fund. So far, the carbon markets have delivered limited levels of finance to the land-use sector and to small rural producers in developing countries. However, there are reasons to believe that this will change, given growing interest from investors and the emphasis on land use-related carbon projects, reduced emissions from deforestation and degradation (REDD), and agricultural mitigation projects in the United Nations Framework Convention on Climate Change (UNFCCC) process and in some national policy programmes.

Deforestation and forest degradation are the second leading cause of climate change, accounting for around 11 per cent of total greenhouse gas emissions,[273] and REDD has been recognized as a cost-efficient strategy to mitigate climate change. The 2009 Copenhagen Accord recognized the importance of reducing emission from deforestation and forest degradation and the need to enhance carbon sequestration by forests, and agreed on the immediate establishment of a financial mechanism for REDD-plus.[274] In the meantime, there are a growing number of projects focused on REDD-type activities, financed by a range of sources in the voluntary (private and donor-financed) carbon market (see box 19).

There is substantial interest in building on the forest carbon experience to encourage soil/agro-ecosystem carbon sequestration. This would in theory make it possible to pay smallholder farmers and poor rural communities for services such as conservation tillage, mulching, in situ composting, use of cover crops in fallow cycle, improved grazing/rangeland and watershed management, and avoidance of grassland, non-forest vegetation and wetland conversion. A soil carbon market already exists in the United States of America and Canada, and one is expected to start shortly in Australia. Such a market will almost certainly become global: the key challenge will be to ensure that poor rural people in developing countries are able to benefit from it.

In practice, poor rural people face significant risks and barriers in relation to carbon markets, and PES more broadly. Participation in such schemes often requires that participants have clear titles over land, which may disfavour those who have insecure or informal land entitlements. Also, PES contracts typically require long-term land management changes, which poor rural people may perceive as excessively risky. High transaction costs related to the development, registration and implementation of projects also create barriers. When contracts for payments are made with groups, moreover, eligibility requirements and power inequalities can exclude poorer people. In addition, certain types of PES schemes – notably linked to REDD – may have negative impacts on indigenous peoples' communities where they provide incentives for others to encroach on their territories by increasing the market value of forest areas.

BOX 19 Carbon sequestration through forestry: Trees for Global Benefits Programme, Uganda

The Trees for Global Benefits Programme in south-west Uganda has twin objectives related to PES and sustainable rural development. The programme supports low-income farmers to develop long-term sustainable land-use systems that incorporate carbon sequestration activities. Eligible carbon sequestration activities include agroforestry and small-scale timber; restoration of degraded or damaged ecosystems such as woodland; and conservation of forest and woodland under threat of deforestation. The 'living plan' (plan vivo) that is drawn up by each farmer shows the activities he or she will implement on the piece of land.

The plans are assessed by the programme implementing agency for technical feasibility, social and environmental impact, and carbon sequestration potential. If approved, farmers or communities sign a contract or sale agreement for the carbon sequestered through their planned activities. The development of a plan vivo is managed by Ecotrust, a local NGO, which provides farmers with financial and technical assistance and aggregates the carbon benefits of many communities or farmers through standard agreements. Private companies, institutions or individuals can purchase carbon offset certificates through the NGO, which also administers carbon payments directly to farmers.

The carbon offset certificates are issued by an independently administered entity (Plan Vivo Foundation), following a standard process to evaluate the carbon benefits of each plan, based on internationally recognized technical specifications. Every certificate has a unique serial number to denote the exact producer, which provides buyers with distinct proof of ownership of the verified emission reductions and avoids double counting of carbon credits. The emissions certificates sold on behalf of the farmers or community represent the long-term sequestration of one ton CO_2 equivalent. The cost per ton of CO_2 sequestered, ranges from US$6 to US$20, and includes the transaction costs for certification, verification and international support, local technical assistance, administration and monitoring, staged payments to farmers and a community carbon fund. An average of 60 per cent of the carbon offset purchase goes directly to the communities through instalments disbursed over many years. Payments to farmers are based on monitored results and later invested to improve and diversify farm incomes. Funding for the Plan Vivo Foundation comes from a levy imposed on the issuance of certificates and from implementing agency registration fees. The programme's total carbon offset potential amounts to 100,000 tons of CO_2 per year.

For farmers, short-term benefits include income from payments (an expected US$900 over ten years) and a range of in-kind benefits from the trees. Long-term benefits are soil conservation and restoration of environmental and ecological functions in heavily degraded areas, including run-off and soil erosion control, microclimatic stabilization, terrestrial biodiversity, and shade for coffee plantations. All these result in higher yields and superior quality. Other benefits are expected to derive from the sale of high-quality timber harvested at the end of the rotational period. Improved understanding of agroforestry principles and land management techniques is also leading to increased productivity and food security.

Source: Di Stefano (2010)

While there are significant challenges, the development of the forest carbon market shows that they can gradually be overcome. In addition, important lessons are being learned about how to make PES work: an IFAD review of pro-poor payments for watershed services highlights the importance of ensuring an appropriate and effective institutional framework at the community, catchment and national level, and it stresses that farmers (and poor rural communities in general) will likely require significant and sustained logistic, technical, legal and financial assistance to participate in PES. It also points to the need to get the incentives right for farmers in terms of providing short-term economic benefits and reliable long-term income.[275] These may not always need to be financial: under the World Agroforestry Centre RUPES programme, non-financial incentives have motivated smallholder farmers to adopt agroforestry practices. This learning process will continue. In addition, the likelihood is that funding for PES and carbon sequestration will continue to grow. In light of this, there is an important role for governments, civil society and donors to play in pushing for the development of carbon markets that are accessible to small farmers and that have a poverty focus.

"There should be agriculture-related subjects [in the school curriculum] so that we get more information on agriculture, its cultivation methods. Which crop is grown in which season? How to use pesticides?"

Salma Bibi,
female, 20 years, Pakistan

Agricultural education

From desert to green fields in Egypt

A new and broader approach to, and a new emphasis on, agricultural education and training are required for two reasons. The first is to provide the next generation with the skills, understanding and innovative capacity that they require to practice sustainable agricultural intensification – as well as to strengthen individual capabilities and human capital that are important for better addressing risk, achieving food security, and taking part in rural development and growth. Agriculture must be accorded prestige, and sustainable agricultural intensification must be recognized and presented as modern and profitable, so that the aspirations of rural youth – girls as well as boys – can converge around it. The second reason is to train a new generation of agricultural specialists, scientists and service providers, who can work with smallholder farmers in new ways to enable them to develop the skills needed to make sustainable agricultural intensification work.

In many developing countries, agricultural education and training (AET) has been neglected both by ministries of agriculture and of education, and abandoned by the donor community. School curricula are often designed for urban schools, and then applied without adaptation in schools in rural areas,[276] which means that they are unlikely to respond to the specific needs of rural youth in terms of either life or economic skills. In such a framework, there may no longer be room for the agricultural education that used to be a part of the school syllabus in many countries – a trend that requires urgent attention and reversal.

NGO-run rural education programmes can be found in many countries – particularly in remote rural areas and poor communities where the presence of government services may be weak. Many such programmes have a broader orientation than traditional agricultural education, and they start from the assumption that literacy and numeracy are prerequisites for developing other skills, and that literacy is also a precondition for empowerment. A review of such programmes in Asia confirms that those "…which integrate

"You understand things better [with education]… Working the land is a job. If you study you can improve your methods. You can change and be more efficient. For instance, in cattle breeding you can understand why you need a veterinarian. Take artificial insemination of cattle: it can help improve the breeds so that you can have a lot of milk. [Going to school was helpful because] I understand the logic behind whatever activity I carry out. And I am more efficient. I know how to use fertilizers for instance. I can make projections and set objectives for myself."

Oumar Diédhiou,
male, 22 years, Senegal

"Undoubtedly they can also farm but if they study well then farming will also be done in a better manner. If they do farming and if they have not studied, well then how can they do farming properly? A person can also get ahead with farming. It is not necessary that he goes away. Does well, does other things and not necessarily has a permanent job. We say that one may simply do farming but the education should be a good one."

Shazia Bibi,
female, 37 years, Pakistan

BOX 20 **Rural education in Colombia: the Tutorial Learning System (SAT)**

The Tutorial Learning System, or Sistema de Aprendizaje Tutorial (SAT), is a rural-oriented secondary educational system developed in Colombia by FUNDAEC, the Foundation for the Application and Teaching of the Sciences. At the time of SAT's inception there were few rural educational programmes, and those that existed by and large did not meet rural people's expectations. The SAT emerged out of a desire for an educational curriculum that is relevant to rural communities, helps create economic alternatives to farming and supports social organization, economic development and community well-being.

The SAT methodology fosters a co-worker relationship between students and tutors, who often also come from rural areas. FUNDAEC wrote a new curriculum for SAT, instead of simply layering a few basic rural vocational skills, such as animal husbandry or soil chemistry, onto a traditional urban curriculum. Rather than dividing subjects into traditional categories, like biology, mathematics and social studies, the SAT curriculum takes an integrated approach that combines all three subjects in, for example, a discussion of how insect populations reproduce (biology) exponentially (maths) given the right conditions (social studies and ecology). The result is an integrated curriculum that makes sense to youth raised in rural areas, and still covers the same subjects without losing any rigour. The curriculum also contains a strong measure of moral education, as it is organized around the concept of service to the community and emphasizes basic moral values like honesty, trustworthiness and trusteeship.

Through SAT, rural students gain comprehensive knowledge in agriculture, animal husbandry, soil chemistry and other fields traditionally associated with rural vocations. But SAT is also credited as energizing students, giving them confidence and helping them develop capacity to create microenterprises and participate in community development. Graduates also take on public posts in the communities and, with additional training, they can establish their own SAT tutorial programmes.

FUNDAEC has successfully implemented SAT in Colombia through a network of 30 NGOs with 400 tutors, in collaboration with the Ministry of Education, and it has benefited over 50,000 student participants in rural communities. It has now been implemented in seven other countries in Central and South America; and with the translation of SAT texts into English, some NGOs are experimenting with the programme in Zambia and other African nations.

Sources: http://www.fundaec.org/; Hanks (2006); One Country (1996)

imparting of literacy skills with aspects that directly impinge on the economic life of the people hold a greater potential to succeed than those with limited scope, focusing on illiteracy removal as the main goal."[277] In India, non-standardized, locally developed curricula corresponding to the priorities and life ways of both children and adult learners were found to be key ingredients of successful programmes.[278] These features are shown clearly in the SAT programme, which originated in Colombia (box 20).

Change is also needed in higher-level educational institutions to respond to the new environment for sustainable agricultural intensification, and to prepare agricultural graduates for new kinds of employment opportunities. In many parts of

the world, however, higher-level agriculture institutions have suffered from stagnation in the past few decades. There are exceptions: in China for example, the reform of higher agricultural education institutions has led to their greater autonomy in the areas of management, staff recruitment, fee assessment, curriculum development and teaching methods.[279] This has been partly due to a public vision of education as a driver of rural transformation, which has led to substantial efforts to educate rural people.[280] In sub-Saharan Africa, by contrast, many higher-level AET organizations have changed little since their establishment and do not address the challenges of today's agriculture. In many countries, there is a need for reforms that align AET systems with current realities, change the culture of the AET organizations, educate new professionals in new ways of thinking and doing, and enhance innovative capacity among AET practitioners, in order to address more effectively issues of sustainability and profitability in agriculture.

Agricultural research

Increasing productivity and scaling up sustainable agriculture requires increasing investment in agricultural science. Total global investments in agricultural research and development in 2000 amounted to US$36 billion. Of this, close to 40 per cent was in developing countries, of which 94 per cent (US$13 billion) was public. However, research capacity is highly concentrated, with just three countries – Brazil, China and India – making up almost half of the total developing country expenditure on research. Asia and the Pacific account for an ever-greater share of the developing country total (33 per cent in 2000), while the African share is declining and amounted to only 6 per cent in 2000. Moreover, support for public agricultural research in developing countries is being scaled back, or at best slowing down – a process that, as the Global Conference on Agricultural Research for Development (GCARD) made clear, needs to be urgently reversed. Finally, about half of agricultural research in the developing world is directed to crop improvement, and a further 15 to 20 per cent goes to livestock, while natural resource-related research makes up only 7 to 13 per cent.[281] If sustainable intensification is to contribute effectively to increasing agricultural productivity, there needs to be greater research expenditure, and more of it needs to be spent on the challenges of sustainable intensification faced by smallholder farmers in countries dependent on agriculture.

> "… Some people don't know how to utilize the resources of their own land, land that doesn't yield good harvests. But what do some of them do? They call some engineers, and they give them some kind of chemically processed fertilizers. But we have natural fertilizers here, animal manure or some vegetables, with which we can improve the land. So, in my opinion, people should have more training, so they will know more about the benefits, and also recognize the wrong things that they are doing."
>
> Eliany Portocarrero Novoa, female, 15 years, Peru

BOX 21 **Participatory rice breeding in the Philippines**

In the Philippines, traditional rice varieties have been collected by farmers and improved through farmer-centred participatory rice breeding, supported by NGOs and scientists. After 20 years, this initiative has grown to the point that more than 600 farmers' organizations (35,000 farmers) using organic production systems are involved, and other crops, livestock and integrated farming systems are covered. There are 223 farmer-managed trials in 47 provinces, with ten back-up farms serving as gene banks, each maintaining 300 to 1,800 rice varieties. A total of 826 varieties, including 284 rice crosses, have been released (compared with 173 varieties released by the government between 1955 and 2005). Farmers' yields are sometimes better than those of high-yielding varieties, and farmers' incomes are usually greater than those of conventional rice producers because of savings from non-use of chemicals and a lower cost of seeds.

Source: Medina (2007)

Over the past 50 years, approaches to agricultural research have evolved considerably, from a transfer-of-technology model, to farming systems research, to a variety of 'farmer first', participatory and multistakeholder research approaches today (box 21). Multistakeholder approaches are particularly important to link research to the strengthening of farmer capabilities, not only in the production process but more broadly within agricultural value chains. The various stakeholders – including farmers, research centres, private sector firms, service suppliers, government agencies, producers' associations or processors of agricultural produce – can all play an important role in identifying the bottlenecks in the value chains that hinder the development or adoption of new technologies. These approaches are also important for identifying market-based incentives for the development or adoption of these innovations. These are some of the findings of a recent experience of participatory innovation in fodder production supported by the International Livestock Research Institute (ILRI) in Ethiopia, in which the research and development agenda has been largely driven by multistakeholder platforms.[282] In this case, the need to address feed shortages through better fodder production was the entry point for participatory innovation, but over time the existence of the platforms provided an opportunity for the different stakeholders to address a variety of value chain problems (e.g. poor access to input and output markets and infrastructure) that discouraged farmers from investing in fodder production to intensify livestock production and to address feed scarcity. This supports the need for re-skilling in agricultural research organizations – e.g. to address issues of markets, institutions and finance, as well as the facilitation of multistakeholder processes.

An extensive review by the International Center for Agricultural Research in the Dry Areas (ICARDA) found that using participatory methods speeds varietal development

and dissemination to 5 to 7 years – half as long as the 10 to 15 years in a conventional breeding programme.[283] As a result, many agricultural research organizations are moving in the direction of multistakeholder or participatory innovation; however, they have not yet consistently built the demand for innovation among farmers and their organizations or the relationships with the private sector that are necessary to bring successful products to large numbers of poor farmers.[284] Much research remains focused on crops and livestock products that are not the ones of primary importance for poor producers, and women farmers are still, for the most part, marginal players in participatory research approaches. In addition, incentive and reward systems typically remain wedded to the standard metrics of research publication, rather than to the practice of research that puts women and men farmers first and promotes participatory approaches to innovation. Realizing the necessary changes requires new skills, partnerships and institutional configurations.

What would research for sustainable agricultural intensification look like? It is largely described as "transforming agricultural research for development" (TAR4D).[285] Aimed particularly at helping resource-poor households achieve sustainable food and income security, the TAR4D agenda operates on the principle that activities are best conducted where research results need to be applied and at the lowest level possible. It builds its priorities from the bottom-up through socially-inclusive processes involving the poor and disenfranchised. It brings into play a diversity of approaches, including combinations of traditional knowledge, conventional technologies, agroecological methods and modern biotechnology; and it integrates participatory approaches with scientific and experimental methods and links farmers' methods with scientific innovation systems. TAR4D brings to development processes greater sensitivity, active partnerships, commitment to building the capacity of partners (particularly the beneficiaries) and increased accountability for more and better results on all fronts: poverty reduction, productivity growth and environmental sustainability.

Agricultural advisory services

The standard, public sector model of agricultural extension based on technology transfer and delivery has all but disappeared in many countries. Some countries, especially but not exclusively in Latin America, have gone far in privatizing and contracting out advisory services.[286] Extension has been decentralized, and a variety of alternative advisory services have emerged, including private extension efforts run by agri-input and agro-processing/agribusiness companies, a vast assortment of NGO-supported efforts, services run by producer organizations, farmer-to-farmer exchanges and mobile phone and Internet-based services.[287] In practice, however, the range of service and information choices for poor farmers often remains very limited. Women farmers and marginal livestock producers are often excluded.

Fundamental to the sustainable intensification agenda, is the need for smallholders to build up their understanding of their farming systems and their capacity to innovate in their particular ecosystems, blending traditional and experiential knowledge with scientific knowledge in a dynamic and adaptive manner. Supply-driven, linear models of technology transfer are inadequate to this task, because of the high context-specificity of practices, risks and opportunities, and because smallholder farmers need to develop their own understanding of their farm systems rather than simply receive information. This is an agenda that requires direct links in the field among education and training staff, researchers, extensionists and smallholder farmers, as well as joint problem-solving. Farmer field schools (FFSs) are a form of adult education rather than an extension methodology per se; yet they

BOX 22 **Farmer field schools (FFSs) in East Africa: building farmer capabilities**

FFSs offer a group-based experiential learning process for smallholder farmers. They address a variety of topics, including animal husbandry, organic agriculture, soil and groundwater management and marketing. Farmers are at the centre of the process, supported by a range of partners. Many FFSs involve existing rural producer organizations or, in some cases, groups are formed ad hoc and may outlive the study period to evolve into producer or marketing associations. FFS successes have been documented in terms of learning, pesticide reduction, higher farmer skills and knowledge, and farmers gaining a sense of greater control over their lives.

A 2009 IFAD/IFPRI study assessing the impact of FFSs on agricultural productivity, poverty and empowerment looked at an FAO-implemented FFS project in Kenya, Uganda and the United Republic of Tanzania to support small-scale farmers. The study found that younger farmers tend to participate in FFSs, and that women make up half of the membership. Adoption is higher among FFS farmers for nearly all major technologies, notably for improved crop varieties, soil fertility management, pest control and livestock management. FFSs were found to be especially beneficial to women, those with low literacy levels and farmers with medium land size. Impacts on farmers with small land area were weak, probably because such farmers are resource-poor and have limited capacity to invest in FFS technologies. Overall, participation increased income by 61 per cent in the three countries, with differences at the country level. The most significant change was seen in Kenya for crops (80 per cent increase) and in the United Republic of Tanzania for agricultural income (over 100 per cent increase). FFSs proved to be able to adapt to new information, markets and policies. The experience also influenced rural development approaches in the region – Uganda and the United Republic of Tanzania are making strong moves towards institutionalizing FFSs as the main public extension approach. There are still concerns about the cost of FFSs in the long run and benefits to small-scale farmers, but mechanisms have been developed to address these issues such as one-time grants, self-financing FFSs or use of farmer trainers and capacity-building for smaller farmers to benefit from FFSs.

Sources: Braun and Duveskog (2008); Davis et al. (2010)

represent one approach to creating such links. In general, the FFS is a group of people with a common interest, who get together on a regular basis to study the 'how and why' of a particular topic. The approach is particularly suited and specifically developed for field studies, where hands-on management skills and conceptual understanding (based on non-formal adult education principles) is required. The impact of a FFS programme in East Africa is described in box 22.

There are ideas and positive experiences concerning how such advisory services can be organized to enable small producers to pursue the new agenda. The key challenges are to scale up successful experiences and institutional arrangements, to ensure that services are accessible by, and relevant to, resource-poor smallholder farmers and livestock producers – including women and youth – and that their governance arrangements and processes ensure accountability of services to smallholders. There is now a growing interest in agricultural services by both governments and donors. The Global Forum for Rural Advisory Services, formed in early 2010, represents an effort to provide a voice for extension in global policy dialogue, support the development and synthesis of evidence-based approaches and policies on extension, facilitate networking for institutional and individual capacity-strengthening, and promote an enabling environment for improved investment in extension.

The involvement of smallholder farmers as partners in agricultural research and advisory services is necessary for a sustainable intensification agenda to take hold. Producers' organizations – which range from the local and national to the regional and global – provide a mechanism for creating and articulating demand and improving the bargaining power of their members. The institutional capacity of such organizations varies immensely, and in many contexts there are legitimate questions to be posed about their governance, accountability and representation (notably of women, as well as of agricultural workers).[288] Organizations of rural producers are often not represented in the overall governance of research organizations, and rarely are they engaged in budget allocation and priority setting.[289] On the other hand, there are numerous successful examples of engagement of producers' organizations on various scales in agricultural innovation programmes, advisory services and research. For instance, in Senegal, rural producers' organizations have been involved in the reform of agriculture advisory services from the national through the local level, in setting the research agenda and the governance of service delivery. There is a need to further such opportunities to engage these organizations and to build their capacity and voice so they can better represent the interests of their members as clients and partners of research and service institutions.

Key messages from this chapter

First, a new and different approach to sustainable agricultural intensification is required to respond to rising market demand for crop and livestock products from a growing global (and urban) population, in the context of a weakened natural resource base, energy scarcities and climate change. Improved inputs remain very important in this context, and so are other components of the successes of Green Revolution types of intensification, such as supportive policies, robust investment in agricultural research and development, and infrastructural development. On the other hand, today's circumstances require an approach that increases resilience and promotes environmental sustainability, while increasing productivity. *It is of critical importance to address together the imperatives of producing more, and more effectively, and of preserving or restoring the natural resource base. This is especially important in order to put tomorrow's rural generations at the centre of a new agenda for rural growth and poverty reduction, as these generations need to inherit a viable environment in which they can find rewarding opportunities.*

Second, an agenda for sustainable agricultural intensification has been emerging for some time among researchers and farmers. It is characterized by: a more systemic approach to sustainably managing natural resources using an agroecological perspective and a more selective use of external inputs; efforts to maximize synergies within the farm cycle (including through mixed crop, livestock and sometimes fishery systems), and by a focus on adapting to the effects of climate change, including through greater reliance on varieties and breeds that are resistant to stress. Many of the farm practices aim above all at improving soil fertility, structure and water-retaining capacity using a combination of organic, biological and mineral resources; and at using water more sparingly and efficiently, and with less waste. All of them represent a complement, rather than an alternative to current input-driven intensification. Sustainable intensification requires that farmers capitalize on their local knowledge and social capital as well as on scientific research to address context-specific problems, so as to develop responses that are rooted in local agroecological conditions. *None of the existing practices constitute a blueprint for an agenda for sustainable intensification. However, these basic common features – a systemic approach, context adaptation, and linking farmers' own and scientific knowledge – all need to be part of this agenda.*

Third, a sustainable agricultural agenda has a lot to offer to smallholders. It can enhance productivity, by enabling them to gain from increased market demand for agricultural products while making the most effective use of local resources with selective reliance on outside inputs, which will reduce some costs. It can help build resilience to stress – including climatic variability – into farming systems, thus strengthening small farmers' capacity to manage risk. In addition, it can deliver environmental services (including some linked to climate mitigation), potentially

opening up profitable opportunities for small farmers, and providing new incentives for them to improve the environment that their children will inherit. As a set of principles and a toolbox of practices, sustainable intensification can be adapted to the local context, the different requirements and the levels of assets that men and women farmers have at their disposal. *Sustainable agricultural intensification should be taken as an approach through which women and men farmers in different contexts can broaden their options to better capture market opportunities while reducing risks, or strengthening their capacity to manage them.*

Fourth, promoting a sustainable intensification agenda requires, first of all, greater policy and political support. Also, adequate incentives and risk mitigation measures need to be in place for a shift to sustainable intensification to take place. This requires, in particular, more secure land tenure to encourage long-term investments, conducive pricing and regulations for the use of natural resources and agricultural inputs, and support for the development of PES opportunities and markets. Sustainable intensification is not easy for smallholder farmers: they will need to develop the skills to understand how to bring together their experience and knowledge with modern science-based approaches, and develop effective solutions to their problems. They will need better education, adapted to their needs; they will require new, farmer-centred learning approaches; and they will want their own organizations for learning, for linking up to external sources of information and resources, and for practices that require collective action, such as watershed management. This requires, in turn, strengthening agricultural education, research and advisory services, and fostering more collaborative dynamics among smallholders, researchers and service providers, with a focus on innovation, joint problem-solving, systemic approaches to agriculture and context-focused knowledge production and sharing. *While developing a conducive policy environment is primarily the responsibility of governments, developing capabilities for sustainable intensification requires building coalitions, sharing responsibilities and creating synergies among governments, civil society, the private sector – and above all – farmers and their organizations.*

Chachapoyas Province, Peru: Doris Consuelo Sánchez Santillán (second from left) runs a successful small business manufacturing and selling yoghurt and other dairy products locally. As a social commitment to her community, Doris employs unmarried mothers in her factory and students in her shop, many of whom would otherwise have limited opportunities.

Chapter 6

Creating opportunities in the rural non-farm economy

Doris Consuelo Sánchez Santillán, 36 years old, lives in Cheto, Chachapoyas Province, Peru, where she runs a successful small business making and selling yoghurt and other milk products. She employs mainly students and unmarried mothers in her factory, seeing this as a **"social commitment"**

to those with limited opportunities, and now also owns three stores in the region. Like most of her employees, she belongs to the indigenous Quechua community and comes from a poor farming family.

Doris set up her business with a female cousin after doing a community-based training on managing local resources in 2004. The first task was to win over and train local farmers, who were not used to selling milk. **"Sometimes their milk wasn't accepted,"** she says, **"and they had to prepare it once again because it didn't comply with the quality standards. But… now we have plenty of top-quality milk."**

They also had to persuade people to supply them with local fruit, such as papayas, cherries and pineapples, for use in their products: **"Those fruits were disregarded. When we asked the peasants to give them to us, they laughed at us… I mean the fruits that are grown [here] are fresh and tasteful, not polluted with pesticides. They are grown in family farms, or grow wild in the hills."** Now, she says, **"even the kids bring us fruit. They trade them for yogurt, or they sell them for money."**

Doris's aspirations are to **"open more stores, diversify our products, and try new fruits, such as púrpur or [the local] tomatillo and… have a bigger factory"**. Looking to the future, she says: **"I would like my business to have grown, give employment to more people, and that my children would be improved, I want them to follow a career that they like."**

Li Guimin, aged 50, lives in Donghao village, Hebei Province, China, where she has been head of the village women deputies committee since 1995. In addition to farming, she and her husband supplement their income with a small grocery shop and a tree nursery selling seedlings to other community members. Her two sons, both married, could not find work locally and have moved to a nearby town where they work as drivers.

Li and other women in the community would like to set up a cooperative for the production

of home-made cloth. **"We have made aprons, bags and bed covers. We're really interested in making this home-made cloth,"** she says, **"but we need the initial funds."** In addition to seed funds, they need training to improve the quality of their material, and training in marketing and promotion. **"Can we get the money back? That's the question that will be raised,"** Li acknowledges. **"We don't know the market."**

Li describes the difficulties faced by the rural poor in providing collateral to banks and other credit institutions. **"If you want a loan, you have to show your bank saving book. How will a person without a saving book go to borrow money?"**

Li has personal experience from the other side – as a businesswoman – of ordinary people not being able to repay their loans. She explains: **"My family used to sell construction materials, selling concrete reinforcing bars… Those who came to us were friends and relatives who wanted to build a house to help their sons find wives; they had to buy on credit. After that, you went to ask them to pay back the money. No, they didn't have it. They couldn't pay it back. As a result, we lost our capital and couldn't continue the business."**

They also rent out part of their son's house as a nursery school – not to make a profit, Li says, but in order **"to solve the problem of kindergarten"** and free up women's time. Significantly, the local government has supported her initiative by providing a minibus to transport children to and from the kindergarten.

Introduction

Agriculture will not be a way out of poverty for all rural people. Some smallholder farmers – particularly those with adequate levels of assets and access to transforming agricultural markets – certainly will be able to develop sustainable, commercialized production systems and these will allow them to move up and work their way out of poverty. Acquiring new land that enables them to expand their production and marketed surplus will in many cases be part of that process. On the other hand, many poor rural people have extremely limited, or no, access to land and markets, and they will not be able to rely on farming in this way. Instead, they will need to seek opportunities in the rural non-farm economy, in either wage employment or self-employment, that can provide them with their main route out of poverty. For youth, many of whom aspire to move beyond agriculture, the rural non-farm economy will be of particular importance. In most countries, the rural non-farm economy is expected to become increasingly significant over time, as a result of expanding agricultural production, a growing economy and the emergence of new economic linkages between urban and rural areas. As such, the opportunities that it offers for creating jobs and contributing to rural poverty reduction are likely to grow.

This chapter outlines the importance to rural people of the rural non-farm economy and of migration, and identifies a number of areas where policy initiatives are most needed to create economic opportunities in the rural non-farm economy and reduce the attached risks for poor rural people.

The rural non-farm economy

Typically, as an economy grows and GDP per capita increases, the non-farm economy also grows in importance within the rural economy as a whole. In agriculture-based economies, the share of rural income derived from non-agricultural sources may be only 20 to 30 per cent. Typically, it grows as a share of rural income as the economy grows, and in urbanizing economies it can be as high as 60 or 70 per cent (see figure 12). At the regional level, there is the least diversification away from agriculture in sub-Saharan Africa,[290] while the most diversification is found in Latin America and the Caribbean, and in the Middle East and North Africa.

Its importance to rural people

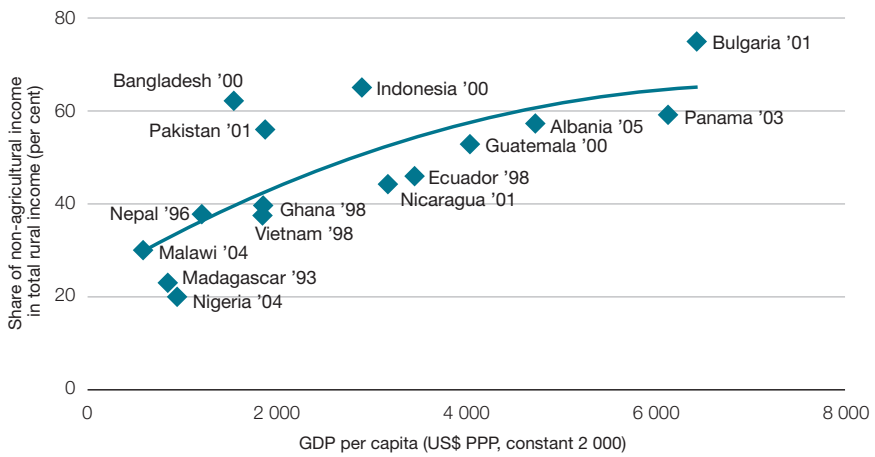
Many rural households already have a foot, and sometimes much more, in the rural non-farm economy. In most of the RIGA countries, a majority of households participate: in Asia and Latin America, typically between 50 and 60 per cent and in sub-Saharan Africa, between 25 and 50 per cent. However, only 20 to 25 per cent of

rural households in Latin America and Asia, and 10 to 20 per cent of households in sub-Saharan Africa derive more than three-quarters of their income from the non-farm economy. For a majority of households then, participation in the non-farm economy is either part-time or seasonal, and it serves to manage risk and diversify income sources. Essentially, most rural households have one foot in farming and the other in the non-farm economy. Overall, non-farm sources typically make up between 20 and 40 per cent of total rural incomes in different countries. However, in most of the Asian and Latin American countries in the sample and in China,[291] non-farm income sources now make up a higher proportion of total rural incomes than agriculture.[292]

Rural non-farm employment and self-employment are important across all income levels. They can be a critical part of the livelihood portfolio of wealthier households, and they can play key roles in the risk mitigation and risk management strategies of poorer households; in many countries, the rural households with the least diversified livelihoods are the poorest ones.[293] In many situations the rural non-farm economy is of substantial importance for women, and although men have the greater share of non-farm employment, women make up between 10 and 40 per cent of those employed in the rural non-farm economy, with the highest shares in sub-Saharan Africa and Latin America.[294]

In many contexts, migration is an important part of the rural non-farm economy, as a source of transfers to rural households in the form of remittances sent home by migrants. According to the RIGA data, almost 60 per cent of rural households in Panama, almost 80 per cent in Malawi and over 80 per cent in Indonesia receive

FIGURE 12 **Share of rural non-agricultural income by country per capita GDP**



Source: Valdés et al. (2008)

remittances. While those remittances are hugely important to many households, in most developing countries they make up only 5 to 10 per cent of total rural incomes.

Composition and characteristics

The rural non-farm economy includes both non-farm wage employment and non-farm self-employment (though it excludes agricultural wage employment), and it lumps together a highly diverse collection of activities, including trading, agro-processing, manufacturing, construction, and commercial and service activities. Of these, manufacturing typically accounts for only 20 to 25 per cent of employment, while retail trade and services make up 60 to 75 per cent.[295] Often highly seasonal, many non-farm businesses operate according to the rhythms set by the agricultural season.

The scale of individual rural non-farm enterprises varies enormously, from part-time self-employment in household-based cottage industries and services to large-scale agro-processing and warehousing facilities run by the corporate sector. But most are small: across all regions, something like three-quarters of them may be one or two people only, and self-employment is the general rule. Self-employment is particularly widespread

The diversity of the rural non-farm economy – some examples

"I took money from the bank and arranged to buy a flour mill [run on fuel] for my son. And this mill that is ours… some people bring their grain for grinding to us… This is my business… We [run the household with] the same flour mill."

Miandad,
male, 48 years, Pakistan

in the countries in the sub-Saharan Africa survey under RuralStruc. There are areas in Kenya and Senegal where it has become the backbone of rural livelihoods: activities span trading and transport of agricultural raw materials and manufactured goods, handicrafts, manufacture and repair of consumer goods, or provision of services to the local rural market.[296] Government services also provide significant rural employment opportunities in some countries: government employment generates 45 per cent of rural earnings in Egypt and 25 per cent in Pakistan. As a result, particularly in the transforming and urbanizing countries, non-farm wage employment is typically more important than self-employment as a source of household income, and wages are of the greatest importance in the service sector.

Even within the same country, there will be differences in the non-farm economy, according to differing natural resource endowments, population density, labour supply, location, infrastructure and culture. Non-farm enterprises perform better in densely

"… I cannot get a job because this education is insufficient. These days even matriculates are not considered, and even graduates are unemployed. And I have only completed primary. If I had studied further I could have become a teacher. With this level of education, nothing can be done."

Salma Bibi,
female, 20 years, Pakistan

"… after the harvests I am in my kitchen and my house as wife and a mother. But I also have a small trade activity that I carry out from time to time. We have a refrigerator, so I make ice cream to sell… I buy the necessary fruits and plants at the market, and they are expensive… I sell at schools, and sometimes at church. So children as well as adults are my customers. My ice cream is consumed by all social categories… Not everything in the house comes from the pocket of the man. There is a contribution from the woman."

Pascaline Bampoky,
female, 30 years, Senegal

"I found a job in the Zefta textile factory. Unfortunately I had to leave it as well, because the salary was very low. Afterwards, I worked as a casual labourer; making chairs from the branches of palm trees. This craft was common at that time and it helped me sometimes to earn a fair amount of money."

Ibrahiem Abo Zeid,
male, 55, Egypt

"My mother was the only one who could stitch. All the people used to get their stitching done by her… I learnt from my mother… Gradually I learnt. For a sweater… it took seven or eight days… In a month, if we look at the maximum, we could make six sweaters;… that also along with the house work… In this manner we passed our days."

Shazia Bibi,
female, 37 years, Pakistan

"I buy and sell *moukirr* (a bitter traditional healing ointment)… I sell essentially here in Bignona. The odd person may come to my place to buy it, but for most of the customers I take it to them… I go to those who prepare it and buy a good quantity. Then I bring it here to Bignona and put it into small bottles. Each bottle is sold for a dollar. Then I start walking into houses to offer the product."

Bintou Sambou,
female, 45 years, Senegal

"If the daughter was [considered] equal, and was studying, her life would also be better in the future… there would be benefits… She can get a job in a school or give tuition at home. So, for daughters the benefits [of education] are even more than for sons."

Rawela Jan,
female, 40 years, Pakistan

"Girls are always in a hurry to make some money by going to Dakar to work as maids. It's never too late to become a maid. The girl should first try hard at school, and if it doesn't work, then she can go work as a maid. Girls should also have higher ambitions than being maids. Why can't they aim to work in offices like men?"

Abibatou Goudiaby,
female, 21 years, Senegal

populated areas, where demand is higher;[297] their composition is often a function of this. Deep in the rural areas, the non-farm economy may be limited to small retailers, farm equipment repair services, and input supply firms; while in small towns, there may be other services such as primary schools, health clinics, barber shops, milling facilities, phone and Internet services and bars; and in larger towns, there may be all of these plus restaurants, wholesale distributors, higher-level schools and health facilities.

Different opportunities in the non-farm economy are open to different groups. Typically, education is key to accessing good employment opportunities in the non-farm economy. Poor people dominate many of the low-return activities such as cottage industries, small-scale trading and unskilled wage labour used in construction, portering and many personal services. The poor are more likely to be in casual rather than regular wage labour; while their businesses are likely to be labour-intensive and small-scale. For rural women, the non-farm economy is generally more important as a source of employment than agricultural labour markets in most regions, with the exception of South Asia;[298] however, as noted earlier in the report, gender inequalities may be reflected through differential access to employment and business opportunities, or lower wages for the same work.

What drives the rural non-farm economy?

Agricultural development has long been recognized as playing an important role in fostering development in the rest of the economy[299] through a series of linkages between it and other sectors. Agriculture also generally plays a predominant role in influencing the size and structure of the rural non-farm economy, by supplying raw materials for agro-processing, providing a market for agricultural inputs and consumer goods and services, releasing labour into other sectors of the economy and supplying – and reducing the price of – food to the non-farm economy.

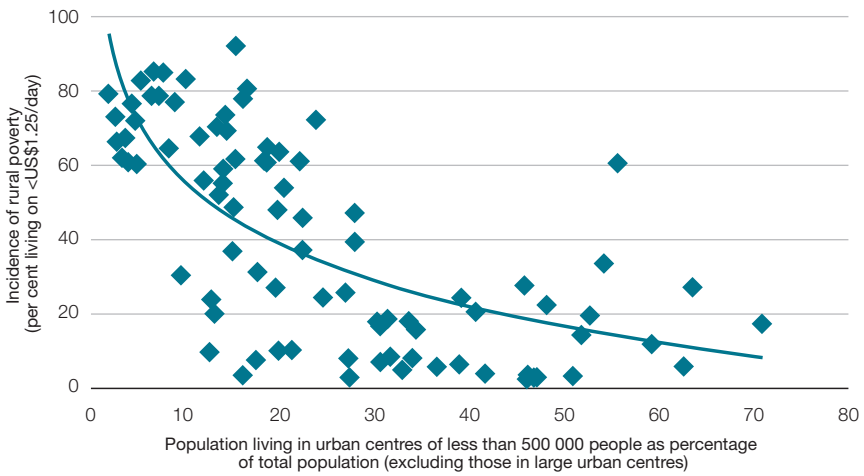
In regions where agriculture has grown robustly, the rural non-farm economy has also typically enjoyed rapid growth. The literature suggests that each dollar of additional value added in agriculture generates another 30 to 80 cents in second-round income gains elsewhere in the economy,[300] depending on factors such as

population densities and surplus labour availability. The relationship between agriculture and other sectors evolves through different levels of development: at low levels of development it encourages growth elsewhere in the economy; as countries grow, there is a more mutually beneficial relationship; and eventually, agriculture is of little importance as a motor of economic growth.[301] Conversely, slow income growth in agriculture leads to weak consumer demand, limited agricultural input requirements, little growth in agro-processing and stagnant wages. Under these circumstances, little dynamism can be expected in the non-farm economy, and poor rural households will be pushed towards survival strategies that will include low-return, non-farm activities and migration. All this suggests that, particularly in agriculture-based countries, where there is growth in the agricultural sector there are likely to be opportunities to catalyse the growth of the non-farm economy and create a virtuous cycle of rural growth and employment generation.

In addition to agriculture, however, there are today a number of other factors at national and global levels that may influence the shape and development of the rural non-farm economy.[302] The first is the process of urbanization, which can be an important part of a pattern in development for reducing rural poverty. Proximity to urban areas is positive for the non-farm economy: Indian villages close to towns and cities have a better record of reducing poverty than others,[303] and this is common in other countries too. Dispersed patterns of urbanization appear to be a particularly important force for the growth of the rural non-farm economy. Dynamic regional towns and small cities can provide widespread market opportunities – many of them agriculture-related – for products, services and labour, which can be accessed by rural households living within their orbit. Figure 13 looks at the relationship between dispersed urbanization – defined as the population living in urban centres of less than 500,000 as a proportion of the total population (excluding those living in cities larger than 500,000 people). The figure shows that the higher the proportion of the population living in dispersed urban centres, the lower the rate of *rural* poverty. This finding is consistent with other recent work that finds that migration out of agriculture into the rural non-farm economy and secondary towns is strongly associated with poverty reduction, while expansion of mega-cities is not.[304]

Improved transport and communication linkages between the rural and urban areas offer new opportunities for rural households, particularly in transforming and urbanizing economies. In India, for example, rapid rural non-farm growth is occurring along transport corridors linked to major urban centres, largely independent of their agricultural base. In South East Asia and China, high population densities and low transport costs have led to labour-intensive manufacturing for export markets being subcontracted to rural industries.[305] In Mexico, urban centres create manufacturing and service employment opportunities within a radius of

FIGURE 13 **Rural poverty incidence and dispersed urbanization**



Sources: Human Development Reports, UNDP: 1991, 1992, 2006, 2007/2008 and 2009 editions, statistical annexes; IFAD: Rural Poverty Report, 1991, statistical annexes[306]

150 kilometres.[307] However, the pattern is not a uniform one: the extent to which urbanization creates jobs and absorbs labour from rural areas is very heterogeneous. Improved transportation means that rural-to-urban commuting has become a reality: in some densely settled Asian and Latin American countries it has become a significant phenomenon. These opportunities are opening up in many countries, though probably not in the poorest, and for many people, though probably not for the poorest, since they typically lack the skills to take advantage of these opportunities. Many of the poorest people live far from urban centres, and many are also affected by discrimination in labour markets.

A second linked driver of change is liberalization and globalization. In different contexts, they may represent a threat to existing rural manufacturers and services but they also offer new opportunities for some rural suppliers or rural-based industries. The upgrading and integration of agricultural value chains and the associated concentration of processors, wholesalers and retailers have displaced many small rural businesses – from brokers to retailers, particularly in Latin America. Particularly in poorer countries, the products of traditional or artisanal manufacturers cannot compete with mass-produced, low-cost imports; the clothes that used to be made by rural tailors have been replaced by cheap, second-hand clothes from the north. On the other hand, new jobs can be created as new types of rural activity sprout up. Increasingly, these may be geared towards the export market: they range from local

crafts or artwork in East Africa, to the assembly plant (*maquiladora*) industries of Central America that make inexpensive manufactures for export markets. Tourism is of growing importance in every region, and can offer opportunities for employment and supply services, including for agricultural produce. Based on evidence to date, it appears that globalization and urban-led transformation are proving most powerful in driving rural growth in densely populated, rapidly growing economies such as China and India. In many rural areas of these countries, the correlation between agricultural growth and the growth of non-farm income and employment has become weaker.[308]

A third driver is improved communications. Rural areas in developing countries are seeing an impressive diffusion of information and communication technologies in mobile phone coverage and the availability of Internet access in cafes in small rural centres. These technologies are already having an impact on trading, by providing faster dissemination of accurate information about conditions in distant markets and the requirements to deliver produce to them. Mobile phones make it easier for many rural-based firms to receive and place orders and better manage their supply chains. In the last few years, schemes to use mobile phones to make money transfers have been started, as noted in chapter 4, which could reduce the often high cost and uncertainty of sending remittances home. There is some potential for relocation of urban services to rural areas once reliable Internet access can be provided. In India, for example, service companies have opened business process outsourcing operations in rural villages as a way of keeping down their costs. While their employees are likely to be well-educated, the creation of such jobs can lead within a few months to other types of jobs, which are more accessible to the less well-educated – restaurants or taxi companies, for example, emerge to serve the workers, further boosting the local economy.[309]

Fourth and last, the search for renewable forms of energy offers new opportunities for locally generated, locally consumed electricity and fuel in rural areas. Local hydroelectric plants, household-level biogas digesters for fuel and photovoltaic panels are already starting to change rural people's lives in all regions. A vast range of projects are promoting electrification, for example, using jatropha oil in India or sisal biogas in the United Republic of Tanzania; and while many will not be sustainable, others surely will. Biofuels will likely offer even greater opportunities and provide new markets for smallholder farmers when the second-generation technologies that can use low-value cellulose come on stream. Hydroelectricity generation, geothermal energy, wind power and solar capture, and tidal and wave power will all become increasingly important as technologies improve and cost structures change. Just as the number of mobile phones now far exceeds the number of fixed lines in many countries, so the future in rural areas may be one in which electrical supplies no longer need to be connected to a national grid and fuel supplies no longer need to be transported. Such a future could play a critical role in providing new rural employment opportunities in the industries growing up around power generation;

in generating power on which rural industries can be based; and in improving the living conditions and prestige of the rural areas.

The 2008 WDR recommended that agriculture-dependent countries focus on increasing the productivity of staple food production and on enabling the integration of landless labourers into dynamic agricultural export strategies. Only in transforming and urbanized countries was a shift out of agriculture and into off-farm activities, supported by secondary education and training, at the core of its recommended poverty reduction strategies. This report takes a more flexible position. While strong agricultural growth plays a key role in stimulating and promoting the expansion of the non-farm economy, the rural areas of many developing countries are changing, and new opportunities are emerging that suggest that growth in the rural non-farm economy is not dependent exclusively on growth in the agricultural sector. For these reasons, a less sequenced approach is proposed: one that seeks to catalyse the opportunities for both the agricultural and non-farm sectors to contribute to broad-based economic growth and poverty reduction.

The policy neglect of the rural non-farm economy

For a long period, there was limited policy emphasis on the rural non-farm economy in national development plans and PRSs – there was a "benign neglect of rural enterprise development…".[310] There are a number of reasons for this. First, there is the longstanding issue of 'urban bias' in public investment in infrastructure and services. This is attributed to a range of factors, such as the generally higher per capita cost of service provision in rural areas compared with urban areas, the isolation of rural communities and limited reach of central governments in some countries, and the inability of poor rural households to pay for services.[311] While today there may be new incentives for giving greater attention to, and investing more heavily in, rural areas, urban bias is likely to be an enduring feature of the political economic landscape in most countries, and it may be more productive to work with it than oppose it. This may entail, for instance, capitalizing on the development of urban services (e.g. business development services) to reach a wider clientele in an urban-rural region, when this is more cost effective than establishing separate rural services. It also entails capitalizing on the role that urban-based small and medium-sized businesses can play in generating demand for rural labour and products, and developing incentives for them to collaborate or subcontract with rural firms.

A second reason for weak policy and political response to the rural non-farm economy, is that the institutional environment in which the latter operates is typically fragmented and affected by the (often poorly coordinated) agendas of a variety of actors, such as governments at various levels, different ministries, NGOs and private firms.[312] Related to this, a third reason is that rural non-farm supply chains cut across space and often across government jurisdictions, from rural authorities to local townships, urban

municipalities and national ministries and agencies. This challenges policymakers to address the rural non-farm economy across diverse administrative units and institutional mandates and responsibilities; this can be more easily done where municipalities span rural and urban areas, as is common in Latin America. Further, the diversity and heterogeneity of the sectors that make up the rural non-farm economy makes it a difficult policy issue to address with one set of measures, even within one country. Finally, the sectoral and spatial dispersal of rural enterprises and the rural labour force limits possibilities for interest grouping, collective action and thus political 'voice', which in turn limits the pressures and incentives for politicians to respond.

While these reasons for the neglect of the non-farm rural economy remain valid in many countries today, there is also new interest in it. According to a recent IFPRI study: "In poor agrarian countries struggling with growing numbers of marginal farmers and lacklustre agricultural performance, such as those in much of Africa, policymakers view the rural non-farm economy as a potential alternative to agriculture for stimulating rural income growth. In countries whose economies are successfully shifting from agriculture to other sectors, policymakers see the rural non-farm economy as a sector that can productively absorb the many agricultural workers and small farmers being squeezed out of agriculture by increasingly commercialized and capital-intensive modes of farming. Given the often modest capital requirements in the non-farm economy, policymakers in both settings view the rural non-farm economy as offering a potential pathway out of poverty for many of their rural poor. Expectations everywhere are high… Policy interest in the rural non-farm economy arises in large part because of its increasing importance as a source of income and employment across the developing world."[313] It is therefore an appropriate moment to reflect on what might constitute some of the main elements of a policy agenda for the rural non-farm economy.

Promoting the rural non-farm economy

The importance of context

Weaving a future in Guatemala

There is no blueprint for promoting the rural non-farm economy. To begin with, the national economic context in which a region (or territory) exists can determine which factors may drive rural growth. For instance, in fast-growing and urbanizing countries like China and India, urban and industrial areas can generate strong backward demand linkages to rural areas, which can sustain rural growth even in the absence of a vibrant agriculture sector, given good infrastructure and market access. When the national economic context is stagnant, rural non-farm activity is more likely to depend on local drivers. Below the national level, however, the opportunities for growth in the rural non-farm economy can vary enormously. Understanding the territorial context is thus critical.

The starting point is to identify potential drivers of growth capable of generating a surplus that can be sold outside the territory or country, and then determine how to promote them. In many cases, the main driver will be agriculture, though the form that this can take will vary from context to context. For example, in the Petrolina-Juazeiro area in Brazil, local growth and poverty reduction have been stimulated by intensifying and diversifying agricultural production of high-value crops for export and the national market, combined with increasing wage labour in irrigated agriculture. In the Puno-Cusco corridor of Peru, growth has been driven by agricultural intensification and diversification into non-farm activities, combined with seasonal migration for wage employment in mining and agriculture. Agriculture has played a key role in both cases, but in different forms, and with different livelihood opportunities.[314] Beyond agriculture, the scope for developing other drivers, for linking these to other non-farm activities and for generating jobs and livelihoods for rural people through those activities, is determined by the national economic context, the economic base of each area or region and the distribution of assets.

This type of economic base is crucial to understanding rural growth opportunities and constraints.[315] For example, in resource-poor regions where an absence of fertile soil, water or exploitable natural resources prevents opportunities for resource-based growth, prospects for the non-farm economy may be bleak, particularly if national economies are also stagnant. Migration to urban areas may thus be a key strategy for local growth and poverty reduction in these areas, which requires policies targeted at developing local labour markets and skills and developing strategic infrastructure – notably road transport or telecommunications. In other areas, the economic base may be characterized instead by unexploited potential. This can happen, for example, where fertile soils, minerals, a strategic location or great natural beauty exist, but exploitation of this economic potential requires investment in infrastructure (irrigation or roads, perhaps), technology, human capital or marketing arrangements. In such cases, priority should be given to developing the region's specific potential, thereby creating new demands for non-farm outputs through intra-regional multipliers. Territorial development approaches typically aim precisely at developing such potential and capitalizing on such multipliers, by mobilizing a range of actors (rural and urban) and creating appropriate institutional and investment linkages. A third case occurs when a dynamic economic base already exists in agriculture, which stimulates widespread growth in ancillary rural non-farm activities. Large corporations also most frequently establish themselves in these settings, opening up new opportunities (as well as risks) for unskilled and small-scale rural non-farm producers.

Regardless of a region's economic base, the current distribution of assets, income, power and wealth may vary, as will the institutions that underlie asset and power distribution. This will have important implications for whether growth in the

non-farm economy reduces or increases inequality and poverty. In unequal settings, growth of the trading sector may trigger accelerating inequality as differential access to education, technology, capital and commercial and political power all translate into advantages for the elite. In addition, many of the non-farm activities of poor rural people are particularly vulnerable to changing circumstances that emerge during economic growth. For example, small-scale producers of hand implements or processed foods are not easily integrated into modern retailing systems because of the low quality and safety of their products; they may be rapidly wiped out as supermarkets and mini-markets begin to dominate. Policymakers concerned with equitable rural non-farm growth need to look carefully at education and training that can help people respond to change, and to opportunities and threats that may arise from competitive and complementary relationships between large and small enterprises.

Rural investment climate

If context is all, then the policies and investments needed to promote the emergence of a rural non-farm economy with economic opportunities for low-income rural people will vary accordingly. Yet, a good investment climate for private-sector activity is a starting point in all cases. This is critical to all rural businesses, from the one-woman microenterprise to the global agro-food corporation assessing investment options among different countries. The investment climate is first and foremost made up of an array of national policies – trade, macroeconomic, sectoral, labour, taxation, regional and others – that define the environment within which investment takes place. However, it also involves providing public goods – particularly infrastructure, public utilities and telecommunications; addressing governance issues (e.g. corruption, policy uncertainty, bureaucracy and crime); and initiating efforts to stimulate the rural economy and support businesses. These issues can have major significance. For instance, monopolies can be created unnecessarily through licensing and other forms of regulation. Links between rural and urban areas can be hindered rather than encouraged through controls on movement of people or goods or through anti-migration policies. Business expansion can be discouraged through sudden expansion of tax coverage, devolved government taxes and charges and corruption.

