Agriculture – Pathways to Prosperity in Asia and the Pacific

ASIA AND THE PACIFIC DIVISION

March 2011

Enabling poor rural people to overcome poverty

IFAD

Agriculture-Pathways to Prosperity in Asia and the Pacific

Asia and the Pacific Division
International Fund for Agricultural Development

March 2011

Acknowledgements

This report was prepared under the overall supervision and guidance of Ganesh Thapa, Regional Economist, Asia and the Pacific Division of IFAD and Raghav Gaiha, Professor, University of Delhi. It was prepared by a team of researchers comprising Prem Vashishtha, Simrit Kaur and Nidhi Kaicker. The views expressed are personal and not necessarily of the organisation that sponsored this study. This report has benefitted from the support, guidance and advice of Thomas Elhaut, Director, Asia and the Pacific Division and from the comments of the participants in a Divisional Seminar in the Asia and the Pacific Division. Raghbendra Jha and Chitra Deshpande offered detailed comments on an earlier version that enriched the analysis. Raj Bhatia, Sundeep Vaid and Nicolas Syed made valuable contributions to the statistical analysis. Valentina Camaleonte provided editorial assistance.

CONTENTS

LIST OF ILLUSTRATIONS

EXECUTIVE SUMMARY

In Asia, 70 per cent of the poor live in rural areas. Although every region of Asia has made considerable progress in reduction of rural poverty in the last decade, the problem remains acute. The problem has been exacerbated due to the Triple-F (food, fuel and financial) crises and this has made meeting of MDG 1 of halving extreme poverty by 2015 more challenging. While a considerable number of rural households are chronically poor, there are many more who move in and out of poverty. From a policy perspective, it is important to distinguish between the transient and persistently poor households, as the latter require massive transfers sustained over long periods. Moreover, poverty is a multi-dimensional concept and must not be viewed only in terms of income deprivation. In several parts of Asia and elsewhere, rural poverty is also reflected in several inter-locking non-income deprivations in education, health and sanitation, among others. Further, within rural societies, women, youth and indigenous people are often disproportionately affected by disadvantages that tend to make mobility out of poverty even harder.

What causes income poverty? Despite wide-ranging diversities, many poor rural people in Asia and the Pacific Region are either landless or own a limited piece of land, possess large families, lack education and have limited access to markets, credit and technology. A stylized fact about rural poverty is that 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 addition, lack of market information, business and negotiating experience and collective organisations deprive them of the power to compete on equal terms in the marketplace.

Poverty, however, is not just a matter of deprivation but also of vulnerability to exogenous shocks. 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. These shocks include natural disasters, climate change, pest outbreaks (e.g. avian influenza), vulnerability to food price fluctuations, illness, and death. The region is also highly vulnerable to fluctuations in energy prices due to its high dependence on fossil fuels. This worsens food insecurity. Rural communities and households have a range of mechanisms for coping with downturns. As risk-coping mechanisms, households generally resort to selling productive assets, borrowing, depleting savings, migrating, and reducing expenditure on food, healthcare and education (notably affecting women and children). Although segments of rural population have developed relatively strong risk-management and risk-coping strategies, vulnerability remains high. Some parts of the region (e.g. Afghanistan, Sri Lanka, Nepal, Bangladesh, and Pakistan) are also affected by instability and conflict, or have recently recovered from conflict. The policy emphasis has to go beyond augmenting incomes to risk mitigation and coping.

Volatile food prices pose a threat to the rural poor. Domestic food prices have been less volatile in Asia and the Pacific due to more stable supplies and regulated markets (for instance, in India, Indonesia and Bangladesh). However, some of the poorest countries (e.g. Cambodia) experienced severe hardships. In general, there are six domains to be taken into account to reduce food price volatility: addressing supply-side constraints (e.g. policies that support access to credit); management of and control over natural resources; and access to research and extension services; supply-management and price stabilization policies; safety net programmes; value-addition for agricultural products: redressing price information gaps and asymmetries; and provision of storage facilities combined with access to credit for smallholder farmers.

Agriculture contributes substantially to GDP growth and poverty reduction. Simulations show that Asia and the Pacific Region as a whole would need a 56 per cent increase in agricultural ODA, a 28 per cent increase in agricultural expenditure, a 23 per cent increase in fertilizer use, or a 24 per cent increase in agricultural investment in 2007-13 for achieving MDG 1 (at US$2 poverty line) over historical trends (but with varying sub-regional requirements). So the prospects of achieving MDG1 are not so daunting. Strategic options in farm and non-farm transformation are elaborated below.

Since the rural poor depend on agriculture for their livelihoods, any policy that aims to reduce rural poverty has to focus on agricultural intensification and diversification that are both market-oriented and sustainable.

There is a shift from the traditional supply chains characterised by many traders and intermediaries and face-to-face interactions between agents, towards chains with fewer links and more impersonal dealings. Supermarket chains offer better deals to farmers, higher prices and greater certainty of selling the produce, along with credit and technical assistance in certain cases. However, farmers are also obliged to meet stringent quality requirements and adhere to food safety standards. Supermarkets prefer dealing with few large farmers rather than many small farmers. Organising small farmers is a challenge. Further, in response to changes in dietary habits and lifestyle, and liberalization of retail trade, supermarkets with global links are emerging fast. Smallholders' participation in supply chain/supermarkets can be made profitable if the government plays the role of not only providing public goods (infrastructure, food safety standards, and favourable environment for enforcing contracts) but also a proactive role in collaboration with forward looking private players in providing inputs and transferring technology to smallholders. These initiatives, combined with suitable trade negotiations, can be helpful in overcoming the threats that global trade poses to smallholders.

Small farmers face several challenges, such as high transaction costs in accessing inputs, credit and marketing facilities. Specifically, it is difficult for them to access high-value crops even though they are labour intensive and more suited for their size. This is because of highly volatile prices and high market risks associated with high-value agricultural commodities. Further, in recent years, agricultural funding has shifted from public to private research. This change has grave consequences for small farmers as private research companies lack incentives to address small farmers' concerns.

The emerging agenda for sustainable development in this region must focus on making agriculture less risky for smallholders; and conserving the environment and raising productivity. The development of modern varieties, evolution of GMOs, adoption of conservation agriculture, all need serious efforts by several agencies. Further, at the local level, efforts are required by government agencies, extension agents, and local leaders to take innovative approaches to the people.

Both rising demand for and rising prices of food have created attractive investment opportunities in the agricultural sector, especially in large farms. However, the large farm advantage is due to market failure (e.g. credit), institutional gaps (e.g. weak extension services) and policy distortion (e.g. minimum support prices). Elimination of such biases against smallholders would enhance their competitiveness. State interventions and collective action by producers' organisations would make a significant difference.

Secure land rights can increase incentives for investments and secure tenure can increase land values substantially. In addition, such security reduces conflicts, assures availability of collateral, improves the bargaining power of the poor and helps in poverty reduction. However, policy interventions to ensure the same must be carefully designed to ensure equity without upsetting local customs, as in the case of indigenous peoples. The market for rentals also enhances the opportunity for landless labour to cultivate and make a transition towards owning such land.

Often traditional land systems fail to recognize women's rights. The first concern is that women should have either joint ownership of land with their spouses, or a joint right to its disposal. Secondly, women must be able to maintain their land rights after the death of their spouses. Gender and land rights in South Asia matter for poverty reduction.

The looming threat of climate change raises serious concerns. Under the different scenarios in the IPCC Special Report on Emission Scenarios (SRES), the global mean surface temperature is expected to rise, as also the sea level. Freshwater availability in many parts of Asia is expected to decrease by 2050. South, East and South East Asia will be at the greatest risk due to expected flooding. In areas of

mid-to-high latitudes, productivity is projected to increase slightly with temperature increases between 1-3°C (depending on the crop), and then decrease in some regions. In regions of low latitude, crop productivity is projected to decrease for even small increases in local temperature. While the search for effective mitigation mechanisms continues, it must be combined with adaptation. The latter, of course, deserves greater attention than it has received.

Strategies of adaptation by smallholders raise specific concerns. They are likely to suffer impacts of climate change that are locally specific and hard to predict. The variety of crop and livestock species produced by them, and the importance of non-market relations will increase the complexity both of the impacts and the subsequent adaptations, relative to commercial farms with more restricted ranges of crops.

As part of diversification of rural livelihoods, and a pathway out of poverty, the rural non-farm economy (RNFE) has considerable potential. For most of the countries of Asia and the Pacific, rural households receive substantial income from non-farm activities. With constraints on farm expansion and continuing growth of rural population, development of RNFE has a major role to play in any poverty reducing strategy. The *direct* impact of rural non-farm earnings on static indicators of rural poverty is confirmed in most cases. Also, RNFE performs an important safety net role, preventing households from falling into poverty when faced with shocks. The *indirect* effects of rural non-farm employment, through labour market tightening and rising real wage rates, remain substantial. The availability of human, financial and physical capital is a major determinant of participation in non-farm activities. Policy biases and inequity in access to markets and credit need to be remedied. Rapid growth of agriculture has historically played an important role in promoting RNFE. In addition, improved infrastructure, vicinity to towns, globalization and urbanization have also opened up new opportunities for the growth of RNFE.

For supporting and implementing these policies, effective governance that ensures more inclusive growth is crucial. Democratization, civil society participation, decentralization, transparency, accountability and corruption control hold great potential for strengthening governance. Effective policies to reduce poverty should include measures that enhance poor peoples' access to assets such as land, water, education and health. This requires significant public investments, well-defined property rights, and effective land administration.

An ideal set of policies would have all these attributes, but, unfortunately, we do not live in an ideal world. Governments have to constantly balance the demands of market-oriented reforms that require less state intervention with the state's obligation to ensure that no citizen remains wretchedly poor. For instance, the government needs to create well-defined property rights, which would then enable indigenous peoples to transform their customary rights into legal ones. An imaginative approach to redistribution of land (e.g. through, for example, efficient land and rental markets) is imperative. This will not undermine large-scale investment in agriculture. However, the political feasibility of these reforms is not self-evident.

In order to generate pro-poor and sustainable rural growth, it is important for policy makers to address four cross-cutting issues.

- *Strengthening individual capabilities*: Developing skills and knowledge of poor rural people (especially women, youth, disadvantaged social groups and smallholders) is crucial for bringing dynamism and innovation in agriculture and making it more productive and sustainable. A stronger focus on investing in education beyond primary level and enhancing accessibility and value of vocational skills to rural poor is necessary.
- *Improving the risk management capacity of poor rural people*: This requires better access to education, promoting gender equity, strengthening insurance provision for the poor and vulnerable, encouraging micro-finance programmes, accelerating investments in agricultural research and development, and providing effective safety nets and nutritional improvement in rural areas.

- *Strengthening collective capabilities*: Membership based organisations have a key role to play in helping the rural poor mitigate risks and market their produce. Such organisations include women's saving clubs, producers' organisations and farmers' field schools. Micro-finance has played a crucial role in providing access to credit for households without formal collateral, thus contributing to poverty reduction and women's empowerment.
- *Improving the rural environment*: In order to improve the rural environment, the focus should be on *three* areas: provision of physical infrastructure; widening provision of rural services (education, healthcare, insurance and financial services); and improving governance.

Good policies and governance are crucial to address rural poverty. The national government has the prime responsibility to push agriculture on the development agenda and to create a favourable environment through macroeconomic and political stability, and the rule of law. Governments have an important role to play in regulation, provision of public goods, investments in infrastructure and R&D, provision of credit facilities and markets, defining property rights, enforcement of rules and development of institutions.

Despite pervasive market failures, there is a crucial role for the private sector. Coordinated actions of public, private and civil society can help mitigate risks that smallholders face, reduce transaction costs and create incentives for private investment in critical services in agriculture.

NGOs have a crucial role to play in generating bottom-up demands. Collective action, through producer organisations and self-help groups, can help achieve economies of scale in input supply, access to markets and finance, and management of common property resources. They can also be an effective way to impart training and increase awareness.

On the international front, to usher in the welfare impacts of trade liberalisation, the Doha round of trade negotiations must urgently be concluded, particularly to eliminate distortions, such as US cotton subsidies that work against the interests of poor countries.

Rural development's visibility has increased on the global agenda. To a large extent, the triple F (food, fuel, financial) crises have been responsible for this. In recent years, the international development community has taken a number of initiatives that demonstrate its commitment to promote rural development. Some of these are delineated below: The *Comprehensive Framework for Action* was set up to address the threats and opportunities from the food price crisis and adopt policies that would prevent such a crisis from occurring in the future. *The 2009 L'Aquila Food Security Initiative* is committed to reverse the decline in ODA and national financing to agriculture and to partner with vulnerable countries to help them develop and implement their own food security strategies. The objectives of the G*lobal Forum for Agricultural Research* are alleviation of rural poverty, food security and sustainable natural resource management. The *Global Forum for Rural Advisory Services* provides rural advisory services with the goal of reducing hunger and poverty. The *Consultative Group on International Agricultural Research* contributes to food security, poverty eradication, and sustainable development. The aim of the *Pacific Island Extension Summit*, 2009 is to offer an efficient and effective extension service to transform the agriculture and forestry sectors for the Pacific economies.

To sum up, each country must have policies in place to spur growth in the rural sector, enhance food security and overcome poverty. The successes and policy lessons learnt point to five major challenges. *First*, sustained increase in agricultural productivity is required, especially among smallholders, with a focus on the youth, women, other disadvantaged social groups and indigenous peoples. *Second*, food price volatility, other market risks, and natural disasters could play havoc with the well-being and lives of rural populations. Policies that mitigate such risks and enable the vulnerable to cope with them deserve careful scrutiny and coordinated implementation. *Third*, integration of smallholders into high-value chains calls for proactive role of national governments in laying down food safety standards and producers' associations in implementing them and in negotiating marketing arrangements. *Fourth*, climate change poses grave threats to human well-being.

Despite a weakening of the appetite for capping carbon emissions, both mitigation and adaptation are necessary. While the search for emission reductions widens, much greater emphasis to adaptation – especially by smallholders – than given in the past is imperative. *Fifth*, strong farm-non-farm linkages must be fostered so that their complementarity is fully exploited in pursuit of sustained poverty reduction.

While the prospects of sustainable agricultural growth and poverty reduction may seem daunting to many, the strategy charted here is one of hope and optimism.

CHAPTER 1: INTRODUCTION

About seventy per cent of the poor live in rural areas and depend on agriculture for their livelihood. Declining rates of poverty reduction between 1998 and 2008, and a diminution in the natural resource base (land and water) of agriculture, have raised doubts about the capacity of the agricultural sector to help lift the rural poor from a poverty trap. More recently (2006-09), the rise in food prices, and, in quick succession, the global financial crisis have adversely affected the poor and other segments of the population. Although some estimates of the effects of these crises on the poor – especially of the food price crisis – are alarmist, research findings offer some grounds for optimism[1]. A combination of measures such as exploitation of untapped yield potential of major cereal crops, judicious use of natural resources (land & water), and implementation of appropriate policies and institutional reform can create a dynamic agricultural sector capable of substantially raising incomes of the rural poor[2].

The Chapter scheme is as follows. Chapter 1 delineates the changes in the global and regional context of poverty reduction focusing on the food price crisis of 2007-08 and the risk of a repetition, and impact of the financial crisis that followed in its wake, with the sub-regional profile as the backdrop. Chapter 2 deals with measurement of poverty, its various manifestations, and trends over time. Of particular importance here is a disaggregation of poverty by ethnicity, gender and age. Chapter 3 highlights another perspective on poverty with risks and vulnerability as the central theme. Central to this report, however, are the prospects of smallholder farming becoming more prosperous and the constraints that are likely to impede this process. Chapter 4 emphasizes the structural transformation of agricultural markets and integration of smallholders into them. The strategies needed to help smallholders to raise yields and to diversify into high-value chains call for higher investments and public expenditure in agriculture. Chapter 5 discusses broad magnitudes of investment, public expenditure and ODA in agriculture consistent with MDG 1 for individual countries and the sub-regions. This then sets the stage for strategic issues from the perspective of smallholders and policies designed to promote intensification of agriculture. A major concern is sustainability of intensification in the context of climate change and whether smallholders face greater risk of failure to adapt. Issues relating to integration of smallholders into the high-value chain through intermediation and internalisations are explored[3]. Of particular interest are the rural producer associations in facilitating integration of smallholders. Chapter 6 examines the prospects of diversification both within and outside agriculture. Specifically, the report throws new light on rural non-farm employment as a pathway out of poverty. A case is made for development of technical and vocational skills in promoting capabilities of the youth to access expanding opportunities in both farm and non-farm sectors in rural and urban areas. Strengthening of rural infrastructure is another priority in promoting non-farm business opportunities. In the concluding Chapter, from a longer-term perspective, priorities in the transformation of agriculture and non-farm activities are discussed. Key elements of four cross-cutting themes are identified: strengthening individual capabilities, collective capabilities, improving risk management capacity of the poor, and improving the rural environment. A vision of how different stakeholders, including local communities, NGOs, national governments, international development agencies and donors could collaborate and support the agenda for promoting smallholder farming and new opportunities in the non-farm sector for tomorrow's generation is delineated. While the challenges are daunting, past successes in this region in dealing with the scourge of poverty and hunger are grounds for optimism.

To put the discussion in perspective, let us consider the sub-regional profile of Asia and the Pacific Region in terms of selected indicators.

---

[1] For a review of the evidence, see Thapa et al., 2009.

[2] WDR, 2008.

[3] 'Intermediation' refers to steps such as laying down of food safety standards by the national government, help by private agencies in implementing them, creation of rural infrastructure by public and/or public-private collaboration; and suppliers making provisions of inputs and/or extension service to smallholders. 'Internalization' refers to negotiation about production and marketing arrangements with supermarkets or suppliers (Gaiha and Thapa, 2007).

Table 1: Profile of the Sub-Regions in Asia and the Pacific

	Rural Share of Total Population (%)		Female Participation Rate (% of females)		Undernourishment (% of population)		Per Capita Income (Constant 2000 USD)		Agri. value added (% of GDP)		Merchandise Trade (% of GDP)		GINI Coefficient	
	2000-04	2005-09	2000-04	2005-09	2000-04	2005-09	2000-04	2005-09	2000-04	2005-09	2000-04	2005-09	2000-04	2005-09
East Asia	61.9	57.4	63.6	63.2	10.5	10.4	1100	1806	13.9	11.0	46.5	58.3	NA	40.8
South Asia	70.5	69.1	38.5	41.7	19.5	20.9	531	698	20.5	17.2	27.1	36.5	35.3	NA
Central Asia	58.3	58.0	56.5	58.5	18.1	11.1	793	1131	19.5	14.0	70.6	74.1	31.5	NA
South East Asia	59.0	54.7	61.4	61.2	17.4	13.6	1035	1255	13.3	13.2	101.7	101.4	36.5	NA
Pacific Islands	81.4	81.6	50.8	50.9	1.6	1.4	916	944	27.6	26.9	82.8	91.3	NA	NA
Asia - Pacific	65.2	62.3	52.7	53.8	15.6	15.6	836	1212	15.7	13.0	52.3	60.6	21.7	20.1

Source: World Bank (World Development Indicators).

The figures for Female Participation Rate for Pacific Islands include only Fiji, Papua New Guinea, Samoa, Solomon Islands, Tonga and Vanuatu.

The figures for undernourishment for South Asia exclude Afghanistan and Bhutan; and for Pacific Islands only Fiji, Papua New Guinea, Samoa, Solomon Islands and Vanuatu.

The figures for per capita income for East Asia exclude Korea DPR, and for South Asia exclude Afghanistan.

The figures for Agricultural Value Added (% of GDP) exclude Korea (DPR), Afghanistan, Myanmar, Marshall Islands and Micronesia.

The figures for Merchandise Trade (% of GDP) exclude Korea (DPR), Afghanistan, Myanmar and Timor Leste.

The inequality indices of consumption expenditure distribution (Gini) exclude Korea (DPR), Afghanistan, Turkmenistan, Brunei Darussalam, Myanmar. The Gini coefficients for Pacific Island countries are not available.

For each of the sub-regions, the proportion of people living in rural areas declined, except in Pacific Islands where the proportion increased only marginally between 2000-04 and 2004-05. The decline was more pronounced in East Asia and South East Asia, and only marginal in case of Central Asia and South Asia. Although the rural share of total population remains high in the sub-regions of Asia and the Pacific, and predominantly agricultural in nature, the contribution of agricultural value added to GDP is low, and declined marginally between 2000-04 and 2005-09 for South East Asia and Pacific Island, and, more significantly in East, South and Central Asia. Despite the global downturn, each of the sub-regions witnessed a substantial increase in the per-capita income between 2000-04 and 2005-09. The increase was greater for East Asia (64 per cent) and Central Asia (43 per cent), and lesser for South Asia (31 per cent) and South East Asia (21 per cent). The per capita income in the Pacific Islands increased only by 3 per cent. Despite the growth, the per capita income for South Asia remains low and has the highest rate of undernourishment in the region. Moreover, the proportion of undernourished has also increased in the period under study. East Asia, despite the highest per capita income, has a large proportion of undernourished population, and is also characterized by high income inequalities, as measured by the GINI coefficient. The proportion of undernourished in total population is very small for the Pacific Islands. Central Asia and South East Asia have made progress in reducing the proportion of undernourished, although the prevalence remains high. What adds to the concern is the deprivation of certain groups such as women, youth and indigenous people who face disproportionate impacts of poverty. Towards mitigation of their persistent and acute deprivation, empowerment of women, establishment of youth organisations and inclusion of indigenous populations in the growth process are key. The female participation rates in all the sub-regions are low and have decreased, although slightly, in East Asia and South East Asia. The increase in other sub-regions is small. Female participation rate in South Asia is only 40 per cent, the lowest in the sub-region. Some of the economies of this region, particularly those in South East Asia and Pacific Islands are heavily dependent on trade. While the share of trade in GDP is small for South Asia, it is moderate

for East Asia and Central Asia. All sub-regions recorded an increase in the share of merchandise trade in GDP.

1.1. WHAT'S NEW FOR RURAL ECONOMIES AND AGRICULTURE?

1.1.1. FOOD PRICE SURGE AND THE POOR

An increase in food prices adversely affects the poor since they spend a large proportion of their income on food items. In response, the poor tend to take some of these remedial actions: switching over to less nutritious and cheaper diets, cutting down on their children's (especially girls) food intake, and reducing expenditure on non-food items such as the health and education of children. In extreme situations, the poor are also forced to sell their assets such as livestock. FAO estimates that in 2009, about 100 million more people were propelled into the category of the hungry, as compared to 2003, and most of them belonged to Asia and the Pacific Region where 640 million poor reside[4].

Although food prices have been increasing since 2000, they increased at a fast pace between 2006 and 2007-08 when prices of major cereals surged very rapidly. The countries of Asia and the Pacific Region experienced varying spikes in these prices[5]. These spikes have been due to a combination of both short-term (such as droughts, trade restrictions, and speculation and hoarding) and long-term factors (such as declining productivity, inadequate investments in infrastructure and linkages with other commodity markets such as energy markets)[6].

The nature and magnitude of impact of food and energy price hike varied across countries in this Region, with two common features: (i) it affected the price of major staple foodgrains, viz., rice and wheat; and (ii) it increased producer prices more than consumer prices. The effect of increase in food prices on GDP is considerable. For instance, a 50 per cent rise in food price decreases the GDP of Asia and the Pacific Region by 1.05 per cent. A combined shock of a 60 per cent rise in food and fuel prices decreases GDP by 1.41 per cent[7]. Therefore, the issue of food security should be a priority for the developing economies of Asia and the Pacific.

A recent study of countries in the Greater Mekong Sub-Region offers a rich and insightful analysis of how food producers, consumers and wage labourers were affected by the food price crisis. These are briefly reviewed in Box 1.

[4] FAO, 2010.
[5] For a detailed discussion, refer to the section on 3.3.4. Market Related Risks: Rising Food Prices and Volatility, page 3.
[6] For details, refer to chapter 3.
[7] ADB, 2008.

Box 1: Impact of food price crisis in Greater Mekong

Rice accounts for large shares of agricultural value added in these countries – ranging from 38 per cent in Lao PDR to 60 per cent in Cambodia. Total production in the four countries (Cambodia, Lao PDR, Thailand and Vietnam) was as much as 13 per cent of Asia's production and 11 per cent of the world's in 2009. It is not just a major source of income for large segments of the rural population but also a key export commodity – especially in Thailand and Vietnam. Moreover, it is the staple food in this sub-region. So the steep rise in its price in 2007-08 had large welfare reducing effects. Domestic rice prices rose sharply in Cambodia during the food crisis. On average, producer prices rose by 57 per cent between November, 2007, and June, 2008. But this varied considerably across provinces – from a low increase of 5 per cent in Siem Reap to a high of 186 per cent in Preah Vihear. In sharp contrast, a few provinces (e.g. Takeo) witnessed a slight decline. Retail prices also rose sharply with a marked variation across different provinces. By contrast, the domestic rice market in Lao PDR was relatively stable. In five major provincial markets, rice prices rose moderately, between July and December in 2007-08. Also, there were small price differentials across provinces. Vietnam, however, recorded extreme volatility during the food crisis – in Cantho and Hanoi, for example, paddy prices rose by well over 60 per cent in January-June, 2008, and then fell by over 20 per cent in Cantho and by about 8 per cent in Hanoi in July-December, 2008.

Although these economies have grown rapidly, the incidence of poverty remains high. Using the poverty line of 41.25 cents per day (2005 PPP), the headcount indices are 40.2 per cent in Cambodia, 44 per cent in Lao PDR and 21.5 per cent in Vietnam.

Estimates suggest that large reductions in rice consumption occurred as a result of higher retail prices, ranging from about 11 per cent in Lao PDR to about 43 per cent in Cambodia and Vietnam. A 50 per cent higher rice price is associated with a three percentage point increase in the headcount index in Vietnam and a 2.5 percentage point increase in Cambodia.

Some illustrative evidence also points to favourable effects on rice producers. Average annual production increased by about 7 per cent in Cambodia, 6 per cent in Lao PDR and 3 per cent in Vietnam. However, higher revenues were offset by higher input costs. Farmers incurred higher costs because of higher fertiliser prices. A combined price index for all inputs in Vietnam, in fact, rose by 30 per cent between 2007-09, while combined price index for farm products increased by 17 per cent.

As the landless rely on daily wages for their subsistence, real wage movements during the crisis are of considerable importance in assessing the poverty effects. In Cambodia, for example, in terms of the rice wage equivalent, the average wages during the crisis were lower. In rural coastal region, the daily rice wage equivalent fell from 4.67 kg in June, 2007, to 3.84 kg in June, 2008; and in the rural plains, it fell from 5.75 kg to 4.77 kg; and in rural Cambodia as a whole, from 5.09 kg to 4.43 kg. For those surviving at bare subsistence, such reductions imply substantial welfare loss.

Sombilla et al., 2010.

1.2. THE CHANGING CONTEXT FOR RURAL POVERTY REDUCTION

With the food, fuel and financial crises occurring in quick succession, exposure to shocks that enhance food insecurity and vulnerability has risen. Responses to these systemic changes has taken diverse forms: substantially higher private investments in agriculture induced by favourable market conditions, international competition for access to land, protectionist policies designed to protect domestic consumers against sharp spikes in domestic prices of food staples (e.g. rice), increases in

subsidies to agriculture motivated by concerns for food self-sufficiency, and expansion of social safety nets to protect the poor against food price volatility[8].

Some key questions from this perspective are:

- Is the capacity of agriculture to reduce poverty changing?
    - Agriculture plays at least three roles. As growth in agricultural productivity can stimulate faster economic growth, it tends to make this growth more "pro-poor" and it can provide the food supplies needed to reduce hunger. Available evidence confirms the role of agricultural growth in poverty alleviation[9]. For the Asia and the Pacific region, the elasticity of the head-count ratio of poverty with respect to agricultural growth is -1.18 (at $2 a day poverty line) and -2.73 (at $1.25 a day poverty line)[10]. For Laos, the (absolute) poverty elasticity with respect to agricultural value added (-.70) was much larger than that with respect to GDP (-.46). Moreover, over the period 1992-2007, the poverty elasticity with respect to agricultural value added (as well as with respect to GDP) became much larger[11]. For Cambodia, the (absolute value of) the poverty elasticity with respect to agricultural value added was much larger than that of GDP in 2007 (-.73 and -.51, respectively). As in the case of Lao PDR, the (absolute values of) these elasticities rose significantly over the period 1997-2007[12].
- How to manage food price volatility and ensure food security?
    - In the wake of the food price surge in 2007-08, and some evidence of rising food prices in recent months, there are growing apprehensions of food insecurity. Destabilisation of climate patterns, protectionist policies, upsurge in energy prices, and investment funds seeking speculative gains in commodity prices have rekindled fears of extreme food price volatility. At the national level, careful attention needs to be given to measures to reduce the size of price shocks, to manage risk *ex-ante* relative to price shocks, and to cope with risk *ex-post*.
- Is the discourse between large-small farms changing?
    - Attractive investment opportunities have opened up in agriculture, leading to large-scale investments and competition for land (e.g. rubber plantations in Cambodia, palm oil production in Indonesia, cereals in Kazakhstan)[13]. New sources of economies of scale have emerged, as a result of technical change (zero tillage and biotechnology), new markets (contracts with supermarket chains for large continuous and uniform deliveries) and institutional changes (e.g. access to international finance). Elimination of biases against smallholders would enhance their competitiveness. State interventions and collective action by producers' organisations would make a significant difference.
- How to ensure that smallholders have access to technology and high-value chains?
    - Of particular significance is incomplete access to information. The rapid spread of cellular phones, for example, makes it easier to access such services as mobile banking, information on market prices and technological advice from experts. But it is vital to adapt these services to local needs[14].

1.3. INNOVATIVE APPROACHES TO RURAL POVERTY REDUCTION

Innovative approaches that may contribute to reducing poverty in the rural sector are associated with (i) diversification of agriculture to horticulture, aquaculture and livestock production, (ii) emergence of supermarkets with global supply chain, the penetration of latter being much higher in South East

[8] Byerlee et al., 2010.
[9] Refer to Chapter 5 for a detailed discussion.
[10] Imai et al, 2011c.
[11] For details, see Gaiha and Annim, 2010.
[12] For details, see Gaiha and Azam (2011, in preparation).
[13] For details, see Deininger and Byerlee, 2010.
[14] Byerlee et al, 2010.

Asia than in South Asia and China; (iii) contrary to the dominant view, the prescription that labour force must move out of agriculture needs qualification in view of agriculture becoming an attractive option for investment and expansion of markets for not just staples but also high-value items; and (iv) creation of linkages between the farm and non-farm sector, and increase in the proportion of non-farm income to rural household income.

1.3.1. Diversification of Agriculture and Labour Productivity

Per capita food consumption in developing countries has shifted from cereals to high-value products such as meat, vegetable oils and milk. The demand for oil crops is growing for human and feed consumption. Aquaculture as part of the food-production sector is one of the components whose demand is increasing significantly and its production happens to be concentrated mainly in the developing world, with China accounting for 67 per cent of production. The annual growth in production of fruits and vegetables has been significant (5-6 per cent) in the period 1990 – 2005 for Asia-Pacific countries: Laos, China, Sri Lanka and the Philippines. The average annual growth rate of meat production is also high for the same period: China (9.3 per cent) and Vietnam (5.6 per cent)[15]. Apart from the crop sector, livestock and aquaculture are important sources of protein to help overcome undernourishment. Fish and its processing activity are capable of generating considerable employment at more competitive wage rates than those available in agricultural activities. Empirical evidence from Bangladesh and Vietnam shows that majority of workers in such activities are women and their wages, although low, are higher than wages in agriculture. At the regional or sub-national level, certain agro-climatic zones may offer potential for promoting high-value agriculture. The potential may have remained unexploited due to unfavourable conditions such as poor infrastructure, lack of extension services, credit facilities and access to markets. In such cases, concerted efforts are required to tap this potential.

1.3.2. Smallholders and Supermarkets

In response to changes in dietary habits and life styles, and with the liberalization of retail trade and the entry of foreign direct investment (FDI) in Asia-Pacific countries, supermarkets with global links have emerged, particularly in South East Asia. The penetration of supermarkets in 2002 crossed 51 per cent in Malaysia, 27 per cent in Thailand and 27 per cent in the Philippines. By 2015, it is likely to rise to 61 per cent, 48 per cent and 36 per cent, respectively. China, by 2015, is expected to have the highest coverage (62 per cent). South Asia, by contrast, has experienced low supermarket penetration with the level not likely to exceed 10 per cent by 2015[16]. This may be attributed to slower urbanisation and lower growth in incomes, combined with late entry of supermarkets in this region.

High inequality of land distribution and declining average farm size (especially in South Asia) pose the question: would the spread of supermarkets with global links help smallholders in generating more income and profits? The answer is that supermarkets offer both opportunities and obstacles. The main obstacle is that the supply chain imposes prohibitive costs on smallholders who often live in regions with poor infrastructure, weak credit and input support and outdated technology. ‘Intermediation’ and ‘internalization’ would enable the smallholders to overcome this problem. This would require government to provide public goods (infrastructure, food safety standards and favourable environment for enforcing contracts) and facilitate collaboration with forward looking private players in providing inputs and transferring technology to smallholders. Producers’ associations would also help improve quality and marketing of produce.

While growth of urbanisation and rising incomes fuelled the growth of a diversified agricultural sector and integration into high-value chains linked to supermarkets in some parts of Asia and the Pacific Region, following the food crisis, there is evidence of erosion of trust in markets allocating food supplies in countries worst affected, and heightened concerns for self-sufficiency in food staples. Such

[15] World Bank, 2008.
[16] Gaiha and Thapa, 2007.

concerns (reflected in protectionist policies towards rice in particular) run the risk of slowing down diversification of agriculture.

1.3.3. TRANSFER OF AGRICULTURE LABOUR TO OTHER SECTORS

Recent decades (1991-2008) have witnessed a decline in the share of agriculture and significant increases in the share of industries and associated reduction in rural poverty (e.g. China, Indonesia and Vietnam). By contrast, Bangladesh and India demonstrate that a reduction in the share of agriculture value added accompanied by an increased share of value added of the services sector in GDP has not succeeded in significantly reducing rural poverty. It suggests that the process of moving from agriculture to services perhaps needs to be mediated by industry. Unlike in China and Vietnam, the linkage between agricultural (rural) and industry (mainly around urban centres) remained weak in major South Asian countries. South Asia's movement from an agriculture-based economy to a transforming economy occurred without the rapid transfer of agricultural labour to industry. The rural poor seem to have moved from agriculture to the service industry which is seemingly concentrated in and around urban and peri-urban centres. A conclusion drawn from such evidence is that labour must move out of agriculture and employment opportunities need to expand elsewhere to absorb it[17]. It is, however, problematic to rely on large labour transfers out of agriculture when investment opportunities are expanding in agriculture and markets are growing for not just food staples but also for high-value food (e.g. vegetables, fruit, and livestock products).

