

HOW IS THE WORLD CHANGING?

WHAT DOES IT MEAN FOR THE RURAL POOR?

BACKGROUND PAPER FOR THE IFAD RURAL POVERTY REPORT 2009

Andy Sumner (IDS), Steve Wiggins (ODI), Thierry Giordano (CIRAD), Bruno Losch (World Bank), Karim Hussein (IFAD), Caroline Bidault (IFAD), Chiara Calvosa (IFAD), Ritika Kapur (IDS), Aditya Bahadur (IDS), and Savitri Bobde (IDS).

2 July 2008

CONTENTS

Executive Summary

I. Introduction

- a) Background
- b) Is there a 'new' rurality?
- c) What are the key global and regional emerging processes and issues?
- d) Uncertainty, adaptive capacity and rural change

II. Mapping transformative emerging processes and issues clusters (EPICs)

- a) Market EPICs - economics and markets
- b) People EPICs - demography and employment
- c) Natural EPICs - environment and natural resources
- d) Techno EPICs - technology and technological innovation

III. Governance and the EPICs

- a) Governance across the EPICs
- b) Governance and aid, value chains and the private sector and public services

IV. Conclusions

- a) EPIC conclusions
- b) Governance across the EPICs
- c) What do case studies of rural poor responses tell us about strengthening the adaptive capacity of the rural poor?

References

Annex 1: Examples of cross EPIC interactions

Annex 2: Case studies of rural poor responses to EPICs

LIST OF ACRONYMS

AGOA	African Growth and Opportunity Act
AGRA	Alliance for a Green Revolution in Africa
AIDS	Acquired Immune Deficiency Syndrome
ASEAN	Association of Southeast Asian Nations
BRICs	Brazil, Russia, India, and China
CAADP	Comprehensive Africa Agriculture Development Programme
CC	Climate Change
CDER	Centre for Drug Evaluation and Research
CDM	Clean Development Mechanism
CEPS	The Centre for European Policy Studies
CGIAR	Consultative Group on International Agricultural Research
CLTS	Community led Total Sanitation
COMESA	Common Market for Eastern and Southern Africa
CSO	Civil Society Organisation
CSR	Corporate Social Responsibility
DAC	Development Assistance Committee (OECD)
DDR	Doha Development Round
DFID	Department For International Development (UK)
EA	Eastern Asia
EBA	Everything but Arms
ECOWAS	Economic Community of West African States
EFTA	European Free Trade Association
EPA	Economic Partnership Agreement
EPICs	Emerging Processes and Issues Cluster
EU	European Union
FAO	Food and Agriculture Organisation
FDI	Foreign Direct Investment
GAVI	Global Alliance on Vaccines and Immunization
GFTAM	Global Fund to fight AIDS, Tuberculosis and Malaria
GHGs	Green House Gases
GM	Genetically Modified
HIPC	Heavily Indebted Poor Countries
IAASTD	International Assessment of Agricultural Knowledge, Science and Technology for Development
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
ICT	Information and Communication Technology
ICT4D	Information and Communication for Development
ILO	International Labour Organisation
IMF	International Monetary Fund
IPCC	Intergovernmental Panel on Climate Change
ITDA	Integrated Tribal Development Agency, India
LAC	Latin America and the Caribbean
LDC	Least Developed Countries
MCA	Millennium Challenge Account
MDGs	Millennium Development Goals
MSSRF	M.S. Swaminathan Research Foundation, India
NA	Northern Africa
NASSCOM	National Association of Software and Services Companies, India
NPM	New Public Management

ODA	Official Development Assistance
OECD	Organisation for Economic Co-operation and Development
PBM	Paediatric Bacterial Meningitis
PO	Poor Organisation(s)
PPP	Public Private Partnership
PRODAM	Agricultural Development Project in Matam
PRSPs	Poverty Reduction Strategy Papers
R and D	Research and Development
RP	Rural Poor
RPR	Rural Poverty Report (IFAD)
SADC	Southern African Development Community
SCA	South Central
SEA	South Eastern
SSA	Sub-Saharan African
TB	Tuberculosis
TRIPS	Trade-Related Aspects of Intellectual Property Rights
TTI	Technology and Technological Innovations
UNCTAD	United Nations Conference on Trade and Development
UNEP	United Nations Environment Programme
US	United States
USAID	United States Agency for International Development
WA	Western Asia
WCA	Western and Central Africa
WDM	World Development Movement
WHO	World Health Organisation

EXECUTIVE SUMMARY

The world is rapidly changing. Climate change, rising energy and food prices, the growth of agro-fuels production, the emergence of new value chains and the increasing integration of traditional ones, increasing migratory and remittance flows, and urbanization are just some new issues and processes that we are facing.

The way the world is changing has important effects on the livelihoods of poor rural people, and this will be increasingly the case in future years. In most cases, new issues and processes pose both threats and opportunities for poor rural people. We need a better understanding of these changes and how they make poor rural people more vulnerable, or how they can be harnessed to find new pathways out of poverty.

New issues and processes require new approaches in rural development programmes and policies. For example, in recent years, a new architecture of development aid, value chains and public services has emerged and new actors and contexts have appeared in the field of development. This new environment is the context in which new approaches to rural poverty alleviation need to be developed, to ensure that development programmes and policies reflect emerging challenges and that they provide sustainable and flexible responses to them.

The very nature of rurality is changing radically. There is increased inter-connection, interaction, and mutual inter-dependence of rural and urban settings. The ‘new rurality’ can thus best be summed up as previously held beliefs and assumptions on rurality being questioned.

This paper focuses on four global and regional emerging processes and issues clusters or EPICs. These are, market EPICs – i.e. economics and markets; people EPICs – i.e. demography and employment; natural EPICs – i.e. the environment and natural resources, and techno EPICs – i.e. technology and technological innovation.

We discuss the governance dimensions across the EPICs. We focus in particular on aid, value chains and the private sector and on public service delivery as three important policy arenas.

In terms of the rural poor we identify enabling factors to strengthen adaptive capacity. We suggest four stages in a cycle of adaptation.

First, there is the capacity of the rural poor to mobilise a collective response to the EPICs. This requires in-depth understanding of the nature of the issues and possible responses and a capacity to form collective response.

Second, there is a stage of dialogue with other stakeholders notably the government. This is the planning of putting into practice the adaptation responses of the rural poor. It involves the rural poor dialoguing with other stakeholders on adaptation responses of the rural poor and in particular it involves dialogue with local and national governments on adaptation options in order to enable such adaptation.

However, dialogue with other stakeholders such as local and national governments is not enough. *There is a third stage of shaping or influencing the dialogue towards the interests of the rural poor.* This involves the ability of the rural poor to shape or influence the terms of their own adaptation. It is about implementing the adaptation choices of the rural poor.

Fourth, there is achieving or actual adaptation and monitoring and evaluation of the achieved adaptation. This would then feed back into the first stage for new mobilisation.

SECTION I: INTRODUCTION

1a. Background

Rural development has changed radically in the 30 years since IFAD's birth. However, the current pace of change is accelerating and creating both challenges and opportunities. There are some major global and regional transformative processes and emerging issues. These are issues not just for the rural poor but also for everyone.

Indeed, beyond the rural poor the issues matter to world citizenship because not only do the processes and issues have effects in rich and poor countries alike, in many ways there is increased interconnectedness and inter-dependence between the North and South. Major global and regional processes may destabilize existing livelihoods, unravel social fabrics, create conflict and exclusion and disrupt international markets.

There have been various discussions of possible global futures. The most notable are the US National Intelligence Council's *2020 Project* and related *Global Trends 2010, and 2015*. There is also the EU European Development Co-operation to 2010 and 2020 projects.¹

A word of caution at the outset is due, noting Taleb's (2007) *Black Swans* thesis regarding the unpredictable. As Phillips (2008) eloquently noted, thinking back to the 1980s who would have imagined the world now? Who would have imagined the spread of the Internet, the collapse of the Soviet block or the post-9/11 world?

With this caveat in mind, this background paper for the IFAD Rural Poverty Report 2009 aims to identify what is currently changing, how it is changing and what it means for rural poor people. This paper focuses on four global and regional emerging processes and issues clusters or EPICs as they are evolving now. These EPICs are,

- Market EPICs – i.e. economics and markets
- People EPICs – i.e. demography and employment
- Natural EPICs – i.e. the environment and natural resources
- Techno EPICs – i.e. technology and technological innovation

The concluding section then identifies governance and rural poor responses to these changes. The paper is structured in three sections. In section I we lay out the processes and issues that will be analyzed. Section II considers each of our emerging processes and issues clusters or EPICs. Section III concludes by identifying responses to the EPICs in terms of governance and the responses of the rural poor themselves.