These are not just national issues. The investment climate may vary within a country, with different taxation regimes in different localities. Also, the way in which national policies are applied is frequently subject to local interpretation and mediated through local institutions. All these factors can create a local institutional environment characterized in the worst cases by a thicket of local taxes; business registration requirements which are used as opportunities for raising revenue rather than as tools to enable enterprises to flourish; multiple 'shake-downs' by public officials; and barriers to migration.[316] In addition, local politicians, prominent families and protection rackets can all play their role in ensuring that policies are

applied selectively or not at all, increasing the transaction costs of doing business, or quite simply stopping businesses from operating.

A survey of constraints to rural businesses conducted by the World Bank in Nicaragua, Sri Lanka and the United Republic of Tanzania,[317] found that the top five constraints were public utilities (particularly electricity), the availability and cost of finance, marketing, governance and transport. Other constraints included 'red tape', taxes and weak or misguided sector policies. While the relative importance of these constraints may vary in different contexts, in general they increase the risks and transaction costs of doing business, and ultimately constrain the emergence of the non-farm economy. Resolving those issues that matter most in specific contexts can help rural businesses flourish and create jobs for poor rural people, including many of today's children and youth who are unlikely to find pathways out of poverty through agriculture.

Building capabilities: strengthening access to education

Improved skills and education are consistently found to be prerequisites for individuals to access higher-income, off-farm activities.[318] With the second MDG being the achievement of universal primary education, it is perhaps not surprising that many developing countries, and especially the poorer ones, have focused their education efforts on this area rather than on others. Yet education also needs to be of good quality, and most primary schools attended by poor rural children have a way to go. In addition, many poor rural children do not get as long an education as they need, and second chances at non-formal education are often required. In addition, education through urban-based curricula will not necessarily best serve rural children, since much of its content is not immediately relevant to the opportunities open to graduates in the rural areas.

"My thoughts, what I dream of and think of, is that at the time I'll be older, will have changed my position, I'll be older having many children, and my children will all know something, they will all be in school, there will have been some progress… I'll have grown children who will support me. They will learn, get an education so they can work."

Ranotenie,
female, 46 years, Madagascar

Technical and vocational skills development (TVSD) is particularly important to develop the capabilities of rural youth to access economic opportunities both in rural and in urban areas. The term includes three main types of education or training: public school-based technical and vocational education, in the form of junior and senior secondary education; public vocational training centres and industrial training institutes; and training in the informal sector (most relevant for people who did not complete basic education), which often includes traditional apprenticeship training or traditional forms of training offered at artisan workshops. While access to primary education has improved across the developing world (though less so in rural areas), access to

good quality TVSD is typically less than adequate. This results in a paucity of skills relevant to modern labour markets among youth, which may lead to high unemployment rates and also hinder economic development. In Bangladesh, for example, a recent study found that lack of sufficient skilled labour has undermined the performance of the garment, textile and leather sectors on international markets, and it linked this to poor availability of TVSD programmes, the outdated curricula of existing ones, and lack of in-service training opportunities for workers.[319]

As is the case for academic education, opportunities for TVSD programmes are typically least available in rural areas. A first priority therefore is to improve their availability and accessibility for rural youth. Moreover, existing programmes and institutions face the challenges of how to provide an education that is relevant to the needs of rural children and youth, and how to respond to the needs of the rural non-farm and agricultural labour markets. This requires a transformation in terms of the scale, outreach and orientation of these programmes. New ideas and practices have emerged in the domain of skills development in recent years, with a shift from classroom-based to comprehensive approaches, combining workplace and classroom training with supplementary services designed to help students into employment; these have good results in terms of employability.[320] Much more policy support must be given to developing such approaches, and to extending their outreach to rural areas and to rural children and youth.

There have been a number of challenges to scaling up TVSD in developing countries. In many countries, responsibilities for rural vocational skills development are institutionally fragmented, a problem that is mirrored in the continued separation between the education profession and poverty-focused research and policymaking. Policymakers lack a holistic approach to education and training for rural people, and they are often sceptical about the value of TVSD and its cost: it can be considerably more expensive than general secondary education. Another issue has been the debate over the appropriate roles of the public and private sectors in providing and paying for TVSD; many experts, aid agencies and policymakers assume that it is best left to the workplace. Another question is how best to balance the supply of skills with demand in the labour market?[321] As the example from Ghana in box 23 shows, there has frequently been a focus on training for the formal rather than

"That is precisely the problem of being illiterate. You have no way of knowing. What are the possibilities out there? I can't know. All I know is farming… Of course I would do something better if given the chance. But I can't see how I will have the possibility of doing something else."

Abibatou Guodiaby,
21 years, Senegal

BOX 23 **The importance of informal training for the rural economy – the case of Ghana**

In Ghana, the informal economy employs almost 90 per cent of the labour force. Adequate education and skills training programmes targeting the informal economy are therefore critical for youth (rural and urban) to find good employment opportunities. However, while TVSD has been a concern of government in recent years, it has primarily targeted the formal rather than the informal sector, and despite the existence of a variety of public, NGO and private-sector programmes, informal on-the-job training represents the primary mechanism through which poor rural and urban youth develop their labour skills.

Within the informal economy there are three types of such training, namely: traditional apprenticeship training in service and manufacturing, trade-related informal training in retail and farm-related informal training. All three have a number of advantages over formal training programmes. They are directly relevant to the world of work; they enable youth to acquire practical, work-based competencies; they are low-cost and self-financing (through various trainee-master or within-family arrangements); and they nurture social capital and facilitate the establishment of informal business networks. Entry costs and opportunities are generally more favourable than in formal programmes to poor and rural people, including those without formal educational skills. On the other hand, these approaches tend to perpetuate traditional practices and technologies, encouraging replication rather than innovation and experimentation. Moreover, training is not necessarily delivered by people with good teaching skills, and the range of skills taught to trainees may be limited (including, in the case of girls, to traditional 'women's activities'), because of the context and specific purposes for which training is provided. Trainees also risk being exploited as cheap labour.

For skills training in the informal economy to play a more effective role as a stepping stone for rural youth and adults to move out of poverty, greater support needs to go to informal training mechanisms, seeking to address their limitations without doing away with their specific advantages. Moreover, adequate support needs to go to the informal economy in which training takes place, so that good employment and entrepreneurial opportunities are available to those with enhanced skills. An adequate skills development strategy needs to recognize the multiple (formal and informal) paths through which rural youth acquire their skills as workers and entrepreneurs in the informal economy, and build on the specific strengths of each rather than pursuing mainstream formalization. In addition, it needs to recognize the importance of occupational pluralism in rural livelihoods, and seek to enhance both flexibility and breadth in existing formal and informal training.

Source: Palmer (2007)

the informal sector. Further, technical training has been considered by many governments and citizens as second-class education compared with more academic education.[322] In Africa (and arguably elsewhere), governments have been unsure about whether it is best to invest in general education or technical and vocational training to foster development and poverty reduction.[323]

International aid agencies have also given TVSD little attention. The changing policies of agencies such as the World Bank, which in the 1990s reduced its investment in TVSD and began investing heavily in primary education, have also fed the scepticism in developing countries about investing in TVSD.[324] The International

Labour Organization (ILO) notes that international strategies intended to reduce poverty largely ignore the need to develop skills.[325] Indeed, according to a United Nations Educational, Scientific and Cultural Organization (UNESCO)-FAO report,[326] education and training are generally among the most neglected of rural development interventions by national governments and donors.

There are no quick fixes to the current situation of TVSD for rural areas and rural people. However, the UNESCO 2010 Education for All Global Monitoring Report[327] identifies four critical areas for improvement. First, training needs to become more relevant to the needs of the market and to the requirements of employers, including those in the informal sector; employer involvement is thus essential. Second, raising the quality of technical and skills training is essential to remove the stigma attached to it. In addition, TVSD needs to provide a broad base of skills relevant to employment, not just a set of specific technical skills. Third, basic education needs to be greatly strengthened so that poor children have more incentives to continue in education and greater chances of completing it to progress to secondary or technical schools. High levels of literacy, numeracy and broad-based education have been key to the successes of TVSD in East Asia. (China in particular has two-thirds of the TVSD students in developing countries, building on its greatly improved quality of basic education.) And fourth, opportunities for TVSD need to be broadened, for example, through 'second chance' programmes for young people who have fallen out of educational systems. Currently, TVSD is typically even more biased than general secondary education against girls and poor people: there are few places available in these programmes, especially in establishments with good reputations, and access is frequently skewed to wealthier groups.

> "I'm educating my children, so they don't follow a life like mine, their father, who doesn't know how to read. So they must go out, they will succeed; they will gain a profession through their schooling. They may migrate for work but they will not be lost because they can read… and use… that to support themselves, in the land they migrate to. If they can thus support themselves, they will also support their parents through their education."
>
> **Tovoke**,
> male, 44 years, Madagascar

In the meantime, the private sector and NGOs have picked up the slack. There has been growth in the private sector's provision of TVSD in many countries.[328] Programmes at scale include Brazil's employer-led National Industrial Training Service (SENAI), and its rural apprenticeship programme, the National Rural Training Service (SENAR), which is managed by agricultural employers and has agricultural cooperative members on its board. It includes social promotion programmes, in which women are given preference.[329] To some extent, NGOs may also help cover some of the public deficit in rural training. While information is dispersed, NGO training in rural areas is known to be diverse, covering a wide range of subjects and using very different approaches – from experiential learning to formal teaching, from

developing overall awareness and analytical and problem-solving abilities to learning highly specific and practical skills. Much of it is relatively small-scale, and it may be neither easily replicable nor sustainable. However, much of it is innovative and can provide important lessons for national policy development.

The missing middle: supporting small businesses

Enhancing the capabilities of poor rural people through education and skills training will be of no use if not matched by an increase in opportunities in the rural economy – both on-farm and in non-farm sectors. Micro-, small- and medium-sized enterprises are likely to play a critical role in generating such opportunities: stimulating and supporting the development of such enterprises is thus critical.

"I believe that the main problem facing my children and other children in the village is the unemployment. We have a lot of young people who finished their universities and yet they are still hanging around the village with no jobs. This problem will not be solved unless the government encourages these young people to establish their own business and projects."

Ibrahiem Abo Zeid,
male, 55 years, Egypt

At present, there are not enough small rural businesses being created, and not enough businesses are able to progress beyond relatively informal family-based structures to more formal organizations generating employment for others beyond the family. Encouraging and assisting more rural people to start businesses is thus a first priority. Business competitions focusing on specific geographic areas can offer the winners training, coaching, mentoring, introductions to financiers and business development service providers. Large companies can also stimulate the growth of small and medium-sized rural enterprises with which they can contract.[330] Scaling up beyond the micro level is often easier for educated business owners who are not afraid of employing professional managers and using specialist services to help manage risks. But there are also many aspects of the business environment that may discourage increased scale, particularly taxation and regulation. The less educated businessman or woman may be less ready to deal with these, and may prefer to remain under the tax or regulatory threshold. Social protection measures can help stimulate demand among the poorer sections of society, and can protect small entrepreneurs and labourers in case investments do not work out.

Also critical to managing risk and reducing transaction costs is infrastructure – the utilities to run workshops, factories and offices, and the facilities and systems to enable communication and transportation of goods. An energy supply for decentralized electricity systems is also important; these can provide essential services to small businesses and to the rural economy in general, but also market opportunities for those businesses as providers of services. An interesting example in this case is the Rural Energy Enterprise Development (REED) programme, supported

BOX 24 **Decentralized electrification and renewable energy for poverty reduction**

Many rural areas are not connected to national electricity grids – at least 1.5 billion people are not connected. In sub-Saharan Africa, only one in five people has access; in South Asia, two in five.[331] There is a growing consensus that the market alone will not provide the services needed to adequately expand electrification to rural areas. On the other hand, for many governments the costs of expanding centralized public grids to rural areas – particularly in remote areas and where the population is sparsely distributed – may be difficult to bear. In recent years, many governments have started to subsidize or otherwise support the development of decentralized and mini-grids in rural areas. Several have also invested in renewable sources of energy for rural electrification – as a win-win solution in light of growing concerns about climate change. Brazil's Luz para todos (light for everyone) programme, for instance, targeted 2.5 million rural households, and supplied one-tenth of them from renewables. China's Township Electrification Programme provided renewable power to 1 million rural people, and other countries have followed similar paths. Today, China and India, with two of the largest populations of poor rural people, are among the top six countries in the world investing in renewables. Also in those countries, electricity from decentralized grids is a significant source of energy in many rural areas.

Countries have invested in different renewables, depending on which energy sources are most cost-effective to develop in each context. For instance, solar power has appeared as a particularly attractive option for governments and some private investors in West Africa. Asia has focused more on hydropower; in China, a third of all hydropower is from small plants, helping to electrify remote and mountainous rural regions. Elsewhere, wind power and biofuels have drawn investment for rural electrification through decentralized approaches.

Decentralized energy systems can have multiple positive impacts on poor rural households and can also stimulate the rural non-farm economy. For example, a diesel-powered 'multifunctional platform' (operating on jatropha), established in Burkina Faso, enabled longer working hours for certain farm-related activities (e.g. grinding cereals, de-shelling nuts) and generated possibilities for non-farm activities (e.g. welding, vehicle washing). Use of the platform also resulted in saving women's time for certain activities (e.g. de-shelling nuts, fetching water), freeing more girls to go to school, particularly since the introduction of a water tower operated through the platform. Another study of the impact of multifunctional platforms in Mali found an average of two to six hours of work saved per woman beneficiary, increased levels of girls' school attendance, and additional non-farm income during the dry season. Also in Mali, data from a sample of 12 villages showed that using multifunctional platforms helped increase per capita incomes by an average of US$0.32 a day and helped increase agricultural productivity, food availability and consumption.

Sources: Brew-Hammond and Crole-Rees (2004); Porcaro and Takada (2005); UNDP (2009)

by the United Nations Environment Programme (UNEP) and a range of partners in Brazil, China and five African countries. Under the programme, debt and equity investments are made in small and medium-size clean energy businesses interested in providing commercial energy services to unserved rural communities.[332] A number of other examples are described in box 24.

"I would like to have a bigger factory, so we could send more products to other places. This would permit me to create more employment for more women and more families of our suppliers, and thus, would help my beloved home village Cheto to grow and develop."

Doris Consuelo Sánchez Santillán, female, 36 years, Peru

Besides energy infrastructure, the soft infrastructure of business development services, including entrepreneurship and management training, is also important for the development of rural enterprises. There are well-tested approaches to reducing the costs of hiring service providers for individual small and medium-sized enterprises, such as supporting business associations to provide appropriate services. However, these services are more often available in towns and cities than in rural areas. Providing incentives to urban-based providers to extend their services to rural areas is often the most efficient way to ensure that rural entrepreneurs gain access to these services, but alternatives may be possible, depending on the local context (e.g. the state of infrastructure, the type of services in which urban providers specialize and their greater or lesser suitability for rural businesses).

In Latin America, IFAD and PROCASUR (a Latin American training organization specialized in rural development) have developed an innovative mechanism, the Learning Routes, to capitalize on successful micro and small entrepreneurial

BOX 25 **'Resource centres' and rural microenterprise development in Burkina Faso**

It is not easy to establish enabling institutional and infrastructure conditions for microenterprise development. In Burkina Faso, a broadly favourable policy and economic context emerged in the 2000s. The IFAD-funded Rural Microenterprise Support Project (PAMER) took advantage of this, targeting rural women, youth, microentrepreneurs and poor farmers in need of alternative sources of income with business development services.

In 2006, to ensure the sustainability of new enterprises and stimulate private-sector interest, PAMER established five resource centres in Garango, Ouargaye and Pouytenga in the Centre East region and in Orodara and Duna in the Western region. The centres provide a range of services, from support in setting up accounting systems and managing stocks, to help in identifying market opportunities.

By 2008, PAMER had supported or helped people create around 2,700 microenterprises, with good results in terms of increased incomes. Women represented about two-thirds of microentrepreneurs accessing the services.

Key success factors have been robust market demand for business development services in rural areas, which urban service providers could not meet; and the existence of rural service providers whose capacity could be nurtured relatively easily. Centre sustainability has been achieved by charging negotiated fees and enabling access to poor people while not subsidizing or crowding out owners of more developed enterprises, whose involvement has aided the financial viability of the centres. Given its success, support to 60 new centres is underway, funded by the government and IFAD.

Sources: IFAD (2007); UNDP (2009)

experiences in donor-funded projects, and as a springboard for the development of local technical assistance markets for small enterprises.[333] The Routes involve the organization of structured, peer-based exchanges through field visits to different localities, during which Route hosts provide ideas and concrete technical support to their visitors to implement small and group-based entrepreneurial projects. While initially facilitated and sponsored by the donor, the interaction between hosts and visitors gradually evolves into a market-based relationship between service providers and clients. Also in Latin America, in the Puno-Cusco corridor of Peru, IFAD has found that devolution of public funding to local communities and individuals for contracting technical assistance for small entrepreneurial projects can stimulate local demand for services to small enterprises, and thereby contribute to the development of local technical assistance and financial markets.[334] Box 25 provides another example of business services set up in rural areas in the context of an IFAD-supported project.

Within business development services, finance is critical for small rural investors and it is often in scarce supply. Financial markets are typically thin in rural areas, and formal banking systems are often loath to invest in small rural entrepreneurs because of perceived business risks, absence of easily verifiable collateral (a problem faced particularly by youth and women) and, very often, a lack of a formal credit history. To the extent that finance is available – either through banks or from MFIs, it is usually too expensive for anything other than short-term needs. Except for those involved solely in trade, there is a mismatch between the financing requirements of rural enterprises and most of the financial products available in the market: microfinance products for medium- and long-term lending are as yet thin on the ground, although microleasing is starting to become more widely available. As a consequence, the vast majority of rural enterprises continue to rely mainly on household savings and the resources of friends and neighbours, both for start-up costs and operating capital.[335]

> "We rural women… if we do something, what should we do? Everything needs investment. But we don't have the money. Take our home-made cloth for example… Now our products are still coarse. We can do fine ones by using cotton to spin thread by ourselves. Where can we get the funds to start?… We don't know the market, we have to try. We are really interested in making this cloth. But we need the initial funds, need people to design good products and need people who know marketing and promotion."
>
> **Li Guimin**,
> female, 50 years, China

Enhancing opportunities and reducing risks in wage employment

There is increasing recognition that economic growth, which translates into poverty reduction, is associated with the quantity and quality of new jobs created and with the barriers that prevent poor people from accessing existing opportunities.[336] Within the non-farm economy, wage labour can offer significant opportunities for rural people to overcome poverty in some settings. However, the returns from farm work

and non-farm work across regions and sectors vary significantly; and typically in the wages paid to women and men in the same context. Many jobs that are available to poor rural people are insecure, require low skills and offer low wages and minimal prospects of development. The vast majority are in the informal sector, and they typically benefit from little or no protection either from labour laws and inspections, or from social protection, except where there are non-job related schemes in place. Many of the most precarious jobs have been 'feminized'. Women account for 60 to 80 per cent of workers in the horticultural agribusiness, where they are concentrated in low-skilled jobs and rarely receive the training that would allow them to move up to jobs requiring qualifications. The work is seasonal and often with very long hours. Women are frequently paid half as much as men, who have a monopoly on skilled activities such as operating machinery, applying pesticides and maintaining equipment – all jobs that are secure and bring social benefits. Women are also over-represented among low-paid or unpaid home-based workers.[337]

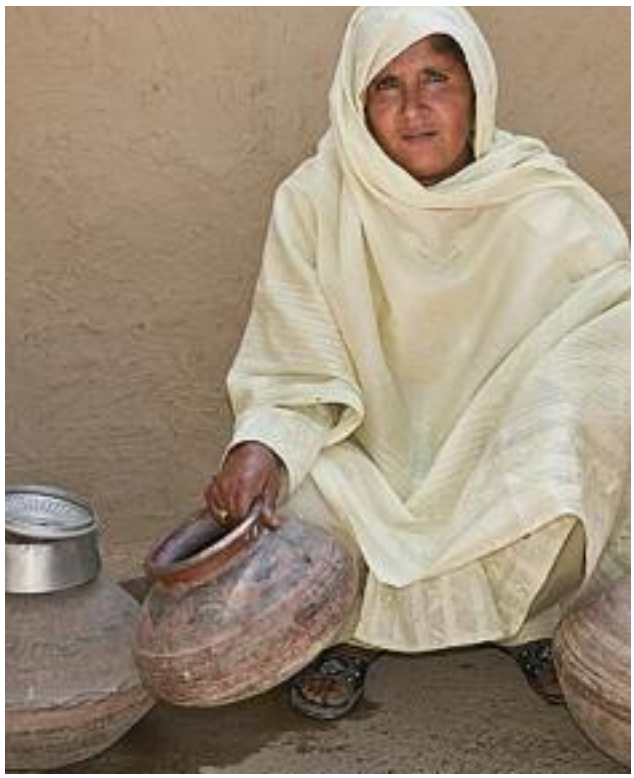
Informal employment in local segments of global agricultural value chains is an important source of opportunities for non-farm jobs in some regions. On the other

"Then my husband went out of the village for labour. Some days he would get work and some days he would not. He would earn a little money and with that we would run the household needs… That time was difficult."

Rawela Jan,
female, 40 years, Pakistan

"When we do labour outside, then we can only earn when we work. And they stand on our heads to make sure we work. We have to work for 12 hours. They also give salary at their own discretion. We do not receive salary on time. Sometimes they give after a month. Sometimes 10 to 15 days after month-end. The household is not run this way. We need money every month to run the household."

Muhammad Naveed,
male, 22 years, Pakistan



hand, this sort of job often does not lead to the hoped-for economic empowerment of poor rural people, but rather involves them in low-security, unstable, poorly paid and sometimes hazardous activities.[338] Enforcing labour standards can be part of the solution to this problem. However, a proper balance needs to be sought in context between enforcing standards – which reduce risks for workers but may increase costs for employers – and providing incentives to employers that offset increased costs (e.g. by increasing workers' skills and performance). This in turn often requires innovative forms of collaboration among governments, the private sector, NGOs and organizations of poor rural people. Labour standard enforcement also needs to be tailored to avoid exclusionary effects. For instance, a study of the impact of the Ethical Trading Initiative's codes of labour practice on workers in a number of value chains in Costa Rica, India, South Africa, the United Kingdom and Viet Nam showed that regular and permanent workers (few of whom were women) were most likely to benefit, while casual and migrant women workers were less aware of their rights, less in a position to claim them and vulnerable to abuse and poverty.[339] An exclusive focus on labour standard enforcement as a tool to reduce risks and improve employment opportunities for poor rural people can also have negative externalities. For instance, if standard enforcement concentrates in urban areas and/or on large firms, these may respond by subcontracting to smaller firms, notably rural, which may face less pressure to comply, and these may in turn rely largely on informal and casual labour – simply exporting the problem to less easily monitored firms and more poorly connected areas.

There are cases in which informally employed workers have achieved protection or successfully negotiated contracts that improve the quality of their employment. The case of the Indian Self Employed Women's Association is a much quoted case of relative success, which indicates the importance of organizing among informal workers to negotiate better working conditions with employers. NGOs and other intermediaries – including donors – can play supportive roles in helping strengthen collective capabilities and in reducing costs and providing incentives for better interaction between workers and employers. Both are critical, if access to employment opportunities is

Manantane Babay describes how one villager managed to make the transition from pulling rickshaws to buying them, then selling them or renting them out, gradually accumulating more funds – all of which he spent on buying livestock.

"What he did first was go to Majunga and pull a rickshaw – indeed he did have a few cattle with his father but not many. So he pulled a rickshaw and he had no problems, and his income was steady. So he purchased rickshaws until [he had] many, then he sold off all of them and came home to purchase cattle. He then returned again and purchased a rickshaw for renting out, then he returned again and purchased cattle. His cattle increased in number, as did his sheep and goats."

Manantane Babay,
male, 19 years, Madagascar

to be made less risky and more rewarding for poor rural people, and if incentives are to be strengthened for the private sector to engage.

Governments have an important role to play in enabling, or at least not hindering, the development of collective capabilities that are important to reduce the vulnerabilities of poor wage workers (e.g. through appropriate labour organization laws), while also improving the overall environment for employers to operate and generate decent job opportunities. However, as we noted earlier in this report, individual capabilities are as important as collective ones in the process of moving out of poverty. The rural non-farm economy is no exception. When it comes to rural women, for instance, education is positively associated with participation in high-productivity employment, increases women's chances of entering formal labour markets and stable agricultural employment, and also helps access urban employment.[340] For youth too, education is crucial for accessing better employment opportunities and reducing their vulnerability to labour market-related risks. Governments and other actors can contribute to improving human capital and individual capabilities in order to provide greater incentives for the private sector to

"They began with chickens, and sold them for a ticket to a job in the north, and earned money there. They came back and bought cattle with some and merchandise with the rest. When they go to market they need not hire but have their own *sarete* (ox cart) for transporting their goods. They may purchase goods at the market, and again it's their *sarete* which carries it all back to town, and their selling ever improves."

Suzanne Tsovalae,
female, 23 years, Madagascar

generate good employment opportunities, because employers also have a stake in the availability of a workforce endowed with skills that match market demand.

Migration, remittances and investment

Migration has become a widespread and important livelihood strategy in most regions, and countries as varied as Mali, Mexico, Morocco and Nicaragua all have around 10 per cent of their population living abroad.[341] In general, migration is driven by the need to manage risk through diversification of livelihood strategies at the household level, especially when there are limited diversification opportunities nearby. In addition, migration is driven by the inequality of opportunity across locations: migration rates are typically highest in the poorest regions of countries. The ability or freedom to migrate is not, however, randomly distributed across a relatively poor population. Those who migrate are typically not the poorest,[342] and being able to migrate may be conditional on having an existing network of migrants with whom to relate. Being able to migrate may also involve up-front costs – payment to labour contractors, for example. And there may be ties that keep people from migrating, such as disabilities or duties of caring for children, older people or the sick. These duties typically bear more heavily on women.

Most migration is within country, or to nearby countries (almost 50 per cent of migrants from Nicaragua go to Costa Rica and two-thirds of migrants from Mali go to Burkina Faso and Côte d'Ivoire, for example),[343] and in some areas the majority of remittances to rural areas come from this type of migration. Moreover, almost all of remittances from in-country migration goes to rural areas, compared with only 30 to 40 per cent of international remittances on average – though there are important variations in this regard among regions. However, international migration (mostly but not exclusively to developed countries) can also bring important contributions to rural household income and rural economies in some areas, such as parts of Latin America and the Caribbean, and the Middle East and North Africa. While few poor rural households in poor countries are able to participate in this sort of migration, extended kinship networks can make it possible by putting together the investment capital to send poorer kin abroad. In Senegal, for example, this is established practice.

Migrants are active creators of the new, increasingly global society, linking the lives they have in the areas where they work with their home lives through their remittances, ideas and investment.[344] Migration can bring improved health, education and reduced poverty, both directly – for migrant households – and indirectly, for the local economy. In Latin America, migration is leading to increasingly strong ties between wealthier (migrant-receiving) and marginal (migrant-sending) communities. In other regions, and particularly in sub-Saharan Africa, remittances often play an essential role in supporting food security in many poor rural households, and also help them face

adversities such as low agricultural yields and the inherent risks of farming. Indeed, for some households remittances may be the only source of income. Studies have also found that in South and South East Asia, each migrant created an average of three jobs (whether on- or off-farm) in his or her area of origin through remittances. In Mexico, moreover, remittances have been found to create second-round income effects that favour poor people, both inside and outside the rural economy.

Given the value of remittances to rural people, this is an important area for greater efforts by governments, in partnership with other actors – MFIs, other financial institutions and providers of banking and communication technology. Initiatives are needed to reduce the costs and risks of transferring remittances to poor rural areas and to harness the benefits of remittances through improved financial services (including savings and insurance). Although some innovations have emerged in this domain in recent years (box 26), there is still a great need to invest in more effective and efficient technology solutions to reduce transfer costs, and to link remittances to effective financial services and profitable investment opportunities. These need to be accompanied by complementary changes in legislation to allow non-banking institutions, such as credit unions and MFIs, to pay remittances.

BOX 26 **The Financing Facility for Remittances**

The Financing Facility for Remittances (FFR) is a US$18 million IFAD-hosted, multi-donor facility that has been in operation since 2006 with the goal of enhancing the impact of remittance flows to developing countries. The FFR cofinances projects with the public and private sectors and with civil society organizations. It focuses on promoting innovations that help to reduce the cost of remittance transfers, establish better linkages between remittances and financial services in rural areas, and create opportunities to maximize the development impact of remittances for rural households and communities.

As of early 2010, the FFR portfolio included 40 innovative projects in 38 countries that: (i) promoted access to remittances in rural areas; (ii) linked remittances to rural financial services and products; and (iii) developed innovative and productive rural investments opportunities for migrants and community-based organizations.

For instance, in Haiti the FFR has supported the MFI Fonkoze in introducing an IT platform to provide financial services for receiving remittances, along with savings accounts, to households in isolated rural areas. In West Africa, the FFR works with regional postal networks to help rural post offices – which are typically well-distributed in rural areas – to extend their remittance services to poor rural households. In Nepal, the Facility is supporting the Centre for Micro-Finance in promoting migrant savings and investments, by training community-based institutions to diversify remittance management services and to raise awareness of migrant families to access a variety of services through MFIs. The FFR projects also promote the integration and use of new technologies, such as mobile money transfers and mobile banking, that benefit remittance recipients in rural areas.

Source: IFAD (2010c)

The impact of remittances on agriculture is mixed and highly contextual. In some cases, migration, which in most regions mostly involves men, and remittances foster on-farm investment and agricultural production. In others, the opposite occurs: migration leads to an immediate decline in (mostly male) labour availability, for which it may not be possible to compensate in the short term. Remittances are in some cases used to hire on-farm labour. However, the general trend seems to be that they accelerate a move out of agriculture – or foster forms of agriculture that take on a subordinate role to off-farm activities.

The social costs can be high, as families are divided when typically only some individuals migrate. In addition, when men migrate (as is most often the case) and remittances are low, poverty may increase back at home, which may result in food shortages and increased child labour. More generally, and as mentioned above, migration can result in labour shortages, for instance on family farms, which may have negative consequences in terms of income and food security. Child labour

The costs of migration

"… Of course, travelling abroad would have provided me with the financial resources to build a better house… in addition to buying some luxuries of electrical appliances and furniture… [but] I did not want to leave my family and kids alone. I preferred to stay close to my family rather than to travel after money. I know a lot of men who travelled abroad for work and made a lot of money, but when they came back to the village they found that their children had becomes drug addicts or left school. I did not want that to happen to me and my kids."

Ibrahiem Abo Zeid,
male, 55 years, Egypt

"Our village is our own… because it is the land of our ancestors. We cannot leave it. Wherever a person works, he returns to the village. Our happiness and our sorrows are in this village. Our relatives live here, which is why we cannot leave this place. We have our own land, that's why we will live here and not go anywhere else."

Muhammad Naveed,
male, 22 years, Pakistan

"One doesn't have any relatives out there. If I died while away, there would be no one to bring my body back here, to my fatherland. There are no relatives there, if one gets in trouble, there is no one to save you in that land of no family. But here, if one dies, my neighbours will not let my body rot there but will bury it. And there is no one who sees you not having eaten for 2 or 3 days that won't say, 'Here's some hot water, drink that and you will see the morning'… But in the land of strangers there is no one to do that to you. It's only by your own energy that you survive."

Tovoke,
male, 44 years, Madagascar

"The men have left to work outside the village. The main labour force here is women. Men have gone to earn money… They go to find some work. They can only earn some money doing odd jobs. Those in good health can find work, but for those in poor health, they… just drift along, muddle along. They can't think too much about their future."

Li Guimin,
female, 50 years, China

migration can be very damaging and contribute to the intergenerational transmission of poverty. However, in some cases it may lead to better education opportunities thanks to increased household income – as has sometimes been found to be the case for young seasonal migrants in parts of Asia.[345] Migrants may also be subject to abuse and harassment in their host regions, and they often face prejudice and discrimination.

Circular (or temporary) migration either within-country or to a neighbouring country is especially accessible to poor rural people, and it is often the kind of migration that fuels local economic growth. In China, internal migration – especially of young, low-skilled rural labour to coastal, export-processing industrial cities – has been a major factor feeding rapid economic growth in the past couple of decades. Internal migration in the country has grown dramatically in this period of time, but much of it has a circular character, as rural migrants retain strong links to their families, and as there are inequalities in citizenship entitlements between rural migrants and urban populations.[346] In South Asia, low-skilled migrants dominate seasonal labour flows, mostly from agriculturally backward and poor areas to increasingly urban centres, industrial zones and coastal areas. High-productivity agricultural areas continue to be important destinations, but more migrants are opting for non-farm employment because of greater returns. Unlike in East and South East Asia, people with limited education dominate seasonal labour flows, and they mostly find employment in the informal sector. In sub-Saharan Africa, high rates of internal migration have a long history in many countries, with regional migration occurring from countries with limited local work opportunities, especially in the Sahel. Even in the Middle East and North Africa, internal movements are often more significant than international movements.

There are a range of experiences of migrant support programmes from which policymakers can draw to design initiatives to make migration (notably internal migration) more beneficial for poor rural people and to reduce the attached risks. Migrant support initiatives have typically focused on providing migrants with information and other kinds of practical support. For instance, the NGO Tenaganita in Malaysia undertakes research, advocacy and action to prevent, solve and address abuses of migrants and refugees. In India, the United Kingdom's Department for International Development (DFID)-funded Migrant Labour Support Programme provides information on wages, rights and work availability to migrants from poor parts of western India. The Aajeevika Bureau and Disha Foundation have set up migrant support projects offering skills enhancement training in Rajasthan and help in accessing government schemes in Maharashtra; both have succeeded in raising the profile of migrant workers and their problems in policy discussions at the state and national level. There are also initiatives that have sought to involve policymakers and relevant agencies in better supporting

migrants: the International Labour Organization-Chinese Government CP-TING project aims to build the capacity of government agencies and policymakers, so that they can play a more supportive role vis-à-vis young female migrants and reduce their vulnerability to trafficking.[347] Some Indian NGOs, like Prayas in Rajasthan, believe that unionizing migrant workers can help them realize their rights and prevent exploitation. Prayas has set up a union of cotton pollination workers, one of the main objectives of which is to regulate the supply of labour and so maintain the bargaining power of the migrants. It has enrolled over 1,500 recruiting agents and has put out a charter of demands. In 2007, the NGO set up checkpoints at all the border crossings between Gujarat and Rajasthan to monitor movement of child labour. As a result of these efforts, employers have offered a partial hike in wage rates and negotiations continue.

These examples indicate that much can be done to support migrants, with benefit for them and their households. Governments are typically best placed to support migrants in their own countries – when migration is from poorer to less poor areas in the same country – or, in some cases, across neighbouring countries. Governments can ensure that migrants gain access to services, including information on their rights and on available labour opportunities, and that they are able to claim the same rights and entitlements as non-migrants. They can facilitate, or at least not hinder organization of migrant workers, and they can carefully monitor and punish labour trafficking.

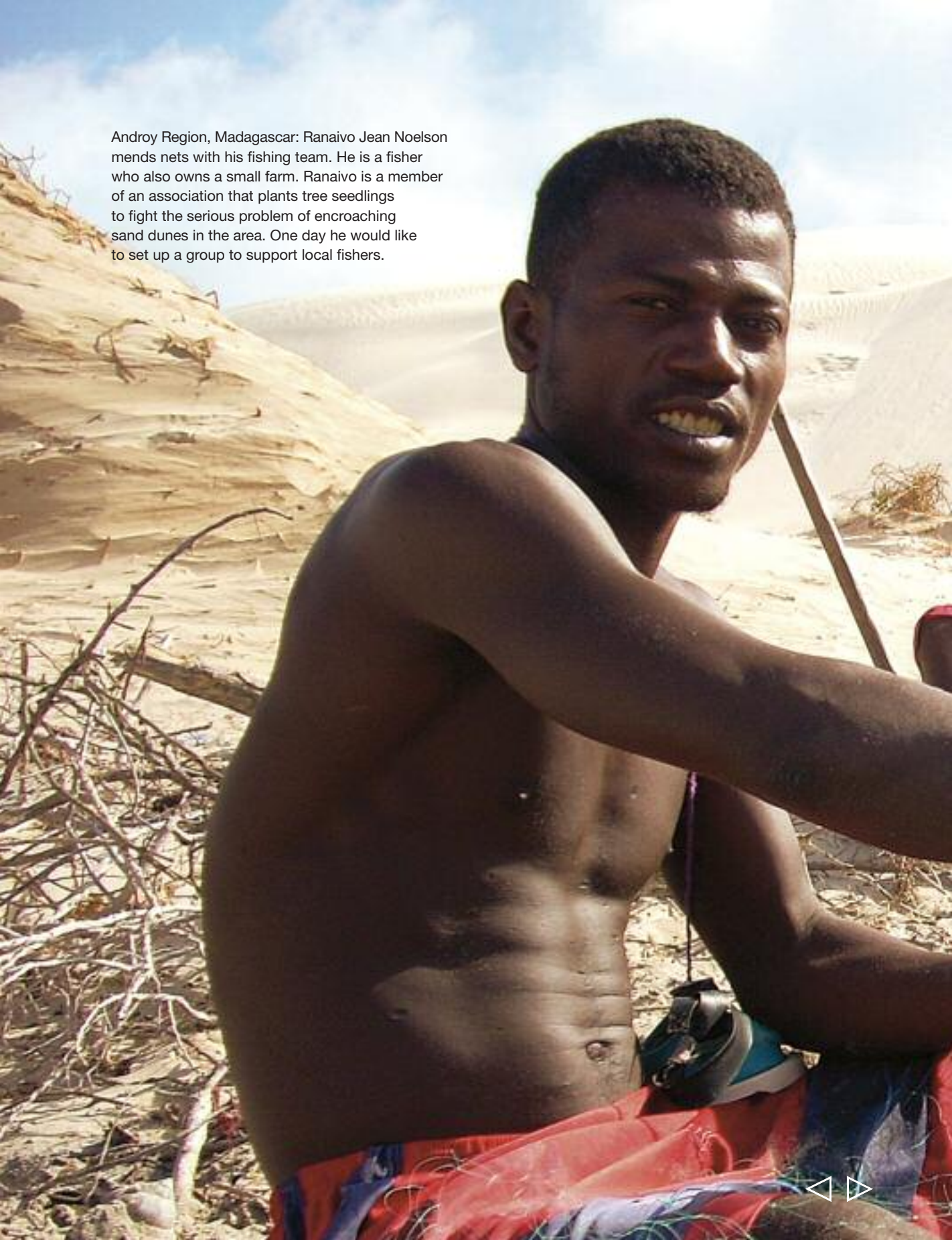
Key messages from this chapter

First, *there is plenty of evidence that the rural non-farm economy is important for better risk management and opportunities to escape poverty.* A large number of rural people are involved in the non-farm economy, and it is growing in importance. It is going to be particularly important as a source of opportunities for today's rural youth. However, this sector is often neglected by policymakers, because of urban bias, institutional fragmentation, and the weak 'voice' of rural labourers and small entrepreneurs. While all these factors continue to hinder greater attention to the development of comprehensive agendas around the rural non-farm economy, addressing them is feasible. For instance, urban bias can be harnessed by extending the reach of urban services, such as business development services, to small towns and their hinterlands. Institutional fragmentation can be managed by setting up lead agencies to focus on the rural non-farm economy. Finally, the collective capabilities of rural labourers and small entrepreneurs can be developed through policies and institutions that support or facilitate their organization and access to services, and also by the promotion of decent work standards. *In short, addressing the neglect of the rural non-farm economy in many countries is critical, feasible and within the reach of policymakers.*

Second, while agriculture remains a key driver of non-farm economic development in many contexts, *today there are also other important drivers, which can enable the non-farm economy to flourish* even in parallel with agriculture-led growth. The first driver is urbanization, and more particularly dispersed urbanization, which promotes the growth of small or medium-sized centres with less geographic concentration than in the past. The growing integration of rural and urban economies in many regions is of huge importance both for the rural non-farm economy and for agriculture-driven growth. The second driver is liberalization and globalization, which allow some non-agricultural value chains to integrate rural areas in developing countries or to create ancillary employment and service opportunities around these chains in rural areas. The third is improved communication and information systems; a particularly important factor is the diffusion of mobile phone infrastructure and coverage in rural areas across the world. Fourth, increasing investment in decentralized, and particularly renewable-based, energy systems is an important driver for the rural non-farm economy. *Opportunities for the development of the rural non-farm economy vary enormously across countries and across territories within countries. The various drivers combine in different ways in different contexts, yet generally they provide a new environment in which it is possible to devote renewed attention to the rural non-farm economy, by identifying and capitalizing on the local drivers and by understanding the opportunities and risks for poor rural people.*

Third, *harnessing new drivers requires improving the environment for the rural non-farm economy, thus strengthening incentives and reducing risks for the actors involved.* This involves, in part, improving the overall environment of rural areas, through better infrastructure and services (e.g. for energy and transportation) and through better governance. It also involves addressing aspects of the environment that particularly affect actors in the rural non-farm economy. Here, improving the business climate is of paramount importance to encourage private investment at all levels. So is the provision of business development and financial services suited to the needs of small entrepreneurs. For firms, the possibility of acquiring a labour force with appropriate skills is critical. For workers in the non-farm economy, an improved environment is one in which they find good employment opportunities, but also one in which their rights and ability to organize is recognized, and in which efforts are made to address the prevalence of poorly paid, insecure and unregulated jobs (often particularly available to women) in the informal sector. Migrants seek an environment in which their rights are recognized, their ability to organize is supported, and their ability to send home remittances easily and at low cost is enhanced. *Clearly, creating an improved environment for the rural non-farm economy requires the efforts of many actors. The roles of government actors are often critical, but in many cases they involve facilitating, catalysing and mediating initiatives taken by others – e.g. firms or rural workers' organizations.*

Fourth, *strengthening the capabilities of the actors involved in the rural non-farm economy is just as important as improving the environment for it*. In this regard, education and skills are particularly important, because they enable rural youth and adults to access good employment opportunities, and enhance their capacity to start and run their own businesses. In many countries, much improvement is needed in the type and quality of education that is accessible to rural children, youth and adults. TVSD in particular needs to be substantially improved and better tailored to the needs of rural people (both those who wish to remain in their areas of origin and those who seek to migrate) and to the requirements of changing rural and urban economies. Reforming and scaling up TVSD requires coalitions within governments and with the private sector and NGOs. In particular, private firms can benefit a great deal from increased engagement in TVSD programmes, to ensure a better match between the demands of labour markets and rural people's skills. For firms (including men and women and microentrepreneurs), better access to enhanced business development services and financial services are crucial aspects of building capabilities. For workers (including migrants), enhanced organization capabilities are very important, both in the formal and informal sectors, and for women as well as men. *Again, building capabilities for or within the rural non-farm economy is not a task that any single actor can undertake. Rather, it requires various, often innovative forms of collaboration, in which governments can play a key role, but often as facilitators, catalysers and mediators.*



Androy Region, Madagascar: Ranaivo Jean Noelson mends nets with his fishing team. He is a fisher who also owns a small farm. Ranaivo is a member of an association that plants tree seedlings to fight the serious problem of encroaching sand dunes in the area. One day he would like to set up a group to support local fishers.

Chapter 7

What needs to be done, and how?

Eliany Portocarrero Novoa, age 15, comes from a peasant farming family in the Amazonas region of eastern Peru and is a weekly boarder at a state secondary school for gifted students.

Eliany wants to see **"economic and educational levels"** raised in her community. She is concerned about the low standard of most primary schools, where children are just taught basic numeracy and literacy, and the lack of secondary schools. **"Without education,"** she comments, **"a person can do nothing… by studying you will get a good job and make money to support your family."** Her class at school has recently set up a mobile library for the local community.

Eliany says her parents are **"doing the same activities that their parents and ancestors did for years"** and believes they would **"improve their life quality"** if they ever gave up farming. Although she says she would like a professional career such as accountancy, where you sit **"in front of a computer… and don't suffer burning sun or pouring rain,"** she is keen that the newly established *panela* (unrefined cane sugar) processing industry in her community should grow, with the support of the Association of Panela Producers.

Eliany belongs to a youth association, which among other things is involved in environmental regeneration. She speaks passionately about the need for environmental protection and sustainable farming. **"We are not using the forests in an adequate and proper way. We cut trees and burn down woods every day, we are plundering nature… climatic changes are occurring for which we are to blame, with our activities… the seasons don't follow one another properly, so the crops get spoiled… First, we should receive some guidance through talks, so that people become aware of the damage… then we should set goals and put them into effect. For instance, we could sow plants and reforest… [and use] natural fertilizers [to] improve the land…"**

Ranaivo Jean Noelson, age 23 and a father of three, lives in Faux Cap, Madagascar. He is a fisher and also owns some land that he farms. He would like to increase his livestock, acquire more land and have better farming equipment: "And following my dreams, I believe I'll have cattle, about 20… My thoughts are to build a stone house, to have a *sarete* [ox-cart], like other people. I'll buy fields – about five – and purchase a team of oxen to work [them]."

Ranaivo is a member of the recently formed 'Dune Association', which is tackling the serious problem of sand dunes invading farmland by planting tree seedlings. He is keen to promote communal farming: "What I'd like to do to improve this village where I live is communal work… We'd acquire land for a large field that could be worked cooperatively. Then any harvest from that field would go into a cash account, and we'd use that as seed money to get more work for the future."

He has several other ideas about how to meet the community's needs, some of them requiring external support. "If I were the director, given that *raketa-mena* [red prickly pear] are becoming thick here, I'd suggest we clear that plant out first. I'd also ask for a clinic, for we are far from any health facility… then I'd try to set up an association of fishermen, for there'd be money in that, and I'd like a canoe. We'd ask for a net, we'd ask for masks, we'd ask for fishing lines: that's what I'd request for our association. Such an association might improve us. If I were the leader of development for the commune of Faux Cap, I'd create that association first. Then we'd do work on the land… on those sand dunes… "

Creating opportunities for tomorrow's generation

Alternative employment in Ghana

We started out this report stressing the paradox of a world in which demand for goods and services related to agriculture is growing, natural resources are increasingly scarce and valuable, and yet rural areas across the developing world remain hosts to the majority of the world's poor. We referred to the 2006-2008 food crisis, which hit both urban and, in many countries, poor rural people, and which provided a stark reminder of the overall marginalization of smallholders in agricultural and food markets – not only global ones but also urban markets in their countries. In the aftermath of the crisis, a variety of initiatives have been taken to step up agricultural production, stabilize food markets, and/or reduce poor people's vulnerabilities to food price shocks across developing countries. And yet, the challenge of addressing rural poverty while also feeding a growing world population in a context of increasing environmental scarcities and climate change continues to await adequate responses.

Hopes and plans for the future of today's rural youth

"My hopes are to see an integrated region, with much employment. Especially the authorities that rule our region – they should work with a lot of effort, but in an agreed manner with the civil society, not separately. And yes, I see a good future because… I have hope that the youth who are developing and coming out from the universities have a different vision of our future, a new way to see our region… Well, I have hope that this society will change, though I know it's very difficult – but not impossible. We have to work very hard on that…"

Elsa Espinoza Delgado,
female, 23 years, Peru

"I can see me in 10 years time: the rains have come, and we have possessions, and all kinds of seed are in the market, and I'll be saying, 'Look at that seed we've never tried, let's get some of that,' and we do, and we save it for the rains… to plant it when the rains come."

Suzanne Tsovalae,
23 years, female, Madagascar

"If I had money I would buy a buffalo. I will sell the milk to run the household… If someone has a buffalo, he can run the household satisfactorily… The wages which I will get from daily labour, I will spend on my children's education. I will enrol my children in a good school, [using] the savings from daily wage labour or from selling a goat kid…"

Javed Iqbal,
male, 25 years, Pakistan

"We all hope and pray that our children have a better life than us. And I believe they will indeed have a better life. The world is moving and they will have better ways to make a living. Who would have thought

We have argued that this is an appropriate moment to address this challenge. Environmental conditions are changing, and this brings increased risks for rural economies and people; however, there is also a new appreciation of the services and goods that natural resource-based livelihoods can provide. The market context is changing and urbanization is proceeding apace, bringing a host of new opportunities for poor rural women and men to engage with markets, as well as new risks around them. Today, a very large proportion of poor rural people are children and youth, and it is they who will have to live and deal with the impact of today's transformations. It is also tomorrow's rural generations who most need to see rural areas as places where they can fulfil their aspirations. Already today, more and more youth are unwilling farmers or livestock producers and reluctant residents in rural areas. Environmental degradation and climate change, combined with persisting policy neglect of agriculture and of rural areas, can only accentuate this process. For this to change, robust action is needed now. This action must address the many factors that perpetuate the historic marginalization of rural economies, mitigate and develop ways to better deal with new risk factors, and enable poor rural people to harness

---

that there would be a radio station in this area? There are even people who have television sets in the village."

Oumar Diédhiou,
male, 22 years, Senegal

"If I am given charge… I would also try for a middle school. Women cannot study beyond primary as we only have up to primary school in our village. Women are not allowed to go out of the village… I will try for a middle or high school for girls so that girls do not go outside the village."

Muhammad Naveed,
male, 22 years, Pakistan

"I would love to move away, because, as you see, people suffer a lot here… In my opinion, [my siblings in the city] have better conditions… they are living in a good place, they have their jobs, and you don't need to kill yourself working to make progress, as is the case here. Here we suffer a lot if we want to get something to improve our living condition."

Williams Serafin Novoa Lizardo,
male, 20 years, Peru

"I really hope to have improved [in the future], with some livestock, and my family all healthy. I hope that my position then will be different from my position now – that I'd have possessions… I mean that I'd have a few head of cattle, sheep, goats and chickens, many chickens. Then my life would have changed. And then I'd feel better about myself… I always believe that it will be different; I do believe that it will be better."

Manantane Babay,
male, 19 years, Madagascar

new opportunities to participate in economic growth. It needs to turn rural areas from backwaters into places where people have access to quality services and profitable opportunities, and where innovation takes place, whether in agricultural production and marketing, in non-farm enterprises, or in energy generation.

How can this be done? To begin with, 'business as usual' development and economic policies – including an all too common neglect of agriculture; urban bias in public investments, services, and infrastructure; or an overall disengagement of the state from food markets – are all wanting in this context. So are 'business as usual' approaches to rural development, which include insufficient or inadequate support to smallholder farmers, a scant regard of the importance of the non-farm rural economy, and a disconnect between policies and initiatives addressing issues of economic growth on one hand and issues of human capabilities on the other. So too are 'business as usual' approaches to agriculture, which do not yet adequately address issues of productivity and market orientation in tandem with issues of sustainability. Yet more profoundly, what is lacking in all these conventional approaches is a full appreciation of both the risks and opportunities that affect the livelihoods of poor rural women and men, how both are changing today, and how mitigating or better managing risk is crucial for opportunities to flourish and for poor rural people to benefit. How, then, can economic growth be better harnessed for rural poverty reduction, in a context of increasing risks and opportunities, while keeping a focus on the future? Put differently, how can we promote the kind of growth that is likely to deliver better opportunities and reduce risks for today's and tomorrow's rural generations?

Answering such broad questions is, of course, a tall order, and one that may easily lead into the trap of overgeneralization. Countries vary profoundly in their level of economic development, their growth patterns, their breadth and depth of rural poverty and the size and structure of their rural sector – including the degree to which they may fall into the WDR categories of agriculture-based, urbanizing or transforming. Countries also vary in their governance systems, and it has been stressed throughout this report that good policies and governance are crucial to address rural poverty. Perhaps even more important, different regions within countries can vary greatly in all these areas; as we noted in earlier chapters, the drivers of growth (including in agriculture and in the non-farm rural economy) are distributed differently across the territory of each country. So too are the conditions that allow low-cost, low-risk market engagement, or those that create a good environment in which small enterprises can flourish. As a result, an important dimension of moving beyond 'business as usual' approaches is to recognize that there are no generic blueprints – not even on the basis of country typologies – for rural development and rural poverty reduction. The areas of focus, the key issues to address and the roles and responsibilities of different actors will vary in different contexts. Nevertheless, two broad principles clearly emerge from the discussion so far.

First, there is a need for a more systemic approach to growth for rural poverty reduction. This includes going beyond narrow or rigidly sequential sectoral approaches to rural growth and moving towards investment in improving the environment of rural areas, while also strengthening the capabilities of rural people. There is need to address risk mitigation/management and to foster new opportunities for growth. This report recognizes the important role that agriculture continues to have in the economic development of many areas – particularly, but not only, in agriculture-based countries. It also recognizes the importance of smallholder agriculture as a source of opportunities to move out of poverty for many rural women and men – including many of today's youth and tomorrow's rural generations – particularly as the importance of goods and services provided through agriculture is growing globally.

On the other hand, in order for agriculture to drive vibrant rural economies and in order to harness new drivers of rural growth – including urbanization and closer rural-urban linkages, improved communication infrastructure, decentralized energy systems and globalization – a broader approach to rural growth is needed. Already today, the extent to which smallholder agriculture represents the primary source of livelihoods for rural households varies considerably in different regions, countries and areas. In the future, growing resource scarcities and market transformations are likely to simultaneously strengthen the viability of smallholder agriculture for a number of small farmers (those who can make it a sound 'business') and push many others to seek different opportunities – as agricultural workers, or in the non-farm rural economy, or through migration. The key challenge is to ensure that those opportunities enable people to move out of poverty. To the extent that they are able to do so, growing numbers of households will be able to rely much less on farming to meet their food needs, but this requires taking a comprehensive view of rural growth even now.