1.3.4. NON-FARM INCOME AND RURAL POVERTY

It is now well recognized that rural economies are not purely agricultural and that farm households across the developing world earn an increasing share of their income from non-farm activities. On average, rural non-farm income (RNFY) constitutes roughly 50 per cent of rural household income in Asia and the Pacific Region. Availability of human, financial and physical capital is a major determinant of participation in non-farm activities. Due to paucity of such capital, the poor households often remain confined to the low-productivity non-farm activities, which offer few pathways out of poverty. Meanwhile, richer and more educated households often find more lucrative non-farm opportunities. Likewise, gender, caste and social status also determine the chances of participation of being engaged in more lucrative non-farm jobs. In general, women and disadvantaged social groups have limited access to the most lucrative rural non-farm activities.

From a longer-term perspective, it is also acknowledged that agriculture *per se* cannot be a way out of poverty for all rural people. With constraints on farm expansion and continuing growth of rural population, greater attention is thus being given to non-farm activities in mitigating poverty[18]. However, the poverty implications of promoting rural non-farm activities (RNFA) are not straightforward. For a clear understanding, policymakers will have to understand the rural farm households' motives for diversification into RNFE. While the well-to-do farm households generally undertake diversification for accumulation objectives, the not-so-wealthy ones seek diversification into non-farm activities to manage risks, cope with shocks, or escape from stagnant agriculture. In the latter case, the poor household adds the equivalent of subsistence level non-farm income to a poor farm income base. Under these circumstances, growth in RNFE leads to poverty reduction. If to the direct effect of RNFE is added the indirect effect through a tightening of the labour market and a consequent rise in wage rates, the poverty reduction is substantial.[19]

[17] See, for example, WDR 2008, and Byerlee et al., 2010, among others.
[18] For details, refer to chapter 6.
[19] For recent analyses of the Indian experience, see Gaiha and Imai, 2007, and Kaur et al., 2010.

1.4. FINANCIAL CRISIS, POVERTY AND HUNGER

The recent financial crisis got manifested in Asia and the Pacific Region in terms of slowdown of GDP growth rate during 2008 and 2009 in all major economies, including China and India; slackening of export growth due to shrinking demand in the developed economies of the west for export items of the developing countries; and financial institutions, mainly banks, becoming more risk averse and reducing channelling of their funds to small (particularly, micro) financial institutions.

Financial sector development impacts undernourishment in different ways. First, savings and credit help consumption smoothing when there are income or other shocks. Second, access to financial services eases the financing of productive investment in, say, agricultural equipment, thereby raising yields and incomes of smallholders, and reducing undernourishment. Third, there may be an additional benefit to low income households – especially those without access to financial services – as higher yields translate into higher food output and lower prices. Thus private credit may reduce substantially undernourishment through higher GDP and/or agricultural productivity, in general, and higher livestock, crop and cereal yields, in particular[20].

From this perspective, the effects of the contraction of the global economy that followed the unfolding of the financial crisis in 2008-2009 are summarized briefly. These findings are based on an analysis of a panel of 9 Asian countries[21]. Although emerging Asian countries (notably China and India) recovered quickly and helped prevent a global recession, the effects of credit contraction and deceleration of growth in Asia and the Pacific Region were in a few cases severe[22]. The results suggest that finance contributes to both GDP and agricultural productivity growth, reduction in undernutrition/hunger, and a reduction in income inequality.

Cambodia's experience during the financial crisis is illuminating (Box 2).

[20] Following FAO estimates, undernutrition is measured as proportion of undernourished in a population.
[21] Imai et al., 2009.
[22] There are measurement and analytical issues in analyzing the relationship between finance and growth that are outside the scope of this Report. Briefly, finance could be measured in terms of private credit as share of GDP or share of financial system deposits in GDP. Analytically, there is a two-way causality between finance and growth. For details of how these measurement and analytical issues are addressed, see Imai et al., 2009.

Box 2: Financial Crisis and Poverty in Cambodia

Cambodia grew rapidly and sustained it over an extended period of time. GDP per capita nearly tripled during 1994-2008 (rising from $248 to $739). The GDP growth averaged 10 per cent per year during 2003-08, rising to 13.3 per cent in 2005. However, growth slowed down in 2008 as the financial crisis turned into a recession in the advanced economies. The growth rate fell to 6.7 per cent. There was a marked reduction in headcount index of poverty – from 47 per cent in 1993 to 30 percent in 2007, a reduction of about 17 percentage points over a period of 13 years[23].Over the more recent period, 2004-2007, the headcount index reduced from 35 per cent to 30 per cent-a reduction of 5 percentage points. So, despite the marked reduction, a little under one-third of the population lives below the poverty line. The headcount poverty index relative to the food poverty line also decreased, but only from 19.7 per cent in 2004 to 18 per cent, due largely to rapid food price inflation.

With the onset of the financial crisis, the difficulties reported, especially in poor areas, include job loss/reduction in income, lack of money to repay loans, and medical expenses. Many households reported switching to less preferred/cheap food, reduced daily food consumption, buying food on credit, or taking out more loans. Women frequently bore the brunt of the hardships as they reduced their consumption more so that there was more for men, and were also conduits for obtaining loans as they were considered more reliable for repayment of loans. A large majority of households raised livestock and a considerable number were forced to sell their livestock in the first 6 months of 2009.

A two-pronged strategy may be articulated for Cambodia: strengthening of social protection and safety nets to protect better the poor and vulnerable against economic shocks, while fiscal and monetary policies seek to stimulate a sluggish economy; and, in the longer-term, the focus will be on improving agricultural productivity, diversification and expansion of the economic base and its integration into the larger regional economy. As Cambodia is likely to remain a rural economy with agriculture as the main source of livelihood for a vast majority of its population, it is vital to increase substantially investment in rural infrastructure, extension, business development, food processing and trade expansion.

Source: Gaiha and Azam, 2011.

An important message is that Asia-Pacific countries need change in the financial system to facilitate flow of funds/credit to small entrepreneurs and micro finance institutions (MFIs)[24].

[23] The poverty line comprises two components: the cost of a food consumption bundle required to obtain 2100 calories per person per day; and the minimum consumption level required to meet basic non-food needs (clothing, housing, health care, education, among others). This poverty line is calculated separately for different regions with different consumption patterns and price levels. The average national poverty line for 2007 was 2470 Riels per capita or about $0.61 (at an exchange rate of R 4062 in 2007). For an elaborate and meticulous review of the methodology, see World Bank, 2009.

[24] For an elaboration, see Imai et al., 2011 a, b.

Real wages in selected Asian countries – a correlate of poverty – were adversely affected during the crisis period, 2006-2009, as shown in the table below.

Table 2: Growth Rates of Monthly Wages in Asia and the Pacific Region, 2000-2009

	2000-05	2005-06	2006-07	2007-08	2008-09
China	12.6	12.9	13.1	11.7	12.8
India	2.6	0.4	–0.6	8.3	-
Indonesia	10.4	–6.1	–1.1	–2.4	–0.3
Malaysia	3.5	0	3.2	–4.7	1.4
Mongolia	2.4	20.9	25.1	25	3.1
Philippines	–1.1	0.5	–1.0	–4.3	1
Sri Lanka	–0.7	1.1	–4.8	–4.6	1.6
Thailand	–1.0	1.5	0.7	4.5	–1.6
Kazakhstan	10.2	10.2	16.1	–1.1	3.2
Kyrgyzstan	9.4	18.6	10.2	8.8	7.2
Tajikistan	16.7	25.6	24.2	18.2	18.3

Source: ILO, 2010a

In most countries, there was a fall or slowing down of growth in monthly wage rates. The wage rates declined in India, Indonesia, the Philippines and Sri Lanka in 2006-07. In Indonesia, Sri Lanka and the Philippines, the decline continued in 2007-08. Malaysia and Kazakhstan also recorded a decline in 2008-08. China, Kyrgyzstan and Tajikistan did not witness a decline but a deceleration.

1.5. KEY MESSAGES

First, the food price spike (2007-08) was not uniform across Asia-Pacific countries. Structural factors, especially food-energy price nexus, have contributed to foodgrain price hike. It is feared that the more recent food-oil price surge may persist for some time. Further, the financial crisis that followed in its wake caused severe hardships in some of the poorest countries in the region. For all these regions, food security is a priority.

Second, despite a decline in its share in GDP, agriculture plays a crucial role in poverty reduction. In fact, in some of the poorest countries in Asia and the Pacific (e.g. Cambodia and Lao PDR), not only does agricultural growth reduce poverty more than GDP growth but the contribution of the former has also increased. In order to raise agricultural value added per worker, however, policy makers and donors must look beyond the traditional crop/farm system.

Third, diversification of smallholders and their integration into high-value chains is a challenge. Stronger linkages between farm and non-farm sectors are necessary, as also the quality/grading standards.

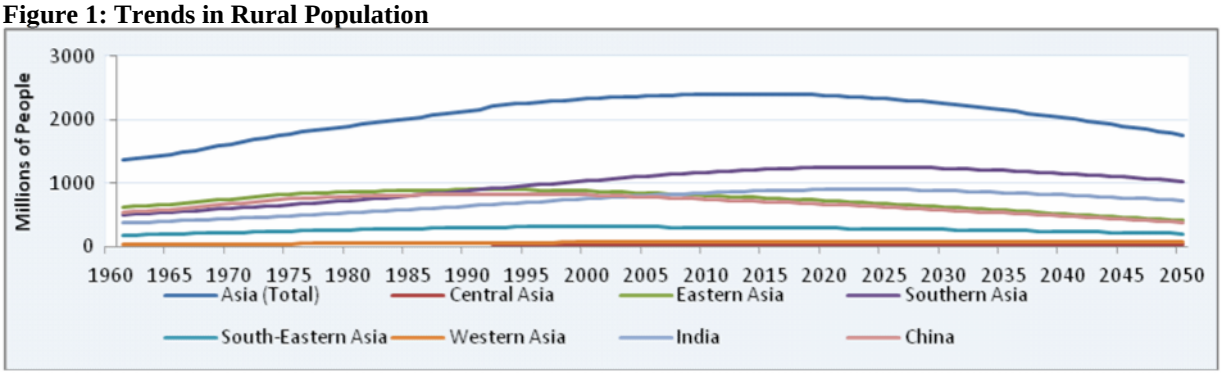
Fourth, in this transformation, the State has a key role in exploiting the untapped high potential for agricultural diversification, integrating smallholders with supermarkets and supply value chains, supplying inputs and technology to smallholders, and ensuring access to information.

CHAPTER 2: THE STATE OF RURAL POVERTY TODAY

2.1. MEASURING RURAL POVERTY AND HUNGER

Despite rapid urbanization, the population of the developing world remains more rural than urban, and the numbers continue to grow. As seen from Figure 1, the rural population in Asia and the Pacific Region is expected to peak in 2014, with the total numbering 2400 million, and declines thereafter. In South Asia the peak is expected in 2024. However, the rate of growth of rural population in the region as a whole and in South Asia has already slowed down, mimicking the declines experienced in Central Asia, East Asia, and South East Asia. In China, the rural population has been declining since 1992.

Figure 1: Trends in Rural Population



Source: FAOSTAT.

2.1.1. RURAL SHARE OF TOTAL POVERTY

In 2005, the total number of people living in extreme poverty, defined as those living on less than US$1.25/day (2005 PPP) was 1.4 billion in the world. Of these, approximately 1 billion, i.e. about 70 per cent live in rural areas. With respect to the rural share of total poverty, there are some interesting trends. In almost every sub-region of Asia and the Pacific Region, poverty is primarily a *rural* problem; over 70 per cent of the poverty is in rural areas. There has been a substantial reduction in the rural share of total poverty in the last decade (a decline from 86 per cent to 73 per cent). The percentages are higher for South Asia (80.7 per cent) and South East Asia (74.5 per cent). South East Asia, however, made extraordinary advances in bringing the proportion of rural population in total poverty down from 95 per cent to 75 per cent in the last decade. Similarly, in East Asia, the rural share of total poverty has reduced significantly from 85 per cent to a little over 50 per cent in the last 20 years. By contrast, in South Asia, about 80 per cent of the poverty remains a rural problem *despite* rapid industrialization and economic growth. More worrisome is the fact that the proportion of rural poor has barely declined over the past two decades (Figure 2).

2.1.2. RURAL POVERTY INCIDENCE

The incidence of rural poverty has declined from 59 per cent to 31 per cent in the last two decades for the region as a whole. While in East Asia, poverty as a share of rural population is close to 15 per cent, in South Asia over 45 per cent of the rural people are poor. Further, almost every sub-region of Asia and the Pacific Region experienced massive reduction in proportion of rural poor as percentage of rural population over the past two decades. For instance, in East Asia the rural poverty incidence declined from over 63 per cent to 15 per cent over the past two decades. Similarly, in South East Asia the incidence of rural poverty declined from 52 per cent to about 26 per cent in the last two decades (Figure 3).

Figure 2: Rural Share of Total Poverty
(% of those living under $1.25 a day)

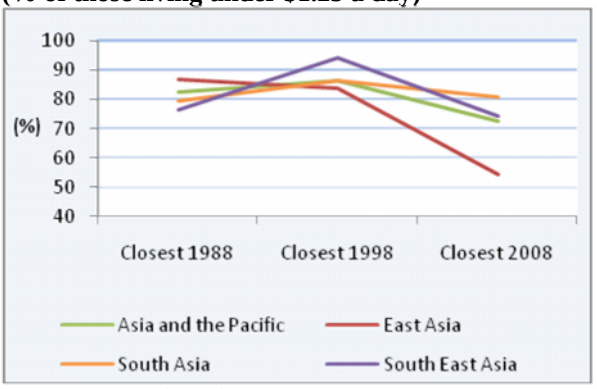
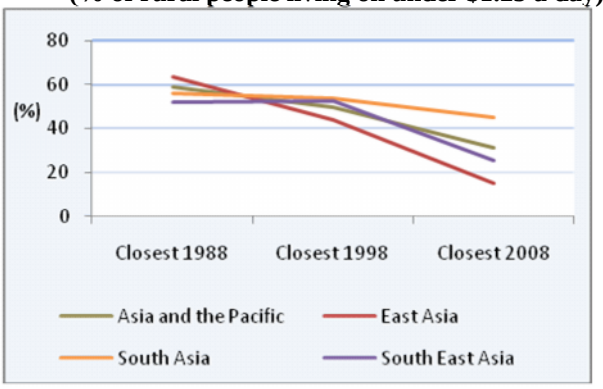


Figure 3: Rural Poverty Incidence
(% of rural people living on under $1.25 a day)



Source: IFAD (2011)

These statistics, however, do not reveal large within country variations, especially between remote mountainous regions and the rest. The following box on Nepal illustrates this.

Box 3: Interregional variations in Poverty in Bhutan, Nepal and India

National poverty estimates do not reveal the differences between remote mountainous and other regions. Not only is the poverty incidence often much higher in the former but the rate of reduction over time is also much slower *despite* substantial economic growth. Some illustrative evidence, based on a detailed analysis of household data for Nepal and Bhutan is summarised below.

In Nepal, poverty is much higher in the mountainous region. By contrast, while the mountainous parts of India are not poorer than the rest, there are marked disparities among the different states of the Indian Himalayan region. Although all of Bhutan is mountainous, Eastern Bhutan lags far behind the rest in terms of poverty and other proximate indicators of well-being (e.g. access to basic amenities and connectivity to markets).

A striking contrast emerges from a comparison of poverty across different regions in Nepal. In the mountains and hills, the headcount ratio of poor declined from 47.7 per cent in 1996 to 40 per cent in 2003; in the plains, the reduction was from 40.3 per cent to 27.6 per cent; and, in Kathmandu Valley, from a low of 7.2 per cent to 3.7 per cent. In both Bhutan and Nepal, there is a strong systematic relationship between isolation and poverty, as remoteness in terms of limited access to roads, markets and public services (mainly education and health care) is correlated with prevalence of poverty. Besides, greater vulnerability to natural hazards (e.g. wind storms, landslides) is compounded by absence of social protection.

The policy implications of such disparities in living standards are profound. Whether low population densities in such remote areas impede policy outreach merits close scrutiny.

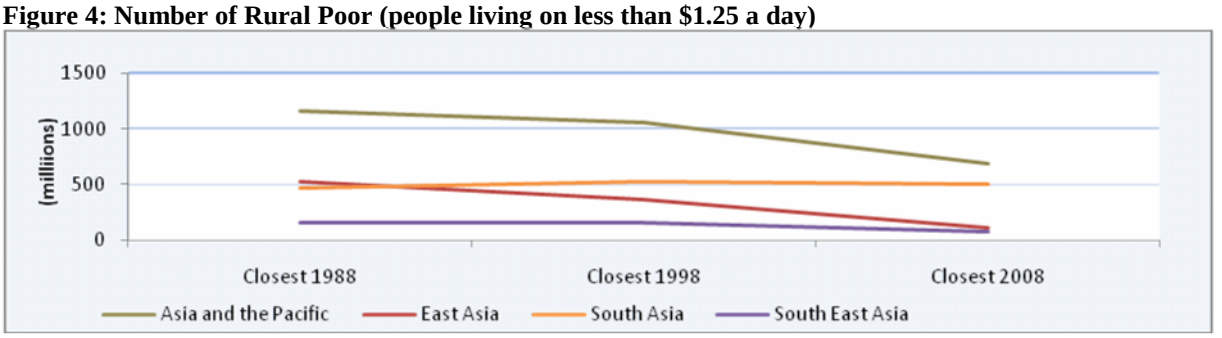
Source: ICIMOD (2010).

2.1.3. Number of Rural Poor

As illustrated in Figure 4, rural poverty has declined rapidly in Asia and the Pacific Region over the past decade (from 1057 million to 687 million). This has been on account of an extraordinarily fast decline in number of rural poor in East Asia. East Asia has been the centre of an "economic miracle". In the last three decades, poverty in this sub-region has declined by about two thirds. While it had over 500 million rural poor two decades ago, the number today stands at only 117 million. Rural poverty in South East Asia too declined over the period. However, the decline was seen only in the last decade. Amongst the Asia-Pacific sub-regions, South Asia has the largest number of poor rural

people. Further, the absolute number of rural poor in this region increased before it started to decline somewhere around 2000. Despite the reduction in South Asia, the number of rural poor today is higher than what it was two decades earlier.

Figure 4: Number of Rural Poor (people living on less than $1.25 a day)



Source: IFAD (2011)

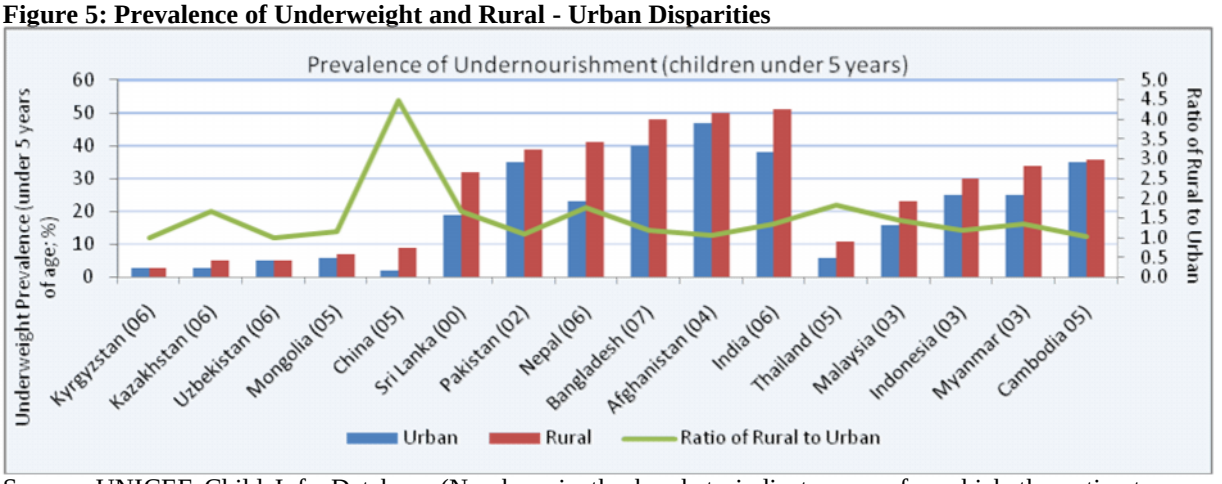
2.1.4. UNDERNOURISHMENT

An aspect of deprivation in Asia and the Pacific Region is the high prevalence of undernourished children, and its persistence over time, especially in South Asia. Figure 5 shows the prevalence of undernourished children in Asia-Pacific countries along with the rural-urban disparity. India, Afghanistan and Bangladesh have close to 50 per cent of rural children who are undernourished. For almost each country (except Kyrgyzstan), the ratio of rural to urban underweight prevalence is greater than 1. Further, this ratio is higher in China, Thailand, Nepal and Sri Lanka.

Most of the Asia-Pacific countries have made progress in reducing hunger. High achievers in this category include Sri Lanka, Indonesia, Vietnam, Bangladesh, Lao PDR and China. Slower progress has been made by India, Pakistan, the Philippines and Nepal[25].

Recent evidence suggests that child undernourishment is linked not just to income deprivation but, more importantly, to women's employment and education[26].

Figure 5: Prevalence of Underweight and Rural - Urban Disparities



Source: UNICEF Child Info Database (Numbers in the brackets indicate years for which the estimates are given).

[25] IFAD, 2011.
[26] FAO, IFAD and ILO (2010); for details, refer to the section on Rural Women, p. 3.

2.2. THE LIVELIHOODS OF POOR RURAL HOUSEHOLDS

2.2.1. WHAT DO THE RURAL HOUSEHOLDS DO?

Despite wide-ranging diversities in the region, many poor rural people in Asia and the Pacific Region are either landless or own a limited piece of land, possess large families, are less educated and have limited access to credit and technology. In addition, lack of market information, business and negotiating experience and collective organisations deprive them of the power to compete on equal terms in the marketplace. Box 4 delineates the characteristics and determinants of poverty in Cambodia.

Box 4: Determinants of Rural Poverty in Laos and Cambodia

In Laos, poverty is primarily a rural problem. In 2002-03, about 86 per cent of the poor lived in rural areas. This fell to about 81 per cent in 2007/8. Also, the rural headcount index was just under twice as high as in urban areas (31.7 per cent and 17.4 per cent, respectively). The spatial and temporal variations in poverty in Laos can be explained by geography, market access through roads and ethnicity. The overall poverty is higher in the Uplands (relative to the Lowlands); it is also higher in villages without access to roads (relative to those with access); it is higher among the Mon-Khmer and Hmong-lu Mien minorities, relative to the Lao-Tai majority.

In Cambodia, the chances of being poor vary negatively with household heads age but at a diminishing rate. Large households are more likely to be poor. On the other hand, male-headed households and Khmer households are less likely to be poor. There are lower risks of poverty among small and large farmers, relative to the landless and marginal farmers. Security of land title has a significant role in lowering the risk of poverty. Presumably, this acts as an incentive to making longer-term investments in technology that enhance yields. Educational attainments have large poverty reducing effects. The higher the educational attainment of household heads, the lower is the risk of poverty relative to the landless and marginal farmers. Diversified sources of income act as a cushion against market and other shocks. The larger the proportions of households using electricity and irrigation in a village, the lower were the chances of being poor. As lack of market access constrains income earning opportunities (for example, remunerative prices for agricultural produce), access to an all-weather road lowers the risk of poverty, pointing to the priority of expanding access to all-weather roads in a rural poverty reduction strategy.

Source: Gaiha and Annim (2010), and Gaiha and Azam (2011).

A stylized fact about rural poverty in many parts of Asia and the Pacific Region is that 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 India, for example, 20 per cent of the households earn their incomes solely from agriculture[27]. Given the constraints on farm expansion and continuing growth of the rural population, greater attention is being given to non-farm activities in view of their potential for economic development and poverty reduction[28]. In fact, as discussed in Chapter 1, countries that have succeeded in sustained rural poverty reduction have generally promoted both agriculture and non-farm rural economy. Occupational diversification is also a major way of managing risk for poor people with few risk management options. (Refer to Box 5 for a discussion of occupational diversification among smallholders in India). Development of rural non-farm economy (RNFE) is especially important for women and groups that are disadvantaged in agriculture. Evidence shows that RNFE constitutes roughly 50 percent of rural household income in Asia and the Pacific Region, of which 40 per cent comes from local non-farm business and

[27] Desai et al., 2010.
[28] Haggblade et al., 2007; Unni and Raveendran, 2007; Eswaran et al., 2008; Gaiha and Imai, 2007; Lanjouw and Murgai, 2008.

employment and the remaining from transfers and remittances[29]. In Bangladesh, 54 percent of rural income comes from RNFE[30].

Box 5: Smallholders and Occupational Diversification in India

That the focus on smallholders does not necessarily imply exclusion of labourers is illustrated below with National Sample Survey (NSS) data for India for 1993 and 2004. An important point is that, since smallholders eke out a bare subsistence if the soil quality is poor, access to markets is remote, technology is outdated and product mix is not remunerative, they are forced to pursue other livelihood options. Typically, household income is supplemented by working on neighbouring farms or elsewhere. The NSS data show the following:

- Defining smallholders as operating/owning land <2 ha, they accounted for about 71 per cent of the rural households in 1993 and about 88 per cent in 2004. So the proportion rose over this decade.
- Among those in the lower land interval 0-1 ha, about 28 per cent were self-employed in agriculture in 1993 and a slightly lower proportion (over 24 per cent) in 2004. A little under half of households in this interval (about 48 per cent) worked as labourers in 1993 and a slightly lower proportion (about 46 per cent) did so in 2004.
- In the next higher class 1-2 ha, three fourths of the households were self-employed in agriculture while a considerably lower proportion worked as labourers (13.50 per cent) in 1993. About the same share were self-employed in agriculture (over 75 per cent) while a slightly lower proportion (about 12.50 per cent) worked as labourers.
- Of agricultural labourers, three fourths operated/owned land in the interval >0-2 ha in 1993 and about 98 per cent in 2004.

In sum, the *overlap* between smallholders and labourers is large, suggesting that a sharp dichotomy between them runs the risk of a false separation. Several policies designed to enhance the welfare of one would benefit the other too. Higher productivity, for example, would enhance the welfare of smallholders as well as agricultural labourers.

Source: Thapa and Gaiha, 2011.

2.2.2. MOVING IN AND OUT OF POVERTY

Following the *Chronic Poverty Report* (2004-05), poverty is not a static condition. While some become poor, few exit out of poverty, still others remain poor. The *chronically poor* include those who are always poor (always below the poverty line) and the usually poor (for majority of the time, they are below the poverty line). The *transitory poor* include the fluctuating poor (who are sometimes below and sometimes above the poverty line) and the *occasionally poor* (who are above the poverty line for majority of the time). The last category is that of the *never poor*. Mobility out of poverty is generally associated with higher education and livestock ownership. The 'chronically poor' have few assets to meet even their short-term survival needs. They have little or no political 'voice' and are usually based in remote locations, with poor or non-existent public services, high levels of violence and desperate living conditions. They are victims of social discrimination based on class and caste systems, gender, religious and ethnic identity, age and other factors. They have limited work opportunities, which allow only day-to-day survival[31].

Factors that are associated with households descending into poverty include high dependency ratio, size of households (as in Vietnam) and women-headed households (as in Indonesia). Shocks due to price volatility and natural disasters also affect the vulnerable households and frequently push them

[29] Haggblade et al., 2010.
[30] Hossain, 2004.
[31] CPRC, 2009.

into poverty (for a detailed analysis, refer to Chapter 3). Poverty dynamics for a select list of Asia-Pacific countries is summarised in Table 3.

Table 3: Dynamics of Poverty in Selected Asia-Pacific Countries

Country and Year	Never Poor (%)	Poverty Exits (%)	Poverty Entry (%)	Chronic Poverty (%)	Study
Rural Vietnam (1992-98)	20.4	39.3	12.2	28.1	IFAD (2011)
Rural Indonesia (1993-2000)	64.2	19.7	9.6	9.6	IFAD (2011)
Rural Bangladesh (1998-2000)	25.1	25.8	17.7	31.3	CPRC (2004)
Rural China (1991-95)	67.9	15.2	7.3	9.6	CPRC (2004)
Rural India (1971-82)	38.5	22.8	13.3	25.3	CPRC (2004)
India (NCAER panel) (1969-71)	33.3	36.7		30.0	Gaiha (1988)
India (ICRISAT panel) (1976-84)	21.8	65.8		12.4	Gaiha and Deolalikar (1993)
China (1985-90)	6.2	47.8		46.0	Jalan and Ravallion (1999)
Pakistan (1986-91)	3.0	55.3		41.7	McCulloch and Baulch (2000)
Indonesia (1997-98)	8.6	19.8		71.6	Skoufias et al. (2000)

Source: For Rural Vietnam and Indonesia: Annexure 4 of the Global Poverty Report; For Rural India, Rural China and Rural Bangladesh: Chronic Poverty Report 2004-05; For India, China, Pakistan and Indonesia: Baulch and Hoddinot (2000).

Given the differences in the time frames, poverty lines and the welfare metric, precise comparisons are ruled out. However, some broad conclusions emerge.

1. The percentage of households that are sometimes poor is always greater than those who are always poor.
2. The degree of movement in and out of poverty, and the speed with which conditions change are remarkable. For instance, in rural Indonesia, while 9.6 per cent of the population remained always poor, over 30 per cent of the population moved in and out of poverty.
3. While poverty may be a transitory phenomenon for many of the poor, the number of rural poor who remain trapped in poverty is non-negligible. From a policy perspective, it is important to identify and differentiate between the transient and persistently poor. Development assistance should be targeted primarily to the chronically poor as their upliftment is not possible without such assistance on a sustained basis.

Agriculture can play a strong role in influencing chronic poverty. CPRC research on rural poverty dynamics (2008-09) highlights three pillars that can contribute to creating paths out of rural poverty.

1. *Infrastructure, especially transport*: It gives households greater opportunities to gain from specialisation in production, enhances competition between traders by diluting the power of local monopolies and monopsonies, improves food security by making distribution of food easier, and reduces the travel costs for those seeking work outside their immediate locality.
2. *Education*: Education increases productivity within agriculture, a sector in which the majority of the chronically poor will continue to be engaged; enables households to find jobs in non-farm sector –a sector that has the potential of making households exit poverty; and facilitates successful migration to urban areas.
3. *Access to information*: Access to information on job opportunities, prices and latest technologies.

2.3. MULTIDIMENSIONALITY OF POVERTY

It is now well recognized that income poverty is poverty of only one kind. Economists and policymakers, following Amartya Sen's[32] seminal contribution, have argued powerfully for the need to take a multidimensional approach to poverty and deprivation[33]. Multidimensional poverty includes other intrinsically important dimensions along with income. For instance, in several parts of Asia and the Pacific Region, rural poverty can be defined primarily in terms of non-income deprivations. Interlocking disadvantages often reinforce each other, and thus contribute to making it even more difficult to move out of poverty. Alkire and Santos construct a multidimensional poverty index (MPI) for households across 104 countries. The MPI is measured using ten indicators based on health (mortality and nutrition), education (years of schooling and child enrolment) and standard of living (electricity, sanitation, water, flooring, cooking fuel and ownership of consumer durables). The indicators chosen are along the lines of the Millennium Development Goals (MDGs). One of the strengths of the MPI is that, although it summarizes the information on multiple and coupled deprivations into one single number, it allows the poverty composition to be unpacked, identifying the most prevailing deprivations. Some interesting conclusions are:

1. Intensity of MPI poverty is greatest in South Asia, which houses 29.5 percent of the total population, but has 51 per cent of the world's multi-dimensionally poor.
2. With respect to the *South Asian countries*, India, Bangladesh, Nepal and Pakistan have high MPIs. In fact, 51 per cent of the population in Pakistan, 58 per cent in Bangladesh, 55 per cent in India, and 65 per cent of population in Nepal are MPI poor. The corresponding figure for Sri Lanka is only 5 per cent. Moreover, the poor are deprived on average in more than half of the (weighted) indicators. Amongst the three parameters constituting MPI (viz. health, education and standard of living), the study finds that living standard has the highest contribution to poverty in India, Bangladesh and Nepal. Deprivation rates in health parameters are high in Pakistan and Nepal. Deprivation in terms of nutrition is particularly high in Nepal and India.
3. With respect to MPI in *East and South East Asia*, China has only 13 per cent of the population that is MPI poor, while Thailand has only 0.8 per cent. On the other hand, in Cambodia, 50 per cent or more of people live in poor households which lack electricity, improved sanitation, and cooking fuel; 30 per cent are deprived of a safe source of drinking water; and 23 per cent are deprived in assets. Between 15-26 per cent of Cambodians are poor and deprived in terms of education and health indicators.
4. Between 2004 and 2007, Bangladesh saw an MPI reduction of 22 per cent. The indicator which contributed the most to the declining MPI was the reduction in Child Enrolment deprivation. Furthermore, poverty reduction was larger in urban areas than in rural ones. The increasing ratio of rural to urban MPI indicates the need for policy makers to broaden the focus of anti-poverty strategy.

Poor people identified by the MPI are not necessarily the same as the poor people identified by international income poverty criteria. The overlap is far from perfect, especially in the poorest countries. Based upon their estimates, we present in Table 4 the relationship between income poverty and MPI for countries in Asia and the Pacific Region.

Within rural societies, women, youth and indigenous people are often disproportionately affected by disadvantages that tend to make mobility out of poverty even harder. However, people in these groups possess capabilities and assets (e.g. indigenous knowledge systems) that could be tapped to enhance their well-being. Unfortunately, social and political power distribution tends to undermine their ability to utilize these assets to move out of poverty.

[32] Sen, 1999.
[33] Sen, 2000; Alkire and Santos, 2010.

Table 4: Multidimensional Poverty

		Multidimensional Poverty		
		Low MPI (0-0.03)	Medium MPI (0.03 – 0.25)	High MPI (0.25 and above)
Income Poverty (<$1.25 a day)	Low (0-0.1)*	Thailand, Kazakhstan	Indonesia	-
	Medium (0.1-0.25)*	Sri Lanka, Kyrgyzstan	China, Mongolia, Philippines, Vietnam, Tajikistan	Pakistan
	High (0.25 and above)*	Uzbekistan	-	Cambodia, India, Laos, Nepal, Bangladesh
Income Poverty (<$2 a day)	Low (0-0.2)*	Thailand, Kazakhstan	Turkey	-
	Medium (0.2-0.6)*	Sri Lanka, Kyrgyzstan	China, Philippines, Vietnam, Indonesia, Mongolia, Tajikistan	-
	High (0.6 and above)*	Uzbekistan	-	Pakistan, Cambodia, India, Laos, Nepal, Bangladesh

* Denotes the proportion of population below the poverty line.
Source: Based on Alkire and Santos (2010).

2.3.1. RURAL WOMEN

Although there is evidence of rising rates of female-headed households, gender-blind statistics make it difficult to substantiate the claim that the number of women living in poverty is higher than that of men[34]. However, because of their weaker and conditional basis of their entitlements, women are more vulnerable to poverty and, once poor, have fewer options to escape from it. Also, because of gender discrimination in the household and the market, there is usually unequal distribution of resources leading to women experiencing a greater severity of poverty than men.