1b. Is there a 'new' rurality?

Debates about a 'new rurality' have evolved in the last decade. The 'new rurality' is a term that has been applied to various ways in which the rural context is changing particularly so in,

¹ See respectively www.dni.gov/nic/NIC_2020_project.html and www.edc2020.eu

- the relationship between rural and urban contexts (increased inter-connectedness via migration, technology, etc and the blurring of the urban-rural distinction);
- increased diversity of livelihoods notably away from livelihoods based primarily on agriculture;
- increased complexity and/or uncertainty as a result of rapid change;

The FAO (2008: 4) note for example,

For much of the last century, 'rurality' equated agricultural employment with rural population. The current reality, which has been defined as the 'new rurality', is one of a high level of non-agricultural employment and income in rural areas. In addition, there is no longer the correspondence that existed in the past between place of residence and place of work. Urban labour lives in rural areas and rural labour lives in urban areas.

Haines and Robino (2006: 1) too argue,

the 'new rurality' approach recognizes that in rural spaces diverse activities (e.g. agriculture, mineral, handicrafts, commerce and services) and diverse social actors (e.g., state, producer organizations, farmers, native population, rural and urban communities, NGOs, etc.) are involved. The structural changes recognized in the new rurality are indexed by the growth of non-farm activities as important source of rural income. The backbone of new rurality is the territorial character of rural development.

In short, it is the very nature of the *rural-ness* of *rurality* (or non-urban-ness) which is changing radically to a 'new rurality'. It is the increased inter-connection, interaction, and mutual inter-dependence of rural and urban settings. The 'new rurality' can thus best be summed up as previously held beliefs and assumptions on rurality being questioned. For example, agriculture forming the primary income source, the blurring of urban-rural boundaries as people migrate to and from both, and peri-urban areas grow and changed relationships between urban and rural, and the feminization of agriculture.

Rurality is traditionally defined by geography in the sense of a proximity to nature. It might also be defined by photosynthetic activity per hectare. There is a technological dimension in the sense of remoteness or limited 'connectedness' in physical and technological infrastructure, as well as demographic - low population density and economic - employment/livelihoods primarily based on agriculture, forestry or fishery or self-employed.

'New rurality' suggests a definition of rural based a fluidity and complexity encompassing the similar domains of the traditional rurality. For example,

- environment/geography – a proximity to nature and the continued importance of natural resources;

However, very different in other domains. For example,

- economics/markets - an increase in the diverse of livelihoods – via multiple livelihoods including or not livelihoods based on agriculture and natural resources, forestry or fishery and a proximity to nature);

- demography - an increase in mobility - a mobile population rather than low population density with lower mobility.
- technology - an increase in connectedness - increased inter-connectedness meaning reduced remoteness in various senses of rural via physical and technological connections i.e. ICTs, mobiles, modern agriculture technology such as biotechnology);

The net result of the above are new issues of governance - an increase in the intensity of rural-urban relations – via the growing importance of rural areas to the state i.e. natural resource revenues).

1c. What are the key global and regional emerging processes and issues?

The starting point for IFAD is the rural poor as agents. Around this focal point we can map on the one hand, the RP's access to and capacity to benefit from assets (i.e. the relevant RPR chapters) and on the other hand access to and capacity to benefit from governance structures and access to rural (public and private) services (as reflected in respective RPR chapters too). Finally around all of this can be wrapped a range of what we are calling the EPICs – or vulnerabilities and opportunities - which determine to a greater extent the relationships between the rural poor, governance structures and asset accumulation.

EPICs are global and regional processes of economic, environmental, demographic or technological nature which include:

- An EPICs driven by changes in markets *i.e. market EPICs*. For example, changes in agricultural commodity markets (e.g. growth of biofuels production, rising food prices, vertical integration and the growing role of supermarkets, new issues in agricultural trade, etc.)
- EPICs driven by changes in demography *i.e. people EPICs*. For example, demographic issues (rising dependency rates, migration and remittance flows, displacement, new diseases, etc.), urbanization and the growing blurring of lines between rural and urban.
- An EPICs driven by to changes in nature *i.e. natural EPICs*. For example, climate change and other environmental trends and issues and the changing link between energy scarcity, food markets, and demographic trends.
- EPICs driven by changes in technology *i.e. techno EPICs*. For example, new technologies (e.g. synthetic fertilizers, agricultural mechanization, permanent irrigation, ICTs, biotechnology, etc.) meaning changes in the connectedness of rural areas.

1d. Uncertainty, adaptive capacity and rural change

Rapid change is tangible. However, the dynamics, impacts, consequences and arising opportunities and adaptive capacity of rural poor people to respond are uncertain and determined by a myriad of factors not least their context, type of rural poor household and intra-household dynamics. As Leach et al., (2007: 1) sum up,

today's world is experiencing social, technological and environmental change at an unprecedented pace, across a variety of scales... processes are not only dynamic in themselves, but also interact in complex ways. The result is a variety of possible patterns - or pathways - of change... In many cases, different people and groups - in different settings, at different scales, with

different perspectives and priorities - will experience and value actual and possible pathways of change in very different ways.

We thus need attention to the major changes themselves, to their inter-connectedness and interaction, to their scales and to their existence as a system where the whole is more than the sum of the parts and where agents – notably the rural poor – are adaptive, reactive to other agents and co-evolve over time.

Until recently, understanding of rural areas has been driven by a static, linear and equilibrium analysis. Given the speed of changes these are now seen to be insufficient. A new emerging understanding of rural development is one of rural development as complex, dynamic, diverse, and uncertain (Chambers, 1997).

What do we even mean by complex, dynamic, diverse, uncertainty systems? Scoones et al., (2007: 1) note,

by dynamic systems we mean ones characterized by complexity, non-linearity and often non-equilibrium patterns exhibiting high levels of uncertainty in system properties. 'Dynamics' refers to the patterns of complexity, interaction (and associated pathways) observed in the behaviour over time of social, technological and environmental systems.

For example, Chambers cites Waldrop's (1994) 'edge of chaos' (structure among uncertainty) theory as a possible explanation of why community groups in rural areas are able to exist in, and adapt to, a permanence of development pressures and social change. Warner (2001: 11) too notes rural organizations adaptive capacity to respond to changes

in India, farmers have successfully made the transition from rain-fed to irrigated crops; in Nepal, forest 'user groups' have formed to exploit new community-friendly forestry policies; and in East Africa, government wildlife departments and local communities have developed joint management arrangements for exploiting and sustaining safari hunting and tourism. By voluntarily venturing a small distance away from the order and familiarity of their traditional practices, these organizations have been able to restructure, learn new skills, develop synergistic partnerships and adapt to their changing environment.

How can we seek to understand the system and the capacity of agents such as the rural poor to adapt? A body of ideas that has emerged in development research since Chambers citation of Waldrop on rural adaptation could be loosely called Complexity theory (see for discussion with regard to development, Ramalingam et al., 2008; Rihani, 2005; Warner, 2001 for example). This focuses on interrelationships rather than linear cause and attention to processes of change rather than snapshots (Senge, 1990). According to Ramalingam et al., (2008, ix, 1,4-5) this body of ideas aids,

understanding of the mechanisms through which unpredictable, unknowable and emergent change happens... [and] can prove particularly useful in allowing us to embrace what were previously seen as 'messy realities'.

Ramalingam et al., (2008) list ten ideas around the composition of systems, adaptive change and agency (see box 1).

Box 1. Key Ideas in Adaptive Change from Complexity Sciences

i. Systems are composed of,

- Interconnected and interdependent elements and dimensions.
- Feedback processes that promote and inhibit change within systems.
- System characteristics and behaviours that emerge often unpredictably from the interaction of the parts, such that the whole is different to the sum of the parts.

ii. Systems change occurs via,

- Nonlinearity - i.e. when change happens, it is frequently disproportionate and unpredictable.
- Sensitivity to initial conditions - i.e. small differences in the initial state of a system can lead to massive differences later; butterfly effects and bifurcations are two ways in which complex systems can change drastically over time.
- Phase space or the 'space of the possible' - i.e. the dimensions of a system, and how they change over time.
- Attractors, chaos and the 'edge of chaos' - i.e. the order underlying the seemingly random behaviours exhibited by complex systems.

iii. Agency is a function of,

- Adaptive agents - who react to the system and to each other.
- Self-organization - a particular form of emergent property that can occur in systems of adaptive agents.
- Co-evolution - which describes how within a system of adaptive agents the overall system and the agents within it evolve together, or co-evolve, over time.