Many of the policies and investments that are needed to promote growth in the rural non-farm economy are actually valid for promoting a more comprehensive approach to rural growth – which includes agriculture. Among these, we flagged ensuring a positive rural investment climate; ensuring an enabling policy framework for rural investors and rural enterprises – both agricultural and non-farm – to operate; providing infrastructure, particularly transportation, but also energy and water; strengthening public utilities and telecommunications; improving rural services, from education and health care to financial, advisory, and business development services; and ensuring that policies are implemented, public utility works and laws are respected, in an overall environment of good governance. We also discussed the need to nurture the capabilities of actors in the rural economies – particularly of poor rural people themselves, through relevant and tailored education and skills development and through support to rural people's organizations. Expanded and deepened financial systems are also needed to enable poor rural women and men to better

access a range of affordable services – savings, credit, insurance and transfers – needed for safeguarding assets, managing risk, investing in agricultural and other enterprises, and receiving remittances from migrant relatives securely and at low cost. Finally, we highlighted the need to develop positive and, in many cases, innovative collaborations within government and between public and private actors around all these issues.

The second key principle is the need for a new approach to agricultural intensification that is both market-oriented and sustainable. Both are essential features of a viable smallholder agriculture, particularly as a livelihood strategy for tomorrow's rural generation. This report proposes a newly strengthened focus in policy and practice on sustainable agricultural intensification for smallholder producers, based on a renewed appreciation of agriculture as an activity that can provide important goods and services for growing markets, but also as a sector whose vitality is crucial for a number of other reasons. These include, ensuring food security, driving economic growth and contributing to rural poverty reduction, environmental sustainability, and climate change mitigation. The proposed agenda aims to support a smallholder agriculture that is, on one hand, much better integrated into dynamic markets (including food and agriculture markets but also environmental service markets), and on the other hand, also strongly oriented towards environmental sustainability and increased resilience to the risks and shocks associated with resource scarcities and climate change. We saw how upgraded markets, where accessible, may increase net returns and income security for smallholders, while sustainable approaches strengthen their risk management capabilities. The more widespread use of PES will enhance incentives to be market-engaged – provided appropriate measures are in place to facilitate the participation of smallholder farmers and livestock producers.

The implications of a shift to this sort of agricultural intensification are far reaching. First and foremost, there is a need to reverse, through concrete policies and investments, the long-standing neglect of agriculture in many countries. Other needed changes include investing more and better into developing and facilitating agricultural markets, supporting smallholders to develop the necessary assets and capabilities to engage profitably in these markets, reorienting agricultural policy agendas towards greater concern with sustainability, and adopting policies that provide incentives to switch to sustainable intensification. Also important is to facilitate and catalyse new types of institutional arrangements through which smallholders can participate more beneficially, and with reduced risks, in agricultural markets, and to promote win-win arrangements in agricultural value chains.

To make it easier for smallholder farmers to adopt new practices, the risks associated with adoption also need to be reduced through greater land tenure security (for both women and men) and easier access to land through markets – which may be particularly critical for youth in areas where land is scarce. At the institutional level,

the shift also requires changes in agricultural education, research and advisory systems to develop greater knowledge and capabilities around issues of agricultural markets, sustainability, risk and cost reduction, and farm systems – in addition to technology and inputs. Educational, research and advisory institutions need to be marked by more genuinely collaborative approaches, with farmers and agricultural workers (and their organizations) more at the centre of knowledge production and sharing, and with a focus on context-specific innovations and joint problem solving. Progress has been made on this agenda at the international level, but there is a need to differentiate the agenda at the country level and below, and to develop practical policy and organizational responses. Progress has also been made at the local level in many areas, but there is a need to scale up and build on achievements to push the agenda forward.

Four cross-cutting issues

Taking a more comprehensive approach to promoting pro-poor, future-oriented rural growth, while also advancing the agenda of sustainable agricultural intensification, requires particular attention and increasing investment around four issues. These have emerged in each of the core chapters of this report, because they constitute cross-cutting areas of concern regarding agricultural production, value chains and markets and the development of the rural non-farm economy, among other things.

The first important issue is *improving the overall environment of rural areas*. This is a crucial part of making rural areas places where people face fewer risks and greater opportunities, and where rural youth and tomorrow's generations can fulfil their aspirations. In this regard, the report has stressed some key areas in which greater investment and attention are needed. One of these is infrastructure – particularly roads, energy and water supply. These are essential for markets to flourish, for people to have access to income opportunities made available by rural-urban linkages, for businesses to operate and for rural areas to become places where people want to live. They are also important to reduce vulnerability to health-related risks and reduce women's drudgery. If greater attention is given to the potential of renewable energy sources as a viable basis for energy infrastructure in many rural areas, there can also be important environmental (and possibly market) benefits from rural infrastructural development. Also important are rural services, including education, health care, financial services, communication and ICT services. We saw how important these all are for reducing the risk environment in rural areas, for enabling new opportunities to emerge and for allowing the rural economy to thrive.

Another key aspect of improving the environment of rural areas concerns governance. We saw how bad governance (e.g. state fragility and corruption) can greatly worsen the risk environment for poor rural women and men. We also noted

how it can erode a government's contract with its citizens, waste public resources, increase the transaction costs of doing business and discourage private investment, undermine policies and the rule of law, and make any political narrative unbelievable. It has a direct and negative impact on the lives of poor rural people. Improving the governance environment is often a complex proposition, but nevertheless an essential one. Depending on the context, it may mean different things. However, broadly speaking, improving governance implies enhanced legitimacy and effectiveness of government; accountability and the rule of law; and greater, concrete opportunities for engagement of *all* poor rural people and their organizations. It is critical to the success of all efforts to promote rural growth and reduce poverty, and to develop a more sustainable approach to agricultural intensification.

The second issue requiring particular attention is *improving the risk management capacity of poor rural people*. As we have seen, this is key to enabling people to move out of poverty and to take the risks associated with innovating and investing, but it is also crucial for people to break out of the interlocking disadvantages that keep them poor. Because the risks that poor rural people face today are changing and arguably increasing, improved risk management needs to become a central, cross-cutting element within the development agenda, keeping in mind that individuals may face different risks and manage them differently. Helping people to better manage risk should enable them to grasp opportunities that emerge and invest their resources more productively and profitably. As noted, this is one of the strengths of sustainable intensification approaches in agriculture. It is also one of the strengths of win-win contractual arrangements in agricultural value chains.

More broadly, however, enhancing risk management capacity requires strengthening rural women's and men's individual and collective capabilities through better and more adequate access to education and stronger and more effective organizations and by promoting gender equality. It also requires strengthening the asset base of poor rural women, men and youth, and enhancing their capacity to save and accumulate assets with which they can better cope with shocks. It requires developing or stimulating the market to provide new risk-reducing technologies for smallholders and poor rural people – in the areas of agriculture, energy and water supply and services, health care and financial services. Social protection, particularly where combined with investments in promoting opportunities in the rural economies, can also strengthen the risk management capacity of poor rural people, and this area of policy deserves greater focus in the future.

The third issue which deserves cross-cutting attention concerns *strengthening individual capabilities* which, we have argued, need to be given far more attention in the rural development agenda than they have been in recent years. In particular, emphasis should be placed on helping poor rural women, men, youth, girls and boys have the chance to develop the skills and knowledge they need to take advantage of

new opportunities in the rural areas and beyond. At the national level, there is a direct relationship between having an educated workforce and high levels of economic growth. In the rural economy, dynamism and innovation – both in agriculture and in the non-farm economy – depend on a skilled, educated population. For an individual, taking advantage of new economic opportunities (and being better able to manage risks or being less exposed to them) depends critically on having the knowledge and capacity to do so. This is true whether opportunities are found in knowledge-intensive, resilient and sustainable agriculture, in new and restructured agricultural markets, in the rural non-farm economy, or – for those who leave as migrants – in the job market beyond the rural areas.

Helping people develop the kind of knowledge, skills and values that can reduce their vulnerabilities and better enable them to capture opportunities is a policy priority which requires action on many fronts. It requires investing in education beyond the primary level, helping rural children and youth make the transition from primary to higher education, and ensuring the relevance of that education to their lives and the existing opportunities in the rural areas. It also requires focusing on the importance of TVSD, and enhancing its accessibility and value to rural people.

This is, to a large extent, an agenda that states need to take up. However, NGOs and private business can play important roles in delivering skills development services, and they should be encouraged to participate. NGOs have brought valuable innovations to rural education, from which important lessons can be learned; the private sector can identify the skills they require from a workforce, and then contribute to developing them. In terms of content, a TVSD agenda for the rural areas needs to be a broad one; yet it has to give specific focus to agriculture as a business opportunity requiring modern management skills. There is also a need to reorient higher education institutes for agriculture so that they can turn out agricultural specialists and advisors – both women and men – who are willing and capable of working with farmers and livestock producers to help them innovate. It is also important to focus on advisory systems to build synergies between external, systems-based, technology-specific analytical capacities and farmers' own traditional knowledge systems and production priorities.

The fourth issue concerns the *continued need to strengthen the collective capabilities of rural people*, notably through their own, membership-based organizations. Rural organizations can give people confidence, security and power – all valuable attributes in overcoming poverty. These organizations have a key role to play in the agenda for agriculture and the non-farm economy, to help people reduce risk, learn, manage individual and collective assets, and market their produce. They also represent and negotiate the interests of rural people in their interactions with others (e.g. the private sector or government) and hold them accountable. The interests that they represent may be economic, as producers, labourers, entrepreneurs and the like; location-

specific, as residents of the same community or location; or socio-cultural, as indigenous peoples, women or youth. They include women's savings clubs, farmer field schools and similar learning groups, common property resource co-management groups, water users' associations, farmers' marketing groups and associations, and national producers' organizations.

Not all organizations are well-managed and many have issues of poor governance or representation – particularly concerning women, youth and their poorer constituencies. Nevertheless, they usually represent the interests of poor rural people better than any outside party can, and they need strengthening to represent them more effectively. This concerns their organizational – particularly financial and management – capacities, their technical capacities in all relevant fields, their representational capacities and their inclusiveness. More space also needs to be made for them to influence policy and participate in the governance of rural and agricultural services.

Pursuing this agenda: the roles of national stakeholders

Not all the issues we have identified will be equally relevant in all countries. However, many developing and recently developed countries have grappled with these issues and, as we have seen throughout this report, many have experiences to share with others. The rapid growth in South-South cooperation and investment provides a whole range of new opportunities to promote such exchanges.

However, the issue is not only of country-level experiences. Irrespective of country typology, appropriate policy agendas need to respond to the specific requirements of different areas and territories, and be tailored to the local combination of drivers for agriculture-led and non-farm growth, the local risk environment and the local capabilities and governance environment. For instance, rural areas close to capital cities or other large urban centres, with high population density and favourable agroecology, will require different policy initiatives to harness growth for rural poverty reduction than remote semi-arid regions with low population density and high levels of poverty. The principle of subsidiarity is thus relevant to the agenda we are proposing, and it implies defining and implementing an action agenda at the lowest possible level within the national policy framework, and addressing issues to the higher level – national or beyond – only when there is a reason to do so or an opportunity for scaling up a successful experience. In this regard, much can be learned, for instance, by the experience of territorial development approaches implemented in Latin America and elsewhere in recent years.

Many of the elements of the agenda described above fit uncomfortably either within the mandates and responsibilities of individual ministries, or within the

categories in which development assistance is typically organized. Improving the rural environment, strengthening the risk management capacity of rural people, developing education and skills and organizing rural people are typically issues that theoretically are the responsibility of many ministries, but in practice are often promoted by only a few, and in isolation from each other. If these issues are to be promoted, it will require 'joined-up' government across different ministries, a breakdown of the dichotomy between social and economic policies and programmes and the emergence of champions for the various issues. Yet more broadly, the agenda proposed here requires new forms of collaboration among different actors. It involves, above all, rural women and men themselves, who are ultimately the ones who – individually and collectively – determine their own life strategies. However, in all the core chapters of this report, we have emphasized the important roles that other actors – government, the private sector and civil society actors – need to play, whether in building pro-rural poor agricultural value chains, in developing new risk-management technologies and services, in fostering innovation and joint problem solving around sustainable agricultural intensification, or in enhancing rural education opportunities.

Smallholder producers and their organizations, small businesses and microenterprises, and large multinational corporations investing in the agro-food chain all form part of the rural private sector. These actors go about their business in different ways and with differing levels of efficiency and effectiveness, yet they collectively create the wealth on which economic development is based. However, they have different degrees of power in the market and different levels of access to policy and decision makers, which they generally use to pursue their own interests. We have noted, for instance, that power distribution in agricultural and rural markets often works against the interest of small producers and wage workers, and may increase their risks and vulnerabilities. However, in some areas, things may be changing in a promising direction. In recent years, for instance, large corporations in the agro-food business have increasingly – and in large part in response to external pressure – come to realize that their commercial interests are best served by a long-term approach that focuses on social and environmental sustainability. In some cases, this has led them to engage in different business practices and pay greater attention to social and environmental concerns; when this shift is real rather than cosmetic, it can provide important support to the agenda proposed here. Such a shift can be encouraged by coalitions of development stakeholders and promoted through regulation, and it is also one to which consumers – increasingly those in developing countries as well as in the north – should hold companies accountable.

National governments must determine the extent to which the issues raised in this report are relevant to their circumstances. If they are relevant, they should be reflected in poverty reduction strategies and sector and thematic policies. Policy priorities then need to be given operational reality through inclusion in the investment plans and

budgets. Subsidies and taxes to promote the adoption of certain technologies or approaches and discourage the use of others may form part of the policy agenda. The Washington consensus about the limits of governments' role is being increasingly questioned, and there is a growing debate on what may be an appropriate level of engagement by governments in the rural economy. Indeed, the issue may no longer be *whether* state policies or investments may be needed to reduce the risk environment that smallholder farmers face; rather the question is *how* interventions can be made in a way that pursues national policy priorities in the most effective, least costly and most sustainable manner. Much will depend on the country's capacity to design and manage such initiatives, and its commitment to ensuring good governance.

Finally, civil society is growing stronger and more diverse in many countries, with more and more interest groups establishing organizations that represent their interests (e.g. as rural producers or as women) or that reflect their concerns relative to a range of issues (e.g. food safety, corporate ethics, environmental degradation or, simply, rural poverty). Some groups actively carry out development activities, while others conduct research and engage in advocacy. All have roles to play in promoting the agenda proposed here. There is a desperate need for effective organizations to create opportunities for poor rural people in agriculture and the non-farm economy: to work with youth; to promote improved risk management; to conduct education and training where the state is absent; and to support the organizations of poor rural people. Equally, governments and the private sector are most responsive to the needs of citizens when they are pushed to be so: there is a key role for civil society in advocating for improved public policies and corporate behaviour and, where necessary, for exposing government corruption and corporate malfeasance.

Supporting this agenda: the role of the international development community

In the aftermath of the food crisis with which we opened this report, the international donor community has taken a number of initiatives that demonstrate a commitment to support developing countries' efforts to promote agriculture (notably smallholder agriculture) and rural development. For instance, the Comprehensive Framework for Action developed through the United Nations High-Level Task Force on the Global Food Crisis and the 2009 L'Aquila Food Security Initiative bear testimony to this at the global level. Other initiatives have taken place before or after the crisis, also at the regional level in some cases. At the same time, the international community has signalled a commitment – if not yet a sufficiently robust one – to support developing countries' efforts to mitigate and adapt to climate change, for instance through the Copenhagen Accord under the UNFCCC.

Investment in agriculture and the larger rural non-farm economy remains well below needed levels however, and the momentum created by these recent initiatives must be maintained and built upon, so as to ensure a sustained flow of development funding to the rural sector and provide win-win solutions for climate change mitigation and poor rural people. This report outlines a proposed agenda that not only reflects the growing international commitment, but also offers it a potential operational reality and the basis for the development of concrete initiatives. It is also aligned with the work that development agencies are already carrying out on issues such as better linking small farmers and other small rural producers to markets, or piloting PES mechanisms or supporting rural microfinance; and the interest that some agencies have already shown for issues such as sustainable agricultural intensification, youth, vocational training, rural employment creation, productive safety nets and sustainable energy.[348]

In pursuing this agenda, two key issues require attention. First, the distorted global regime for trade in agricultural products, with its roots in the agricultural subsidies of OECD countries, remains a major problem. It does not work in the interests of poor rural producers in developing countries, and it actually makes many of them poorer. Advocacy work, based on rigorous research, is needed to inform international policy debates and negotiations on trade arrangements affecting agricultural products, and to shape the terms on which small rural producers are integrated into dynamic markets and their prospects for food security, whether as producers or as consumers. Above all, however, and from OECD countries in particular, there is a real need for greater coherence between their international commitments and aid policies on one hand, and their positions on trade issues on the other. Second, the current global aid architecture in general, and the aid effectiveness agenda specifically, have not yet shown great success in the agricultural sector or in reducing rural poverty,[349] and they must be reformed if they are to better respond to the substantial challenges presented in this report. As a starting point, the agenda supported in this report now needs to be promoted in global fora such as forthcoming UNFCCC conferences, and the Fourth High-Level Forum on Aid Effectiveness, to be held in Seoul, Republic of Korea in 2011.

There remains a pressing need for donors to work together on key issues. Bodies such as the Global Forum on Agricultural Research and the newly established Global Forum for Rural Advisory Services provide important opportunities for stakeholders with interests in these key issues to come together to pursue aspects of this agenda. No less important, neglected or low priority issues such as rural education need to be taken up again by the donor community and reflected in higher levels of investment. Some of that support needs to be provided at the global level, for example, to support the research work of the recently reformed Consultative Group on International Agricultural Research (CGIAR) on sustainable agricultural

system development, and to finance forms of PES that smallholder farmers and poor rural communities can benefit from. Some assistance may be provided through regional or subregional organizations, for regional initiatives such as NEPAD's Comprehensive Africa Agriculture Development Programme (CAADP), and for sharing of knowledge and experience. However, most of the assistance will be needed at the country level and below, depending on the spatial distribution of drivers for rural growth and rural poverty reduction. While the role and degree of engagement of the development community will be determined by the specific country context, the overarching principle of the aid effectiveness agenda – that of country ownership – must remain paramount.

Helping to build a shared understanding as to what the agenda means in the specific country circumstances and building national ownership for it may be a first step in some countries. Providing support for pilot activities from which lessons can be learned, engaging in policy advocacy with national authorities, and supporting weak or disparate civil society voices to engage in and better articulate their positions through existing national processes, can all play their part here. In countries where there is already an interest in pursuing the agenda, support by the development community can, in many cases, fit into existing national priorities, systems and processes. The role for development organizations will include piloting new approaches and ways of working as a route for learning; supporting policy analysis and reform; and working with governments to learn the lessons of small-scale initiatives and assisting them to scale up successes through larger, in some cases national, programmes.

As mentioned above, the agenda will require ways of working that do not easily correspond to the typical, sectoral, programme-based approaches that have been adopted in many developing countries. As already noted, it will be necessary for donor groups to work with governments in order to explore how best to support programmes and initiatives that don't easily fit under the mandates of individual ministries. In many cases, new forms of collaboration will be required between different ministries and beyond governments, with organizations representing the various interests of poor rural people and the private sector. One leitmotif of this report has been the context specificity of drivers, risks and opportunities for development in rural areas of the developing world. In this regard, addressing the proposed agenda requires a culture of innovation and learning by all stakeholders, and a willingness to part ways with generic blueprints and large-scale categorizations. Some of the preconditions for engaging in the proposed agenda include nurturing a culture of learning and concrete opportunities for sharing experiences, innovating and scaling up successes.

Ten years into the new millennium, there are something like one billion poor rural people in the world. Yet as we noted at the outset, the changing circumstances that have emerged, perhaps most clearly, around the recent food price crisis show

that there are good and sometimes new reasons for hope that rural poverty can be reduced stably, if new opportunities for rural growth are nurtured, and the risk environment is improved. It is largely evident that this requires a more comprehensive approach to rural growth, in which both agriculture – notably a more sustainable, more modern and profitable agriculture – and the rural non-farm economy play a role. This report has identified an agenda for action around this comprehensive approach, which needs to be appropriated and adapted to different contexts. However, the report has also made it clear that implementing this agenda requires a collective effort, including new partnerships and new ways of working between governments, the private sector, civil society and rural people's organizations, with the international development community playing a supporting or facilitating role as needed. If all of these stakeholders want it enough, rural poverty can be substantially reduced. What is at stake is not only the present for one billion rural people and the prospects for food security for all, but also the rural world and the opportunities within it that tomorrow's rural generation will inherit.

Annexes

Annexes

Annex 1 Rural poverty trends by region, 1988-2008

Date	Asia and the Pacific[a]	*East Asia*	*South Asia*	*South East Asia*	Sub-Saharan Africa	Latin America and the Caribbean	Middle East and North Africa	Developing world[b]
Total population (millions)								
Closest 1988	2 673	*1 121*	*1 128*	*419*	458	421	238	**3 791**
Closest 1998	3 143	*1 264*	*1 374*	*498*	603	499	299	**4 544**
Closest 2008	3 543	*1 349*	*1 616*	*569*	777	567	361	**5 247**
Rural population (millions)								
Closest 1988	1 962	*827*	*837*	*293*	333	129	124	**2 548**
Closest 1998	2 129	*828*	*984*	*311*	412	128	143	**2 812**
Closest 2008	2 188	*763*	*1 112*	*307*	497	122	161	**2 968**
Incidence of poverty (percentage of people living on <US$2/day)								
Closest 1988	80.1	*83.6*	*80.3*	*66.6*	74.8	23.1	16.1	**69.1**
Closest 1998	67.9	*61.4*	*76.2*	*60.7*	77.2	21.3	25.3	**61.2**
Closest 2008	55.0	*36.3*	*71.1*	*53.5*	75.6	14.3	17.2	**51.2**
Incidence of extreme poverty (percentage of people living on <US$1.25/day)								
Closest 1988	52.5	*54.0*	*52.2*	*47.8*	52.3	13.6	4.6	**45.1**
Closest 1998	39.0	*34.4*	*44.6*	*35.0*	57.9	10.8	5.2	**36.1**
Closest 2008	26.8	*15.9*	*38.5*	*18.5*	52.5	7.2	4.0	**27.0**
Incidence of rural poverty (percentage of rural people living on <US$2/day)								
Closest 1988	90.5	*98.4*	*85.2*	*76.5*	75.2	42.4	32.7	**83.2**
Closest 1998	82.4	*76.1*	*86.8*	*87.7*	86.7	44.3	30.7	**78.6**
Closest 2008	60.5	*34.8*	*80.4*	*62.0*	87.2	19.9	11.7	**60.9**
Incidence of extreme rural poverty (percentage of rural people living on <US$1.25/day)								
Closest 1988	59.1	*63.6*	*55.9*	*52.2*	51.7	25.7	9.5	**54.0**
Closest 1998	49.7	*44.1*	*53.8*	*52.7*	64.9	21.8	6.6	**48.4**
Closest 2008	31.4	*15.3*	*45.2*	*25.6*	61.6	8.8	3.6	**34.2**
Number of rural people in poverty (<US$2/day, in millions)								
Closest 1988	1 775	*814*	*713*	*225*	251	55	41	**2 121**
Closest 1998	1 754	*630*	*854*	*273*	357	57	44	**2 212**
Closest 2008	1 325	*266*	*894*	*190*	433	24	19	**1 801**
Numbers of rural people in extreme poverty (<US$1.25/day, in millions)								
Closest 1988	1 160	*526*	*468*	*153*	172	33	12	**1 377**
Closest 1998	1 057	*365*	*530*	*164*	268	28	10	**1 362**
Closest 2008	687	*117*	*503*	*78*	306	11	6	**1 010**
Rural people as percentage of those living in extreme poverty (<US$1.25/day)								
Closest 1988	82.6	*86.8*	*79.4*	*76.6*	71.8	57.6	99.0	**80.5**
Closest 1998	86.4	*84.0*	*86.5*	*94.2*	76.6	51.9	61.3	**82.9**
Closest 2008	72.5	*54.3*	*80.7*	*74.5*	75.0	26.5	40.1	**71.6**

[a] Comprises figures for East Asia, South Asia and South East Asia, and also the Pacific for which there is no breakdown in the table

[b] Any discrepancy in totals is the result of rounding

NOTES

Composition of geographical regions

Asia and the Pacific

- East Asia: China, the Democratic People's Republic of Korea
- South Asia: Afghanistan, Bangladesh, Bhutan, India, the Islamic Republic of Iran, Maldives, Nepal, Pakistan, Sri Lanka
- South East Asia: Cambodia, Indonesia, the Lao People's Democratic Republic, Malaysia, Myanmar, the Philippines, Thailand, Viet Nam
- Pacific: Fiji, Papua New Guinea, Samoa, the Solomon Islands, Tonga

Sub-Saharan Africa

- Eastern Africa: Burundi, the Comoros, Djibouti, Eritrea, Ethiopia, Kenya, Madagascar, Malawi, Mauritius, Mozambique, Rwanda, Seychelles, Somalia, Uganda, the United Republic of Tanzania, Zambia, Zimbabwe
- Southern Africa: Botswana, Lesotho, Namibia, South Africa, Swaziland
- Middle Africa: Angola, Cameroon, the Central African Republic, Chad, the Congo, the Democratic Republic of the Congo, Equatorial Guinea, Gabon, Sao Tome and Principe
- Western Africa: Benin, Burkina Faso, Cape Verde, Côte d'Ivoire, The Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, the Niger, Nigeria, Senegal, Sierra Leone, Togo

Latin America and the Caribbean

- Caribbean: Antigua and Barbuda, Barbados, Cuba, Dominica, the Dominican Republic, Grenada, Haiti, Jamaica, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Trinidad and Tobago
- Central America: Belize, Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama
- South America: Argentina, the Plurinational State of Bolivia, Brazil, Chile, Colombia, Ecuador, Guyana, Paraguay, Peru, Suriname, Uruguay, the Bolivarian Republic of Venezuela

Middle East and North Africa

- Middle East: Iraq, Jordan, Lebanon, Oman, the Syrian Arab Republic, Turkey, Yemen
- North Africa: Algeria, Egypt, Morocco, The Sudan, Tunisia

Methodology

There are regular and comparable national-level estimates of poverty incidence (i.e. the percentages of total populations living in poverty) based on the international poverty lines of US$1.25/person/day and US$2/person/day. The latest data available in the World Development Indicators and the Human Development Index databases are from 2005 for most countries. However, these data are not typically broken down to provide estimates of the incidences of *rural* and *urban* poverty.[1]

At the country level the incidence of rural poverty against internationally comparable poverty lines ($RPov_{USD}$) in any given year is therefore based on: (a) available information on national poverty incidences against internationally comparable poverty lines ($NPov_{USD}$); and (b) breakdown of rural poverty incidence against *national* poverty lines ($RPov_{Nat}/NPov_{Nat}$), as follows: $RPov_{USD} = NPov_{USD} \times RPov_{Nat}/NPov_{Nat}$.

1 Estimates are available in PovcalNet: the on-line tool for poverty measurement developed by the Development Research Group of the World Bank, but only for a few countries: http://iresearch.worldbank.org/PovcalNet.

For all countries for which data were available, and for each decade, the latest poverty estimates of the decade were used in the estimations, using the population data from the World Development Indicators for 1989, 1998 and 2008.[2]

However, not all of these data were available for all countries for each time period, which means that at the regional (and subregional) level incidences of poverty were based on a weighted mean (with the weighting according to population) of the available country-level incidences, for dates closest to 1988, 1998 and 2008. Estimates of numbers of rural people living at the US$2/day poverty line and $1.25/day line at the regional level are then based on the rural population multiplied by the incidence of rural poverty at the two different poverty lines. In the case of Asia and the Pacific region the different weighted means at regional and subregional levels result in slight inconsistencies between the different numbers of rural people living in poverty.

There are also two important assumptions behind the calculations. The first is that the incidence of rural poverty rates according to national surveys remains the same at the US$1.25/day poverty line. Ravallion, Chen and Sangraula (2007)[3] showed that while this approximation is quite accurate for US$2/day poverty lines, it may be weaker for US$1.25/day. Because urban poverty lines are often higher than rural poverty lines, such an assumption may *underestimate* the incidence of rural poverty at the US$1.25/day poverty line. The second assumption is that definitions of urban and rural populations are consistent across countries, and that the ratios of urban poverty lines to rural poverty lines are constant within regions. This is not the case, but intraregional variations are relatively limited.

2 With the following exceptions: (a) Indonesia: rural and urban poverty incidence against national standards, from Maksum, C. (2004) "Official poverty measurement in Indonesia"; (b) China: urban poverty incidence against national standards from the Asian Development Bank (2004) "Poverty profile of the People's Republic of China". Data are from the National Bureau of Statistics of China. Since no data could be identified for the 1980s, the estimates used the urban poverty incidence rate for 1991. National poverty incidence from Rural Survey Organization of the National Bureau of Statistics (2004) "Poverty statistics in China". Data were based on the pre-2000 poverty line to maintain consistency.

3 Ravallion, M., S. Chen, and P. Sangraula. 2007. New evidence on the urbanization of global poverty. Working Paper 4199, World Bank, Washington, D.C.

Annex 2 Statistical annex

TABLE 1 **Macroeconomic and agricultural performance**

Variable	GDP per capita United States dollars (2000)			Average growth GDP per capita (percentage per annum)		
Source	World Development Indicators (WDI)			Calculations from WDI		
Period	**Closest 1988**	**Closest 1998**	**Closest 2008**	**1980s**	**1990s**	**2000s**
Afghanistan	.	.	.	.	.	.
Algeria	1 834	1 752	2 191	-0.2	-0.2	1.2
Angola	838	634	1 357	0.6	-1.6	3.1
Antigua and Barbuda	.	8 531	12 047	7.8	1.2	3.5
Argentina	6 373	8 213	9 915	-2.8	3.4	1.0
Bangladesh	245	312	462	1.2	2.8	2.1
Barbados	8 469	9 552	9 761	0.9	1.9	0.8
Belize	2 082	2 865	3 802	2.4	3.1	2.4
Benin	313	325	359	-0.2	1.4	0.5
Bhutan	422	702	1 247	6.7	4.9	5.6
Bolivia (Plurinational State of)	838	1 022	1 174	-2.0	1.5	0.2
Botswana	2 183	3 186	4 440	7.5	3.8	5.7
Brazil	3 516	3 645	4 448	-0.4	1.0	1.6
Burkina Faso	183	213	263	0.9	2.3	1.7
Burundi	153	114	111	1.3	-3.1	0.3
Cambodia	.	251	512	.	4.8	7.5
Cameroon	828	612	710	0.5	-1.1	1.1
Cape Verde	839	1 085	1 632	3.6	3.6	3.0
Central African Republic	285	244	230	-1.4	-0.8	-0.9
Chad	192	178	251	2.6	-0.7	1.5
Chile	2 773	4 826	6 229	2.2	4.8	2.6
China	373	827	1 963	7.8	9.3	8.0
Colombia	2 097	2 475	3 018	1.6	0.7	1.9
Comoros	430	376	370	0.3	-1.0	-0.1
Congo	1 167	1 049	1 214	2.1	-0.7	1.7
Costa Rica	3 003	3 862	5 195	-0.1	2.7	1.8
Côte d'Ivoire	695	649	530	-3.2	-0.8	-1.2
Cuba	.	.	.	.	3.9	.
Democratic People's Republic of Korea	.	.	.	.	.	.
Democratic Republic of the Congo	234	100	99	-2.1	-8.2	-2.6
Djibouti	1 177	782	849	5.5	2.0	2.3
Dominica	2 965	3 726	4 323	0.4	4.2	2.2
Dominican Republic	1 922	2 518	3 667	5.8	7.1	5.9
Ecuador	1 312	1 383	1 746	-0.5	0.0	1.6
Egypt	1 075	1 322	1 784	2.8	2.3	2.9
El Salvador	1 525	2 114	2 676	-1.6	3.5	1.0
Equatorial Guinea	573	1 570	8 692	-2.4	17.3	8.7
Eritrea	.	212	147	.	3.7	-1.8
Ethiopia	135	118	190	-0.8	-0.1	1.1
Fiji	1 634	2 000	2 195	0.2	1.4	1.0
Gabon	4 331	4 825	4 157	-0.9	-1.1	-0.2
Gambia (The)	336	309	374	-0.1	-0.5	0.6
Ghana	212	247	327	-0.8	1.6	0.6
Grenada	2 607	3 478	4 698	4.8	3.3	2.7
Guatemala	1 413	1 673	1 908	-1.5	1.7	0.6

Agricultural value added (percentage GDP) WDI			Growth in agriculture value added (percentage per annum) Calculation from WDI		
Closest 1988	Closest 1998	Closest 2008	1980s	1990s	2000s
.	.	37.5	.	.	4.9
12.2	12.5	8.7	3.2	4.2	6.2
15.9	13.0	10.1	0.4	-0.3	16.5
4.2	4.1	3.3	-0.6	1.6	2.0
9.0	5.6	9.4	1.4	3.2	3.9
31.1	25.4	19.1	2.5	3.2	3.2
6.5	5.8	3.7	-2.1	-0.1	-2.7
22.3	16.9	12.3	3.7	6.1	3.5
34.4	38.2	32.2	4.3	5.9	4.5
38.0	31.6	18.7	5.6	1.7	2.2
17.2	14.7	13.6	1.5	3.1	3.1
6.0	3.3	1.7	2.3	-1.0	-0.4
10.1	5.5	6.7	2.7	3.2	4.7
29.6	39.2	33.3	3.0	6.3	7.0
54.2	46.3	34.8	3.5	-1.5	-1.9
.	46.3	34.6	.	3.8	5.3
24.7	25.3	19.6	2.7	4.8	3.6
17.6	11.6	8.1	1.2	3.1	1.3
48.2	53.3	53.5	1.2	3.7	1.5
36.8	40.8	23.0	2.1	6.9	3.3
8.9	6.1	4.2	5.7	2.8	5.7
25.7	17.6	11.3	6.2	3.8	4.2
17.4	14.3	8.8	3.0	-1.8	3.0
39.5	40.9	45.8	4.0	2.8	2.0
13.9	11.0	5.0	3.6	0.8	.
13.0	12.8	7.3	3.6	4.1	3.3
32.0	24.1	23.7	1.1	3.7	1.3
.	6.2	.	.	.	.
.	.	.	.	.	.
29.8	47.5	41.1	2.5	0.7	1.2
28.5	18.8	17.6	4.1	-1.1	-0.7
17.0	8.7	10.6	0.4	2.5	4.3
24.9	17.5	11.9	5.3	3.4	4.1
.	.	7.0	4.4	-1.2	4.6
19.0	17.1	14.1	2.7	3.1	3.4
17.4	12.9	13.2	-1.3	1.3	3.7
62.0	21.7	2.0	.	.	4.2
.	25.5	24.3	.	0.8	12.3
53.9	52.6	42.7	1.9	2.5	7.0
19.5	16.8	13.2	3.3	0.9	-0.8
10.1	7.0	4.6	0.8	2.3	2.1
31.1	28.4	28.5	1.0	4.5	3.1
49.6	36.0	32.2	0.4	3.3	3.0
17.9	7.8	6.8	0.0	-1.0	-0.2
25.8	23.4	10.5	1.3	2.8	3.0

TABLE 1 **Macroeconomic and agricultural performance** (cont.)

Variable	GDP per capita United States dollars (2000)			Average growth GDP per capita (percentage per annum)		
Source	World Development Indicators (WDI)			Calculations from WDI		
Period	**Closest 1988**	**Closest 1998**	**Closest 2008**	**1980s**	**1990s**	**2000s**
Guinea	335	362	417	0.2	0.9	0.7
Guinea-Bissau	169	149	128	3.0	-0.3	-0.6
Guyana	635	927	950	-2.9	4.9	-0.6
Haiti	638	451	410	-2.6	-3.0	-1.6
Honduras	1 066	1 151	1 450	-0.5	0.9	1.0
India	297	419	724	3.4	3.6	3.7
Indonesia	534	777	1 083	4.5	2.9	3.9
Iran (Islamic Republic of)	1 122	1 528	2 228	-0.9	2.1	1.7
Iraq	.	935	.	.	25.6	.
Jamaica	2 869	3 457	3 792	1.6	1.0	0.5
Jordan	1 991	1 708	2 372	-1.6	1.0	1.5
Kenya	441	415	464	0.4	-1.0	0.7
Lao People's Democratic Republic	197	295	475	1.7	3.6	3.3
Lebanon	3 967	4 568	5 726	-9.2	5.1	-0.2
Lesotho	308	406	525	1.5	2.1	3.0
Liberia	539	149	148	-10.5	4.5	-1.4
Madagascar	286	246	271	-2.1	-1.3	-1.0
Malawi	134	152	165	-1.9	1.6	0.5
Malaysia	2 322	3 654	5 155	3.2	4.6	3.7
Maldives	.	2 109	3 656	.	6.2	4.9
Mali	204	232	295	-1.5	1.4	1.0
Mauritania	429	411	480	-0.9	0.1	0.2
Mauritius	2 303	3 499	4 929	4.9	4.0	3.8
Mexico	4 712	5 513	6 591	-0.2	1.9	1.3
Morocco	1 185	1 309	1 770	1.7	0.9	2.2
Mozambique	174	225	365	-0.5	2.5	1.4
Myanmar	.	.	.	-0.5	5.8	4.6
Namibia	1 912	2 032	2 692	-2.1	1.6	3.0
Nepal	170	212	256	2.4	2.5	1.8
Nicaragua	725	715	903	-3.6	1.3	-0.7
Niger	206	177	180	-2.8	-1.7	-1.4
Nigeria	339	365	487	-1.5	0.0	0.7
Oman	6 605	8 141	10 019	4.5	1.9	4.0
Pakistan	447	520	678	3.5	1.4	2.6
Panama	2 791	3 838	5 587	-0.6	3.0	2.3
Papua New Guinea	628	695	680	-1.3	1.6	0.3
Paraguay	1 369	1 448	1 518	-0.2	-0.6	1.0
Peru	2 064	2 035	2 923	-2.7	2.2	1.0
Philippines	864	929	1 225	-0.8	0.8	1.1
Rwanda	245	219	313	-1.1	1.6	1.7
Saint Kitts and Nevis	4 718	7 592	9 469	6.1	3.6	4.1
Saint Lucia	2 762	4 245	4 748	6.0	1.6	3.0
Saint Vincent and the Grenadines	2 143	2 918	4 350	5.4	3.2	3.7
Samoa	1 149	1 237	1 714	0.7	1.8	1.5
Sao Tome and Principe	.	.	.	.	.	.
Senegal	471	455	530	-0.3	0.3	0.2
Seychelles	4 824	7 343	8 267	2.4	3.1	2.5
Sierra Leone	247	165	262	-1.3	-4.6	0.4
Solomon Islands	1 045	1 296	1 165	3.5	-0.1	1.5
Somalia	.	.	.	1.5	.	.

Agricultural value added (percentage GDP) WDI			Growth in agriculture value added (percentage per annum) Calculation from WDI		
Closest 1988	Closest 1998	Closest 2008	1980s	1990s	2000s
23.5	22.0	7.9	4.2	4.2	4.3
58.1	62.4	55.5	6.0	4.0	4.6
26.0	34.6	31.0	-1.0	6.0	1.1
.	22.2	27.9	0.2	1.4	.
21.2	19.1	12.5	2.8	2.7	4.1
30.5	26.0	17.6	3.5	2.8	3.3
22.5	18.1	14.4	3.7	2.0	3.4
23.2	17.3	10.1	5.1	3.4	5.4
.	11.4	8.6	.	4.2	-3.6
.	8.1	5.3	2.5	-0.5	-0.1
6.9	3.1	3.6	7.1	0.2	6.1
29.9	31.2	21.3	3.7	1.6	3.6
60.6	53.3	39.9	4.9	4.7	3.2
.	6.9	5.5	.	2.9	0.5
25.3	17.5	7.2	3.3	0.1	-2.3
38.1	78.6	54.0	.	.	.
33.5	30.6	25.2	2.2	1.8	2.1
50.0	35.6	34.3	1.5	10.3	1.1
20.1	13.3	10.2	3.2	0.9	3.4
.	.	.	7.6	2.0	2.5
45.0	46.5	36.5	2.5	2.0	5.2
32.7	31.2	12.5	2.1	0.6	0.7
14.7	8.8	4.5	2.3	-1.3	2.2
7.9	5.3	3.8	1.3	1.5	2.2
17.7	20.2	15.5	6.2	5.0	6.3
42.9	30.8	28.3	5.5	3.3	7.8
57.4	59.1	48.4	1.4	6.0	10.3
12.4	11.0	9.1	2.3	4.5	0.7
50.9	39.9	33.7	4.6	2.5	3.3
.	22.9	19.3	.	5.9	2.8
35.4	42.6	40.0	1.5	2.8	7.1
.	.	30.7	.	.	5.8
3.8	2.8	1.9	.	4.1	2.6
26.0	27.3	20.4	4.1	4.5	2.8
9.5	7.4	6.4	3.0	3.4	4.4
32.0	35.5	33.3	2.2	4.6	1.5
29.6	17.6	22.9	4.1	2.4	6.4
10.3	9.0	6.6	2.6	5.2	3.6
23.0	16.9	14.9	1.2	1.9	3.8
39.2	45.5	34.6	0.6	4.2	4.6
9.7	4.2	2.6	-2.7	1.2	-0.1
16.2	8.6	4.0	8.0	-3.5	-9.2
17.6	10.8	8.1	10.2	0.5	-2.6
.	19.2	10.8	.	0.4	-1.9
.	.	16.8	.	.	5.4
21.2	19.4	14.9	2.7	2.9	1.5
4.7	2.6	2.3	0.4	0.3	1.1
46.0	61.8	42.9	3.0	-12.9	5.7
28.9	37.5	31.7	.	2.7	6.2
69.3	.	.	3.6	.	.

TABLE 1 **Macroeconomic and agricultural performance** (cont.)

Variable	GDP per capita United States dollars (2000)			Average growth GDP per capita (percentage per annum)		
Source	World Development Indicators (WDI)			Calculations from WDI		
Period	**Closest 1988**	**Closest 1998**	**Closest 2008**	**1980s**	**1990s**	**2000s**
South Africa	3 223	2 975	3 764	-0.9	-0.4	2.8
Sri Lanka	541	799	1 199	2.8	4.3	3.5
Sudan	265	332	532	-0.1	3.1	2.1
Suriname	1 929	1982	2 662	-1.9	-0.7	0.7
Swaziland	1 039	1257	1 559	4.5	1.5	2.4
Syrian Arab Republic	1 004	1242	1 289	-1.1	2.5	1.4
Thailand	1 154	1827	2 645	6.0	3.6	4.3
Togo	278	266	245	-2.3	-0.4	-0.8
Tonga	1 294	1472	1664	2.1	2.3	1.5
Trinidad and Tobago	4 907	5706	10 981	-3.4	2.6	1.9
Tunisia	1 418	1876	2760	1.1	3.1	2.9
Turkey	3 152	4022	5240	3.2	2.0	2.8
Uganda	172	236	348	-0.1	3.4	1.1
United Republic of Tanzania	256	257	362	2.1	0.0	1.4
Uruguay	5 452	7281	8788	-0.5	2.5	1.6
Venezuela (Bolivarian Republic of)	5 195	5132	5 963	-1.8	0.1	0.1
Viet Nam	210	364	647	2.3	5.9	3.6
Yemen	447	513	558	.	1.5	.
Zambia	413	308	387	-2.0	-2.0	-0.8
Zimbabwe	608	680	450	0.8	-0.6	-1.1
Asia and the Pacific	**403**	**684**	**1 306**	**5.0**	**5.7**	**5.1**
East Asia	360	798	1 894	7.8	9.3	8.0
Oceania	819	913	904	-0.7	1.5	0.5
South Asia	345	471	760	2.9	3.2	3.3
South East Asia	703	996	1 426	3.0	3.5	3.6
Sub-Saharan Africa	**565**	**520**	**632**	**-0.7**	**-0.6**	**0.6**
Eastern Africa	253	254	314	-0.1	0.3	0.7
Southern Africa	2 981	2 814	3 583	-0.5	-0.1	2.9
Middle Africa	504	370	524	-0.7	-4.7	-0.5
Western Africa	338	349	422	-1.4	0.2	0.4
Latin America and the Caribbean	**3 528**	**3 992**	**4 838**	**-0.5**	**1.6**	**1.4**
Caribbean	1 876	2 159	2 901	1.4	2.7	2.0
Central America	3 904	4 568	5 450	-0.5	1.9	1.2
South America	3 491	3 887	4 727	-0.7	1.4	1.4
Middle East and North Africa	**1 645**	**1 864**	**2 476**	**1.6**	**3.8**	**2.3**
Middle East	2 527	2 675	3 739	1.9	6.2	2.4
North Africa	1 091	1 227	1 639	1.4	1.8	2.3

Agricultural value added (percentage GDP) WDI			Growth in agriculture value added (percentage per annum) Calculation from WDI		
Closest 1988	Closest 1998	Closest 2008	1980s	1990s	2000s
5.8	3.8	3.3	2.6	2.0	2.8
26.3	21.1	13.4	2.9	1.9	2.5
41.5	46.3	25.8	3.6	6.9	2.6
10.9	9.6	5.2	0.7	-0.1	2.1
16.1	13.3	8.1	2.0	1.1	1.0
31.8	30.6	20.0	3.1	6.7	4.4
16.2	10.8	11.8	3.9	1.8	2.9
33.6	35.0	43.7	4.9	3.0	2.9
38.0	29.5	27.5	-0.1	1.6	1.4
2.9	2.2	0.4	7.2	2.2	-6.9
11.8	12.7	10.0	5.3	3.6	2.5
17.8	13.6	9.5	1.2	1.5	0.6
56.7	42.1	22.7	2.6	3.7	2.7
46.0	44.8	45.3	.	3.2	4.9
12.0	8.0	10.8	0.3	2.4	3.4
6.8	5.4	4.0	2.4	1.8	3.8
46.3	25.8	20.3	2.7	4.3	3.7
24.2	20.3	14.3	.	5.2	0.4
17.4	21.1	21.2	2.8	6.2	2.1
16.4	21.8	19.1	4.4	4.0	-8.1
26.0	**19.4**	**13.2**	**4.5**	**3.2**	**3.8**
25.7	17.6	11.3	6.2	3.8	4.2
28.3	30.0	27.0	2.3	3.7	1.6
28.9	24.8	16.9	3.7	3.1	3.4
22.0	16.0	13.8	3.1	2.1	3.5
18.1	**16.8**	**16.4**	**2.5**	**2.8**	**4.7**
31.4	29.6	27.4	2.9	3.0	4.3
6.1	4.1	2.9	2.6	2.0	2.5
22.5	22.4	14.8	2.2	2.9	6.0
33.8	31.1	29.1	1.9	2.8	5.1
9.9	**6.7**	**6.5**	**2.3**	**2.2**	**3.8**
17.0	12.5	8.8	5.0	2.4	3.2
8.9	6.5	4.6	1.4	1.9	2.6
10.2	6.5	7.3	2.5	2.4	4.2
17.5	**15.0**	**11.1**	**2.5**	**3.3**	**2.6**
17.7	13.4	9.4	1.5	2.5	1.1
17.2	17.7	13.5	3.7	4.2	4.2

TABLE 2 **Population and agriculture**

Variable	Total population (million)		Growth total population (percentage)	Rural population (million)		Growth rural population (percentage)
Source	RPR 1992	WDI (*italics*: 2009 UN estimate)	Calculation from RPR 1992 and WDI	RPR 1992	WDI (*italics*: 2009 UN estimate)	Calculation from RPR 1992 and WDI
Period	**1988**	**Closest 2008**	**1988-2008**	**1988**	**Closest 2008**	**1988-2008**
Afghanistan	14.89	*28.15*	89	11.86	*21.87*	84
Algeria	23.84	34.36	44	13.40	11.95	-11
Angola	9.46	18.02	91	6.93	7.80	13
Antigua and Barbuda	0.08	0.09	3	0.06	0.06	4
Argentina	31.54	39.88	26	4.54	3.19	-30
Bangladesh	109.63	160.00	46	95.50	116.58	22
Barbados	0.26	0.26	-1	0.15	0.15	6
Belize	0.18	0.31	77	0.09	0.15	74
Benin	4.45	8.66	95	2.70	5.09	89
Bhutan	1.45	0.69	-53	1.28	0.45	-65
Bolivia (Plurinational State of)	6.92	9.68	40	3.46	3.33	-4
Botswana	1.20	1.90	59	0.94	0.77	-18
Brazil	144.43	191.97	33	35.57	27.68	-22
Burkina Faso	8.53	15.21	78	7.81	12.23	57
Burundi	5.15	8.07	57	4.82	7.23	50
Cambodia	9.04	14.56	61	7.90	11.42	45
Cameroon	10.69	18.90	77	5.70	8.17	43
Cape Verde	0.36	0.50	39	0.15	0.20	36
Central African Republic	2.77	4.42	60	1.53	2.72	78
Chad	5.40	11.07	105	3.73	8.11	117
Chile	12.75	16.76	31	1.93	1.94	0
China	1 081.23	1 325.64	23	853.76	754.29	-12
Colombia	30.57	44.53	46	9.42	11.36	21
Comoros	0.49	0.64	32	0.36	0.46	30
Congo	1.89	3.62	92	1.11	1.40	26
Costa Rica	2.87	4.53	58	1.37	1.66	21
Côte d'Ivoire	11.61	20.59	77	6.41	10.55	65
Cuba	10.15	11.25	11	2.67	2.74	3
Democratic People's Republic of Korea	21.90	23.86	9	7.44	8.90	20
Democratic Republic of the Congo	33.74	64.21	90	20.82	42.40	104
Djibouti	0.38	0.07	-81	0.08	0.02	-76
Dominica	0.07	0.07	1	0.03	0.02	-42
Dominican Republic	7.02	9.84	40	2.85	3.05	7
Ecuador	10.20	13.48	32	4.58	4.64	1
Egypt	51.55	81.53	58	26.90	46.70	74
El Salvador	5.03	6.13	22	2.83	2.41	-15
Equatorial Guinea	0.42	0.66	57	0.24	0.40	64
Eritrea	3.05	4.93	62	2.57	3.91	52
Ethiopia	44.76	80.71	80	39.24	66.99	71
Fiji	0.73	0.84	15	0.42	0.40	-4
Gabon	1.09	1.45	32	0.62	0.22	-65
Gambia (The)	0.81	1.66	105	0.64	0.72	14
Ghana	14.16	23.35	65	9.58	11.67	22
Grenada	0.10	0.11	6	0.04	0.07	78
Guatemala	8.68	13.68	58	5.11	7.03	38
Guinea	6.54	9.83	50	4.96	6.45	30

Rural as percentage of total population		Agricultural population (million)		Growth agricultural population (percentage)	Agricultural as percentage of rural population	
Calculation from RPR 1992	WDI	RPR 1992	FAOSTAT	Calculation from RPR 1992 and FAOSTAT	Calculation from RPR 1992	Calculation from FAOSTAT
1988	**Closest 2008**	**1988**	**Closest 2007**	**1988-2007**	**1988**	**Closest 2007**
80	.	8.35	16.00	.	70	.
56	35	5.99	7.41	24	45	62
73	43	6.68	12.29	84	96	158
69	70	0.01	0.02	260	9	30
14	8	3.42	3.23	-6	75	101
87	73	76.59	76.11	-1	80	65
56	60	0.02	0.01	-58	13	5
49	48	0.06	0.07	20	71	49
61	59	2.81	3.96	41	104	78
88	66	1.32	0.63	-52	103	140
50	34	2.94	3.88	32	85	116
78	40	0.77	0.81	5	83	105
25	14	36.99	23.06	-38	104	83
91	80	7.24	13.56	87	93	111
93	90	4.72	7.03	49	98	97
87	78	6.70	9.61	43	85	84
53	43	6.73	8.32	24	118	102
41	40	0.16	0.09	-42	106	45
55	61	1.79	2.82	57	117	104
69	73	4.13	7.32	77	111	90
15	12	1.73	2.33	35	90	120
79	57	744.78	836.59	12	87	111
31	26	8.83	7.26	-18	94	64
73	72	0.39	0.59	51	109	127
59	39	1.13	1.22	8	102	87
48	37	0.73	0.76	4	53	46
55	51	6.70	8.28	24	104	78
26	24	2.04	1.56	-24	77	57
34	37	7.74	5.98	-23	104	67
62	66	22.59	36.72	63	108	87
21	26	.	.	.	.	.
42	31	0.02	0.01	-42	73	73
41	56	2.59	1.23	-53	91	40
45	34	3.28	2.86	-13	72	62
52	57	21.40	24.00	12	80	51
56	39	1.94	1.70	-12	68	70
58	61	0.20	0.43	117	80	106
84	79	.	3.58	.	.	92
88	83	33.89	62.07	83	86	93
57	48	0.29	0.31	6	71	78
56	15	0.76	0.42	-45	123	192
79	44	0.66	1.24	88	104	172
68	50	7.27	12.48	72	76	107
41	69	0.03	0.02	-12	61	30
59	51	4.55	5.83	28	89	83
76	66	4.94	7.80	58	100	121

TABLE 2 **Population and agriculture** (cont.)