In many societies, women suffer disproportionately from the burden of poverty and are systematically excluded from access to essential assets. They face gender disparities in education, nutrition, economic opportunities and wages. Improving the status of women and empowering them is thus important in addressing poverty broadly interpreted. Women's empowerment needs to occur along multiple dimensions including economic, socio-cultural, familial/interpersonal, legal, political, and psychological[35]. It provides important socioeconomic returns through reduced health and welfare costs and lower fertility and maternal and infant mortality rates. Driven by the motivation to involve women in the development process and recognizing that women occupy the ranks of the poorest and that they spend their earnings more on family welfare, governments, development practitioners and donor agencies have focused on microfinance as a strategy capable of reaching and empowering women[36]. A study of Small Enterprise Development Programme (SEDP) in Bangladesh found that women's contribution to the household contributed to the reduction in abuse and strengthened their relative position within an interdependent relationship with their husbands[37]. In Nepal, Working Women's Forum found that 40.9 percent of its members who had experienced domestic violence stopped it because of their personal empowerment, while 28.7 percent were able to stop it through group action[38]. The World Bank[39] has identified four key elements of empowerment to initiate

[34] IDS, 2001.
[35] Malhotra et al., 2002.
[36] Kulkarni, 2010.
[37] Kabeer, 1998.
[38] Cheston and Kuhn, 2002.

institutional reforms: access to information; inclusion and participation; accountability; and local organisational capacity.

The OECD Social Institutions and Gender Index (SIGI) is a composite measure of gender discrimination based on social institutions. It measures inequality in five areas, namely, Family Code, Physical Integrity, Son Preference, Civil Liberties and Ownership Rights across twelve indicators. For countries in Asia and the Pacific Region, while significant gender parity is observed in Kazakhstan, the Philippines and Thailand, there are marked gender disparities in Bangladesh, Pakistan, India and Afghanistan[40]. Giving women voice and promoting their full participation makes an important contribution to the overall development of society. Table 5 shows variations in women's empowerment in terms of their having a say in key life transitions, such as willingness to work, study or marriage. Data reveal that in, general, amongst the four countries analyzed, Bangladesh is the worst in terms of women's empowerment.

Table 5: Women's Empowerment (Per Cent of Women Having a Say in Key Life Transitions)

	Bangladesh	Malaysia	Tajikistan
Work	50	89	53
School	18	82	32
Marriage	4	82	25

Source: *World Development Report*, 2007.

A study of West Bengal, India, reports that among women who had taken loans for income-generating activities, only 5 per cent reported having total autonomous control over the money; 56 per cent reported that they share control over the loan money with their husbands; and 38 per cent reported that their husbands have sole control over the proceeds of the loan[41]. In Bangladesh, although women who took loans reported having a sense of self-worth, these subjective perceptions did not translate into actual changes in well-being or improved gender relations at home[42].

Gender inequalities in education

In the case of primary education, gender parity was achieved or almost achieved in most countries of this region by 2006, including India and Nepal and, to a lesser extent, in Cambodia, Lao PDR and Solomon Islands. However, further effort is needed in Afghanistan and Papua New Guinea, as there was negligible or no progress in achieving gender parity over the period 1991-2006. As for secondary education, gender parity has been achieved in East Asia, Central Asia, and most countries of South East Asia. However, gender gaps remain large in South Asian countries, with the exception of Sri Lanka. In Afghanistan, there has been a reduction in the ratio of girls' to boys' secondary school enrolment rates between 1991 and 2006[43]. In Bangladesh, the adult literacy rate for rural women is only 36.2 per cent in comparison to 60 per cent for urban women and 56.1 per cent for rural men[44].

Gender inequalities in economic opportunities

Economic independence results in higher bargaining power for women in the households and in their communities, and subsequently in higher prestige and self-esteem[45]. However, women's share in non-agricultural wage employment remains low, particularly in South Asia (with the exception of Maldives and Sri Lanka). This reflects limited mobility of women, constrained, at least partly, by

[39] World Bank, 2001a.
[40] OECD SIGI Database, 2009.
[41] Basu, 2006.
[42] Kabeer, 1998.
[43] ADB, 2009a.
[44] FAO, 2005.
[45] Kulkarni, 2010.

cultural and social factors and limited access to education and health in these countries[46]. Women, particularly in developing countries, are more likely to be engaged in the informal sector, which offers low wages, no formal social protection, and limited opportunity to gain skills. The factors that push women into disadvantaged economic position vis-à-vis men are employment segmentation (women are disproportionately employed in low-quality jobs, including jobs in which their rights are not adequately respected and social protection is limited) and high unpaid work burdens.

Gender disparities in nature and extent of work

Disparities continue to exist between men and women in the workplace. An IFAD study (1999) found that women in Nepalese hill districts worked for 16 hours a day, compared to 9-10 hours for men[47]. In Pakistan, women were responsible for many tasks that are physically demanding, such as fetching water, and agricultural and household work. They also do not have an opportunity to go to school. Besides, in Yunnan Province of China, women spent 2-3 hours daily carrying 70-80 kilograms of fuel wood from far flung areas to their homes. Similarly, in the Philippines, rural women worked up to 16 hours a day, much longer than their male counterparts[48].

Box 6: Gender Disparities

A joint study by IFAD, FAO and ILO shows that in 2000, for South Asia, 24 per cent of adult women were employed in agriculture (of these, 13 per cent were self-employed and 11 per cent were wage earners) vis-à-vis 55 per cent of adult men (33 per cent self-employed and 21 per cent wage earners). By contrast, only 6 per cent women were employed in non-agricultural activities (the distribution between self-employed and wage earners being almost equal), as compared to 27 per cent of adult men. Most of female non-agricultural activities are home-based, reflecting prevailing strict norms of women's seclusion, particularly in parts of Afghanistan, Bangladesh and Pakistan. The share of non-active (or non-reported) women adults was found to be 64 per cent, more than four times the share of adult men found to be inactive. The male-female differential is found to be smaller for East Asia and the Pacific (excluding China). The proportions of adults employed in agriculture are 44 per cent (female) and 56 per cent (male); in non agriculture are 20 per cent (female) and 29 per cent (males); and 36 per cent (females) and 14 per cent (males) are found to be inactive.

Source: FAO, IFAD, ILO (2010).

Gender Inequalities in Wages

One of the most visible examples of gender inequality is in wages. As seen from Table 6, there are significant disparities in the wage rates for men and women in agricultural and non-agricultural sectors.

The difference in wages earned by men and women is on account of differences in productive skills and/or due to unexplained differences arising from gender discrimination in the work place. Controlling for occupational differences, women on average earn around 50 per cent of what men earn in South Asian countries. For India, it is estimated that 55 per cent of the wage gap between men and women cannot be explained by productivity and endowments[49]. In rural labour markets in Bangladesh, 70 per cent of the gender wage gap was due to discrimination at work place[50]. For the rural areas of Bangladesh, 43 per cent of the wage differential between men and women was on account of gender discrimination[51].

[46] ADB, 2009a.
[47] IFAD, 1999.
[48] FAO, 2005.
[49] Jacob, 2006.
[50] Akter, 2005.
[51] Ahmed and Maitra, 2010.

In the Philippines, Thailand and Vietnam[52], economic growth has led to a narrowing of the rural gendered pay gap. However, by decomposing this pay gap into an explained part (that is attributable to different levels of human capital among workers) and an unexplained part (that is due to gender bias or gender based discrimination), it is surmised that gender inequalities in earnings may actually be significantly higher than what is generally thought to be the case. Women's higher level of education than men's and their increased participation in wage employment did not contribute as much as they would have expected in reducing the wage gap. The persistence of an unexplained gendered wage gap, which is much larger than the explained part, suggests the presence of systematic gender-based discrimination in pay which has no basis in the relative education, productivity or skill of workers[53].

Table 6: Ratio of Female Wage Rate to Male Wage Rate in Selected Asia-Pacific Countries

Country	In Agricultural Wage Employment (%)	In Non Agricultural Wage Employment (%)
Afghanistan (2003)	50	20-30
Bangladesh (2006)	64 (in agro-processing)	-
India (2004 / 2005)	69 (casual); 79 (regular)	65 (casual), 57 (regular)
Pakistan (2001)	50 (in sugar)	-
Vietnam (1997/98)	73 (hourly wages)	-

Source: Fontana and Pasciello (2009).

2.3.2. CHILDREN AND YOUTH

There are over one billion youth in the world today. Eighty five per cent of them live in the developing world. Some 61.5 per cent live in Asia and the Pacific. A significant proportion lives in rural areas. Youth is an important stage of life for building the human capital that allows young people to escape poverty and lead better and more fulfilling lives. For instance, in Vietnam, the poverty rate declined from 58 per cent in 1993 to 20 per cent in 2004 primarily due to a disciplined, hard-working, and fast-learning young population[54].

Educated youth is an asset for the nation. There is evidence that the earnings are higher for those with secondary or tertiary education because of the rising demand for skilled workers. Similarly, in the farm sector, educated farmers are more likely to adopt new technologies, and almost all studies on agricultural productivity show that better educated farmers get higher returns on their land and also contribute to knowledge spillovers. For rural youth, employment opportunities are not only in agriculture but also in non-farm activities. Thus policies to develop the non-farm sector are likely to have pronounced effects on them. Taiwan, for instance, promoted small and medium rural enterprises that used imported technologies and, consequently, the youth benefitted because of their comparative advantage in using these technologies. As subcontractors, rural firms can acquire inputs, technical know-how, and links to external markets, thereby increasing their attractiveness to young workers.

Despite the importance of the youth in economic development, many children (0-14 years) and youth (15 to 24 years) are unable to reach their potential because of poverty, hunger, poor health, lack of education and skills. Poverty encourages child labour, which is common in developing countries. For instance, in Cambodia, children of the poorest families are engaged in hazardous activities that place them in constant danger. Over 313,000 children are trapped in drug trafficking and prostitution.

[52] King and Bigotta, 2009.
[53] FAO, IFAD, ILO, 2010.
[54] World Bank, 2007.

Others spend hours in salt fields, work in factories or load carts with bricks to meet the demands of the booming construction industry[55]. In India, over 300,000 children work in the carpet industry, many of them under conditions that amount to bonded labour. Further, gender bias makes life more difficult for young women and girls.

A key to surmounting rural poverty is agricultural transformation. The challenge is for farm and non-farm sector to provide employment and higher incomes for the youth. Some of the steps that have been initiated to empower rural youth are:

1. *Youth organisations*: They can be effective ways to empower and enable rural youth to participate in the development of their communities. One such institution is the *4-H* (Head, Heart, Hands and Health). The *Thanat Samakhee Club, a Thai 4-H youth organisation*, established in May, 1973, has specific objectives to promote cooperation among youth of the Thanat sub-district, and provide them opportunities to gain knowledge and skills in agriculture and home economics. The Club has been successful in training the youth and coordinating production of asparagus and organic baby corn in their region. Another successful youth group is the *Tuga 4-H Club based in Kalinga of the Cordillera Administrative Region of the Philippines*. Set up in 1996, some of the livelihood projects undertaken by its members are production of ducks, goats, poultry and swine, vegetable and ornamental gardening, rice farming, and candy processing. A *national youth consultative committee* has been set up by the Malaysian government, which promotes recognition of the value of youth participation and discusses issues relevant to young people. Japan incorporates agriculture education in the curricula of secondary schools, junior colleges and universities. Some of its farm youth training programmes are administered by the *Rural Youth Education Development Association* (RYEDA).
2. *Youth employment opportunities in rural areas:* In order to improve employment prospects for rural youth, investment must be encouraged in agricultural extension services, which focus on the young. The *Bharatiya Yuva Shakti Trust* (BYST) in India is an example of an organisation that provides support, including micro-finance, for underprivileged youth and enables them to have the opportunity to set up their business. Utilising technology for youth employment is equally important. For example, low cost cellular phone technology has been used as the basis of the *Grameen Village Pay Phone programme* (VPP) in Bangladesh. In addition, low-cost technology such as cellular phones, and computers with internet access have been used by rural youth to establish small kiosks, with low start-up costs, providing communication services in their communities. A project in India, called '*Narrowing the digital divide',* is specifically aimed at improving employment opportunities for the youth by providing access to and training in ICT. This project targets rural youth in remote areas. Another crucial aspect is training. The Human Resources Placement Services (HRPS) Division in the Department of Labour, Sri Lanka, monitors the labour market, maintains a database on the job market, and helps to match supply and demand in job training and placement activities. '*Telefood*' is an example of a campaign that generates employment along with creating food security. It funds training in organic, bio-intensive farming for unemployed women and youth in Cotabato, in the Philippines. These women and youth increased crop yields while using less fertilizer and fewer pesticides. While the produce provides food for the participants' families, the surplus is sold by the participants.

Box 7 discusses more of such initiatives undertaken by IFAD to create opportunities for rural youth in Asia and the Pacific Region.

[55] ILO, 2010

Box 7: Creating opportunities for rural youth: Projects and Programmes in Asia and the Pacific Region

Rural Livelihoods Improvement Project in Kratie, Preah Vihear and Ratanakiri in Cambodia (2007-2014) has been establishing young farmer clubs (YFCs) since 1998 to support technical training on production, vegetable growing, chicken raising and other basic agriculture to young farmers, who are either students or jobless youth, so that they can assist their families. The project reviewed the status of the clubs and determined that 50 per cent of them were successful. Some YFCs have been provided with vocational training (for example, in food and taro chip) and handicrafts (for example, weaving).

The Community Development Programme in Pakistan (2004-2011) works to address issues such as low agricultural productivity, land degradation, inequitable land distribution and lack of employment opportunities. The programme targets smallholders, landless people and families headed by women in a mountainous area where settlements are remote and scattered, and employment opportunities are very limited.

The Mainstreaming of Rural Development Innovations (MORDI) programme reaches the most vulnerable people in Fiji – women and youth – and encourages them to play an active role at all stages of community development. The programme provides training on community empowerment, with topics including work planning, time management, leadership skills and conflict management; and economic empowerment, with topics including proposal writing, project management, financial literacy, business skills, small engine repair, plumbing, carpentry, farming and animal husbandry. These sets of training equipped the youths with a holistic approach to developing their livelihood opportunities. Many youth groups are successfully operating commercial cash crop farms and cattle farms.

Rural Income Diversification Project (RIDP) in Tuyen Quang Province in Vietnam provides technical and vocational training to young and unemployed rural people enabling them to find suitable employment opportunities in their home villages and communes. Between 2002 and September 2009, the school enrolled 5,553 rural trainees (52 per cent of them female) from the project target communes and provided them with scholarships, offering training in agro-forestry, accounting, agricultural machinery repair, civil electricity, motorbike repair, welding and tailoring. The Programme for Developing Business with the Rural Poor in Ben Tre Province (DBRP Ben Tre) in Vietnam has helped rural youth meet up with enterprises in order to create close linkages between employers and labour.

Orissa Tribal Empowerment and Livelihoods Programme (OTELP) in India provides space for the youth in community development processes by including youth in village development committees, promoting youth as village volunteers, building vocational skills and promoting youth leadership for community services.

Source: IFAD, 2011a.

2.3.3. INDIGENOUS PEOPLES

Of the 300 million indigenous peoples in the world, more than three-fourths live in Asia and the Pacific Region[56]. About a third of the indigenous peoples in the region are poor. Most of them are socially, politically, and economically marginalized, endangering their survival in a rapidly changing environment. In India, out of the ten regions with the highest incidence of poverty, four are inhabited by the Scheduled Tribes. In India, a study based on the analysis of the 61st NSS Round (2004-05) shows both a higher incidence and intensity of poverty among the marginalised groups including

[56] Hall and Patrinos, 2010.

Scheduled Castes and Scheduled Tribes. While the overall incidence of poverty in rural India was about 25 per cent, among the Scheduled Tribes and Scheduled Castes, about 44 per cent and 32 per cent, respectively, of the households were poor. The incidence of poverty among others was 19 per cent[57]**.** The causes for the same have been found to be poor quality of education, remote locations, limited access to markets and lack of decent physical and social infrastructure.

In China, members of more than 50 ethnic minority groups are concentrated in poor, remote and mountainous regions. They comprise less than 9 per cent of the total population, but represent about 40 per cent of those in a state of absolute poverty. There are significant disparities in the living standards of ethnic minority groups in Vietnam. These groups represent 14 per cent of the population, but 29 per cent of the poor. Moreover, they remained trapped in poverty during a period of otherwise pro-poor growth. While the reduction in poverty headcount among the majority population was from 54 to 31 per cent between 1993 and 1998, it only dropped from 86 to 75 per cent among the minorities[58]. In Bangladesh, for instance, most of the tribals live in the Chittagong hill tracts. With the construction of the Kaptai hydroelectric project, about 100,000 inhabitants were left homeless and 54000 acres of land (representing 40 per cent of the land suitable for intensive cultivation) was submerged.

Indigenous people are very knowledgeable with respect to biodiversity and forest resources. By making them co-owners of the forests, the goal of poverty reduction can be achieved along with sustainable development and environmental protection. The Orissa Tribal Development Project and the Andhra Pradesh Tribal Development Project (India), which were supported by IFAD, provided for land titles to the tribals and these clearly defined property rights enabled improvements in natural resource management. The IFAD-supported Oxbow Lakes Small Fisherman Project in Bangladesh and Hills Leasehold Forestry and Forage Development Project in Nepal aim at enhancing the access of the poor to the Common Property Resources and improving their productivity. In India, the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006, ensures that the affected indigenous peoples are well informed, their consent is obtained, and sufficient compensation and relocation facilities are provided before they are physically or economically displaced to accommodate a development project.

In Bangladesh, the Smallholder Agricultural Improvement Project is improving the livelihoods of tribal communities (known as *adivasis*) living in the central part of the country. This marginalized and excluded section of the society depends on agriculture for survival, but their livelihoods are highly insecure. Under the scheme, these people are provided technical training; and are introduced to new methods of farming, and access to financial services. Such schemes have succeeded in revitalizing local livelihoods of the *adivasis*.

In the Philippines, indigenous people represent 17 per cent of the total population. Comprising an estimated 110 ethno linguistic groups, they embody an immense cultural wealth. Yet they live under the constant threat of loss of their lands and access to forest resources. The Cordillera Highland Agricultural Resource Management Project has been implemented with IFAD support to target this indigenous population. The project successfully integrated the *lapat* local knowledge system for forest management into its reforestation activities. This system, practised by the Tingguians' Masadiit tribe in Abra, effectively regulates the harvesting and utilization of forest products, thereby protecting natural resources. As a result of this pilot exercise the *lapat* system will become integrated into national policy[59].

[57] Gaiha et al., 2007.
[58] CPRC, 2004.
[59] IFAD, 2006.

2.4. EQUITY – EFFICIENCY TRADE-OFFS

There is often a presumption that equity – or, as a special case, poverty reduction – involves a loss of efficiency. Okun[60], for example, famously described redistribution to be like carrying money from the rich to the poor in a 'leaky bucket'. Quite the contrary. There are many situations in which there are either no trade-offs or they are exaggerated. One is the link between nutritional intake and work efficiency in situations of extreme poverty. A corollary of efficiency wage theory is that a more egalitarian distribution of land, for example, reduces the malnourishment (and thus improving the employability) of the currently unemployed, may lead to higher output in the economy. That such poverty-nutrition traps exist is confirmed empirically[61]. Another pervasive situation is that in which redistributive policies promote growth by correcting market failures that affect the poor. These imperfections and the usually costly adjustments to them trap segments of the rural population in poverty. Expanding credit enables the poor to invest in education and smallholders and artisans to expand their scale of production, and thus climb out of poverty. Often and in different contexts, "….redistributive policies can increase a society's aggregate potential for productive investment, innovation and human resource development"[62].

2.5. KEY MESSAGES

First, in most of the sub-regions/countries of Asia and the Pacific Region, poverty is predominantly rural. The onset of the Triple F crises (fuel, food and financial) has impeded progress towards MDG 1 (i.e. halving extreme poverty by 2015). Despite high growth rates and urbanisation in recent years, poverty is likely to remain high in rural areas.

Second, while a large percentage of rural households is chronically poor, larger numbers move in and out of poverty (i.e. the transient poor). A failure to distinguish between the two may result in directing the resources to those who are temporarily poor away from chronically poor. The latter need massive and sustained transfers to break out of poverty.

Third, another manifestation of deprivation is child undernourishment which continues to be pervasive in several countries – especially in South Asia. Policies must be directed to not just mitigation of income deprivation, but, more importantly, to enhancing women's economic status.

Fourth, rural poverty is a multidimensional phenomenon. Along with income, multidimensional poverty includes other intrinsically important dimensions such as lack of education, assets, limited opportunities for economic advancement, among others. Rural women, youth and indigenous peoples experience such disadvantages disproportionately, making it harder for them to exit poverty, in all these dimensions. This calls for a broader focus of anti-poverty strategies.

[60] Okun, 1975.
[61] Jha et al. 2009.
[62] Bardhan, 2005, p. 1346.

CHAPTER 3: THE IMPORTANCE OF ADDRESSING RISK

3.1. INTRODUCTION

Poverty is not just a matter of deprivation but also of vulnerability to exogenous shocks (e.g. crop failure, sharp fluctuations in commodity prices, earthquakes, floods, insect infestation, illness). Vulnerability is distinguishable from poverty in the sense that there exist those who are non-poor but vulnerable to poverty and those who are non-vulnerable but poor. However, as a measure of deprivation, vulnerability is more appealing as it takes into account not just fluctuating levels of living but also the resilience to shocks of subsets of households (e.g. the landless and smallholders). 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. For instance, in Indonesia, poverty incidence was low prior to the East Asian Crisis in 1997; however, the number of vulnerable was large as seen by the multitudes of households who became poor after the crisis[63].

The empirical evidence points to the need for designing anti-poverty policies to address vulnerability, especially in rural areas where agricultural yields and revenues fluctuate a great deal due to changes in weather, floods, pest infestation, and market forces. Besides, different segments are exposed to idiosyncratic risks in the absence of easy access to medical care, drinking water, unhygienic living conditions and limited opportunities for diversifying income sources[64]. These difficulties are compounded by lack of financial intermediation and formal insurance; credit market imperfections and weak infrastructure. More specifically, if policymakers design poverty alleviation policies in the current year on the basis of a poverty threshold of income in the previous year, the poor who receive income support may already have escaped from poverty and the non-poor who do not may have slipped into poverty due to various unanticipated shocks (e.g. changes in relative crop prices).

This Chapter discusses several categories of risks and shocks and how they affect different segments of the population. For each set of risks, the hazards the poor face are explored, their strategies in managing risk outlined and public policy responses evaluated.

3.2. HOW RISKS AND SHOCKS AFFECT POVERTY DYNAMICS

Recent evidence for selected countries in the region illustrates not just the overlap between poverty and vulnerability to poverty but also their distinctness[65].

In rural India, about 47 per cent were poor while nearly 75 per cent were vulnerable. As the correlation between poverty and vulnerability was high (0.52), it follows that there was some overlap between the two groups. The landless or small farmers were more vulnerable than large farmers. Although Vietnam witnessed a dramatic reduction in poverty with accelerated growth, the broad ethnic and spatial contours of poverty have remained largely unchanged. In general, higher vulnerability translates into poverty over time; vulnerability of the poor tends to perpetuate their poverty or generate poverty traps; while some manage to overcome their poverty despite being vulnerable, their prospects of doing so are less likely than of remaining in poverty; and vulnerability of the non-poor propels them into poverty.

Landlessness and lack of education are associated with greater proneness to both poverty and vulnerability, as also lack of access to infrastructure; however, these associations vary with ethnicity and location.

[63] Deolalikar et al., 2001.
[64] These risks may be micro or idiosyncratic.
[65] Gaiha and Imai (2009), Imai et al. (2010) and Jha et al. (2009, a, b, c).

In Timor Leste, while 34.7 per cent of the population are poor, 31.5 per cent of the population is vulnerable. In rural areas, however, the shares of poor and vulnerable were about equal. More importantly, rural households are overrepresented among the poor and vulnerable. While 61 per cent of the population is rural, 73 per cent of the poor live in rural areas, as do 87.4 per cent of the vulnerable.

In their transition to market-based economies since independence, the Central Asian countries initiated macroeconomic reforms. This led to economic recovery and greater price stability. However, these countries are still challenged by poverty and vulnerability to poverty. By and large, vulnerability (and poverty) in these countries are rural phenomena. In all countries studied rural households are over-represented among the poor and the vulnerable relative to their share in the population. For instance, in Kazakhstan, while 42.4 per cent of the population live in rural areas, 48.8 per cent of the poor and 53.2 per cent of the vulnerable are rural. Similarly, in Kyrgyzstan, while 74.5 per cent of the population are rural, 80.5 per cent of the poor live in rural areas, as do 82.9 per cent of those estimated to be vulnerable.

Papua New Guinea (PNG) is a poor country among the Pacific island countries, with GDP per capita much lower than that of Fiji, Samoa, Tonga and Vanuatu. While 37.5 per cent of the population in PNG is observed to be poor, only 34.1 per cent of the population is vulnerable to poverty. Inter-regional differences in both poverty and vulnerability rates are large. Indeed, the fraction of population that is poor ranges from a low of 14.8 per cent in Papua to a high of 67.5 per cent in Momase. However, the fraction of population vulnerable to poverty ranges from a low of only 9.5 per cent in Papua to a high of 67.8 per cent in Momase. Fiji is the richest among the Pacific island countries, with high GDP per capita, compared with the other countries in the region. The poverty rate in 2002 was 33.8 per cent, increasing from 25 per cent in 1991. The poverty rate overestimates the fraction of the population vulnerable to poverty. While 33.8 per cent of the population was observed to be poor, only 24.5 per cent of the population was vulnerable to poverty. Relative to their share in the population, rural households were over-represented among the poor and the vulnerable. While 43.9 per cent of the population lived in rural areas, 68.1 per cent of the poor and 88.3 per cent of the vulnerable were rural.

In sum, while there is overlap between poverty and vulnerability to poverty, with a diverse pattern both *within* and *between* countries studied here, a useful insight is that poverty and vulnerability are *distinct*. Thus interventions designed to target the latter must differ from those designed for the former. Specifically, more careful attention must be given to risk mitigation and coping in dealing with vulnerability to poverty, especially in rural areas.

3.3. SOME OF THE KEY RISKS FOR POOR RURAL PEOPLE TODAY

3.3.1. PERSONAL AND HOUSEHOLD LEVEL RISKS: ILL HEALTH

Ill health is an important risk factor and source of shock for poor rural households. It is widely recognized that serious illness has significant adverse effects on a household's labour supply and income generation. The direct impact of illness can be short-term, mainly from the loss of working hours of the sick person and for the household members taking care of the patient. The indirect impact is a long term one, as resources originally meant for productive activities, such as children's education, are spent on health care. In this way, serious illness may lead rural households to chronic poverty. A study analyzing the prevalence and treatment of serious illness for eight Chinese provinces over the period 1987-2002 found that the annual per capita income of households affected by illness decreased by 5-6 per cent, with the negative effect sometimes continuing for over 15 years.[66]

[66] Gao et al., 2006.

Researchers have found that morbidity is significantly higher for rural poor, females, older age groups and less educated households[67].

The outbreak of *Avian Flu* in a few countries in Asia and the Pacific Region in 2003 also severely impacted rural households – smallholders, semi-commercial and small-scale commercial farmers. Women, who had negligible access to assets and animals besides poultry, were severely affected. Studies on Bangladesh[68] found that women poultry producers used their increased incomes to buy more food, send children to school and augment their assets. In order to avoid such hazards, there is a need for more *biosecure behaviour* which includes avoiding farming of multiple species of animals within one farm unit, avoiding use of untreated chicken faeces as fertilizer or livestock feed, ensuring vaccination of live birds, and appropriate disposal of dying and dead birds.

Progress towards reducing ill health

While South East Asia and East Asia have made considerable progress in mitigating *hunger and undernourishment*, South Asia and West Asia continue to be laggards. The level of *child mortality* in South Asia, South East Asia and East Asia continues to be high, while the region also has a high incidence of *maternal mortality*. Some factors – attendance of deliveries by skilled health personnel and more ante natal care – have reduced female mortality rates. However, poor women continue to suffer neglect in these areas in South Asia. While less than 50 per cent of women in the poorest households received skilled care during pregnancy, more than 90 per cent of women in the wealthiest households received the same[69].

Provision of *safe drinking water* and *sanitation* too remains a major challenge for Asia-Pacific countries. Problems of contamination by naturally occurring inorganic arsenic, particularly in Bangladesh and other parts of Southern Asia, or fluoride in China and India, have affected the safety of water supplies.

A large proportion of people affected by *HIV* depend on agriculture. Fortunately, the spread of HIV has stabilized in many regions due to increased awareness about the transmission of the disease. In Vietnam, the percentage of young women aged 15-24 with comprehensive knowledge of HIV increased from 25 per cent in 2000 to 44 per cent in 2007. In Cambodia, it increased from 37 per cent to 50 per cent, and in Uzbekistan, from 3 per cent to 31 per cent[70]. Significant progress has occurred in the prevention and treatment of HIV induced *malaria* and *tuberculosis.*

3.3.2. NATURAL DISASTERS

Natural disasters such as floods, droughts, storms, earthquakes, volcanic eruptions and related Tsunamis have grave consequences[71]. The after-effects are enormous in terms of lost lives, decline in income, and physical damage to infrastructure and private assets. In the absence of insurance and financial markets, the rural households face even greater risks. While it is difficult to generalize, here again women often bear the brunt of such disasters. For instance, only one woman for every three men survived the December 2004 *Tsunami* in a district in Aceh (Indonesia). In two other districts, women accounted for 77 and 80 per cent of the deaths[72]. Women's deaths also outnumbered men's in the

[67] Li et al., 2005; Yan et al., 2006; Ding et al., 2008.
[68] Nielsen, 1998.
[69] UN, 2010.
[70] UN, 2010.
[71] *Extreme weather conditions* pose a major threat to food and livelihood security in Asia and the Pacific region. For instance, 23 million hectares are drought prone representing one fifth of the rice growing area in the region (Pandey and Bhandari, 2009).
[72] Oxfam, 2005.

1991 Bangladesh cyclone and the 1993 Maharashtra (India) earthquakes[73]. Box 8 illustrates some of the environmental risks that Cambodia faces and their impact on the community.

Box 8: Natural Disasters in Cambodia

Some of the natural/environmental risks that Cambodia faces are:

- Extended periods of flooding and droughts that destroy crops and livestock, infrastructure and contaminate water sources
- The 2000 floods caused extensive damage and food shortage. 3-4 million people were affected, and 400,000 people were evacuated. Another drought in 2002 affected 8 provinces and over 2 million people.
- About 500 communes – one-third of the total – were identified as vulnerable to natural disasters. These are located mainly in the central and south-eastern lowlands. Provinces such as Prey Veng are often hit by both floods and droughts.
- Wild fires and insect infestation.

A recent analysis confirms negative welfare effects through (i) a lowering of GDP per capita, and (ii) a higher incidence of rural poverty.

Source: Gaiha and Azam, 2011 (in preparation).

Frequency and Intensity of Natural Disasters

Based on cross-country data on the frequency of natural disasters and the mortalities associated with them, the following facts emerge[74]:

- Asia and the Pacific Region in general experienced a larger number of natural disasters than the average for the rest of the world[75]. Within the former, the highest frequency of natural disasters has been recorded for South Asia, closely followed by South East Asia and then East Asia. The lowest frequency is recorded for the Pacific islands.
- More than half the deaths caused by natural disasters in 1985-94 were concentrated in South Asia. From 1995-2004, the share of East Asia and the Pacific in the total number of deaths rose to 59 per cent while the share of South Asia dropped to about 20 per cent. Table 3.1 shows the total number of deaths per disaster in sub-regions of Asia and the Pacific Region.

Table 7: Number, Frequency and Mortality of Natural Disasters by Sub-Region in Asia and the Pacific

	No. of Natural Disasters per region		Relative Frequency of Disasters (%)		Deaths per million		Deaths per disaster	
	1985-94	1995-04	1985-94	1995-04	1985-94	1995-04	1985-94	1995-04
South Asia	35.57	46.71	35.12	32.73	181	102	805	406
East Asia	44.25	73.25	24.96	29.33	18	183	122	823
Pacific Islands	7	8	4.94	4	107	382	16	62
South East Asia	31.5	118	34.98	33.94	64	385	109	572
Average Asia-Pacific	29.7	41.62	100	100				
Average Global	15.20	22.51						

Source: Gaiha and Thapa, 2006.

[73] World Bank, 2006.
[74] Gaiha and Thapa, 2006.
75 This inference follows from the fact that the global averages are considerably lower than those for Asia and the Pacific Region.

Natural Disasters, Agricultural Investment, Productivity and Rural Poverty

Natural disasters affect household welfare in *three distinct* ways: loss of physical integrity, assets and income. Disasters not only create instant havoc, but also have long lasting effects, by adversely affecting investment potential in agriculture and infrastructure. For instance, small reductions in the frequency of natural disasters (i.e. 5 per cent) produced highly favourable effects on agricultural investment in Pakistan, Korea and the Philippines. Further, small to moderate increases in agricultural investments are likely to translate into higher agricultural productivity. Simulations show that a 5 per cent increase in agricultural investment would stimulate a rise of about 7-8 per cent in agricultural productivity in Pakistan, the Philippines and Indonesia; and of about 6 per cent in Sri Lanka and Korea[76]. Given that investment in agriculture decreases after a natural disaster, rural poverty is likely to increase after such an event. Examples include:

- In the wake of the financial crisis in East Asia in the last quarter of 1997, the Philippines economy contracted. An additional factor was the worst drought in 30 years caused by the *El Nino* in September, 1997. As a result, the incidence of poverty rose by 9 per cent, the depth of poverty by 11 per cent, and the severity of poverty by 13 per cent[77]. However, not all households were equally vulnerable to these shocks. While landownership made them more vulnerable to the *El Nino* shock, higher levels of education made them more susceptible to labour market shocks.
- Bangladesh was hit by one of the worst floods in 1998. Severe damage to the *aman* monsoon rice crop threatened the food security of several households. Lower consumption and a worsening of the health environment caused the nutritional status of children to deteriorate. Despite effective interventions by the government, flood-victims suffered in the short-term through reduced consumption and, in the medium-term, through higher indebtedness[78].
- The Indian Ocean *Tsunami* that struck more than a dozen countries in December, 2004, killed over 250,000 people. Millions more lost homes and livelihoods. The costs of the *Tsunami* have been massive –Indonesia suffered damages worth $2.9 billion and an *initial* reduction in economic activity of $1.53 billion.

3.3.3. LAND TENURE INSECURITY

Land Acquisition in Asia and the Pacific

One of the effects of the food crisis is the acquisition of farmland in developing countries by foreign investors, driven by the prospects of expanding agribusiness. In addition, urbanization and intense competition for agricultural land for setting up of industries has also aggravated the problem of land insecurity for farmers, specially the smallholders[79]. While these acquisitions have the potential to inject investment into agriculture and rural areas in poor developing countries, they raise concerns about the impact on poor local people, who risk losing access to and control over land on which they depend. The problem is exacerbated when the smallholders whose land is acquired by foreign investors have no formal title to the land, but have been using it under customary tenure arrangements. Examples include:

- Cambodia has taken proactive steps to lure countries to invest in its farmlands. Qatar, United Arab Emirates and BKK Partners, an Australian financial advisory firm, are some acquirers of Cambodian land.
- Bahrain too signed an agreement with the Philippines government in 2009 whereby the latter will provide 10,000 hectares of fertile land. A South Korean company has leased 94,000 hectares of

[76] Gaiha and Thapa, 2006a.
[77] Datt and Hoogeveen, 2003.
[78] Del Ninno and Lundberg, 2005.
[79] For instance, the policy of promoting special economic zones (SEZs) in India has also led to land acquisition. Concerns have been expressed on the displacement of farmers by land acquisition, loss of fertile agricultural land, a huge revenue loss to the exchequer and adverse consequences of uneven growth (Aggarwal, 2006, Gaiha et al., 2009).

farmland in Mindoro. Saudi Arabia talks of turning the Philippines into the Kingdom's 'food hub'. Other examples are given in Table 8.