Source: Extracted from text in Ramalingam et al., (2008).

The point of departure is that systems are made of multiple elements and processes which are not only connected but inter-dependent. For example, rural livelihoods are not simply a result of adding up factors but of interactions and levels of uncertainty. Longer time frames necessitate greater levels of uncertainty. Indeed, the issue of time frames relative to rural poverty manifests itself in a number of ways. For example, the biological time frames of crops and livestock to respond to major environmental changes. Thus changes related to the EPICs we discuss are often highly uncertain and separation of causes is not possible because the result is a product of the juxtaposition of factors (one could argue a demarcation of dependent and independent variable is thus problematic).

What are the things one should we look out for in our EPICs discussion? We need to consider the interaction of EPICs themselves producing co-evolved outcomes. We need to consider the diversity of rural poor livelihoods and contexts. In our analysis of EPICs we need to be aware of feedback loops, non-linear processes, sensitivity to initial conditions, phase space, complex systems, adaptive agents, self-organization and co-evolution.

SECTION II: MAPPING TRANSFORMATIVE EMERGING PROCESSES AND ISSUES CLUSTERS (EPICs)

2a. Market EPICs – economics and markets

Key processes in the economy that affect the rural poor can be grouped into three categories: globalisation and interactions with the world economy; national dynamics of economic growth and urbanisation; and, increasing scarcity of some resources. These will be reviewed in turn, first to describe the changes being seen and likely developments in the near future, and second to consider their implications for the rural poor.

i. Globalisation and interactions with the world economy: International trade

Progress on multilateral trade agreement under the Doha Development Round (DDR) is in the balance: while hope still exists that an agreement will be reached, it is far from clear that it will be. In the meantime, a profusion of bilateral agreements have recently been reached or are being negotiated at the moment, between major economies and economic blocks in the OECD and developing countries either individually or, more commonly, in groupings.

For example, in the Americas there exist free trade agreements (FTA) between the USA and Mexico, Central America and the Dominican Republic, Chile and, in the near future, Peru. The USA also has the Caribbean Basin Initiative that gives trade privileges to countries within that region. The EU also has FTAs with the Caribbean, Chile, Mexico, and with Mercosur — the regional economic grouping and common market that includes Argentina, Brazil, Paraguay, and Uruguay. There are also bilateral agreements within Latin America, such as that between Chile and Costa Rica.

For Africa, as well as the Caribbean and the Pacific, the EU is currently negotiating — some countries provisionally signed in December 2007 — a set of Economic Partnership Agreements (EPA) with regional blocks such as COMESA, SADC and ECOWAS. These deal with both trade and aid and replace the arrangements in place under the Cotonou agreement. There is also an FTA between the EU and South Africa.

In Asia, the ASEAN grouping is working towards an FTA (AFTA). There are trade agreements between ASEAN and China, between Japan and individual countries such as Singapore and Thailand, as well as between developing nations such as Pakistan and Malaysia. Australia and New Zealand both have arrangements with Singapore and Thailand.

For the Middle East and North Africa, there are deals between the EU, EFTA and the US with individual countries.

Overlaying these trade negotiations are initiatives such the Everything but Arms (EBA) offer of access to the EU market for least-developed nations. The US AGOA offered similar privileges.

The number of trade agreements is bewildering: the WTO list includes no less than 200, and this is not comprehensive since not all such deals have to be notified, only those that concern deals between OECD and developing countries.²

² There is also at least one radical alternative being developed in Latin America, the ALBA grouping of Bolivia, Cuba, Dominica, Nicaragua and Venezuela, that seeks to establish trade, finance and aid arrangements strictly outside of the WTO and the Bretton Woods Institutions.

There are plenty of cases in which developing countries have commitments to regional economic groupings — and in some cases, especially in Eastern and Southern Africa, they may belong to two or more of these;³ to the WTO; to regional trade agreements; and to bilateral trade deals. Analysis of these cases often reveals inconsistencies that have yet to be tested.

In summary, in the absence of a DDR deal, there is profusion of smaller-scale negotiations. What these mean for the future in terms of allowing developing countries better access to markets both in the OECD countries and within the developing world is not clear. The recent flurry of activity in setting up FTA might suggest a commitment to freer trade; but equally, an equally strong motive for some deals is to maintain and protect access to an important Northern market that existed under previous arrangements, and that effectively excludes competitor countries.

Generically, key issues arising under trade negotiations include the scope of trade and the standards that are applied. In recent times multilateral negotiations have been complicated by the extension of trade deals to cover not just the shipping of goods and commodities, but also exchange in services and recognition of intellectual property rights. Indeed, these issues have often become sticking points in negotiations. It is again not clear how much progress there will be in these areas. Food safety and sanitary and phytosanitary standards are another point of contention, where the tendency has been for OECD countries to raise the standards, at times to a point where the measures look like non-tariff barriers. The search is to establish transparent and fair procedures for setting such standards that will satisfy trading parties.

How is the adaptive capacity of the rural poor strengthened or constrained with respect to their access to markets, livelihoods, natural resources, services and governance?

For low income countries, the lack of a multilateral agreement can mean higher costs of negotiating regional and bilateral agreements, with more scope for important points to be lost to sight in the details of the negotiations. On issues such as intellectual property rights, specialist expertise is needed to understand the terms of agreements and their implications and low income countries may simply lack such expertise. Countries could be disadvantaged as much through ignorance as through design.

The consequences for the rural poor of trade liberalisation — if that indeed will be the outcome of the negotiations in progress — are similarly unclear. Much depends on the interpretation of the consequences of greater trade liberalisation, or alternatively more trade protection, for the poor. For some observers, liberalisation of trade promises efficiency, investment, innovation, and consequently growth — with potential benefits and opportunities for the rural poor, largely in terms of jobs, that may well be in cities or in rural areas with export crops.

For others, however, liberalisation threatens exploitation in unequal trade, blocking of national policy for industrialisation, an inflow of cheap food and the ruin of local farmers, with any investment from transnational corporations being that which seeks cheap local labour, tax reductions and less environmental regulation. The poor will thus either be left with no livelihoods or will be incorporated into global systems as the cheapest possible labour with no protection.

Evidence exists for both cases, suggesting that much of what transpires depends on the circumstances in which trade liberalisation takes place. The challenge is thus to create the conditions domestically, and the international norms, that make positive outcomes of growth with benefits for the rural poor more likely than unequal and exploitative relations that leave the poor

³ The most notable overlap occurs where countries are members of both SADC and COMESA

worse off.