Variable	Total population (million)		Growth total population (percentage)	Rural population (million)		Growth rural population (percentage)
Source	RPR 1992	WDI (*italics*: 2009 UN estimate)	Calculation from RPR 1992 and WDI	RPR 1992	WDI (*italics*: 2009 UN estimate)	Calculation from RPR 1992 and WDI
Period	**1988**	**Closest 2008**	**1988-2008**	**1988**	**Closest 2008**	**1988-2008**
Guinea-Bissau	0.95	1.58	67	0.74	1.11	49
Guyana	1.01	0.76	-24	0.67	0.55	-18
Haiti	6.26	9.78	56	4.45	5.20	17
Honduras	4.83	7.24	50	2.80	3.77	35
India	819.48	1 139.96	39	598.61	803.22	34
Indonesia	175.11	228.25	30	128.18	110.79	-14
Iran (Islamic Republic of)	53.12	71.96	35	24.61	22.70	-8
Iraq	17.67	*30.75*	74	4.80	*10.37*	116
Jamaica	2.44	2.69	10	1.19	1.26	5
Jordan	3.05	5.91	94	1.02	1.27	26
Kenya	23.08	38.53	67	18.01	30.21	68
Lao People's Democratic Republic	3.87	6.21	61	3.19	4.29	34
Lebanon	2.77	4.14	49	0.48	0.54	12
Lesotho	1.68	2.02	20	1.36	1.50	10
Liberia	2.40	3.79	58	1.38	1.51	9
Madagascar	11.24	19.11	70	8.58	13.47	57
Malawi	7.88	14.28	81	6.80	11.59	70
Malaysia	16.56	26.99	63	9.82	8.00	-19
Maldives	0.20	0.31	54	0.16	0.19	20
Mali	8.83	12.71	44	7.19	8.62	20
Mauritania	1.92	3.20	67	1.17	1.89	62
Mauritius	1.08	1.27	18	0.62	0.73	17
Mexico	84.88	106.35	25	24.24	24.25	0
Morocco	23.91	31.23	31	12.68	13.73	8
Mozambique	14.85	21.78	47	11.32	13.76	22
Myanmar	39.95	49.19	23	30.27	33.16	10
Namibia	1.31	2.13	63	0.95	1.35	41
Nepal	18.24	28.58	57	16.63	23.65	42
Nicaragua	3.62	5.68	57	1.50	2.46	63
Niger	6.69	14.67	119	5.48	12.24	124
Nigeria	105.44	151.32	44	70.11	78.14	11
Oman	1.40	2.79	100	1.26	0.79	-37
Pakistan	115.04	166.04	44	79.33	106.00	34
Panama	2.32	3.39	46	1.07	0.91	-15
Papua New Guinea	3.81	6.45	69	3.23	5.64	75
Paraguay	4.04	6.23	54	2.17	2.47	14
Peru	21.26	28.84	36	6.56	8.25	26
Philippines	59.51	90.35	52	34.99	31.69	-9
Rwanda	6.75	9.72	44	6.28	7.94	26
Saint Kitts and Nevis	0.06	0.05	-11	0.03	0.03	19
Saint Lucia	0.13	0.17	28	0.07	0.12	68
Saint Vincent and the Grenadines	0.11	0.11	1	0.09	0.06	-33
Samoa	0.17	0.18	8	0.13	0.14	8
Sao Tome and Principe	0.11	0.16	52	0.07	0.06	-8
Senegal	6.96	12.21	75	4.35	7.04	62
Seychelles	0.07	0.09	29	0.03	0.04	36
Sierra Leone	3.95	5.56	41	2.74	3.46	26

Rural as percentage of total population		Agricultural population (million)		Growth agricultural population (percentage)	Agricultural as percentage of rural population	
Calculation from RPR 1992	WDI	RPR 1992	FAOSTAT	Calculation from RPR 1992 and FAOSTAT	Calculation from RPR 1992	Calculation from FAOSTAT
1988	**Closest 2008**	**1988**	**Closest 2007**	**1988-2007**	**1988**	**Closest 2007**
79	70	0.75	1.24	64	101	112
66	72	0.23	0.12	-49	35	22
71	53	3.84	5.87	53	86	113
58	52	2.80	2.07	-26	100	55
73	70	520.11	579.80	11	87	72
73	49	80.83	88.28	9	63	80
46	32	15.01	16.58	11	61	73
27	*34*	3.88	1.89	-51	81	.
49	47	0.75	0.50	-33	63	40
33	22	0.20	0.42	111	20	33
78	78	17.96	27.23	52	100	90
83	69	2.80	4.60	64	88	107
17	13	0.27	0.09	-65	56	17
81	75	1.36	0.82	-40	100	54
58	40	1.70	2.31	37	122	153
76	70	8.71	13.33	53	102	99
86	81	6.06	10.77	78	89	93
59	30	5.31	3.60	-32	54	45
80	62	0.13	0.06	-52	81	33
81	68	7.23	9.53	32	101	111
61	59	1.25	1.60	27	108	85
58	58	0.26	0.11	-55	41	16
29	23	26.51	21.03	-21	109	87
53	44	9.13	8.73	-4	72	64
76	63	12.21	16.81	38	108	122
76	67	19.18	33.46	74	63	101
73	63	0.77	0.91	18	81	67
91	83	16.77	26.32	57	101	111
41	43	1.44	0.97	-33	96	40
82	83	5.89	11.85	101	108	97
66	52	69.04	40.23	-42	98	51
90	28	0.59	0.84	43	47	106
69	64	62.07	76.32	23	78	72
46	27	0.60	0.64	7	56	71
85	87	2.63	4.78	82	81	85
54	40	1.96	1.91	-2	90	77
31	29	8.02	7.18	-11	122	87
59	35	28.25	31.33	11	81	99
93	82	6.19	8.50	37	99	107
51	68	0.00	0.01	267	11	33
55	72	0.04	0.04	-17	58	29
80	53	0.03	0.02	-30	38	40
77	77	0.02	0.05	148	16	37
65	39	0.08	0.09	24	109	147
62	58	5.50	8.47	54	126	120
43	46	0.05	0.06	21	179	160
69	62	2.52	3.34	33	92	97

TABLE 2 **Population and agriculture** (cont.)

Variable	Total population (million)		Growth total population (percentage)	Rural population (million)		Growth rural population (percentage)
Source	RPR 1992	WDI (*italics*: 2009 UN estimate)	Calculation from RPR 1992 and WDI	RPR 1992	WDI (*italics*: 2009 UN estimate)	Calculation from RPR 1992 and WDI
Period	**1988**	**Closest 2008**	**1988-2008**	**1988**	**Closest 2008**	**1988-2008**
Solomon Islands	0.30	0.51	68	0.27	0.42	53
Somalia	7.10	8.95	26	4.63	5.68	23
South Africa	33.73	48.69	44	16.54	19.11	16
Sri Lanka	16.83	20.16	20	13.26	17.11	29
Sudan	23.83	41.35	74	18.73	23.39	25
Suriname	0.39	0.52	31	0.21	0.13	-38
Swaziland	0.74	1.17	58	0.51	0.88	71
Syrian Arab Republic	11.63	21.23	83	5.72	9.72	70
Thailand	54.16	67.39	24	42.54	44.93	6
Togo	3.25	6.46	98	2.47	3.75	52
Tonga	0.12	0.10	-11	0.09	0.08	-16
Trinidad and Tobago	1.24	1.34	8	0.41	1.16	185
Tunisia	7.82	10.33	32	3.62	3.46	-4
Turkey	53.67	73.91	38	28.24	23.15	-18
Uganda	17.22	31.66	84	15.50	27.55	78
United Republic of Tanzania	25.43	42.48	67	19.93	31.64	59
Uruguay	3.08	3.33	8	0.46	0.26	-44
Venezuela (Bolivarian Republic of)	18.76	27.94	49	1.97	1.87	-5
Viet Nam	64.21	86.21	34	50.61	62.21	23
Yemen	7.54	23.05	206	5.81	15.99	175
Zambia	7.87	12.62	60	3.68	8.15	121
Zimbabwe	9.12	12.46	37	6.72	7.81	16
Asia and the Pacific	**2 679.53**	**3 542.57**	**33**	**2 014.08**	**2 188.14**	**14**
East Asia	1 103.13	1 349.50	22	861.20	763.19	-11
Oceania	5.12	8.08	61	4.14	6.67	66
South Asia	1 148.88	1 615.84	41	841.24	1 111.77	33
South East Asia	422.40	569.14	36	307.50	306.50	2
Sub-Saharan Africa	**476.55**	**777.10**	**66**	**338.06**	**496.75**	**54**
Eastern Africa	185.51	307.39	65	149.16	237.19	60
Southern Africa	38.65	55.91	45	20.30	23.61	18
Middle Africa	65.57	122.50	88	40.75	71.28	85
Western Africa	186.83	291.30	58	127.85	164.67	35
Latin America and the Caribbean	**425.27**	**566.97**	**34**	**122.60**	**122.22**	**5**
Caribbean	27.93	35.74	31	12.02	13.92	25
Central America	112.41	147.31	32	39.02	42.64	13
South America	284.93	383.92	35	71.55	65.66	-4
Middle East and North Africa	**228.68**	**360.56**	**63**	**122.65**	**161.06**	**47**
Middle East	97.72	161.77	79	47.32	61.83	60
North Africa	130.96	198.79	53	75.33	99.23	40

Rural as percentage of total population		Agricultural population (million)		Growth agricultural population (percentage)	Agricultural as percentage of rural population	
Calculation from RPR 1992	WDI	RPR 1992	FAOSTAT	Calculation from RPR 1992 and FAOSTAT	Calculation from RPR 1992	Calculation from FAOSTAT
1988	**Closest 2008**	**1988**	**Closest 2007**	**1988-2007**	**1988**	**Closest 2007**
90	82	0.14	0.34	143	52	82
65	63	5.12	5.85	14	111	103
49	39	7.17	5.34	-26	43	28
79	85	8.75	8.79	0	66	51
79	57	14.90	22.00	48	80	94
53	25	0.07	0.09	33	32	69
70	75	0.50	0.35	-29	97	40
49	46	2.95	4.33	47	52	45
79	67	33.53	29.10	-13	79	65
76	58	2.29	3.49	52	93	93
79	75	0.01	0.03	114	15	39
33	87	0.10	0.09	-6	25	8
46	34	2.04	2.17	6	56	63
53	31	24.73	15.77	-36	88	68
90	87	14.11	23.05	63	91	84
78	74	20.45	30.90	51	103	98
15	8	0.43	0.34	-21	94	134
11	7	2.13	1.94	-9	108	104
79	72	39.80	55.50	39	79	89
77	69	4.83	9.30	93	83	58
47	65	5.50	8.02	46	149	98
74	63	.	7.28	.	.	93
75	**62**	**1 681.11**	**1 904.18**	**14**	**63**	**54**
78	57	752.51	842.58	12	68	62
81	83	3.10	5.52	82	61	68
73	69	709.10	800.62	13	62	49
73	54	216.40	255.46	24	51	45
71	**64**	**316.21**	**432.49**	**49**	**70**	**57**
77	74	135.61	225.17	60	74	71
53	42	10.57	8.22	-19	47	30
62	58	44.08	69.63	62	67	57
68	57	125.95	129.47	29	67	44
29	**22**	**118.13**	**96.65**	**-12**	**28**	**17**
43	46	9.47	9.38	21	35	26
35	29	38.63	33.08	-11	34	22
25	17	70.03	54.20	-18	25	14
54	**44**	**90.89**	**96.95**	**22**	**40**	**29**
50	36	37.44	32.65	19	39	23
58	50	53.46	64.31	23	41	32

TABLE 3 **Poverty, hunger and inequality**

Variables	Poverty incidence <US$1.25/day (percentage of total population)			Poverty gap US$1.25/day poverty line (percentage)	Percentage of people living under US$2/day			Poverty gap US$2/day poverty line (percentage)
Source	WDI (except *italics*: PovCalNet)			WDI	WDI			WDI
Period	**Closest 1988**	**Closest 1998**	**Closest 2008**	**Closest 2008**	**Closest 1988**	**Closest 1998**	**Closest 2008**	**Closest 2008**
Afghanistan	.	.	.	.	.	.	.	.
Algeria	6.6	6.8	.	.	23.8	23.6	.	.
Angola	.	54.3	.	.	.	70.2	.	.
Antigua and Barbuda	.	.	.	.	.	.	.	.
Argentina	2.0	2.0	4.5	1.0	2.0	8.9	11.3	3.6
Bangladesh	.	59.3	49.6	13.1	.	87.4	81.3	33.8
Barbados	.	.	.	.	.	.	.	.
Belize	.	.	.	.	.	.	.	.
Benin	.	.	47.3	15.7	.	.	75.3	33.5
Bhutan	.	.	26.2	7.0	.	.	49.5	18.8
Bolivia (Plurinational State of)	.	18.9	19.6	9.7	.	29.9	30.3	15.5
Botswana	35.6	.	.	.	54.7	.	.	.
Brazil	17.7	11.0	5.2	1.3	30.5	22.5	12.7	4.1
Burkina Faso	.	70.0	56.5	20.3	.	87.6	81.2	39.2
Burundi	.	86.4	81.3	36.4	.	95.4	93.4	56.0
Cambodia	.	.	25.8	6.1	.	.	57.8	20.1
Cameroon	.	51.5	32.8	10.2	.	74.4	57.7	23.6
Cape Verde	.	.	20.6	5.9	.	.	40.2	14.9
Central African Republic	.	.	62.4	28.3	.	.	81.9	45.3
Chad	.	.	61.9	25.6	.	.	83.3	43.9
Chile	10.5	2.0	2.0	0.5	23.4	7.5	2.4	0.5
China	54.0	35.6	15.9	4.0	83.6	61.4	36.3	12.2
Colombia	.	16.5	16.0	5.7	.	29.7	27.9	11.9
Comoros	.	.	46.1	20.8	.	.	65.0	34.2
Congo	.	.	54.1	22.8	.	.	74.4	38.8
Costa Rica	10.4	4.0	2.4	0.5	21.5	11.1	8.6	2.3
Côte d'Ivoire	13.8	24.1	23.3	6.8	35.1	49.1	46.8	17.6
Cuba	.	.	.	.	.	.	.	.
Democratic People's Republic of Korea	.	.	.	.	.	.	.	.
Democratic Republic of the Congo	.	.	59.2	25.3	.	.	79.5	42.4
Djibouti	.	.	.	.	.	.	.	.
Dominica	12.2	5.9	5.0	0.9	27.2	15.7	15.1	4.3
Dominican Republic	54.2	35.5	16.8	.	.	.	.	38.6
Ecuador	12.2	14.9	4.7	1.2	22.3	27.7	12.8	4.0
Egypt	.	2.5	2.0	0.5	.	26.3	18.4	3.5
El Salvador	15.9	13.5	11.0	4.8	24.7	25.4	20.5	8.9
Equatorial Guinea	.	.	.	.	.	.	.	.
Eritrea	.	.	.	.	.	.	.	.
Ethiopia	.	55.6	39.0	9.6	.	86.4	77.5	28.8
Fiji	.	.	.	.	.	.	.	.
Gabon	.	.	4.8	0.9	.	.	19.6	5.0
Gambia (The)	.	66.7	34.3	12.1	.	82.0	56.7	24.9
Ghana	50.6	39.1	30.0	10.5	79.0	63.3	53.6	22.3
Grenada	.	.	.	.	.	.	.	.
Guatemala	52.5	15.6	11.7	3.5	70.4	29.8	24.3	8.9
Guinea	.	.	70.1	32.2	.	.	87.2	50.2

Under-nourishment (percentage people with unmet energy needs) FAOSTAT		Change in under-nourish-ment Calculations from FAOSTAT	Stunting (percentage of under-5s below -2SD from the median age-for-height of the reference population) WDI		Change in stunting Calculations from WDI	Gini Index WDI			Gender Index[a] OECD
1990-1992	2004-2006	1990-1992/ 2004-2006	Closest 1998	Closest 2008	1998-2008	Closest 1988	Closest 1998	Closest 2008	2009
.	.	.	.	59.3	.	.	.	.	0.582
.	.	.	23.6	.	.	0.40	0.35	.	0.190
66.0	44.0	-22.0	61.7	.	.	.	0.59	.	.
12.0	27.0	15.0	.	.	.	.	.	.	.
.	.	.	.	8.2	.	0.45	0.50	0.50	0.004
36.0	26.0	-10.0	61.8	47.8	-14.0	.	0.31	0.31	0.245
.	.	.	.	.	.	.	.	.	.
5.0	.	.	.	.	.	.	.	.	.
28.0	19.0	-9.0	.	.	.	.	.	0.39	0.189
.	.	.	47.7	.	.	.	.	0.47	0.163
24.0	23.0	-1.0	33.1	32.5	-0.6	.	0.58	0.58	0.010
20.0	26.0	6.0	29.1	.	.	0.54	0.61	.	0.081
10.0	6.0	-4.0	13.5	7.1	-6.4	0.61	0.59	0.55	0.019
14.0	9.0	-5.0	45.5	43.1	-2.4	.	0.47	0.40	0.162
44.0	63.0	19.0	63.1	.	.	.	0.42	0.33	0.107
38.0	25.0	13.0	58.6	39.5	19.1	.	.	.	0.022
34.0	23.0	-11.0	36.7	35.4	-1.3	.	0.47	.	0.217
12.0	14.0	2.0	.	.	.	.	.	.	.
47.0	41.0	-6.0	44.6	.	.	.	.	0.44	0.184
59.0	38.0	-21.0	45.0	44.8	-0.2	.	.	0.40	0.322
7.0	.	.	.	2.1	.	0.56	0.56	0.52	0.020
.	.	.	.	.	.	.	.	0.42	0.218
15.0	10.0	-5.0	18.1	16.2	-1.9	.	0.58	0.58	0.013
40.0	51.0	11.0	41.4	.	.	.	.	0.64	.
40.0	21.0	-19.0	.	31.2	.	.	.	0.47	.
.	.	.	.	.	.	0.34	0.48	0.47	0.007
15.0	14.0	-1.0	31.5	40.1	8.6	0.37	0.44	.	0.137
5.0	.	.	.	.	.	.	.	.	0.016
.	.	.	.	.	.	.	.	.	.
29.0	75.0	46.0	.	.	.	.	.	0.44	0.204
60.0	31.0	-29.0	.	.	.	.	.	.	.
.	.	.	13.9	.	.	0.50	0.49	0.50	.
27.0	21.0	-6.0	.	25.6	.	.	.	.	0.040
24.0	13.0	-11.0	.	29.0	.	0.50	0.54	0.54	0.009
.	.	.	34.9	23.8	-11.1	.	0.30	0.32	0.218
9.0	10.0	1.0	.	24.6	.	0.49	0.52	0.50	0.008
.	.	.	42.6	35.0	-7.6	.	.	.	0.176
67.0	66.0	1.0	44.4	.	.	.	.	.	0.136
71.0	44.0	-27.0	57.4	50.7	-6.7	.	0.30	0.30	0.233
8.0	.	.	.	.	.	.	.	.	0.055
5.0	.	.	.	.	.	.	.	0.41	0.219
20.0	29.0	9.0	24.1	27.6	3.5	.	0.50	0.47	0.178
34.0	8.0	-26.0	31.3	28.0	-3.3	0.35	0.41	0.43	0.113
14.0	23.0	9.0	.	.	.	.	.	.	.
14.0	16.0	2.0	53.1	.	.	0.58	0.56	0.54	0.032
19.0	16.0	-3.0	34.3	39.3	5.0	.	.	0.43	0.228

[a] Gender Index – 0 to 1 scale: 0 = no inequality; 1 = complete inequality

TABLE 3 **Poverty, hunger and inequality** (cont.)

Variables	Poverty incidence <US$1.25/day (percentage of total population)			Poverty gap US$1.25/day poverty line (percentage)	Percentage of people living under US$2/day			Poverty gap US$2/day poverty line (percentage)
Source	WDI (except *italics*: PovCalNet)			WDI	WDI			WDI
Period	**Closest 1988**	**Closest 1998**	**Closest 2008**	**Closest 2008**	**Closest 1988**	**Closest 1998**	**Closest 2008**	**Closest 2008**
Guinea-Bissau	.	.	48.8	16.5	.	.	77.9	34.8
Guyana	.	7.7	.	.	.	16.8	.	.
Haiti	.	.	54.9	28.2	.	.	72.1	41.8
Honduras	43.5	15.6	18.2	8.2	61.6	29.2	29.7	14.1
India	53.6	*44.7*	41.6	10.5	83.8	*78.3*	75.6	29.5
Indonesia	*68.1*	*47.7*	*21.4*	.	*83.7*	*78.3*	*75.6*	.
Iran (Islamic Republic of)	4.2	2.0	2.0	0.5	13.8	8.3	8.0	1.8
Iraq	.	.	.	.	.	.	.	.
Jamaica	4.0	2.0	2.0	0.5	13.4	6.2	5.8	0.9
Jordan	2.0	2.0	2.0	0.5	2.0	11.5	3.5	0.6
Kenya	.	19.6	19.7	6.1	.	42.7	39.9	15.1
Lao People's Democratic Republic	.	49.3	44.0	12.1	.	79.9	76.8	31.0
Lebanon	.	.	.	.	.	.	.	.
Lesotho	44.3	47.6	43.4	20.8	62.2	61.1	62.2	33.0
Liberia	.	.	83.7	40.8	.	.	94.8	59.5
Madagascar	.	82.3	67.8	26.5	.	93.1	89.6	46.9
Malawi	.	83.1	73.9	32.3	.	93.5	90.4	51.8
Malaysia	2.4	2.0	2.0	0.5	11.9	6.8	7.8	1.4
Maldives	.	.	.	.	.	.	.	.
Mali	.	.	51.4	18.8	.	.	77.1	36.5
Mauritania	41.3	23.4	.	.	64.6	48.3	.	.
Mauritius	.	.	.	.	.	.	.	.
Mexico	7.7	8.0	2.0	0.5	17.3	19.1	4.8	1.0
Morocco	8.4	6.8	2.5	0.5	28.6	24.4	13.9	3.1
Mozambique	.	81.3	74.7	35.4	.	92.9	90.0	53.5
Myanmar	.	.	.	.	.	.	.	.
Namibia	.	.	.	.	.	.	.	.
Nepal	78.1	68.4	55.1	19.7	93.4	88.1	77.6	37.8
Nicaragua	.	21.8	15.8	5.2	.	38.5	31.8	12.3
Niger	.	.	65.9	28.1	.	.	85.6	46.6
Nigeria	53.9	68.5	64.4	29.6	76.9	86.4	83.9	46.9
Oman	.	.	.	.	.	.	.	.
Pakistan	66.5	48.1	22.6	4.3	89.1	83.2	60.3	18.7
Panama	.	7.2	9.5	3.1	.	15.2	17.8	7.1
Papua New Guinea	.	35.8	.	.	.	57.4	.	.
Paraguay	5.8	19.6	6.4	2.7	19.4	30.2	14.2	5.5
Peru	2.0	8.6	7.9	1.9	5.2	19.9	18.5	5.9
Philippines	30.5	21.6	22.6	5.5	56.9	43.8	45.0	16.3
Rwanda	63.3	76.6	.	.	88.3	90.3	.	.
Saint Kitts and Nevis	.	.	.	.	.	.	.	.
Saint Lucia	.	20.9	.	.	.	40.5	.	.
Saint Vincent and the Grenadines	.	.	.	.	.	.	.	.
Samoa	.	.	.	.	.	.	.	.
Sao Tome and Principe	.	.	.	.	.	.	.	.
Senegal	.	54.1	33.5	10.8	.	79.4	60.3	24.6
Seychelles	.	.	.	.	.	.	.	.

Under-nourishment (percentage people with unmet energy needs)		Change in under-nourish-ment	Stunting (percentage of under-5s below -2SD from the median age-for-height of the reference population)		Change in stunting	Gini Index			Gender Index[a]
FAOSTAT		Calculations from FAOSTAT	WDI		Calculations from WDI	WDI			OECD
1990-1992	2004-2006	1990-1992/ 2004-2006	Closest 1998	Closest 2008	1998-2008	Closest 1988	Closest 1998	Closest 2008	2009
20.0	31.0	11.0	36.1	.	.	.	.	.	.
18.0	6.0	-12.0	13.8	.	.	.	0.45	.	.
63.0	58.0	-5.0	28.3	29.7	1.4	.	.	.	.
19.0	12.0	-7.0	43.3	29.9	-13.4	0.57	0.53	0.55	0.033
24.0	22.0	-2.0	51.0	47.9	-3.1	.	.	0.37	0.318
19.0	16.0	-3.0	42.4	28.6	-13.8	.	.	0.39	0.128
.	.	.	.	.	.	0.47	0.44	0.38	0.304
.	.	.	28.3	27.5	-0.8	.	.	.	0.275
11.0	5.0	-6.0	8.3	4.5	-3.8	0.43	0.44	0.46	0.048
.	.	.	11.1	.	.	0.36	0.36	0.38	.
33.0	30.0	-3.0	37.0	35.8	-1.2	.	0.43	0.48	0.137
27.0	19.0	-8.0	48.2	.	.	.	0.35	0.33	0.036
.	.	.	.	.	.	.	.	.	.
15.0	15.0	0.0	53.0	45.2	-7.8	0.56	0.63	0.52	.
30.0	38.0	8.0	45.3	39.4	-5.9	.	.	0.53	0.227
.	.	.	55.5	52.8	-2.7	.	0.42	0.47	0.070
45.0	29.0	-16.0	54.6	52.5	-2.1	.	0.50	0.39	0.143
.	.	.	.	.	.	0.47	0.49	0.38	.
9.0	7.0	-2.0	46.7	.	.	.	.	.	.
14.0	10.0	-4.0	36.2	38.5	2.3	.	.	0.39	0.339
10.0	8.0	-2.0	.	.	.	0.44	0.37	.	0.150
7.0	6.0	-1.0	.	.	.	.	.	.	0.010
.	.	.	21.7	15.5	-6.2	0.55	0.49	0.48	.
5.0	.	.	.	23.1	.	0.39	0.39	0.41	0.053
59.0	37.0	-22.0	45.3	47.0	1.7	.	0.44	0.47	0.200
44.0	17.0	-27.0	40.8	40.6	-0.2	.	.	.	0.046
29.0	19.0	10.0	29.5	29.6	-0.1	.	.	.	0.075
21.0	16.0	-5.0	61.1	49.3	-11.8	.	0.38	0.47	0.167
52.0	21.0	-31.0	30.5	.	.	.	0.54	0.52	0.023
38.0	28.0	-10.0	47.0	54.8	7.8	.	.	0.44	0.176
15.0	8.0	-7.0	.	43.0	.	0.39	0.47	0.43	0.220
.	.	.	12.9	.	.	.	.	.	.
22.0	23.0	1.0	.	.	.	0.33	0.29	0.31	0.283
18.0	17.0	-1.0	21.5	.	.	.	0.49	0.55	.
.	.	.	.	.	.	.	0.51	.	0.209
16.0	12.0	-4.0	.	.	.	0.40	0.57	0.53	0.002
28.0	13.0	-15.0	31.6	.	.	0.46	0.46	0.50	0.012
21.0	15.0	-6.0	.	33.8	.	0.41	0.46	0.44	0.008
45.0	40.0	-5.0	48.3	51.7	3.4	0.29	0.47	.	0.169
10.0	15.0	5.0	.	.	.	.	.	.	.
9.0	8.0	-1.0	.	.	.	.	0.43	.	.
18.0	6.0	-12.0	.	.	.	.	.	.	.
9.0	.	.	.	.	.	.	.	.	.
15.0	5.0	-10.0	35.2	.	.	.	.	.	.
28.0	25.0	-3.0	29.5	20.1	-9.4	.	0.41	0.39	0.110
11.0	8.0	-3.0	.	.	.	.	.	.	.

[a] Gender Index – 0 to 1 scale: 0 = no inequality; 1 = complete inequality

TABLE 3 **Poverty, hunger and inequality** (cont.)

Variables	Poverty incidence <US$1.25/day (percentage of total population)			Poverty gap US$1.25/day poverty line (percentage)	Percentage of people living under US$2/day			Poverty gap US$2/day poverty line (percentage)
Source	WDI (except *italics*: PovCalNet)			WDI	WDI			WDI
Period	**Closest 1988**	**Closest 1998**	**Closest 2008**	**Closest 2008**	**Closest 1988**	**Closest 1998**	**Closest 2008**	**Closest 2008**
Sierra Leone	62.8	.	53.4	20.3	75.0	.	76.1	37.5
Solomon Islands	.	.	.	.	.	.	.	.
Somalia	.	.	.	.	.	.	.	.
South Africa	.	26.2	.	.	.	42.9	.	.
Sri Lanka	20.0	16.3	13.9	2.6	51.6	46.7	39.7	11.8
Sudan	.	.	.	.	.	.	.	.
Suriname	.	15.5	.	.	.	27.2	.	.
Swaziland	.	78.6	62.8	29.4	.	89.3	81.0	45.8
Syrian Arab Republic	.	.	.	.	.	.	.	.
Thailand	17.2	2.0	2.0	0.5	40.9	20.0	11.5	2.0
Togo	.	.	38.7	11.4	.	.	69.3	27.9
Tonga	.	.	.	.	.	.	.	.
Trinidad and Tobago	2.0	.	.	.	8.6	.	.	.
Tunisia	5.9	2.5	.	.	19.0	12.8	.	.
Turkey	2.0	.	2.7	0.9	7.7	.	9.0	2.6
Uganda	68.7	60.5	51.5	19.1	85.9	82.7	75.6	36.3
United Republic of Tanzania	.	88.5	.	.	.	96.6	.	.
Uruguay	.	2.0	2.0	0.5	.	3.1	4.2	0.6
Venezuela (Bolivarian Republic of)	6.5	14.0	3.5	1.2	17.9	23.9	10.2	3.2
Viet Nam	.	49.7	21.5	4.6	.	78.2	48.4	16.2
Yemen	.	12.9	17.5	4.2	.	36.3	46.6	14.8
Zambia	.	55.4	64.3	32.8	.	74.8	81.5	48.3
Zimbabwe	.	.	.	.	.	.	.	.
Asia and the Pacific	**52.5**	**39.0**	**26.8**	**7.8**	**80.1**	**67.9**	**55.0**	**21.5**
East Asia	54.0	34.4	15.9	4.0	83.6	61.4	36.3	12.2
Oceania	.	35.8	.	.	.	57.4	.	.
South Asia	52.2	44.6	38.5	9.7	80.3	76.2	71.1	27.4
South East Asia	47.8	35.0	18.5	11.5	66.6	60.7	53.5	26.9
Sub-Saharan Africa	**52.3**	**57.9**	**52.5**	**21.3**	**74.8**	**77.2**	**75.6**	**37.9**
Eastern Africa	67.1	63.0	48.4	17.9	86.6	82.6	74.7	34.9
Southern Africa	40.4	28.3	50.5	23.9	58.8	44.7	69.1	37.7
Middle Africa	.	52.8	53.9	22.3	.	72.4	75.0	38.6
Western Africa	49.7	60.0	55.3	23.6	72.9	79.7	76.7	40.0
Latin America and the Caribbean	**13.6**	**10.8**	**7.2**	**2.3**	**23.1**	**21.3**	**14.3**	**5.9**
Caribbean	36.8	27.5	31.6	22.1	12.1	8.3	57.6	35.4
Central America	13.6	9.6	4.8	1.6	24.3	21.2	9.9	3.3
South America	12.6	10.7	6.7	2.0	22.7	21.4	14.5	5.2
Middle East and North Africa	**4.6**	**5.2**	**4.0**	**1.0**	**16.1**	**25.3**	**17.2**	**4.3**
Middle East	2.0	10.6	6.0	1.6	7.4	31.1	17.1	5.2
North Africa	7.3	4.3	2.1	0.5	25.2	24.4	17.2	3.4

Under-nourishment (percentage people with unmet energy needs) FAOSTAT		Change in under-nourish-ment Calculations from FAOSTAT	Stunting (percentage of under-5s below -2SD from the median age-for-height of the reference population) WDI		Change in stunting Calculations from WDI	Gini Index WDI			Gender Index[a] OECD
1990-1992	2004-2006	1990-1992/ 2004-2006	Closest 1998	Closest 2008	1998-2008	Closest 1988	Closest 1998	Closest 2008	2009
45.0	46.0	1.0	38.4	46.9	8.5	0.63	.	0.43	0.342
25.0	9.0	-16.0	.	.	.	.	.	.	.
.	.	.	.	42.1	.	.	.	.	.
.	.	.	.	.	.	.	0.58	.	0.087
27.0	21.0	-6.0	18.4	.	.	0.32	0.35	.	0.059
31.0	20.0	-11.0	47.6	.	.	.	.	.	0.678
11.0	7.0	-4.0	14.5	.	.	.	0.53	.	.
12.0	18.0	6.0	36.6	.	.	.	0.61	.	0.157
.	.	.	.	.	.	.	.	.	.
29.0	17.0	-12.0	.	15.7	.	0.44	0.44	0.42	0.011
45.0	37.0	-8.0	29.8	.	.	.	.	0.34	0.203
.	.	.	.	.	.	.	.	.	.
11.0	10.0	-1.0	5.3	.	.	0.43	.	.	0.023
.	.	.	.	.	.	0.40	0.41	.	0.019
.	.	.	19.1	15.6	-3.5	0.44	.	0.43	.
19.0	15.0	-4.0	45.0	.	.	0.44	0.43	0.43	0.187
.	.	.	48.3	44.4	-3.9	.	0.35	.	0.112
5.0	.	.	.	13.9	.	.	0.45	0.46	0.010
10.0	12.0	2.0	.	.	.	0.53	0.50	0.43	0.010
28.0	13.0	-15.0	43.4	35.8	-7.6	.	0.36	0.38	0.030
30.0	32.0	2.0	59.3	.	.	.	0.33	0.38	0.327
40.0	45.0	5.0	48.6	.	.	.	0.53	0.51	0.219
40.0	39.0	-1.0	33.7	35.8	2.1	.	0.50	.	0.187
25.0	**20.7**	**-4.1**	**50.3**	**44.0**	**-5.6**	**0.40**	**0.37**	**0.39**	**0.229**
.	.	.	.	.	.	.	.	0.42	0.210
12.7	9.0	-16.0	.	.	.	.	0.51	.	0.191
25.0	22.4	-2.6	52.2	48.3	-4.5	0.38	0.33	0.36	0.300
25.0	15.8	-8.4	43.3	31.0	-10.5	0.43	0.42	0.40	0.067
34.0	**29.4**	**-4.6**	**45.4**	**43.2**	**-1.5**	**0.39**	**0.44**	**0.42**	**0.183**
46.1	34.9	-11.9	46.7	44.5	-3.0	0.40	0.37	0.40	0.164
19.6	19.6	5.5	37.8	37.3	-7.8	0.55	0.58	0.52	0.088
38.4	55.7	16.6	47.8	38.3	-1.0	.	0.52	0.44	0.219
20.0	12.9	-7.2	36.0	41.1	1.6	0.39	0.45	0.42	0.201
14.7	**10.7**	**-4.9**	**20.6**	**13.5**	**-5.4**	**0.55**	**0.54**	**0.52**	**0.016**
25.8	33.3	-5.1	22.6	25.5	0.5	0.43	0.44	0.46	0.029
20.4	15.0	-5.5	26.7	17.2	-6.8	0.55	0.50	0.49	0.024
13.0	8.6	-4.8	17.1	10.8	-5.1	0.56	0.56	0.53	0.014
21.1	**24.3**	**-6.4**	**32.8**	**22.2**	**-6.4**	**0.41**	**0.34**	**0.38**	**0.270**
30.0	32.0	2.0	28.7	20.5	-2.4	0.43	0.34	0.42	0.253
18.8	20.0	-11.0	35.8	23.6	-11.1	0.40	0.34	0.35	0.272

[a] Gender Index – 0 to 1 scale: 0 = no inequality; 1 = complete inequality

TABLE 4 **Agricultural employment**

Variable	Agricultural employment (millions people)		Growth in agricultural employment (percentage)	Agricultural employment (percentage)		Agriculture value added per worker (2000 US$/cap.)		Growth in agricultural labour productivity (percentage)
Source	WDI		Calculation from FAOSTAT	Calculation from FAOSTAT and WDI		WDI		Calculation from WDI
Period	**Closest 1988**	**Closest 2007**	**1998-2008**	**Closest 1988**	**Closest 2007**	**Closest 1988**	**Closest 2008**	**1988-2008**
Afghanistan	3.89	7.53	93.8	63.3	.	.	.	.
Algeria	1.84	2.92	58.5	14.6	12.5	1 631	2 219	36.0
Angola	3.52	5.22	48.4	69.6	55.4	189	196	3.8
Antigua and Barbuda	0.01	0.01	12.5	.	.	2 189	2 751	25.7
Argentina	1.46	1.43	-2.5	7.7	5.6	6 690	10 762	60.9
Bangladesh	32.90	37.87	15.1	56.0	36.9	236	346	46.8
Barbados	0.01	0.01	-44.4	5.4	2.7	10 791	15 621	44.8
Belize	0.02	0.03	52.6	20.3	15.5	3 090	6 696	116.7
Benin	1.44	1.92	33.7	62.8	41.4	301	536	77.9
Bhutan	0.75	1.02	36.1	.	.	120	134	12.0
Bolivia (Plurinational State of)	1.21	1.65	36.5	34.5	29.1	652	783	20.1
Botswana	0.29	0.35	21.6	43.8	29.7	531	367	-30.9
Brazil	16.03	11.93	-25.6	18.6	9.3	1 439	3 218	123.7
Burkina Faso	3.90	5.79	48.5	93.1	73.5	111	179	60.5
Burundi	2.67	3.59	34.5	95.2	76.4	109	64	-40.9
Cambodia	3.03	4.96	63.8	62.9	56.2	.	388	.
Cameroon	3.13	3.70	18.2	53.2	35.3	391	666	70.1
Cape Verde	0.04	0.04	10.8	22.5	14.0	1 582	1 510	-4.6
Central African Republic	1.14	1.28	12.2	74.9	52.4	292	384	31.7
Chad	2.25	3.09	37.0	77.3	54.3	174	225	29.1
Chile	0.92	1.02	11.4	11.3	8.9	3 044	5 720	87.9
China	474.53	509.22	7.3	65.6	53.7	237	430	81.6
Colombia	3.76	3.65	-3.0	20.1	12.6	2 691	2 821	4.8
Comoros	0.18	0.27	54.9	84.7	71.7	395	436	10.2
Congo	0.49	0.58	19.7	40.7	29.1	.	.	.
Costa Rica	0.31	0.33	7.2	17.7	10.7	2 692	4 643	72.5
Côte d'Ivoire	2.83	3.22	14.1	46.2	28.3	561	817	45.7
Cuba	0.87	0.71	-18.2	12.3	9.0	.	.	.
Democratic People's Republic of Korea	3.84	3.10	-19.2	28.5	19.0	.	.	.
Democratic Republic of the Congo	10.44	14.43	38.2	58.3	44.6	183	149	-18.4
Djibouti	0.01	0.01	-11.1	.	.	5 731	4 817	-15.9
Dominica	0.01	0.01	-11.1	21.6	17.6	1 895	3 466	82.9
Dominican Republic	0.69	0.53	-23.1	15.5	7.7	273	459	67.7
Ecuador	1.17	1.21	3.3	21.3	14.4	1 841	1 778	-3.4
Egypt	7.88	8.60	9.2	26.6	16.7	1 377	2 128	54.6
El Salvador	0.70	0.81	15.3	25.2	21.9	1 544	1 700	10.1
Equatorial Guinea	0.11	0.14	25.2	53.2	37.8	.	1 060	.
Eritrea	.	1.43	.	.	53.3	.	119	.
Ethiopia	.	27.53	.	.	64.4	.	177	.
Fiji	0.11	0.14	19.5	26.8	25.3	1 852	1 867	0.8
Gabon	0.22	0.20	-10.5	47.4	23.1	1 260	1 663	32.0
Gambia (The)	0.36	0.60	66.3	80.0	65.7	243	244	0.7
Ghana	4.15	6.25	50.4	55.8	46.4	299	332	11.0
Grenada	0.01	0.01	-8.3	22.6	16.1	2 368	1 522	-35.7
Guatemala	1.54	1.93	24.9	35.5	26.4	2 013	2 652	31.7

TABLE 4 **Agricultural employment** (cont.)

Variable	Agricultural employment (millions people)		Growth in agricultural employment (percentage)	Agricultural employment (percentage)		Agriculture value added per worker (2000 US$/cap.)		Growth in agricultural labour productivity (percentage)
Source	WDI		Calculation from FAOSTAT	Calculation from FAOSTAT and WDI		WDI		Calculation from WDI
Period	**Closest 1988**	**Closest 2007**	**1998-2008**	**Closest 1988**	**Closest 2007**	**Closest 1988**	**Closest 2008**	**1988-2008**
Guinea	2.67	3.79	41.9	88.9	71.5	136	193	42.0
Guinea-Bissau	0.37	0.55	47.3	70.9	64.9	200	246	22.9
Guyana	0.06	0.05	-13.3	13.7	10.7	1 892	3 383	78.8
Haiti	1.93	2.24	16.2	53.1	38.8	.	.	.
Honduras	0.70	0.79	12.5	29.7	18.8	1 024	1 489	45.4
India	225.85	280.72	24.3	47.7	38.8	316	402	27.3
Indonesia	42.18	50.54	19.8	41.3	33.2	452	596	31.8
Iran (Islamic Republic of)	5.36	6.69	24.9	20.0	13.2	1 615	2 687	66.4
Iraq	0.83	0.65	-21.3	9.4	.	.	1 756	.
Jamaica	0.29	0.25	-13.0	21.3	14.8	1 905	2 006	5.3
Jordan	0.12	0.19	67.2	8.0	5.4	1 754	1 392	-20.7
Kenya	8.39	12.71	51.5	80.3	60.4	347	344	-0.7
Lao People's Democratic Republic	1.52	2.28	49.5	72.7	63.1	314	457	45.3
Lebanon	0.07	0.04	-52.1	4.3	1.3	.	32 025	.
Lesotho	0.24	0.28	14.0	30.6	24.4	315	229	-27.5
Liberia	0.63	0.80	25.6	54.3	38.9	.	.	.
Madagascar	4.36	6.46	48.1	79.0	63.0	183	175	-4.9
Malawi	3.74	4.90	31.0	.	68.0	79	109	38.3
Malaysia	2.05	1.71	-16.4	20.5	9.7	351	551	57.0
Maldives	0.03	0.03	-12.9	30.3	13.0	.	.	.
Mali	3.67	4.98	35.7	95.8	73.3	181	244	34.6
Mauritania	0.52	0.71	35.1	53.7	38.3	575	356	-38.0
Mauritius	0.08	0.05	-30.8	11.4	6.1	3 720	5 338	43.5
Mexico	8.44	8.51	0.9	18.9	12.4	2 133	2 821	32.2
Morocco	4.10	4.24	3.5	31.8	20.6	1 449	1 623	12.0
Mozambique	5.72	8.25	44.2	84.8	71.9	114	154	35.8
Myanmar	14.85	19.48	31.2	66.5	58.7	.	.	.
Namibia	0.21	0.25	22.4	30.3	20.5	1 166	1 727	48.1
Nepal	8.17	12.08	47.9	82.6	71.8	180	210	16.8
Nicaragua	0.41	0.38	-6.8	20.6	11.3	.	2 172	.
Niger	3.44	5.64	63.7	95.9	79.5	168	157	-6.6
Nigeria	15.46	15.19	-1.7	33.9	18.5	.	.	.
Oman	0.24	0.32	32.6	26.2	17.5	1 129	1 350	19.5
Pakistan	20.03	27.70	38.3	36.9	28.4	524	717	36.7
Panama	0.24	0.25	5.1	17.2	11.4	2 258	4 004	77.3
Papua New Guinea	1.50	2.03	35.2	68.8	54.8	510	601	17.9
Paraguay	0.58	0.77	32.6	26.8	20.4	1 501	2 047	36.4
Peru	2.56	3.10	20.7	21.5	16.9	1 104	1 526	38.3
Philippines	10.73	13.09	21.9	32.4	23.5	900	1 097	22.0
Rwanda	3.20	4.38	36.7	93.7	81.4	164	184	12.3
Saint Kitts and Nevis	0.01	0.00	-20.0	.	.	1 866	2 230	19.6
Saint Lucia	0.02	0.02	6.7	20.8	14.2	3 691	1 246	-66.2
Saint Vincent and the Grenadines	0.01	0.01	0.0	20.4	16.7	3 019	2 215	-26.7
Samoa	0.03	0.02	-20.0	.	20.0	.	1 770	.
Sao Tome and Principe	0.03	0.05	32.4	62.8	50.9	.	.	.
Senegal	2.55	3.75	46.7	71.0	57.0	229	227	-1.0

TABLE 4 **Agricultural employment** (cont.)

Variable	Agricultural employment (millions people)		Growth in agricultural employment (percentage)	Agricultural employment (percentage)		Agriculture value added per worker (2000 US$/cap.)		Growth in agricultural labour productivity (percentage)
Source	WDI		Calculation from FAOSTAT	Calculation from FAOSTAT and WDI		WDI		Calculation from WDI
Period	**Closest 1988**	**Closest 2007**	**1998-2008**	**Closest 1988**	**Closest 2007**	**Closest 1988**	**Closest 2008**	**1988-2008**
Seychelles	0.03	0.04	14.7	.	.	486	433	-10.9
Sierra Leone	1.04	1.25	20.2	48.0	40.9	.	.	.
Solomon Islands	0.12	0.18	50.8	78.4	61.1	927	1 065	14.9
Somalia	2.29	2.57	12.1	65.9	54.8	.	.	.
South Africa	1.63	1.29	-20.6	8.4	4.2	2 129	3 839	80.3
Sri Lanka	3.40	4.23	24.4	33.0	30.6	664	705	6.2
Sudan	6.47	8.22	27.0	47.5	34.9	385	661	71.8
Suriname	0.03	0.03	14.3	11.6	9.6	3 376	3 166	-6.2
Swaziland	0.11	0.12	4.5	28.0	17.4	1 126	1 376	22.1
Syrian Arab Republic	1.15	1.69	46.7	19.9	13.0	2 638	3 382	28.2
Thailand	19.56	20.20	3.3	55.4	42.5	461	615	33.5
Togo	1.02	1.49	45.0	54.6	40.9	308	353	14.7
Tonga	0.01	0.01	-14.3	26.8	20.4	2 269	3 340	47.2
Trinidad and Tobago	0.05	0.05	-7.8	7.0	4.8	1 430	1 408	-1.5
Tunisia	0.82	0.99	20.3	18.5	13.8	1 502	2 630	75.1
Turkey	12.92	14.99	16.0	40.7	30.3	1 833	1 946	6.1
Uganda	7.09	10.57	49.1	86.9	68.9	149	179	19.9
United Republic of Tanzania	10.87	15.80	45.4	88.9	71.2	239	306	27.9
Uruguay	0.19	0.19	-1.6	10.1	9.0	5 950	9 358	57.3
Venezuela (Bolivarian Republic of)	0.86	0.76	-11.5	7.9	4.2	4 810	6 916	43.8
Viet Nam	22.80	29.47	29.2	65.0	50.9	205	313	53.1
Yemen	2.07	3.09	49.6	39.5	25.1	279	328	17.5
Zambia	2.53	3.29	30.4	66.2	51.4	211	204	-3.2
Zimbabwe	3.07	3.69	20.1	62.1	53.1	241	205	-15.0
Asia and the Pacific	**897.22**	**1 034.26**	**16.5**	**55.1**	**43.5**	**297**	**458**	**57.1**
East Asia	478.36	512.31	7.1	64.9	53.1	237	430	81.6
Oceania	1.77	2.38	34.8	62.5	50.9	639	731	16.9
South Asia	300.37	377.86	26.6	46.8	36.7	344	458	30.1
South East Asia	116.72	141.72	22.8	47.7	37.6	441	573	37.0
Sub-Saharan Africa	**122.14**	**192.45**	**36.5**	**57.5**	**46.1**	**269**	**278**	**15.3**
Eastern Africa	54.23	105.55	39.9	74.7	62.5	217	219	12.0
Southern Africa	2.48	2.29	-3.6	11.5	6.6	1 640	2 491	43.2
Middle Africa	21.34	28.68	35.4	60.6	45.0	232	260	5.4
Western Africa	44.10	55.94	31.3	50.7	35.5	249	299	26.2
Latin America and the Caribbean	**45.07**	**42.64**	**-1.8**	**18.4**	**11.7**	**1 989**	**3 103**	**59.9**
Caribbean	3.89	3.84	1.9	24.3	20.0	971	1 133	41.1
Central America	12.35	13.02	6.2	20.8	14.0	2 037	2 704	33.7
South America	28.83	25.79	-6.4	17.1	10.3	2 008	3 372	73.4
Middle East and North Africa	**38.50**	**45.94**	**22.1**	**29.9**	**21.7**	**1 364**	**1 710**	**32.8**
Middle East	17.40	20.97	24.3	31.3	24.3	1 684	1 853	9.7
North Africa	21.11	24.97	20.3	28.8	19.9	1 114	1 590	51.7

TABLE 5 **Land**

Variable	Agricultural land (thousands of hectares)		Arable land (thousands of hectares)		Arable land per head of agricultural population (hectare/cap)		Irrigated land (percentage of arable)	
Source	FAOSTAT		FAOSTAT		Calculation from FAOSTAT		WDI	
Period	**Closest 1988**	**Closest 2007**	**Closest 1988**	**Closest 2007**	**Closest 1988**	**Closest 2007**	**1988**	**2008**
Afghanistan	38 040	38 048	7 910	8 531	1.0	0.5	33.8	33.8
Algeria	38 817	41 150	7 101	7 469	1.0	1.0	4.4	6.9
Angola	57 400	57 590	2 900	3 300	0.4	0.3	2.4	2.2
Antigua and Barbuda	14	14	8	8	0.4	0.4	.	.
Argentina	127 380	129 355	26 367	32 500	6.5	10.1	.	.
Bangladesh	10 063	9 011	9 179	7 970	0.1	0.1	24.8	56.1
Barbados	19	19	16	16	0.8	2.0	17.6	29.4
Belize	115	152	50	70	0.8	1.0	3.0	2.9
Benin	2 210	3 567	1 610	2 700	0.6	0.7	0.6	0.4
Bhutan	430	592	140	128	0.3	0.2	26.2	23.5
Bolivia (Plurinational State of)	35 250	37 768	2 080	3 609	0.7	0.9	5.3	4.1
Botswana	26 010	25 980	409	250	0.7	0.3	0.5	0.3
Brazil	237 687	263 600	49 800	59 500	1.3	2.6	4.4	4.4
Burkina Faso	9 564	10 900	3 504	5 200	0.5	0.4	0.4	0.5
Burundi	2 145	2 326	930	995	0.2	0.1	1.2	1.5
Cambodia	415	546	3 450	3 800	0.5	0.4	.	.
Cameroon	9 210	9 160	5 940	5 960	0.8	0.7	0.3	0.4
Cape Verde	67	74	40	50	0.4	0.5	7.1	6.1
Central African Republic	5 006	5 220	1 920	1 925	0.8	0.7	0.0	0.1
Chad	48 230	49 230	3 203	4 300	0.7	0.6	0.4	0.8
Chile	16 154	15 245	3 059	1 294	1.3	0.6	45.4	81.0
China	522 704	556 328	122 242	140 630	0.2	0.2	34.5	35.6
Colombia	45 283	42 557	3 639	1 998	0.4	0.3	10.6	24.0
Comoros	127	148	77	80	0.2	0.1	.	.
Congo	10 542	10 545	500	495	0.4	0.4	0.2	0.4
Costa Rica	2 833	2 895	280	200	0.3	0.3	14.3	20.2
Côte d'Ivoire	18 720	20 300	2 420	2 800	0.3	0.3	1.0	1.1
Cuba	6 788	6 597	3 380	3 573	1.4	2.3	23.0	19.5
Democratic People's Republic of Korea	2 515	3 050	2 285	2 800	0.3	0.5	55.2	50.3
Democratic Republic of the Congo	22 850	22 800	6 700	6 700	0.3	0.2	0.1	0.1
Djibouti	18	23	1	1	0.0	.	.	.
Dominica	3 529	3 420	5	5	0.3	0.4	.	.
Dominican Republic	264	16	991	820	0.4	0.7	15.7	20.8
Ecuador	7 726	7 552	1 625	1 195	0.5	0.4	.	29.4
Egypt	2 581	3 520	2 310	3 018	0.1	0.1	100.0	100.0
El Salvador	1 417	1 704	540	682	0.3	0.4	5.0	4.9
Equatorial Guinea	334	324	130	130	0.5	0.3	.	.
Eritrea	.	754		640	.	0.2	.	.
Ethiopia	.	33 922	.	14 038	.	0.2	.	2.5
Fiji	380	460	140	170	0.4	0.5	0.5	1.1
Gabon	5 152	5 160	290	325	0.6	0.8	0.9	1.4
Gambia (The)	649	814	194	348	0.3	0.3	0.5	0.6
Ghana	12 500	14 735	2 600	4 100	0.3	0.3	0.6	0.5
Grenada	13	13	2	2	0.1	0.1	.	.
Guatemala	4 285	4 652	1 300	1 576	0.3	0.3	6.2	6.3
Guinea	11 896	12 570	773	2 200	0.2	0.3	7.5	5.4

TABLE 5 **Land** (cont.)