Table 8: Overview of Foreign Land Investments in South East Asia from 2006-2009

	Target Country	Country of Investors	Nature of deal	Status of deal
1	Cambodia	Kuwait	Land leased for rice	Signed
2	Cambodia	Vietnam	100,000 ha secured for rubber	Unknown
3	Indonesia	Saudi Arabia	500,000 ha secured in US$4.3bn investment for rice; put on hold by Bin Laden Group	Discontinued
4	Laos	Vietnam	100,000 ha secured for rubber	Unknown
5	Philippines	Bahrain	10,000 ha secured for agro-fishery	Signed
6	Philippines	China	1.24 million ha leased; deal put on hold	Discontinued
7	Vietnam	Qatar	US$1 billion joint fund for agriculture	Unknown

Source: IFPRI (2009).

Although farmland acquisition has occurred in Asia and the Pacific, there is a notable lack of evidence on its impact on the food security of the people in a region where poverty and socio-economic underdevelopment are still widespread[80]. Given the sensitivity surrounding land ownership issues, particularly in conflict and post-conflict areas, addressing these concerns is paramount.

Both rising demand for and rising prices of food has created attractive investment opportunities in the agricultural sector – especially in large farms – such as 60000 hectares for palm oil production in Malaysia and Indonesia. In spite of new sources of economies of scale, arising from technological change, new markets, institutional changes, and public-private partnerships in the provision of public goods, the large farm advantage is due to market failure (e.g. credit), institutional gaps (e.g. weak extension services) and policy distortion (e.g. minimum support prices). Elimination of such biases against smallholders would enhance their competitiveness. State interventions and collective action by producers' organisations would make a significant difference[81]. Absence of property rights and lack of transparency in land deals are key challenges.

In principle, land concessions are motivated by the potential benefits of large –scale agricultural investment on degraded forest land for expansion of production, processing of agricultural products and expansion of livelihood opportunities. The evidence on benefits to the poor is mixed and serious concerns have been raised whether such concessions are a more effective way of helping the rural poor than the alternative of grant of small plots of land to the landless and enhancing their access to credit and technology. Illustrative evidence for Cambodia is given in Box 9.

Land Tenancy and Productivity: Country Examples

Secure land rights can increase incentives for investments. Studies indicate that secure tenure can double investment, and increase land values between 30 to 80 per cent[82]. In addition, such security reduces conflicts, assures availability of collateral, improves the bargaining power of the poor and helps in poverty reduction. However, policy interventions to ensure the same must be carefully designed to ensure equity without upsetting local customs. The market for rentals also enhances the opportunity for landless labour to cultivate and make a transition towards owning such land. Examples of land reforms include:

[80] As more than a few large land concessions in Lao PDR and Cambodia have not been utilised, it is difficult to rule out speculative reasons. Also, there are serious concerns about lack of transparency in granting land concessions (Gaiha and Annim, 2010, Gaiha and Azam, 2011, in preparation, and Deininger and Byerlee, 2010).
[81] Byerlee et al, 2010.
[82] Feder, 2002.

- China adopted the Household Responsibility System in 1978 which led to a surge in agricultural production. Consequently, despite a decrease in the area used, agricultural output increased by 8.2 per cent a year (2.7 percent in the pre-reform period).
- Vietnam, Laos and Cambodia abandoned collectivization and framed new land laws. In Vietnam, for instance, under the *Doi Moi* reforms, agricultural collectives were converted to contract land to households in 1988[83]. Land reforms, in addition to other market-oriented reforms, promoted entrepreneurship, agricultural investment and productivity. Tenancy reforms also created an active land market in the country, with the proportion of households participating in land transactions increasing from 3.8 per cent in 1993 to 15.5 per cent in 1998[84].
- In India, tenancy and institutional reforms have been positively correlated with increases in agricultural growth and reduction in poverty, higher real wages, reduced landlessness and improved social development[85].

Box 9: Land Concessions in Rural Cambodia

In the case of Cambodia, the evidence on the benefits of land concessions to the poor is mixed and serious concerns have been raised whether such concessions are a more effective way of helping the rural poor than the alternative of grant of small plots of land to the landless and enhancing their access to credit and technology (CEA, November, 2009, Naron, 2009, and ADB, 2009). Going by the official records, there are 60 companies that have been awarded economic land concessions, involving a total land area of 1 million ha. Most of these are in non-flooded areas and degraded forests, and cover a range of crops such as rubber, palm oil, sugar cane, cashew, coffee, and forest plantations. Most of these land concessions are frequently disputed and remain unresolved for long periods, resulting in overlapping land claims of local villagers and the affluent. These land disputes are a result of weak and patchy environmental impact assessment, inefficient implementation of business plans, fewer instances of consultation with the local communities prior to the approvals, and, finally, the disruption of traditional livelihoods of the disadvantaged indigenous groups living in remote areas.

The reservoir rice cultivation in the plains of the Tonle Sap Lake yielded substantial benefits to the local community – including the poor. In one district, the reservoir owners recorded high returns amounting to 92 per cent of the reservoir investment cost in one year. On rented farms, the tenants made an attractive profit, $285 per ha. However, in late 2008-2009, as prices crashed, and yields decreased, 80 per cent incurred large losses, $245 per ha. High fertiliser costs, rents and interest to buy fertiliser were the main reasons why barely 10 per cent of the surveyed households had rented the rice fields for the following year. In another case, for the investment project of Sofcin-KCD, land was cleared without prior notice resulting in conflicts and violence. Subsequently, the company agreed to offer compensation, at the direction of the Land Conflict Resolution Committee, in both cash and land exchange. By contrast, the Dak Lal Company negotiated with land owners before developing the land for rubber plantations (50 per cent agreed upon). On the villagers' share of land (remaining 50 per cent), the company developed the land and planted rubber trees, and trained them on how to take care of them. People can harvest the rubber latex in 7 years and sell it to the company at a guaranteed price of 80 per cent of the international price. This model that allows large and small individual plantations to coexist evoked enthusiastic support from the villagers.

These cases have important policy implications: (i) granted concession should not overlap with local people's land; (ii) land reserves for exchange should be cultivable and not far from the village; (iii) better understanding of options offered and freedom to choose; and (iv) above all, monitoring and regulation of land concessions strictly in accordance with agricultural priorities.

Source: Gaiha and Azam, 2011, in preparation.

[83] Kirk and Nguyen, 2009.
[84] Thapa, 2009.
[85] Srivastava, 2004, and Deininger et al., 2009.

Gender, Indigenous Groups and Land Rights

Often traditional land systems fail to recognize women's rights. The first concern is that women should have either joint ownership of land with their spouses, or a joint right to dispose it off. Secondly, women must be able to maintain their land rights after the death of their spouse. Most of the Indian states have amended the legislations that limited inheritance to male heirs. A study on gender and land rights in South Asia demonstrates the importance of rural women's access to land for poverty reduction.[86]

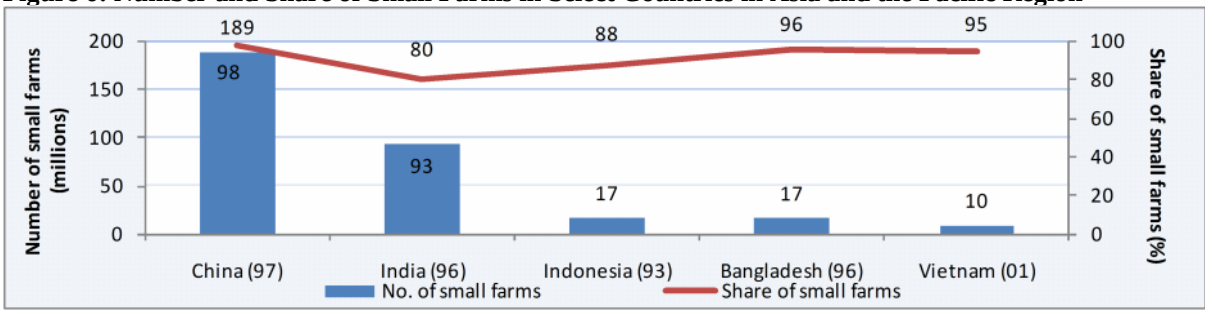
Indigenous peoples are also being given land rights in many countries of Asia and the Pacific. For instance, the Indigenous Peoples Rights Act (IPRA) passed in 1997 in the Cordillera region in the Philippines aims to protect the rights of indigenous communities. The Oxbow Lakes Small Fisherman Project in Bangladesh and Hills Leasehold Forestry and Forage Development Project in Nepal are other such examples that enhance the access of the vulnerable to the Common Property Resources.

Land Fragmentation and Trends in Average Farm Size

IFPRI[87] estimates that 87 per cent of the world's small farms (those less than 2 hectares) are in Asia and the Pacific Region.
Figure 6 shows the number of small farms (under 2 hectares) and the share of such farms in China, India, Indonesia, Bangladesh and Vietnam. Over 90 per cent of the farms in China, Bangladesh and Vietnam are less than 2 hectares in size. The average holding size is 0.5 hectare for Bangladesh, 0.8 hectare for Nepal and Sri Lanka, 1.4 hectares for India and 3 hectares for Pakistan[88]. The inverse relationship between farm size and productivity has many crucial and far-reaching implications for rural development policy. The most prominent is that it may provide an economic justification for redistributive land reforms.

Small farmers face several challenges such as high transaction costs in accessing inputs, credit[89] and marketing facilities. Specifically, it is difficult for them to access high-value agriculture even though it is labour intensive and more suited for their size. This is because of highly volatile prices and high market risks associated with high-value agricultural commodities[90]. Further, in recent years, agricultural funding has shifted from public to private research. This change has grave consequences for small farmers as private research companies lack incentives to address small farmers' concerns[91].

Figure 6: Number and Share of Small Farms in Select Countries in Asia and the Pacific Region



Source: FAO (2001, 2004). Figures in brackets refer to the year for which data are available.

[86] Agarwal, 1994
[87] IFPRI, 2007
[88] With respect to trends in farm size, data reveal that the average farm size has reduced in all these countries. For instance, while in Pakistan it was over 5 hectares during the early 1970s, it reduced to just about 3 by 2000 (for details see FAO 2001, 2004, and Fan and Chan-Kang, 2003).
[89] For example, small farmers cannot take advantage of higher food prices by expanding production if they have difficulty in accessing services and credit.
[90] IFAD, 2009.
[91] Pingali and Traxler, 2002.

3.3.4. MARKET RELATED RISKS: RISING FOOD PRICES AND VOLATILITY

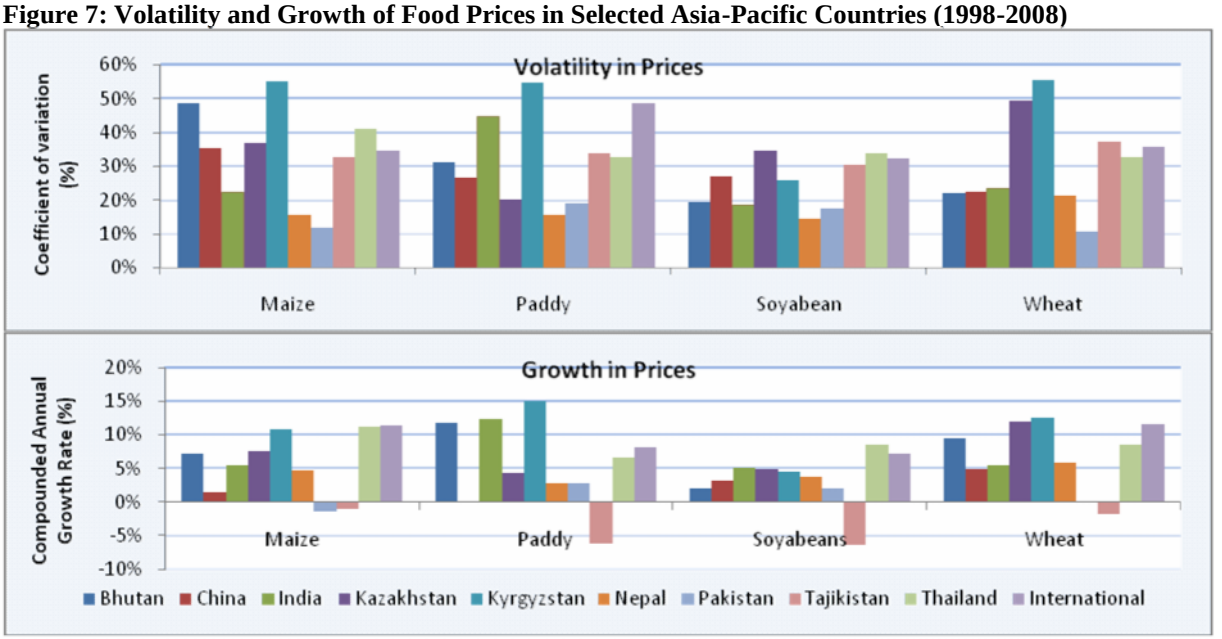
Millions of poor people are vulnerable to low food consumption as their food intake is equal or close to the daily nutritional requirement. Each year, such vulnerability is intensified either because of internal factors (including weather-related domestic production shortfalls and inadequate domestic policy responses), or external factors (such as the global economic shocks recently experienced).

Food Price Inflation in Asia and the Pacific Region

Rice prices in this region have been rising steadily and became almost double of the 2002 levels by the end of 2007. Between the fourth quarter of 2007 and the first quarter of 2008, the rate of increase accelerated further. Rice prices have been more volatile than wheat prices (whose spike was not as sharp) because of lower numbers of rice exporting countries and the lower international trade in rice. Further, heavier regulation and protection in rice markets, compared to wheat, has made the price of rice increase more than that of wheat[92]. However, inflation in Asia and the Pacific Region has been less pronounced than in the international market; prices in Asia-Pacific countries have experienced lower volatility[93]. This is true for foodgrains such as maize, paddy, soybean and wheat (Figure 7). This is primarily due to two reasons[94]:

- Cereal grain imports are a very small share of consumption and production in Asia-Pacific countries. Further, rice and wheat constitute almost a quarter of the weights used in constructing the consumer price indices; and,
- International prices are usually in dollars and most currencies in Asia and the Pacific Region appreciated against the US Dollar.

Figure 7: Volatility and Growth of Food Prices in Selected Asia-Pacific Countries (1998-2008)



Source: FAOSTAT *International Prices refer to annual averages of Argentina Up River Maize, White Rice (Thai 100% B second grade), US No. 1 Yellow Soybean and Argentina Up River Wheat. The coefficient of variation and CAGR for international price of wheat and maize are for the period 2000-2008.

[92] Timmer, 2009, 2010
[93] A noteworthy exception being Kyrgyzstan.
[94] Thapa et al., 2009.

Causes and Impact

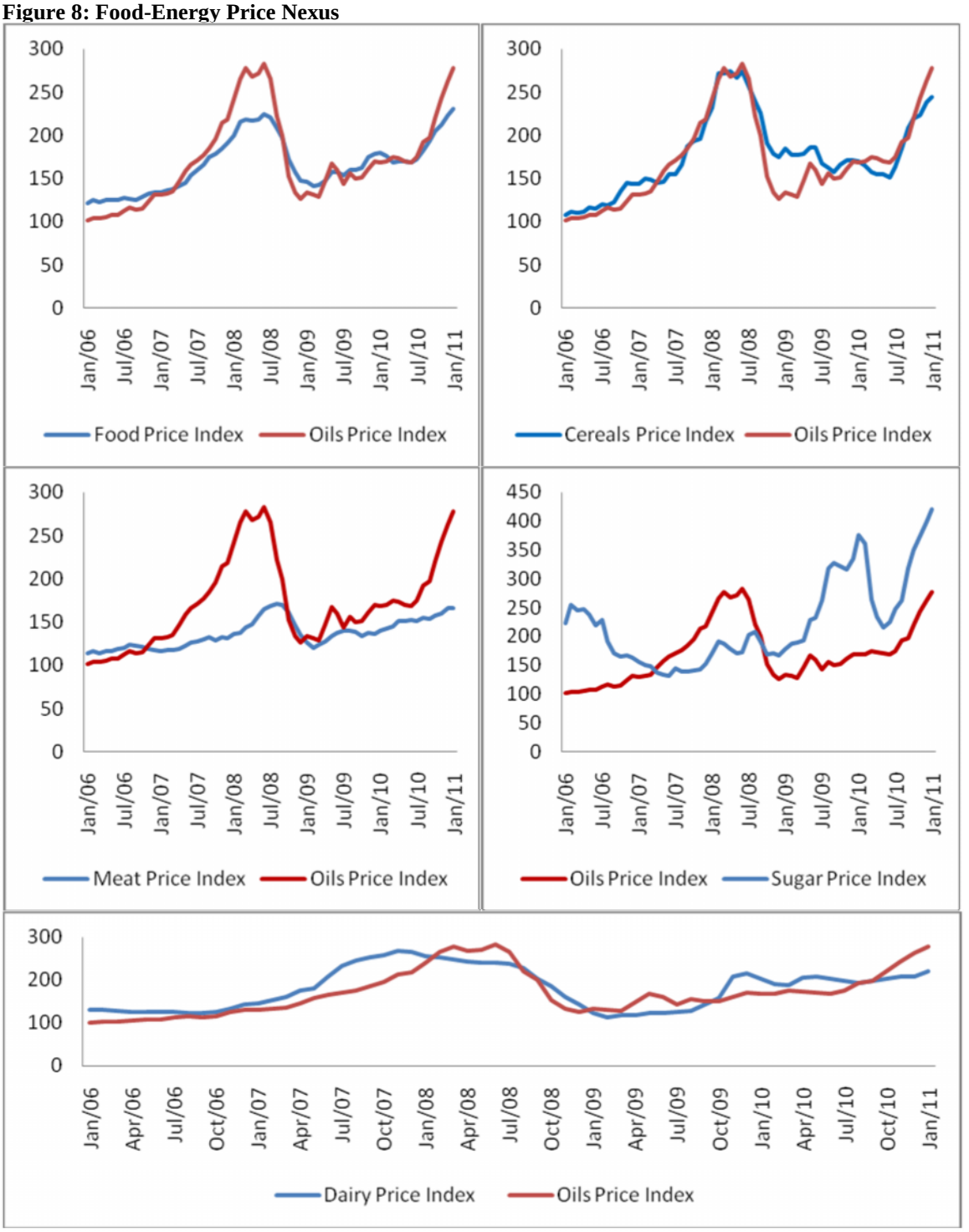
Causes: Though rising food prices are associated with tightening supplies, other factors have also been at work. One such factor is the deep integration between agricultural commodity markets and other markets in the world. For instance, rising crude oil prices have led to an increase in agriculture prices in two ways: rising inputs costs (such as oil-based fertilizers and transportation), and increased demand for agricultural crops for alternate energy sources such as biofuels[95]. Change in dietary patterns towards high-value agricultural products, such as fruits, vegetable and dairy products, and meat, has also caused agflation. For instance, from 1990-2006, China saw an increase in the consumption of meat, fish and aquatic products, and fruits – especially in the rural areas. In India too, from 1990-2005, the consumption of oil crops, meat, fish, milk, fruits and vegetables increased[96]. Natural factors such as flooding in South Asia and outbreak of brown planthopper infestation in Vietnam contributed to rising food prices. Speculation and hoarding further fuelled the price rise.

There is a high degree of correlation between food and oil prices, as can be seen from Figure 8. The prices of food, cereals and dairy products are highly correlated with the oil prices. The relationship between meat prices and oil prices, and between sugar and oil prices, is, however, found to be weak. The increases in oil prices in the last few months are a result of both shortages and rising demand, particularly from the industrial sector in China.

Food prices have been rising substantially the world over since July 2010. After the peak in prices in 2008, good harvests helped the prices to fall back. However, adverse weather conditions in several food exporting countries affected supplies. The rise in prices is not the same for all food commodities and all regions. For instance, the price of rice has not risen by much, and those countries which do not rely heavily on food imports are not severely hit. The volatility in prices is also the result of localized weather problems, for instance, onion prices soared in India in the past few months following the unseasonal heavy rains. The FAO also points towards the role of speculators in exaggerating the rally in food prices. Commodity derivatives are seen as an important portfolio hedging instrument since the returns in commodity sector are uncorrelated with the returns on other assets. This financialisation of commodities may not be a source of food inflation; however, it does play an important role in the short term volatility in food prices. High oil prices, strong demand for crops from the biofuel sector, depleting stockpiles of foodgrains and lower production are also responsible for the food price surge. Protectionist policies adopted by many exporting nations and expansionary monetary policies have also played a role in rising food prices. Moreover, as markets are increasingly integrated, economic shocks in international markets get transmitted to domestic markets quickly.

[95] Timmer, 2009.
[96] IFPRI, 2007a.

Figure 8: Food-Energy Price Nexus



Source: FAO World Food Situation Portal (www.fao.org/worldfoodsituation).

Impact: Rising food prices, in general, have been responsible for putting pressure on the poor's household budgets and resulted in lower nutritional intake and reduced spending on non-food items such as children's education (Box 10). According to a study by the Asian Development Bank[97], an increase in food prices in the Philippines by 10 per cent, 20 per cent, and 30 per cent risks creating an additional 2.72 million, 5.65 million, and 8.85 million poor people, respectively. The impact of rising food prices is likely to be even greater in Pakistan. A 10 per cent increase in food prices is likely to

[97] ADB, 2008.

result in an additional 7.05 million poor people. In case of a 20 per cent and 30 per cent increase, the increment in the number of poor people would be 14.67 million and 21.96 million, respectively. However, the impact of rising food prices is rather uneven. It depends on the following[98]:

- whether the country is a net importer or exporter of food. Net importers are likely to face more adverse consequences than net exporters of food;
- within countries, the poor are more likely to be impacted depending on the proportion of their household expenditure on food; and
- whether the household is a net buyer or a net seller of food.

Box 10: Food Price Hike and Coping Strategies: A Case Study of Nepal

Food Price Hike: 2008 was a year marked by unprecedented food price increases across the country. At peak prices, that of rice increased by 24 per cent, of oil by 30 per cent, of wheat flour by 18 per cent, and of *musuro* (lentil) by 40 per cent, compared to 2007. The official y-o-y inflation rate for food and beverages was nearly 17 per cent (compared to 7.1 percent in 2007 and 9.5 per cent in India). The most affected group was 8 million Nepalese who were already living at or below the poverty line. Going by the traders' perception, banning of exports of non-basmati rice, wheat and lentils by India to Nepal was a significant factor (next only to fuel and transportation costs) that led to high prices. Natural disasters, including flooding and landslides in certain parts of Nepal blocked key market access roads. This increased prices in some districts and reduced prices in others. In addition, *bandhs* and strikes caused disruption in flow of foodgrains leading to high food prices. For example, a 26 day transportation strike in the regional market of Dhangadi affected food supply to markets in the Far-West Hills and Mountains and resulted in complete depletion of stock in Sanfebagar market.
Coping Strategies: With Nepalese households spending 67 per cent of their income on food, high food prices shrank their food expenditure. In fact, for the extremely poor, the share of food expenditure was even higher at 78 per cent. Understandably, changes in food prices led to altered consumption patterns. With over 80 per cent of households in Nepal being net consumers of agricultural produce, the increase in food prices impacted them adversely. 88 per cent of households experienced food price increase during the final quarter of 2008. For 78 per cent of the households purchasing food became more difficult. The most common coping strategies were: relying on less preferred foods (67 per cent), reducing meal portions (29 per cent), reducing spending on non-food items (26 per cent), and reduced spending on food/ borrowing money for food purchasing (14 per cent). About 12 per cent of the households skipped food for a day!

Source: Abridged from WFP (2008), United Nations World Food Programme, Food Security Monitoring and Analysis System.

An interesting question that needs to be addressed is whether rising food prices are a threat to food security or an opportunity for smallholders? A study by Asian Development Bank[99] shows that, for China, the negative impact of food price inflation is dampened by the positive supply response in rural areas. Since China is a net exporter of food, the households that depend on agriculture benefit from the rising global prices. The study confirms a decline in both poverty headcounts as well as Gini coefficients of income inequality, as a result of food price rise. Another study by FAO[100] shows that, as a result of a 10 per cent increase in the price of staple foods, urban consumers lose more than the rural in Bangladesh, Pakistan and Vietnam. In Bangladesh, the average welfare of households specializing in agricultural production increased by 1.7 per cent, while in Vietnam it increased by 2.3 per cent. However, the poorest quintiles are the most affected in urban and rural areas. Even where the rural households gain on average, the poorest continue to suffer a welfare loss.

[98] Thapa et al., 2009.
[99] ADB, 2008a.
[100] FAO, 2008.

Policy responses to rising food prices

Various protective measures were taken by governments in response to increasing food prices. For instance, China eliminated export subsidies on foodgrains, Kazakhstan raised export taxes on wheat, Vietnam imposed quantitative restrictions on the export of wheat and India banned the export of non-basmati rice and wheat. On the other hand, food importing countries reduced tariffs, as in the case of India (wheat), Indonesia (soybean and wheat) and Thailand (pork). These export restrictions and aggressive bidding for imports resulted in higher prices[101]. In addition, governments in these nations intervened to protect consumers against the increase in food prices. In the Philippines, for instance, the fiscal cost of subsidized rice in 2008 is estimated to be P32.8 billion (with a purchase price of P29.4/kg versus a selling price of P17.25/ kg). In 2008, Indonesia too budgeted an increase in food subsidies from Rp7.2 trillion to Rp19.8 trillion – an increase of 3 per cent of all government expenditure[102].

3.3.5. THE STATE AS A SOURCE OF RISK

A key source of vulnerability of the poor lies in the weak organisational design of public administration departments. In addition, lack of governance breeds corruption and inefficiency. The Foreign Policy and the Fund for Peace publishes the "failing state" index[103]. Out of the 177 countries ranked in 2007 Afghanistan was the 8th most failed state, Pakistan 12th, Bangladesh 16th, Nepal 21st, and Sri Lanka 25th.

In response to weak organisations of the state, several countries of Asia and the Pacific have adopted practices that use outside parties to help resolve disputes. Examples include:

- In Bangladesh, some NGOs have adopted the *Ain-O-Salish Kendra* to aid women and other disadvantaged groups. Established in 1986, it investigates and monitors violations of law and human rights, including police torture, murder, violence against women and children, and deaths in garment factories.
- The Cambodia Defenders Project, established in 1994, focuses on criminal defence and community legal education. It collaborates with NGOs to provide legal services to women, especially in domestic violence cases. The Legal Aid Society of Cambodia works to increase public awareness of the law, while providing free legal services in criminal and civil cases. It is also active in securing land rights for farmers who have been dislodged from their land by powerful business interests[104].

3.4. SOME INSTITUTIONAL RESPONSES TO RISK

To assist rural poor households to better manage risks, in addition to access to financial services they need the support of the community and from the state in the form of social protection.

3.4.1. COMMUNITY-LEVEL SUPPORT AND ACCESS TO FINANCIAL INSTITUTIONS

Rural poor households mitigate and manage risks by living in extended families, having cooperative labour arrangements and/or by joining community-based poor people's organisations. Community level institutions have an important role to play in mitigating risks for rural people. India's Self-Employed Women's Association (SEWA) is one such institution which has successfully organised women into unions, community-based organisations, self-help groups and cooperatives. It builds their solidarity and collective strength. Apart from providing economic opportunities for its members,

[101] Thapa et al., 2009.
[102] ADB, 2008a.
[103] The index is based on twelve indicators (four social, two economic, and six political). While there is no hard and fast definition of a "failing state", the index is nevertheless indicative of the extent of the state's failure. Low rank means more failed.
[104] World Bank, 2001.

SEWA also provides social security services such as health care, child care, housing and insurance. The Bangladesh Rural Advancement Committee (BRAC) provides economic support to various disadvantaged groups – including the landless, women and fishermen – and assists them in education, health and family planning[105]. Another example is that of self-help groups in Narathiwat, Thailand, who manufacture batik and embroidered articles and, by fostering participation of all members, including women, have enhanced women's status within the household and the community[106].

Access to financial institutions also helps rural households in mitigating risks by getting credit, and safeguarding and providing adequate return on their savings. In addition, financial institutions provide insurance schemes covering life, health, accident and cattle. Microfinance is advocated and promoted by policy makers, development agencies, government officials and politicians as an effective anti-poverty intervention in the functions it performs and the potential it has to improve the livelihoods of the poor and the vulnerable[107] and even empower them.

Microfinance contributes not only to poverty reduction and financial sustainability, but also to 'virtuous spirals' of economic empowerment, increased well-being, and social and political empowerment of women, thereby addressing the goal of gender equity[108]. This may be identified and measured along various dimensions: impact on decision-making, self-confidence of women, their status at home, domestic violence, their involvement in community, their political empowerment and rights[109]. For instance, in Nepal, women who participated in the MFI programme were able to make small purchases of necessary items such as groceries independently[110]. 68 per cent of women experienced an increase in their decision-making power in areas that were traditionally dominated by men – family planning, daughter's marriage, their schooling and buying and selling property[111]. In the Philippines, women clients of Opportunity Microfinance Bank have gained leadership experience and confidence as leaders of their Trust Banks and have been elected as leaders[112]. However, the negative aspects of lending to women cannot be ignored. For instance, findings from Bangladesh showed that, although the benefits of loans accrued to men and other household members, the responsibility and accountability for repaying the loans lay with the women clients, and this increased their stress and dependency[113]. Others have argued that such loans hardly pull women and their households out of poverty[114] since women may often borrow from other sources to pay back loans, leading to indebtedness. When women borrow for themselves, they lack the means to repay because they generally invest in existing activities that are low profit and insecure[115]. Microfinance has been effective in increasing incomes and assets, although not in the poorest households. Women tend to spend income, when they do control it, on household consumption and 'security-related assets' such as homestead land, whereas male borrowers are more likely to invest in further productive activities[116].

To enhance the efficiency and sustainability of MFIs while ensuring gender equality and empowerment, it is important that women's activities, strategies, priorities and challenges are understood and valued. There is a need to include women in designing plans through participatory research programmes; integrate gender in core group mobilization for savings and credit; give access to women in non-financial services such as involving them in the application process; recognize

[105] However, local institutions can do little when shocks are macro in nature. In such cases, the governments and donors need to give support to such organisations to address market and environment related risks.
[106] Kay, 2003.
[107] Kulkarni, 2010.
[108] Mayoux and Hartl, 2009.
[109] Cheston and Kuhn, 2002.
[110] Shreshtha, 1998.
[111] Ashe and Parott, 2002.
[112] Cheston and Kuhn, 2002.
[113] Kabeer, 1998; Goetz and Gupta, 1996; Rahman, 1999; Todd, 1996.
[114] Fisher and Sriram, 2002.
[115] Mayoux, 2006.
[116] Kabeer, 1998.

women's talents and give them loans of amounts that would help them expand business and increase its quality by enabling them to purchase superior equipment and materials; include women in value and supply chains so as to promote markets for services used by women; and provide smaller loans, with quick returns and targeted for productive activity, and make savings and services available in locations women frequently access.[117]

The critical factors for successful pro-poor interventions by financial institutions include adequate reach and coverage of the target group, availability of a large variety of services, low transaction costs, continued access to services over a long period of time and sustainability of the institution with minimum support from non-users or tax payers. Examples include:

- Under P4K, a credit project for small farmers and fishermen in Indonesia, the very poor formed around 50,000 small groups. They were provided credit from the government owned Bank Rakyat Indonesia. However, the credit turned out to be inadequate and timely availability was not assured. Later, the women in marginal areas transformed these small groups into larger self-reliant savings and credit associations. Similarly, The Centre for Agriculture and Rural Development (CARD) in the Philippines changed from an unsustainable credit NGO to a viable rural bank with rapidly growing outreach to very poor women.
- In Pakistan, the Dir Area Support Project introduced a new system of Islamic Microfinance or *Murabaha* which was in line with Islamic banking principles. Instead of interest-based lending which is prohibited under Islam, under a *Murabaha,* the bank and the customer enter into a sale purchase agreement.
- In India, self-help groups are the backbone of microfinance services. The number of self-help groups linked to banks has increased from about 500 in the early 1990s to more than 3 million in 2008[118]. In addition, some village self-help groups (SHGs) have also set up a fund that provides emergency loans for members to obtain health care services.
- In Nepal, small farmer cooperatives offer tailor made agricultural and non agricultural loans, savings and insurance products to poor farmers. For instance, one cooperative in Anandvan extends rickshaw loans to the landless. Similarly, a cooperative in Bhumistan offers loans for purchase of buffaloes.
- The women's development component of GTZ's Tangail Infrastructure Development Project (TIDP) in Bangladesh has successfully enabled very poor and previously destitute women to increase their livelihood security. Grameen Bank of Bangladesh has also played an important role in mitigating risks of rural poor.
- Weather index-based insurance is usually offered to small farmers through their cooperative, input dealer, a microfinance institution or bank and can help mitigate the weather risks that they cannot manage. Weather index insurance was first piloted in India in 2003. In the first five years of its entry, the private sector has cumulatively covered more than 400000 farmers against a range of weather risks. However, to widely expand index insurance, governments and donors need to play a proactive role[119].

3.4.2. SOCIAL PROTECTION

Following the food price crisis and the global slowdown in the wake of the financial crisis, there is heightened interest by policy makers in new approaches and programmes to provide social protection to the citizens. Examples of social protection are given below.

- The *National Solidarity Programme* is a community driven initiative in Afghanistan. Introduced in 1993, it aims at empowering communities to take decisions and manage resources during the project cycle. Community development councils are elected and decide on development projects. It has been successful in creating a mechanism of governance and decision-making at the local level. The *National Emergency Employment Programme for Rural Access* (NEEPRA) in

[117] Mayoux and Hartl, 2009.
[118] IFAD, 2009a.
[119] IFAD and WFP, 2010.

Afghanistan helps supply jobs in road improvement. The main beneficiaries of the project are the rural poor who receive access to basic services and rural employment. A similar programme is that of *Food for Work* that provides food to Afghans while building or repairing community assets, including roads, bridges, schools, reservoirs and irrigation systems[120].

- The *conditional cash transfer schemes* provide cash to poor households subject to fulfilling minimum requirements such as school attendance and participation in immunization programmes. The schemes induce the households to increase their consumption of *merit goods*. For instance, the *Food for Education* scheme, introduced in Bangladesh in 1993, intends to build long-term human capital among poor families by distributing free rice and rationed wheat monthly to encourage them to send their children to school[121]. This programme was later changed to the *Primary Education Stipend Programme* where conditional cash transfers were provided to families of school going children[122].
- The *National Rural Employment Guarantee Scheme* (NREGS) in India guarantees one hundred days of employment in every financial year to adult members of any rural household willing to do unskilled manual work at the statutory minimum wage. India has also proposed a *Right to Food Bill*, which stipulates 35 kg of cereal (wheat or rice) at a highly subsidised price per month per family.