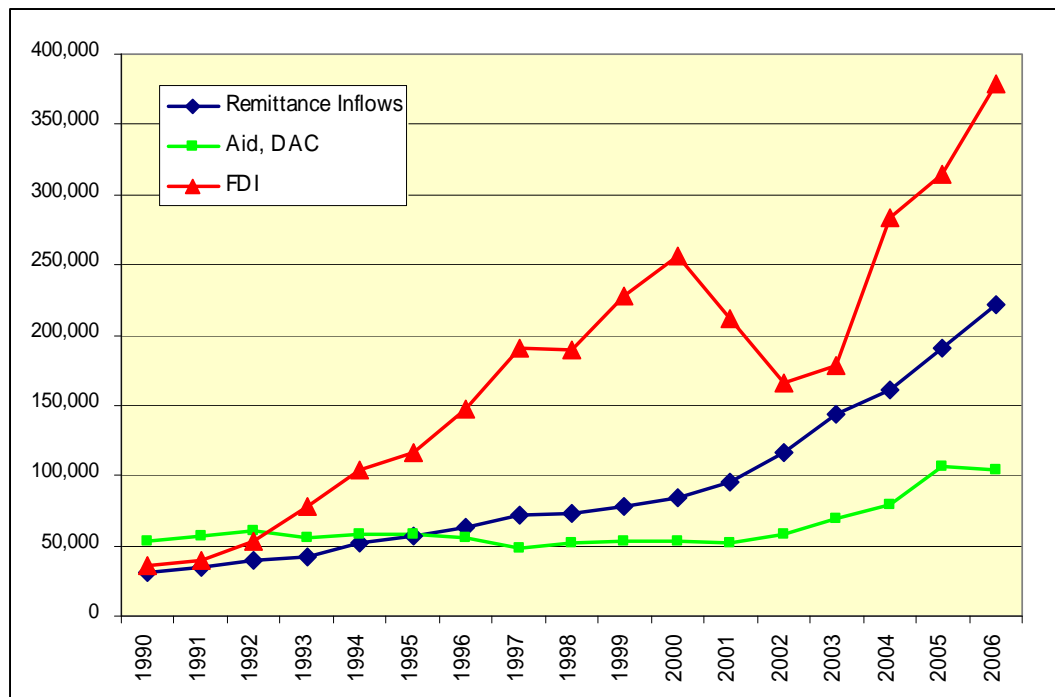
What might those domestic conditions be? Two main implications can be discerned. One is fair access to markets for the rural poor so that they can benefit, either as producers or workers, from any economic growth stemming from trade liberalisation. That might mean, for example, ensuring that roads to rural areas are maintained so that produce can be shipped out and inputs supplied at reasonable cost. It may mean working to improve financial systems, so that rural producers can get the credit they need when investment opportunities beckon. It could require legislation to recognise traditional rights to property.

The other is the protection of the rights of the poor, and in particular both their access to land including the commons; as well as to decent treatment as workers by the establishment of core labour standards and their implementation. Protecting those rights almost certainly implies that the poor be empowered through democracy and the freedom to associate to defend their interests and make their voices heard in policy debates.

ii. Globalisation and interactions with the world economy: International capital flows

Financial flows into developing countries are rising — see Figure 1. Since 1990 there has been a striking change in the balance between capital flows as aid, and those from remittances and foreign direct investment (FDI). While aid flows made up 44% of capital flows in 1990, they were just 14% in 2006, owing to the more rapid growth of remittances and FDI.

Figure 1. Aid, remittances and foreign direct investment flows to developing countries, 1990 to 2006, US\$M current



Sources: Remittances from UNCTAD; Official Development Assistance from DAC members, DAC; and remittances from World Bank

Flows of FDI and remittances, however, are unequal. Large fractions of each go to a relatively

few countries, and not necessarily those that most need capital. For example, while low income countries in 2006 received an estimated US\$60 billion, US\$179 billion went to middle-income countries. Sub-Saharan Africa received just US\$11 billion. Of all the FDI to the developing world in 2006, US\$379 billion, just US\$36 billion went to Africa, and only US\$12 billion to Sub-Saharan Africa. Most of the FDI went to middle income and rapidly-growing emerging economies of Asia and Latin America.

Aid flows are becoming more diverse with the entry of new donors including, amongst others, India, China, Venezuela and Brazil. Moreover, new global and challenge funds have been set up, both for sectors such as health, for example the Global Fund to Fight AIDS, TB and Malaria (GFTAM), and for general purposes, for example the Millennium Challenge Account. In fields such as health and agriculture, private funds from philanthropists have been established, such as the Bill and Melinda Gates Foundation. Non-governmental organisations (NGO) are also increasing their budgets, with estimates by the OECD DAC that NGOs in their member countries disbursed roughly US\$15 billion in 2005 and 2006 (Koch et al. 2008).

Future aid is likely to be influenced by two sets of considerations. One is the extent to which aid is focused on poverty reduction, seeking to achieve the Millennium Development Goals (MDG) with Poverty Reduction Strategies as the centrepiece of programming aid at national levels. The other is extent to which donors are prepared to harmonise their aid, following the principles of the Paris Declaration. While there are compelling reasons to move to an aid system that focuses on poverty and the MDGs with harmonised procedures; there are clear forces that militate against this. These include the priorities of new donors and funds that may not match of those of the longer-established donors. There are also differing appreciations of the most effective way to deliver aid: the main line of cleavage here being the degree to which donors are prepared to trust the governments of developing countries to use aid money granted as budget and sector support, or alternatively seek to distribute funds more directly to groups of poor and the activities in which they are engaged.

The outlook is most probably that the trends recently seen will continue, with rising flows of capital from diversified sources.

As aid, remittances, and FDI flows increase, there are clear challenges for governance, both at national and international levels. They include:

- How to facilitate and encourage flows, reducing unnecessary obstacles and lowering transactions costs? This applies most clearly to remittances where transaction costs can sometimes exceed 10% of the value of the remittance;
- How to encourage funds to be used in line with national strategies and priorities? Here the major challenges apply again to remittances, but also to FDI, as well as to aid and especially that coming from new donors and funds.
- In the case of FDI, how to safeguard the rights of the poor and weak from rapacious investors looking to appropriate land and natural resources or to recruit labour at the lowest possible wage with minimal adherence to labour standards? And,
- How to prevent greater flows of capital from being used by organised crime and groups dedicated to violence?

How is the adaptive capacity of the rural poor strengthened or constrained with respect to their access to markets, livelihoods, natural resources, services and governance?

Three things emerge, thus:

First, remittances potentially rapidly convey funds to households in rural areas. This presents challenges and opportunities to make the best use of them. It helps if there is a financial system at village level that allows recipients to save the funds, with interest, or to use monies to insure against risks, or to invest in a form of bond to pay children's school fees and the like.

There are greater benefits to the local economy and community if the funds are invested in new productive activities, or donated to community projects, or if they are spent on goods and services produced locally — as for example, when house improvements are made that create jobs for local builders. In some cases it may be possible to encourage these uses by, for example, offering matching grants from public funds for community initiatives or even for investments in production. Provision of business advice, or courses in the basics of business management, may be especially welcome and useful in communities where remittances are flowing and people are looking to start up enterprises.

Second, when foreign investments enter a country, there is a challenge, already outlined above to encourage the kind of investments that create decent jobs, pay taxes honestly, conserve the environment, and in general demonstrate corporate social responsibility (CSR); and that avoid a 'race to the bottom'. It is up to government to take steps to protect the rights of the poor to their assets, to protect workers, and to encourage CSR. It helps as well if civil society organisations are vigilant against abuses. The poor, moreover, need to be free to form associations, such as unions, to defend their interests.

In addition, not only does it help to make the most of foreign investment, but also it encourages such investments, if government uses its finances to spend on public goods — creating the physical infrastructure, the social investments in education and health, and the institutions that contribute to efficiency and equity. This is almost certainly a better use of public funds than the temptation to bribe foreign investors with overly generous tax breaks and grants that drain the public exchequer.

Third, with increased and more diverse flows of aid, there is the challenge to try and direct this towards existing strategies and priorities. New donors need to recognise of existing knowledge and understanding of local conditions and draw on this, rather than treating the local context as clean sheet on which to implement their favoured ideas about development. Supporting and augmenting the capacity of agencies working in this field, rather than setting up rival organisations and duplicating efforts is another clear implication.

It helps if the local context is one in which local government, civil society and local organisations are thriving and can give voice to the needs of the rural poor, and can effectively participate in setting priorities and plans, and monitoring progress and outcomes.

iii. The private sector and value chains

In many parts of the developing world, supply chains are evolving from their longstanding pattern of lengthy chains of traders and intermediaries dealing face to face, generally in spot markets, towards chains with fewer links, more contracting in advance, and more impersonal dealings. Supermarket chains have been prominent in creating new arrangements in agricultural supply chains.

These potentially offer the farmer a better deal: higher prices; more certainty of being able to sell produce; and, in some cases the promise of credit and technical assistance. But that usually comes with more onerous obligations to produce to a higher and more consistent standard, to deliver set quantities in specific dates, and in some cases to provide certification of production practices and the origins of foods. In some cases these supply chains link farmers to the supermarkets selling in

the domestic market, initially to middle class consumers but increasingly across the range of consumers; in other cases the chains are international, with shipments to supermarket buyers or category managers in OECD countries.

The process is uneven, by country and by commodity. In general, the new supply chains have advanced in middle income and emerging economies more than in low income countries, in Asia and Latin America more than in Africa, and for higher-value produce more than staples. The general consensus is that although the trend may be uneven, a trend it is, so that increasing numbers of farmers will be engaged, and more types produce are likely to be channelled through such chains.