Variable	Agricultural land (thousands of hectares)		Arable land (thousands of hectares)		Arable land per head of agricultural population (hectare/cap)		Irrigated land (percentage of arable)	
Source	FAOSTAT		FAOSTAT		Calculation from FAOSTAT		WDI	
Period	**Closest 1988**	**Closest 2007**	**Closest 1988**	**Closest 2007**	**Closest 1988**	**Closest 2007**	**1988**	**2008**
Guinea-Bissau	1 470	1 630	300	300	0.4	0.2	4.4	4.5
Guyana	1 730	1 740	480	420	2.8	3.5	28.0	29.4
Haiti	1 599	1 590	780	900	0.2	0.2	7.3	8.4
Honduras	3 285	2 936	1 431	1 068	0.7	0.5	3.7	5.6
India	181 160	180 180	162 810	158 650	0.3	0.3	25.3	32.9
Indonesia	44 137	47 800	21 156	22 000	0.2	0.2	13.7	12.4
Iran (Islamic Republic of)	61 871	47 631	15 580	16 869	0.9	1.0	.	47.3
Iraq	9 590	10 010	5 300	5 200	1.8	2.7	45.4	58.6
Jamaica	477	513	115	174	0.2	0.3	11.4	0.0
Jordan	1 165	1 012	308	140	0.7	0.3	.	29.6
Kenya	26 662	27 021	4 882	5 200	0.3	0.2	0.9	1.8
Lao People's Democratic Republic	1 650	1 959	795	1 170	0.3	0.3	14.7	16.5
Lebanon	314	388	186	144	0.8	1.6	28.3	31.3
Lesotho	2 343	2 334	339	300	0.5	0.4	0.6	0.9
Liberia	2 613	2 602	400	385	0.2	0.2	0.3	0.5
Madagascar	36 270	40 843	2 700	2 950	0.3	0.2	27.5	30.6
Malawi	3 750	4 590	2 150	3 000	0.3	0.3	0.9	2.2
Malaysia	6 722	7 870	1 500	1 800	0.3	0.5	5.3	0.0
Maldives	9	14	4	4	0.0	0.1	.	.
Mali	32 093	39 479	2 053	4 850	0.3	0.5	2.9	4.9
Mauritania	39 615	39 762	360	450	0.3	0.3	13.4	.
Mauritius	113	113	100	90	0.5	0.8	16.0	20.8
Mexico	102 400	107 500	23 900	24 500	0.9	1.2	20.1	22.8
Morocco	29 744	30 395	8 174	8 065	0.8	0.9	14.2	15.4
Mozambique	47 580	48 630	3 350	4 450	0.3	0.3	2.8	2.6
Myanmar	10 373	11 268	9 552	10 577	0.3	0.3	10.0	17.0
Namibia	3 866	3 881	660	800	0.9	0.9	.	.
Nepal	4 148	4 222	2 287	2 357	0.1	0.1	.	47.0
Nicaragua	3 940	5 326	1 280	1 950	1.0	2.0	4.1	2.8
Niger	31 300	38 500	9 489	14 720	1.4	1.2	0.6	0.5
Nigeria	71 712	74 000	29 177	36 500	0.7	0.9	0.6	0.8
Oman	1 073	1 805	33	60	0.0	0.1	71.2	90.0
Pakistan	26 820	27 070	21 393	21 500	0.4	0.3	.	85.4
Panama	2 070	2 230	480	548	0.7	0.9	4.8	6.2
Papua New Guinea	863	1 065	188	250	0.1	0.1	.	.
Paraguay	22 085	24 258	2 030	4 300	1.2	2.3	3.1	1.7
Peru	18 929	21 310	3 400	3 700	0.5	0.5	31.1	27.8
Philippines	11 060	12 200	5 440	5 100	0.2	0.2	15.3	14.5
Rwanda	1 853	1 940	849	1 200	0.1	0.1	0.3	0.6
Saint Kitts and Nevis	12	10	8	4	0.7	0.4	.	.
Saint Lucia	21	20	5	3	0.1	0.1	11.1	16.7
Saint Vincent and the Grenadines	13	10	4	7	0.1	0.3	9.1	12.5
Samoa	103	93	35	25	0.5	0.5	.	.
Sao Tome and Principe	38	57	2	9	0.0	0.1	27.0	18.2
Senegal	8 050	8 248	3 098	2 985	0.6	0.4	3.8	4.8
Seychelles	6	6	1	1	0.0	0.0	.	.

TABLE 5 **Land** (cont.)

Variable	Agricultural land (thousands of hectares)		Arable land (thousands of hectares)		Arable land per head of agricultural population (hectare/cap)		Irrigated land (percentage of arable)	
Source	FAOSTAT		FAOSTAT		Calculation from FAOSTAT		WDI	
Period	**Closest 1988**	**Closest 2007**	**Closest 1988**	**Closest 2007**	**Closest 1988**	**Closest 2007**	**1988**	**2008**
Sierra Leone	2 744	2 880	486	900	0.2	0.3	5.2	4.7
Solomon Islands	70	85	10	16	0.0	0.0	.	.
Somalia	44 039	44 376	1 021	1 000	0.2	0.2	19.2	15.7
South Africa	9 570	9 938	12 860	14 500	1.8	2.7	.	.
Sri Lanka	2 337	2 356	898	970	0.1	0.1	27.2	38.8
Sudan	120 845	136 837	12 740	19 321	0.7	0.9	13.7	10.2
Suriname	88	91	57	58	0.7	0.7	66.2	75.0
Swaziland	1 285	1 392	177	178	0.5	0.5	23.7	26.0
Syrian Arab Republic	13 733	14 008	4 812	4 736	1.3	1.1	11.8	24.3
Thailand	21 330	18 600	17 728	15 200	0.6	0.5	20.0	28.2
Togo	3 140	3 630	2 050	2 460	0.8	0.7	0.3	0.3
Tonga	33	30	16	15	0.4	0.5	.	.
Trinidad and Tobago	131	133	36	25	0.3	0.3	3.3	3.3
Tunisia	8 492	9 769	2 936	2 757	1.3	1.3	.	7.4
Turkey	39 263	41 223	24 786	21 929	1.3	1.4	.	19.6
Uganda	11 817	12 712	5 000	5 500	0.4	0.2	0.1	0.1
United Republic of Tanzania	34 000	34 350	9 000	9 000	0.5	0.3	1.4	1.8
Uruguay	14 824	14 955	1 260	1 350	3.2	3.9	8.4	14.9
Venezuela (Bolivarian Republic of)	22 010	21 690	3 097	2 650	1.1	1.4	11.7	16.9
Viet Nam	6 710	9 592	5 460	6 350	0.1	0.1	42.3	33.7
Yemen	17 544	17 715	1 376	1 375	0.2	0.1	21.1	33.0
Zambia	23 058	25 739	5 220	5 260	0.9	0.7	0.6	2.9
Zimbabwe	12 880	15 610	2 814	3 230	0.4	0.4	3.1	5.2
Asia and the Pacific	**953 943**	**980 070**	**410 198**	**426 882**	**0.2**	**0.2**	**27.4**	**35.7**
East Asia	525 219	559 378	124 527	143 430	0.2	0.2	34.9	35.9
Oceania	1 449	1 733	389	476	0.1	0.1	0.5	1.1
South Asia	324 878	309 124	220 201	216 979	0.3	0.3	25.7	40.3
South East Asia	102 397	109 835	65 081	65 997	0.3	0.3	17.4	19.1
Sub-Saharan Africa	**694 497**	**770 405**	**132 679**	**176 755**	**0.5**	**0.4**	**1.8**	**2.2**
Eastern Africa	244 318	293 103	38 095	56 635	0.3	0.2	3.4	3.7
Southern Africa	43 074	43 524	14 445	16 028	1.6	1.9	5.0	6.8
Middle Africa	158 762	160 086	21 585	23 144	0.5	0.3	0.5	0.6
Western Africa	248 343	273 691	58 554	80 948	0.6	0.6	1.1	1.3
Latin America and the Caribbean	**682 371**	**719 871**	**131 505**	**148 705**	**1.1**	**1.5**	**11.5**	**11.5**
Caribbean	12 880	12 355	5 350	5 537	0.5	0.6	19.7	16.6
Central America	120 345	127 395	29 261	30 594	0.8	0.9	17.3	19.3
South America	549 146	580 121	96 894	112 574	1.3	2.1	8.4	8.2
Middle East and North Africa	**274 669**	**298 063**	**67 126**	**71 458**	**0.7**	**0.8**	**21.1**	**21.6**
Middle East	82 682	86 161	36 801	33 585	1.1	1.0	28.5	27.1
North Africa	191 987	211 902	30 325	37 873	0.5	0.6	18.3	17.1

TABLE 6 **Food production and supply**

Variable	Index of food production per capita, against 1999-2001 base			Food net trade (1: <50% food consumption/2 <75%/ 3<100%/4<125%/5<150%/6> 150%)		
Source	FAOSTAT			FAOSTAT		
Period	**1990-1992**	**1995-1997**	**2004-2006**	**1993-1995**	**1995-1997**	**2000-2002**
Afghanistan	.	.	.	.	.	.
Algeria	96	128	96	3	5	1
Angola	83	92	118	4	4	6
Antigua and Barbuda	124	99	113	3	3	3
Argentina	82	98	101	3	3	3
Bangladesh	89	104	97	1	1	1
Barbados	110	86	108	3	3	3
Belize	78	97	108	3	3	3
Benin	84	121	99	1	1	1
Bhutan	.	.	.	.	.	.
Bolivia (Plurinational State of)	87	87	132	4	4	4
Botswana	137	66	91	3	3	4
Brazil	80	100	123	6	6	6
Burkina Faso	95	96	118	2	2	2
Burundi	128	102	89	2	2	2
Cambodia	83	91	126	3	3	3
Cameroon	94	112	122	1	1	1
Cape Verde	77	100	105	3	3	3
Central African Republic	87	111	84	1	1	1
Chad	97	107	91	1	1	1
Chile	85	100	128	2	1	1
China	67	101	129	1	1	1
Colombia	94	109	104	1	1	1
Comoros	106	125	105	1	1	1
Congo	101	170	82	2	1	1
Costa Rica	91	99	104	3	3	3
Côte d'Ivoire	96	87	78	2	2	1
Cuba	116	94	103	3	3	3
Democratic People's Republic of Korea	130	109	97	1	1	1
Democratic Republic of the Congo	157	115	86	3	3	3
Djibouti	120	100	94	1	1	1
Dominica	119	102	107	4	5	4
Dominican Republic	121	100	102	4	3	3
Ecuador	84	107	97	3	3	3
Egypt	80	99	103	2	2	1
El Salvador	107	103	97	3	2	1
Equatorial Guinea	.	.	.	.	.	.
Eritrea	.	96	80	2	2	1
Ethiopia	.	98	92	1	1	1
Fiji	114	110	104	6	6	5
Gabon	112	100	101	5	4	4
Gambia (The)	83	95	102	3	3	3
Ghana	76	93	107	1	1	2
Grenada	116	89	86	3	4	3
Guatemala	94	104	94	2	2	2
Guinea	99	92	102	3	3	3
Guinea-Bissau	96	86	126	2	2	1
Guyana	57	90	109	6	6	6

Food supply (Kcal/capita/day) FAOSTAT			Growth in food supply (per cent) Calculation from WDI	Kcal production against minimum daily requirement (ratio) Note: min. requirement varies by country and time period according to the gender and age structure of population WDI/FAOSTAT		
Closest 1988	Closest 1998	2005	1988-2005	Closest 1988	Closest 1998	2005
.	.	.	.	.	.	.
2 795	2 903	3 094	11	1.61	1.63	1.69
1 575	1 751	1 902	21	0.91	1.01	1.09
2 351	2 198	2 267	- 4	1.27	1.18	1.21
3 018	3 190	3 043	1	1.61	1.70	1.61
1 994	2 065	2 261	13	1.17	1.20	1.29
2 931	2 704	2 920	0	1.53	1.40	1.50
2 565	2 701	2 800	9	1.51	1.58	1.60
1 865	2 149	2 314	24	1.09	1.25	1.34
.	.	.	.	.	.	.
2 028	2 139	2 160	7	1.19	1.25	1.25
2 226	2 129	2 212	- 1	1.26	1.19	1.21
2 708	2 859	3 118	15	1.50	1.56	1.69
2 228	2 429	2 668	20	1.30	1.41	1.54
1 926	1 637	1 631	- 15	1.13	0.96	0.95
1 827	1 890	2 199	20	1.09	1.12	1.26
1 958	2 094	2 239	14	1.11	1.18	1.24
2 670	2 329	2 425	- 9	1.54	1.32	1.35
1 818	1 865	1 924	6	1.06	1.08	1.11
1 687	1 935	1 992	18	0.97	1.11	1.14
2 460	2 777	2 999	22	1.33	1.49	1.60
2 489	2 905	2 970	19	1.34	1.55	1.56
2 341	2 558	2 688	15	1.34	1.45	1.50
1 808	1 745	1 819	1	1.05	1.00	1.03
2 117	2 008	2 351	11	1.19	1.12	1.31
2 700	2 781	2 808	4	1.48	1.50	1.49
2 538	2 481	2 542	0	1.45	1.41	1.43
2 991	2 647	3 286	10	1.59	1.40	1.73
2 132	2 085	2 173	2	1.15	1.13	1.17
2 186	1 665	1 485	- 32	1.25	0.95	0.85
1 766	1 833	2 210	25	1.00	1.03	1.21
3 008	2 884	3 072	2	1.63	1.55	1.64
2 211	2 214	2 307	4	1.21	1.21	1.25
2 452	2 204	2 365	- 4	1.42	1.26	1.34
3 172	3 369	3 331	5	1.76	1.85	1.81
2 369	2 421	2 509	6	1.38	1.40	1.43
.	.	.	.	.	.	.
.	1 549	1 570	.	.	0.93	0.93
.	1 620	1 826	.	.	0.98	1.09
2 631	2 797	3 001	14	1.44	1.52	1.62
2 595	2 838	2 800	8	1.47	1.59	1.54
2 324	2 107	2 131	- 8	1.32	1.20	1.20
1 969	2 437	2 759	40	1.12	1.38	1.53
2 392	2 365	2 320	- 3	1.34	1.31	1.26
2 347	2 178	2 285	- 3	1.40	1.30	1.35
2 464	2 421	2 559	4	1.41	1.38	1.45
2 246	2 016	2 052	- 9	1.30	1.17	1.19
2 426	2 724	2 836	17	1.34	1.49	1.54

TABLE 6 **Food production and supply** (cont.)

Variable	Index of food production per capita, against 1999-2001 base			Food net trade (1: <50% food consumption/2 <75%/ 3<100%/4<125%/5<150%/6> 150%)		
Source	FAOSTAT			FAOSTAT		
Period	**1990-1992**	**1995-1997**	**2004-2006**	**1993-1995**	**1995-1997**	**2000-2002**
Haiti	118	85	92	1	1	1
Honduras	107	87	116	3	3	3
India	91	98	80	1	1	2
Indonesia	96	98	106	3	3	3
Iran (Islamic Republic of)	84	98	110	3	2	2
Iraq	.	.	.	.	.	.
Jamaica	83	84	114	4	4	4
Jordan	123	103	104	2	2	2
Kenya	112	83	111	2	2	2
Lao People's Democratic Republic	73	94	93	1	1	1
Lebanon	125	90	112	3	4	3
Lesotho	92	100	107	4	3	3
Liberia	117	109	92	3	3	3
Madagascar	121	94	96	2	3	3
Malawi	56	98	107	6	6	6
Malaysia	88	92	93	1	1	1
Maldives	96	101	111	1	3	2
Mali	104	107	120	2	2	1
Mauritania	112	99	97	2	2	2
Mauritius	112	107	108	6	6	6
Mexico	89	99	106	4	4	4
Morocco	108	104	82	1	1	1
Mozambique	87	96	114	6	6	6
Myanmar	72	110	101	6	6	6
Namibia	134	112	94	2	1	2
Nepal	94	98	107	3	3	3
Nicaragua	76	92	102	6	6	6
Niger	90	97	105	3	3	3
Nigeria	87	96	109	1	1	1
Oman	75	80	105	.	.	.
Pakistan	88	81	116	2	1	1
Panama	107	105	119	4	4	5
Papua New Guinea	101	100	97	.	.	.
Paraguay	97	96	99	4	4	3
Peru	64	102	102	2	3	1
Philippines	96	99	98	6	6	6
Rwanda	125	81	119	3	3	3
Saint Kitts and Nevis	122	101	95	2	1	1
Saint Lucia	201	102	92	2	2	1
Saint Vincent and the Grenadines	163	109	96	6	6	6
Samoa	93	85	103	3	3	3
Sao Tome and Principe	74	80	94	6	6	1
Senegal	93	97	101	3	2	3
Seychelles	80	122	77	6	6	5
Sierra Leone	132	97	98	2	3	2
Solomon Islands	106	97	108	1	1	1
Somalia	.	.	.	.	.	.
South Africa	102	96	105	3	3	3

Food supply (Kcal/capita/day) FAOSTAT			Growth in food supply (per cent) Calculation from WDI	Kcal production against minimum daily requirement (ratio) Note: min. requirement varies by country and time period according to the gender and age structure of population WDI/FAOSTAT		
Closest 1988	Closest 1998	2005	1988-2005	Closest 1988	Closest 1998	2005
1 725	1 887	1 829	6	0.95	1.03	0.98
2 245	2 437	2 593	16	1.34	1.44	1.51
2 204	2 273	2 348	7	1.27	1.30	1.33
2 500	2 465	2 434	- 3	1.42	1.38	1.34
2 684	3 073	3 102	16	1.59	1.78	1.71
.	.	.	.	.	.	.
2 542	2 712	2 814	11	1.38	1.47	1.51
2 770	2 699	2 909	5	1.64	1.56	1.66
2 076	2 049	2 079	0	1.21	1.18	1.19
1 989	2 158	2 340	18	1.21	1.32	1.38
2 861	3 023	3 180	11	1.57	1.64	1.71
2 279	2 434	2 440	7	1.31	1.39	1.38
2 583	2 004	2 067	- 20	1.49	1.15	1.19
2 114	1 971	2 049	- 3	1.22	1.13	1.16
1 994	2 075	2 143	7	1.16	1.21	1.25
2 700	2 944	2 863	6	1.53	1.65	1.58
2 290	2 457	2 657	16	1.38	1.45	1.50
2 487	2 485	2 579	4	1.45	1.45	1.50
2 619	2 813	2 808	7	1.48	1.59	1.57
2 743	2 875	2 869	5	1.48	1.55	1.53
3 069	3 087	3 243	6	1.70	1.70	1.75
3 033	3 143	3 167	4	1.72	1.77	1.74
1 832	1 911	2 085	14	1.02	1.06	1.16
2 298	2 075	2 439	6	1.31	1.17	1.35
2 132	2 090	2 315	9	1.23	1.20	1.29
2 225	2 213	2 417	9	1.29	1.28	1.37
2 111	2 061	2 362	12	1.23	1.19	1.33
2 030	2 079	2 151	6	1.18	1.21	1.25
2 063	2 595	2 655	29	1.19	1.50	1.52
.	.	.	.	.	.	.
2 148	2 347	2 318	8	1.28	1.39	1.32
2 258	2 463	2 399	6	1.28	1.39	1.34
.	.	.	.	.	.	.
2 500	2 647	2 620	5	1.41	1.48	1.45
2 280	2 417	2 547	12	1.31	1.38	1.43
2 198	2 341	2 501	14	1.28	1.35	1.43
1 859	1 659	1 956	5	1.13	0.99	1.14
2 684	2 351	2 426	- 10	1.47	1.28	1.31
2 464	2 641	2 755	12	1.37	1.44	1.48
2 365	2 291	2 743	16	1.31	1.26	1.47
2 731	2 571	2 769	1	1.51	1.44	1.54
2 004	2 261	2 615	30	1.19	1.35	1.55
1 994	2 012	2 198	10	1.14	1.14	1.24
2 259	2 354	2 396	6	1.31	1.36	1.38
1 956	1 938	1 932	- 1	1.11	1.10	1.10
2 182	2 342	2 433	11	1.29	1.37	1.41
.	.	.	.	.	.	.
2 827	2 764	2 916	3	.	.	.

TABLE 6 **Food production and supply** (cont.)

Variable	Index of food production per capita, against 1999-2001 base			Food net trade (1: <50% food consumption/2 <75%/ 3<100%/4<125%/5<150%/6> 150%)		
Source	FAOSTAT			FAOSTAT		
Period	**1990-1992**	**1995-1997**	**2004-2006**	**1993-1995**	**1995-1997**	**2000-2002**
Sri Lanka	97	96	107	3	4	3
Sudan	79	114	95	3	1	1
Suriname	141	96	100	4	3	4
Swaziland	129	113	99	3	3	3
Syrian Arab Republic	95	96	91	4	3	3
Thailand	93	96	108	6	6	6
Togo	96	112	125	4	3	3
Tonga	100	98	102	.	.	.
Trinidad and Tobago	94	98	104	3	4	4
Tunisia	105	72	114	3	3	3
Turkey	104	92	102	1	1	1
Uganda	106	97	107	3	3	3
United Republic of Tanzania	111	127	141	3	2	3
Uruguay	81	106	94	1	1	1
Venezuela (Bolivarian Republic of)	90	97	115	3	3	3
Viet Nam	72	94	108	2	2	1
Yemen	99	102	104	3	3	3
Zambia	106	98	98	3	3	3
Zimbabwe	91	102	116	1	1	1
Asia and the Pacific	**81**	**99**	**106**	**2**	**2**	**2**
East Asia	68	101	128	1	1	1
Oceania	103	101	99	4	4	4
South Asia	90	97	88	1	1	2
South East Asia	89	98	105	4	4	4
Sub-Saharan Africa	**102**	**100**	**105**	**2**	**2**	**2**
Eastern Africa	97	94	103	2	2	2
Southern Africa	104	96	104	3	3	3
Middle Africa	125	112	97	3	3	3
Western Africa	90	97	106	2	2	1
Latin America and the Caribbean	**87**	**100**	**112**	**4**	**4**	**4**
Caribbean	115	93	101	3	3	3
Central America	91	99	105	4	4	4
South America	82	101	115	4	4	4
Middle East and North Africa	**94**	**102**	**99**	**2**	**2**	**1**
Middle East	103	94	101	2	2	2
North Africa	89	106	97	2	2	1

Food supply (Kcal/capita/day) FAOSTAT			Growth in food supply (per cent) Calculation from WDI	Kcal production against minimum daily requirement (ratio) Note: min. requirement varies by country and time period according to the gender and age structure of population WDI/FAOSTAT		
Closest 1988	**Closest 1998**	**2005**	**1988-2005**	**Closest 1988**	**Closest 1998**	**2005**
2 272	2 305	2 350	3	1.28	1.29	1.30
2 076	2 184	2 300	11	1.19	1.25	1.30
2 407	2 652	2 725	13	1.32	1.44	1.46
2 401	2 264	2 323	- 3	1.39	1.29	1.30
2 877	3 043	3 042	6	1.68	1.74	1.69
2 298	2 409	2 510	9	1.27	1.32	1.36
1 863	1 946	2 033	9	1.07	1.11	1.16
.	.	.	.	.	.	.
2 776	2 613	2 767	0	1.52	1.40	1.46
3 117	3 321	3 264	5	1.76	1.84	1.76
3 507	3 396	3 354	- 4	1.86	1.79	1.75
2 175	2 266	2 371	9	1.28	1.33	1.39
2 168	1 992	2 019	- 7	1.25	1.14	1.17
2 585	2 774	2 941	14	1.39	1.49	1.57
2 775	2 378	2 433	- 12	1.55	1.31	1.33
2 114	2 392	2 698	28	1.23	1.37	1.50
2 143	2 009	2 001	- 7	1.31	1.22	1.18
2 011	1 852	1 895	- 6	1.16	1.06	1.08
2 058	1 966	2 063	0	1.18	1.11	1.15
2 342	**2 553**	**2 622**	**12**	**1.31**	**1.42**	**1.43**
2 482	2 890	2 956	19	1.33	1.55	1.56
2 531	2 636	2 791	12	1.41	1.47	1.55
2 202	2 295	2 372	8	1.27	1.32	1.34
2 342	2 397	2 507	8	1.34	1.35	1.39
2 145	**2 156**	**2 240**	**8**	**1.20**	**1.22**	**1.26**
1 910	1 798	1 919	1	1.11	1.05	1.11
2 752	2 694	2 840	3	1.29	1.27	1.30
2 004	1 805	1 772	-9	1.15	1.03	1.01
2 128	2 457	2 556	21	1.23	1.41	1.46
2 684	**2 756**	**2 913**	**9**	**1.49**	**1.52**	**1.59**
2 442	2 342	2 562	7	1.32	1.26	1.37
2 880	2 890	3 027	6	1.61	1.61	1.66
2 634	2 745	2 902	11	1.46	1.51	1.58
2 989	**3 036**	**3 047**	**3**	**1.66**	**1.68**	**1.66**
3 183	3 074	3 043	-2	1.74	1.67	1.63
2 870	3 011	3 049	7	1.62	1.68	1.67

TABLE 7 **Literacy and education**

Variable	Adult literacy (percentage adults)			Enrolment primary school (gross) (percentage relevant age group)		Change in enrolment primary school	Ratio girls/boys enrolment primary school	
Source	WDI			WDI		Calculation from WDI	WDI	
Period	**Closest 1988**	**Closest 1998**	**Closest 2008**	**Closest 1988**	**Closest 2008**	**Difference 1988-2008**	**Closest 1988**	**Closest 2008**
Afghanistan	.	28	.	30	103	72	0.55	0.63
Algeria	50	.	75	94	110	15	0.84	0.94
Angola	.	.	.	86	.	.	0.92	.
Antigua and Barbuda	.	.	.	.	102	.	.	0.94
Argentina	.	.	98	106	114	7	1.04	0.98
Bangladesh	.	.	53	79	91	12	0.86	1.08
Barbados	.	.	.	95	105	11	0.98	1.00
Belize	.	.	.	110	123	12	.	0.97
Benin	.	.	41	48	96	48	0.52	0.83
Bhutan	.	.	53	55	111	56	0.76	1.00
Bolivia (Plurinational State of)	.	.	91	108	108	0	0.91	1.00
Botswana	.	.	83	104	107	3	1.07	0.99
Brazil	.	86	90	141	130	-11	.	0.93
Burkina Faso	.	13	29	32	71	39	0.63	0.87
Burundi	37	59	.	70	114	45	0.80	0.93
Cambodia	.	67	77	94	116	22	.	0.94
Cameroon	.	.	.	96	110	14	0.86	0.86
Cape Verde	63	.	84	112	101	-10	0.93	0.94
Central African Republic	34	49	.	68	74	5	0.62	0.71
Chad	.	26	32	49	74	25	0.44	0.70
Chile	.	.	97	101	106	5	0.98	0.95
China	78	91	93	127	112	-15	0.92	0.99
Colombia	.	91	93	102	116	14	1.15	0.99
Comoros	.	.	75	72	85	13	0.70	0.88
Congo	.	.	.	123	106	-17	0.92	0.93
Costa Rica	.	95	96	102	110	8	0.99	0.99
Côte d'Ivoire	34	49	.	66	72	6	0.71	0.79
Cuba	.	.	100	101	102	1	0.96	0.98
Democratic People's Republic of Korea	.	.	.	.	.	.	.	.
Democratic Republic of the Congo	.	.	.	54	85	31	0.71	0.81
Djibouti	.	.	.	.	86	.	.	1.02
Dominica	.	.	89	88	102	14	1.03	0.93
Dominican Republic	96	91	93	.	111	.	0.99	.
Ecuador	88	.	84	118	118	1	0.99	1.00
Egypt	44	56	66	91	105	14	0.84	0.95
El Salvador	.	.	82	.	118	.	.	1.00
Equatorial Guinea	.	87	.	.	124	.	.	0.95
Eritrea	.	.	65	21	52	31	0.94	0.82
Ethiopia	.	.	36	33	91	57	0.65	0.88
Fiji	.	.	.	131	94	-37	1.00	0.97
Gabon	.	.	86	160	152	-7	0.98	0.99
Gambia (The)	.	.	.	57	83	26	0.76	1.07
Ghana	.	58	65	71	104	33	0.84	0.99
Grenada	.	.	.	115	81	-34	0.97	0.96
Guatemala	.	.	73	77	113	37	0.88	0.94

Enrolment secondary school (gross) (percentage relevant age group)		Change in enrolment secondary school	Ratio girls/boys enrolment secondary school		Percentage of secondary pupils in vocational training		Percentage girls among pupils in vocational education
WDI			WDI		WDI		WDI
Closest 1988	Closest 2008	Difference 1988-2008	Closest 1998	Closest 2008	Closest 1988	Closest 2008	Closest 2008
11	28	17	0.46	0.38	.	1	11
62	83	21	0.77	1.08	.	12	39
10	.	.	.	.	15	.	.
.	105	.	.	0.96	13	.	.
71	84	13	1.13	1.12	14	35	54
20	43	23	0.52	1.06	1	2	30
83	103	21	0.89	1.03	.	0	38
66	79	13	.	1.08	.	4	50
9	32	23	0.42	0.57	12	13	43
13	56	43	0.25	0.93	0	0	0
44	82	38	0.82	0.97	6	5	65
40	76	37	1.11	1.05	6	7	38
54	100	46	.	1.11	6	4	58
6	18	12	0.52	0.74	8	9	49
5	15	10	0.62	0.72	.	7	44
30	40	10	0.43	0.82	3	3	47
25	25	0	0.69	0.79	26	10	39
20	79	59	0.98	1.18	.	3	43
11	.	.	0.39	.	.	.	.
6	19	12	0.22	0.45	2	2	46
74	91	16	1.08	1.03	27	24	47
38	77	40	0.74	1.01	16	17	50
50	85	35	1.13	1.11	.	6	54
28	35	7	0.64	0.76	1	0	7
47	42	-5	0.75	0.85	30	34	.
43	87	44	1.05	1.05	19	17	51
20	.	.	0.47	.	4	.	.
95	92	-3	1.12	1.00	22	24	41
.	.	.	.	.	.	17	51
21	33	12	0.48	0.53	19	4	73
.	106	.	.	0.98	6	5	61
63	77	14	1.27	1.19	.	.	49
61	.	.	.	.	18	26	51
57	70	13	1.02	1.01	.	31	44
70	88	18	0.77	0.94	24	20	53
.	64	.	.	1.04	6	.	.
.	.	.	.	.	1	1	43
.	30	.	.	0.71	0	4	44
13	30	17	0.71	0.67	2	3	34
51	82	31	1.01	1.12	7	.	.
39	.	.	0.86	.	0	0	0
15	49	34	0.49	0.96	2	5	46
37	53	17	0.67	0.89	.	7	35
94	99	5	1.11	0.99	31	33	51
19	56	36	.	0.92	.	1	14

TABLE 7 **Literacy and education** (cont.)

Variable	Adult literacy (percentage adults)			Enrolment primary school (gross) (percentage relevant age group)		Change in enrolment primary school	Ratio girls/boys enrolment primary school	
Source	WDI			WDI		Calculation from WDI	WDI	
Period	Closest 1988	Closest 1998	Closest 2008	Closest 1988	Closest 2008	Difference 1988-2008	Closest 1988	Closest 2008
Guinea	.	.	29	34	91	57	0.47	0.85
Guinea-Bissau	.	.	.	55	.	.	0.51	.
Guyana	.	.	.	97	112	15	0.99	0.98
Haiti	.	.	.	48	.	.	0.95	.
Honduras	.	.	84	108	119	12	1.04	1.00
India	.	.	66	94	112	18	0.74	0.96
Indonesia	82	.	92	115	117	2	0.96	0.96
Iran (Islamic Republic of)	52	73	82	107	121	14	0.88	1.29
Iraq	.	74	.	105	99	-6	0.84	0.83
Jamaica	.	80	86	101	91	-10	1.00	1.01
Jordan	.	.	91	107	96	-11	1.01	1.02
Kenya	.	74	.	101	113	12	0.97	0.99
Lao People's Democratic Republic	.	60	73	103	118	14	0.79	0.90
Lebanon	.	.	90	93	95	2	0.91	0.97
Lesotho	.	.	.	109	114	6	1.22	1.00
Liberia	.	.	56	35	83	49	.	0.89
Madagascar	.	71	.	92	141	49	0.96	0.97
Malawi	49	64	72	65	116	52	0.82	1.04
Malaysia	.	89	92	92	98	5	0.99	0.99
Maldives	96	96	97	148	111	-38	0.97	0.97
Mali	.	19	26	30	83	53	0.59	0.80
Mauritania	.	51	56	49	103	54	0.75	1.06
Mauritius	80	84	87	109	101	-8	1.00	1.00
Mexico	88	91	93	112	114	1	0.96	0.97
Morocco	.	.	56	68	107	40	0.67	0.90
Mozambique	.	39	44	63	111	48	0.76	0.87
Myanmar	.	90	.	103	.	.	0.95	.
Namibia	.	.	88	127	112	-15	1.08	0.99
Nepal	.	.	57	109	124	15	0.60	1.01
Nicaragua	.	.	78	87	116	29	1.07	0.98
Niger	.	.	29	27	53	27	0.61	0.75
Nigeria	.	.	72	85	97	12	0.77	0.85
Oman	.	.	84	83	80	-2	0.91	1.01
Pakistan	.	43	54	49	92	43	0.52	0.82
Panama	89	92	93	106	113	6	0.96	0.97
Papua New Guinea	.	57	58	65	55	-10	0.84	0.84
Paraguay	.	.	95	104	111	7	0.96	0.97
Peru	.	.	90	119	117	-2	0.97	1.01
Philippines	94	93	93	110	109	-1	0.98	0.98
Rwanda	.	65	.	70	147	78	0.92	1.02
Saint Kitts and Nevis	.	.	.	.	94	.	.	1.01
Saint Lucia	.	.	.	138	109	-29	0.94	0.97
Saint Vincent and the Grenadines	.	.	.	116	102	-13	0.99	0.94
Samoa	.	.	99	116	95	-21	1.02	1.00
Sao Tome and Principe	.	.	88	136	130	-6	0.92	0.98
Senegal	27	.	42	55	84	28	0.73	1.00

Enrolment secondary school (gross) (percentage relevant age group)		Change in enrolment secondary school	Ratio girls/boys enrolment secondary school		Percentage of secondary pupils in vocational training		Percentage girls among pupils in vocational education
WDI			WDI		WDI		WDI
Closest 1988	Closest 2008	Difference 1988-2008	Closest 1998	Closest 2008	Closest 1988	Closest 2008	Closest 2008
9	38	28	0.34	0.57	3	.	.
6	.	.	0.46	.	11	10	31
80	107	27	1.06	0.93	.	.	.
21	.	.	0.94	.	.	30	56
37	64	27	.	1.25	2	1	7
41	55	13	0.58	0.83	14	15	41
47	73	27	0.84	1.01	6	9	38
56	81	25	0.72	0.94	6	8	32
45	45	0	0.64	0.66	0	3	63
64	90	26	1.07	1.05	7	5	35
79	89	10	1.06	1.03	1	1	62
48	53	5	0.84	0.88	.	.	.
24	44	20	0.68	0.79	1	1	35
62	80	18	0.97	1.10	10	16	40
25	37	12	1.46	1.27	1	2	53
.	.	.	.	.	17	.	.
18	26	8	0.95	0.95	.	.	35
7	28	22	0.48	0.83	.	.	.
56	69	13	1.06	1.10	4	6	43
.	83	.	.	1.07	3	4	30
7	32	24	0.49	0.64	12	13	51
14	25	11	0.47	0.89	3	3	34
53	88	36	1.01	0.99	7	14	31
55	89	34	0.98	1.03	14	16	56
38	56	18	0.71	0.86	7	6	39
7	18	11	0.57	0.73	20	9	31
21	.	.	0.95	.	0	0	0
37	66	28	1.25	1.17	.	.	.
32	48	17	0.44	0.93	2	1	22
36	69	32	1.38	1.13	5	4	55
6	11	4	0.38	0.61	6	1	17
23	32	9	0.75	0.81	.	3	35
39	90	50	0.73	0.96	.	.	.
22	33	11	0.42	0.76	.	5	35
61	70	9	1.07	1.08	44	17	48
11	.	.	0.60	.	.	.	.
31	66	36	1.04	1.03	5	9	47
67	98	31	0.90	1.04	.	10	61
71	83	12	1.03	1.10	.	.	.
8	18	10	0.71	0.89	26	37	47
.	105	.	.	0.91	.	.	.
50	93	44	1.53	1.13	.	2	29
46	75	29	1.31	1.24	18	4	34
78	81	3	1.11	1.13	.	.	.
40	46	6	0.89	1.07	.	2	43
15	26	11	0.51	0.76	3	1	40

TABLE 7 **Literacy and education** (cont.)

Variable	Adult literacy (percentage adults)			Enrolment primary school (gross) (percentage relevant age group)		Change in enrolment primary school	Ratio girls/boys enrolment primary school	
Source	WDI			WDI		Calculation from WDI	WDI	
Period	**Closest 1988**	**Closest 1998**	**Closest 2008**	**Closest 1988**	**Closest 2008**	**Difference 1988-2008**	**Closest 1988**	**Closest 2008**
Seychelles	84	.	.	.	125	.	.	0.99
Sierra Leone	.	.	38	58	147	89	0.69	0.90
Solomon Islands	.	.	.	87	101	13	0.86	0.96
Somalia	.	.	.	15	.	.	0.53	.
South Africa	.	82	89	102	105	3	0.99	0.96
Sri Lanka	.	.	91	113	109	-4	0.96	1.00
Sudan	.	61	.	46	66	20	0.70	0.86
Suriname	.	.	90	108	119	11	1.11	0.98
Swaziland	67	80	.	94	113	20	0.99	0.93
Syrian Arab Republic	.	.	83	100	126	26	0.90	0.96
Thailand	.	93	94	112	104	-8	.	1.00
Togo	.	53	.	89	97	8	0.64	0.86
Tonga	.	99	99	112	113	1	0.98	0.95
Trinidad and Tobago	97	.	99	94	100	6	1.02	0.97
Tunisia	.	.	78	113	105	-8	0.88	0.97
Turkey	79	.	89	99	96	-3	0.92	0.95
Uganda	.	.	74	67	116	49	0.81	1.01
United Republic of Tanzania	59	.	72	69	112	43	0.99	1.00
Uruguay	95	97	98	109	114	6	0.99	0.97
Venezuela (Bolivarian Republic of)	90	.	95	106	103	-3	0.99	0.97
Viet Nam	88	90	.	105	.	.	0.93	.
Yemen	.	.	59	.	87	.	.	0.74
Zambia	65	68	71	94	119	25	0.91	0.97
Zimbabwe	.	.	91	101	101	0	0.99	0.99
Asia and the Pacific	**78.4**	**86.3**	**80.1**	**105**	**110**	**8**	**0.83**	**0.97**
East Asia	77.8	90.9	93.3	127	112	-15	0.92	0.99
Oceania	.	58.1	59.4	77	63	-11	0.87	0.87
South Asia	52.5	51.3	64.6	88	108	22	0.74	0.96
South East Asia	85.1	90.0	91.9	110	112	1	0.96	0.97
Sub-Saharan Africa	**49**	**60**	**61**	**70**	**99**	**30**	**0.79**	**0.90**
Eastern Africa	56.1	63.9	54.1	62	105	42	0.79	0.92
Southern Africa	67.2	82.3	88.7	103	106	3	1.01	0.97
Middle Africa	33.6	35.4	39.7	70	89	24	0.75	0.81
Western Africa	32.0	41.6	59.4	69	91	23	0.72	0.86
Latin America and the Caribbean	**88.8**	**88.5**	**91.5**	**118**	**118**	**0**	**1.00**	**0.96**
Caribbean	96.1	88.3	95.8	78	105	-2	0.97	0.99
Central America	87.6	90.7	90.0	107	114	8	0.96	0.97
South America	90.0	87.4	91.7	125	121	-3	1.03	0.96
Middle East and North Africa	**60.2**	**60.3**	**74.4**	**88**	**97**	**11**	**0.83**	**0.90**
Middle East	79.2	74.1	83.5	100	99	1	0.90	0.89
North Africa	46.0	57.3	67.0	80	96	19	0.79	0.92

Enrolment secondary school (gross) (percentage relevant age group)		Change in enrolment secondary school	Ratio girls/boys enrolment secondary school		Percentage of secondary pupils in vocational training		Percentage girls among pupils in vocational education
WDI			WDI		WDI		WDI
Closest 1988	Closest 2008	Difference 1988-2008	Closest 1998	Closest 2008	Closest 1988	Closest 2008	Closest 2008
.	112	.	.	1.13	.	.	.
18	32	14	0.53	0.69	.	.	60
14	30	16	0.64	0.84	.	.	.
12	.	.	0.53	.	.	.	.
52	95	43	1.12	1.05	4	5	39
71	87	16	1.08	1.02	.	.	.
21	33	13	0.79	0.93	3	2	21
56	80	23	1.24	1.39	.	50	51
40	54	14	0.96	0.89	0	1	26
51	72	21	0.72	0.97	10	4	40
30	83	53	1.04	1.10	8	.	.
21	39	18	0.34	0.53	.	17	44
98	94	-4	1.01	1.04	7	8	38
85	86	1	1.03	1.07	4	8	32
44	88	44	0.77	1.10	2	1	28
46	80	34	0.62	0.82	10	10	39
12	23	10	0.57	0.83	.	23	38
5	.	.	0.73	.	12	4	33
81	92	11	.	0.99	19	13	43
53	81	28	1.24	1.10	2	6	49
44	.	.	0.87	.	2	5	56
.	46	.	.	0.49	1	1	6
21	43	22	0.58	0.89	2	12	39
47	40	-7	0.88	0.93	.	.	.
39	**62**	**23**	**0.68**	**0.92**	**10**	**9**	**31**
38	77	40	0.74	1.01	16	17	50
20	65	20	0.68	1.02	2	4	34
38	51	15	0.57	0.84	3	2	13
45	75	25	0.91	1.04	9	13	43
21	**35**	**13**	**0.68**	**0.76**	**5**	**6**	**41**
17	30	12	0.67	0.76	3	5	46
49	89	40	1.13	1.06	4	5	39
20	31	9	0.51	0.58	20	16	49
20	32	12	0.63	0.76	6	4	37
55	**89**	**34**	**1.05**	**1.07**	**10**	**12**	**55**
58	91	6	1.03	1.02	15	16	45
49	81	34	1.01	1.03	16	18	55
57	92	36	1.08	1.09	8	9	56
51	**67**	**19**	**0.73**	**0.86**	**6**	**17**	**37**
48	65	21	0.67	0.76	6	14	33
52	69	18	0.76	0.95	6	20	40

TABLE 8 **Mother and child health**

Variable	Contraceptive use (percentage women 15 to 49 years)		Maternal mortality ratio (deaths per 100 000 births)	Percentage of births attended by skilled health staff	Physician per 1 000 people	Infant mortality (per 1 000 births)		Progress in reducing infant mortality
Source	WDI							
Period	**1988**	**2008**	**Closest 2008**	**Closest 2008**	**Closest 2008**	**Closest 1988**	**Closest 2008**	**Reduction 1988-2008**
Afghanistan	.	10	1 800	14	0.20	168	165	-2
Algeria	36	61	180	95	.	54	33	-39
Angola	.	.	1 400	47	0.08	150	116	-23
Antigua and Barbuda	53	.	.	100	.	.	10	.
Argentina	.	.	77	99	.	25	15	-41
Bangladesh	31	56	570	18	0.30	105	47	-55
Barbados	55	.	16	100	.	15	11	-29
Belize	.	34	52	96	.	35	22	-38
Benin	.	17	840	74	0.04	111	78	-30
Bhutan	.	35	440	56	0.02	91	56	-38
Bolivia (Plurinational State of)	30	58	290	67	.	89	48	-47
Botswana	33	.	380	.	0.40	45	33	-27
Brazil	66	.	110	97	.	49	20	-60
Burkina Faso	.	17	700	54	0.05	112	104	-7
Burundi	9	9	1 100	34	0.03	113	108	-4
Cambodia	.	40	540	44	.	85	69	-19
Cameroon	.	29	1 000	63	0.19	85	87	2
Cape Verde	.	61	210	78	0.49	45	24	-47
Central African Republic	.	19	980	53	0.08	113	113	0
Chad	.	3	1 500	14	0.04	120	124	4
Chile	56	58	16	100	1.09	18	8	-55
China	71	85	45	98	1.51	36	19	-48
Colombia	65	78	130	96	1.43	28	17	-38
Comoros	.	.	400	.	0.15	88	49	-44
Congo	.	21	740	83	0.20	67	79	18
Costa Rica	69	96	30	99	.	16	10	-35
Côte d'Ivoire	.	13	810	57	0.12	104	89	-15
Cuba	70	77	45	100	.	12	5	-57
Democratic People's Republic of Korea	.	.	370	97	3.29	42	42	0
Democratic Republic of the Congo	.	21	1 100	74	0.11	127	108	-15
Djibouti	50	.		99	.	14	9	-37
Dominica	50	73	150	98	.	53	31	-41
Dominican Republic	75	78	150	89	1.51	42	22	-47
Ecuador	44	73	210	75	.	43	20	-53
Egypt	38	60	130	79	2.43	68	30	-56
El Salvador	47	67	170	92	1.50	47	21	-56
Equatorial Guinea	.	.	680	.	0.30	103	124	20
Eritrea	.	.	450	.	0.05	92	41	-56
Ethiopia	4	15	720	6	0.03	122	75	-38
Fiji	.	.	210	.	0.45	19	16	-18
Gabon	.	.	520	.	0.29	60	60	0
Gambia (The)	12	.	690	57	0.11	104	82	-21
Ghana	13	17	560	59	0.15	76	73	-3
Grenada	54	54	.	99	.	30	15	-49
Guatemala	23	.	290	.	.	60	29	-51
Guinea	.	9	910	38	0.11	137	93	-32

TABLE 8 **Mother and child health** (cont.)

Variable	Contraceptive use (percentage women 15 to 49 years)		Maternal mortality ratio (deaths per 100 000 births)	Percentage of births attended by skilled health staff	Physician per 1 000 people	Infant mortality (per 1 000 births)		Progress in reducing infant mortality
Source	WDI							
Period	**1988**	**2008**	**Closest 2008**	**Closest 2008**	**Closest 2008**	**Closest 1988**	**Closest 2008**	**Reduction 1988-2008**
Guinea-Bissau	.	10	1 100	39	0.12	142	118	-17
Guyana	31	34	470	83	.	64	45	-30
Haiti	7	32	670	26	.	105	57	-46
Honduras	41	65	280	67	.	45	20	-55
India	43	56	450	47	0.60	94	54	-42
Indonesia	48	61	420	79	0.13	60	25	-59
Iran (Islamic Republic of)	49	79	140	97	0.89	54	29	-46
Iraq	14	50	300	89	0.66	42	36	-14
Jamaica	55	.	170	97	0.85	28	26	-6
Jordan	40	57	62	99	2.36	33	21	-37
Kenya	27	39	560	42	0.14	64	80	25
Lao People's Democratic Republic	.	38	660	.	0.35	120	56	-53
Lebanon	.	58	150	98	2.36	32	26	-19
Lesotho	.	37	960	55	0.05	81	68	-16
Liberia	6	11	1 200	46	0.03	138	93	-32
Madagascar	.	27	510	51	0.29	103	70	-32
Malawi	.	42	1 100	54	0.02	124	71	-43
Malaysia	56	.	62	98	.	16	10	-40
Maldives	.	39	120	84	0.92	79	26	-67
Mali	5	8	970	45	0.08	148	117	-21
Mauritania	.	.	820	.	0.11	81	75	-7
Mauritius	75	.	15	99	1.06	23	13	-43
Mexico	53	71	60	93	1.50	42	29	-31
Morocco	36	63	240	63	0.51	69	32	-53
Mozambique	.	17	520	48	0.03	135	115	-14
Myanmar	.	34	380	68	0.36	91	74	-19
Namibia	.	55	210	81	0.30	49	31	-35
Nepal	14	48	830	19	0.21	99	43	-56
Nicaragua	.	72	170	74	0.37	52	28	-45
Niger	.	11	1 800	33	0.02	143	83	-42
Nigeria	6	13	1 100	35	0.28	120	97	-19
Oman	9	.	64	98	1.67	25	11	-58
Pakistan	12	30	320	39	0.80	102	73	-29
Panama	.	.	130	91	.	27	18	-32
Papua New Guinea	.	.	470	42	.	69	50	-27
Paraguay	45	73	150	77	.	34	24	-28
Peru	46	71	240	71	.	58	17	-70
Philippines	36	51	230	60	.	43	23	-47
Rwanda	.	17	1 300	39	0.05	117	109	-7
Saint Kitts and Nevis	.	54	.	100	.	30	16	-46
Saint Lucia	47	.	.	100	.	16	14	-16
Saint Vincent and the Grenadines	58	48	.	100	.	18	17	-7
Samoa	.	.		100	0.28	40	22	-44
Sao Tome and Principe	.	30	.	81	0.49	65	64	-2
Senegal	11	12	980	52	0.06	72	59	-18
Seychelles	.	.		.	1.51	17	12	-32

TABLE 8 **Mother and child health** (cont.)

Variable	Contraceptive use (percentage women 15 to 49 years)		Maternal mortality ratio (deaths per 100 000 births)	Percentage of births attended by skilled health staff	Physician per 1 000 people	Infant mortality (per 1 000 births)		Progress in reducing infant mortality
Source	WDI							
Period	**1988**	**2008**	**Closest 2008**	**Closest 2008**	**Closest 2008**	**Closest 1988**	**Closest 2008**	**Reduction 1988-2008**
Sierra Leone	.	5	2 100	43	0.03	169	155	-8
Solomon Islands	.	.	220	.	0.13	86	53	-38
Somalia	1	15	1 400	33	.	121	88	-27
South Africa	50	60	400	91	0.77	44	48	10
Sri Lanka	62	68	58	99	0.55	26	17	-36
Sudan	9	8	450	49	0.30	79	69	-12
Suriname	.	46	72	90	.	41	27	-33
Swaziland	20	51	390	69	0.16	70	66	-4
Syrian Arab Republic	.	58	130	93	0.53	30	15	-51
Thailand	66	77	110	97	.	26	6	-75
Togo	34	17	510	62	0.04	89	65	-27
Tonga	.	.		98	.	26	19	-28
Trinidad and Tobago	53	43	45	98	.	30	31	2
Tunisia	50	.	100	.	1.34	41	18	-56
Turkey	63	71	44	83	1.56	67	21	-68
Uganda	5	24	550	42	0.08	106	82	-23
United Republic of Tanzania	.	26	950	43	.	96	73	-24
Uruguay	.	.	20	99	.	21	12	-42
Venezuela (Bolivarian Republic of)	.	.	57	95	.	27	17	-38
Viet Nam	53	76	150	88	.	40	13	-68
Yemen	.	28	430	36	0.33	90	55	-39
Zambia	.	41	830	47	0.12	99	103	4
Zimbabwe	43	60	880	69	0.16	62	59	-5
Asia and the Pacific	**55**	**67**	**336**	**63**	**0.95**	**68**	**43**	**-44**
East Asia	71	85	51	98	1.54	36	19	-48
Oceania	.	.	422	44	0.32	62	47	-27
South Asia	39	54	478	44	0.59	95	58	-41
South East Asia	50	61	304	77	0.17	53	27	-53
Sub-Saharan Africa	**16**	**23**	**922**	**45**	**0.18**	**108**	**89**	**-17**
Eastern Africa	12	25	735	34	0.09	100	78	-19
Southern Africa	49	59	416	88	0.70	46	48	5
Middle Africa	.	20	1 150	62	0.12	121	107	-10
Western Africa	8	13	1 048	42	0.19	117	93	-19
Latin America and the Caribbean	**58**	**70**	**136**	**90**	**1.41**	**44**	**22**	**-47**
Caribbean	55	62	335	67	1.37	55	33	-43
Central America	50	71	117	90	1.45	43	27	-37
South America	61	71	125	92	1.34	43	19	-52
Middle East and North Africa	**39**	**54**	**220**	**74**	**1.30**	**63**	**36**	**-43**
Middle East	51	59	201	77	1.13	58	31	-45
North Africa	32	50	237	71	1.46	67	41	-41

TABLE 9 **Demographic trends**

Variable	Life expectancy at birth (years)		Change in life expectancy (years)	Age dependency ratio (Dependants <15 and >64/ Actives)		Change in age dependency ratio	Fertility rate (Average births per woman from 15 to 49 years)		Change in fertility rate
Source	WDI		Calucuations from WDI	Calculation from WDI		Calucuations from WDI	WDI		Calculation from WDI
Period	**Closest 1988**	**Closest 2008**	**1988-2008**	**Closest 1988**	**Closest 2008**	**1988-2008**	**Closest 1988**	**Closest 2008**	**1988-2008**
Afghanistan	41.0	44.2	3.2	93.1	.	.	7.9	6.6	-1.3
Algeria	64.7	70.9	6.2	90.7	47.8	-42.9	5.3	2.4	-2.9
Angola	39.8	45.3	5.5	99.8	91.4	-8.4	7.2	5.8	-1.4
Antigua and Barbuda	70.9	72.5	1.6	.	.	.	1.9	.	.
Argentina	67.6	71.6	4.0	65.6	56.0	-9.6	3.1	2.3	-0.8
Bangladesh	51.9	65.3	13.4	88.2	55.9	-32.3	4.9	2.4	-2.5
Barbados	71.5	74.4	2.9	54.0	38.4	-15.6	1.8	1.5	-0.2
Belize	70.4	73.3	2.9	91.9	66.4	-25.5	4.7	2.9	-1.8
Benin	51.3	60.5	9.2	97.0	86.7	-10.3	6.9	5.5	-1.4
Bhutan	49.4	64.4	15.1	84.3	56.3	-28.0	6.3	2.7	-3.6
Bolivia (Plurinational State of)	55.6	63.4	7.8	81.7	70.6	-11.0	5.0	3.5	-1.5
Botswana	61.4	50.5	-10.9	93.9	59.8	-34.1	5.1	2.9	-2.2
Brazil	61.9	69.0	7.1	67.7	49.1	-18.6	3.1	1.9	-1.2
Burkina Faso	48.2	50.7	2.5	99.9	93.0	-6.9	7.4	6.0	-1.4
Burundi	46.3	49.2	2.9	92.0	71.7	-20.3	6.8	4.7	-2.1
Cambodia	54.5	61.0	6.5	87.8	60.0	-27.8	6.1	2.9	-3.2
Cameroon	53.5	50.0	-3.5	96.0	80.7	-15.3	6.1	4.3	-1.8
Cape Verde	62.4	68.6	6.1	105.7	70.2	-35.5	5.7	2.8	-2.9
Central African Republic	48.0	43.3	-4.6	88.1	81.1	-7.0	5.7	4.6	-1.1
Chad	49.3	49.3	0.0	96.9	94.8	-2.1	6.7	6.2	-0.5
Chile	69.6	75.5	5.9	56.6	46.9	-9.7	2.7	1.9	-0.7
China	66.0	71.3	5.3	52.3	39.8	-12.5	2.6	1.7	-0.9
Colombia	64.4	69.2	4.8	70.5	53.6	-16.8	3.2	2.5	-0.7
Comoros	53.0	63.0	10.0	100.0	70.3	-29.7	6.5	4.3	-2.2
Congo	58.3	52.8	-5.5	92.8	80.1	-12.7	5.5	4.4	-1.1
Costa Rica	72.9	76.4	3.5	69.1	48.4	-20.7	3.4	2.1	-1.3
Côte d'Ivoire	55.3	56.5	1.2	91.8	80.7	-11.1	6.6	4.6	-2.0
Cuba	72.8	76.2	3.4	47.1	42.2	-4.9	1.8	1.5	-0.4
Democratic People's Republic of Korea	67.0	65.1	-1.9	45.5	46.2	0.7	2.5	1.9	-0.6
Democratic Republic of the Congo	45.7	45.2	-0.5	98.2	98.4	0.3	6.7	6.3	-0.4
Djibouti	70.5	74.5	4.0	.	.	.	3.0	1.9	-1.1
Dominica	64.2	69.3	5.1	74.7	60.6	-14.1	3.5	2.4	-1.1
Dominican Republic	64.5	70.2	5.7	57.0	43.1	-13.8	2.9	1.9	-1.0
Ecuador	65.3	72.1	6.8	78.6	60.9	-17.7	4.0	2.6	-1.4
Egypt	60.2	68.5	8.3	85.3	58.7	-26.6	5.2	2.9	-2.3
El Salvador	57.5	66.7	9.3	87.1	66.8	-20.3	4.2	2.3	-1.8
Equatorial Guinea	44.1	49.3	5.2	70.4	79.2	8.8	5.9	5.4	-0.5
Eritrea	46.7	59.5	12.8	98.0	78.4	-19.6	6.3	4.6	-1.7
Ethiopia	44.4	54.0	9.6	91.0	88.7	-2.3	7.1	5.4	-1.7
Fiji	64.7	66.6	1.9	70.6	57.2	-13.4	3.5	2.8	-0.7
Gabon	58.7	59.5	0.8	87.4	69.7	-17.7	5.2	3.3	-1.8
Gambia (The)	48.9	54.5	5.6	84.4	82.8	-1.6	6.2	5.1	-1.1
Ghana	54.4	55.9	1.5	90.6	73.3	-17.3	5.9	4.3	-1.6
Grenada	64.1	67.0	2.9	84.2	54.7	-29.6	4.1	2.3	-1.8
Guatemala	58.3	66.7	8.4	95.3	87.3	-8.1	5.7	4.2	-1.5
Guinea	45.7	56.1	10.4	91.2	85.7	-5.5	6.9	5.5	-1.4

TABLE 9 **Demographic trends** (cont.)