3.5. KEY MESSAGES

First, rural households in Asia and the Pacific Region face substantial idiosyncratic and covariant risks, resulting in high income volatility. As a result, loss of livelihood or income and liquidation of assets are often widespread.

Second, though developing countries bear the brunt of natural disasters, they are unable to insure themselves against these. A challenge for development assistance is to combine speedy relief with reconstruction.

Third, although the effects of the food price crisis varied in this region, some of the poorest countries were the worst hit. Recent upsurge in food price and its synchronicity with energy price have raised the spectre of another crisis in the making. Corrective measures include supply augmentation, trade expansion and cushioning the poor against food price spikes.

Fourth, as a consequence of high food prices and rising demand for food, there has been a proliferation of large-scale acquisitions of farmland in Central Asia and South East Asia. Whether intense competition for land will offer a long-term solution to food security remains debatable, as also the fate of smallholders. Elimination of biases against smallholders and protection of property rights of indigenous peoples would enhance their welfare.

Fifth, addressing risks in the context of rural growth and poverty reduction requires a multi-pronged strategy. Institutional responses to risks need to be strengthened by promoting community level institutions; widening and deepening the reach of financial institutions; and providing social protection to the most vulnerable. When designed well and targeted effectively, these institutions/programmes help poor households build resilience against risks and severe hardships.

[120] UNICEF, 2009.
[121] Similarly, under the *Dhanalakshmi* scheme in India, cash transfers are given to a family of girl child on fulfilling conditions such as registration of birth, immunization, enrolment and retention at school.
[122] UNICEF, 2009.

CHAPTER 4: AGRICULTURAL MARKETS FOR INCREASED INCOME

4.1. INTRODUCTION

Agricultural households operate both as producers and consumers. While many of them are 'net buyers' of food and sellers of labour, some are producers and others perform more than one activity. All of them need access to markets in order to get high returns on their resources of land, labour and capital, including human capital. Rural households with assets, non-farm income, and occupying favourable locations (irrigated regions with good infrastructure) have better access to markets than those who do not have one or more of these characteristics. When output prices rise, the latter are not able to take advantage either because they do not have enough surpluses to sell or easy access to market. The major issue, therefore, is how to make agricultural activities profitable for smallholders and those located in unfavourable agro-climatic regions.

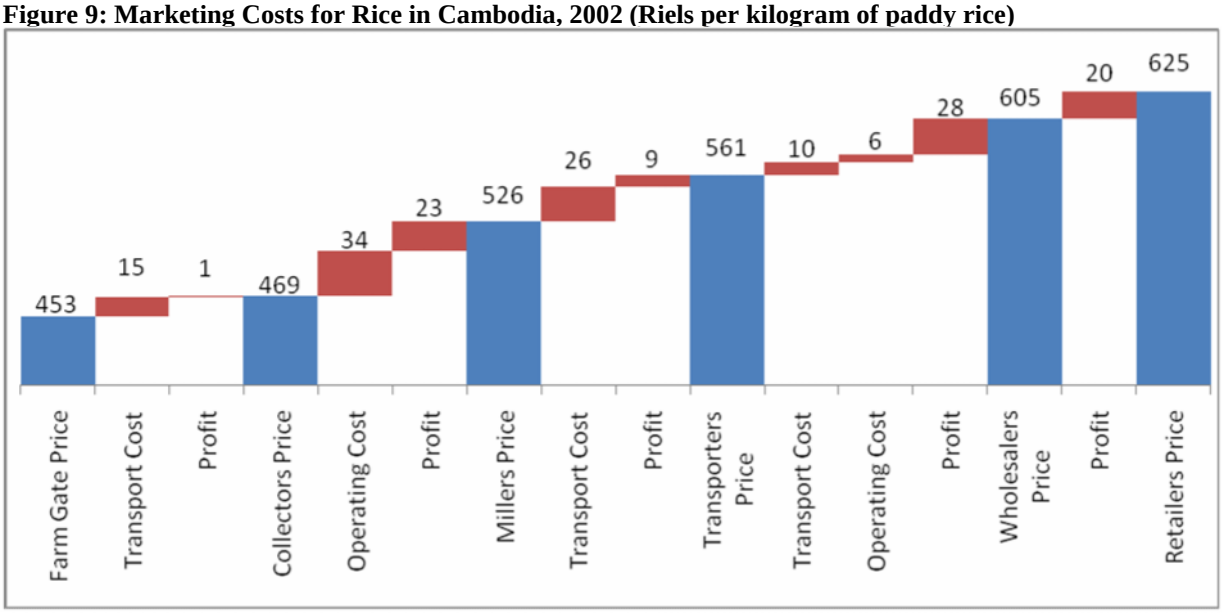
4.2. WHY AGRICULTURAL MARKETS MATTER TO RURAL POOR?

Recent developments such as liberalization of merchandise trade, volatile food and energy prices, climate change and importance attached to preservation of natural resources have imposed heavy costs, risk and uncertainty on the farming community of developing countries, especially the smallholders who also suffer from financial exclusion. They face a number of constraints (such as volatile prices and high market risk because of perishable nature of commodities, e.g. fruits and vegetables) and fragmented markets[123] in accessing high-value agriculture even though it is labour intensive and more suited for them. Further, until recently, in view of the declining average size of farm holdings in the developing world of Asia and the Pacific, especially South Asia, farming was not an attractive commercial proposition for the rural youth. With the surge in food prices in 2007-08, and again in recent months, agriculture has begun attracting large private investments.

An interesting feature of agricultural markets in developing countries is that multiple channels/intermediaries exist between the farmer and the retailer. At each level of intermediary, cost mark up is done for the activities they perform. The long list of intermediaries can be seen for the marketing system of rice in Cambodia (Figure 9) and the share of margin of profit accruing to each of the intermediaries. The vertical bar shows the price (farm gate price + activity cost + profit) at different levels of intermediaries. The horizontal bars indicate the cost and profit for the corresponding intermediary. The gap between the retail price and the farm gate price is as high as more than 37 per cent, of which more than one-half is the component of profit that goes to different intermediaries such as wholesaler (35 per cent), miller (28 per cent), retailer (25 per cent), transporter (11 per cent), and collector (1 per cent). The wholesalers and others in the chain of intermediaries make good profits, mainly because of lack of competition among buyers. The intermediaries/traders have limited access to credit and most of them run their business with own small working capital and bear risk in the process. Improving marketing efficiency would help reduce risk of intermediaries as well as transaction cost, including transport cost.

[123] Thapa, 2009.

Figure 9: Marketing Costs for Rice in Cambodia, 2002 (Riels per kilogram of paddy rice)



Source: World Bank Study Team (July 2002).

Market access depends on development of basic infrastructure (transport, power, communication, dissemination of information about prices at different locations). Market access varies across regions and income groups, location being important even within a region. Most rural households of low income groups are located in areas with poor infrastructure. Hence they have poorer access to market as illustrated in Chapter 2 for Cambodia and Laos (Box 4). Rainfed farming systems are located in less-endowed regions with high incidence of poverty. A comparative picture of market access[124] for regions by nature of farming system and income group yields some interesting results. The following observations are common to all the three regions (East Asia and the Pacific, Central Asia and South Asia): (Figure 10)[125]

- The degree[126] of 'high access' is much lower in less-favoured rainfed system than 'all farming system'.
- Within the category of a given 'farming system', the degree of 'high access' is much lower in low income group, as compared to lower middle and upper middle income groups.

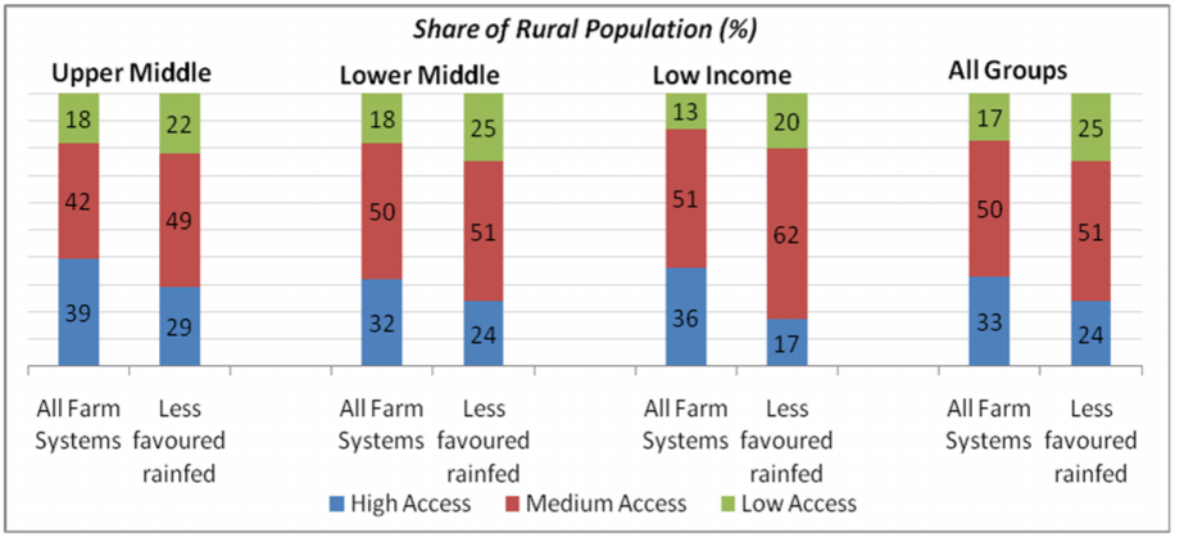
It may be inferred that, within a broad region, less-favoured rainfed system and low income group rural population get low priority for market infrastructure development.

The State has an important role to play in this context. It needs to develop road networks to reduce the cost and the time taken to travel to market, and should be proactive in developing a price information system. Whether or not public investment in road infrastructure benefits poor and non-poor rural households to the same extent is an empirical question. In Nepal, improved road network benefited the poor more than the non-poor. In Vietnam, the improved road network facilitated an increase in the trade of fruits, vegetables and meat, which helped higher income groups and educated households more than the poor and less educated ones (who work mostly as casual labour)[127]. Complementary investment in education is required for the rural poor to benefit from such infrastructure investments. Not just distance but also facilities available at the market matter, as found in a survey in Tamil Nadu (India)[128]. Broadly, (i) an improvement in market facilities is associated with an increase in the farmers' propensity to sell; and (ii) the impact of market access also depends on the wealth of a farmer. So, although wealthy farmers are able to take greater advantage of cheaper modes of

[124] Market access is measured in terms of travel time to the market and presented in terms of three categories as : high (0 – 1 hrs); medium (2 – 4 hrs.), and low (≥5 hrs.).
[125] Owing to lack of space only one region (East Asia and Pacific) is shown in Figure 9.
[126] Degree or extent of market access is measured in terms of percentage share of rural population.
[127] Taylor, 2008.
[128] For details, see Shilpi and Umali-Deininger, 2007.

transportation to reduce waiting time, this advantage reduces with higher land owned groups. Additional investments in market facilities are pro-poor as sales of the poorer farmers increase more than proportionately than those of wealthy farmers. In other words, while the latter capture the benefits of existing facilities better than the former, the marginal benefit from an improvement of market facilities is substantially greater for smallholders. India's efforts (through Ministry of Agriculture, GOI) in operating AgMark Net are a good example of the State's proactiveness. AgMark Net collects price information from wholesale markets all over the country and disseminates it through the internet. Now the private sector is also developing its own network.

Figure 10: Market Access (Share of Rural Population) by Income Group in Different Farming Systems in East Asia and the Pacific



Source: Sebastian, 2007 (Background paper for WDR, 2008).

4.3. How Markets have Changed in the Past Few Decades?

The last few decades have seen significant changes in agricultural markets on account of several factors such as reduced state intervention and deregulation of markets, changing food basket and market integration, urbanisation and emergence of supermarkets, and impact of globalization on agricultural trade[129].

Reduced State Intervention: The state-led agricultural development in the initial stages created the infrastructure and institutions that were instrumental in getting farmers guaranteed prices and in accessing markets[130]. However, the state machinery did not have much experience of marketing;[131] in some countries, sub-national governments even diverted resources generated from regulated markets to less productive activities rather than improving agriculture infrastructure and R & D. Later, national and sub-national governments started responding to global competition and slowly began deregulating markets[132]. In Vietnam, de-collectivization of agricultural production led to changes in the production and export of rice[133]. In other transforming economies too, state intervention is being reduced to meet international trade agreements[134].

Change in Food Basket: The acceleration in GDP growth and exposure to new life styles has changed the food basket away from cereals and in favour of fruits, vegetables, meat and milk. For instance, in

[129] Timmer, 2009a.
[130] DFID, 2004.
[131] Hashim, 2009.
[132] Rashid et al., 2007.
[133] Fanjul and Guerena, 2009.
[134] World Bank, 2008.

India, there is a marked increase in the consumption of animal fats, vegetable oils, sugar, potatoes and bread products and a decline in consumption of rice, pulses and other cereals[135]. In China, between 1980 and 2005, the increase in cereals has been very small (1per cent), but a very substantial jump has taken place in the consumption of fruits and vegetables (453 per cent) and milk (700 per cent)[136]. Poultry has become an important component of meat consumption, which would require much less feed than beef[137].

Urbanisation and Emergence of Supermarkets: Increasing urbanization and female participation in work force has increased demand for processed food. Supermarkets score over traditional retail stores in efficiently supplying processed food, and fruits and vegetables. However, such establishments exclude smallholders who have limited access to modern inputs and credit and favour a handful of producers who are able to meet the quality standards[138]. Smallholders who cannot meet the standards of supermarkets still do business in the traditional market.

Impact of Globalization on Agricultural Trade: Two important factors have emerged from trade reforms and the liberalization of merchandise trade: (i) export demand for 'tropical products' (e.g.: tea, coffee, sugar and textiles) in the developed world has declined and that of high-value products (e.g.: fruits, vegetables and fish) has increased; (ii) the transforming economies of South Asia, East Asia & the Pacific are likely to become net importers of foodgrains, which may threaten domestic food security. Thus, international trade has thrown up two challenges: (a) whether smallholders would be able to participate in the global supply chain of high-value products, and (b) whether smallholders/'net buyers' of food would be able to maintain their food security?

4.3.1. THREAT TO SMALLHOLDER PARTICIPATION

Threats to smallholders would be reduced to the extent that (i) smallholders are able to participate in the expanding domestic markets for high-value products. China, for instance, allows its smallholders under the household responsibility system to sell a part of their produce. These smallholders sell their horticulture produce to local supply chains dominated by small traders who supply to urban markets,[139] thus enabling them to take advantage of a growing domestic urban market. In cities, however, modern super markets are spreading fast in the north-west and south-west part of China[140] and may curtail benefits to smallholders; and (ii) small producers are helped either by the global chain organisation or domestic institutions to access the export market, as in Vietnam, where An Giang University supported small producers of *pangasius* cat fish to supply to a large-scale processing firm[141]. The state has an important role to play in the integration of smallholders in a rapidly transforming agricultural sector. It must encourage producers' associations, cooperatives and contracting firms that provide inputs, technical advice and credit to smallholders.

4.3.2. OPPORTUNITIES AND CHALLENGES

Market and Trade Integration: Farmers in a region would be able to benefit from trade liberalization if they are producing an "internationally competitive commodity" (i.e., no positive protection is being provided by the government). Otherwise, they would be losers as in the case of poor farmers in West China[142]. There are two ways for the smallholders/poor farmers to escape from this situation: (i) diversify to crops which are not internationally competitive or raise the efficiency of production (i.e.

[135] Kulkarni and Gaiha, 2010; Kaicker et al., 2011.
[136] IFAD, 2011.
[137] One kg of meat production in the form of beef requires 10 kg of feed in comparison to only 2-3 kg for poultry production (WDR, 2008).
[138] Gaiha and Thapa, 2007.
[139] Large holders do not exist in China due to the vary nature of the tenure system.
[140] Gaiha and Thapa, 2007.
[141] IFAD, 2011.
[142] Taylor, 2008.

raise yields substantially at lower costs through new and innovative resource saving on current crops to make them internationally competitive). This requires huge investment, R&D and skills for which the State's help is crucial; and (ii) farmers should be able to take advantage of a huge domestic market, as in China and India. This requires that the domestic markets function efficiently with low transaction cost. In this case too, the state's role is of prime importance. In fact, the role of the state has evolved from being primarily a producer and a distributor, to creating an enabling environment for markets to function efficiently, to invest and encourage R&D, and to provide other public goods.

Exploiting Niche Markets: Constraints to enhancing agricultural productivity due to diminishing returns to conventional technology and natural resource degradation has made it imperative to look at alternate agricultural technologies, including low external input and sustainable agriculture, organic agriculture and biotechnology. In South East Asia and Pacific regions, 60000 farms spread over 600000 hectares produced certified organic products in 2002, which increased to 90000 farms, spread over 3.8 million hectares by 2005-06[143]. Whether or not organic farming survives on its own depends on its profitability after the initial years. Two contrasting examples are available from India. In Maharashtra, the initial cost of production of organic cotton was just half the cost of intensive conventional production, but, subsequently, the cost of organic cotton rose. If sufficient market margins are not available, organic cotton production will not be profitable. The case is just the opposite for valley rice and cane whose cultivation will survive even if the market margin is low given high volumes.

The Asia and Pacific experience offers three types of models: (i) large farms producing organic products and supported by the private sector and government (Chinese model); (ii) small farmers producing for the domestic market and supported by NGOs (India model); and (iii) a combination of the two (Thailand model) [144]. This kind of activity is also being undertaken by several big corporate houses as part of their corporate social responsibility (CSR).

4.4. KEY MARKET FACTORS FOR POOR RURAL PEOPLE

Producers' Organisations/Association: The major benefit of producers' organisations is that they offer services to members at low cost, including bulk purchase of inputs, transportation, negotiation with companies, obtaining credit from financial institutions and enforcement of contracts. Producers' organisations have a good chance of success if the members share common economic interests and are committed to enhancing them. Governance is a major issue in such organisations; homogenous membership profiles and commonality of interests increase the efficiency of the organisation. For instance, the Indian Dairy Cooperatives network comprises 12 million members, including landless labourers and women, and produces 22 per cent of India's milk supply[145]. In China, a group of small scale growers, aided by the local government formed the Ruoheng watermelon cooperative, which then sold directly to wholesalers, retailers and supermarkets. Due to its timely delivery, quality, and marketing success, the cooperative's membership increased from 29 to 152, and its farmed area increased from 0.2 hectare in 1992 to thousands of hectares in 2005[146]. In Sri Lanka, the MA'S Tropical Food Company assists small farmers to organize into groups, streamlines their operations and logistics, provides training and access to markets, and thus enables them to become part of the high-value spice chain.[147] A challenge is to achieve discipline in collective action for the producers' organisations to meet the terms of the contract and at the same time ensure that members resist the temptation of side-sales, particularly when prices are rising and local markets exist for the contracted product[148].

[143] Pender, 2008.
[144] Pender, 2008.
[145] Valdes et al., 2010.
[146] World Bank, 2008.
[147] Taylor, 2008.
[148] Byerleee et al., 2010.

Infrastructure & Information: Investment in rural roads for connectivity with markets yields high returns in terms of raising incomes of farmers and in reducing rural poverty. Urban-rural linkages through transport facilities reduce urban-rural wage disparities. In fact, high transportation costs are the largest source of marketing margins for foodgrains in Bangladesh and Indonesia[149]. In Vietnam, the development of roads has played an important role in market development and increased the variety of goods available to consumers. The efficient use of ICT drastically brings down the cost of information and dissemination of knowledge. Information on the spatial differences in prices of agricultural commodities or weather conditions, passed on to farmers through mobile phone/SMS is extremely useful and cost effective – SEWA (India) performs this service for women, and ITC's e-choupal (India) uses SMS to inform small producers. Thai Fresh Limited (Thailand) provides extension services to small farmers under contract farming, Bali Fresh (Indonesia) trains a group of poor women in literacy and book keeping, and MA'S Topical Food Company (Sri Lanka) imparts knowledge on spice farming through extension agents.

Contract Farming: It is being practised mostly by large agri-business firms but the coverage of farmers has been rather low. Contract farming allows farmers to obtain/deliver predetermined/negotiated quantities at specific prices and of specific quality within a specified time frame. Such contractors/firms normally bring a package of services to the farmers, including credit support, input supply, and technical knowledge. Guaranteed prices insulate producers/farmers from volatility in market prices. Contract farming is practised in many Asia-Pacific countries, particularly the Philippines and Thailand. The Export-Import Bank of Thailand, for instance, has been involved in financing such projects. In Nepal, a rural-urban partnership programme connects farmers with marketing centres. In Thailand's San Sai district, a farmers' group has found a lucrative market for its dried *longans* in China. Critical concerns of contract farming include the exclusion of small farmers caused by the fact that big agri-business firms prefer to work with a small number of large farmers rather than with large numbers of smallholders[150]. Another important aspect of contract farming is in designing contracts to make provision for (or create incentives for) investment in high quality products. Some NGO's hold an enviable track record in working with smallholders and agri-business firms to facilitate such investments. Two issues, however, cannot be overlooked. (i) Commercial partner, often with monopsony power, may renege on the contractual agreement once the crop is ready for delivery, offering a lower price or imposing higher quality standards. (ii) Sustaining the contractual arrangements over a longer period than stipulated.[151]

Financial Services for Market Participation: As discussed in Chapter 3, access to financial institutions helps rural households in mitigating risks by getting credit and safeguarding and providing adequate return on their savings. In addition, financial institutions provide a variety of other services such as insurance and physical assets as collateral. Physical assets as collateral provide flexibility and help reduce transaction costs. This process has an additional advantage in terms of reducing cost through bulk purchase resulting in shortening the steps in the value chain.

Global Corporate Sector in Agricultural Value Chain: The corporate sector can assist smallholders in capturing market opportunities by providing technical and industrial training to farmers. Some large firms have adopted such a role as part of corporate social responsibility (CSR). Another approach is to institutionalize CSR by laying down strict codes and standards for their products. The CSR model, however, does not take care of the difficulty of small processors who fail to cope with strict standardization. It also does not necessarily ensure decent work conditions in the agricultural value chain. A newer model has emerged recently – '*innovative business driven initiative*'. For instance, the Business Alliance against Chronic Hunger, set up in 2006, promotes initiatives to improve local food production and engage smallholders in market activities[152]. Large agribusiness firms have facilitated the integration of small farmers into high-value markets, as in the case of Normin Veggies in the

[149] Fanjul and Guerena, 2009.
[150] Fanjul and Guerena, 2009.
[151] See Byerlee et al., 2010.
[152] IFAD, 2011.

Philippines. The private sector has experienced a major boost all along the value chain, most of it in the context of a steady concentration process. Food manufacturers (such as Unilever, Nestle and Kraft) are entering higher-value added activities associated with brand and product innovation, while food processors (such as Cargill and ADM) have emerged to fill in the space left behind in primary and secondary processing. In India, the hyper-retailer Carrefour is developing sustainable models of procurement in vulnerable eco-regions and building capacity in areas such as food safety[153].These developments have thrown up two types of challenges: (i) developmental (corporate taxation, employment generation, wage); and (ii) regulatory (corporate working needs to be consistent with legal and regulatory requirements).

Labour Opportunity in Agricultural Value Chain: So far, the major concern has been the involvement of smallholders in value chain. Another matter that needs to be highlighted is the employment of workers in the value chain in certain associated activities such as transportation, processing and trading. In the example of Horticulture Development Programme (India) cited below, considerable employment has been created to meet the labour demand of fruit orchard operation. Employment has also increased in the complementary areas of transport, storages and packing. The opportunities offered by the value chain depend on its nature and the labour requirements in production and processing. Product markets have undergone restructuring. Some who work as small contractors in the earlier stage may become wage earners in the new phase of the production process. In other cases, labour, including migrants employed by large companies, do not have formal contracts, and hence are not protected from violations by their employers.

Here again, the State has a role to play in upgrading agricultural labour markets by providing training, ensuring greater workplace security, and reducing health hazards. In many poor countries, workers waste time and energy in moving from farm to farm to seek jobs, which results in inefficiencies in labour markets. Better labour management can help reduce inefficiencies.

4.5. How the Emergence of Pro-poor Agricultural Markets can be supported?

A few points are fundamental to the benefit of poor/smallholders to capture the emerging opportunities in the chain. These include identification of value chains where smallholders have comparative advantage; reduction in the number of steps in the value chain and minimizing of risk and transaction costs within these steps; identification of beneficiaries at every step in the value chain to find measures to enhance the share and power of smallholders, and identification of initiatives and investment with significant impact on participation and benefits to the smallholders. Box 11 reviews IFAD initiatives in Asia and the Pacific Region to integrate smallholders into the agricultural value chain.

[153] Fanjul and Guerena, 2009.

Box 11: Linking Smallholders to Value Chains

The Rural Enterprise Development (RED) component of the IFAD-supported Market Infrastructure Development Project in Charland Regions (MIDPCR), Bangladesh, identifies market opportunities and value addition to the products, and helps build capacity of the small char producers so that they will link to market and economic opportunities in the fish sub-sector. By establishing collection points (CPs) at the centre of a village, at the intersection of roads or within the existing weekly market where products such as beans, milk and fish are gathered for wholesale, they meet the prime need of fingerling producers, fingerling traders and fish producing farmers. In the Shantirhat bazaar, the collection point has brought together 25 fingerling producers, 55-60 fingerling traders and more than 250 fish-producing farmers to transact business (compared to 10 fingerling producers, 10 fingerling traders and 150 fish-producing farmers before the CP was established). Average sales from the CP are Tk 50,000-60,000 (US$ 723-868) per day, which is significantly higher than the sales of Tk 12,000-15,000 (US$ 173-217) per day before the CP was created.

The Nature's way cooperative in Fiji assists producers, including small-scale farmers, and others involved in the commodities pathway, and its activities have generated much foreign exchange for the government and people of Fiji. Its governance structure and mode of operations have benefited other Pacific Island nations as well viz. Cook Islands, New Caledonia, Samoa, Tonga and Vanuatu.

The IFAD-supported Livelihood Improvement Project for Himalayas in Meghalaya, India (2004-2012), has been working to capture the niche market in turmeric and help enhance the incomes of poor rural farmers. With a view to enable them to have more control over value addition and thereby earn higher income, the project facilitated a farmers' federation, called 'Laskein Federation for self-help groups' (LIFE). Recently, the federation set up a processing unit for value addition of turmeric so that high-quality turmeric is available in the market. The establishment of the processing unit has created opportunities for the farmers to obtain a better value for their own product and to negotiate with market forces like ITC for bulk supply to cater to the needs of the pharmaceutical industry.

The IFAD-supported Rural Livelihood Improvement Programme in the Attapeu Province, Laos (2006-2014), is seeking to reach 6,200 poor rural households in Phouvong, Saysettha and Xansai districts. To develop the vegetable value chain, the programme (RLIP) undertook a number of interventions: strengthening village administrative committees, strengthening the delivery of extension services, formation and capacity building of vegetable production groups, securing access to land, strengthening the delivery of financial services, ensuring access to necessary inputs, improving access to irrigation facilities, enabling the flow of information, facilitating market access, and increasing access to higher-value markets.

The Local Livelihood Programme ensures increased access to economic opportunities by poor farmers and producers in hill and mountain areas in Nepal, as also in some new economically viable and socially acceptable livelihood options along the North-South road corridors. The target groups were provided with a wide range of market-led enterprise options matching their environment and resources. Besides these, small rural infrastructure, such as micro-irrigation schemes, collection centres and cooperative buildings, were developed. As a result, significant positive changes in the livelihoods took place: enhanced food security, increased farm income, grassroots institution-building, reduced outmigration, increased local employment opportunities and enhanced social status.

Source: IFAD, 2010.

A gender perspective is necessary while viewing the changing market structure and emerging opportunities. Certain traditional farming practices give women an advantage over men and allow for easy organic certification. In Indonesia, Bali Fresh, a private company has brought poor women together, rented land for them to cultivate fruits and vegetables, arranged to supply seedlings and

provide extension services and marketing support to ensure quality and quantity. It has also set up a revolving fund with outside aid for purchasing inputs and to train women in book-keeping. Having taken these steps, the company has established links to supply fresh produce by the women's group to hotel, restaurant and export market. Women who had no earlier experience of farming now earn twice as much as the minimum wage rate[154]. In China, with the growing demand for high-value horticulture commodities, new opportunities have been opened for poor women.

4.5.1. ROLE OF GOVERNMENT, NGOS AND DONORS

As discussed in earlier Chapters, the government is expected to play a proactive role in creating infrastructure and enabling policies and regulatory measures to reduce market risk for smallholders. Such policies need reorientation to expand the rural financial system and encourage private investment in channels that seek greater participation of and benefit to smallholders. Governments need to negotiate in regional and international fora to safeguard their interests. This calls for a regionally differentiated strategy both for sub-national development and trade negotiations. For instance, in Maharashtra (India), besides material inputs and wage subsidy, the government played a crucial role in upgrading the Pune-Mumbai expressway, airports and port facilities. The good quality infrastructure facilitated competitiveness of horticultural and other products in the domestic and international markets.

NGOs have an important role to play in several areas, such as providing assistance to evolve standards, and bridging gaps/building trust as honest brokers between different parties – smallholders, private sector and government. Donors can support public-private partnerships. While NGOs and donors should play the role of a catalyst, they cannot substitute for the private sector. NGOs are effective in imparting training, generating awareness of credit facilities and dealing with banking and non-banking organisations. The private sector can be instrumental in promoting reforms through public-private dialogue[155].

4.6. KEY MESSAGES

First, the smallholders and the poor face disadvantages in accessing markets due to weak asset position, lack of knowledge, high transaction costs of entry, and poor location. Addressing these risks and overcoming barriers are critical for smallholders to seize opportunities offered by expanding markets.

Second, agricultural markets have undergone significant changes in the past few decades for multiple reasons: reduced state intervention, growing urban markets, emergence of supermarkets and changing food basket. Restructured markets may involve higher entry costs and risks of exclusion for smallholders.

Third, the global trade is a potential threat when smallholders face high entry costs to the value chain due to asymmetries of power, information and skills. Governments need to strengthen infrastructure support, enable access to information and technologies and promote smallholder comparative advantage in emerging high-value chains.

Fourth, Contract farming can reduce the risk of price volatility and build confidence with agri-business firms provided enforcement mechanisms are in place. Governments can intermediate through food safety standards while producers' organisations can play an important role in price negotiations

[154] Pender, 2008.
[155] See, for example, Working Group on Agriculture and Agri-business in the Government-Private Sector Forum in Cambodia.

and in getting better access to financial services. Successes are many but need replication on a larger scale.

Fifth, public-private partnerships are conducive to infrastructure development, financial services and imparting knowledge and skills to smallholders. NGOs and donors could help exploit synergies among public authorities, private sector and smallholders in these partnerships.

CHAPTER 5: SUSTAINABLE INTENSIFICATION OF AGRICULTURE

5.1. INTRODUCTION

The world population is expected to be about 9.1 billion in 2050. With increasing urbanization and high income levels, food production must increase by 70 per cent to meet the food demand in 2050[156]. Since the scope for net increase in arable land is highly limited (especially in Asia and the Pacific Region), 90 per cent of this additional food requirement has to be met through increases in yields in areas with intensive agriculture[157]. Availability of fresh water resources for food production is declining fast and may worsen due to climate change. Since South Asia, and East Asia and the Pacific are slated to experience food deficits in domestic production and increased dependence on food imports by 2030, the pressure to maintain food security would be reflected in intensive exploitation of natural resources (land, water, forestry and fish production). Most poor in these sub-regions are located in ecologically fragile environments that are already experiencing further deterioration. If agriculture is to provide a pathway to exit poverty, utmost attention should be paid to the sustainability of natural resources used in the intensification of agriculture[158].

5.2. AGRICULTURAL TECHNOLOGY AND SMALLHOLDERS

Availability of arable land per person in Asia and the Pacific Region is just one-fifth of the rest of the world. The miniscule average size of landholdings means that agriculture cannot advance without new technology being available to smallholders. Initially (late 1960s and early 1970s), the green revolution technology (modern varieties of seeds accompanied by complementary inputs) was adopted by large farmers, and, after a lag, smallholders too gained from new technology as complementary inputs (credit, fertilizer extension services) were made available through proactive state policy. This story is particularly relevant to South Asia.

In the 1960s, a break-through in agricultural technology occurred due to the evolution of semi-dwarf varieties of wheat and rice in many parts of Asia and the Pacific Region. These varieties transformed stagnant agriculture (low input-low output) into dynamic agriculture (high input-high output). Initially, the use of modern varieties was confined to irrigated areas, and bypassed the rainfed and dryland areas and minor crops such as pulses, coarse grains and oilseeds. In South Asia, irrigated agriculture accounts for 40 per cent of harvested area, as compared to 29 to 30 per cent in East Asia[159]. In the late 1960s, modern varieties of rice were used only in 2 per cent and 5 per cent of harvested area in South Asia and South East Asia, respectively, but rose to 70 per cent in both sub-regions by the end of the late 1990s[160]. The increase (80 per cent) in use of modern variety of maize has also been significant[161]. Similarly, the use of modern variety of sorghum in China reached a very high level (98 per cent), as compared to India (69 per cent) and Pakistan (20 per cent) in the late 1990s[162]. In the Indian context, it is not a small achievement as sorghum is grown mainly in water-scarce areas. The use of inorganic fertilizer – more conspicuous in South East Asia than in South Asia – increased the yields of different crops. The increase in fertilizer use has been phenomenal in Asia

[156] This is net of biofuel demand.
[157] Most of the increase in arable land would come from Sub-Saharan Africa and Latin America; World Summit on Food Security, 2009.
[158] Sustainable intensification is being used in the broad sense that high level of productivity already achieved is further enhanced, or at least maintained with restoration of soil fertility and substantial improvement in water use efficiency, without causing harm to biodiversity and human / animal health.
[159] World Bank, 2008.
[160] Hossain et al., 2003.
[161] Morris et al., 2003.
[162] Deb and Bantilan, 2003.

and the Pacific Region, rising from 6 kg/ha in 1961-63 to 143 kg/ha in 2002-04[163]. The overall yield of cereals has been much higher in East Asia & Pacific than in South Asia. The contribution of modern improved varieties of rice to yield increase was about 50 per cent in China (1975-1990) and 53 per cent in the Punjab province of Pakistan[164]. Total factor productivity (TFP)[165] grew at the rate of 1 to 2 per cent per annum across Asia-Pacific countries. In China and India, TFP's contribution to output growth was about 50 per cent since 1960; and about 30 to 40 per cent in Indonesia and Thailand[166].

TFP performance in developing countries is strongly correlated with national investments in "technology capital"-a measure of a country's ability to develop and extend improved technology to farmers. Countries that failed in this respect lagged behind others. So there is a case for higher spending on agricultural research. However, there are long time lags between research investments and productivity growth.

Another important insight relates to supply response to higher food prices. The slowdown in growth rate of agricultural capital formation was in part a consequence of a long spell of unfavourable prices facing producers, resulting in capital moving out of agriculture. The incentives offered by spiralling food prices are likely to accelerate agricultural growth and dampen food price inflation[167].