Two concerns have been voiced over this. One is that that small farmers will simply not be able to participate in the new chains, and will find themselves either unable to grow and sell certain higher-value crops, or will sell on residual markets where there will be no premia for quality and effectively produce will be discounted. The supermarkets and their buyers, anxious to reduce transactions costs, are always likely to prefer to deal with a small number of large-scale growers than to buy from a multitude of smaller farmers.

The other concern is that the new chains confer monopoly power on the supermarkets and their agents, and that this will be used to drive down prices paid while setting ever-more exacting standards for producers.

Other developments in supply chains for export crops include the increasing possibility of marketing organic produce and selling under fair trade regimes, both of which offer premium prices to growers.

How is the adaptive capacity of the rural poor strengthened or constrained with respect to their access to markets, livelihoods, natural resources, services and governance?

The new supply chains offer opportunities to the rural poor who are small farmers, but there are some stiff challenges as well. Organising small farmers is central to the response. If they are to interact with powerful new buyers, and have any hope of negotiating on an equal footing, while saving transaction costs, organisation will be critical.

This is easier said than done. Nascent farmer groups probably need some support in their early days, in making links to buyers, in interacting with government, in learning business skills and in getting information on their options. But support needs to be provided without distorting or overwhelming such organisations. Previous attempts by governments to form farmers co-operatives, a popular measure in the 1960s and 1970s, often failed. NGOs may be better able to work with farmers at their pace, but the existence of NGOs with appropriate expertise cannot be taken as given.

It may well be that when small farmers do participate in the new supply chains, the main beneficiaries will be those small farmers with more than average resources: the non-poor. In such cases, there is an agenda of creating the conditions locally that ensure linkages from their success to jobs for their poorer neighbours. This is the familiar agenda of encouraging the rural non-farm economy: providing infrastructure, education and training, functioning financial systems, etc. that help spread and multiply the initial benefits to farmers to the rest of the community.

This last point is doubly important when it is considered that it is unlikely that the majority of farmers will be able to take advantage of opportunities in the new chains. Not every farmer, for example, will have access to organic or fair trade niches: the markets back in the OECD countries for such goods are, for the time being, limited in size. It is hard to imagine in the immediate

future that all coffee, for example, on European supermarket shelves will be fairly traded or organic. Where the new chains involve high value produce, such as fruit, vegetables or flowers, again the markets are limited. Kenya, for example, has some excellent examples of linking small growers into international shipments of horticultural produce. But currently it is estimated that no more than 10,000 out of 1.3 million farmers have such contracts.

For many farmers critical issues will be more run-of-mill questions about supply chain efficiency, whoever organises the chain and no matter what is traded, than about the opportunity to enter high value and niche markets. There can be some remarkable differences from country to country and from product to product in the share of the final price that farmers receive, owing to differences in supply chain efficiency.

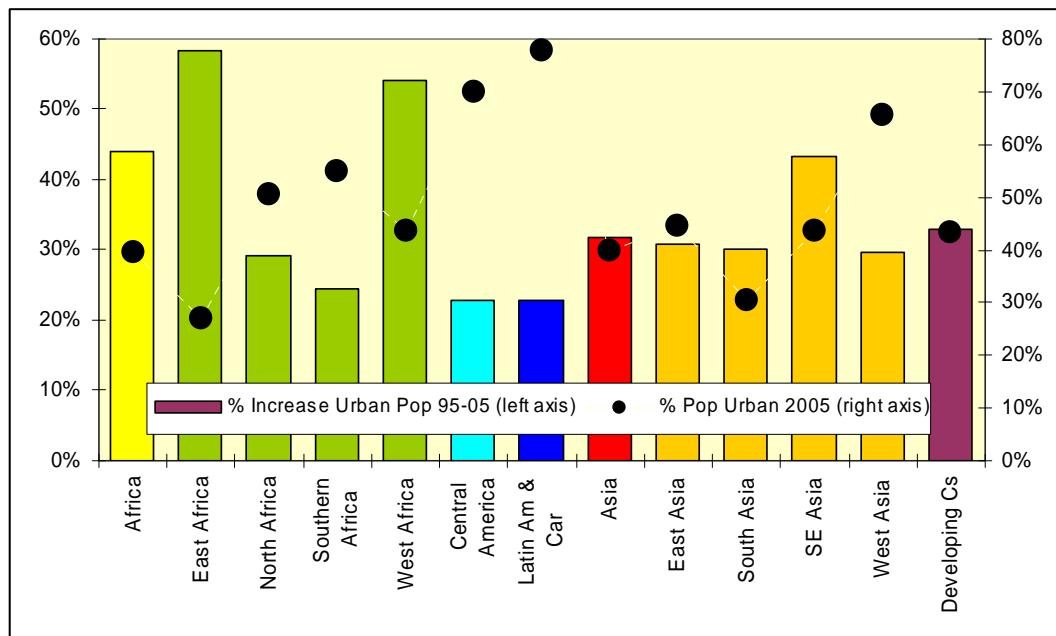
iv. National dynamics: economic growth and urbanisation

Some parts of the developing world are seeing rapid economic growth of 7% a year or more, most notably in parts of Asia; while plenty of other countries have seen their growth rates rise in the early 2000s to reach 4%, 5% and 6% a year including parts of Africa.

Growth is often accompanied by more rapid urbanisation, driven in large part by migration from rural to urban areas — see Figure 2. Much of urban growth takes place outside of the major cities, so that an increasingly dense weave of secondary cities and small towns emerges, reducing the distance between rural areas and urban centres.

Growth and urbanisation are accompanied by changes in consumption patterns, including those for food, with increasing amounts of meat, fish, dairy, fruit, vegetables, and oils being eaten at the expense of less consumption of cereals, roots and tubers.

Figure 2. Estimated rates of urbanisation 1995 to 2005, developing world



Source: Computed from FAOSTAT data, 2004 population revision

How is the adaptive capacity of the rural poor strengthened or constrained with respect to their access to markets, livelihoods, natural resources, services and governance?

For farmers, the implications are increasing markets for higher value produce — and stagnating markets for staples, in urban centres that are ever closer to farms. If urbanisation is accompanied by corresponding investments in roads, then for many farmers the time and cost in reaching the market will fall.

This presents opportunities to produce more of the higher value goods in demand. While the bulk of that produce may not come from the farms of the rural poor, linkage effects can be strong since some high value produce requires more labour than staples in production, processing and packing.

But the effects of urbanisation are not restricted to opportunities for farmers. Those living relatively close to urban areas are likely to experience demand for recreation, environmental services (including water supplies), and for land for housing and decentralised factories. All of these create opportunities for new activities and jobs.

Moreover, as urban centres become closer, for some villages there may be scope for commuting to the towns and cities for jobs, and longer term migration to urban areas becomes ever more feasible.

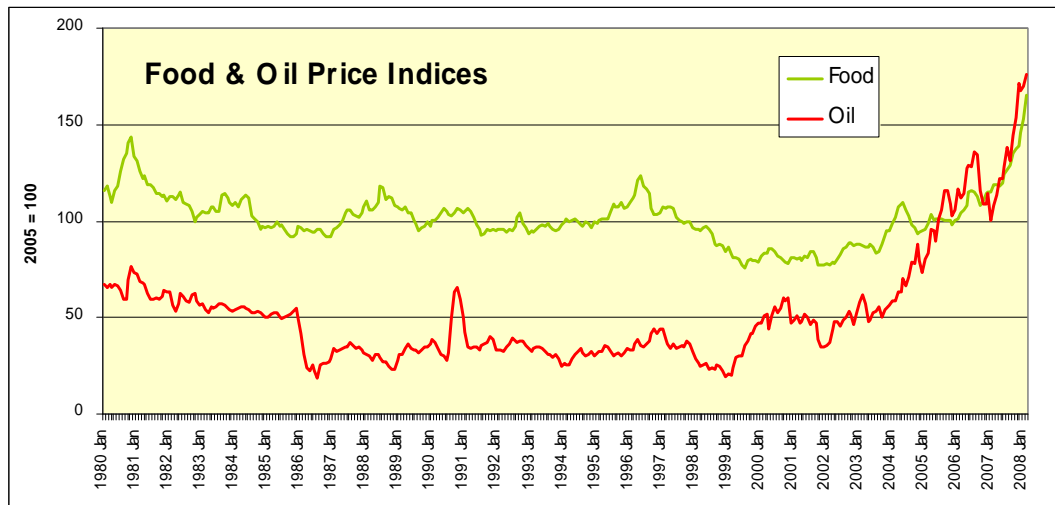
In sum, interactions between urban and rural areas are likely to increase. For the rural poor to benefit, the usual conditions apply: that they have the capacity in education, skills and health to participate in new activities; and their rights to assets they have long used, including land, be protected.

v. Increasing scarcity of resources

Growth of populations and economies are always likely to increase pressure on natural resources of all kinds; a process modified by the ways in which changes in technology and preferences alter the resources demanded, and in which advances in exploration and extraction change the usable reserves of resources. One of the more surprising trends in the twentieth century was the way in which the real price of many natural resources fell despite the very large increases in population and economies seen. Predicting the limits to natural resources and associated future costs of resources is anything but straightforward.