Variable	Life expectancy at birth (years)		Change in life expectancy (years)	Age dependency ratio (Dependants <15 and >64/ Actives)		Change in age dependency ratio	Fertility rate (Average births per woman from 15 to 49 years)		Change in fertility rate
Source	WDI		Calucuations from WDI	Calculation from WDI		Calucuations from WDI	WDI		Calculation from WDI
Period	**Closest 1988**	**Closest 2008**	**1988-2008**	**Closest 1988**	**Closest 2008**	**1988-2008**	**Closest 1988**	**Closest 2008**	**1988-2008**
Guinea-Bissau	42.0	46.5	4.5	85.0	85.5	0.5	5.8	5.7	-0.1
Guyana	58.9	64.5	5.6	72.7	56.5	-16.2	2.7	2.3	-0.4
Haiti	52.3	59.1	6.8	87.9	69.7	-18.2	5.7	3.8	-1.9
Honduras	62.6	66.9	4.3	96.3	73.1	-23.2	5.4	3.3	-2.1
India	58.5	63.2	4.7	72.4	57.5	-14.9	4.2	2.7	-1.5
Indonesia	58.5	68.7	10.2	68.3	49.8	-18.6	3.4	2.2	-1.2
Iran (Islamic Republic of)	62.2	69.4	7.2	93.7	41.5	-52.1	5.6	2.0	-3.6
Iraq	57.8	64.3	6.5	96.7	.	.	6.2	4.1	-2.0
Jamaica	69.6	70.0	0.4	75.7	60.4	-15.3	3.1	2.4	-0.7
Jordan	64.2	70.8	6.6	103.8	63.2	-40.7	5.9	3.6	-2.3
Kenya	57.5	53.0	-4.5	109.6	83.2	-26.4	6.5	5.0	-1.5
Lao People's Democratic Republic	51.3	63.8	12.5	89.7	72.0	-17.8	6.2	3.5	-2.7
Lebanon	65.6	69.9	4.3	71.5	49.5	-22.0	3.3	2.2	-1.1
Lesotho	55.3	42.8	-12.5	96.5	78.3	-18.2	5.1	3.4	-1.8
Liberia	45.7	57.1	11.4	91.6	85.3	-6.3	6.6	5.1	-1.5
Madagascar	48.4	58.9	10.5	92.5	86.4	-6.1	6.3	4.8	-1.5
Malawi	46.3	48.1	1.8	99.5	98.0	-1.5	7.2	5.6	-1.6
Malaysia	67.5	72.0	4.5	71.3	52.8	-18.4	4.0	2.6	-1.4
Maldives	61.0	67.6	6.6	98.0	50.0	-48.1	6.6	2.6	-4.0
Mali	44.8	52.1	7.4	90.5	87.1	-3.4	7.5	6.5	-1.0
Mauritania	54.3	62.4	8.1	90.3	73.6	-16.6	6.0	4.4	-1.6
Mauritius	65.1	69.1	4.0	52.7	43.3	-9.4	2.1	1.7	-0.5
Mexico	66.8	72.6	5.8	79.1	54.5	-24.6	3.5	2.1	-1.4
Morocco	60.9	69.0	8.1	80.0	51.8	-28.2	4.4	2.4	-2.1
Mozambique	41.4	41.7	0.4	97.5	89.8	-7.7	6.3	5.1	-1.2
Myanmar	56.5	59.0	2.6	74.0	48.2	-25.8	3.8	2.1	-1.7
Namibia	61.3	61.0	-0.2	93.6	69.4	-24.2	5.5	3.4	-2.1
Nepal	52.9	63.2	10.3	84.2	70.0	-14.2	5.3	3.0	-2.3
Nicaragua	59.0	69.9	10.9	98.4	67.2	-31.2	5.0	2.8	-2.2
Niger	46.0	57.8	11.7	104.5	106.9	2.4	8.0	7.0	-1.0
Nigeria	45.5	46.4	0.9	95.4	84.5	-10.9	6.8	5.3	-1.5
Oman	66.2	74.4	8.2	88.1	53.7	-34.4	6.8	3.1	-3.7
Pakistan	58.5	65.2	6.8	89.2	70.3	-19.0	6.7	3.9	-2.8
Panama	69.3	73.0	3.8	69.4	56.1	-13.4	3.2	2.6	-0.6
Papua New Guinea	51.3	54.6	3.3	79.7	73.9	-5.8	5.0	3.8	-1.2
Paraguay	65.4	69.7	4.3	83.5	65.1	-18.4	4.8	3.1	-1.7
Peru	62.1	70.7	8.6	75.2	57.4	-17.8	4.1	2.6	-1.5
Philippines	62.2	69.8	7.5	79.7	62.3	-17.3	4.6	3.1	-1.4
Rwanda	42.1	48.5	6.4	105.3	80.9	-24.4	7.6	5.4	-2.1
Saint Kitts and Nevis	64.0	68.8	4.8	.	.	.	2.8	.	.
Saint Lucia	67.6	72.7	5.1	81.1	50.5	-30.6	3.5	2.1	-1.4
Saint Vincent and the Grenadines	66.1	69.7	3.6	80.8	51.9	-28.9	3.1	2.1	-1.0
Samoa	60.5	68.5	8.0	78.8	81.3	2.5	4.8	3.9	-0.9
Sao Tome and Principe	60.3	63.6	3.2	105.1	82.0	-23.1	5.7	3.9	-1.8
Senegal	50.0	54.2	4.3	97.8	85.8	-11.9	6.9	5.0	-1.9
Seychelles	66.8	68.9	2.1	.	.	.	3.0	2.1	-0.9

TABLE 9 **Demographic trends** (cont.)

Variable	Life expectancy at birth (years)		Change in life expectancy (years)	Age dependency ratio (Dependants <15 and >64/ Actives)		Change in age dependency ratio	Fertility rate (Average births per woman from 15 to 49 years)		Change in fertility rate
Source	WDI		Calucuations from WDI	Calculation from WDI		Calucuations from WDI	WDI		Calculation from WDI
Period	**Closest 1988**	**Closest 2008**	**1988-2008**	**Closest 1988**	**Closest 2008**	**1988-2008**	**Closest 1988**	**Closest 2008**	**1988-2008**
Sierra Leone	40.3	46.4	6.1	82.5	82.2	-0.3	5.6	5.2	-0.3
Solomon Islands	55.5	62.7	7.2	97.1	74.0	-23.2	6.1	3.9	-2.3
Somalia	43.0	46.9	3.9	91.1	90.8	-0.3	7.0	6.0	-1.0
South Africa	60.9	51.5	-9.4	75.0	54.2	-20.8	3.9	2.5	-1.4
Sri Lanka	66.1	68.8	2.7	61.8	46.0	-15.7	2.6	1.9	-0.8
Sudan	50.2	56.8	6.6	89.7	75.8	-14.0	6.1	4.2	-1.9
Suriname	64.0	65.6	1.7	62.9	55.0	-7.9	3.0	2.4	-0.6
Swaziland	57.0	47.0	-10.0	104.4	76.2	-28.2	6.1	3.6	-2.6
Syrian Arab Republic	65.3	72.4	7.1	107.0	62.7	-44.3	6.2	3.3	-3.0
Thailand	66.3	65.9	-0.4	56.1	41.6	-14.5	2.3	1.8	-0.5
Togo	55.3	61.0	5.7	97.7	77.7	-20.0	6.6	4.3	-2.3
Tonga	67.8	69.2	1.4	78.7	76.3	-2.4	4.7	4.0	-0.7
Trinidad and Tobago	67.4	67.8	0.5	66.2	37.9	-28.4	2.8	1.6	-1.2
Tunisia	64.9	72.4	7.5	76.6	43.7	-32.8	3.9	2.0	-1.9
Turkey	61.0	69.6	8.6	70.7	49.4	-21.4	3.3	2.1	-1.1
Uganda	47.7	52.4	4.7	102.2	106.5	4.2	7.1	6.4	-0.7
United Republic of Tanzania	49.5	55.1	5.6	95.4	91.4	-4.0	6.4	5.6	-0.8
Uruguay	68.6	72.3	3.7	60.6	58.2	-2.5	2.5	2.0	-0.5
Venezuela (Bolivarian Republic of)	67.7	70.7	3.0	72.6	55.0	-17.6	3.7	2.6	-1.1
Viet Nam	61.0	72.3	11.3	80.5	48.9	-31.6	4.0	2.1	-1.9
Yemen	52.4	61.1	8.7	116.4	87.2	-29.2	8.4	5.5	-2.9
Zambia	50.2	45.4	-4.8	95.3	97.1	1.8	6.7	5.9	-0.8
Zimbabwe	58.9	44.8	-14.1	99.0	79.4	-19.6	5.7	3.5	-2.2
Asia and the Pacific	**61.7**	**67.2**	**5.9**	**67.0**	**50.0**	**-18.1**	**3.5**	**2.3**	**-1.4**
East Asia	66.0	71.2	5.2	54.2	39.9	-14.3	2.6	1.7	-0.9
Oceania	54.0	56.9	3.5	79.2	72.4	-7.3	4.8	3.7	-1.2
South Asia	57.8	63.6	5.9	76.8	58.0	-19.1	4.5	2.8	-1.8
South East Asia	60.5	68.1	7.7	75.1	51.2	-24.3	3.6	2.3	-1.4
Sub-Saharan Africa	**49**	**51**	**2.0**	**96.6**	**85.9**	**-11.2**	**6.5**	**5.2**	**-1.4**
Eastern Africa	45.7	50.0	3.7	95.7	86.0	-11.3	6.3	5.1	-1.3
Southern Africa	60.6	51.4	-9.2	77.6	56.3	-21.5	4.1	2.6	-1.5
Middle Africa	47.1	46.7	-0.3	91.6	92.7	1.1	6.6	5.7	-0.9
Western Africa	47.6	50.7	3.1	98.5	84.8	-13.7	6.8	5.3	-1.5
Latin America and the Caribbean	**64.2**	**70.2**	**6.1**	**73.1**	**54.3**	**-19.2**	**3.4**	**2.3**	**-1.2**
Caribbean	65.2	69.0	4.6	66.3	51.4	-16.5	3.1	2.3	-1.0
Central America	65.4	71.5	6.2	83.2	59.3	-24.0	3.8	2.4	-1.5
South America	63.6	69.8	6.2	70.0	52.6	-17.6	3.3	2.2	-1.1
Middle East and North Africa	**59.8**	**67.3**	**7.6**	**84.6**	**58.7**	**-26.1**	**5.0**	**3.0**	**-2.1**
Middle East	60.3	67.9	7.8	82.8	58.9	-23.8	4.7	3.1	-1.9
North Africa	59.5	66.8	7.5	86.0	58.5	-27.6	5.2	2.9	-2.3

TABLE 10 **Governance**

Variable	Political stability/ absence of violence	Government effective-ness	Voice and accounta-blity	Regulatory quality	Rule of law	Control of corruption	Overall governance (average of 6 indicators)
Source	Worldwide Governance Indicators (http://info.worldbank.org/governance/wgi/index.asp). The six governance indicators are measured in units ranging from about -2.5 to 2.5, with higher values corresponding to better governance outcomes.						
Period				**Closest 2008**			
Afghanistan	-2.64	-1.31	-1.26	-1.58	-2.01	-1.64	-1.74
Algeria	-1.15	-0.50	-1.05	-0.79	-0.70	-0.44	-0.77
Angola	-0.43	-0.98	-1.07	-0.94	-1.28	-1.22	-0.99
Antigua and Barbuda	0.85	0.40	0.56	0.61	0.97	1.32	0.78
Argentina	-0.04	-0.18	0.32	-0.65	-0.61	-0.44	-0.27
Bangladesh	-1.54	-0.77	-0.61	-0.82	-0.70	-1.10	-0.92
Barbados	1.09	1.48	1.16	0.77	1.28	1.30	1.18
Belize	0.25	-0.42	0.74	-0.40	-0.20	-0.28	-0.05
Benin	0.35	-0.52	0.34	-0.46	-0.54	-0.42	-0.21
Bhutan	0.89	0.11	-0.73	-0.86	0.37	0.72	0.08
Bolivia (Plurinational State of)	-1.02	-0.81	-0.01	-1.02	-1.12	-0.47	-0.55
Botswana	0.96	0.67	0.55	0.52	0.64	1.00	0.72
Brazil	-0.12	-0.01	0.51	0.19	-0.30	-0.03	0.04
Burkina Faso	-0.11	-0.67	-0.33	-0.32	-0.37	-0.36	-0.36
Burundi	-1.43	-1.21	-0.66	-1.18	-1.07	-0.97	-1.09
Cambodia	-0.27	-0.81	-0.94	-0.47	-1.08	-1.14	-0.78
Cameroon	-0.53	-0.80	-1.02	-0.66	-0.99	-0.90	-0.82
Cape Verde	0.85	0.05	0.95	-0.02	0.51	0.75	0.52
Central African Republic	-1.77	-1.45	-1.00	-1.28	-1.44	-0.90	-1.31
Chad	-1.92	-1.48	-1.45	-1.26	-1.57	-1.45	-1.52
Chile	0.56	1.24	0.98	1.58	1.25	1.31	1.15
China	-0.32	0.24	-1.72	-0.22	-0.33	-0.44	-0.47
Colombia	-1.66	0.13	-0.26	0.24	-0.50	-0.25	-0.38
Comoros	-1.01	-1.88	-0.43	-1.51	-1.03	-0.75	-1.10
Congo	-0.61	-1.34	-1.16	-1.19	-1.16	-1.16	-1.10
Costa Rica	0.56	0.39	0.98	0.47	0.44	0.49	0.56
Côte d'Ivoire	-1.91	-1.39	-1.24	-0.93	-1.52	-1.17	-1.36
Cuba	0.04	-0.51	-1.85	-1.59	-0.85	-0.06	-0.80
Democratic People's Republic of Korea	0.35	-2.12	-2.21	-2.28	-1.06	-1.74	-1.51
Democratic Republic of the Congo	-2.34	-1.89	-1.48	-1.43	-1.68	-1.31	-1.69
Djibouti	-0.13	-0.98	-1.12	-0.75	-0.54	-0.33	-0.64
Dominica	0.97	0.72	1.09	0.16	0.63	0.67	0.71
Dominican Republic	0.10	-0.40	0.14	-0.24	-0.60	-0.62	-0.27
Ecuador	-0.83	-0.97	-0.22	-1.14	-1.23	-0.79	-0.86
Egypt	-0.67	-0.37	-1.19	-0.17	-0.09	-0.67	-0.53
El Salvador	0.09	-0.15	0.06	0.31	-0.63	-0.22	-0.09
Equatorial Guinea	-0.09	-1.43	-1.89	-1.37	-1.31	-1.62	-1.29
Eritrea	-0.84	-1.41	-2.20	-2.13	-1.24	-0.38	-1.37
Ethiopia	-1.79	-0.43	-1.30	-0.86	-0.60	-0.66	-0.94
Fiji	-0.05	-0.95	-0.65	-0.68	-0.52	-0.31	-0.53
Gabon	0.23	-0.70	-0.84	-0.65	-0.62	-1.07	-0.61
Gambia (The)	0.14	-0.77	-0.97	-0.44	-0.25	-0.78	-0.51
Ghana	0.06	-0.08	0.48	0.08	-0.10	-0.06	0.07
Grenada	0.67	0.19	0.89	0.31	0.16	-0.37	0.31
Guatemala	-0.58	-0.49	-0.26	-0.12	-1.10	-0.72	-0.55
Guinea	-1.91	-1.39	-1.32	-1.15	-1.60	-1.35	-1.45

TABLE 10 **Governance** (cont.)

Variable	Political stability/ absence of violence	Government effective-ness	Voice and accounta-blity	Regulatory quality	Rule of law	Control of corruption	Overall governance (average of 6 indicators)
Source	Worldwide Governance Indicators (http://info.worldbank.org/governance/wgi/index.asp). The six governance indicators are measured in units ranging from about -2.5 to 2.5, with higher values corresponding to better governance outcomes.						
Period				**Closest 2008**			
Guinea-Bissau	-0.38	-1.26	-0.79	-1.22	-1.43	-1.16	-1.04
Guyana	-0.56	-0.17	0.17	-0.55	-0.70	-0.47	-0.38
Haiti	-1.39	-1.29	-0.71	-0.89	-1.35	-1.21	-1.14
Honduras	-0.36	-0.57	-0.29	-0.27	-0.89	-0.82	-0.53
India	-0.99	-0.03	0.45	-0.21	0.12	-0.37	-0.17
Indonesia	-1.00	-0.29	-0.14	-0.27	-0.66	-0.64	-0.50
Iran (Islamic Republic of)	-1.06	-0.75	-1.48	-1.63	-0.80	-0.71	-1.07
Iraq	-2.69	-1.41	-1.26	-1.09	-1.87	-1.48	-1.63
Jamaica	-0.27	0.09	0.61	0.36	-0.49	-0.53	-0.04
Jordan	-0.32	0.27	-0.71	0.34	0.49	0.41	0.08
Kenya	-1.25	-0.60	-0.16	-0.07	-0.98	-1.01	-0.68
Lao People's Democratic Republic	-0.01	-0.84	-1.71	-1.25	-0.90	-1.23	-0.99
Lebanon	-1.94	-0.64	-0.40	-0.20	-0.73	-0.83	-0.79
Lesotho	-0.03	-0.31	0.04	-0.63	-0.30	0.04	-0.20
Liberia	-0.99	-1.36	-0.29	-1.32	-1.23	-0.60	-0.96
Madagascar	-0.42	-0.59	-0.16	-0.33	-0.46	-0.10	-0.34
Malawi	0.05	-0.65	-0.18	-0.39	-0.29	-0.59	-0.34
Malaysia	0.13	1.13	-0.58	0.27	0.49	0.14	0.26
Maldives	-0.10	-0.35	-0.39	-0.42	-0.24	-0.60	-0.35
Mali	-0.21	-0.78	0.28	-0.33	-0.35	-0.47	-0.31
Mauritania	-0.93	-0.97	-0.92	-0.59	-1.01	-0.80	-0.87
Mauritius	0.84	0.60	0.88	0.95	0.88	0.53	0.78
Mexico	-0.62	0.18	0.08	0.45	-0.64	-0.26	-0.14
Mongolia	0.35	-0.68	0.24	-0.29	-0.54	-0.62	-0.26
Morocco	-0.47	-0.09	-0.70	-0.03	-0.11	-0.26	-0.28
Mozambique	0.29	-0.38	-0.02	-0.47	-0.66	-0.55	-0.30
Myanmar	-1.56	-1.68	-2.24	-2.24	-1.48	-1.69	-1.82
Namibia	0.96	0.31	0.57	0.13	0.36	0.59	0.49
Nepal	-1.69	-0.75	-0.79	-0.66	-0.76	-0.68	-0.89
Nicaragua	-0.39	-0.96	-0.14	-0.36	-0.86	-0.81	-0.59
Niger	-0.75	-0.79	-0.41	-0.52	-0.80	-0.82	-0.68
Nigeria	-2.01	-0.98	-0.60	-0.62	-1.12	-0.92	-1.04
Oman	0.95	0.42	-1.07	0.65	0.82	0.59	0.39
Pakistan	-2.61	-0.73	-1.01	-0.47	-0.92	-0.77	-1.09
Panama	0.11	0.16	0.59	0.63	-0.20	-0.15	0.19
Papua New Guinea	-0.55	-0.80	0.09	-0.59	-0.94	-1.13	-0.65
Paraguay	-0.63	-0.78	-0.33	-0.49	-1.03	-0.93	-0.70
Peru	-0.84	-0.30	0.02	0.33	-0.74	-0.26	-0.30
Philippines	-1.41	0.00	-0.20	-0.05	-0.49	-0.75	-0.48
Rwanda	-0.14	-0.20	-1.24	-0.49	-0.50	0.03	-0.42
Saint Kitts and Nevis	0.85	0.66	1.12	0.50	0.75	1.00	0.81
Saint Lucia	0.66	0.88	1.24	0.40	0.83	1.17	0.86
Saint Vincent and the Grenadines	0.81	0.74	1.11	0.40	0.87	1.00	0.82
Samoa	1.11	-0.07	0.63	-0.43	0.74	0.24	0.37
Sao Tome and Principe	0.29	-0.74	0.24	-0.72	-0.50	-0.44	-0.31
Senegal	-0.16	-0.12	-0.16	-0.29	-0.31	-0.45	-0.25

TABLE 10 **Governance** (cont.)

Variable	Political stability/ absence of violence	Government effective-ness	Voice and accounta-blity	Regulatory quality	Rule of law	Control of corruption	Overall governance (average of 6 indicators)
Source	Worldwide Governance Indicators (http://info.worldbank.org/governance/wgi/index.asp). The six governance indicators are measured in units ranging from about -2.5 to 2.5, with higher values corresponding to better governance outcomes.						
Period				**Closest 2008**			
Seychelles	0.91	-0.01	-0.04	-0.65	0.24	0.23	0.11
Sierra Leone	-0.23	-1.13	-0.28	-0.86	-1.03	-1.07	-0.77
Solomon Islands	0.12	-0.79	0.19	-1.31	-0.78	-0.41	-0.50
Somalia	-3.28	-2.51	-1.85	-2.77	-2.69	-1.90	-2.50
South Africa	-0.04	0.75	0.68	0.63	0.12	0.30	0.41
Sri Lanka	-2.04	-0.29	-0.44	-0.28	-0.01	-0.15	-0.54
Sudan	-2.44	-1.41	-1.77	-1.36	-1.50	-1.49	-1.66
Suriname	0.15	0.00	0.57	-0.67	-0.33	-0.09	-0.06
Swaziland	0.22	-0.66	-1.20	-0.57	-0.51	-0.38	-0.52
Syrian Arab Republic	-0.56	-0.67	-1.75	-1.17	-0.54	-1.07	-0.96
Thailand	-1.19	0.11	-0.56	0.26	-0.03	-0.38	-0.30
Togo	-0.10	-1.43	-1.13	-1.05	-0.80	-0.98	-0.91
Tonga	0.21	-0.41	-0.08	-0.75	0.13	-0.73	-0.27
Trinidad and Tobago	0.08	0.30	0.53	0.62	-0.25	-0.17	0.19
Tunisia	0.29	0.35	-1.26	0.11	0.24	-0.04	-0.05
Turkey	-0.73	0.20	-0.19	0.22	0.09	0.10	-0.05
Uganda	-0.88	-0.51	-0.47	-0.08	-0.51	-0.79	-0.54
United Republic of Tanzania	0.01	-0.45	-0.09	-0.39	-0.28	-0.51	-0.29
Uruguay	0.83	0.48	1.02	0.08	0.50	1.12	0.67
Venezuela (Bolivarian Republic of)	-1.23	-0.85	-0.62	-1.44	-1.59	-1.13	-1.14
Viet Nam	0.32	-0.31	-1.62	-0.53	-0.43	-0.76	-0.56
Yemen	-1.89	-0.99	-1.18	-0.70	-0.93	-0.73	-1.07
Zambia	0.29	-0.66	-0.09	-0.33	-0.50	-0.48	-0.30
Zimbabwe	-1.56	-1.56	-1.52	-2.18	-1.81	-1.37	-1.67
Asia and the Pacific	**-0.83**	**-0.08**	**-0.74**	**-0.34**	**-0.30**	**0.59**	**-0.29**
East Asia	-0.31	0.19	-1.73	-0.25	-0.35	1.08	-0.23
Oceania	-0.41	-0.79	0.03	-0.64	-0.84	0.83	-0.30
South Asia	-1.27	-0.24	0.05	-0.39	-0.16	0.54	-0.25
South East Asia	-0.85	-0.27	-0.66	-0.37	-0.55	-0.41	-0.52
Sub-Saharan Africa	**-1.11**	**-0.77**	**-0.60**	**-0.62**	**-0.85**	**0.23**	**-0.62**
Eastern Africa	-0.88	-0.60	-0.62	-0.61	-0.67	0.34	-0.51
Southern Africa	0.03	0.66	0.61	0.54	0.12	-0.71	0.21
Middle Africa	-1.62	-1.50	-1.31	-1.20	-1.47	0.24	-1.14
Western Africa	-1.32	-0.88	-0.48	-0.58	-0.93	0.27	-0.65
Latin America and the Caribbean	**-0.45**	**-0.10**	**0.15**	**0.02**	**-0.55**	**0.06**	**-0.15**
Caribbean	-0.34	-0.58	-0.65	-0.75	-0.83	-0.51	-0.61
Central America	-0.51	0.02	0.06	0.33	-0.66	-1.12	-0.31
South America	-0.44	-0.10	0.25	-0.03	-0.48	0.56	-0.04
Middle East and North Africa	**-1.13**	**-0.47**	**-1.02**	**-0.42**	**-0.49**	**0.05**	**-0.58**
Middle East	-1.23	-0.40	-0.78	-0.34	-0.50	-0.33	-0.60
North Africa	-1.04	-0.53	-1.21	-0.49	-0.48	0.37	-0.56

Annex 3 Joint analysis from RIGA and RuralStruc datasets

FIGURE 1a **Percentage of rural household income from different occupations**

Source: RIGA (all caps, national data) and RuralStruc surveys (initial caps, regional data, 2006)

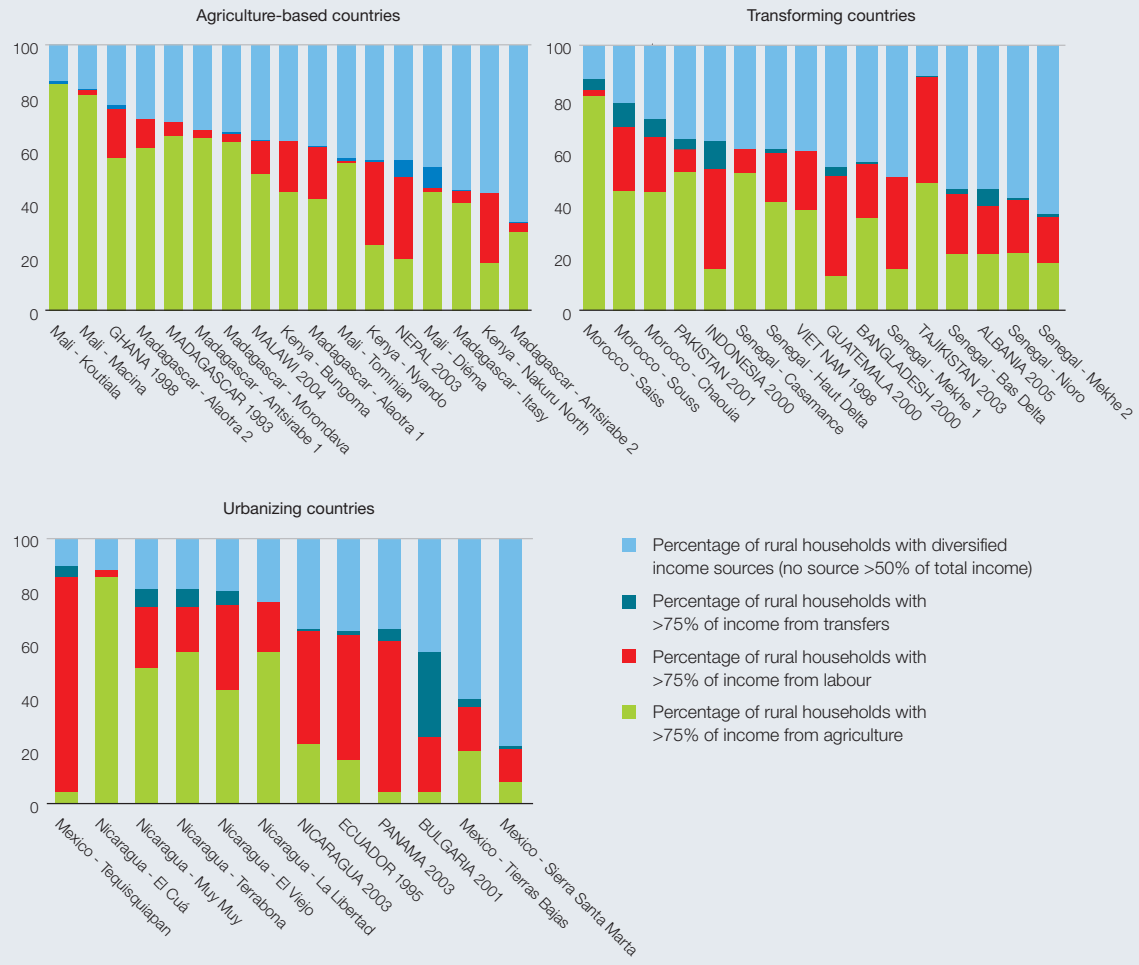
Figure 1a shows the importance of agriculture in rural incomes. As expected, the proportion of income derived from agriculture is generally lower in urbanizing and transforming countries than in agriculture-based countries. However, for some transforming or urbanizing countries, or in some areas within these countries, the proportion of income from agriculture may still be very high (e.g. in Saiss in Morocco, or in most areas surveyed by RuralStruc in Nicaragua). In some transforming countries, income from non-farm self-employment is of importance, while the share of income derived from agriculture is typically lower. In urbanizing countries, the share of wage income, both agricultural and non-agricultural, is typically higher.

FIGURE 1b **Percentage of rural household wage income from agriculture and non-agriculture, by income quintile**

Source: RIGA (all caps, national data) and RuralStruc surveys (initial caps, regional data, 2006)

Figure 1b looks specifically at the relative importance of different types of wage labour. The figure shows that in most countries, agriculture-based, transforming and urbanizing, the relative share of farm versus non-farm wages is generally higher for the poorer households than it is among better-off ones.

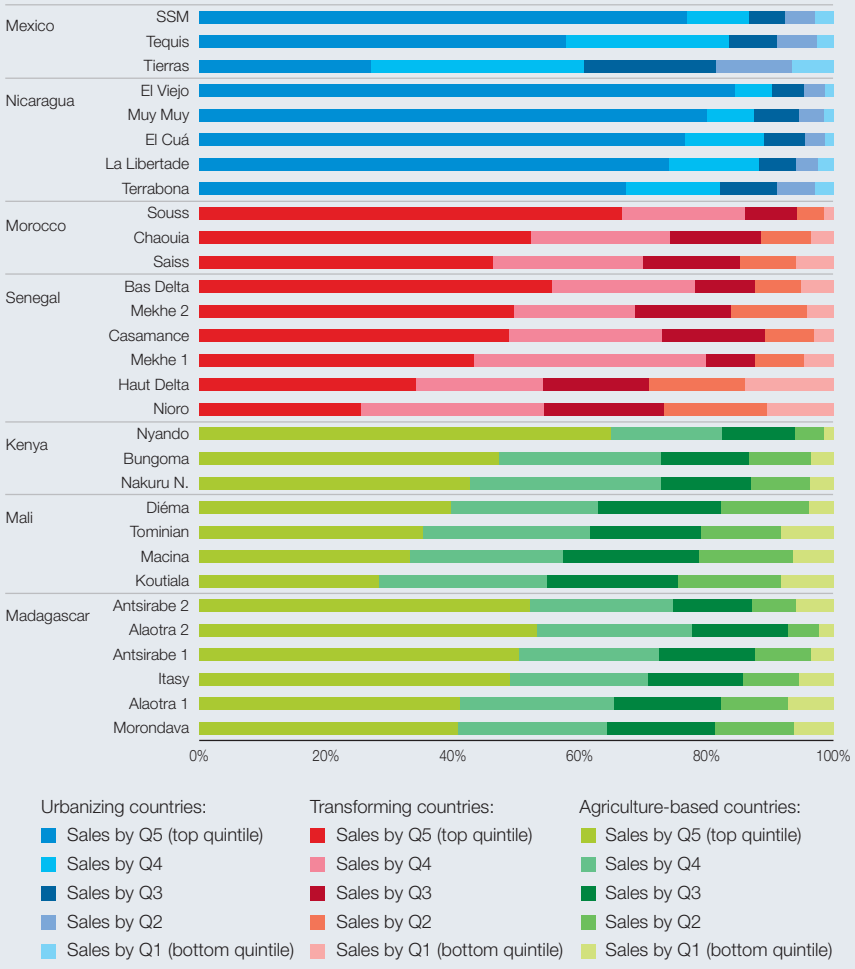
FIGURE 2 **Percentage of rural households with specialized or diversified livelihoods**



Source: RIGA (all caps, national data) and RuralStruc surveys (initial caps, regional data, 2006)

Figure 2 provides a picture of the income composition that makes up the livelihood mix of rural households, identifying the rates of prevalence of four types of livelihood mix. These are: agriculture-dependent (where dependency or specialization is defined as reliance for at least 75 per cent of household income); labour- (or wage employment) dependent; transfer-dependent; and dependent on a diversified set of sources (i.e. no single source covers more than 50 per cent of household income). The figure shows that diversified livelihoods are frequent almost everywhere, but that their share is particularly high in transforming countries. In urbanizing countries, employment-based income sources are typically more important, while agriculture-based livelihoods are more prevalent in agriculture-based countries. However, the figure also shows significant variation among localities within countries.

FIGURE 3 **Percentage of total marketed agricultural production by rural households, by income quintiles**



Source: RuralStruc surveys

Figure 3 reports the relative value of total marketed food from each household quintile, and for each area surveyed by RuralStruc. As expected, the value of marketed food is generally higher in the higher quintiles. In all areas but four, the two highest quintiles contribute to more than 60 per cent of the total marketed food. However, it is only in urbanizing countries that the proportion of the marketed food is always higher for better-off households. In agriculture-based and transforming countries, the picture is mixed, and the share of marketed food is often higher for lowest quintiles. In most cases the two lowest quintiles contribute to 20 per cent more of the total marketed food.

Annex 4 Household panel data – capturing poverty dynamics and determinants

Poverty dynamics figures and analysis in this annex are based on panel data from the following datasets, which involve the following nine countries:

- Albania (2002-2005) – Living Standards Measurement Surveys
- Egypt (1997-1999) – Integrated Household Surveys
- Ethiopia (1994-1997) – Rural Household Surveys
- Indonesia (1993-2000) – Family Life Surveys (RAND)
- Nicaragua (1998-2001) – Living Standards Measurement Surveys
- South Africa (1993-2004) – KwaZulu-Natal Income Dynamics Study surveys
- Uganda (1992-1999) – Integrated Household Surveys
- United Republic of Tanzania (1991-2004) – Kagera Health and Development Surveys
- Viet Nam (1992-1998) – Living Standards Measurement Surveys

The datasets are all based on surveys conducted with the same households over two time periods, collected and analysed in the 1990s or 2000s. The data presented are restricted to rural households.

Poverty status and movements against national poverty lines are defined on the basis of household expenditure estimates, as established by the institutions managing each survey. Given its expenditure level and the national poverty line, each household could be coded as 'poor' or 'non-poor' at the two points in time for each panel. Thus, there are four possible poverty trajectories:

		Household expenditure per capita (year 2) > poverty line (year 2)	**Household expenditure per capita (year 2) < poverty line (year 2)**
		Non-poor (year 2)	**Poor (year 2)**
Household expenditure per capita (year 1) > poverty line (year 1)	Non-poor (year 1)	Never poor	Poverty entries
Household expenditure per capita (year 1) < poverty line (year 1)	Poor (year 1)	Poverty exits	Chronic poverty

Of course, the data are not directly comparable across panels: poverty lines vary from one country to another, and so does the time lag between year 1 and year 2 in each dataset. In general, a higher incidence of movements in and out of poverty may be expected in datasets with longer time lags between survey dates.

Household characteristics associated with poverty trajectories

Mobility in and out of poverty may be associated with a range of factors, some related to the environment in which rural households live, some related to their interaction with other actors, and some related to the characteristics of their members, their own characteristics at the household level, and those of their communities. Household survey panel data are unique sources of information in particular on household-level characteristics. In the analysis, the following questions were posed independently for each dataset:

(a) What household characteristics are most likely to be associated with exit from poverty?

(b) What household characteristics are most likely to be associated with entry into poverty?
(c) What household characteristics are most likely to be associated with chronic poverty, if any?
For each country, poverty trajectories were analysed against a common set of household characteristics, using binomial general linear models, using the R 2.9.0 software package.

Household characteristics associated with poverty dynamics

For each panel, a set of household characteristics was extracted from the original survey data. Household characteristics included in the analysis can be divided into five subcategories:
(a) **Demographics**: number of household members, dependency ratio and sex of the head of the household;
(b) **Agricultural assets**: land used (either area in hectares or value in local currency unit – LCU), livestock (either in value in local currency or in Tropical Livestock Unit – TLU);

TABLE 1 **Variables for household characteristics included in the analysis**

Name of variable	Treated as	Detailed definition
Household size	Variable	Number of household members
Dependency ratio	Variable	(number of active* adults in household)/(number of household members above 15 and below 60 years old) * 15 years old < … < 60 years old
Gender of household head	Boolean factor	0 – head of the household is a male 1 – head of the household is a female
Land	Variable	Value used land (including plantations) in LCU/number of active adults in the household OR Size of land used (including plantations) in hectares/number of active adults in the household
Livestock	Variable	Value of livestock/number of adults
Education	Factor	No education – head of the household did not receive any formal education Primary – head of the household only received primary education (completed or not) Secondary – head of the household received secondary education or more (secondary education completed or not)
Agriculture	Boolean factor	1 – at least one household member is partially or fully occupied as farmer on household farm 0 – no household member is occupied as famer
Share income on-farm	Variable	Share of household income from household farm
Different share income on-farm	Variable	Share of household income from household farm year 2 – share of household income from household farm year 1
Occupation X	Boolean factor	1 – at least one household member is partially or fully occupied as X 0 – no household member is occupied as X
Different occupation X	Factor	Less – at least 1 household member occupied as X in year 1, but none in year 2 No change – no household member occupied as X in year 1 nor in year 2, OR at least 1 household member occupied as X in both years More – no household member occupied as X in year 1, but at least 1 in year 2
Share occupation X	Variable	Share of household income from occupation X
Different share occupation X	Variable	Share of household income from occupation year 2 – share of household income from occupation X year 1
Income diversity	Factor	No diversity – single occupation within household Low diversity – two occupations Diversified – more than two occupations
Different income diversity	Factor	Less – number of occupations is lower in year 2 than in year 1 No change – no change in number of occupations More – number of occupations is higher in year 2 than in year 1

(c) **Education of the head of the household**: no formal education, primary education, secondary education or higher education;
(d) **Income sources/occupation**: farming, agriculture labour, non-agriculture labour, non-agriculture self-employment and transfers; and
(e) **Income/occupation diversity**: number of income sources, and change in number of income sources/income sources from the first to the second survey date.

For income sources, further details such as the share of each income source and its evolution could be included in the model for datasets for which aggregated income data are made available by the RIGA dataset: Albania, Indonesia, Nicaragua and Viet Nam. For the others, only simple binomial variables (involvement in occupation X versus absence of involvement in occupation X) could be extracted from the datasets.

Albania 2002-2005	Egypt 1997-1999	Ethiopia 1994-1997	Indonesia 1993-2000	Nicaragua 1998-2001	South Africa 1993-2004	Uganda 1992-1999	United Republic of Tanzania 1991-2004	Viet Nam 1992-1998
+	+	+	+	+	+	+	+	+
+	+	+	+	+	+	+	+	+
+	+	+	+	+	+	+	+	+
Area	Area	Area	Value	Value	Area	Area	Area	Area
TLU	Value	Value	Value	Value	TLU	Value	Value	TLU
+	+	+	+	+	+	+	+	+
+	+	+	+	+	+	+	+	+
+	-	-	+	+	-	-	-	+
+	-	-	+	+	-	-	-	+
+	+	+	+	+	+	+	+	+
+	-	+	+	+	+	-	+	+
+	-	-	+	+	-	-	-	+
+	-	-	+	+	-	-	-	+
+	+	+	+	+	+		+	+
+	-	+	+	+	+		+	+

Table 1 details household characteristics included in the analyses. In table 1, "+" means that the characteristic indicated in a given line was included in the analysis for the panel indicated in the column, whereas "-" means it was not included.

For some countries, community characteristics such as zoning or access to transport infrastructure were incorporated in the models. Since it was only possible to extract such data for a limited number of panels, related results are not displayed.

FIGURE 1 **Rural poverty dynamics**

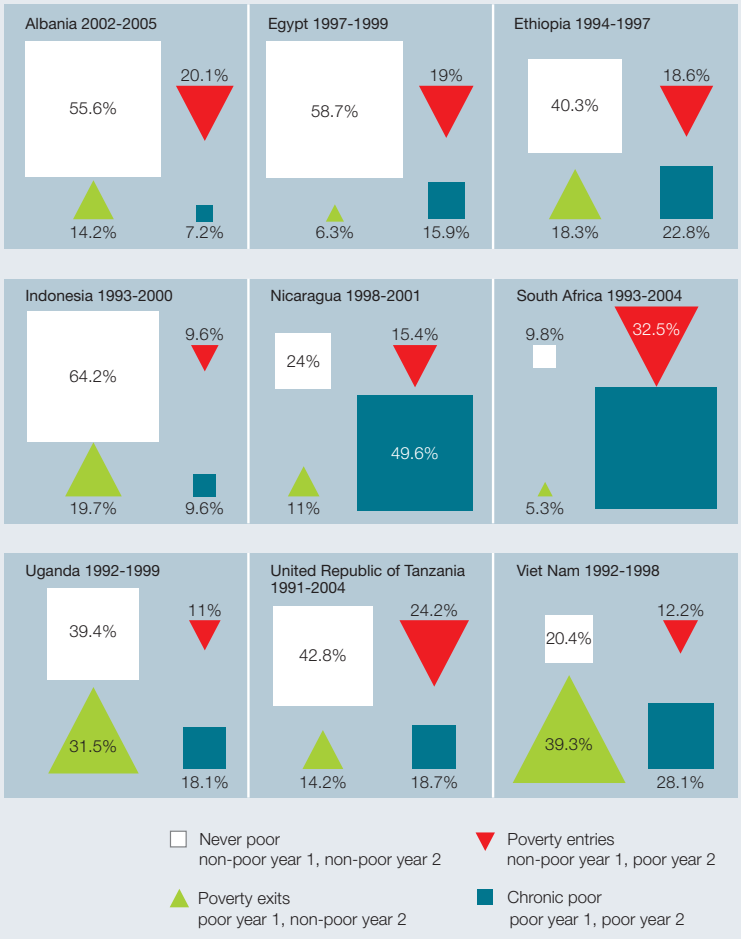


Figure 1 presents the data on rural poverty dynamics in visual form. It shows the following:

(a) First, there is a great deal of movement across national poverty lines in rural areas across countries. This reflects mobility in and out of poverty. Other work on poverty dynamics shows that household expenditure is close to national poverty lines for a large number of rural households, which may explain frequent movement across these lines.

(b) Second, chronic poverty incidence varies considerably between countries, although this is a reflection, at least in part, of different national poverty lines. Based on their national poverty lines, chronic poverty is very high in the two urbanizing countries of the set: Nicaragua and South Africa. In Ethiopia, Uganda and the United Republic of Tanzania (the most agriculture-based countries of the set), the proportion of chronic poor is relatively lower, with trajectories in and out of poverty being instead relatively frequent. Again, however, cross-country comparability is weak given the different value of national poverty lines.

(c) Third, a great deal of mobility out of poverty was recorded in countries that did well in terms of growth and development during the period between the two survey years, such as Uganda and Viet Nam. A large proportion of rural households clearly benefited from growth in these contexts.

(d) The frequency of downward mobility is 'significant' to 'very high' across the board, highlighting both the widespread vulnerability of rural people to factors that may cause them to fall (back) into poverty and the fact that macroeconomic growth is not enough in itself to prevent rural people from falling into poverty.

Poverty dynamics and rural household characteristics

The three models below present the results of the statistical models used to test the association of poverty dynamics with the different factors described in table 1.

MODEL 1 **Chronic poverty** (Binomial General Linear Model:
0 if household is not chronically poor; 1 if household is chronically poor)

Name of variable/ factor included in the model All variables extensively defined in table 1	Type	Indonesia 1993-2000	Nicaragua 1998-2001	Ethiopia 1994-1997	United Republic of Tanzania 1991-2004	Uganda 1992-1999	Egypt 1997-1999	Viet Nam 1992-1998	South Africa 1993-2004	Albania 2002-2005
Number of household members	Variable	+++	+++	+++	+++	+++	-	+++	+++	-
Dependency ratios	Variable	+++	+++	+	++	-	-	++	-	-
Women-headed households	Boolean factor	-	-	-	-	-	+	-	-	-
Land ownership	Variable	+++	+	-	+	+++	+	-	-	-
Livestock ownership	Variable	-	+++	+++	+	-	-	-	-	-
Education of household head	Factor	+++	-	++	-	+	-	+++	+++	-
Participation in agriculture as a farmer	Boolean factor		-	-	-	-	+	-	-	--
Share income on farm	Variable	+	-					-		-
Difference share income on farm (year 2-year 1)	Variable	-	+					-		-
Participation as agriculture labour	Factor	++	+++	-	+	-	-	-	-	-
Change in participation as agriculture labour	Factor	-	+++	-	-			-	-	-
Share income from agriculture labour	Variable	-	-					-		-
Difference share income from agriculture labour (year 2-year 1)	Variable	-	-					-		-
Participation as non-agriculture labour	Factor	-	+	-	+++	-	-	+++	-	-
Change in participation as non-agriculture labour	Factor	-	-	-	-			-	-	-
Share income from non-agriculture labour	Variable	-	-					-		-
Difference share income from non-agriculture labour (year 2-year 1)	Variable	+	-					-		-
Participation as non-agriculture self employment	Factor	-	+	-	-	-	-	-	-	-
Change in participation as non-agriculture self-employment	Factor	++	-	-	-			-	-	-
Share income from non-agriculture self-employment	Variable	+	-					+++		-
Difference share income from non-agriculture self-employment (year 2-year 1)	Variable	++	-					+++		-
Receipt of transfers by household	Factor	-	-	-	+	-	-	-	+	-
Change in receipt of transfers by household	Factor	-	-	++	-			-	-	-
Share income from transfers	Variable	-	-					-		-
Difference share income from transfers (year 2-year 1)	Variable	-	-					-		-
Income sources diversity	Factor	-	-	-	-	-	-	++	-	-
Difference in income sources diversity (year 2-year 1)	Factor	-	-	-	-			-	-	-

Variable not included
- Non significant

\+ P < 0.05
++ P < 0.01
+++ P < 0.005

Factor or variable associated with growing incidence of chronic poverty
Factor or variable associated with decreasing incidence of chronic poverty

MODEL 2 **Exit from poverty** (Binomial General Linear Model:
0 if household moved out of poverty; 1 if household stayed in poverty)

Name of variable/ factor included in the model All variables extensively defined in table 1	Type	Indonesia 1993-2000	Nicaragua 1998-2001	Ethiopia 1994-1997	United Republic of Tanzania 1991-2004	Uganda 1992-1999	Egypt 1997-1999	Viet Nam 1992-1998	South Africa 1993-2004	Albania 2002-2005
Number of household members	Variable	-	+	+	-	++	-	+++	-	-
Dependency ratios	Variable	+++	++	-	-	-	-	+++	-	-
Women-headed households	Boolean factor	-	-	+	-	-	-	-	-	-
Land ownership	Variable	-	+	-	-	+++	-	-	-	-
Livestock ownership	Variable	-	-	+++	-	-	-	+++	-	-
Education of household head	Factor	-	-	-	-	+	-	+++	-	-
Participation in agriculture as a farmer	Boolean factor	-	-	-	-	-	-	-	-	-
Share income on farm	Variable	-	-					-		-
Difference share income on farm (year 2-year 1)	Variable	-	-					-		++
Participation as agriculture labour	Factor	-	-	-	-	-	-	-	-	-
Change in participation as agriculture labour	Factor	-	+++	-	-			-	-	-
Share income from agriculture labour	Variable	-	-					-		-
Difference share income from agriculture labour (year 2-year 1)	Variable	-	-					-		-
Participation as non-agriculture labour	Factor	-	++	+	-	-	-	-	-	-
Change in participation as non-agriculture labour	Factor	-	-	-	-			-	-	-
Share income from non-agriculture labour	Variable	-	+					-		-
Difference share income from non-agriculture labour (year 2-year 1)	Variable	-	-					-		-
Participation as non-agriculture self-employment	Factor	-	-	-	-	-	-	-	-	-
Change in participation as non-agriculture self- employment	Factor	-	-	-	-			+++	-	-
Share income from non-agriculture self-employment	Variable	-	+					-		-
Difference share income from non-agriculture self-employment (year 2-year 1)	Variable	+	-					-		-
Receipt of transfers by household	Factor	-	-	-	-	-	-	-	-	-
Change in receipt of transfers by household	Factor	-	-	-	-			+++	-	-
Share income from transfers	Variable	-	-					-		-
Difference share income from transfers (year 2-year 1)	Variable	-	-					-		-
Income sources diversity	Factor	-	-	-	-	-	-	-	++	-
Difference in income sources diversity (year 2-year 1)	Factor	-	-	-	-			-	-	-

Variable not included
\- Non significant
\+ P < 0.05
++ P < 0.01
+++ P < 0.005

Factor or variable associated with reducing probability of exit from poverty
Factor or variable associated with growing probability of exit from poverty

MODEL 3 **Entry into poverty** (Binomial General Linear Model:
0 if household stayed out of poverty; 1 if household moved into poverty)

Name of variable/ factor included in the model All variables extensively defined in table 1	Type	Indonesia 1993-2000	Nicaragua 1998-2001	Ethiopia 1994-1997	United Republic of Tanzania 1991-2004	Uganda 1992-1999	Egypt 1997-1999	Viet Nam 1992-1998	South Africa 1993-2004	Albania 2002-2005
Number of household members	Variable	-	-	++	-	+++	-	+++	-	-
Dependency ratios	Variable	-	-	-	-	-	-	+++	-	-
Women-headed households	Boolean factor	+	-	-	-	-	-	-	-	-
Land ownership	Variable	+	-	-	-	+++	-	-	-	-
Livestock ownership	Variable	-	+	+++	-	-	-	-	-	-
Education of household head	Factor	-	-	-	+	-	-	++	-	-
Participation in agriculture as a farmer	Boolean factor	-	-	-	-	-	-	-	-	-
Share income on farm	Variable	-	-					-		-
Difference share income on farm (year 2-year 1)	Variable	-	-					-		-
Participation as agriculture labour	Factor	-	-	-	-	+	-	-	-	-
Change in participation as agriculture labour	Factor	-	-	-	-			-	-	-
Share income from agriculture labour	Variable	-	-					-		-
Difference share income from agriculture labour (year 2-year 1)	Variable	-	-					-		-
Participation as non-agriculture labour	Factor	-	+	-	+	-	-	-	-	-
Change in participation as non-agriculture labour	Factor	-	-	-	-			-	-	+
Share income from non-agriculture labour	Variable	-	-					-		-
Difference share income from non-agriculture labour (year 2-year 1)	Variable	-	-					-		-
Participation as non-agriculture self-employment	Factor	-	+	-	-	-	-	-	-	-
Change in participation as non-agriculture self-employment	Factor	-	-	-	-			-	-	++
Share income from non-agriculture self-employment	Variable	-	-					-		-
Difference share income from non-agriculture self-employment (year 2-year 1)	Variable	-	-					-		-
Receipt of transfers by household	Factor	-	-	-	-	-	-	-	-	-
Change in receipt of transfers by household	Factor	-	-	-	-			++	++	-
Share income from transfers	Variable	-	-					-		-
Difference share income from transfers (year 2-year 1)	Variable	-	-					-		-
Income sources diversity	Factor	-	-	-	-	-	-	++	-	-
Difference in income sources diversity (year 2-year 1)	Factor	-	-	-	-			-	-	-

Variable not included
\- Non significant

\+ P < 0.05
++ P < 0.01
+++ P < 0.005

Factor or variable associated with increasing probability of entry into poverty
Factor or variable associated with reducing probability of entry into poverty

Lessons learned

The analyses suggest that three sets of factors are related to chronic poverty across the board. The first is demographics – in most countries, larger households and households with a higher proportion of dependants tend to be chronically poor more often than others. This factor is common to most surveys, except for Albania, where the demographic transition has already happened. Second, low levels of land and/or livestock ownership are associated with chronic poverty in most countries, except Albania, South Africa and Viet Nam. Low levels of assets are clearly associated with high vulnerability and low ability to seize economic opportunities. For households with low education levels or few possibilities for off-farm employment, low farm assets can sometimes mean no income options. This may not hold true, however, in countries where rural economies are more diversified (which includes, in this sample, South Africa, Albania and Viet Nam). Third, low education level of the household head is associated with chronic poverty almost everywhere. Both primary and secondary education make a difference.