5.2.1. SUB-SECTORS

Within the agricultural sector, sub-sectors comprising livestock and fisheries have made considerable progress. The countries which have done reasonably well in these sub-sectors are listed below:

Poultry & Pig production	China, Vietnam and Thailand increased production by 200 per cent during the 1990s. The share of these countries in global production was almost 33 per cent and 50 per cent in chicken and pig production, respectively, in 2001[168].
Dairy production	India and Pakistan are the traditional milk producers in the region. India also accounts for 15 per cent of world milk production. Dairy Production quite often is a part of the mixed farming system.
Fisheries	China, Bangladesh and Vietnam are prominent in aquaculture, with China accounting for 67 per cent of world's aquaculture production.

Source: Compiled from various sources including WDI 2010 and IFAD, 2011.

Attention may be drawn to the factors leading to high production of some of the high-value products (Chapter 4). It may be added that in China, fishery exports doubled during the 1990s but these were not more than 8 per cent of the total production for that decade. Domestic demand, rather than exports, fuelled an increase in production[169]. For instance, milk production in India increased because of a shift in the composition of food away from cereals. Changes in technology and the sale of commercial production in poultry have adversely affected household production in Cambodia, Laos,

[163] World Bank, 2008.
[164] World Bank, 2008.
[165] Total factor productivity (TFP) refers to the increase in yields controlling for the effects of inputs. The primary driver of total factor productivity is technological improvement.
[166] Much of recent literature draws attention to slowing cereal yields (WDR, 2008). Combined yield of rice, wheat and maize in developing countries grew at 2 per cent per annum during 1970-90 and about 1 per cent per annum during 1990-2007. But this is not sufficient to argue that agricultural productivity growth decelerated sharply. One major limitation of this measure is that it lumps together a wide range of intensification processes. The TFP growth analysis, however, points to a different story. In developing regions, productivity growth accelerated in the 1980s and in the subsequent decades. Input growth slowed but remained positive. China sustained exceptionally high TFP growth rates since the 1980s. Few other countries and sub-regions in Asia-Pacific also performed well (Fuglie, 2010).
[167] For details, see Fuglie (2010).
[168] IFAD, 2011.
[169] Gulati et al., 2007.

Vietnam and Indonesia. This may have reduced production for self-consumption. The artisanal fishery too experienced a setback due to the advent of destocking and commercial fishery.

5.2.2. BIOTECHNOLOGY IN AGRICULTURE

The first generation advances in biotechnology have created good opportunities for smallholders. The products of these technologies (such as hybrid varieties of rice and wheat) became popular and could be adopted easily. One of the successful cases based on tissue culture often cited is that of disease-free sweet potato which was planted on 500,000 hectares owned by smallholders in Shandong Province of China. The yield increased by 30 to 40 per cent. Another biotechnology helped eradicate rinderpest disease in cattle[170]. The produce of second generation advances in biotechnology, particularly genetically modified organisms (GMOs), such as Bt Cotton, has been widely adopted in China and India[171]; by 2009, 7 million farmers in China and 5.6 million in India are reported to have planted it[172]. Bt cotton leads to cost reduction due to (i) decline in yield loss caused by pest attack; and (ii) reduction in use of pesticides. Other important Bt crops are maize (particularly in the Philippines) and, to a lesser extent, rice. Bt varieties are available for soya and rapeseed too but are yet to gain acceptability. Since GMOs are controversial due to uncertain effects on the environment and health, many countries are still hesitant to accept them. For example, Malaysia and Thailand are still debating the pros and cons of adopting GMOs.

Some of the big challenges for GMOs are: (i) developing varieties that can perform well under conditions of drought, flood, heat and salinity; (ii) strengthening bio-safety assessment; and (iii) making smallholders aware of the risks and benefits of GMOs. These enormous tasks need substantial finances and scientific talent, and public-private collaboration[173].

One of the areas of concern is the gap in yields between what is achievable (experiment-based) and the actual. One reason is the lack of availability as well as effectiveness of extension services to the farmer. In many countries, notably India, in the post-green revolution phase, the system of state agricultural extension services almost collapsed. This void has not been filled by the private sector. Another reason is the lack of availability of certified and genuine quality of seeds. In many cases, private seed companies supply seeds to farmers, particularly in high potential areas. The government has an important role to play in supplying seeds to farmers in remote areas, and in monitoring the quality of seeds supplied by the private sector.

5.3. ENHANCING AGRICULTURAL PRODUCTIVITY TODAY – SOME KEY CHALLENGES

Recent evidence suggests a slowdown in productivity growth in cereal crops such as rice and wheat in major irrigated areas of Asia such as the Indo-Gangetic plain and East Asia. For example, rice yield growth in irrigated areas of Asia declined from 2.31 per cent per annum in 1970-90 to 0.79 per cent in 1990-2000. The major reasons for this decline in yield growth include: the displacement of cereals on better lands by more profitable crops; diminishing returns to modern varieties when irrigation and fertilizer use are already at high levels; and the recent low price of cereals relative to input costs, making additional intensification less profitable (Hazell, 2009)[174].A breakthrough in yields is required to meet the target increase in food production to maintain food security. Some of the features that may have caused stagnation in yields are inadequate public investment in infrastructure and agricultural research, soil degradation due to intensive agriculture, overexploitation of ground water resources,

[170] World Bank, 2008.
[171] IAASTD, 2009.
[172] IFAD, 2011.
[173] Pender, 2008.
[174] As noted earlier, while yield growth rates are of some significance, TFP growth rates that allow for different intensification processes are more interesting. But these have not been computed for individual crops.

and inefficient management of surface irrigation. Breakthroughs in new varieties of rice and wheat enabling a significant thrust to productivity are not on the horizon for the second phase of the green revolution in Asia-Pacific countries.

5.3.1. CONCERNS ABOUT SUSTAINABILITY

A significant part (25 per cent) of arable land is already under arid conditions in less favoured areas in South East Asia and the Pacific (SEAP) sub-region. In some of the countries, it is much higher than 25 per cent, as in China (34 per cent), Mongolia (65 per cent) and Pakistan (62 per cent). In India too, 6.7 per cent of the land in less favoured areas is arid. Degradation of land adds to the crisis of declining yields. In the SEAP sub-region, loss of top soil due to water and wind erosion is 15.7 per cent and 5.4 per cent, respectively. The loss of grain production due to land degradation in China is estimated to be 60 per cent during 1985-1989, most of it caused by flooding, drought and soil erosion. Estimated annual cost of soil degradation is 7 per cent of GDP originating from agriculture in South Asia. For the SEAP sub-region as a whole, the estimated loss varies from 1 to 7 per cent of agriculture GDP. Water-logging is also an important cause of salinity in the SEAP sub-region, and has affected about 7 per cent of arable land. Heavy use of chemical fertilizers has led to contamination of ground water. Another major concern for sustainability is the growing scarcity of water for agriculture, caused primarily by over-exploitation of ground water resources in the SEAP sub-region. In the North China plains, the water table has fallen by one metre a year due to heavy dependence on tube well irrigation. In southern India, the situation is extremely alarming since the ground water levels have declined by 25-30 metres in a decade[175]. The story is no different in India's North West States of Punjab, Haryana and West Uttar Pradesh – the seat of the green revolution – which contribute over 80 per cent of the foodgrains in India.

Most of the over-exploitation of ground water is occurring due to faulty policies such as absence of or weak regulatory measures for use of ground water and public provision of cheap electricity and diesel in the form of heavy subsidies for drawing ground water[176].

Increased production of livestock has contributed to pollution of water resources and is also responsible for the overconsumption of water and rising demand for feed/ coarse cereals. The increase in meat production in China between 1994 and 2004 (i.e. from 45 million to 74 million tonnes) led to rising demand for feedgrains. As a result, 70 per cent of the increased exports (the trade in soybeans doubled in this period) of soybeans went to China[177].

5.3.2. CLIMATE CHANGE

Asia and the Pacific Region encompasses a wide spectrum of farming agro-ecosystem – dry wheat producing areas (Central Asia) and wet rice producing ones (South East Asia). The region is likely to face extreme weather conditions, including a higher probability of floods and droughts. Some of the adverse effects of climate change are:

- Climate change (increased level of CO_2 emissions, and soil erosion due to too much rainfall) would worsen land degradation. Ninety per cent of rainfed area in Asia and the Pacific Region is already under cultivation. Its vulnerability would increase.
- The rise in the average sea level may be about 40 cm at the end of the century. In such a situation, the worst affected parts of Asia and the Pacific Region would be Bangladesh, India, Pakistan, Myanmar, Sri Lanka, Indonesia, the Philippines, Thailand and Vietnam[178].

[175] Pender, 2008.
[176] Gulati and Narayanan, 2003.
[177] World Bank, 2008.
[178] Dependence on aquaculture in coastal areas is quite high in some of these countries (India (60%), Pakistan's Punjab (40%) and China's provinces of Shandong, Hunan, Beijing and Hubei (50%, 50%, 65% and 70%, respectively) (ADB, 2009).

- Under the different scenarios described in the IPCC Special Report on Emission Scenarios (SRES), the global mean surface temperature is expected to rise from 1.8°C to 4.0°C by the year 2100. The expected rise in the sea level is in the range of 0.18 – 0.59 metres. Due to climate change, freshwater availability in many parts of Asia is expected to decrease by 2050. South, East and South East Asia will be at the greatest risk due to expected flooding. This will also have impacts on morbidity and mortality due to diarrhoeal diseases associated with floods. The following impacts on crop productivity may be expected: In areas of mid-to-high latitudes, productivity is projected to increase slightly with temperature increases between 1-3°C (depending on the crop), and then decrease in some regions. In regions of low latitude, crop productivity is projected to decrease for even small increases in local temperature[179].

The poor, smallholders, women and fisherfolk would be worst affected in the climate change scenario.

Box 12: Options in Emission Reduction

Apart from fossilised carbon, there are other greenhouse gasses, other atmospheric pollutants, and the effects of cutting down of forests that contribute equally to global warming. Controlling these is a promising option for three reasons. (i) Since the emission of carbon dioxide is a fundamental part of today's industrial structure, there is enormous resistance to cutting it. HFC-134a is a gas with various industrial uses that delivers more than 1000 times more warming than carbon dioxide, mass for mass. Cutting its use is easier as it is peripheral to industrial life and substitutes are easier to find. (ii) The benefits of reducing carbon-dioxide emissions may seem distant. Reducing emissions of black carbon, given off by inefficient combustion in cooking fires and brick kilns, by contrast, offers rapid and substantial public health benefits. Cleaner ways of burning various fuels, for example, could not only slow down global warming but also prevent millions of death from smoke and disease. (iii) Reducing carbon emissions is *contingent* on new international agreements that are both efficient and equitable. But these considerations have proved a stumbling block in recent negotiations. Reduction of other warming agents, by contrast, could be accomplished within existing agreements (e.g. clean –air regulations). But these new climate actions do not replace the need for reducing carbon emissions

Source: *The Economist*, 19th February, 2011.

While the search for effective mitigation mechanisms continues, it must be combined with adaptation. The latter, of course, deserves greater attention than it has received. Since the "world's appetite for emissions reductions has been revealed to be chronically weak", it is imperative "to find ways of adapting to many possible future climates"[180].

Poor countries need assistance as they lack the financial resources, technical expertise and political institutions for such endeavours. Moreover, they are more vulnerable to the risks of climate change as they depend more on agriculture that is so closely tied to weather. Crops are sensitive to changes in patterns of rainfall and peak temperature, as also the pests and diseases that attack them.

Adaptation calls for not just expanded research into improved crop yields and tolerance of temperature and water scarcity, but also research into management of pests, soil conservation, and cropping patterns that enhance their resilience[181]. There is also a case for weather insurance which will pay not when crops fail but when specific climatic events occur (e.g. rainfall below a set level).[182]

Strategies of adaptation by smallholders raise specific concerns. They are likely to suffer impacts of climate change that are locally specific and hard to predict. The variety of crop and livestock species produced by them, and the importance of non-market relations will increase the complexity both of

[179] IPCC, 2007.
[180] *The Economist*, 25th November, 2010.
[181] For details, see Gaiha and Mathur, 2010.
[182] For a review of weather-based insurance, see Gaiha and Thapa, 2007.

the impacts and the subsequent adaptations, relative to commercial farms with more restricted ranges of crops. While small farm sizes, low technology, low capitalisation and diverse non-climate stressors (e.g. population driven land fragmentation, limited access to markets) add to their vulnerability, their existing patterns of diversification away from agriculture and store of indigenous knowledge impart greater resilience[183].

5.4. An Emerging Agenda for Sustainable Agricultural Intensification

The major issues emerging from the earlier analysis are (a) making agriculture less risky for the smallholders; and (b) conserving the environment and producing more with the given resources. The question that policy makers and practitioners face is how it can be achieved. Recently, several initiatives have been taken at the international level, such as International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD) between 2002 & 2009, and the Global Conference on Agricultural Research for Development (GCARD), held in Montpellier, France, in 2010. These meetings have raised the importance of focusing agricultural research in developing countries on the needs of smallholders, keeping in view the tremendous diversity in smallholder cultivation. Three aspects are common in a broad approach to sustainable agriculture, viz., (a) improvement in water use efficiency; (b) improvement in organic matter; and (c) more efficient pest and weed control "through in-field biodiversity and reduced pesticide use"[184].

Box 13: Agricultural R&D

The green revolution testifies to the important role of agricultural R&D in enhancing productivity. Although spending on agricultural R&D in the Asia and the Pacific Region rose, it stagnated or declined in some countries. Examples include China where it fell from 0.57 per cent of agricultural value added in the early 1960s to 0.4 per cent in 2000; in Thailand, it has stagnated around 0.4-0.5 per cent since the 1970s, with a slight increase in recent years; and, in India, it rose markedly from 0.18 per cent in the early 1980s to 0.34 per cent in 2000.

Reasons for slow growth of agricultural R&D lie in (i) limited participation of the private sector - private agricultural R&D was barely 8.1 per cent of the total in this region in 2000. Although this is higher than the average for developing countries (6.3 per cent), it is considerably lower than that for developed countries (54 per cent). The reasons underlying limited participation of the private sector are issues related to patents, breeder rights and other forms of intellectual property. (ii) A second contributory factor is decline in donor support for agricultural R&D since the mid-1990s. (iii) Fiscal pressures have undermined public financing of agricultural R&D.

Whether revival of interest in agriculture will help reverse the decline in agricultural R&D is not borne out by more recent evidence**.**

Source: Adapted from ESCAP (2008).

Integrated Water Resource Management (IWRM) and Integrated Watershed Development and Management (IWDM) hold promise to meet land and water challenges across sectors. IWRM practised in Indonesia is an interesting case of planning and coordination at different levels: river basin, central and provincial governments, district level and water user association at the village level. At each level, the roles of these bodies are different and well-defined to manage the utilization of water for multiple purposes. The scheme, however, has some shortcomings – weak fiscal control at

[183] Morton, 2007.
[184] IFAD, 2011.

the local level limits the options of management, and coordination also suffers due to weak linkages between different administrative levels[185].

Resource conservation coupled with increases in yields is part of the emerging agenda. Two examples of resource conservation technology are noteworthy: application/adoption of System of Rice Intensification (SRI) and 'zero tillage' in rice-wheat system. The basic technique of SRI recommends planting rice seedling at younger stages, keeping wide space for the growth of roots and canopy, and keeping soils moist rather than full of water. In Cambodia, farmers have reported savings in water, fertilizers and pesticides, and increases (100 per cent) in yields[186]. In India, recent experiments in different states (sub-national level) have shown savings in water of 22 to 49 per cent (on average 40 per cent), savings in seed quantity and even labour. Experiments in Bihar (India) show that female labour is partly replacing male labour at the seed planting stage[187]. Another landmark in resource conservation technology is 'zero tillage' developed at the initiative of Rice-Wheat Consortium of Indo-Gangetic Plain of South Asia. This process involves planting of wheat immediately after rice to capture the residual moisture from the preceding crop. It results in increases in yields, reduction in costs, savings in water usage, and improvement in biological properties of the soil[188].

Simple adaptation measures like 'zero tillage', innovative designing of treadle pump[189], and micro drip irrigation[190] are effective measures in saving natural resources. Biotechnology has a significant role to play in developing crop adaptation to heat, drought, and salinity, and in developing insect and disease resistant varieties. MAHYCO has collaborated with government organisations for Bt cotton in India. Syngenta, a Swiss company, is collaborating with national organisations in China, Bangladesh and the Philippines to develop bio-fortified rice. Since rising temperatures are going to adversely affect the yield of livestock, additional research is also required into high yielding and heat tolerant breeds of livestock. Hence, there is an urgent need for the public sector to allocate substantial resources for research in biotechnology. All countries have a collective responsibility to push the agenda for agricultural adaptation and mitigation strategies for incorporation in the global negotiations on climate change. Asia-Pacific countries should press for creation of reasonable incentive mechanisms to pursue innovative technologies and management systems. In addition, these countries should insist that the international agriculture research organisations reorient priority to focus on research that directly benefits the poor and the smallholders.

5.5. MOVING THE AGENDA FORWARD: POLICY AND INSTITUTIONAL CONDITIONS

What the strategies of intensification and diversification imply in terms of agricultural investment and ODA to accomplish MDG 1 of halving poverty in Asia and the Pacific Region is examined below, based on a detailed assessment carried out in Asia and the Pacific Division (IFAD)[191]. Various scenarios are considered using two poverty thresholds: $1.25 per day and $2 per day. The results thus obtained involve different assumptions about individual and joint effects of agricultural expenditure, ODA and investment. A summary of the key findings is given below.

- Agriculture contributes substantially to GDP growth. A 1 per cent growth in agricultural value added per capita results in a GDP (per capita) growth rate of 2.13 per cent.
- Elasticity of the head-count ratio of poverty ($2 per day) with respect to GDP is about (-.60), and its (absolute) value is more than twice as high (-1.28) for the headcount ratio at $1.25. These elasticities imply a substantial trickle down effect of GDP growth on the poor – especially the extremely poor ($1.25 per day).

[185] Tyler and Fajber, 2009.
[186] IFAD, 2011.
[187] A personal communication of his unpublished findings by Prof. B.C. Barah.
[188] World Bank, 2008.
[189] Treadle pump is designed by International Development Enterprises of India. It reduces CO_2 emissions
[190] Micro drip irrigation on average saves 54 per cent of water and 39 per cent of electricity compared to flood irrigation.
[191] For details, see Imai et al. (2011c).

- The effect, however, of agricultural growth on poverty is far more substantial-the elasticities are (-1.18 for $2 poverty and -2.73 for $1.25 poverty).
- Simulations show that Asia and the Pacific Region as a whole would need a 56 per cent increase in agricultural ODA in 2007-13 for achieving MDG 1 (US$2 poverty) (or a 16 per cent increase for US$1.25 poverty): a 28 per cent increase in agricultural expenditure for US$2 poverty (or an 8 per cent increase for US$1.25 poverty); a 23 per cent increase in fertilizer use (or no increase for US$1.25 poverty), or a 24 per cent increase in agricultural investment for US$2 and US$1.25 poverty ratios (but with varying sub-regional requirements) *over and above* the historical trends in the period 2007-2013 or 14.
- There are considerable sub-regional variations in the amount of agricultural ODA, expenditure, fertilizers and investments required to meet MDG 1, at US$2 a day, by 2015. For instance, South Asia (or South East Asia) would need only a 5 per cent (or 8 per cent) increase in annual growth rate of agricultural ODA, 2 per cent (or 4 per cent) increase in annual growth rate of agricultural expenditure, 3 per cent (or 4 per cent) increase in annual growth rate of fertilizer, or 2 per cent (or 3 per cent) increase in annual agricultural investment in 2007-13 over and above the baseline scenario[192]. The Pacific (confined to Papua New Guinea) and Central Asia would need larger increases in most of these factors[193].
- Aggregation of the simulation results for individual countries by income reveals that low income countries with low level of governance or institutional quality, or with low ease of doing business would need larger increase in agricultural ODA, expenditure or investment to achieve MDG1 at both US$2 and US$1.25 per day.

In sum, (i) agriculture is important not just for economic growth but also for poverty reduction[194]; and (ii) increases in agricultural ODA, expenditure, investment and fertilizer (as a proxy for technology) tend to reduce poverty. So both national governments and donors have important roles in accelerating agricultural growth and poverty reduction.

Two aspects are of prime importance: upscaling successful agricultural practices, and prioritizing sustainable intensification approaches and integrating them with agricultural technology in the local context. While carrying the agenda forward, it is important not to lose sight of the fact that most economies in Asia and the Pacific Region belong to the category of 'transforming economies' with diverse agro-climatic conditions, holding size, extent of depletion of natural resources (soil, water), inter-regional (sub-national) disparities in agricultural development and governance structure (not only at the central/federal but also at the sub-national level). It is known that South Asia and East Asia are going to face a serious food crisis beyond 2015, and that the effect of the green revolution is already dwindling along with the depletion of the natural resource base. Less-favoured areas need to receive attention in policy matters, especially in the context of threat to agriculture due to climate change and/or globalization of agricultural trade.

[192] Note that figures within parentheses refer to South East Asia.

[193] Note, for example, that the Pacific is represented by Papua New Guinea which is not a typical country for this sub-region.

[194] In an important new contribution, Christiansen et al. (2010) offer a decomposition of agriculture's contribution to poverty reduction, based on a cross-country analysis. Among other things, this helps understand why despite a fall in agriculture's share in GDP, it has a vital role in reducing extreme poverty. Arguing that the relative contribution of a sector to poverty reduction depends on four factors: its direct growth component, its indirect growth component, the participation of the poor in the growth of this sector, and the size of this sector in the overall economy, they demonstrate that growth in agriculture is especially beneficial for the poorest. A 1 per cent increase in agricultural value added per capita reduces $1-day poverty gap squared by at least 5 times than a 1 per cent increase in GDP per capita outside agriculture, despite being substantially smaller than the non-agricultural sector. When it comes to $1-day head-count poverty, agriculture is up to 3.2 times better at reducing poverty than non-agriculture, when accounting for differences in sector size, with the advantage diminishing as countries become richer (and inequality increases). Across poverty measures, the poverty reducing potential of non-agriculture reduces substantially when extractive industries contribute a sizeable share of GDP.

5.5.1. MAKING INTENSIFICATION SUSTAINABLE

Two aspects are most crucial: restoration of soil fertility and judicious use of water. Successful experiment of 'zero tillage' in the Indo-Gangetic plain of India needs to be vigorously extended to similar agro-climatic conditions in other parts of South Asia, notably Pakistan. System of Rice Intensification (SRI) is also being practised in many parts of Asia and the Pacific Region. SRI holds promise, especially where ground water table has gone down fast and the traditional practice of applying too much water in paddy cultivation is continuing. Both the examples of 'zero tillage' and SRI can be pursued in some of the low productivity areas also. However, it has not caught the requisite attention of policy makers. Extension of both these measures would be helpful to raise productivity and save resources in low productivity areas.

Excessive and/or unbalanced use of chemical fertilizers without caring for proper application of micronutrients in intensive agriculture is not only causing damage to soil fertility and water quality but also making wasteful use of subsidy on fertilizer and pesticide in some of the countries of Asia and the Pacific Region. The green revolution areas of India are examples of areas that overuse chemical fertilizer and pesticides, and the situation is not very different in the Punjab province of Pakistan. To a large extent, the policy of providing heavy subsidy on urea induced overuse of nitrogenous fertilizers. Recently, India has announced a policy of providing nutrient-based subsidy to promote a more balanced use of fertilizers.

Policies relating to output price and procurement of agricultural commodities are also instrumental in perpetuating a particular cropping pattern as part of intensive cultivation. Continuation of rice-wheat combination in Indo-Gangetic plain is partly the result of minimum support price (MSP) and a massive state procurement of wheat and rice in India. Such a policy for more than two decades has discouraged agricultural diversification in the areas of the green revolution.

5.5.2. ENHANCING PRODUCTIVITY IN AREAS WITH SIGNIFICANT POTENTIAL

One of the obstacles to the extension of green revolution technology is the state policy itself. For example, the output price and procurement policies and input subsidies (water, electricity and fertilizer) all favour the areas of intensive agriculture, particularly important for national food security. The national as well as sub-national governments need to pay attention to the reorientation of price and procurement policies that focus better on less favoured/low productivity areas. However, scaling down of input and output subsidies and their transfer to these areas is politically difficult[195]. Although empirical evidence is substantial, political constituency for such reform needs nurturing.

Application of Bt cotton by small farmers in areas not so abundant in water resources (ground as well as surface water) has shown success in India and China. State policy has played an important role in ensuring that Bt cotton's benefits are tested prior to releasing it for use by the farmers. A similar approach is needed for several other crops, such as maize and soybean. Special attention is required for R&D in developing varieties for drought and flood prone areas. Focus on developing R&D capacity is an important step in all such cases.

Focus is also required on reducing intensification in livestock and its sub-sectors, on the one hand, and developing an integrated system of crops and livestock production, on the other. The first one would reduce damage to the environment and the latter would enhance income and employment in low productivity areas, especially for smallholders and women.

Significant potential exists to increase rice productivity among the 100 million farm households in the region, who grow rice in four distinct unfavourable environments—upland systems, and drought-

[195] Birner and Resnick, 2010; Rashid et al, 2007.

prone, submergence-prone, and salt-affected areas. Development of resilient varieties and appropriate crop management practices can help increase yields in such ecosystems.

5.5.3. Collaboration of International Agencies, NGOs and National Governments

R&D activity, particularly in the frontier areas of biotechnology (developing transgenic varieties), requires both financial and human (scientific) resources. Developing Bt cotton, 'zero tillage' system and SRI, are the examples of success stories of multi-agency collaboration. These successes call for proactive policy. Simultaneously, at the domestic level, both public and private resources need to be mobilized for R&D. Equally important is to work with local communities to take the message/technology to smallholders. In order to make collaborative efforts a reality, it is important to have a clear long-term vision, willingness to decentralize authority at different levels (national, sub-national and local), develop the necessary R&D infrastructure, and have openness to innovative (sometimes non conventional) ideas. A lack of one or more of these factors may jeopardize the required collaborative efforts.

5.6. Key Messages

First, every effort to make agriculture sustainable must focus on smallholders if agriculture is to become a pathway out of poverty. All the sub-sectors (crop, animal husbandry, fisheries and forestry) need to be considered in an integrated fashion.

Second, agriculture contributes substantially to GDP growth and poverty reduction. Asia and the Pacific Region as a whole would need a 56 per cent increase in agricultural ODA, a 28 per cent increase in agricultural expenditure, a 23 per cent increase in fertilizer use, or a 24 per cent increase in agricultural investment in 2007-13 for achieving MDG 1 (at US$2 poverty line) over historical trends (but with varying sub-regional requirements).

Third, advantages of R&D have accrued mainly to the favoured/irrigated areas. Larger investments are needed in technologies for less-favoured/low irrigated/low productivity areas. Diversion of resources used in input and output subsidies – which do not serve the poor – to such investments is necessary, if politically feasible.

Fourth, the emerging agenda for sustainable development in this region must focus on (a) making agriculture less risky for smallholders; (b) conserving the environment and raising productivity; and (c) implementing the necessary adaptation and mitigation measures to counteract the adverse effects of climate change, despite resistance to the latter on equity and efficiency grounds. Adaptation, however, deserves greater emphasis.

Fifth, scientific knowledge has the character of being transnational. The development of modern varieties, evolution of GMOs, adoption of SRI and 'Zero tillage', all need serious efforts by several agencies. Further, at the local level, efforts are required by government agencies, extension agents, and local leaders to take innovative approaches to the people.

CHAPTER 6: CREATING OPPORTUNITIES IN THE RURAL NON-FARM ECONOMY

6.1. INTRODUCTION

It is now well recognized that rural economies are not purely agricultural and that farm households across the developing world earn an increasing share of their income from non-farm activities. It is also acknowledged that agriculture *per se* cannot be a way out of poverty for all rural people. With constraints on farm expansion and continuing growth of rural population, greater attention is thus being given to non-farm activities[196]. For many rural households (especially for those who find part-time or seasonal employment in the non-farm sector), rural non-farm economy (RNFE) serves to diversify incomes and mitigate risks. Amid growing landlessness, poor households also depend on non-farm earnings for their survival. In many situations, RNFE is of substantial importance to women and the youth, who aspire to move beyond agriculture.

The RNFE consists of a wide range of activities whose character depends on local economic conditions. It covers everything, from low-return street-vending to qualified jobs in the formal rural sector. It is thus not straightforward to identify the role of non-farm activities in economic development, as there is a great deal of diversity in their skill composition.

Two major factors that act as incentives for households to diversify into RNFE can be classified as 'demand-pull' and 'distress-push'. Pull factors include higher pay-offs from or lower risks in rural non-farm activities than those related to farm activities. Some of the push factors include a drop of seasonal income from farming, a permanent drop in farming income or a decline in the average size of land holdings. Empirical evidence shows that high initial stocks of human, financial and physical capital enables rich households to obtain skilled employment and purchase the necessary equipment for exploiting high return opportunities in RNFE[197]. As a result, these households earn returns that are far greater than those earned by poor households. In India, for instance, while the ratio of non-farm to agricultural income is 4.5 to 1 for the average household, for the poor it is only 0.75 to 1[198].

6.2. THE RURAL NON-FARM ECONOMY

6.2.1. COMPOSITION, CHARACTERISTICS AND IMPORTANCE TO RURAL PEOPLE

For most of the countries of Asia and the Pacific, rural households receive substantial *incomes* from non-farm activities. On average, rural non-farm income (RNFY) constitutes roughly 50 per cent of rural household income in this region, varying from over 70 per cent for the Philippines and Sri Lanka to below 40 per cent for China, India and Nepal. However, the significance of non-farm income over time has varied between countries. For instance, while in the Philippines, the share of non-farm income increased from 51 per cent to 77 per cent over the period 1994 to 1998, the same increased at a much slower rate in Pakistan. In Vietnam, on the other hand, the share remained more or less stable at about 40 per cent over the period 1998 to 2002.

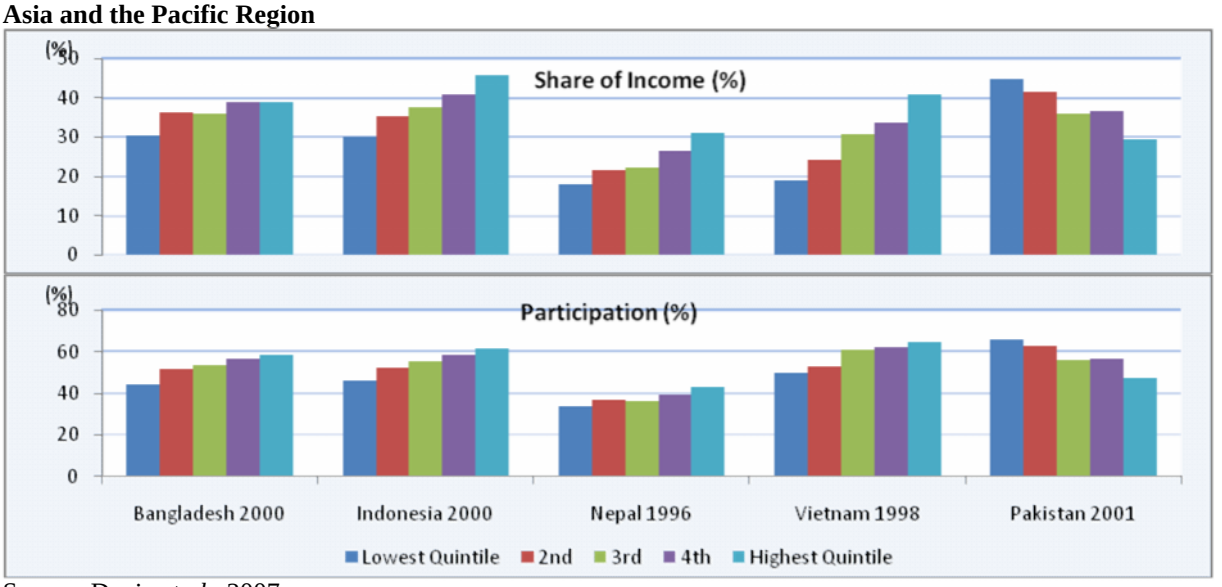
Policy interest in RNFE arises not just because of its significance in generating incomes, but also because of its increasing importance in creating *employment*, especially for rural women and the poor. Almost a quarter of Asia and Pacific women are employed full-time in RNFE. Women dominate many of the low wage cottage industries. For example, 64 per cent of the women in Bangladesh work

[196] Haggblade et al., 2007, 2010; Unni and Raveendran, 2007; Eswaran et al., 2008; Gaiha and Imai, 2007; Lanjouw and Murgai, 2008; Kaur et al., 2010.
[197] In addition, availability of infrastructure, such as roads and electricity, also enables diversification of rural households into non-farm activities.
[198] Lanjouw and Shariff, 2004.

in coir rope industry, where the value added per worker is a pittance (4.1 Tk per day). In sharp contrast, the gur (sugar) making and dairy industry that have a high-value added per worker (20 Tk per day or more) employ less than 10 per cent women[199]. Poor people dominate many of the low-return activities such as small-scale trading and unskilled wage labour in construction and portering. Wage labour, in both agriculture and non-farm businesses, accrues primarily to the poor. On the other hand, the share from regular wage employment is highest amongst the rich. To illustrate, while households in the lowest quintile receive about 16 per cent of their income from wage labour in India, the corresponding figure is only 2 per cent for the top most quintile. In contrast, white collar jobs such as teaching are common among the higher income households. For instance, while only 4.4 per cent of the households in the poorest quintile have regular employment, in the highest quintile it is as high as 21.1 per cent[200]. Further, data on rural Sri Lanka shows that while the poorest quintile derive only about 24 per cent of their income from public and private salaries, the richest income groups earn more than 50 per cent of their income from formal sector salaries[201]. Similarly, while the poorest quintile receives over 30 per cent of their income as non-farm wages, the corresponding figure for the richest quintile is under 10 per cent. On the other hand, income from transfers is distributed more evenly.

Another noteworthy feature of RNFE is the prevalence of *integrated farm-non-farm households*. The range of households participating in both farm and non-farm activities to earn their livelihoods is generally between 30 to 50 per cent in Asia and the Pacific. Comparisons of individual versus household 'pluriactivity' is also indicative of the fact that while a larger number of *households* operate in both farm and non-farm sectors (65 per cent in China), a smaller percentage of *individuals* is engaged in both (about 33 per cent in China). This relative specialization by individuals' vis-à-vis the households' is not surprising as the latter have greater flexibility[202].

Figure 11: Sources of income and participation in RNFE by expenditure quintile in Selected Countries in Asia and the Pacific Region



Source: Davis *et al.*, 2007.

Figure 11 illustrates the *share of income from non-farm activities by expenditure quintiles*. This figure clearly reveals that, in general, greater reliance on non-farm sources of income is associated with greater wealth. For instance, in Vietnam, while the poorest quintile derives about 19 per cent of income from non-farm activities, the contribution is much higher (at over 40 per cent) for the topmost quintile. Similarly, in Bangladesh, the corresponding figures are 30 and 38 per cent for the respective

[199] Haggblade et al., 2010.
[200] Lanjouw and Shariff, 2004.
[201] World Bank, 2003.
[202] Reardon et al., 2007.

quintiles. However, Pakistan is a notable exception – the share of non-farm income decreases with wealth. While the poorest quintile derives about 45 per cent of income from non-farm sources, the corresponding figure for the topmost quintile is about 30 per cent. Similar features exist in most other countries for *participation rates* in non-farm economy, with wealthier households having a higher level of participation in non-farm activities. Pakistan again is an exception to this pattern.