Nevertheless it appears that some resources are becoming increasingly scarce with rising costs either in markets or in terms of opportunity. The clearest examples lie with renewable natural resources — land, water, forests and woodlands, some key ecosystems, and indeed biodiversity in general. To add to this it may well be that oil and gas supplies may not be expanding at the rate that demand for them has been increasing. Certainly prices of crude oil have risen sharply and with few interruptions since 1999, see Figure 3.

Figure 3. Food and oil price indices, 1980 to 2008



Source: IMF commodity series

Medium term projections for the price of oil vary, with some at above US\$60 a barrel⁴, a far higher price than has been seen over the previous 15 or more years. Indeed, at time of writing this paper oil is US\$135 per barrel.

Higher oil prices threaten to put a brake on economic growth that could deflate demand and hit the rural economy. Higher resource costs in general will tend to reduce the yield on public investments: less can be done with the same budget.

At the same time as oil prices rise, as Figure 3 shows, agricultural prices have been rising as well, driven upwards by the combined effects of harvest failures in Australia, Russia, Ukraine, increased use of maize to distil ethanol in the USA, higher costs of fertiliser and farm machinery diesel resulting from the oil price rise, and possibly from speculation on commodity markets — in a context of reduced stocks and buoyant demand for feed grains in the large, rapidly growing economies of China, India and other parts of Asia.

A likely consequence of soaring food prices will be that both donors and developing countries will re-double their support to agriculture. At least, that is what world leaders, including the UN Secretary General, World Bank President and the UK Prime Minister, have been saying during

⁴ USDA projects oil prices in 2016/17 to be 13% higher than in 2006 in constant terms (USDA 2008, Table 1). In 2006 crude oil prices to US refiners were US\$59 a barrel (EIA data), so the projected price for 2017 would be US\$66.5 a barrel in 2006 prices.

<http://www.globalsecurity.org/military/intro/oil.htm>, accessed on 21 May 2008, reports:

The US Energy Information Administration Short-Term Energy Outlook released on 06 November 2007 predicted that the price of oil imported into the United States would peak at \$83.25 per barrel in November 2007, and decline to \$69 per barrel by the end of 2008. The Annual Energy Outlook 2007, released by the US Energy Information Administration in February 2007, predicted that crude oil prices would fall to less than \$50 per barrel [in constant 2005 dollars] by 2013, before nearly \$60 per barrel [in constant 2005 dollars] by the year 2030.

the first half of 2008.⁵ The challenge will be to make good use of any additional funding, leading to fewer failed investments than previously. The danger with a rapid increase in funding for agriculture is that donors will plan ad hoc projects and programmes rapidly with too little reference to existing strategies such as PRSPs and Africa's CAADP.

Indeed, most commodity prices have been rising in real terms during the past two years: the IMF commodity prices based on 100 in 2005 was at 170 in February 2008. This has upset the trends of the 1980s and 1990s of falling real commodity prices to which decision-makers had become accustomed, that had led to a sense that resources were not scarce, that primary sectors of the economy were condemned to meagre returns, and that increased value was to be found in manufacturing and even more in services and above those producing the intangible benefits of the 'knowledge economy'.

But with rising commodity prices there are new uncertainties. It is possible that the next few years will see a scramble for resources by large economies that lack reserves of natural resources within their own frontiers: those of the USA, EU, Japan, India, China, etc.⁶ That scramble is likely to be played out in many parts of the developing world and especially in Africa and Latin America where some countries have large areas with known or potential natural resources.

The question here is whether the search for natural resources will be governed by respect for local sovereignty, the rights of the poor living in areas with valuable resources, and for environmental conservation: or will such values be swept aside in a competitive scramble, marked by international rivalries and tensions, with the potential to spill over into wars over access to resources?

How is the adaptive capacity of the rural poor strengthened or constrained with respect to their access to markets, livelihoods, natural resources, services and governance?

For the rural poor, rising transport costs from higher oil prices threaten to put them at greater disadvantage compared to urban residents. They are likely to face higher costs for inputs, consumer goods in the village, and lower effective returns at the farm gate for any marketed surplus, once deductions have been made for transport costs.

Rising transport costs are also likely to exacerbate differences between remote and better-connected rural areas, making some of the disadvantages faced by the former all the more acute. This would be a major threat to parts of Africa where low settlement density increases distance between villages and urban centres, and where transport costs are already higher per tonne-kilometre than in Asia.

For those rural poor who farm, the higher oil prices means that that will face much higher fertiliser costs, whose prices have in any case doubled if not tripled in the last two years. While this should stimulate technologies that economise on fertiliser, such as micro-dosing. But the concern is that many farmers may reduce their use of fertiliser. In parts of Africa in particular this will be exacerbated by capital market failings that mean that farmers have no working capital to buy inputs, so that farmers who could see a net benefit to use of fertiliser find themselves unable

⁵ There are echoes of the last major spike in food prices in 1973/74 that saw a World Food Conference convened in late 1974 and led to much-increased donor funding for agriculture in the 1970s.

⁶ Brazil and Russia are examples of large economies within countries that have considerable reserves of natural resources.

to fund fertiliser.

Rising food prices could hit those rural poor who are net buyers of food, and this probably includes most of the poor, hard with cuts to their real incomes and reducing their consumption of food. As more of rural incomes are spent on food, less will be spent on other goods and services and this could have knock-on effects for the rural economy as a whole, effectively acting as a multiplier in reverse.

On the other hand, for farmers the higher prices should represent a major stimulus to produce more, offset of course by the higher costs of fertiliser and diesel to run machines. Response is unlikely to be immediate: history shows that farmers respond to prices with a lag; but it is nevertheless likely to be strong, and even for small farmers in Africa.

Public investment in roads and other infrastructure and in agricultural research and extension can make the response both more certain and stronger. Similarly public action to facilitate the functioning of supply chains and to reduce market failures, in financial systems especially, will be valuable.

It is unlikely that many of the farmers who are able to respond to the increased prices will be poor. But the poor can benefit from this so long as linkages from the prospering farmers to their poorer neighbours are fostered through, for example, actions to encourage the rural non-farm economy so that this can expand in response to the increased spending of farmers.

If there is a scramble for resources in rural areas of developing countries, action will be needed to prevent the poor being marginalised as powerful interests appropriate local resources of oil, gas, minerals, forests, land and water. In agriculture, for example, there is the danger that policy-makers anxious to boost agricultural production will turn to large-scale companies, perhaps transnationals, and provide them with land and in the process alienating the traditional rights of the poor, and possibly also diverting public investments to support such large-scale investments (e.g. roads, irrigation works). The siren-call of large-scale agriculture has repeatedly been heard in Africa: with few exceptions the results have been disappointing. Most commodity booms in Africa have been produced from small farms, not large.⁷

When mining, oil and logging companies come looking for resources, can the rights of the rural poor be protected and respected? Will rents from resources be reinvested locally and equitably, or will they be siphoned off to the benefit of distant urban economies and small elites?