In terms of livelihood characteristics, households engaged in the non-farm labour market are often less likely to be chronically poor. This is the case in Nicaragua, the United Republic of Tanzania and Viet Nam, and the same trend exists in Albania, Indonesia and Uganda, although it is not significant. All in all, the results support the idea that involvement in non-agriculture labour, and specifically a high or growing share of income from non-agriculture labour, is associated with lower incidence of chronic poverty among households. Similar trends were illustrated in a few countries for non-agriculture self-employment: in three case (Indonesia, Nicaragua, Viet Nam), in particular high non-agriculture self employment incidence or income shares are associated with lower chronic poverty incidence. Engagement in agricultural self-employment was very variably associated with chronic poverty across countries – in Nicaragua, households engaged in agriculture labour were more likely to be chronically poor, while it was the opposite in Indonesia and the United Republic of Tanzania.

If low levels of education, high numbers of dependants, and low farm assets are clearly associated with chronic poverty, would improvement on these three variables be associated with mobility out of poverty? In general, the analysis shows that these factors tend to be associated with exit from poverty in the same way as their lack is associated with chronic poverty. However, in many cases the association is even more significant when it comes to reduced vulnerability to mobility into poverty.

Concerning livelihoods, trends show a frequent association of non-farm rural employment with higher prevalence of mobility out of poverty (a particularly significant association in Ethiopia and Nicaragua). In Viet Nam, on the other hand, it is non-farm self-employment that is more significantly correlated with mobility out of poverty, and this is also true in Indonesia and Nicaragua. Conversely, participation in agriculture wage employment is significantly correlated with vulnerability to move (back) into poverty in some countries.

Notes

1 Panos London is part of a global not-for-profit network promoting the participation of poor and marginalized people in international development debates through media and communication projects: http://www.panos.org.uk.
Panos London's local partner organizations for this exercise were: Beijing Cultural Development Center for Rural Women (China); Sameh Ahmed Saeid with Sons of the Land Association for Human Rights (Egypt); Andrew Lees Trust (Madagascar); Panos Institute West Africa (Senegal); Omar Asghar Khan Development Foundation (Pakistan); and Asociación de Comunicadores Sociales Calandria (Peru).

2 A further 126 people (64 men and 62 women) were consulted through focus group discussions in the same locations.

3 World Bank (2010d)

4 FAO (2010)

5 Delgado et al. (2010)

6 World Bank, FAO and IFAD (2009)

7 OECD and FAO (2010)

8 OECD and FAO (2009)

9 FAO (2009d)

10 Losch, Fréguin-Gresh and White (2010)

11 Sarris (2009)

12 Ligon and Sadoulet (2007)

13 Christiaensen, Demery and Kuhl (2010)

14 Sumner et al. (2008)

15 ECOSOC (2008)

16 UNCTAD (2009)

17 Global Donor Platform for Rural Development (2008)

18 Cotula et al. (2009)

19 Chang (2009)

20 Green (2008)

21 International statistics rely on national definitions of the two terms 'rural' and 'urban', and these vary significantly from country to country. In many situations, areas defined as urban have rural characteristics in terms of occupations (e.g. reliance on agriculture), and also in terms of level of infrastructure and services. Such characteristics may even extend into bigger cities. In some regions – particularly Latin America, this can lead to significant undercounting of the rural population and of the rural poor.

22 Sumner et al. (2008)

23 United Nations (2009)

24 Ravallion, Chen and Sangraula (2007)

25 United Nations (2010)

26 The figures are based on those for poverty at US$1.25/day (World Development Indicators) modified by the urban/rural poverty ratio derived from national poverty surveys, using national poverty lines (see annex 1).

27 Evidently, different approaches to measuring poverty result in different figures for numbers of poor people. See Anand, Segal and Stiglitz (2010).

28 Losch, Fréguin-Gresh and White (2010)

29 Ahmed et al. (2007)

30 von Grebmer et al. (2009)

31 Fan (2010)

32 United Nations (2010)

33 World Bank (2007)

34 Proportion of under-five children falling below minus 2 standard deviations from the median weight-for-age of the reference population.

35 Collier (2008). Collier calculates that 300 million people live in landlocked developing countries, after the resource rich among them have been removed. Of these about half the population is probably poor, a large proportion of which is rural. This calculation does not include Indian states – if it did, the numbers would increase significantly.

36 Chronic Poverty Research Centre (2004)

37 Pender (2008)

38 Benson, Epprecht and Minot (2010)

39 Valdés et al. (2008) analyse household survey data for 15 countries in the FAO/World Bank Rural Income Generating Activities (RIGA) database http://www.fao.org/es/ESA/riga/english/index_en.htm. The surveys are comparable in terms of the structure of household income and household characteristics, and permit geographic coverage across Africa (Ghana, Madagascar, Malawi and Nigeria), Asia (Bangladesh, Indonesia, Nepal, Pakistan and Viet Nam), Eastern Europe and Central Asia (Albania and Bulgaria) and Latin America and the Caribbean (Ecuador, Guatemala, Nicaragua and Panama).

40 Desai et al. (2010)

41 Valdés et al. (2008)

42 Ibid.

◁ 43 Anríquez (2007)
◁ 44 Losch, Fréguin-Gresh and White (2010)
◁ 45 Narayan, Pritchett and Kapoor (2009)
◁ 46 Dercon and Shapiro (2007)
◁ 47 Narayan, Pritchett and Kapoor (2009)
◁ 48 Carr and Hartl (2010)
◁ 49 Fontana and Paciello (2009)
◁ 50 Medeiros and Costa (2010)
◁ 51 See, for example, Quisumbing and Pandolfelli (2010), Valdés et al. (2008)
◁ 52 http://genderindex.org/content/social-institutions-variables
◁ 53 Fontana and Paciello (2009)
◁ 54 Quan (2006)
◁ 55 World Bank (2007)
◁ 56 Quisumbing and Pandolfelli (2010)
◁ 57 The Economist (2010)
◁ 58 Jütting and Morrisson (2009)
◁ 59 UNICEF (2009)
◁ 60 ECLAC (2009a)
◁ 61 United Nations (2010)
◁ 62 (L. Gasperini, personal communication, 2010)
◁ 63 United Nations (2010)
◁ 64 (L. Gasperini, personal communication, 2010)
◁ 65 World Bank (2006)
◁ 66 IFAD (2009)
◁ 67 United Nations (2009a)
◁ 68 Hall and Patrinos (2010)
◁ 69 Baulch et al. (2010)
◁ 70 IFAD (2004)
◁ 71 IFAD (2009)
◁ 72 Hoddinott (2009)
◁ 73 IFAD and WFP (2010)
◁ 74 For example, Ellis (1998)
◁ 75 Pandey and Bhandari (2009)
◁ 76 IFAD (2010)
◁ 77 Pandey and Bhandari (2009)
◁ 78 Bird and Shepherd (2003)
◁ 79 IFAD and WFP (2010)
◁ 80 (B. Gueye, personal communication, 2010)
◁ 81 WHO (2010)
◁ 82 Hogan et al. (2010)
◁ 83 Nikièma, Haddad and Potvin (2008)
◁ 84 World Bank (2008)
◁ 85 ESCAP (2009)
◁ 86 ECLAC (2009)
◁ 87 AsDB (2009)
◁ 88 World Bank (2010b)
◁ 89 Nelson et al. (2009)
◁ 90 WFP (2009)
◁ 91 This is, for instance, an argument made by Brown and Crawford (2009) in relation to the Middle East and North Africa.
◁ 92 Tolba and Saab (2009)
◁ 93 IFAD (2010a)
◁ 94 FAO, IFAD and WFP (2010)
◁ 95 Tyler and Fajber (2009)
◁ 96 von Braun and Meinzen-Dick (2009)
◁ 97 Cotula et al. (2009)
◁ 98 CEPES (2010)
◁ 99 IFAD (2008a)
◁ 100 Quan (2006); Schejtmann and Berdegué (2003)
◁ 101 Sjaastad and Cousins (2009)
◁ 102 Cousins (2009)
◁ 103 Ostrom (1997)
◁ 104 IFAD (2009a)
◁ 105 FAO (2009k); GreenFacts (2009); Kura et al. (2004)
◁ 106 Kura et al. (2004)
◁ 107 Dugan et al. (2007)
◁ 108 Allison and Badjeck (2004)
◁ 109 O'Meally (2009)
◁ 110 This paragraphs draws heavily on ActionAid (2008)
◁ 111 de Nigris (2005)
◁ 112 Headey (2010)
◁ 113 Hoffler (2008)
◁ 114 Thapa et al. (2009)
◁ 115 El-Dukheri, Elamin and Kherallah (2010)
◁ 116 Mousseau (2010)
◁ 117 Galtier (2009); OECD and FAO (2010)
◁ 118 BAPPENAS/Departmen Pertanian/USAID/ DAI Food Policy Advisory Team (2002)
◁ 119 Dorward and Chirwa (2009)
◁ 120 Coordination SUD (2006)
◁ 121 ActionAid (2008)
◁ 122 Worldwide Governance Indicators
◁ 123 UNDP (2009a)
◁ 124 IFAD (2008b)
◁ 125 Alinovi, Hemrich and Russo (2007)
◁ 126 World Bank (2010c)
◁ 127 IFAD (2007)

◁ 128 UNDP (2008)
◁ 129 Transparency International (2010)
◁ 130 Weinberger and Jütting (2005)
◁ 131 Collins et al. (2009)
◁ 132 Chaia et al. (2009)
◁ 133 Fernandez (2006)
◁ 134 Matin, Sulaiman and Rabbani (2008)
◁ 135 Collins et al. (2009)
◁ 136 Wright (1999)
◁ 137 Jütting (2009)
◁ 138 IFAD and WFP (2010)
◁ 139 Farrington, Holmes and Slater (2007)
◁ 140 Devereux (2010)
◁ 141 For example, Devereux et al. (2008)
◁ 142 Slater et al. (2006)
◁ 143 Gaiha and Imai (2002)
◁ 144 International Poverty Centre (2008)
◁ 145 Levy (2010)
◁ 146 International Poverty Centre (2008)
◁ 147 Hickey (2006)
◁ 148 FAO (2009a)
◁ 149 (R. de Groot, personal communication, 2010)
◁ 150 Aliguma, Magala and Lwasa (2007)
◁ 151 Staal et al. (2001)
◁ 152 ECLAC, FAO and IICA (2009)
◁ 153 Onumah et al. (2007)
◁ 154 Brown and Gibson (2006)
◁ 155 Berdegué, Biénabe and Peppelenbos (2008)
◁ 156 FAO (2008)
◁ 157 Onumah et al. (2007)
◁ 158 Henson (2006)
◁ 159 Reardon and Huang (2008)
◁ 160 Digal, Proctor and Vorley, eds. (2008); Harper (2009)
◁ 161 Vorley and Proctor (2008)
◁ 162 Gaiha and Thapa (2007)
◁ 163 Reardon and Berdegué (2002); Weatherspoon and Reardon (2003)
◁ 164 Tschirley (2007)
◁ 165 Losch, Fréguin-Gresh and White (2010)
◁ 166 Henson (2006)
◁ 167 This paragraph draws extensively on World Bank (2007)
◁ 168 Okello and Swinton (2005)
◁ 169 See for example, Reardon and Huang (2008)
◁ 170 Sautier et al. (2006)
◁ 171 Okello and Swinton (2005)
◁ 172 Mitchell and Coles (forthcoming)
◁ 173 "Organic Food: Global Industry Guide". *Datamonitor*. 2009
◁ 174 Pender (2008)
◁ 175 TechnoServe (2004)
◁ 176 Tschirley et al. (2004)
◁ 177 Berdegué, Biénabe and Peppelenbos (2008)
◁ 178 Ostertag et al. (2007)
◁ 179 Berdegué, Biénabe and Peppelenbos (2008)
◁ 180 Berdegué (2008)
◁ 181 Both examples cited in Fan and Chan-Kang (2005)
◁ 182 Fan (2010), citing Fan, Gulati and Thorat (2008)
◁ 183 World Bank (2010d), citing a 2009 World Bank publication entitled *Africa's infrastructure: A time for transformation*
◁ 184 Bhalla, Karan and Shobha (2006)
◁ 185 World Bank (2007)
◁ 186 World Bank (2010d)
◁ 187 http://www.syngentafoundation.org/index.cfm?pageID=674
◁ 188 (N. Brett, personal communication, 2010)
◁ 189 Lee, D. (2009)
◁ 190 Losch, Fréguin-Gresh and White (2010)
◁ 191 Simmons (2002)
◁ 192 Aranda and Morales (2002)
◁ 193 ACDI/VOCA (2007); Singh (2009)
◁ 194 Alianza de Aprendizaje Perú (2007)
◁ 195 Ruotsi (2003)
◁ 196 AsDB (2005)
◁ 197 Key and Runsten (1999)
◁ 198 Berdegué, Biénabe and Peppelenbos (2008)
◁ 199 Bolwig, Gibbon and Jones (2008)
◁ 200 Simmons, Patrick and Winters (2003)
◁ 201 Berdegué, Biénabe and Peppelenbos (2008)
◁ 202 For a broader discussion of these issues, see Miller and Jones (2010)
◁ 203 Berdegué, Biénabe and Peppelenbos (2008)
◁ 204 Alianza de Aprendizaje Perú (2007)
◁ 205 Onumah et al. (2007)
◁ 206 Clay (2005); IDS and the University of Ghana (undated); Nelson, Ishikawa and Geaneotes (2009)
◁ 207 A different form of institutionalization of CSR is the emergence of innovative business-driven initiatives to contribute to hunger reduction or to smallholder farmers' improved access to markets. This includes

in particular the Business Alliance against Chronic Hunger, a network that was set up in 2006 by a group of global chief executives and former United Nations Secretary-General Kofi Annan. The network has developed a series of initiatives to improve local food production and to expand the market engagement of small farmers.

◁ 208 (P. Utting, personal communication, 2010)
◁ 209 UNRISD 2010 (forthcoming)
◁ 210 Béné, Macfadyen and Allison (2007)
◁ 211 Losch, Fréguin-Gresh and White (2010)
◁ 212 Mitchell, Keane and Coles (2009)
◁ 213 Maertens, Minten and Swinnen (2009)
◁ 214 Ibid.
◁ 215 Trivelli, Yancari and De los Ríos (2009)
◁ 216 Ruben, Fort and Zuniga (2008)
◁ 217 World Bank, FAO and IFAD (2008)
◁ 218 Ibid.
◁ 219 TechnoServe (2004)
◁ 220 Berdegué, Biénabe and Peppelenbos (2008)
◁ 221 Bruinsma (2009)
◁ 222 FAO (2009d)
◁ 223 Rosegrant and Hazell (2000)
◁ 224 World Bank (2007)
◁ 225 Hazell (2009)
◁ 226 World Bank (2007)
◁ 227 Smale and Jayne (2009)
◁ 228 Africa Rice Center (2008)
◁ 229 World Bank (2007)
◁ 230 All this paragraph draws upon FAO (2009h)
◁ 231 World Bank (2007); Spielman and Pandya-Lorch, eds. (2009)
◁ 232 ISAAA Brief (2009)
◁ 233 Falck-Zepeda, Cavalieri and Zambrano (2009)
◁ 234 Fischer, Byerlee and Edmeades (2009)
◁ 235 Ibid.
◁ 236 Lele et al. (2010)
◁ 237 Hazell (2009)
◁ 238 WRI (2005)
◁ 239 World Bank (2007)
◁ 240 The Economist (2010a)
◁ 241 Henao and Baanante (2006); Omotayo and Chukwuka (2009)
◁ 242 FAO (2009h)
◁ 243 FAO (2009i)
◁ 244 IFAD and FAO (2007)
◁ 245 Swaminathan (1999)
◁ 246 Conway (1999)
◁ 247 Pretty (2006)
◁ 248 CIRAD (2010)
◁ 249 Tripp (2006)
◁ 250 Lele et al. (2010)
◁ 251 IAASTD (2009)
◁ 252 FAO (2009j)
◁ 253 Estevez (2007); Trigo et al. (2009)
◁ 254 Derpsch et al. (2010)
◁ 255 Erenstein (2009)
◁ 256 Reij and Smaling (2008)
◁ 257 Pretty et al. (2006)
◁ 258 World Bank, FAO and IFAD (2008)
◁ 259 Pretty (2009)
◁ 260 Fernandes and Burcroff (2006)
◁ 261 Pretty (2006)
◁ 262 Global Donor Platform for Rural Development (2008)
◁ 263 Bennett (2009)
◁ 264 Rosset (2000)
◁ 265 See FAOSTAT at http://faostat.fao.org/site/345/default.aspx
◁ 266 Mousseau (2010)
◁ 267 IFAD (2008a)
◁ 268 Bhide and Mehta (2006)
◁ 269 Deininger and Jin (2007)
◁ 270 ESCAP (2009)
◁ 271 Henson (2006)
◁ 272 Bennett (2009)
◁ 273 World Bank (2008)
◁ 274 "Policy approaches and positive incentives on issues relating to reducing emissions from deforestation and forest degradation in developing countries; and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries." Copenhagen Accord, November 2009.
◁ 275 Cohen (2008)
◁ 276 Emiliani and Gasperini (2002)
◁ 277 Govinda (2008)
◁ 278 UNESCO (undated)
◁ 279 FAO and UNESCO (2003)
◁ 280 Vinayagum (2009)
◁ 281 Lele et al. (2010)
◁ 282 Ergano et al. (2010)
◁ 283 World Bank (2007)

◁ 284 Ashby (2009)
◁ 285 Lele et al. (2010)
◁ 286 Nederlof, Wennink and Heemskerk (2008)
◁ 287 Scoones and Thompson, eds. (2009)
◁ 288 Jones and Sanyang (2007)
◁ 289 Scoones and Thompson, eds. (2009)
◁ 290 Losch, Fréguin-Gresh and White (2010)
◁ 291 FAO (2009g)
◁ 292 Valdés et al. (2008)
◁ 293 Losch, Fréguin-Gresh and White (2010)
◁ 294 Wiggins and Hazell (2008)
◁ 295 World Bank (2007)
◁ 296 Losch, Fréguin-Gresh and White (2010)
◁ 297 World Bank (2007)
◁ 298 World Bank (2008)
◁ 299 Schultz (1964)
◁ 300 Haggblade, Hazell and Dorosh (2007)
◁ 301 Christiaensen, Demery and Kuhl (2010)
◁ 302 Wiggins and Hazell (2008)
◁ 303 Bhide and Mehta (2006)
◁ 304 Christiaensen and Todo (2009)
◁ 305 Wiggins and Hazell (2008)
◁ 306 Each data point represents the average for a decade (1980s, 1990s or 2000s until 2006), using available data for each period. Rural poverty estimates are derived from US$1.25/day estimates, weighted by a rural coefficient, estimated from rural versus urban poverty rates against national poverty lines during the same period. This figure assembles 87 estimates, based on data from 46 countries.
◁ 307 World Bank (2008)
◁ 308 Wiggins and Hazell (2008)
◁ 309 http://www.callcentersindia.com/displaynews.php?idnews=85_BPO_operations_head_into_rural_India
◁ 310 World Bank (2006a)
◁ 311 Davis (2003); Lanjouw and Feder (2001). China may be a significant exception in this regard, since high population densities in many rural areas of the country have made it economically viable to provide a very high level of rural infrastructure, including electrification, which has made a big difference for non-farm investment.
◁ 312 Haggblade, Hazell and Reardon (2009)
◁ 313 Ibid.
◁ 314 Damiani (2007)
◁ 315 Wiggins and Hazell (2008)
◁ 316 OECD (2006)
◁ 317 World Bank (2006a)
◁ 318 See for example, Deshingkar and Farrington (2006); Otsuka and Yamano (2006); Alam (2008)
◁ 319 Alam (2008)
◁ 320 Fares and Puerto (2009)
◁ 321 Ibid.
◁ 322 Tilak (2003)
◁ 323 Oketch (2007)
◁ 324 Tilak (2003)
◁ 325 UNESCO (2005)
◁ 326 FAO and UNESCO (2003)
◁ 327 UNESCO (2010)
◁ 328 Johanson and Adams (2004)
◁ 329 World Bank (2007)
◁ 330 (S. Winter, personal communication, 2010)
◁ 331 OECD and IEA (2006)
◁ 332 UNEP and UNF (2002)
◁ 333 Illustrated at http://www.procasur.org
◁ 334 Illustrated at http://www.corredorpuno-cusco.org
◁ 335 World Bank (2006a)
◁ 336 Paci and Seernels (2007)
◁ 337 Jütting and Morrisson (2009)
◁ 338 Meagher (2010)
◁ 339 Barrientos (2010)
◁ 340 Fontana and Paciello (2009)
◁ 341 Losch, Fréguin-Gresh and White (2010)
◁ 342 Beegle, De Weerdt and Dercon (2008)
◁ 343 Losch, Fréguin-Gresh and White (2010)
◁ 344 Vargas-Lundius et al. (2008)
◁ 345 Development Research Centre on Migration, Globalisation and Poverty (2009)
◁ 346 This paragraph draws primarily from Deshingkar and Natali (2008)
◁ 347 Deshingkar (2005)
◁ 348 See for example, European Commission (2010) or Ministry of Foreign Affairs of Denmark (2009)
◁ 349 Cabral (2010)

Sources

ACDI/VOCA. 2007. Agricultural exports and rural incomes (AERI) dairy and livestock project. Final report. ACDI/VOCA, Washington, D.C.

Acker, D., and L. Gasperini. 2009. *Education for rural people: The role of education, training and capacity development in poverty reduction and food security*. Rome: Food and Agriculture Organization of the United Nations.

ActionAid. 2008. Impact of agro-import surges in developing countries. Johannesburg: ActionAid International.

Africa Rice Centre. 2008. NERICA adoption and impact: Summary of findings from four countries. Research and Development Brief. Available at: http://www.warda.org/publications/brochure/Nerica%20Impact%20August%202008.pdf

African Development Bank (AfDB). 2008. *African development report 2008/2009: Conflict resolution, peace and reconstruction in Africa.* Oxford: Oxford University Press.

_____. 2009. *African economic outlook 2009*. Available at: http://www.afdb.org/en/knowledge/publications/african-economic-outlook-2009/

Agricultural Research for Development (CIRAD). 2010. Inventing a new form of agriculture. Available at: http://www.cirad.fr/en/research-operations/priority-lines-of-research/ecological-intensification/research-issues

Ahmed, A.U., R. Vargas Hill, L.C. Smith, D.M. Wiesmann, T. Frankenberger, K. Gulati, W. Quabili, and Y. Yohannes. 2007. *The world's most deprived: Characteristics and causes of extreme poverty and hunger*. Washington, D.C.: International Food Policy Research Institute.

Alam, G.M. 2008. The role of technical and vocational education in the national development of Bangladesh. *Asia-Pacific Journal of Cooperative Education* 9(1): 25-44.

Alianza de Aprendizaje Perú and Plataforma Regional Andina (RURALTER). 2007. Mecanismos de articulación de pequeños productores rurales con empresas privadas en el Perú. Lima: Alianza de Aprendizaje Perú.

Aliguma, L., D. Magala, and S. Lwasa. 2007. *Uganda: Connecting small-scale producers to markets: The case of the Nyabyumba United Farmers Group in Kabale district.* Regoverning Markets Innovative Practice Series. London: International Institute for Environment and Development.

Alinovi, L., G. Hemrich, and L. Russo. 2007. Addressing food insecurity in fragile states: Case studies from the Democratic Republic of the Congo, Somalia and Sudan. ESA Working Paper 07-21, Agricultural Development Economics Division, Food and Agriculture Organization of the United Nations, Rome.

Allison, E.H., and M-C. Badjeck. 2004. Fisheries co-management in inland waters: A review of international experience. Available at: ftp://ftp.fao.org/FI/DOCUMENT/sflp/SFLP_publications/from_lib/aj268e00.pdf

Anand, G. 2010. Green revolution in India wilts as subsidies backfire. The Wall Street Journal, 22 February.

Anand, S., P. Segal, and J.E. Stiglitz. 2010. *Debates on the measurement of global poverty.* Oxford: Oxford University Press.

Anderson J.R. 2007. Agricultural advisory services. Background paper for the World Bank *World development report 2008: Agriculture for development*. Available at: http://go.worldbank.org/GLF6HRYFI0

Angelelli, P., R. Moudry, and J.J. Llisterri. 2006. *Institutional capacities for small business policy development in Latin America and the Caribbean.* Washington, D.C.: Inter-American Development Bank.

Anríquez, G. 2007. Long-term rural demographic trends. ESA Working Paper No. 07-19, Agricultural Development Economics Division, Food and Agriculture Organization of the United Nations, Rome.

Anseeuw, W., and C. Alden, eds. 2010. *The struggle over land in Africa: Conflicts, politics and change.* Cape Town, South Africa: Human Sciences Research Council Press.

Aranda, J., and C. Morales. 2002. Poverty alleviation through participation in fair trade coffee networks: The case of CEPCO, Oaxaca, Mexico. Report prepared for Fair Trade Research Group, Colorado State University, Fort Collins, USA.

Araya, H., and S. Edwards, 2006. *The Tigray experience – A success story in sustainable agriculture*. Environment and Development Series 4. Penang, Malaysia: Third World Network.

Ashby, J. 2009. Fostering farmer first methodological innovation: Organizational learning and change in international agricultural research. In *Farmer first revisited: Innovation for agricultural research and development,* eds. I. Scoones and J. Thompson. Oxford: ITDG Publishing.

Ashraf, N., X. Giné, and D. Karlan. 2008. Finding missing markets (and a disturbing epilogue): Evidence from an export crop adoption and marketing intervention in Kenya. Working Paper 08-065, Harvard Business School, Boston, USA.

Asian Development Bank (AsDB) 2005. *30 cases of contract farming: An analytical overview.* Hanoi: AsDB Viet Nam Resident Mission.

_____. 2008. *Food prices and inflation in developing Asia: Is poverty reduction coming to an end?* Manila: AsDB.

_____. 2009. *The economics of climate change in South East Asia: A regional review.* Manila: AsDB.

Asian Development Bank (AsDB) and Asia-Pacific Association of Agricultural Research Institutions (APAARI). 2009. Bangkok Declaration. Available at: http://gcardblog.wordpress.com/2009/12/11/bangkok-declaration/

Asian Disaster Preparedness Center (ADPC). 2004. *Building disaster risk reduction in Asia: A way forward: ADPC looks ahead to 2015.* Bangkok: ADPC.

Badgeley, C., J. Moghtader, E. Quintero, E. Zakem, M.J. Chappell, K. Avilés-Vázquez, A. Samulon, and I. Perfecto. 2007. Organic agriculture and the global food supply. *Renewable Agriculture and Food Systems* 22:86-108.

BAPPENAS/Departmen Pertanian/USAID/DAI Food Policy Advisory Team. 2002. Food security and rice price policy in Indonesia: Reviewing the debate. Indonesian Food Policy Program, Working Paper No. 12.

Barrientos, S. 2010. Gender and ethical trade: Can vulnerable women workers benefit? In *The international handbook of gender and poverty: Concepts, research, policy,* ed. S. Chant. Cheltenham, UK: Edward Elgar Publishing Limited.

Bates, B.C., Z.W. Kundzewicz, S. Wu, and J.P. Palutikof, eds. 2008. Climate change and water. Technical Paper, Intergovernmental Panel on Climate Change, IPCC Secretariat, Geneva.

Baulch, B., Hoa Thi Minh Nguyen, Phuong Thi Thu Phuong, and Hung Thai Pham. 2010. Ethnic minority poverty in Vietnam. Chronic Poverty Research Centre Working Paper No. 169. Available at: http://www.chronicpoverty.org/uploads/publication_files/WP169%20Baulch%20etal.pdf

Bebbington, A., and J. Thompson. 2004. Use of civil society organisations to raise the voice of the poor in agricultural policy. Working Paper, UK Department for International Development, London.

Beegle, K., J. De Weerdt, and S. Dercon. 2008. Migration and economic mobility in Tanzania: Evidence from a tracking survey. Policy Research Working Paper, WPS 4798, World Bank, Washington, D.C.

Bellarby, J., B. Foereid, A. Hastings, and P. Smith. 2008. *Cool farming: Climate impacts of agriculture and mitigation potential.* Amsterdam: Greenpeace International.

Below, T., A. Artner, R. Siebert, and S. Sieber. 2010. Micro-level practices to adapt to climate change for African small-scale farmers: A review of selected literature. Discussion Paper 00953, International Food Policy Research Institute, Washington, D.C.

Béné, C., G. Macfadyen, and E.H. Allison. 2007. Increasing the contribution of small-scale fisheries to poverty alleviation and food security. FAO Fisheries Technical Paper No. 481, Food and Agriculture Organization of the United Nations, Rome.

Bennett, M. 2009. Markets for ecosystem services in China: An exploration of China's "eco-compensation" and other market-based environmental policies. *Forest Trends* (June).

Benson, T., M. Epprecht, and N. Minot. 2010. Mapping where the poor live. Chapter 7 in *The poorest and hungry: Assessments, analyses, and actions*, eds. J. von Braun, R. Vargas Hill, and R. Pandya-Lorch. Washington, D.C.: International Food Policy Research Institute.

Berdegué, J.A. 2008. Rural producer organisations in Chile: Cooperating to compete – easier said than done. *Capacity.org*, Issue 34, August. Available at: http://www.capacity.org/en/journal/archives/producer_organisations_and_value_chains

Berdegué, J.A., E. Biénabe, and L. Peppelenbos. 2008. *Keys to inclusion of small-scale producers in dynamic markets: Innovative practice in connecting small-scale producers with dynamic markets.* Regoverning Markets Innovative Practice Series. London: International Institute for Environment and Development.

Berdegué, J.A., and A. Schejtman. 2007. La desigualdad y la pobreza como desafíos para el desarrollo territorial rural. *Documento de Trabajo No. 1, Programa Dinámicas Territoriales Rurales,* Latin American Center for Rural Development, Santiago.

Berdegué, J.A., A. Schejtman, M. Chiriboga, F. Modrego, R. Charnay, and J. Ortega. 2008. Agricultura para el desarrollo: hacia una agenda regional para América Latina. *Debates Y Temas Rurales No. 12,* Latin American Center for Rural Development, Santiago.

Bhalla, S., A.K. Karan, and T. Shobha. 2006. Rural casual labourers, wages and poverty 1983 to 1999/2000. In *Chronic poverty and development policy in India,* eds. A.K. Mehta and A. Shepherd. New Delhi: Sage Publications.

Bhide, S., and A.K. Mehta. 2006. Correlates of incidence and exit from chronic poverty in rural India: Evidence from panel data. In *Chronic poverty and development policy in India*, eds. A.K. Mehta and A. Shepherd. New Delhi: Sage Publications.

Bildan, L. 2003. *Disaster management in Southeast Asia: An overview.* Bangkok: Asian Disaster Preparedness Center.

Binswanger-Mkhize, H.P., and A.F. McCalla. 2009. The changing context and prospects for agricultural and rural development in Africa. Working Paper, African Development Bank, Tunis/International Fund for Agricultural Development, Rome.

Bird, K., and A. Shepherd. 2003. Chronic poverty in semi-arid Zimbabwe. Working Paper No. 18, Chronic Poverty Research Centre, Manchester, UK.

Boahen, P., B.A. Dartey, G.D. Dogbe, E.A. Boadi, B. Triomphe, S. Daamgard-Larsen, J. Ashburner. 2007. Conservation agriculture as practiced in Ghana. Nairobi: African Conservation Tillage Network/Paris: Agricultural Research for Development/ Rome: Food and Agriculture Organization of the United Nations.

Bolwig, S., P. Gibbon, and S. Jones. 2009. The economics of smallholder organic contract farming in tropical Africa. *World Development* 37(6): 1094-1104.

Boughton, D., D. Mather, C.B. Barrett, R. Benfica, D. Abdula, D. Tschirley, and B. Cunguara. 2007. Market participation by rural households in a low-income country: An asset-based approach applied to Mozambique. *Faith and Economics* 50:64-101.

Braun, A., and D. Duveskog. 2008. The farmer field school approach: History, global assessment and success stories. Background paper for the IFAD *Rural poverty report 2011*.

Brew-Hammond, A., and A. Crole-Rees. 2004. *Reducing rural poverty through increased access to energy services: A review of the multifunctional platform project in Mali.* Bamako, Mali: United Nations Development Programme.

Brown, O., and A. Crawford. 2009. *Rising temperatures, rising tensions. Climate change and the risk of violent conflict in the Middle East.* Manitoba, Canada: International Institute for Sustainable Development.

Brown O., and J. Gibson. 2006. *Boom or bust: Developing countries' rough ride on the commodity price rollercoaster*. Manitoba, Canada: International Institute for Sustainable Development.

Bruinsma, J. 2009. The resource outlook to 2050: By how much do land, water and crop yields need to increase by 2050? Paper presented at the Food and Agriculture Organization of the United Nations (FAO) Expert Meeting on "How to feed the world in 2050", 24-26 June, FAO, Rome.

Cabral, L. 2008. Accra 2008: The bumpy road to aid effectiveness in agriculture. *Natural Resource Perspectives* 114. Available at: http://www.odi.org.uk/resources/download/1146.pdf

_____. 2010. Sector-based approaches in agriculture: From expensive experiment to genuine impact. Briefing Paper 58, Overseas Development Institute, London.

Carr, M., and M. Hartl. 2010. *Lightening the load: Labour-saving technologies and practices for rural women*. Rome: International Fund for Agricultural Development/Rugby, UK: Practical Action Publishing.

Carter, M.R., and C.B. Barrett. 2006.The economics of poverty traps and persistent poverty: An asset based approach. *Journal of Development Studies* 42(2): 178-199.

Centre for Development and Enterprise (CDE). 2006. *Accelerating shared growth: Making markets work for the poor in South Africa*. Woodmead, South Africa: ComMark Trust/Johannesburg: CDE.

Centro Peruano de Estudios Sociales (CEPES). 2010. La revista agraria: concentración de tierras. Año 11, no.119, junio de 2010. Available at: http://www.larevistaagraria.info/sites/default/files/revista/r-agra119/LRA-119.pdf

Chaia, A., A. Dalal, T. Goland, M.J. Gonzalez, J. Morduch, and R. Schiff. 2009. Half the world is unbanked. Framing Note, Financial Access Initiative. Available at: http://financialaccess.org/sites/default/files/110109%20HalfUnbanked_0.pdf

Chang, H. 2009. Rethinking public policy in agriculture: Lessons from history, distant and recent. *Journal of Peasant Studies* 36(3): 477-515.

Childs Staley, B., J. Goodward, C. Rigdon, and A. MacBride. 2009. *Juice from concentrate: Reducing emissions with concentrating solar thermal power.* Washington, D.C.: World Resources Institute.

Chiriboga, M. 2007. Comercialización y pequeños productores: Estudio elaborado para FIDAMERICA. Quito, Ecuador: FIDAMERICA.

Christiaensen, L., L. Demery, and J. Kuhl. 2010. The (evolving) role of agriculture in poverty reduction: An empirical perspective. Working Paper 2010/36, United Nations University – World Institute for Development Economics Research, Helskinki.

Christiaensen, L., and Y. Todo. 2009. Poverty reduction during the rural-urban transformation – the role of the missing middle. Paper prepared for presentation at the 27th Conference: The New Landscape of Global Agriculture of the International Association of Agricultural Economists, 16-22 August, Beijing.

Chronic Poverty Research Centre (CPRC). 2004. *Chronic poverty report 2004-05*. Manchester, UK: CPRC.

_____. 2008. *Chronic poverty report 2008-09*. Manchester, UK: CPRC.

Clay, J. 2005. *Exploring the links between international business and poverty reduction: A case study of Unilever in Indonesia.* Oxford, UK: Oxfam GB/ Den Haag, The Netherlands: Novib Oxfam Netherlands/London: Unilever.

Cohen, A. 2008. Prerequisites and semantics: The challenges of implementing pro-poor payments for watershed services. Technical background report, Rural Poverty Portal, International Fund for Agricultural Development, Rome.

Coles, C.F., A. Amsalu, and D. Mhando. (Forthcoming). *Political economy of supply chains: A review of ethical trade with case studies of coffee in Ethiopia and Tanzania*. London: Overseas Development Institute.

Collet, K., C. Gale, and S. Walker. 2009. *Training for rural development: Agricultural and enterprise skills for women smallholders.* London: City and Guilds Centre for Skills Development. Online draft at: http://www.skillsdevelopment.org/pdf/Lit_Review.pdf

Collier, P. 2008. The politics of hunger: How illusion and greed fan the food crisis. *Foreign Affairs,* no. 87(6).

Collins, D., J. Morduch, S. Rutherford, and O. Ruthven. 2009. *Portfolios of the poor: How the world's poor live on $2 a day.* Princeton, USA: Princeton University Press.

Concepcion, S., L. Digal, and J.C. Uy. 2006. *Keys to inclusion of small farmers in dynamic vegetable markets. The case of NorminVeggies in the Philippines.* Regoverning Markets Innovative Practice Series. London: International Institute for Environment and Development.

Conway, G. 1997. *The doubly green revolution: Food for all in the twenty-first century*. Ithaca, USA: Comstock Publishing Associates.

_____. 1999. Agenda for a doubly green revolution. *Food Technology Magazine* 53(11).

Conway, Sir G., and J. Waage. 2010. *Science and innovation for development*. London: UK Collaborative on Development Sciences.

Cook, S. 2009. *Social protection in East and South East Asia: A regional review*. Brighton, UK: Centre for Social Protection, Institute of Development Studies.

Coordination SUD. 2006. La protection des marchés agricoles. Un outil de développement. Paris: Coordination SUD. Available at: http://www.coordinationsud.org/La-protection-des-marches

Cotula, L., C. Toulmin, and J. Quan. 2006. *Better land access for the rural poor: Lessons from experience and challenges ahead.* London: International Institute for Environment and Development.

Cotula, L., S. Vermeulen, R. Leonard, and J. Keeley. 2009. *Land grab or development opportunity? Agricultural investment and international land deals in Africa*. London: International Institute for Environment and Development/Rome: Food and Agriculture Organization of the United Nations and International Fund for Agricultural Development.

Cousins, B. 2009. Potential and pitfalls of 'communal' land tenure reform: Experience in Africa and implications for South Africa. Paper for the World Bank Conference on Land Governance in Support of the MDGs: Responding to New Challenges, 9-10 March, World Bank, Washington, D.C. Available at: http://www.fig.net/pub/fig_wb_2009/papers/trn/trn_1_cousins.pdf

Damiani, O. 2007. Rural development from a territorial perspective: Case studies in Asia and Latin America. Background paper for the World Bank *World development report 2008: Agriculture for development*. Available at: http://go.worldbank.org/GLF6HRYFI0

Davis, J.R. 2003. The rural non-farm economy, livelihoods and their diversification: Issues and options. Natural Resources Institute Report No. 2753, Natural Resources Institute, University of Greenwich, UK.

Davis, K., E. Nkonya, E. Kato, D.A. Mekonnen, M. Odendo, R. Miiro, and J. Nkuba. 2010. *Impact of farmer field schools on agricultural productivity and poverty in East Africa*. Discussion Paper 00992, International Food Policy Research Institute, Washington, D.C.

Deichmann, U., C. Meisner, S. Murrray, and D. Wheeler. 2010. The economics of renewable energy expansion in rural Sub-Saharan Africa. Policy Research Working Paper, WPS 5193, Development Research Group, Environment and Energy Team, World Bank, Washington, D.C.

Deininger, K., and S. Jin. 2007. Land rental markets in the process of rural structural transformation: Productivity and equity impacts. Policy Research Working Paper 4454, World Bank, Washington, D.C.

De Janvry, A., and E. Sadoulet. 2009. Agricultural growth and poverty reduction: Additional evidence. *The World Bank Research Observer* 25(1): 1-20.

Delgado, C., R. Townsend, I. Ceccacci, Y.T. Hoberg, S. Bora, W. Martin, D. Mitchell, D. Larson, K. Anderson, and H. Zaman. 2010. Food security: The need for multilateral action. Draft Working Paper for the Korea-World Bank High Level Conference on Post-Crisis Growth and Development, 3-4 June, World Bank, Washington D.C. Available at: http://siteresources.worldbank.org/DEC/Resources/84797-1275071905763/Food_Security_Delgado.pdf

De Muro, P., and F. Burchi. 2007. Education for rural people and food security. A cross-country analysis. Rome: Food and Agriculture Organization of the United Nations. Available at: ftp://ftp.fao.org/docrep/fao/010/a1434e/a1434e.pdf

de Nigris, M. 2005. Defining and quantifying the extent of import surges: Data and methodologies. FAO Import Surge Project Working Paper No. 2, May, Food and Agriculture Organization of the United Nations, Rome.

Department for International Development (DFID). 2002. *Energy for the poor.* London: UK Department for International Development.

_____. 2010. *Working effectively in conflict-affected and fragile situations.* London: UK Department for International Development.

Dercon, S., and J.S. Shapiro. 2007. Moving on, staying behind, getting lost: Lessons on poverty mobility from longitudinal data in *Moving out of poverty: Cross-disciplinary perspectives on mobility*, eds. D. Narayan and P. Petesch. Washington, D.C.: World Bank and New York/Basingstoke, UK: Palgrave Macmillan.

Derpsch, R., T. Friedrich, A. Kassam, and L. Hongwen. (2010). Current status of adoption of no-till farming in the world and some of its main benefits. *International Journal of Agricultural and Biological Engineering* 3(1).

Desai, S., A. Dubey, B. Joshi, M. Sen, A. Shariff, and R.D. Vanneman. 2010. *Human development in India: Challenges for a society in transition.* New Delhi: Oxford University Press.

Deshingkar, P. 2005. Maximizing the benefits of internal migration for development, in *Migration and poverty reduction in Asia*, ed. F. Laczko. Geneva: International Organization for Migration.

Deshingkar, P., and J. Farrington. 2006. Rural labour markets and migration in South Asia: Evidence from India and Bangladesh. Background paper for the World Bank *World development report 2008: Agriculture for development*. Available at: http://go.worldbank.org/GLF6HRYFI0

Deshingkar, P., and C. Natali. 2008. Internal migration. In *World migration 2008*. Geneva: International Organization for Migration.

Development Research Centre on Migration, Globalisation and Poverty. 2009. *Making migration work for development.* Sussex, UK: University of Sussex.

_____. 2009a. Staying behind when husbands move: Women's experiences in India and Bangladesh. Migration DRC Briefing No. 18.

Devereux, S. 2010. Social protection in Africa: Where next? Discussion paper, co-produced by the Centre for Social Protection at the Institute of Development Studies/the Social Protection Programme at the Overseas Development Institute/the School of International Development at the University of East Anglia/the Regional Hunger & Vulnerability Programme.

Devereux, S., R. Sabates-Wheeler, B. Guenther, A. Dorward, C. Poulton, and R. Al-Hassan. 2008. *Linking social protection and support to small farmer development*. Rome: Food and Agriculture Organization of the United Nations.

Dhamija, N., and S. Bhide. 2009. Dynamics of chronic poverty: Variations in factors influencing entry and exit of the chronic poor. Working Paper 39, Chronic Poverty Research Centre, Manchester, UK.

Dhananjaya, B.N., and A.U. Rao. 2009. Case study: Namdhari Fresh Ltd. In *Inclusive value chains in India: Linking the smallest producers to modern markets*, ed. M. Harper. Singapore: World Scientific Publishing.

Digal, L., F. Proctor, and B. Vorley, eds. 2008. *Changing agrifood markets in Southeast Asia: Impacts on small-scale producers.* Manila: Southeast Asian Regional Center for Graduate Study and Research in Agriculture and University of the Philippines Research and Management Foundation.

Di Stefano, E. 2010. Case study from Uganda. Trees for global benefits, carbon management and rural livelihoods: Development of voluntary carbon sequestration projects. In *IFAD's response to climate change through support to adaptation and related actions*, ed. P. Urquhart. Comprehensive report, International Fund for Agricultural Development, Technical Advisory Division, Rome.

Dixon, J., A. Gulliver, and D. Gibbon. 2001. *Farming systems and poverty: Improving farmers livelihoods in a changing world*. Rome: Food and Agriculture Organization of the United Nations/Washington, D.C.: World Bank.

Dorward, A., and E. Chirwa. 2009. The Agricultural Input Subsidy Programme 2005 to 2008: Achievements and challenges. Project report, School of Oriental and African Studies, University of London.

Dorward, A., J. Kydd, and C. Poulton. 2006. Traditional domestic markets and marketing systems for agricultural products. Background paper for the *World development report 2008: Agriculture for development*. Available at: http://go.worldbank.org/GLF6HRYFI0

Drechsler D., and J. Jütting. 2010. Why is progress in gender equality so slow? An introduction to the 'social institutions and gender' index. In *The International Handbook of Gender and Poverty: Concepts, research, policy,* ed. S. Chant. Cheltenham, UK: Edward Elgar Publishing Limited.

Dugan, P.J., V.V. Sugunan, R.L. Welcomme, C. Béné, R.E. Brummett, and M.C.M. Beveridge. 2007. Inland fisheries and aquaculture. In *Water for food, water for life: A comprehensive assessment of water management in agriculture*, ed. D. Molden. London: Earthscan.

El-Dukheri, I., N. Elamin, and M. Kherallah. 2010. *Farmers response to soaring food prices in the Arab Region*. Rome: Food and Agriculture Organization of the United Nations and International Fund for Agricultural Development.

Ellis, F. 1998. Household strategies and rural livelihood diversification. *Journal of Development Studies* 35(1): 1-38.

_____. 2007. Introduction: Themes and patterns. Case study brief, Regional Evidence Building Agenda (REBA), Regional Hunger and Vulnerability Programme. Available at: http://www.wahenga.net

_____. 2007a. Regional lessons learning from the case studies. Case study brief, Regional Evidence Building Agenda (REBA), Regional Hunger and Vulnerability Programme. Available at: http://www.wahenga.net

Emiliani, M., and L. Gasperini. 2002. *Compendium of experiences of Italian NGOs in basic education for rural people*. Rome: Food and Agriculture Organization of the United Nations.

Erenstein, O. 2009. Leaving the plow behind. Zero-tillage rice-wheat cultivation in the Indo-Gangetic Plains. In *Millions fed: Proven successes in agricultural development,* eds. D.J. Spielman, and R. Pandya-Lorch. Washington, D.C.: International Food Policy Research Institute.

Ergano, K., A. Duncan, A. Adie, A. Tedla, G. Woldewahid, Z. Ayele, G. Berhanu, and N. Alemayehu. 2010. Implementation challenges of innovation systems perspective in fodder production in Ethiopia. Paper presented at the Innovation and Sustainable Development in Agriculture and Food Symposium, 28 June-1 July, Montpellier, France.

Escobar, G., C. Mladinic, R. Sanhueza, and O. Diaz. 2007. Rural territorial development: The milk territory in southern Chile. Background paper for the *World development report 2008: Agriculture for development*. Available at: http://go.worldbank.org/GLF6HRYFI0

Esteves, B. 2007. Zero tillage: Brazil's own green revolution. SciDev.Net. Available at: http://www.scidev.net/en/features/zero-tillage-brazils-own-green-revolution.html

European Commission. 2010. An EU policy framework to assist developing countries in addressing food security challenges. Communication from the commission to the Council and the European Parliament, COM(2010)127, Brussels. Available at: http://ec.europa.eu/development/icenter/repository/COMM_PDF_COM_2010_0127_EN.PDF

European Training Foundation and the World Bank. 2005. *Integrating TVET into the knowledge economy: Reform and challenges in the Middle East and North Africa*. Turin, Italy: European Training Foundation/Washington, D.C.: World Bank.

Evans, A. 2009. *The feeding of the nine billion: Global food security for the 21st century.* London: Chatham House.

Eyhorn, F., M. Ramakrishnan, and P. Mäder. 2007. The viability of cotton-based organic farming systems in India. *International Journal of Agricultural Sustainability* 5(1): 25-38.

Falck-Zepeda, J., A. Cavalieri, and P. Zambrano. 2009. Delivering genetically engineered crops to poor farmers: Recommendations for improving biosafety regulations in developing countries. Policy Brief, International Food Policy Research Institute, Washington, D.C.

Fan, S. 2010. *Halving hunger: Meeting the first Millennium Development Goal through "business as unusual".* Washington, D.C.: International Food Policy Research Institute.

Fan, S., and C. Chan-Kang. 2003. Is small beautiful? Farm size, productivity and poverty in Asian agriculture. Plenary paper prepared for the 25th International Conference of Agricultural Economists, 17 July, Durban, South Africa.

_____. 2005. *Road development, economic growth, and poverty reduction in China.* Washington, D.C.: International Food Policy Research Institute.

Fan, S., A. Gulati, and S. Thorat. 2008. Investment, subsidies, and pro-poor growth in rural India. *Agricultural Economics* 39(2): 163-170.

Fanjul, G. and A. Guereña. 2009. Markets working for the rural poor. Background paper for the IFAD *Rural poverty report 2011*, Intermón Oxfam, Madrid.

Fares, J., and O.S. Puerto. 2009. Towards comprehensive training. Social Protection Discussion Paper 0924, World Bank, Washington, D.C.

Farrington, J., R. Holmes, and R. Slater. 2007. Linking social protection and the productive sectors. Briefing Paper 28, Overseas Development Institute, London.

Fernandes, E., and R. Burcroff. 2006 *Sustainable land management: Challenges, opportunities and trade-offs.* Washington, D.C.: World Bank.

Fernandez, A.P. 2006. History and spread of the self-help affinity group movement in India: The role played by IFAD. Occasional Paper 3, International Fund for Agricultural Development, Asia and the Pacific Division, Rome.

Fischer, R.A., D. Byerlee, and G.O. Edmeades. 2009. Can technology deliver on the yield challenge to 2050? Paper presented at the FAO Expert Meeting: How to Feed the World in 2050, 24-26 June, Food and Agriculture Organization of the United Nations, Rome.

Fontana, M. and C. Paciello. 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 Gender Dimensions of Agricultural and Rural Employment: Differentiated Pathways Out of Poverty, 31 March-2 April, Rome.

Food and Agriculture Organization of the United Nations (FAO). 2008. *The state of food and agriculture in Asia and the Pacific region 2008.* Bangkok: FAO, Regional Office for Asia and the Pacific.