Some interesting findings that emerge from the literature on determinants of participation in rural non-farm activities[203] are:

1. Non-farm participation is higher in locations that are less remote, have better infrastructure and where population density is greater.
2. The probability of employment in regular RNFE is significantly higher for those with larger per capita land holdings.
3. The probability of employment in RNFE also depends on an individual's social position (including race and ethnicity). This is particularly true in India and Vietnam. However, this is less clearly a general finding.
4. There is a lower probability of employment by women in high paid RNFE. In addition, on average women earn less than men from non-farm activities.

Remittances form an important part of rural household income diversification and risk reduction strategies. However, it has been observed that for most of the countries of the region, local non-farm income is typically much more important than migrant remittances. For instance, while for Asia and the Pacific Region, the total non-farm earnings constitute 51 per cent of the rural earnings, of this 40 per cent comes from local non-farm business and employment while the remaining 11 per cent comes from transfers and remittances. The ratio of local non-farm earnings to external earnings is very high for India (at 17). On the other hand, this ratio (at 2.2, 6.4, and 6.5, respectively) is relatively much lower for Pakistan, Bangladesh and Vietnam (countries where international migration and/or rural-urban migration has been significant). Despite the share of remittances and transfers not being very substantial, migration is on the rise. For instance, while a Chinese farmer working in the non-farm sector in 1981 was three times as likely to work locally as to work as a migrant worker, by 2000 the ratio had become unity[204].

Sectoral composition of RNFE indicates that rural non-farm employment is almost equally distributed between manufacturing (27 per cent), trade and transport (29 per cent) and financial and personal services (31 per cent) in Asia and the Pacific Region. Despite a strong emphasis on developing rural industries, manufacturing is not a significant employer. Non-farm activities, such as construction, utilities, mining and quarrying constitute only about 15 per cent of the rural non-farm employment. Within services, government services provide significant employment opportunities in the rural areas. For instance, in Pakistan, government jobs provide 25 per cent of rural non-farm earnings. In India too, they account for about 20 per cent of the rural non-farm employment.

6.2.2. RNFE, POVERTY AND INEQUALITY

It is now well recognized by researchers and policy makers alike that, although agriculture continues to play a pivotal role in developing the rural economy, promoting non-farm activities as a *pathway out of poverty* cannot be neglected. Empirical evidence on the link between RNFE growth, poverty reduction and income inequality, however, reveals a varied pattern.

Given that participation in a lucrative non-farm activity depends on entry barriers such as lack of human capital, many poor rural households are relegated to low-return RNF activities. In such situations RNF activities serve more as coping strategies than as a way out of rural poverty.

[203] See, for instance, Gaiha and Imai, 2007, and Lanjouw and Murgai, 2008.
[204] Lohmar et al., 2001.

While evidence on India suggests that rural, export-oriented manufacturing may have contributed significantly to rural poverty reduction[205], another study on rural Vietnam concludes that growth of the rural non-farm economy is unlikely to have reduced poverty[206]. In China[207], RNFE has been associated with falling poverty[208].

While the evidence on the direct effect of RNFE on poverty is confirmed in several cases, the *indirect impact* of non-farm employment on rural poverty is substantial[209]. Based on state level time series data for India covering the period 1971-72 to 1983-84, for example, it has been found that expansion of casual non-farm employment is strongly correlated with growth in agricultural wages. Evidence from Bangladesh also suggests similar labour market tightening. Though it is difficult to generalize from these findings, to the extent that indirect impacts (of non-farm expansion on poverty reduction) dwarf the direct impacts, greater attention needs to be paid to such effects[210].

Empirical evidence on the impact of non-farm earnings on *income inequality* also varies. While in many cases rural non-farm income promotes equity (as in Pakistan), in a few other cases it exacerbates inequality (as in Vietnam). In Vietnam, while 20 per cent of the income for the poorest quintile comes from non-farm, the share is almost 40 per cent for the top quintile. In contrast, in Pakistan, non-farm earnings accrue largely to those in the lowest income quintile (Figure 11).

A broader view of RNFE that includes rural public works (such as the Employment Guarantee Scheme and its more recent and expanded version, National Rural Employment Guarantee Programme), changes the assessment significantly. Not only do they reduce poverty through direct transfer benefits (income transfers) but also stabilise incomes/consumption during lean periods. Over the longer-term the assets built (e.g. irrigation tanks, roads, embankments) contribute to rural development, and higher agricultural wages[211].

In sum, while the potential of RNFE for rural poverty and inequality reduction is borne out in several cases, why it does not materialise in other cases calls for a deep scrutiny of policy biases, and inequity in access to markets and credit. In any case, the important role of RNFE in stabilising household incomes and consumption is often overlooked. As a result, some of the scepticism seems misplaced.

6.3. WHAT DRIVES THE RURAL NON-FARM ECONOMY?

The development of the rural non-farm economy depends a great deal on the prosperity of the agricultural sector. This is because of the linkages between the two through production, investment and consumption[212]. Evidence suggests that each dollar of additional value added in agriculture generates USD 0.6 to USD 0.8 of additional RNFE income in Asia and the Pacific Region. Increases in farm incomes, together with high savings rates, make capital available for investment in non-farm activities. This is suggested by the evidence available for the Philippines and China. In addition, rising agricultural productivity releases farm family workers to work in non-farm sectors, stimulating the growth of RNFE. Many parts of the green revolution in Asia and the Pacific Region[213] have witnessed these trends. Also, as the incomes of the farm sector grow, households' expenditure on non-food

[205] Foster and Rosenzweig, 2004.
[206] van der Walle and Cratty, 2003.
[207] De Janvry et al., 2005.
[208] Ravallion and Chen, 2004; Lanjouw, 2007. Some of the causal relationships, however, need more robust confirmation.
[209] Kijima and Lanjouw, 2005; Hossain, 2004; Lanjouw, 2007; Lanjouw and Murgai, 2008.
[210] Unfortunately, dearth of panel data sets does not allow rigorous analysis of the same.
211 For details, see Nino et al., 2009, and Gaiha, 2007.
[212] Davis et al., 2007; Haggblade et al., 2007; Estudillo and Otsuka, 1999; Mohapatra et al., 2005; Eswaran et al., 2008; Kaur et al., 2010; Haggblade et al., 2010; Hossain, 2004.
[213] Refer Sander's (1983) for Philippines; Hart (1987) for Malaysia and Harriss and Harriss (1984) for India.

items (especially spending on rural services) increases. For instance, in Bangladesh, the expenditure elasticities on rural services were as high as 2.3 for recreation, 2.0 for education and 1.5 for housing.

At times, the rural non-farm sector may grow because of distress diversification that takes place due to stagnant agriculture and rising population. In such a context, growing landlessness in South Asia has triggered development of rural industries. In Bangladesh, for example, the share of non-farm income is in fact highest for households with the smallest landholdings[214]. Contrasting sources of rural non-farm employment growth clearly emerge from the evidence available for Malaysia. Identical gains in rural non-farm employment were generated in cases of the green revolution (a pull factor) and high population growth (a push factor). Thus equivalent gains in rural non-farm economy may signal mixed news. Forces other than agriculture – prevalence of weak insurance and credit markets – may also strongly influence the growth of RNFE. Income from rural non-farm activity becomes a vehicle for self-insurance and for financing agricultural inputs and assets, aspects that matter a great deal to poor smallholders.

Urbanization and globalization too create jobs and stimulate the non-farm sector. For instance, export markets have opened up opportunities for a variety of rural enterprises – from rural rattan furniture makers in Indonesia to rural weavers in Thailand. However, it introduces new risks as well. To illustrate, while growth of super markets in Beijing, China, increased product diversity, these goods were procured from a select group of large firms, not small suppliers[215]. As a result, the vulnerability of small producers increased. Urbanisation too stimulates the non-farm sector. With rising incomes, there is greater demand for products of the non-farm sector. Proximity to towns affects the growth of RNFE. In Thailand, for example, villagers living near the silk garment centre are able to work as household contract weavers, earning substantially more than workers from remote rural households. Workers in remote villages are confined to working in less lucrative activities, such as raising of silkworms and producers of cocoon and yarn[216].

Infrastructure, especially transport and communication, also promotes non-farm economy[217]. Improved roads facilitate the development of industries located in the rural areas by lowering the costs of bringing in inputs and moving goods to final markets. It also facilitates movement of rural workers and rural consumers to and from towns[218]. In South East Asia and China, for example, high population densities coupled with low transport costs have led to labour-intensive manufacturing for export markets being sub-contracted to rural industries. Advances in information and communication technology, investment in education, health and nutrition also have positive impacts on developing RNFE. Specialised credit institutions that provide services to rural non-farm enterprises are an additional growth driver. For instance, as Thailand pursues a people-development policy with a grass-roots approach, there are newer initiatives such as development of financial institutions for small enterprises and microfinance programmes for micro enterprises.

Growing interest in the environment and increased demand for environmental services have given a boost to the rural non-farm sector. In recent times, high energy prices have also impacted the non-farm sector. While, on the one hand, increased energy prices have depressed tourism and raised transportation costs (Maldives and the Cook Islands), on the other, they have stimulated production of non-traditional energy sources such as biofuels and solar energy in the rural areas (China).

Despite the importance of RNFE in promoting growth and reducing poverty, the rural non-farm economy has been neglected by policy makers primarily because of the urban bias. The fractured and fragmented institutional environment in which RNFE operates also makes implementation of policies

[214] Hossain, 2004.
[215] Hu et al., 2004.
[216] Reardon et al., 2007.
[217] Wiggins and Hazell, 2008; Hossain, 2004; Lanjouw and Shariff, 2002; Wanmali, 1992; Gaiha and Imai, 2007
[218] However, in specific cases, infrastructure may act as a double-edged sword. For instance, it may lead to inadvertent 'crowding out' of more remote rural firms (Renkow, 2007).

difficult. Diversity and heterogeneity of RNFE compounds the problem. In addition, weak collective political voice of RNFE limits the pressures and incentives for politicians to respond. Such policy neglect towards RNFE needs to be reversed. Fortunately, many countries have realized this and are now taking keen interest in promoting RNFE.

6.4. POLICIES TO PROMOTE THE RURAL NON-FARM ECONOMY

Often the growth of the RNFE is self-directed and driven by the increasing demand for its products. However, in many other cases, stringent policy measures, such as tight controls and protection, have led to the development of this sector. The programmes to promote the rural non-farm economy broadly consist of promotion of small-scale industry, agribusiness and agricultural marketing, regional development, public sector investment, and, macroeconomic policies targeted at rural areas[219].

Governments specifically have an important role to play in the promotion of the rural non-farm sector on both efficiency and equity grounds. They may directly influence the rural non-farm sector through the development of specially targeted rural infrastructure, such as roads, telecommunications, education, power and water, and by designing programmes that provide inputs, credit and training to households for the development of RNFE. The indirect measures consist of policies related to trade, tariffs and licensing, which impact industries and agricultural policies, such as investment programmes. In Sri Lanka, for instance, trade liberalisation in the 1970s severely curtailed the rural handloom and pottery industry, while it benefited the rice-milling and construction industry that used imported raw material[220]. Apart from governments, large private firms and not-for-profit institutions also promote rural non-farm activity. For instance, the private sector development wing of the Cambodia Rehabilitation and Resettlement programme, which started in 1995, aimed to strengthen rural industries including small private manufacturing units, such as rice millers, brick makers and small-scale electricity manufacturers. In 2000, the private sector wing became an NGO, Entrepreneurship Development of Cambodia, and focuses on private sector and social capital development in the rural areas.

The options for policymakers can be classified into three categories: Policies at the *national level*, such as creating a favourable business environment; policies at the *regional level*, such as provision of physical and social infrastructure that facilitate the development of efficient supply chains and factor markets; and policies at the *local level*, such as training and facilitating migration that encourage households to undertake non-farm activities.

[219] Haggblade et al., 2007.
[220] Osmani, 1987.

Box 14: Township and Village Enterprises (TVEs) in China

TVEs are community enterprises that absorb surplus labour in rural areas and benefit those communities the most that are immobile. Most of these enterprises have strong linkages with the agriculture sector, such as machinery, fertilizers, and grain processing. Since 1978, townships and village enterprises have played an important role in the growth of the Chinese economy. These TVEs adopted the *contract responsibility system* in 1980, with ownership being shared by the employees. The TVEs are more independent and flexible and have greater autonomy than State Owned Enterprises.

By the mid-1980s, the agricultural incomes were beginning to stagnate and TVEs gave a stimulus to the non-farm sector. In 1978, TVEs employed 28 million workers, whereas by 1997, TVEs employed 131 million workers. In 1978, the share of rural workers absorbed by the TVEs was 9 per cent. They accounted for 9 per cent of the total industrial output and 24 per cent of the gross total rural output. By 1997, the TVEs absorbed 30 per cent of the rural labour force. By this time they were producing two thirds of the industrial output and 80 per cent of the gross rural output.

The success of TVEs can be attributed to the favourable political-institutional environment in China. Fiscal decentralisation that gave greater powers to the local governments also played an important role in promoting TVEs. Recent evidence, however, suggests that the profitability of TVEs has declined sharply as a result of globalisation.

Source: IFPRI, 2005; Bardhan, 2010.

Some examples follow:

1. Many Asia-Pacific countries have implemented policies for the development of the rural non-farm sector. These include the creation of industrial estates, which receive subsidies, tax breaks, foreign exchange licenses and subsidized credit. For instance, rural industrialization and promotion of Township and Village Enterprises (TVEs) played an important role in shaping China's economic growth (Box 14). As a result, the contribution of non-farm sector to gross value of rural output rose sharply from 31 per cent in 1978 to over 75 per cent in the mid-1990s. In the 1950s and 1960s, India too developed programmes of integrated support that focused on stimulating growth in modern small enterprises. The so called 'India model' of complete packages of assistance to small enterprises later spread to countries, such as Bangladesh, Indonesia, Malaysia and Pakistan. The Indonesian government too has undertaken various programmes for the development of the rural non-farm sector. These include the entrepreneurship development programmes, small scale business development programmes, improving labour force skills in rural areas, providing technical assistance to entrepreneurs, and developing rural infrastructure.
2. To integrate the dispersing industries in rural areas, the Philippines adopted a clustering strategy. The objective of this programme is to promote entrepreneurship among farmers and landowners. Some of the programmes aimed at rural industrialisation are Comprehensive Agrarian Reform Programme, the Small and Medium Industrial Technology Transfer Development Programme and Developing Rural Industries and Village Enterprises programme[221]. The Philippines has also created a 'W' growth corridor[222] in rural areas which aims for an integrated and balanced growth between agriculture, industry, socio-economic environment and the physical infrastructure.
3. Rural support organisations (Pakistan), integrated rural development programmes (India), Grameen Bank and BRAC (Bangladesh) have been successful in providing financial assistance to micro-enterprises in South Asia. Similarly, many organisations in Fiji have been successful in the

[221] Maglaya, 2004.

[222] The W Growth Corridor defines Central Luzon's (one of the leading growth regions in Philippines) key growth areas. It is a strategic approach in promoting Central Luzon as an investment destination. It comprises Central Luzon key investment area for tourism, industry and agriculture. These areas represent the growth municipalities of the region, which when plotted on a map form the shape of a W.

creation of jobs in rural areas, such as Small Business Advisory Unit (SBAU), Micro-Finance Department, Ministry of Cooperatives, and Ministry of Women.

4. Donor funded programmes in Vietnam and China are focusing more on migrants to promote RNFE. For instance, in China, the government relaxed its requirements for migrants who move to cities. In India too, Rajasthan introduced mobile ration cards for its migrants, while Orissa and Madhya Pradesh introduced improvements in the safety and efficiency of remittances[223].
5. In Taiwan, rural electrification had a positive impact on the industrialisation of the rural sector. In China, electrification led to better water management, improving agricultural yields and incomes and, because of the linkages between farm and non-farm sector, indirectly helped the rural non-farm economy. However, rural electrification had a negative impact on the Bangladesh rice processing industry by displacing labour, especially women who used indigenous, labour intensive methods[224].
6. Education is a strong determinant of household participation and of the level of wage earned in RNF activities. In most Asia-Pacific countries, technical and vocational training is given due importance to meet the rapidly changing requirements at the global, regional and national levels. Development of technical and vocational skills has a crucial role to play in promoting capabilities of the youth to access opportunities in rural and urban areas. In Singapore and Korea, the training content is selected in a way such that it is relevant not only for the specific job but also for transfer of jobs. Thailand encourages the private sector to provide technical and vocational training (TVET). Bangladesh has introduced the National Skill Standards to improve the quality of TVET. Public institutions play an important role in TVET in Malaysia where the entire certification and standards process is coordinated by the National Vocational Training Council. Other examples of training initiatives include farmer field schools in the Philippines and Thailand, community polytechnics in India and 4HC clubs in Thailand[225].

6.5. KEY MESSAGES

First, although agriculture will continue to play a pivotal role in developing the rural economy and reducing poverty, promoting non-farm activities as a pathway out of poverty cannot be neglected.

Second, the *direct* impact of rural non-farm earnings on static indicators of rural poverty is confirmed. Also, RNFE performs an important safety net role, preventing households from falling into poverty when faced with shocks. Finally, the *indirect* effects of rural non-farm employment, through labour market tightening and rising real wage rates, remain substantial.

Third, availability of human, financial and physical capital is a major determinant of participation in non-farm activities. Due to paucity of such capital, poor households often remain confined to low-productivity non-farm activities, which offer few pathways out of poverty. By contrast, richer and more educated households often find more lucrative non-farm opportunities. Likewise, gender, caste and social status also determine the chances of being engaged in more lucrative non-farm jobs. In general, women and disadvantaged social groups have limited access to the most lucrative rural non-farm activities. Policy biases and inequity in access to markets and credit need to be remedied.

Fourth, rapid growth of agriculture has historically played an important role in promoting RNFE. In addition, improved infrastructure, vicinity to towns, globalization and urbanization have opened up *new* opportunities for the growth of RNFE. Linking rural areas to external engines of economic growth promotes development of RNFE. From a policy perspective, this implies accelerated investments in agricultural research and development, rural education, and rural infrastructure (communications, transportation and electrification). These investments promote growth of high productivity RNFE but also promote short-term commuting and migration, which, in turn, lead to non-farm income growth, completing a "virtuous" circle.

[223] Wiggins and Hazell, 2008.
[224] Choi, 2004.
[225] Atchoarena et al., 2003.

CHAPTER 7: WHAT NEEDS TO BE DONE AND HOW?

7.1. ADDRESSING MAJOR CHALLENGES AND CREATING OPPORTUNITIES FOR TOMORROW'S GENERATION

Poverty is primarily a rural problem in Asia and the Pacific Region. While a large percentage of rural households are chronically poor, still greater numbers move in and out of poverty (i.e. transient poor). Therefore, from a policy perspective, it is important to distinguish between the transient and persistently poor households as the latter require massive transfers sustained over long periods.

The poor *typically* have low incomes, lack education, physical assets and access to opportunities for economic advancement. Such disadvantages are disproportionately more among rural women, the youth, indigenous peoples and others living in remote mountainous locations.

Although almost every region of Asia and the Pacific experienced massive reduction in the proportion of rural poor over the past two decades, the incidence remains high. The onset of the Triple F crises (fuel, food and financial) has made meeting the MDG 1, (i.e. halving extreme poverty by 2015) a greater challenge. Climate change has exacerbated the problem. How to achieve sustainable growth and simultaneously reduce rural poverty is one of the toughest dilemmas faced by poor countries in this region.

Agriculture contributes substantially to GDP growth and poverty reduction. Asia and the Pacific Region as a whole would need a 56 per cent increase in agricultural ODA, a 28 per cent increase in agricultural expenditure, a 23 per cent increase in fertilizer use, or a 24 per cent increase in agricultural investment in 2007-13 for achieving MDG 1 (at US$2 poverty line) over historical trends (but with varying sub-regional requirements). So the prospects of achieving MDG 1 are not so daunting.

Since the rural poor depend on agriculture for their livelihoods, any policy that aims to reduce rural poverty has to focus on agricultural intensification and diversification that are both market-oriented and sustainable. A multi-pronged strategy involving simultaneous actions on several fronts is needed: addressing risks and vulnerability, addressing food price volatility, ensuring a favourable rural investment climate, enabling access to agricultural markets, sustainable intensification and diversification of smallholder farming, responding to climate change, and promoting the rural non-farm economy.

- *Addressing Risk and Vulnerability:* Poverty is not just a matter of deprivation but also of vulnerability to exogenous shocks. 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. These shocks include natural disasters, climate change, pest outbreaks such as avian influenza, vulnerability to food price fluctuations, illness, and death. The region is also highly vulnerable to fluctuations in energy prices due to its high dependence on fossil fuels. This has considerable impact in terms of vulnerability to food insecurity. Rural communities and households have a range of mechanisms for coping with downturns. As risk-coping mechanisms, households generally resort to selling productive assets, borrowing, depleting savings, migrating, and reducing expenditure on food, healthcare and education (notably affecting women and children). Although they have developed relatively strong risk-management and risk-coping strategies, vulnerability remains high. Some parts of the region (e.g. Afghanistan, Sri Lanka, Nepal, Bangladesh, and Pakistan) are also affected by instability and conflict, or have recently recovered from conflict.

  Important policies that need to be strengthened on priority basis for mitigating risks and achieving inclusive rural development include accelerated investments in agricultural R&D

and physical and social infrastructure, encouraging development of financial institutions for small enterprises and micro-finance programmes for micro-enterprises, strengthening insurance interventions for the poor and vulnerable (e.g. index-based insurance such as weather insurance), promoting greater formal and technical education, and developing ecosystems services through public-private cooperation for meeting the challenges of water scarcity and climate change.

- *Addressing Food Price Volatility:* Volatile food prices pose a threat to the rural poor. Domestic food prices have been less volatile in Asia and the Pacific due to more stable supplies and regulated markets (for instance, in India, Indonesia and Bangladesh). However, some of the poorest countries (e.g. Cambodia) experienced severe hardships. In general, there are six domains to be taken into account to reduce food price volatility: addressing supply-side constraints (e.g. policies that support access to credit); management of and control over natural resources; and access to research and extension services; supply-management and price stabilization policies; safety net programmes; value-addition for agricultural products: redressing price information gaps and asymmetries; and provision of storage facilities combined with access to credit for smallholder farmers.

- *Ensuring a favourable rural investment climate:* Both rising demand for and rising prices of food have created attractive investment opportunities in the agricultural sector – especially in large farms. In spite of new sources of economies of scale, arising from technological change, new markets, institutional changes, and public-private partnerships in the provision of public goods, the large farm advantage is due to market failure (e.g. credit), institutional gaps (e.g. weak extension services) and policy distortion (e.g. minimum support prices). Elimination of such biases against smallholders would enhance their competitiveness. State interventions and collective action by producers' organisations would make a significant difference. Absence of property rights and lack of transparency in land deals are key challenges.

  Secure land rights can increase incentives for investments. In addition, such security reduces conflicts, assures availability of collateral, improves the bargaining power of the poor and helps in poverty reduction. However, policy interventions to ensure the same must be carefully designed to ensure equity without upsetting local customs, as in the case of indigenous peoples. The market for rentals also enhances the opportunity for landless labour to cultivate and make a transition towards owning such land.

  Often traditional land systems fail to recognize women's rights. The first concern is that women should have either joint ownership of land with their spouses, or a joint right to its disposal. Secondly, women must be able to maintain their land rights after the death of their spouses. Gender and land rights in South Asia matter for poverty reduction.

- *Enabling access to Agricultural Markets:* There is a shift from the traditional supply chains characterised by many traders and intermediaries and face-to-face interactions between agents, towards chains with fewer links and more impersonal dealings. Supermarket chains offer better deals to farmers, higher prices and greater certainty of selling the produce, along with credit and technical assistance in certain cases. However, farmers are also obliged to meet stringent quality requirements and adhere to food safety standards. Supermarkets prefer dealing with few large farmers rather than many small farmers. Organising small farmers is a challenge. Further, in response to changes in dietary habits and lifestyle, and liberalization of retail trade, supermarkets with global links are emerging fast. Smallholders' participation in supply chain/supermarkets can be made profitable if the government plays the role of not only providing public goods (infrastructure, food safety standards, and favourable environment for enforcing contracts) but also a proactive role in collaboration with forward looking private players in providing inputs and transferring technology to smallholders. These initiatives, combined with suitable trade negotiations can be helpful in overcoming the threats that global

trade poses to smallholders. The corporate sector can also help smallholders in capturing market opportunities in the changing scenario through technical and industrial training. Large agribusiness firms can also facilitate the integration of small farmers into high quality markets, as in the case of Normin Veggies in Philippines.

- *Sustainable Intensification and Diversification of Smallholder Farming:* Small farmers face several challenges such as high transaction costs in accessing inputs, credit and marketing facilities. Specifically, it is difficult for them to access high-value crops even though they are labour intensive and more suited for their size. This is because of highly volatile prices and high market risks associated with high-value agricultural commodities. Further, in recent years, agricultural funding has shifted from public to private research. This change has grave consequences for small farmers as private research companies lack incentives to address small farmers' concerns.

  The emerging agenda for sustainable development in this region must focus on making agriculture less risky for smallholders; and conserving the environment and raising productivity. The development of modern varieties, evolution of GMOs, adoption of SRI and 'Zero tillage', all need serious efforts by several agencies. Further, at the local level, efforts are required by government agencies, extension agents, and local leaders to take innovative approaches to the people.

- *Environment and Climate Change:* Under the different scenarios in the IPCC Special Report on Emission Scenarios (SRES), the global mean surface temperature is expected to rise, as also the sea level. Freshwater availability in many parts of Asia is expected to decrease by 2050. South, East and South East Asia will be at the greatest risk due to expected flooding. The following impacts on crop productivity may be expected: In areas of mid-to-high latitudes, productivity is projected to increase slightly with temperature increases between 1-3°C (depending on the crop), and then decrease in some regions. In regions of low latitude, crop productivity is projected to decrease for even small increases in local temperature[226]. While the search for effective mitigation mechanisms continues, it must be combined with adaptation. The latter, of course, deserves greater attention than it has received.

  Strategies of adaptation by smallholders raise specific concerns. They are likely to suffer impacts of climate change that are locally specific and hard to predict. The variety of crop and livestock species produced by them, and the importance of non-market relations will increase the complexity both of the impacts and the subsequent adaptations, relative to commercial farms with more restricted ranges of crops.

- *Promoting Non-farm Activities:* For most of the countries of Asia and the Pacific, rural households receive substantial *income* from non-farm activities. With constraints on farm expansion and continuing growth of rural population, development of rural non-farm economy (RNFE) has a major role to play in any poverty reducing strategy. The *direct* impact of rural non-farm earnings on static indicators of rural poverty is confirmed in most cases. Also, RNFE performs an important safety net role, preventing households from falling into poverty when faced with shocks. The *indirect* effects of rural non-farm employment, through labour market tightening and rising real wage rates, remain substantial. The availability of human, financial and physical capital is a major determinant of participation in non-farm activities. Policy biases and inequity in access to markets and credit need to be remedied.

  Rapid growth of agriculture has historically played an important role in promoting RNFE. In addition, improved infrastructure, vicinity to towns, globalization and urbanization have opened up *new* opportunities for the growth of RNFE. Linking rural areas to external engines of economic growth promotes development of RNFE. Policy priorities include accelerated

[226] IPCC, 2007.

investments in agricultural research and development, rural education, and rural infrastructure (communications, transportation and electrification). These investments promote growth of high productivity RNFE, as also short-term commuting and migration, which, in turn, lead to non-farm income growth, completing a "virtuous" circle.

For supporting and implementing these policies, effective governance that ensures more inclusive growth is crucial. Democratization, civil society participation, decentralization, transparency, accountability and corruption control hold great potential for strengthening governance. Effective policies to reduce poverty should include measures that enhance poor peoples' access to assets such as land, water, education and health. This requires significant public investments, well defined property rights, and effective land administration.

An ideal set of policies would have all these attributes, but, unfortunately, we do not live in an ideal world. Governments have to constantly balance the demands of market-oriented reforms that require less state intervention with the state's obligation to ensure that no citizen remains wretchedly poor. For instance, the government needs to create well-defined property rights, which would then enable indigenous peoples transform their customary rights into legal ones. However, these same property rights would also accrue to rich farmers with large landholdings, and an imaginative approach to overcoming their opposition to redistribution of land (e.g. through, for example, efficient land and rental markets) is imperative. A merit of this approach is that it will not undermine large-scale investment in agriculture. However, the political feasibility of these reforms is not self evident (Box 15).

Box 15: Political Economy of Agricultural Policy Reforms

Interest groups often block agricultural policy reforms that aim to benefit smallholders. As they are spatially dispersed, lack access to education, communication and transport infrastructure, they find it difficult to defend their economic interests. By contrast, large farmers are not so constrained and politically better networked. Besides, there is a strong urban bias in policies as urban populations are closer to the seat of political power.

Additional barriers to collective action that smallholder face include: (i) the food crops that they mostly produce are grown in the poorer and more remote regions where it is more difficult to organise; (ii) not only agricultural policies that provide private goods, such as subsidised credit and inputs, are easier to implement than provision of public goods (e.g. roads) but also often disproportionately favour large farmers; (iii) the politically more influential large farmers block policy instruments targeted to smallholders (e.g. size –differentiated input subsidies).

Although these subsidies have become a huge fiscal burden, the nexus of influential rich farmers and politicians remains a major impediment. As a result, public investment in agriculture suffers.

Sources: Adapted from Birner and Resnick (2010), Birner et al. (2010).

7.2. FOUR CROSS-CUTTING ISSUES

In order to generate pro-poor and sustainable rural growth, it is important to address four cross-cutting issues. Each is discussed below:

1. *Strengthening individual capabilities*: Developing skills and knowledge of poor rural people (especially women, youth, disadvantaged social groups and smallholders) is crucial for bringing dynamism and innovation in agriculture and making it more prosperous and sustainable. It is also vital for promoting job opportunities in high paid RNFE, and for those who leave as migrants. This requires focusing on investing in education beyond primary level and enhancing accessibility and value of vocational skills to the youth and women.

2. *Improving the risk management capacity of poor rural people*: Enhancing risk management capacity requires better access to education, promoting gender equality, strengthening insurance interventions for the poor and vulnerable, encouraging micro-finance programmes, accelerating investments in agricultural research and development and providing effective safety nets and nutritional improvement in rural areas.
3. *Strengthening collective capabilities*: Membership-based organisations have a key role to play in helping rural poor mitigate risks and market their produce. Such organisations include women's saving clubs, producers' organisations and farmers' field schools. To promote the effectiveness of such organisations, their financial, technical and managerial capabilities need to be strengthened. It must be ensured that these organisations do not exclude the disadvantaged, benefiting only those with larger resources.
4. *Improving the rural environment*: In order to improve the rural environment, the focus should be on *three* areas: provision of physical infrastructure; widening provision of rural services (education, healthcare, insurance and financial services); and improving governance. This will help not only in mitigating risks and reducing vulnerabilities of the rural poor, (e.g. associated with women's drudgery), but will also enable newer opportunities for growth and diversification. This will create a favourable environment for today's rural youth and tomorrow's generation to fulfil their aspirations.

7.3. SUPPORTING THIS AGENDA: THE ROLE OF NATIONAL STAKEHOLDERS

Good policies and governance are crucial to address rural poverty. The national government has the prime responsibility to push agriculture on the development agenda and to create a favourable environment through macroeconomic stability, political stability and the rule of law. Governments have an important role to play in regulation, provision of public goods, investments in infrastructure and R&D, provision of credit facilities and markets, defining property rights, enforcement of rules and development of institutions. The *National Rural Employment Guarantee Act* (NREGA) and *Right to Food Bill* in India, the *National Emergency Employment Programme for Rural Access* (NEEPRA) and *Food for Work* in Afghanistan, and the *Household Responsibility System* in China are some of the flagship programmes of national governments aimed at reducing vulnerability and poverty in rural areas deploying both risk mitigation and risk coping strategies.

Despite pervasive market failures, there is a crucial role for the private sector. Coordinated actions of public, private and civil society can help mitigate risks that smallholders face, reduce transaction costs and create incentives for private investment in critical services in agriculture. The private sector can also carry forward reforms through public-private dialogues, as in the case of the *Working Group on Agriculture and Agribusiness* in Cambodia's Government-Private Sector Forum. Moreover, the private sector can contribute to trade policy reforms, as in the case of the Philippines *Task Force on the World Trade Organisation Agreement on Agriculture Re-negotiations*.

NGOs have a crucial role to play in generating bottom-up demands. Collective action, through producer organisations and self-help groups can help achieve economies of scale in input supply, access to markets and finance, and management of common property resources. They can also be an effective way to impart training and increase awareness. Examples include *Self-Help Groups* in India, *Zanzeras* in Philippines offering community management of irrigation systems, and the *Mobile-Lady* in Bangladesh providing water testing services to farmers and increasing awareness about various crops. Good governance needs to ensure that collective action does not exclude disadvantaged groups favouring only the elite.

On the international front, to usher in the welfare impacts of trade liberalisation, the Doha round of trade negotiations must urgently be concluded, particularly to eliminate distortions, such as US cotton subsidies that work against the interests of poor countries. When smallholders are net food buyers, liberalisation of import policies will be pro-poor. However, if many of the country's households are

poor net sellers, they indeed will lose. Thus, programmes tailored to country-specific circumstances will be needed. Making agriculture more sustainable has to be a priority.

7.4. SUPPORTING THIS AGENDA: THE ROLE OF INTERNATIONAL DEVELOPMENT AGENCIES

Rural development's visibility has increased on the global agenda. To a large extent, the triple F (food, fuel, financial) crises have been responsible for this. In recent years, the international development community has taken a number of initiatives that demonstrate its commitment to promote rural development. Some of these are delineated below:

1. *The Comprehensive Framework for Action* (UN High Level Task Force on Global Food Crisis): The comprehensive framework for action was set up to address the threats and opportunities from the food price crisis and adopt policies that would prevent such a crisis from occurring in the future. The high level task force works with regional organisations such as Association of South East Asian Nations (ASEAN) and regional multilateral banks to support agricultural development and provide social protection. UN agencies and Bretton Woods Institutions, including IFAD, FAO, World Food Programme (WFP) and Office for the Coordination of Humanitarian Affairs (OCHA), and the World Bank, have already enhanced funding and/ or appealed for funding to reduce vulnerability, boost agricultural production, and mitigate the impact of future food and energy crises.
2. *The 2009 L'Aquila Food Security Initiative*: The global financial crisis, following on the food crisis, led to this initiative for sustainable global food security. It is also committed to reverse the decline in ODA and national financing to agriculture. In pursuing food security, the L'Aquila initiative partners with vulnerable countries to help them develop and implement their own food security strategies. However, as against a pledge by G8 of $22 billion for investment in agriculture, to date, barely $1.2 billion has been disbursed. But even if resource commitments are honoured – unlikely with fiscal austerity looming large among the G8 – there is hardly any consensus on how to spend this amount[227].
3. G*lobal Forum for Agricultural Research*: The three main objectives of the forum are: alleviation of rural poverty, food security and sustainable natural resource management. Two of its regional networks in Asia and the Pacific are: APAARI – Asia-Pacific Association of Agricultural Research Institutions, and CACAARI – Central Asia and the Caucasus Association of Agricultural Research Institutions. These fora connect agricultural research and innovation systems with farmers and societies. For instance, the Asian Federation for Information Technology Associations (AFITA) emphasizes the use of advanced ICT and high quality information in agriculture-based production.
4. *Global Forum for Rural Advisory Services*: Set up in 2010, the forum provides rural advisory services with the goal of reducing hunger and poverty. It aims to connect with Asia-Pacific Association of Educators on Agriculture and Environment (APEAEN), the Philippines Extension Network, Inc. and the Caucasus Association of Agricultural Research Institutions (CACAARI) to facilitate interaction and networking for individual, organisational, and institutional capacity strengthening in Rural Advisory Services.
5. *Consultative Group on International Agricultural Research* (CGIAR): The Group contributes to food security, poverty eradication, and sustainable development. It does so by fostering science-based agricultural growth in developing countries and by promoting sustainable agricultural development. CG Centres work with national agricultural research systems in the region to develop and test appropriate technologies in crops, livestock, water management, fisheries, and agro-forestry.
6. *Pacific Island Extension Summit* (PIEN): The aim of the Pacific Island Extension Summit, 2009 is to offer an efficient and effective extension service to transform the agriculture and forestry

[227] Byerlee et al., 2010.

sectors for the Pacific economies. PIEN actively pursues opportunities for extension to engage in the use of ICTs and the media to improve its outreach to its main clientele, the farmers.