⁷ Large-scale agriculture has repeatedly been heard in Africa: with few exceptions the results have been disappointing. Examples include the groundnuts scheme, state farms in Ghana under Nkrumah, and the failure of Bud-Senegal. Most commodity booms in Africa have been produced from small farms, not large. Examples of commodity booms in Africa south of the Sahara include: Cocoa in Ghana from the 1890s to the late 1920s; Groundnuts in Senegal in the 1950s; Cotton in the guinea savanna of francophone West Africa, from the early 1980s onwards; Coffee in Kenya from 1954 to the late 1970s; Tea in Kenya, from late 1950s to 1980s; Maize production from communal areas of Zimbabwe, 1980 to 1987; Maize production from Eastern and Northern Provinces of Zambia, 1980s; Maize production from Southern Highlands of Tanzania, 1980s; Cocoa in Côte d'Ivoire, 1960s and 1970s

*2b. People EPICs - demography and employment*⁸

Why should we be so concerned about demography when dealing with rural poverty alleviation? At least three reasons could be put forward. Firstly, the current growth of the world population: it questions the ability of the world agriculture to feed the future world population. The current food crisis put this question back to the fore, and challenges the role of agriculture in developing countries both as a means to increase production and to alleviate poverty. Furthermore, this present crisis is not due to food shortage, but rather to the lack of income of a large share of the population that can not afford to buy food anymore. Secondly, the timing and the pace of demographic transition greatly differed between regions of the world: for each region, demographic transition took and will take place in very different economic environment which had and will have great influence on poverty. Thirdly, the evolution of age structures: the varying cohorts of incoming job seekers all along the demographic transition process could strongly enhance or impede the development dynamic of a country, and therefore change the opportunities to alleviate poverty.

Taking into account these three issues raise concerns about the structural transformation of developing economies, more specifically the role agriculture could play in the development process and its capacity to fully contribute to rural poverty reduction. These issues can not be avoided, despite the fact that, the first one excepted, they tend to be out of the scope of policymakers. They directly challenge the capacity of economies to absorb cohorts of young people looking for jobs, and thus, the structural transformation pattern of emerging and developing countries. And this challenge is particularly important for 'the majority of the poor will still live in rural area for the decades to come' (Ravallion et al., 2007).

These are the three dimensions that this section will deal with. For each one of those, the changes are exposed and their implications for the rural poor are discussed.

i. Population growth and differentiated demographic transitions

A classic demographic transition scheme starts with mortality decline, followed by fertility reduction. It first leads to an increase of population growth (when mortality declines and fertility remains high); secondly a decrease of population growth (mortality becomes higher than fertility); and thirdly an aging of population⁹. This demographic transition occurred at different periods of the world history and at very different paces¹⁰.

The population growth rate summarizes the dynamic of the transition. As table 1 illustrates, population growth rate started to decrease in every region but at different periods between 1965 and 1985. Much more impressive are the different evolutions of population growth rates over

⁸ This paper is based on an ongoing research program implemented by the World Bank and funded by the World Bank, France and Fad entitled 'Structural implication of trade liberalisation on rural development (RuralStruc)'. For more information on this program: (<http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/AFRICAEXT/0..contentMDK:21079721~pagePK:146736~piPK:146830~theSitePK:258644,00.html>). The views expressed in this paper represent those of the authors, not necessarily of their institutions.

⁹ Amongst other references, see Lee (2003) on demographic transitions over the last three centuries.

¹⁰ In East Asia, demographic transition lasted between 50 and 70 years, the fastest to date. In Western Europe, nearly 150 years were needed. It even took 300 years in Sweden (Bloom and al., 2001).

time. Five regions behave rather similarly¹¹: Latin America and the Caribbean (LAC), Northern Africa (NA), South Central (SCA), South Eastern (SEA) and Western Asia (WA) recorded a decline of their growth rate at a quite similar pace. Then, at the one extreme, Eastern Asia (EA) population growth rate felt much more rapidly after the 1970-1975s' peak and should even reach an expected negative growth rate in 2040; at the other, Sub-Saharan African (SSA) population growth rate is slowing down very smoothly, not leading to an expected fall below 2% before the period 2020-25.

Table 1. Evolution of the population growth in the different regions, 1960-2050 (%).

	1950-1955	1965-1970	1985-1990	2005-2010	2025-2030	2045-2050	Growth rate peak	
							Period	%
Eastern Asia	1,8	2,4	1,4	0,6	0,1	-0,4	1965-70	2,4
Latin America and the Caribbean	2,7	2,6	1,9	1,3	0,7	0,2	1960-65	2,8
Northern Africa	2,3	2,5	2,4	1,7	1,1	0,5	1980-85	2,8
South-Central Asia	1,9	2,3	2,3	1,6	0,9	0,4	1980-85	2,4
South-Eastern Asia	2,1	2,5	2,0	1,4	0,7	0,2	1970-75	2,4
Sub-Saharan Africa	2,2	2,6	2,9	2,5	1,8	1,3	1980-85	2,9
Western Asia	2,7	2,7	2,6	2,0	1,2	0,7	1980-85	2,9

Source: World Population Prospects, 2006 Revision.

As a consequence, excepted EA where the population in 2050 should equal the one in 2010, the other Asian regions and LAC should still record increases, the most impressive being in NA (50%) and WA (60%). One must also keep in mind that the initial level of the population conditions the final outcome: while recording a 'mere' 43% increase, SCA will have to accommodate 759 million more people in 2050, the second highest increase after SSA, for a total population of more than 2.5 billion. Indeed, the most striking evolution remains SSA with a 100% increase of the population by 2050: nearly 1.8 billion people in 2050, more than the double of the 2010 population (table 2). As Guengant (2007) reminds us, in 1500, sub-Saharan Africa had a population very close to the one of China. In 2050, SSA population could exceed the Chinese population, and hence, with one fifth of the world population, recover its erstwhile demographic importance.

Table 2. Evolution of the population in the different regions, 1960-2050 (Million).

	1950	1970	1990	2010	2030	2050	Population change 2010-2040	
							Millions	%
Eastern Asia	670	987	1 344	1 563	1 663	1 591	29	2
Latin America and the Caribbean	168	288	444	594	713	769	176	30
Northern Africa	53	86	144	206	268	310	104	50
South-Central Asia	511	777	1 243	1 777	2 246	2 536	759	43
South-Eastern Asia	178	287	441	594	711	767	172	29
Sub-Saharan Africa	180	293	519	867	1 308	1 761	894	103
Western Asia	51	88	154	232	312	372	140	60

¹¹ Countries included in each of the region are given in annex.

Source: World Population Prospects, 2006 Revision.

How is the adaptive capacity of the rural poor strengthened or constrained with respect to their access to markets, livelihoods, natural resources, services and governance?

The above data are now quite well-known and often quoted to question the ability of regions to feed their growing population, hence challenging their agricultural development. SSA has the double features of recording the highest demographic growth and the highest rate of rural poverty.

This feature is stressed today because of the sharp increase of world food prices over the last two years. Concerns have been expressed on the consequences of this increase on the poor. Poor net food buyers who already dedicate a large share of their expenditure to food are the most affected. They struggle even more to access food, compromising their food security but also their sources of income: the efforts spend to find food can not be devoted to work. This price surge is not necessarily bad for everyone: net food sellers, even the poorest one, should benefit from it as long as they are well connected to markets (price transmissions) and that intermediaries do not capture most of the surpluses. Overcoming market and institutions failures is a fundamental prerequisite (Poulton et al., 2006).

In the short run, what is at stake is the relative share of these two categories, net sellers and net buyers to determine the real impacts of the rise of food prices on the poor. Little is known on this distribution. Ivanovic and Martin (2008) attempted to capture these implications. They emphasize the diversity of the situations but recognize the general adverse effect of price increase on poverty, both in rural and urban area, hence offsetting the positive effects on net sellers.

In the long run, as mentioned by the World Bank (2007: 8), jointly with the evolution of the world consumption patterns, the demographic growth is one of the factors that determines the world food demand. The World Bank estimates that cereal and meat production will have to increase respectively by 50% and 85% by 2030 to meet the world demand. Consequently, food prices will remain higher than in the past decades (OECD-FAO, 2008). What is at stake is the capacity to estimate whether this demand will be solvent or not, i.e. whether the economies will be able to create jobs and source of income to allow people to access food.

The combination of these two challenges – the necessity to develop agricultural production levels and to reduce poverty – leads to the assumption of a possible virtuous chain reaction: the increasing food demand should enhance agricultural development, that should itself benefits the poor that are mostly rural, and hence alleviate rural poverty. Unfortunately, the situation is much more complex now than it was decades ago when such kinds of virtuous cycles took place. Income diversification has become a major characteristic of rural households all around the world¹²: Recapping several studies, Davis (2003) stresses that non-farm activities provide between 30 to 45% of rural households incomes and jobs. Because of these income diversification, the poverty reduction potential of agriculture varies greatly amongst countries and populations, depending on the share of total income agriculture represents for each household (Diao et al., 2007). Consequently, alleviating poverty is not only a question of agricultural development but also of non-farm activity opportunities: agriculture cannot be the only solution

¹² The literature on income diversification is abundant. For instance, see among others Ellis (1998) and Reardon (1997) on Africa, Reardon et al. (2001) on Latin America, Wiggins and Davis (2003).

to rural poverty and multi-occupational diversity of rural livelihoods should become the cornerstone of a rural development policy (Ellis and Biggs, 2001).