_____. 2008a. *The state of food insecurity in the world 2008: High food prices and food security: Threats and opportunities.* Rome: FAO.

_____. 2009. *Pathways to success: Success stories in agricultural production and food security*. Rome: FAO.

_____. 2009a. *The state of agricultural commodity markets: High food prices and the food crisis – experiences and lessons learned*. Rome: FAO.

_____. 2009b. *Irrigation in the Middle East region in figures. Aquastat survey 2008.* Rome: FAO.

_____. 2009c. *State of food insecurity in the world 2009*. Rome: FAO.

_____. 2009d. How to feed the world in 2050. Conference synthesis report, FAO, Rome.

_____. 2009e. *The future of forests in Asia and the Pacific: Outlook for 2020.* Bangkok: FAO, Regional Office for Asia and the Pacific.

_____. 2009f. *Smallholder dairy development: Lessons learned in Asia.* Bangkok: FAO, Regional Office for Asia, and the Pacific and Animal Production and Health Commission for Asia and the Pacific.

_____. 2009g. *Agricultural reforms and trade liberalization in China and selected Asian countries: Lessons of three decades.* Bangkok: FAO, Regional Office for Asia and the Pacific.

_____. 2009h. *The state of food and agriculture: Livestock in the balance.* Rome: FAO.

_____. 2009i. Coping with water scarcity, the role of agriculture: a framework for action. Report submitted in preparation for the Expert Consultation on Coping with Water Scarity – The role of Agriculture, 14-16 December, Rome.

_____. 2009j. *Increasing crop production sustainably: The perspective of biological processes.* Rome: FAO.

_____. 2009k. *The state of world fisheries and aquaculture 2008*. Rome: FAO.

_____. 2010. World food situation: Food price indices. June. Available at: http://www.fao.org/worldfoodsituation/FoodPricesIndex/en/

_____. 2010a. Current status and options for crop biotechnologies in developing countries. Presented at the FAO International Technical Conference on Agricultural Biotechnologies in Developing Countries, 1-4 March, Guadalajara, Mexico.

_____. 2010b. Sustainable crop production intensification through an ecosystem approach and an enabling environment: Capturing efficiency through ecosystem services and management. Presented to the Committee on Agriculture, 22nd Session, 16-19 June, Rome.

_____. 2010c. Global hunger declining, but still unacceptably high. Economic and Social Development Department Policy Brief No. 11, FAO, Rome.

Food and Agriculture Organization of the United Nations (FAO), International Fund for Agricultural Development (IFAD) and World Food Programme (WFP). 2010. Disaster risk management in food and agriculture. Available at: http://home.wfp.org/stellent/groups/public/documents/communications/wfp201794.pdf

Food and Agriculture Organization of the United Nations (FAO) and United Nations Educational, Scientific and Cultural Organization (UNESCO). 2003. *Education for rural development: Towards new policy responses,* eds. D. Atchoarena and L. Gasperini. Rome: FAO/Paris: UNESCO, International Institute for Educational Planning.

Fox, T., and W.T. Vorley. 2004. Concentration in food supply and retail chains. DFID Agricultural Working Paper 13, UK Department for International Development, London.

G8 Summit. 2009. *L'Aquila Food Security Initiative (AFSI)*. Joint statement on global food security prepared by the Heads of State, Government, International and Regional Organizations convened at the 35th G8 Summit, 8-10 July, L'Aquila, Italy. Available at: http://www.g8italia2009.it/static/G8_Allegato/LAquila_Joint_Statement_on_Global_Food_Security%5B1%5D,0.pdf

Gaiha, R., and K. Imai. 2002. Rural public works and poverty alleviation: The case of the employment guarantee scheme in Maharashtra. *International Review of Applied Economics* 16(2): 131-151.

Gaiha, R., K. Imai, and M.A. Nandhi. 2006. Millennium Development Goal of halving poverty in Asia and the Pacific region: Progress, prospects and priorities. Occasional Paper No. 1, International Fund for Agricultural Development, Asia and the Pacific Division, Rome.

Gaiha, R., and G. Thapa. 2007. Supermarkets, smallholders and livelihood prospects in selected countries. Occasional Paper No. 4, International Fund for Agricultural Development, Asia and the Pacific Division, Rome.

Galtier, F. 2009. Food price instability in developing countries: The need for public intervention to stabilise prices. Montpellier, France: Agricultural Research for Development.

_____. 2009a. How to manage food price instability in developing countries. Working Paper No. 5, Marchés, organisations, institutions et stratégies d'acteurs, Agricultural Research for Development, Montpellier, France.

Global Donor Platform for Rural Development. 2008. Sharpening the rural focus of poverty reduction strategies: Context, lessons and way forward. Synthesis report, Bonn, Germany.

Godfray, H.C.J., J.R. Beddington, I.R. Crute, L. Haddad, D. Lawrence, J.F. Muir, J. Pretty, S. Robinson, S.M. Thomas, and C. Toulmin. 2010. Food security: The challenge of feeding 9 billion people. *Science* 327(5967): 812-818.

Govinda, R. 2008. Non-formal education and poverty alleviation: Analysis of field experiences from Asia. Working document, International Institute for Educational Planning, United Nations Educational, Scientific and Cultural Organization, Paris.

Green, D. 2008. *From poverty to power: How active citizens and effective states can change the world.* London: Oxfam.

GreenFacts. 2009. Scientific facts on fisheries. Available at: http://www.greenfacts.org/en/fisheries/index.htm

Haggblade, S., P.B.R. Hazell, and P.A. Dorosh. 2007. Sectoral growth linkages between agriculture and the rural nonfarm economy. In *Transforming the rural nonfarm economy: Opportunities and threats in the developing world*, eds. S. Haggblade, P.B.R. Hazell and T. Reardon. Baltimore, USA: John Hopkins University Press/New Delhi: Oxford University Press.

Haggblade, S., P.B.R. Hazell, and T. Reardon, eds. 2009. *Transforming the rural nonfarm economy: Opportunities and threats in the developing world.* Baltimore, USA: John Hopkins University Press/New Delhi: Oxford University Press.

Hall, A. 2009. Challenges to strengthening agricultural innovation systems: Where do we go from here? In *Farmer first revisited: Innovation for agricultural research and development*, eds. I. Scoones and J. Thompson. Oxford: ITDG Publishing.

Hall, G., and H.A. Patrinos, eds. 2010. Indigenous peoples, poverty and development – Draft manuscript, released during the Ninth Session of the United Nations Permanent Forum on Indigenous Issues, 19-30 April.

Hanks, D. 2006. Building sustainable livelihoods through agriculture in Honduras. Unpublished article, *Canadian Bahá'í International Development Agency*, Almonte, Canada.

Harper, C. 2009. Moving out of poverty: Success from the bottom up. The Overseas Development blog. Available at: http://blogs.odi.org.uk/blogs/main/archive/2009/06/04/poverty_social_relations.aspx

Harper, M. 2009. *Inclusive value chains in India: Linking the smallest producers to modern markets.* Singapore: World Scientific Publishing.

Harriss, J. 2005. Do political regimes matter? Poverty reduction and regime differences across India In *Changing paths,* eds. P. Houtzager and M. Moore. Ann Arbor, USA: University of Michigan Press.

Hazell, P.B.R. 2009. Transforming agriculture: The green revolution in Asia. In *Millions fed: Proven successes in agricultural development,* eds. D.J. Spielman and R. Pandya-Lorch. Washington, D.C.: International Food Policy Research Institute.

Headey, D. 2010. Rethinking the global food crisis: The role of trade shocks. IFPRI Discussion Paper 00958, International Food Policy Research Institute, Washington, D.C.

Hellin, J., and S. Higman. 2002. Los pequeños agricultores y los mercados especializados: Lecciones aprendidas en la región Andina. AGREN Documento No. 118:45.

Helling, J., M. Lundy, and M. Meijer. 2007. Farmer organization, collective action and market access in Meso-America. CAPRi Working Paper No. 67, International Food Policy Research Institute, Washington, D.C.

Hellmuth M.E., D.E. Osgood, U. Hess, A. Moorehead, and H. Bhojwani, eds. 2009. *Index insurance and climate risk: Prospects for development and disaster management*. New York: International Research Institute for Climate and Society, Columbia University.

Henao, J., and C. Baanante. 2006. Agricultural production and soil nutrient mining in Africa: Implications for resource conservation and policy development. Technical bulletin. Alabama, USA: International Fertilizer Development Center.

Henson, S. 2006. New markets and their supporting institutions: Opportunities and constraints for demand growth. Background paper for the World Bank *World development report 2008*: *Agriculture for development.* Available at: http://go.worldbank.org/GLF6HRYFI0

Henson, S., and J. Blandon. 2007. The impact of food safety standards on an export-oriented supply chain: Case of the horticulture sector in Guatemala. InFERG Working Paper No. 5_FS, International Food Economy Research Group, Department of Food, Agricultural and Resource Economics, University of Guelph, Ontario, Canada.

Hess, U., and P. Hazell. 2009. Sustainability and scalability of index-based insurance for agriculture and rural livelihoods. In *Innovations in insuring the poor*, eds. R. Vargas Hill and M. Torero. Washington, D.C.: International Food Policy Research Institute.

Hickey, S. 2006. The politics of what works in reducing chronic poverty. A synthesis report for the Ministry of Foreign Affairs, The Netherlands. Working Paper 91, Chronic Poverty Research Centre, Manchester, UK.

Hocdé, H., J.I. Vasquez, E. Holt, and A.R. Braun. 2000. Towards a social movement of farmer innovation: Campesino a campesino. *LEISA Magazine* 16(2): 26-27.

Hoddinott, J. 2009. Risk and the rural poor. In *Innovations in insuring the poor*, eds. R. Vargas Hill and M. Torero. Washington D.C.: International Food Policy Research Institute.

Hoffler, H. 2008. Increasing food prices on the world market: what is the impact on farmers in developing countries? A brief look at Mexico, Burkina Faso, Kenya and Cambodia. Rapid survey for the GTZ Working Group on Food Crisis, Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH, Bonn, Germany.

Hogan, M.C., K.J. Foreman, M. Naghavi, S.Y. Ahn, M. Wang, S.M. Makela, A.D. Lopez, R. Lozano, and C.J.L. Murray. 2010. Maternal mortality for 181 countries, 1980-2008: A systematic analysis of progress towards Millenium Development Goal 5. *The Lancet* 375(9726): 1609-1623.

Holt-Gimenez, E. 2006. *Campesino a campesino: Voices from Latin America's farmer to farmer movement for sustainable agriculture.* Oakland, USA: Food First Books.

Hossain, N., and I. Matin 2007. Engaging elite support for the poorest? BRAC's Targeted Ultra Poor programme for rural women in Bangladesh. *Development in Practice* 17(3): 380-392.

Institute of Development Studies (IDS) and the University of Ghana. Undated. Mapping sustainable production in Ghanaian cocoa. A report to Cadbury.

Intergovernmental Panel on Climate Change (IPCC). 2007. *Climate change 2007: Synthesis report*. Fourth Assessment Report of the Intergovernmental Panel on Climate Change, IPCC Secretariat, Geneva.

International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD). 2008. *Agriculture at a crossroads: A synthesis of the global and sub-global IAASTD reports,* eds. B.D. McIntyre, H.R. Herren, J. Wakhungu, and R.T. Watson. Washington, D.C.: Island Press.

_____. 2009. *Summary for decision makers of the East and South Asia and the Pacific (ESAP) report.* Washington, D.C.: Island Press.

International Fund for Agricultural Development (IFAD). 1992. *The state of world rural poverty: An inquiry into its causes and consequences*. Rome: IFAD.

_____. 2001. *Rural poverty report 2001: The challenge of ending rural poverty.* Rome: IFAD.

_____. 2003. The adoption of organic agriculture among small farmers in Latin America and the Caribbean. Thematic evaluation. Rome: IFAD, Office of Evaluation.

_____. 2004. Enhancing the role of indigenous women in sustainable development: IFAD experience with indigenous women in Latin America and Asia. Third Session of the Permanent Forum on Indigenous Issues, 10-21 May, IFAD, Rome.

_____. 2005. Organic agriculture and poverty reduction in Asia: China and India focus. Thematic evaluation. Rome: IFAD, Office of Evaluation.

_____. 2007. FIDAction in Western and Central Africa. Issue number 7 – August. Available at: http://www.ifad.org/newsletter/pa/e/7.htm#3

_____. 2008. International migration, remittances and rural development. Rome: IFAD.

_____. 2008a. IFAD policy on improving access to land and tenure security. Rome: IFAD.

_____. 2008b. IFAD's role in fragile states. Consultation on the Eighth Replenishment of IFAD's Resources – Fourth Session, 21-22 October, IFAD, Rome.

_____. 2008c. Empowering farmers in Tanzania through the warehouse receipt system. Available at: http://www.ruralpovertyportal.org/c/document_library/get_file?p_l_id=60350&folderId=100461&name=DLFE-1441.pdf

_____. 2009. IFAD policy on engagement with indigenous peoples. Rome: IFAD.

_____. 2009a. Inland fisheries and aquaculture. Available at: http://www.ifad.org/english/water/innowat/topic/fisheries.htm

_____. 2010. IFAD's livestock position paper: Livestock planning, challenges and strategies for livestock development in IFAD. Rome: IFAD.

_____. 2010a. Climate change strategy. Presented to the Ninety-ninth Session of the Executive Board, 21-22 April, IFAD, Rome.

_____. 2010b. Republic of Uganda: Vegetable Oil Development Project. Interim evaluation. Presented to the Sixty-third Session of the Evaluation Committee, 15-16 July, IFAD, Rome.

_____. 2010c. *Financing facility for remittances: Promoting innovative remittance markets and empowering migrant workers and their families.* Rome: IFAD.

International Fund for Agricultural Development (IFAD) and the Food and Agriculture Organization of the United Nations (FAO). 2007. *The status of rural poverty in the Near East and North Africa.* Rome: IFAD, Near East and North Africa Division.

International Fund for Agricultural Development (IFAD), the International Food Policy Research Institute (IFPRI) and the International Centre for Agricultural Research in the Dry Areas (ICARDA). 2004. Scaling up innovative small stock management practices developed by IFAD projects. Final Report of the Preparatory Phase, IFAD, Rome.

International Fund for Agricultural Development (IFAD) and World Food Programme (WFP). 2010. *The potential for scale and sustainability in weather index insurance for agriculture and rural livelihoods*. Rome: IFAD.

International Institute for Sustainable Development (IISD). 2008. *Boom or bust: How commodity price volatility impedes rural poverty reduction, and what to do about it.* Manitoba, Canada: IISD.

International Labour Organization (ILO). 2008. Promotion of Rural employment for poverty reduction. Report IV of the 97th Session of the International Labour Conference, ILO, Geneva.

_____. 2010. *Global employment trends. January 2010.* Geneva: ILO.

International Poverty Centre (IPC). 2008. Cash transfers: Lessons from Africa and Latin America. *Poverty in focus,* No. 15. Brasilia, Brazil: IPC.

International Service for the Acquisition of Agri-biotech Applications (ISAAA). 2009. Global status of commercialized biotech/GM crops: 2009, The first fourteen years, 1996 to 2009. ISAAA Brief 41, Executive summary.

International Strategy for Disaster Reduction. Disaster statistics 1991-2005. Available at: http://www.unisdr.org/disaster-statistics/occurrence-trends-period.htm

International Trade Centre (ITC). *Market Access Map*. Available at: http://www.macmap.org

International Water Management Institute (IWMI). 2007. *Water for food, water for life: A comprehensive assessment of water management in agriculture,* ed. D. Molden. London: Earthscan.

Jayne, T.S., D. Mather, and E. Mghenyi. 2008. Principal challenges facing smallholder agriculture in Sub-Saharan Africa. Draft paper.

Johanson, R.K., and A.V. Adams. 2004. *Skills development in sub-Saharan Africa.* Washington, D.C.: World Bank.

Jones M.P., and S. Sanyang. 2007. Promoting inclusion of civil society organizations in African agricultural research and development. Paper presented at Farmer First Revisited: Farmer Participatory Research and Development Twenty Years On, 12-14 December, Institute of Development Studies, University of Sussex, UK.

Jütting, J. 2009. Innovations in health insurance: Community-based models. In *Innovations in insuring the poor*, eds. R. Vargas Hill and M. Torero. Washington, D.C.: International Food Policy Research Institute.

Jütting, J., and C. Morrisson. 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, Rome, 31 March-2 April.

Kanlayanarat, S., R. Rolle, and A. Acedo Jr., eds. 2009. *Horticultural chain management for countries of Asia and the Pacific region: A training package.* Bangkok: Food and Agriculture Organization of the United Nations, Regional Office for Asia and the Pacific.

Kaplinsky, R., and M. Morris. 2001. A handbook for value chain research. Ottawa, Canada: International Development Research Centre.

Kassam, A., T. Friedrich, F. Shaxson, and J. Pretty. 2009. The spread of conservation agriculture: Justification, sustainability and uptake. *International Journal of Agricultural Sustainability* 7(4): 292-320.

Kazianga, H., and C. Udry. 2006. Consumption smoothing? Livestock insurance and drought in rural Burkina Faso. *Journal of Development Economics* 79(2): 413-446.

Key N., and D. Runsten. 1999. Contract farming, smallholders, and rural development in Latin America: The organization of agroprocessing firms and the scale of outgrower production. *World Development* 27(2): 381-401.

Khera, R., and N. Nayak. 2009. Women workers and perceptions of the National Rural Employment Guarantee Act in India. *Economic and Political Weekly* 44(43): 49-57.

Kura, Y., C. Revenga, E. Hoshino, and G. Mock. 2004. *Fishing for answers: Making sense of the global fish crisis.* Washington, D.C.: World Resources Institute.

Kydd, J., A. Dorward, J. Morrison, and G. Cadisch. 2004. Agricultural development and pro-poor economic growth in Sub-Saharan Africa: Potential and policy. *Oxford Development Studies* 32(1): 37-57.

Lanjouw, P., and G. Feder. 2001. Rural non-farm activities and rural development: From experience towards strategy. Rural Development Strategy Background Paper No. 4, World Bank, Washington, D.C.

Lastarria-Cornhiel, S. 2007. Who benefits from land titling? Lessons from Bolivia and Laos. *International Institute for Environment and Development Gatekeeper Series* (132).

Lee, D. 2009. The impact of mobile phones on the status of women in India. Available at: http://mobileactive.org/research/impact-mobile-phones-status-women-india

Lee, D., and B. Neves with K. Wiebe, L. Lipper, and M. Zurek, 2008. Rural poverty and natural resources: Improving access and sustainable management. Background paper for the IFAD *Rural poverty report 2011*.

Lee, K.W. 2009. *Development cooperation for social safety nets in East and Southeast Asia.* Seoul, Korea: Korean Institute for International Economic Policy.

Lele, U., J. Pretty, E. Terry, and E. Trigo. 2010. Transforming agricultural research for development. Paper commissioned by the Global Forum on Agricultural Research as input for the Global Conference on Agricultural Research for Development, 28-31 March, Montpellier, France.

Levy, S. 2010. *Linking growth and social protection in Cambodia: Results from a computable general equilibrium analysis*. London: Overseas Development Institute, Agricultural Growth and Social Protection Programme.

Ligon, E., and E. Sadoulet. 2007. Estimating the effects of aggregate agricultural growth on the distribution of expenditures. Background paper for the World Bank *World development report 2008: Agriculture for development*. Available at: http://go.worldbank.org/GLF6HRYFI0

Lipton, M. 2007. Farm water and rural poverty reduction in developing Asia. *Irrigation and Drainage* 56: 127-146.

Lipton, M., and R. Longhurst. 1989. *New seeds and poor people.* London: Unwin Hyman.

Losch, B., S. Fréguin-Gresh, and E. White. (2010). Structural dimensions of liberalization on agriculture and rural development: A cross-regional analysis on rural change. Synthesis report of the RuralStruc Program, World Bank, Washington, D.C.

Lundberg, J., and F. Moberg. 2008. *Ecological in Ethiopia: Farming with nature increases profitability and reduces vulnerability.* Stockholm: Swedish Society for Nature Conservation.

Lundy, M. 2007. *New forms of collective action by small scale growers*. Santiago: Latin American Center for Rural Development.

Mack, A., and Z. Nielsen, eds. 2009. *Human security report 2009*. Burnaby, Canada: Simon Fraser University.

Maertens, M., B. Minten, and J. Swinnen. 2009. Growth in high-value export markets in Sub-Saharan Africa and its development implications. LICOS Discussion Paper No. 245/2009, Katholieke Universiteit Leuven, LICOS Centre for Institutions and Economic Performance, Belgium.

Matin, I., M. Sulaiman, and M. Rabbani. 2008. Crafting a graduation pathway for the ultra-poor: Lessons and evidence from a BRAC programme. Working Paper No. 109, Chronic Poverty Research Centre, Manchester, UK.

McCulloch, N., and M. Ota. 2002. *Export horticulture and poverty in Kenya*. Brighton, UK: Institute of Development Studies.

Meagher, K. 2010. The empowerment trap: Gender, poverty and the informal economy in sub-Saharan Africa. In *The international handbook of gender and poverty: Concepts, research, policy,* ed. S. Chant. Cheltenham, UK: Edward Elgar Publishing Limited.

Medeiros, M., and J. Costa. 2010. The 'feminisation of poverty': A widespread phenomenon? In *The international handbook of gender and poverty: Concepts, research, policy,* ed. S. Chant. Cheltenham, UK: Edward Elgar Publishing Limited.

Medina, C. P. 2007. 'Rebuilding small farmers' resilience' in FAO. 2007. Organic agriculture and environmental stability of the food supply. Papers presented at the International Conference on Organic Agriculture and Food Security, 3-5 May, Food and Agriculture Organization of the United Nations, Rome. Available at: ftp://ftp.fao.org/paia/organicag/ofs/OFS-2007-3.pdf

Meijer, M., J. Hellin, and M. Lundy. 2007. Farmer organization and enhanced access to markets. *Appropriate Technology* 34(1): 41-43.

Millennium ecosystem assessment reports. 2005. Available at: http://www.maweb.org/en/index.aspx

Miller, C., and L. Jones. 2010. *Agricultural value chain finance: Tools and lessons*. Rome: Food and Agriculture Organization of the United Nations/Rugby, UK: Practical Action Publishing.

Milligan, S., A. Price, E. Sommeling, and G. Struyf. 2009. Connecting smallholders with dynamic markets: A market information service in Zambia. *Development in Practice*.

Ministry of Foreign Affairs of Denmark. 2009. *Priorities of the Danish Government for Danish development assistance*. Copenhagen: Ministry of Foreign Affairs.

Misra, R.S. 2009. ITC Choupal fresh. In *Inclusive value chains in India: Linking the smallest producers to modern markets*, ed. M. Harper. Singapore: World Scientific Publishing.

Mitchell, J., and C. Coles. (Forthcoming). *Trading up: How to link the rural poor to viable markets.* London: Overseas Development Institute.

Mitchell, J., J. Keane, and C. Coles. 2009. *Trading up: How a value chain approach can benefit the rural poor.* London: Overseas Development Institute.

Mousseau, F. 2010. *The high food price challenge: A review of responses to combat hunger.* Oakland, USA: The Oakland Institute.

Muller, T. R. 2004. *HIV/AIDS and agriculture in Sub-Saharan Africa: Impact on farming systems, agricultural practices and rural livelihoods. An overview and annotated bibliography.* Wageningen, The Netherands: Wageningen Academic Publishers.

Narayan, D., L. Pritchett and S. Kapoor. 2009. *Moving out of poverty: vol. 2, Success from the bottom up.* Washington, D.C.: World Bank/ Basingstoke, UK: Palgrave Macmillan.

Natcher, D.C., S. Davis, and C.G. Hickey. 2005. Co-management: Managing relationships, not resources. *Human Organization* 64(3): 240-250.

National Intelligence Council. (NIC). 2008. *Global trends 2025: A transformed world*. Washington, D.C.: NIC.

Nederlof, E.S., B. Wennink, and W. Heemskerk. 2008. Access to agricultural services. Background paper for the IFAD *Rural poverty report 2011*.

Nelson, G.C., M.W. Rosegrant, J. Koo, R. Robertson, T. Sulser, T. Zhu, C. Ringler, S. Msangi, A. Palazzo, M. Batka, M. Magalhaes, R. Valmonte-Santos, M. Ewing, and D. Lee. 2009. *Climate change: Impact on agriculture and costs of adaptation*. Washington, D.C.: International Food Policy Research Institute.

Nelson, J., E. Ishikawa, and A. Geaneotes. 2009. *Developing inclusive business models: A review of Coca-Cola's manual distribution centers in Ethiopia and Tanzania*. Cambridge, USA: Harvard Kennedy School.

Nikièma, B., S. Haddad, and L. Potvin. 2008. Women bargaining to seek healthcare: Norms, domestic practices, and implications in rural Burkina Faso. *World Development*, 36(4): 608-624.

Nunan, F. 2006. Planning for integrated lake management in Uganda: Lessons for sustainable and effective planning processes. *Lakes and Reservoirs: Research and Management,* 11: 181-199.

Okello, J.J., and S.M. Swinton. 2005. Compliance with international food safety standards in Kenya's green bean industry: Comparison of a small- and a large-scale farm producing for export. *Applied Economic Perspectives and Policy* 29(2): 269-285.

Oketch, M.O. 2007. To vocationalise or not to vocationalise? Perspectives on current trends and issues in technical and vocational education and training (TVET) in Africa. *International Journal of Educational Development* 27(2): 220-234.

O'Meally, S. 2009. *The World Bank and the idea of sustainable development: The case of Lake Victoria environmental management*. University of Manchester, UK. (Ph.D. thesis)

Omotayo, O.E., and K.S. Chukwuka. 2009. Soil fertility restoration techniques in sub-Saharan Africa using organic resources. *African Journal of Agricultural Research* 4(3): 144-150.

One Country. 1996. Rural learning helps stem urban migration. *One Country* 7(4). Available at: http://www.onecountry.org/oc74/oc7401as.html

Onumah, G., J.R. Davis, U. Kleih, and F.J. Proctor. 2007. Empowering smallholder farmers in markets: Changing agricultural marketing systems and innovative responses by producer organizations. Working Paper 2, Empowering Smallholder Farmers in Markets (ESFIM), Wageningen University and Research Centre, The Netherlands.

Organisation for Economic Co-operation and Development (OECD). 2006. *Promoting pro-poor growth: Agriculture*. Paris: OECD.

Organisation for Economic Co-operation and Development (OECD) and Food and Agriculture Organization of the United Nations (FAO). 2009. *Agricultural outlook 2009-2018.* Paris: OECD.

_____. 2010. *Agricultural outlook 2010-2019.* Paris: OECD.

Organisation for Economic Co-operation and Development (OECD) and International Energy Agency (IEA). 2006. *World energy outlook 2006.* Paris: IEA.

Ostertag, C.P., D. Izquierdo, J.F. Barona, O.A. Sandoval, L.Á. Libreros, L.E. Rivera, R. Best, L. Ochoa, and D. Ángel. 2007. Mecanismos de articulación de pequeños productores rurales a empresas privadas en Colombia: Presentación de estudios de caso. International Center of Tropical Agriculture. Available at: http://www.infoagro.net/shared/docs/a5/Informe_Final_RURALTER_Colombia%5B1%5D.pdf

Ostrom, E. 1997. *Governing the commons: The evolution of institutions for collective action*. Cambridge: Cambridge University Press.

Otsuka, K., and T. Yamano. 2006. The role of rural labor markets in poverty reduction: Evidence from Asia and East Africa. Background paper for the World Bank *World development report 2008: Agriculture for development*. Available at: http://go.worldbank.org/GLF6HRYFI0

Paci, P., and P. Seernels, eds. 2007. *Employment and shared growth: Rethinking the role of labour mobility for development.* Washington, D.C.: World Bank.

Palmer, R. 2007. Skills for work? From skills development to decent livelihoods in Ghana's rural informal economy. *International Journal of Educational Development* 27(4): 397-420.

Pandey, S., and H. Bhandari. 2009. Drought, coping mechanisms and poverty: Insights from rainfed rice farming in Asia. Occasional Paper No. 7, International Fund for Agricultural Development, Asia and the Pacific Division, Rome.

Paul, B. 2008. *Factories in the field: Rural transformation and the organization of work in Mozambique's cashew triangle.* Washington, D.C.: Technoserve.

Pauw. K., and J. Thurlow. 2010. Agricultural growth, poverty, and nutrition in Tanzania. Discussion Paper 00947, International Food and Policy Research Institute, Washington, D.C.

Pender, J. 2008. Agricultural technology choices for poor farmers in less-favoured areas of South and East Asia. Occasional Paper No. 5, International Fund for Agricultural Development, Asia and the Pacific Division, Rome.

Peskett, L. 2009. Carbon markets and rural poverty reduction: Learning from forest carbon markets. Background paper for the IFAD *Rural poverty report 2011*.

Pimbert, M. 2009. *Towards food sovereignty, reclaiming autonomous food systems.* London: International Institute for Environment and Development.

Porcaro, J., and M. Takada, eds. 2005. *Achieving the Millennium Development Goals: The role of energy services.* New York: United Nations Development Programme.

Prasad, C. S. 2009. Encounters, dialogues and learning alliances: The System of Rice Intensification in India. In *Farmer first revisited: Innovation for agricultural research and development,* eds. I. Scoones and J. Thompson. Oxford: ITDG Publishing.

Pretty, J. 2006. Agroecological approaches to agricultural development. Background paper for the World Bank *World development report 2008: Agriculture for development*. Available at: http://go.worldbank.org/GLF6HRYFI0

_____. 2009. Can ecological agriculture feed nine billion people? *Monthly Review*, November.

Pretty, J., A. D. Noble, D. Bossio, J. Dixon, R.E. Hine, F.W.T. Penning de Vries, and J.I.L. Morison. 2006. Resource-conserving agriculture increases yields in developing countries. *Environment Science and Technology* 40(4):1114-1119.

Quan, J. 2006. Land access in the 21st century. Issues, trends, linkages and policy options. Working Paper 24, Food and Agriculture Organization of the United Nations, Rome.

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): 581-592.

Ravallion, M. 2009. A comparative perspective on poverty reduction in Brazil, China and India. Policy Research Working Paper 5080, World Bank, Washington, D.C.

Ravallion, M., S. Chen, and P. Sangraula. 2007. New evidence on the urbanization of global poverty. Working Paper 4199, World Bank, Washington, D.C.

Reardon T., and J.A. Berdegué. 2002. The rapid rise of supermarkets in Latin America: Challenges and opportunities for development. *Development Policy Review* 20(4).

Reardon, T, and J. Huang. 2008. Keys to inclusion of small-scale producers in dynamic markets: Meso-level restructuring of the food industry in developing countries. A first synthesis report of component 1: Meso study. Regoverning Markets Innovative Practice Series. London: International Institute for Environment and Development.

Reardon, T., P. Timmer, and J.A. Berdegué. 2004. The rapid rise of supermarkets in developing countries: Induced organizational, institutional, and technological change in agrifood systems. *Electronic Journal of Agricultural and Development Economics* 1(2): 168-183.

Reij, C., and E. Smaling. 2008. Analyzing successes in agriculture and land management in Sub-Saharan Africa: Is macro-level gloom obscuring positive micro-level change? *Land Use Policy* 25(3): 410-420.

Rosegrant, M., and P.B.R. Hazell. 2000. *Transforming the rural Asian economy: The unfinished revolution.* Hong Kong/New York: Oxford University Press.

Rosset, P.M. 2000. Cuba. A successful case study of sustainable agriculture. In *Hungry for profit: The agribusiness threat to farmers, food and the environment*, eds. F. Magdoff, J. Bellamy Foster and F.H. Buttel. New York: Monthly Review Press.

Ruben, R., R. Fort, and G. Zuniga. 2008. *Final report Fair Trade programme evaluation: Impact assessment of Fair Trade programs for coffee and bananas in Peru, Costa Rica and Ghana.* Nijmegen, The Netherlands: Radboud University Nijmegen, Centre for International Development Issues.

Ruotsi, J. 2003. Agricultural marketing companies as sources of smallholder credit in Eastern and Southern Africa: Experiences, insights and potential donor role. International Fund for Agricultural Development, Eastern and Southern Africa Division, Rome.

Rural Energy Enterprise Development (REED). 2005. The REED report. May. Available at: http://www.areed.org/docs/new/REED%20report.may05.pdf

Sarris, A. 2009. Evolving structure of world agricultural trade and requirements for new world trade rules. Paper presented at the FAO Expert Meeting: How to Feed the World in 2050, 24-26 June, Food and Agriculture Organization of the United Nations, Rome.

Sautier D., H. Vermeulen, M. Fok, and E. Biénabe. 2006. Case studies of agri-processing and contract agriculture in Africa. Background paper for the World Bank *World development report 2008: Agriculture for development*. Available at: http://www.sarpn.org/documents/d0002434/Agriculture_Africa_Nov2006.pdf

Schejtman, A., and J.A. Berdegué. 2003. Desarrollo territorial rural. In *Desarrollo territorial rural en América Latina y el Caribe: Manejo sostenible de recursos naturales, acceso a tierras y finanzas rurales,* ed., R. Echeverria, Washington, D.C.: Inter-American Development Bank.

Scherr, S.J., and S. Sthapit. 2009. *Mitigating climate change through food and land use*. Worldwatch Report 179. Washington, D.C.: Worldwatch Institute.

Schultz, T.W. 1964. *Transforming traditional agriculture*. New Haven, USA: Yale University Press.

Scoones, I., and J. Thompson, eds. 2009. *Farmer first revisited: Innovation for agricultural research and development.* Oxford: ITDG Publishing.

Seguino, S. 2006. Plus ça change? Evidence on global trends in gender norms and stereotypes. GEM-IWG Working Paper Series 06-2, The International Working Group on Gender, Macroeconomics and International Economics, Salt Lake City, USA.

Seo, S.N., and R. Mendelsohn. 2008. Animal husbandry in Africa: Climate change impacts and adaptations. *African Journal of Agricultural and Resource Economics* 2(1): 65-82.

Setboonsarng, S., P. Leung, and J. Cai. 2006. Contract farming and poverty reduction: The case of organic rice contract farming in Thailand. Institute Discussion Paper 49, Asian Development Bank, Manila.

Shepherd, A., C. Jebuni, R. Al-Hassan, A. McKay, C. Poulton, A. Whitehead, J. Kydd, and S. Alhassan. 2005. Economic growth in northern Ghana. Revised report for DFID Ghana. London: Overseas Development Institute.

Silici, L. 2010. Assessment of experiences and lessons emerging from IFAD-supported market linkage and value chain projects. Background paper for the IFAD *Rural poverty report 2011*.

Simmons, P. 2002. Overview of smallholder contract farming in developing countries. Working Papers No. 02-04. Agricultural and Development Economics Division of the Food and Agriculture Organization of the United Nations, Rome

Simmons, P., I. Patrick, and P. Winters. 2005. Evaluation of a hybrid seed contract between smallholders and a multinational company in East Java, Indonesia. *Journal of Development Studies* 41(1): 62-89.

Singh, S. 2009 "Spencer's Retail" quoted in M. Harper, *Inclusive value chains in India: Linking the smallest producers to modern markets.* Singapore: World Scientific Publishing.

Sjaastad, E., and B. Cousins. 2009. Formalisation of land rights in the South: An overview. *Land Use Policy* 26(1): 1-9.

Slater, R., S. Ashley, M. Tefera, M. Buta, and D. Esubalew. 2006. PSNP policy programme and institutional linkages. Final report. Overseas Development Institute, London/The IDL Group (UK), Bristol/Indak International, Addis Ababa.

Smale, M., and T.S. Jayne. 2009. Breeding an "amaizing" crop: Improved maize in Kenya, Malawi, Zambia, and Zimbabwe. In *Millions fed: Proven successes in agricultural development,* eds. D.J. Spielman and R. Pandya-Lorch. Washington, D.C.: International Food Policy Research Institute.

Smale, M., and T. Mahoney. 2010. *Agricultural productivity in changing rural worlds.* Washington, D.C.: Centre for Strategic and International Studies.

Smith, P., D. Martino, Z. Cai, D. Gwary, H. Janzen, P. Kumar, B. McCarl, S. Ogle, F. O'Mara, C. Rice, B. Scholes, and O. Sirotenko, eds. 2007. Agriculture. In *Climate change 2007: Mitigation*, eds. B. Metz, O.R. Davidson, P.R. Bosch, R. Dave, L.A. Meyer. Contribution of working group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge, UK/New York: Cambridge University Press.

Sorrenson, W., J. Lopez Portillo, R. Derpsch, and M. Nuñez. 1997. Economics of no-tillage and crop rotations compared to conventional cultivation cropping systems in Paraguay. Paper presented at the 14th ISTRO Conference, Agroecological and Economical Aspects of Soil Tillage, 27 July-1 August, Pulawy, Poland.

Spielman, D.J., and R. Pandya-Lorch, eds. 2009. *Millions fed: Proven successes in agricultural development.* Washington, D.C.: International Food Policy Research Institute.

Staal, S.J., M. Owango, H. Muriuki, M. Kenyanjui, B. Lukuyu, L. Njoroge, D. Njubi, I. Baltenweck, F. Musembi, O. Bwana, K. Muriuki, G. Gichungu, A. Omore, and W. Thorpe. 2001. Dairy systems characterisation of the greater Nairobi milk shed. Smallholder Dairy Project Research Report, International Livestock Research Institute, Nairobi.

Stern, N. 2007. *The economics of climate change: The Stern review.* Cambridge: Cambridge University Press.

_____. 2009. Managing climate change and overcoming poverty: Facing the reality and building a global agreement. Lecture at Columbia University, New York. Available at: http://www.cccep.ac.uk/Publications/Policy%20Briefs%20and%20Papers/MANAGING%20CLIMATE%20CHANGE%20AND%20OVERCOMING%20POVERTYx%20(2).pdf

Streck, M. 2009. Soil carbon in Africa: Potentials and pitfalls, *The road to Accra series*. Available at: http://www.forestcarbonportal.com/content/soil-carbon-africa-potentials-and-pitfalls

Sumner, A., S. Wiggins, T. Giordano, B. Losch, K. Hussein, C. Bidault, C. Calvosa, R. Kapur, A. Bahadur, and S. Bobde. 2008. How is the world changing? What does it mean for the rural poor? Background paper for the IFAD *Rural poverty report 2011*.

Sustainable Agriculture Initiative. 2010. Available at: http://www.saiplatform.org/

Swaminathan, M.S. 1999. For an 'evergreen revolution'. *Frontline* 16:27. Available at: http://www.hinduonnet.com/fline/fl1627/16270940.htm

Swedish International Development Cooperation Agency (SIDA). 2009. *Making climate your business: Private sector adaptation in Southeast Asia.* Stockholm: SIDA.

Taylor, J., A. Zezza, and A. Gurkan. 2008. Rural poverty and markets. Background paper for the IFAD *Rural poverty report 2011*.

TechnoServe. 2004. Partnerships for agribusiness development, agricultural trade, and market access. A concept note for NEPAD, TechnoServe, Washington, D.C.

_____. 2009. Relaunch of an industry: economic impacts caused by the redevelopment of the Mozambican cashew processing industry. PowerPoint presentation. Washington, D.C.: TechnoServe.

Thapa, G., R. Gaiha, K. Imai, and V. Kulkarni. 2009. Soaring food prices: A threat or opportunity in Asia? Working Paper 69, University of Manchester, Brooks World Poverty Institute, UK.

The Economist. 2010. *Gendercide: The worldwide war on baby girls*. March 4-11.

_____. 2010a. *For want of a drink*. May 22-28.

Tilak, J.B.G. 2003. Vocational education and training in Asia in the *International handbook on educational research in the Asia-Pacific region*, eds. J.P. Keeves and R. Watanabe. Dordrecht, The Netherlands: Kluwer Academic Publishers.

Tolba, M.K., and N.W. Saab, eds. (2009). *Arab environment: Climate change. Impact of climate change on Arab countries*. Beirut, Lebanon: Arab Forum for Environment and Development.

Transparency International (2010). The good governance challenge: Egypt, Lebanon, Morocco and Palestine. Available at: http://www.transparency.org

Trigo, E., E. Cap, V. Malach, and F. Villarreal. 2009. The case of zero-tillage technology in Argentina. Discussion Paper 00915, International Food Policy Research Institute, Washington D.C.

Tripp, R. 2006. *Natural resource perspectives 102.* Is low external input technology contributing to sustainable agricultural development? London: Overseas Development Institute. Available at: http://www.odi.org.uk/resources/download/31.pdf

Trivelli, C., J. Yancari, and C. De los Ríos. 2009. *Crisis and rural poverty in Latin America.* Working Paper No. 37, Rural Territorial Dynamics Program. Latin American Center for Rural Development, Santiago.

Tschirley, D.L. 2007. Supermarkets and beyond: Literature review on farmer to market linkages in Sub-Saharan Africa and Asia. Paper prepared for the AgInfo Project funded by the Bill and Melinda Gates Foundation, Michigan State University.

Tschirley, D.L., M. Ayieko, M. Mathenge, and M.T. Weber. 2004. Where do consumers in Nairobi purchase their food and why does this matter? The need for investment to improve Kenya's 'traditional' food marketing system. Policy Brief No. 3, Tegemeo Institute of Agricultural Policy and Development, Egerton University, Kenya.

Tyler S., and L. Fajber. 2009. Land and water resource management in Asia: Challenges for climate adaptation. Background paper for the Asia Regional Meeting of the Dialogue on Climate Change Adaptation for Land and Water Management, 19-21 January, Hanoi.

United Nations. 2009. *World urbanization prospects: The 2009 revision*. New York: United Nations Department of Economic and Social Affairs, Population Division.

_____.2009a. *The state of the world's indigenous peoples*. New York: United Nations Department of Economic and Social Affairs.

_____.2010. *The Millennium Development Goals report*. New York: United Nations.

United Nations Children's Fund (UNICEF). 2009. *Global study on child poverty and disparities: National report Senegal* (in French). Dakar: UNICEF.

United Nations Conference on Trade and Development (UNCTAD). 2009. *Handbook of statistics online*. Available at: http://stats.unctad.org/Handbook/ReportFolders/reportFolders.aspx

United Nations Development Programme (UNDP). 2007. *Human development report 2007/2008: Fighting climate change: Human solidarity in a divided world*. New York/Basingstoke, UK: Palgrave Macmillan.

_____. 2008. *Tackling corruption, transforming lives: Accelerating human development in Asia and the Pacific.* New Delhi: Macmillan India Ltd.

_____. 2009 *The multi-functional platform. Bringing energy, ushering in change for the better to Burkina Faso's rural communities.* New York: United Nations.

_____. 2009a. *Arab human development report 2009: Challenges to human security in the Arab countries.* New York: UNDP Regional Bureau for Arab States.

United Nations Economic Commission for Africa (UNECA). 2009. *African youth report 2009: Expanding opportunities for and with young people in Africa.* Addis Ababa: UNECA.

United Nations Economic Commission for Africa (UNECA) and African Union (AU). 2009. *Economic report on Africa 2009: Developing African agriculture through regional value chains.* Addis Ababa: UNECA.

United Nations Economic Commission for Latin America and the Caribbean (ECLAC). 2009. *Economics of climate change in Latin America and the Caribbean: Summary*. Santiago: United Nations.

_____. 2009a. Social panorama of Latin America: Briefing paper, ECLAC, Santiago.

United Nations Economic Commission for Latin America and the Caribbean (ECLAC), Food and Agriculture Organization of the United Nations (FAO) and Inter-American Institute for Cooperation on Agriculture (IICA). 2009. *The outlook for agriculture and rural development in the Americas: A perspective on Latin America and the Caribbean.* San José, Costa Rica: IICA.

United Nations Economic and Social Commission for Asia and the Pacific (ESCAP). 2009. *Sustainable agriculture and food security in Asia and the Pacific.* Bangkok: ESCAP.

United Nations Economic and Social Council (ECOSOC). 2008. Trends in South-South and triangular development cooperation. Background study for the Development Cooperation Forum, United Nations, New York.

United Nations Educational, Scientific, and Cultural Organization (UNESCO). 2005. Vocational education: The come-back? *Education today,* No. 13, April-June, UNESCO, Education Sector, Paris.

_____. 2010. *Education for all global monitoring report: Reaching the marginalized*. Paris: UNESCO.

_____. (undated). Six projects from rural India: Non-formal education for sustainable development. Paris: UNESCO.

United Nations Environment Programme (UNEP) and United Nations Foundation (UNF). 2002. *Open for business. Entrepreneurs, clean energy and sustainable development.* UK: UNEP/UNF.

United Nations Research Institute for Social Development (UNRISD). 2010. (Forthcoming). *Flagship report: Combating poverty and inequality*. Geneva: UNRISD.

Uphoff, N. 2009. The System of Rice Intensification (SRI) as a system of agricultural innovation. In *Farmer first revisited: Innovation for agricultural research and development,* eds. I. Scoones and J. Thompson. Oxford: ITDG Publishing.

Vaidya S., and Partep, T. 2007. Organic farming offering opportunity of income security among small farmers of India: A country wide study. Paper presented at the International Conference on Organic Agriculture and Food Security, 3-5 May, Food and Agriculture Organization of the United Nations, Rome.

Valdés, A., and W. Foster. 2006. Making the labor market a way out of rural poverty: Rural and agricultural labor markets in Latin America and the Caribbean. Background paper for the World Bank *World development report 2008: Agriculture for development*. Available at: http://go.worldbank.org/GLF6HRYFI0

Valdés, A., W. Foster, G. Anríquez, C. Azzarri, K. Covarrubias, B. Davis, S. DiGiuseppe, T. Essam, T. Hertz, A.P. de la O, E. Quiñones, K. Stamoulis, P. Winters, and A. Zezza. 2008. A profile of the rural poor. Background paper for the IFAD *Rural poverty report 2011*.

Vandenbosch, T. 2006. *Post-primary agricultural education and training in Sub-Saharan Africa: Adapting supply to changing demand.* Nairobi: World Agroforestry Centre.

Vargas-Lundius, R., M. Villareal, G. Lanly, and M. Osorio. 2008. *International migration, remittances and rural development*, Rome: Food and Agriculture Organization of the United Nations/International Fund for Agricultural Development.

Vinayagum, C. 2009. 'Education for rural transformation in China and India'. Paper presented at the annual meeting of the 53rd Annual Conference of the Comparative and International Education Society, 22 March, Charleston, USA.

von Braun, J. 2007. *The world food situation. New driving forces and required actions.* Washington, D.C.: International Food Policy Research Institute.

von Braun, J., S. Fan, R. Meinzen-Dick, M.W. Rosegrant, and A.N. Pratt. 2008. *International agricultural research for food security, poverty reduction, and the environment: What to expect from scaling up CGIAR investments and "best bet" programmes*. Washington, D.C.: International Food Policy Research Institute.

von Braun, J., and R. Meinzen-Dick. 2009. "Land grabbing" by foreign investors in developing countries: Risks and opportunities. IFPRI Policy Brief 13, April, International Food Policy Research Institute, Washington, D.C. Available at: http://www.ifpri.org/sites/default/files/publications/bp013all.pdf

von Grebmer, K., B. Nestorova, A. Quisumbing, R. Fertziger, H. Fritschel, R. Pandya-Lorch, and Y. Yohannes. 2009. *Global hunger index. The challenge of hunger: Focus on financial crisis and gender inequality.* Bonn: Deutsche Welthungerhilfe (German AgroAction)/Washington, D.C: International Food Policy Research Institute/Dublin: Concern Worldwide.

Vorley, B., and F. Proctor. 2008. *Inclusive business in agrifood markets: Evidence and action.* A report based on proceedings from the Inclusive Business in Agrifood Markets: Evidence and Action international conference, Beijing 5-6 March. London: International Institute for Environment and Development.

Weatherspoon, D.D., and T. Reardon 2003. The rise of supermarkets in Africa: Implications for agrifood systems and the rural poor. *Development Policy Review* 21(3):333-355.

Webber, C.M., and P. Labaste. 2010. *Building competitiveness in Africa's agriculture: A guide to value chain concepts and applications.* Washington, D.C.: World Bank.

Weinberger, K., and J. Jütting. 2005. The role of local organizations in risk management: Some evidence from rural Chad. Available at: http://www.isser.org/publications/older/83%20Jutting_Weinberger.pdf

Wiegers, E.S. 2008. The role of the agricultural sector in mitigating the impact of HIV/AIDS in Sub-Saharan Africa. *Wageningen Journal of Life Sciences* 56(3).

Wiggins, S., and P.B.R. Hazell. 2008. Access to rural non-farm employment and enterprise development. Background paper for the IFAD *Rural poverty report 2011*.

World Bank. 2006. *World development report 2007: Development and the next generation.* Washington, D.C.: World Bank.

_____. 2006a. *The rural investment climate: It differs and it matters*. Washington, D.C.: World Bank.

_____. 2007. *World development report 2008: Agriculture for development.* Washington, D.C.: World Bank.

_____. 2008. *World development report 2009: Reshaping economic geography.* Washington, D.C.: World Bank.

_____. 2009. *Africa development indicators 2008/2009. Youth and employment in Africa: The potential, the problem, the promise.* Washington, D.C.: World Bank.

_____. 2010. An interview with Julia Bucknall: A 5 year retrospective on water issues in MENA. *MNA knowledge and learning, Fast Brief* No. 44. Washington, D.C.: World Bank.

_____. 2010a. *Africa's development in a changing climate. Key policy advice from World development report 2010 and Making development climate resilient: A World Bank strategy for Sub-Saharan Africa.* Washington, D.C.: World Bank.

_____. 2010b. *World development report 2010: Development and climate change.* Washington, D.C.: World Bank.

_____. 2010c. Africa development indicators 2010. Silent and lethal: How quiet corruption undermines Africa's development efforts. Washington, D.C.: World Bank.

_____. 2010d. Africa's pulse. An analysis of trends shaping Africa's economic future. Office of the World Bank Chief Economist for the Africa Region. Washington, D.C.: World Bank.

_____. (various dates) Rural investment climate surveys at: http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTARD/0,,contentMDK:21349653~pagePK:210058~piPK:210062~theSitePK:336682,00.html

World Bank, Food and Agriculture Organization of the United Nations (FAO) and International Fund for Agricultural Development (IFAD). 2008. *Gender in agriculture sourcebook.* Washington, D.C.: World Bank.

_____. 2009. *Improving food security in Arab countries.* Washington, D.C.: World Bank.

World Food Programme (WFP). 2009. *Climate change and hunger: Responding to the challenge*. Rome: WFP.

World Health Organization (WHO). 2008. Global database on child growth and malnutrition: India. Available at: http://www.who.int/nutgrowthdb/database/countries/ind/en/

_____. 2008a. *The world health report 2008.* Geneva: WHO.

_____. 2010. *World health statistics*. Geneva: WHO.

Worldwide Governance Indicators, 1996-2008, at: http://info.worldbank.org/governance/wgi/index.asp

World Resources Institute (WRI). 2005. Millennium ecosystem assessment. *Ecosystems and human well-being: Wetlands and water synthesis*. Washington, D.C.: WRI.

Wright, G. 1999. *A critical review of savings services in Africa and elsewhere*. Nairobi: Microsave.

Cover

East Coast Region, Madagascar: Farmers Lionie Marceline (foreground), her husband Jean Doris, and their daughter Zafikalo Natacha and son Andronic harvest rice. The crop has been grown using the System of Rice Intensification, a set of practices that can substantially increase yields, while using less irrigation water and fewer seeds. First developed in Madagascar in the early 1980s, the system has been adopted widely and its benefits have been documented in over 40 countries in Asia, Africa and Latin America.

Photos

Madagascar – ©IFAD/Masy Andriantsoa (cover)
China – ©IFAD/Wenbing Peng
Egypt – ©IFAD/Ehab Mohyeldin
Madagascar – ©IFAD/Amy Glass, ©IFAD/Steven M. Lellelid
Pakistan – © IFAD/Jabran Shahnwaz
Peru – ©IFAD/Cesar Ascención Huamán Sopla
Senegal – ©IFAD/Olivier Asselin

One billion people in rural areas are living in extreme poverty. New risks, including growing natural resource constraints, the increasing threat of climate change, and volatile food prices are making it increasingly difficult for them to build better lives for themselves and their families.

At the same time, poor rural people, and particularly smallholder farmers and agricultural workers, are vitally important to meeting the world's future food needs. These are expected to increase by 70 per cent over the next four decades as the global population reaches 9 billion.

IFAD's *Rural Poverty Report 2011* provides a clear approach to tackling rural poverty today and to facing the challenges of the future.

Through interviews with poor rural people, case studies and extensive research by experts in poverty reduction, the report looks at who poor rural people are, what they do and how their livelihoods are changing. It explores the challenges that make it difficult for rural women, men and young people to overcome poverty.

The report stresses the importance of reducing the many risks that poor rural people face as an essential prerequisite for reducing rural poverty. It highlights the need to make smallholder agriculture more productive and profitable through a new agenda for sustainable agricultural intensification that takes advantage of changing market conditions. And it underlines the importance of building poor rural people's capabilities to take advantage of opportunities in the non-farm economy. The report concludes with the policies and actions that governments and development practitioners must take to support the efforts of poor rural people themselves.

International Fund for
Agricultural Development
Via Paolo di Dono, 44
00142 Rome, Italy
Telephone: +39 06 54591
Facsimile: +39 06 5043463
E-mail: ifad@ifad.org
www.ifad.org
www.ifad.org/rpr2011
www.ruralpovertyportal.org

ISBN 978-92-9072-200-7