To sum up, each country must have policies in place to spur growth in the rural sector, enhance food security and overcome poverty. The successes and policy lessons learnt point to five major challenges. *First*, sustained increase in agricultural productivity is required, especially among smallholders, with a focus on the youth, women, other disadvantaged social groups and indigenous peoples. *Second*, food price volatility, other market risks, and natural disasters could play havoc with the well-being and lives of rural populations. Policies that mitigate such risks and enable the vulnerable to cope with them deserve careful scrutiny and coordinated implementation. *Third*, integration of smallholders into high-value chains calls for proactive role of national governments in laying down food safety standards and producers' associations in implementing them and in negotiating marketing arrangements. *Fourth*, climate change poses grave threats to human well-being. Despite a weakening of the appetite for capping carbon emissions, both mitigation and adaptation are necessary. While the search for emission reductions widens, much greater emphasis to adaptation – especially by smallholders – than given in the past is imperative. *Fifth*, strong farm-non-farm linkages must be fostered so that their complementarity is fully exploited in pursuit of sustained poverty reduction.

While the prospects of sustainable agricultural growth and poverty reduction may seem daunting to many, the strategy charted here is one of hope and optimism.

BIBLIOGRAPHY

1. ADB (2008). *Soaring food prices: response to the crisis*. ADB: Manila.
2. ADB (2008a). *Food prices and inflation in developing Asia: Is poverty reduction coming to an end?* Asian Development Bank: Manila.
3. ADB (2009). *Building Climate Resilience in the Agricultural Sector of Asia and the Pacific*. ADB: Manila.
4. ADB (2009a). *Gender Inequality and Inclusive Growth in Developing Countries.* Asian Development Bank: Manila.
5. ADB (2009b). *Land and Cultural Survival - The Communal Land Rights of Indigenous Peoples in Asia.* Asian Development Bank: Manila.
6. Agarwal, B. (1994). *A field of one's own: gender and land rights in South Asia*. Cambridge South Asian Studies, Cambridge University Press 1994.
7. Aggarwal, A. (2006). *Special Economic Zones: Revisiting the Policy Debate*. Economic and Political Weekly, November 2006.
8. Ahmed, S. and P. Maitra (2010). *Gender Wage Discrimination in Rural and Urban Labour Markets of Bangladesh*. Oxford Development Studies, 38: 1, 83 — 112
9. Akter, S. (2005). *Occupational segregation, and wage discrimination, and impact on poverty in rural Bangladesh*. The Journal of Development Areas, 39(1), pp. 15–39.
10. Alkire, S. and M. Santos (2010). *Acute Multidimensional Poverty: A New Index for Developing Countries*. OPHI Working Papers No. 38.
11. Ashe, J. and L. Parrott (2002). *PACT's Women's Empowerment Programme in Nepal: A Savings- and Literacy-Led Alternative to Financial Building*. Journal of Microfinance, 4(2), 137-162.
12. Atchoarena, D., Wallace, I., Green, K. and C. Gomes (2003). *Strategies and institutions for promoting skills for rural development*. in Atchoarena, David & Lavinia Gasperini (Eds), 2003, Education for rural development: towards new policy responses, FAO Roma and UNESCO Paris.
13. Basu, J.P. (2006). *Microfinance and Women Empowerment: An Empirical Study with special reference to West Bengal.* Indira Gandhi Institute of Development Research.
14. Bardhan, P. (2005). *Efficiency, Equity, and Poverty Alleviation: Policy Issues in Less Developed Countries*, *The Economic Journal*, vol. 106, no. 438, pp. 1346-1356
15. Bardhan, P. (2010). *Awakening Giants Feet of Clay: Assessing the Economic Rise of China and India*. Princeton University Press.
16. Baulch, B. and J. Hoddinott (2000). *Economic Mobility and Poverty Dynamics in Developing Countries*. Journal of Development Studies, vol. 36.
17. Birner, R. and D. Resnick (2010). *The Political Economy of Policies for Smallholder Agriculture*. World Development, Vol. 38, No. 10, pp 1442-1452.
18. Birner, R., Gupta, S. and N. Sharma (2010). *The Political Economy of Agricultural Policy Reform in India: The Case of Fertilizer Supply and Electricity Supply for Groundwater Irrigation*. *Research Monograph 163*. Washington DC: International Food Policy Research Institute.
19. Byerlee, D., A. de Janvry and E. Sadoulet (2010) "Agriculture for Development-Revisited", University of California, Berkeley, Conference on Agriculture for Development Revisited.
20. Cheston, S., and L. Kuhn (2002). *Empowering women through microfinance*. In *Pathways out of poverty: Innovations in microfinance for the poorest families*, comp. and ed. S. Daley-Harris, 167-228. Bloomfield, CT: Kumarian Press.
21. Choi, J. (2004). *Policies and Measures for Promoting Rural Non-farm Employment*. In *Non-farm Employment Opportunities in Rural Areas in Asia*. Report of the APO Seminar on Non-farm Employment Opportunities in Rural Areas, Philippines, 24–29 September 2001. Published by Asian Productivity Organisation: Tokyo, 2004.
22. Christiansen, L., L. Demery, and J. Kuhl (2010) "The (Evolving) Role of Agriculture in Poverty Reduction: An Empirical Perspective", *Journal of Development Economics*, forthcoming.
23. CPRC (Centre for Poverty Research) (2004). *The Chronic Poverty Report 2004–05*. Manchester: CPRC.
24. CPRC (Centre for Chronic Poverty Research) (2009). *The Chronic Poverty Report 2008–09*. Manchester: CPRC.

25. Datt, G. and H. Hoogeveen (2003). *El Niño or El Peso? Crisis, Poverty and Income Distribution in the Philippines*. World Development 31(7): 1103-1124.
26. Davis, B., Winters, P., Carletto, G., Covarrubias, K., Quinones, E., Zezza, A., Stamoulis, K., Bonomi, G. and S. DiGuiseppe (2007). *Rural Income Generating Activities: A Cross Country Comparison*. Background paper to the World Development Report 2008.
27. Deininger, K., and D. Byerlee (2010) "The Rise of Large-Scale Farms in Land-Abundant Developing Countries: Does It Have a Future?", University of California, Berkeley, Conference on Agriculture for Development Revisited.
28. Deininger, K., S. Jin and H. K. Nagarajan (2009) "Land Reforms, Poverty Reduction and Economic Growth: Evidence from India", mimeo.
29. de Janvry, A., Sadoulet, E. and N. Zhu (2005). *The Role of Non-Farm Incomes in Reducing Rural Poverty and Inequality in China*. UC Berkeley Department of Agricultural and Resource Economics, UCB. CUDARE Working Paper No. 1001.
30. Deb, U., and M. Bantilan (2003). *Impacts of Genetic Improvement in Sorghum*. In: Evenson, R. and D. Gollin, *Crop Variety Improvement and Its Effect on Productivity: The Impact of International Agricultural Research*. Wallingford, United Kingdom: CABI Publishing.
31. Del Ninno, C. and M. Lundberg (2005). *Treading water: The long-term impact of the 1998 flood on nutrition in Bangladesh*. Economics and Human Biology, 3: 67-96.
32. Deolalikar, A., Brillantes, A., Gaiha, R., Pernia, E. and M. Racelis (2001). *Poverty Reduction and the Role of Institutions*. Asian Development Bank: Manila.
33. Desai, S., Dubey, A., Joshi, B., Sen, M., Shariff, A. and R. Vanneman (2010). *Human Development in India, Challenges for a Society in Transition*. Oxford University Press, New Delhi.
34. DFID (2004). *Making Agricultural Markets Work for the Poor*. Working Paper for the Renewable Natural Resources and Agriculture Team, DFID Policy Division.
35. Ding, S., Chen, Y., Feng, L. and Z. Li (2008). *Prevalence of Illness and Household Ill Health Risk Coping Strategies in Rural China: A Chinese literature review*. Studies in HSO&P, Employment Opportunities in Rural Areas, Philippines, 24–29 September 2001. Published by Asian Productivity Organisation: Tokyo, 2004.
36. Economic and Social Commission for Asia and the Pacific (ESCAP, 2008) *Asia and the Pacific 2008: Sustaining Growth and Sharing Poverty*, New Delhi: Academic Foundation
37. Estudillo, J. and K. Otsuka (1999). *Green revolution, human capital and off farm employment: changing sources of income among farm households in Central Luzon, 1966-1994*. Economic Development and Cultural Change, 47(3), 497-523.
38. Eswaran, M., Kotwal, A., Ramaswami, B. and W. Wadhwa (2008). *How Does Poverty Decline? Suggestive Evidence from India, 1983–1999*. Cambridge: MA, BREAD Policy Paper No. 014, February 2008.
39. 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, July 17, 2003, Durban, South Africa.
40. Fanjul, G. and A. Guerena (2009). *Markets working for the rural poor*. Background paper for the IFAD rural poverty report 2010.
41. FAO (2001). *Supplement to the Report on the 1990 World Census of Agriculture*. FAO: Rome.
42. FAO (2004). *World Census of Agriculture, 1980, 1990, 2000 rounds*. FAO statistics division: Rome.
43. FAO (2005). *Rural Women and Food Security in Asia and Pacific*. FAO Asia-Pacific Division: Bangkok.
44. FAO (2008). *Soaring Food Prices: Facts, Perspectives, Impacts and Actions Required*. High Level Conference on 'World food security: The challenges of climate change and bioenergy'. Rome 3-5 June.
45. FAO (2010). *The State of Food Insecurity in the World*. FAO: Rome.
46. FAO, IFAD and ILO (2010). *Gender Dimensions of agricultural and rural employment: differentiated pathways out of poverty*. FAO, IFAD and ILO: Rome.
47. FAOSTAT (2010). Website of October 2010. FAO: Rome

48. Feder, G. (2002). *The Intricacies of Land Markets: Why the World Bank Succeeds in Economic Reform through Land Registration and Tenure Security*. Paper presented at the Conference of the International Federation of Surveyors, April 19-26, 2002, Washington DC.
49. Fisher, T. and M.S. Sriram (2002). *Introduction, Beyond Micro-credit Putting Development Back into Micro-Finance*, Vistaar Publications: New Delhi.
50. Fontana, M. and C. Pasciello (2009). *Gender Dimensions of Rural and Agricultural Employment: Differentiated Pathways out of Poverty*. Institute of Development Studies
51. Foster, A. and M. Rosenzweig (2004). *Agricultural productivity growth, rural economic diversity and economic reforms: India, 1970– 2000*. Economic Development and Cultural Change, 52(3), 509–542.
52. Fuglie, K.O. (2010) "Total Factor Productivity in the Global Agricultural Economy: Evidence from FAO Data", Chapter IV in The Shifting Patterns of Agricultural Production and Productivity Worldwide, Ames, Iowa: The Midwest Agribusiness Trade Research and Information Centre.
53. Gaiha, R. (2007) "Employment Guarantee Scheme in the Indian State of Maharashtra", in K. Basu (ed.) *Oxford Companion to Economics in India*, Oxford University Press, New Delhi..
54. Gaiha, R. and Thapa, G. (2006). *Natural Disasters, Vulnerability and Mortalities – A Cross Country Analysis*.
55. Gaiha, R. and Thapa, G. (2006a). *Natural Disasters, Agricultural Investment and Productivity in Developing Countries*. IFAD: Rome.
56. Gaiha, R. and G. Thapa (2007). *Supermarkets, Smallholders and Livelihood Prospects in Selected Asian Countries*. IFAD: Asia-Pacific Division. Occasional Paper.
57. Gaiha, R. and K. Imai (2007). *Non Agricultural Employment and Poverty in India — An Analysis Based on the 60th Round of NSS*. Economics Discussion Paper EDP-0705, University of Manchester.
58. Gaiha, R. and K. Imai (2009) "Measuring Vulnerability and Poverty: Estimaters for Rural India", in W. Naude, A. U. santos-Paulino and M. Mcgillivary (eds.) Vulnerability in Developing Countries, United Nations University Press, Tokyo.
59. Gaiha, R., and S. Annim (2010) "Agriculture, GDP and Prospects of MDG 1 in Lao PDR", School of Economics Discussion Paper1012, University of Manchester, mimeo.
60. Gaiha, R. and S. Mathur (2010) Commentary on "Does Research Reduce Poverty? Assessing the Impacts of Policy-Oriented Research in Agriculture", *IDS Bulletin*, vol. 41, no. 6.
61. Gaiha, R., and Md. Azam (2011)"Agriculture, GDP and Prospects MDGI: A Study of Cambodia in Transition", APR, IFAD, in preparation.
62. Gaiha, R., Kaur, S. and V. Kulkarni (2009). *Sviluppo e transformazioni sociali in India*. Encyclopaedia treccani terzo millennio, Italy, 181-190.
63. Gaiha, R., Thapa, G., Imai, K. and V. Kulkarni (2007). *Endowments, discrimination and deprivation among ethnic groups in rural India*. Economics Discussion Paper Series EDP 0722, University of Manchester.
64. Gao, MT., Gan, L., Xu, LX. and Y. Yao (2006). *Health shocks, village governance, and farmers' long-term income capabilities: evidence from rural China*. Chinese Journal of Population Science, 1: 21-32 [In Chinese].
65. Goetz, A., and R.S. Gupta (1996). *Who Takes the Credit? Gender, Power, and Control over Loan Use in Rural Credit Programmes in Bangladesh*. World Development 24, no. 1: 45–63.
66. Gulati, A. and S. Narayanan (2003). *The Subsidy Syndrome in Indian Agriculture*. Oxford University Press.
67. Gulati, A., Minot, N., Delgado, C. and S. Bora (2007). *Growth in high-value agriculture in Asia and the emergence of vertical links with farmers*. In: J. Swinnen (ed.), Global Supply Chains, Standards and the Poor. Wallingford: CABI Publishing. pp. 91-108
68. Haggblade, S., Hazell, P. and P. Dorosh (2007). *Sectoral growth linkages between agriculture and the rural non-farm economy*. In S. Haggblade, P. Hazell, & T. Reardon (Eds.), Transforming the rural non-farm economy: Opportunities and threats in the developing world (pp. 141–182). Baltimore: Johns Hopkins University Press.
69. Haggblade, S., Hazell, P. and T. Reardon (2007). *Transforming the Rural Non-farm Economy: Opportunities and Threats in the Developing World*. Oxford University Press, New Delhi.

70. Haggblade, S., Hazell, P. and T. Reardon (2010). *The Rural Non-farm Economy: Prospects for Growth and Poverty Reduction*. World Development. doi:10.1016/j.worlddev.2009.06.008.
71. Hall, G. and H. Patrinos. 2010. Indigenous Peoples, Poverty and Development, A study sponsored by the World Bank.
72. Harriss, J. and B. Harriss (1984). *Generative or Parasitic Urbanism? Some observations from the recent history of a South Indian market town*. Journal of Development Studies, 20(3), 82-101.
73. Hart, G. (1987). *The mechanization of Malaysian rice production: will petty producers survive?* World Employment Programme research working paper, International Labour Office: Geneva.
74. Hashim, S. (2009). *A perspective on agricultural marketing in India*. Indian Journal of Agricultural Marketing, Sep–Dec 2009, 23 (3), 1-9.
75. Hazell, P. 2009. The Asian Green Revolution. IFPRI Discussion Paper 00911, November 2009. Washington D.C.: IFPRI.
76. Hossain, M. (2004). *Rural Non-farm Economy in Bangladesh: A View from Household Surveys*. Centre for Policy Dialogue, Occasional Paper Series 40. Dhaka: Centre for Policy Dialogue.
77. Hossain, M., Gollin, D., Cabanilla, V., Cabrera, E., Johnson, N., Khush, G. and G. McLaren (2003). *International Research and Genetic Improvement in Rice: Evidence from Asia and Latin America*. In: Evenson, R. and D. Gollin, *Crop Variety Improvement and Its Effect on Productivity: The Impact of International Agricultural Research*. Wallingford, United Kingdom: CABI Publishing.
78. Hu, D., Reardon, T., Rozelle, S., Timmer, P. and H. Wang (2004). *The emergence of supermarkets with Chinese characteristics: Challenges and Opportunities for China's agricultural development*. Development Policy Review, 22(4), 557-586.
79. IAASTD (International Assessment of Agricultural Knowledge, Science and Technology for Development) (2009). *Summary for Decision Makers of the East and South Asia and the Pacific (ESAP) Report*. Washington, DC: IAASTD.
80. ICIMOD (2010) Understanding Mountain Poverty in Bhutan, India and Nepal, Regional Report, mimeo.
81. IDS (Institute of Development Studies) (2001). Briefing Paper on the 'Feminization of Poverty' Prepared by BRIDGE for the Swedish International Development Cooperation Agency (SIDA). Sussex, UK: IDS.
82. IFAD (1999). *Factors that increase women's work loads in Nepal*. Gender and household food security (available at www.ifad.org/gender/learning/role/worklod/24.htm).
83. IFAD (2006). *Indigenous people and ethnic minorities.* Issue 10, May-June 2006.
84. IFAD (2009). *Food Price Volatility: How to help smallholder farmers manage risk and uncertainty*. Discussion paper prepared for the Round Table organized during the Thirty-second session of IFAD's Governing Council, 18 February 2009. IFAD: Rome.
85. IFAD (2009a). *Rural Finance: Small amounts making a big difference*. International Fund for Agricultural Development: Rome.
86. IFAD (2011). *Rural Poverty Report 2011*. IFAD: Rome.
87. IFAD (2011a). *Creating Opportunities for Rural Youth*. Issue 35 (Jan-Feb 2011), IFAD: Rome
88. IFAD (2010). *Value Chains*. Issue 31 (March – April 2010), IFAD: Rome
89. Jacob, M. (2006). *Changes in the wage gap of gender and caste groups in India*.
90. IFAD and WFP (2010). *The Potential for Scale and Sustainability in Weather Index Insurance for Agriculture and Rural Livelihoods*. IFAD and WFP: Rome.
91. IFPRI (2005). *Rural Non-farm Development in China and India: The Role of Policies and Institutions*. Development Strategy and Governance Division Discussion Paper, IFPRI: Washington DC.
92. IFPRI (2007). *The Future of small farms for poverty reduction and growth*. International Food Policy Research Institute 2020 Discussion Paper 42, May 2007. Washington D.C.: IFPRI.
93. IFPRI (2007a). *The World Food Situation: New Driving Forces and Required Actions*. Washington DC: mimeo.
94. IFPRI (2009). *Land Grabbing by Foreign Investors in Developing Countries: Risks and Opportunities*. IFPRI Policy Brief 13, Washington DC.

95. ILO (2010). *Child Labour in Cambodia: A New Direction*. Available at http://www.ilo.org/global/About_the_ILO/Media_and_public_information/Feature_stories/lang--en/WCMS_141489/index.htm. Accessed on October 4, 2010.
96. ILO (2010a). *Global Wage Report 2010/11*. ILO: Geneva
97. Imai, K., Gaiha, R. and G. Thapa (2009). *Finance, Growth, Inequality and Hunger in Asia: Evidence from Country Panel Data in 1960-2006*. Economics Discussion Paper Series, EDP-0813, December 2008, Revised in 2009, University of Manchester.
98. Imai, K., Gaiha, R. and W. Kang (2010). *Vulnerability and poverty dynamics in Vietnam*. Applied Economics, 1-16, *forthcoming*.
99. Imai, K., Gaiha, R., G. Thapa and S. Annim (2011 a) "Microfinance and Poverty-A Macro Perspective", forthcoming.
100. Imai, K., Gaiha, R., G. Thapa and S. Annim, and A. Gupta (2011 b) "Performance of MFIs-A Macro and Institutional Perspective", forthcoming.
101. Imai, K., Gaiha, R. and G. Thapa (2011c). *Role of Agriculture in Achieving MDG 1 in Asia and the Pacific Region*. The University of Manchester Economics Discussion Paper Series, EDP – 1104.
102. IPCC (2007). *Climate Change 2007: Synthesis Report*. IPCC: Valencia, Spain.
103. Jha, R. and T. Dang (2009a) "Vulnerability and Poverty in Papua New Guinea", Arndt-Corden Department of Economics Working Paper no. 8 (Revised), Australian National University.
104. Jha, R. and T. Dang (2009b) "Vulnerability and Poverty in Timor-Leste", Arndt-Corden Department of Economics Working Paper no. 10 (Revised), Australian National University
105. Jha, R. and T. Dang (2009c) "Vulnerability and Poverty in Select Central Asian Countries", European *Journal of Comparative Economics*, vol. 6, no. 1.
106. Jha, R., T. Dang and K. L. Sharma (2009) "Vulnerability to Poverty in Fiji", *International Journal of Applied Econometrics and Quantitative Studies*, vol.6.
107. Jha, R., R. Gaiha and A. Sharma (2009) *Calorie and Micronutrient Deprivation and Poverty Nutrition Traps in Rural India*, World Development, vol. 37, no. 5.
108. Kabeer, N. (1998). *Money Can't Buy Me Love? Re-evaluating Gender, Credit and Empowerment in Rural Bangladesh.* IDS Discussion Paper 363. Brighton, England: Institute of Development Studies, University of Sussex.
109. Kaicker, N., Kulkarni, V. and R. Gaiha (2011). *Dietary Transition in India: An Analysis Based on NSS Data for 1993 and 2004*. Faculty of Management Studies, University of Delhi, *mimeo.*
110. Kaur, S., Kulkarni, V., Gaiha, R. and M. Pandey (2010). *Prospects of Non-farm Employment and Welfare in Rural Areas*. ASARC Working Paper 2010/05.
111. Kay, T. (2003). *Empowering Women through Self-help Micro-credit Programmes*. Gender and Development Section, Emerging Social Issues Division, ESCAP.
112. Kijima, Y. And P. Lanjouw (2005). *Economic Diversification and Poverty in Rural India*. Indian Journal of Labour Economics, 5 (1).
113. King, Dejardin A. and M. Bigotta (2009). *Work, Income and Gender rural urban dimensions*. ILO: Switzerland
114. Kirk, M. and T. Nguyen (2009). *Land-tenure policy reforms: Decollectivisation and the Doi Moi system in Vietnam*. IFPRI Discussion Paper. Washington, D.C.: International Food Policy Research Institute.
115. Kulkarni, V. (2010). *Women's Empowerment and Microfinance: An Asian Perspective Study*. Background paper for the APR Report on Rural Poverty Report, IFAD, mimeo.
116. Kulkarni, V. and R. Gaiha (2010). *Dietary Transition in India*. Centre for the Advanced Study of India, University of Pennsylvania.
117. Lanjouw, P. (2007). *Does the Rural Non-farm Economy Contribute to Poverty Reduction?* Chapter 3 in Haggblade, Hazell and Reardon, editors, Transforming the Rural Non-farm Economy. Baltimore: Johns Hopkins University Press.
118. Lanjouw, P. and A. Shariff (2002). *Rural non-farm employment in India: Access. Income and Poverty Impacts*. National Council of Applied Economics Research (NCAER). Working Paper 81, New Delhi: NCAER.

119. Lanjouw, P. and A. Shariff (2004). *Rural Non-Farm Employment in India: Access, Incomes and Poverty Impact*. Economic and Political Weekly, 39(40), 4429–46.
120. Lanjouw, P. and R. Murgai (2008). *Poverty Decline, Agricultural Wages, and Non-Farm Employment in Rural India 1983–2004*. Washington DC: The World Bank Policy Research Working Paper 4858, March 2008.
121. Li, XR., Yi, Y., Feng, CQ., Tan, L. and JY. Zhang (2005). *An analysis of chronic diseases among urban and rural residents of Sichuan province*. Journal of Preventive Medicine Information, 21, 2: 139-142 [In Chinese].
122. Lohmar, B., Rozelle, S. and C. Zhao (2001). *The rise of rural to rural labour markets in China*. Asian Geographer, 20(1-2), 101-127.
123. Maglaya, Z. (2004). *Rural Industrialization: The Philippine Experience*. In *Non-farm Employment Opportunities in Rural Areas in Asia*. Report of the APO Seminar on Non-farm
124. Malhotra, A., Schuler S., and C. Boender (2002). *Measuring Women's Empowerment as a Variable in International Development*. Background Paper for World Bank Workshop on Poverty and Gender: New Perspectives.
125. Mayoux, L. and M. Hartl (2009). *Gender and Rural Microfinance:: Reaching and Empowering Women, Guide for Practitioners*. International Fund for Agricultural Development (IFAD) Report. August 2009.
126. Mayoux, L. (2006). *Women's Empowerment and Microfinance: A 'Think Piece' for the Microfinance Field*, http://www.genfinance.info/.
127. Mohapatra, S., Rozelle, S. and J. Huang (2005). *Climbing the development ladder: Economic development and evolution of occupations in rural China*. UC Davis Working Paper, University of California.
128. Morris, M., Mekuria, M. and R. Gerpacio (2003). *Impacts of CIMMYT Maize Breeding Research*. In: Evenson, R. and D. Gollin, *Crop Variety Improvement and Its Effect on Productivity: The Impact of International Agricultural Research*. Wallingford, United Kingdom: CABI Publishing.
129. Morton, J. F. (2007) "The Impact of Climate Change on Smallholder and Subsistence Agriculture", *Proceedings of the National Academy of Sciences*, December 11.
130. Nielsen, H. (1998). *Socio-economic impact of the smallholder livestock development project in Bangladesh: results of the second impact survey*. In Women in agriculture and modern communication technology, proceedings of a workshop, Tune Landboskole, Denmark, 30 March - 3 April 1998, organized by the Agricultural and Rural Development Advisers' Forum.
131. Nino, C., K. Subbarao and A. Milazzo (2009) "How to Make Public Works Work: A review of the Experiences of Developing Countries", Social Protection and Labour Working Paper Series, 0905, The World Bank.
132. OECD (2009) *SIGI Database.* OECD: Paris.
133. Okun, A. M. (1975) *Equality and Efficiency: The Big Trade-off*, Washington DC: Brookings Institution
134. Osmani, S. (1987). *The impact of economic liberalisation on the small scale and rural industries of Sri Lanka*. In Islam, R. (ed). *Rural Industrialisation and Employment in Asia*. New Delhi, International Labour Organisation.
135. Oxfam (2005). *The Tsunami's impact on Women*. Oxfam Briefing Note. March 2005.
136. Pandey, S. and Bhandari, H. (2009). *Drought, Coping Mechanisms and Poverty: Insights from the rainfed rice farming in Asia*. Discussion paper, IFAD, Asia and the Pacific Division.
137. Pender, J. (2008). *Agriculture technology choices for poor farmers in less favoured areas of South and South-east Asia*. IFAD Asia and the Pacific Division.
138. Pingali, P. and G. Traxler (2002). *Changing locus of agricultural research: Will the poor benefit from biotechnology and privatization trends?* Food Policy 27 (3): 223-238.
139. Rahman, A. (1999). *Micro-credit Initiatives for Equitable and Sustainable Development: Who Pays?* World Development 27, no. 1 (1999): 67–82.
140. Rashid, S., Ralph, C. and A. Gulati (2007). *Grain marketing Parastatals in Asia: Results from Six Case Studies*, World Development, Vol. 35, No. 11, pp 1872-1888.
141. Ravallion, M. and S. Chen (2004). *China's (uneven) progress against poverty*. Mimeo, DECRG, World Bank, Washington DC.

142. Reardon, T., Berdegue, J., Barrett, C. and K. Stamoulis (2007). *Household Income Diversification into Rural Non-farm Activities*. In S. Haggblade, P. Hazell, & T. Reardon (Eds.), Transforming the rural non-farm economy: Opportunities and threats in the developing world (pp. 115 - 140). Baltimore: Johns Hopkins University Press.
143. Renkow, M. (2007). *Cities, Towns, and the Rural Non-farm Economy*. In: Haggblade, S., Hazell, P. and T. Reardon (Editors). Transforming the Rural Non-farm Economy. Baltimore: Johns Hopkins University Press.
144. Sander, W. (1983). *Irrigation development and non-farm employment changes in two communities in the Philippines*. Indian Journal of Agricultural Economics, 38(1), 1-14.
145. Sebastian, K. (2007). *GIS/Spatial Analysis Contribution to2008 WDR: Technical Notes on Data & Methodologies.* Background paper for the WDR 2008.
146. Sen, A. (1999). *Development as Freedom.* Oxford University Press: New York.
147. Sen, A. (2000). *A Decade of Human Development*. Journal of Human Development, 1(1), 17-23.
148. Shilpi, F. and D. Umali-Deininger (2007) *Where to Sell? Market Facilities and Agricultural Marketing*, Washington DC: Policy Research Working Paper 4455, World Bank.
149. Shrestha, M. (1998). *Report on Self-help Banking Programme and Women's Empowerment*. Centre for Self-help Development (CSD), Kathmandu, (Nepal), 28.
150. Sombilla, M. A., D. B. Antiporta, A. M. Balisacan and R. W. Dikitanan (2010) "Policy Implications to Food Price Crisis and their Implications: The Case of greater Mekong Sub-Region Countries, A Report submitted to Asia and the Pacific Division, IFAD, Rome, mimeo.
151. Srivastava, R.S. (2004). *Land reforms and the poor in India: an overview of issues and recent evidence*. In Gazdar, H. and Quan, J. (2004). *Poverty and Access to Land in South Asia: A study for the Rural Support Programmes Network*. Pakistan. Vol. 2: Country Studies DFID / RSPN / NRI May 2004.
152. Taylor, J.E. (2008). *Rural Poverty and Markets*. Background paper for the IFAD rural poverty report 2010.
153. Thapa, G. (2009). *Smallholder Farming in Transforming Economies of Asia and the Pacific: Challenges and Opportunities*. Discussion Paper, IFAD.
154. Thapa, G. (2006). *Rural Poverty Reduction Strategy for South Asia.* ASARC Working Papers 2004-06.
155. Thapa, G., Gaiha, R., Imai, K. and V. Kulkarni (2009). *Soaring Food Prices: A Threat or Opportunity in Asia*. BWPI Working Paper, Brooks World Poverty Institute, University of Manchester.
156. Thapa, G. and R. Gaiha (2011). *Smallholder Farming in Asia and the Pacific: Challenges and Opportunities.* IFAD conference on New Directions for Smallholder Agriculture, IFAD: Rome.
157. Timmer, C. P. (2010). *Lessons from Food Crises Past*. World Development, forthcoming.
158. Timmer, C.P. (2009). *Reflections of Food Crises Past.* Food Policy, 35(2010), 1-11.
159. Timmer, C.P. (2009a). *Do Supermarkets Change the Food Policy Agenda?* World Development, Special Issue on Agrifood Industry Transformation and Small Farmers in Developing Countries, 37 (11), 1812-19
160. Todd, H. (1996). *Women at the Centre: Grameen Bank Borrowers after One Decade*. Westview Press: New York.
161. Tyler, S. and L. Fajber (2009). *Land and Water Resource Management in Asia*: *Challenges for Climate Adaptation*. International Institute for Sustainable Development (IISD), Background paper for the Asia Regional Meeting of the Dialogue on Climatic Change, Adaptation for Land and Water Management, January 19-21, Hanoi.
162. UN (2010). *The Millennium Development Goals Report*. United Nations: New York.
163. UNICEF (2009). *Social Protection in South Asia: A review*. United Nations Childrens Fund Regional Office: Nepal.
164. UNICEF (2010). *ChildInfo database*, available at http://www.childinfo.org/
165. Unni, J. and G. Raveendran (2007). *Growth of Employment (1993–2004/5): Illusion of Inclusiveness?* Economic and Political Weekly, January 20, 2007.

166. Valdes, A., Foster, W., Anriquez, G., Azzari, C., Covarrubias, K., Davis, B., DiGiuseppe, S., Essam, T., Hertz, T., de la O, A., Quiñones, E., Stamoulis, K., Winters, P. and A. Zezza (2010). *A profile of the rural poor*. Background paper for IFAD Rural Poverty Report 2010.
167. Van der Walle, D. and D. Cratty (2003). *Is the emerging non-farm market economy the route out of poverty in Vietnam?* Policy Research Working Paper 2950, Washington DC: World Bank, January.
168. Wanmali, S. (1992). *Rural infrastructure, the settlement system, and development of the regional economy in Southern India*. IFPRI Research Report 91, Washington DC: IFPRI.
169. Wiggins, S and P. Hazell (2008). *Access to rural non-farm employment and enterprise development*. Background paper for the IFAD Rural Poverty Report 2010.
170. World Food Programme (2008). *WFP Food Security Monitoring and Analysis System*. Rome.
171. World Bank (2001a). *Engendering Development: Through Gender Equality in Rights, Resources, and Voice*. Summary, Washington. www.worldbank.org/gender/prr/ engendersummary.pdf
172. World Bank (2001). *World Development Report 2001*.World Bank: Washington DC.
173. World Bank (2003). *World Bank Development Indicators*. World Bank: Washington DC.
174. World Bank (2006). *Hazards of Nature, Risks to Development*. Independent Evaluation Group, World Bank: Washington DC.
175. World Bank (2007). *World Development Report.* World Bank: Washington DC.
176. World Bank (2008). *World Development Report 2008*. World Bank: Washington DC.
177. World Bank (2010). *World Development Report 2010*. World Bank: Washington DC.
178. World Bank (2009). Poverty Profile and Trend in Cambodia: Findings from the 2007 Cambodian Socioeconomic Survey.
179. World Bank Study Team (2002). In Krumm, K. and H. Kharas ed. (2004). *East Asia Integrates: a trade policy agenda for shared growth*. World Bank and Oxford University Press.
180. World Summit on Food Security (2009). *Feeding the World, Eradicating Hunger*. 16-18 November, 2009, FAO: Rome.
181. Yan, YY., Zhang, LX., Luo, SG. and H. Wang (2006). *The impact of NCMS: data from 101 villages in five provinces in China*, Chinese Rural Economy, 5: 64-71 [In Chinese].