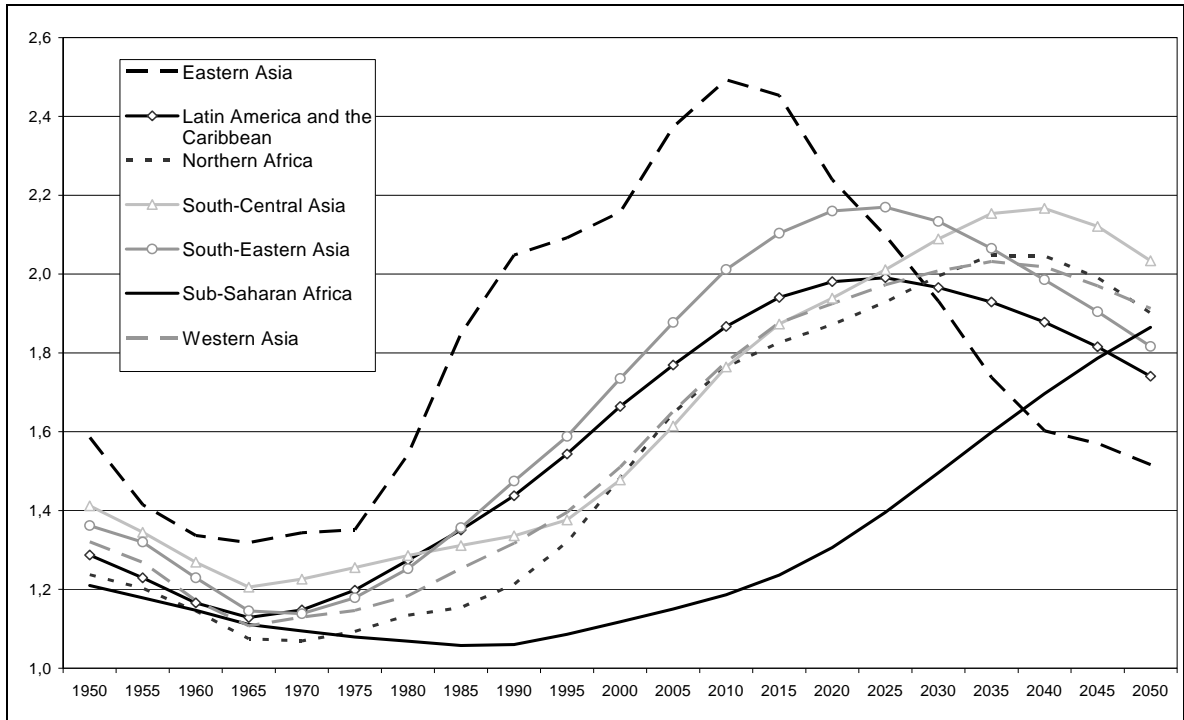
ii. Taking the age structure of the population into account – the capacity of agriculture to absorb labour supply and alternatives to agriculture

While studying the economic growth pattern of EA and its demographic transition dynamic, Bloom and Williamson (1997) highlight that the tremendous drop of their infant mortality firstly impeded economic growth: economies had to bear the burden of their increasing young population that dramatically depleted the activity ratio (period 1), i.e. the number of active per one inactive¹³. Secondly, when the youth entered the labour market and hence boosted the activity ratio, countries were capable to create an enabling environment for economic growth and job creation – sound social, economic, and political institutions and policies (Bloom et al., 2001) – and therefore to benefit from what Bloom and Williamson (1997) call a ‘demographic dividend’ (period 2). They estimate that this huge increase of the labour force was responsible for one third of the economic growth between 1965 and 1990. And then finally, the ratio fell due to population aging (period 3).

Our purpose is to determine how and when the age structure could enforce or hamper the development process – and not to assess the impact of the demographic dividend on the other countries. Therefore, the first period is critical since it corresponds to the time when the inactive population weighs tremendously on the development process. Six out of the seven regions recorded a reversal of the activity ratio prior 1975 (fig x).

Figure 4. Activity ratio, 1950-2050.

¹³ Bloom and Williamson (1997) base their explanation on the dependency ratio, i.e. the number of inactive people supported by an active person. Since our purpose is to determine to what extent the active population could support inactive people, we rather use the ‘activity ration’, i.e. the opposite of the dependency ratio, and adapted their explanation accordingly.



Source: *World Population Prospects, 2006 Revision, and authors' calculations.*

SSA is clearly the exception: not only the reversal occurred 15 years later, in 1990, but it has been followed by a very weak recovery. EA activity ratio grew from 1.3 to 2.0 between 1965 and 1990 (25 years), while the region literally took off; SSA will only reach the EA level of 1965 in 2020 and not even 2.0 in 2050. That is to say SSA will carry on bearing the burden of a huge inactive population for at least another decade – which corresponds to a real brake on economic growth – before hoping to potentially benefit from the demographic dividend¹⁴.

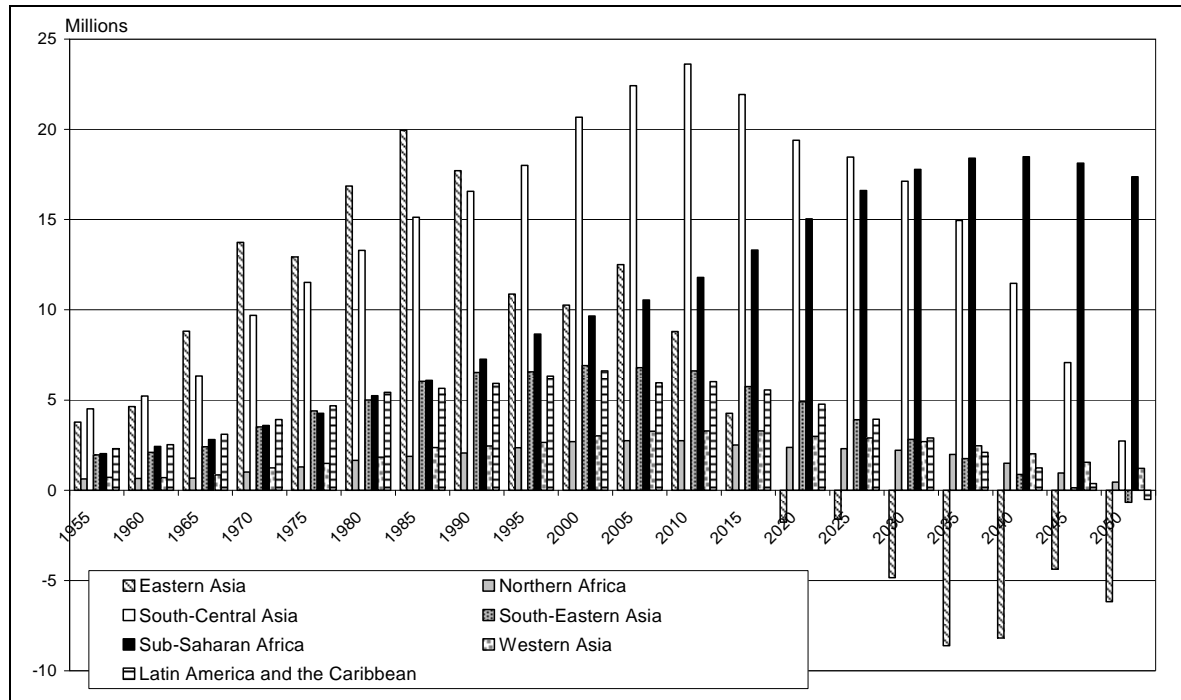
EA is another exception since the dependency ratio increased very rapidly because of a strong and authoritarian demographic policy of birth control. It led to an amazing ratio of 2.5 active people per one inactive, a level none of the other regions will achieve. In return, the demographic dividend is shortened accordingly, challenging the ability of EA to sustain its growth in a lesser favorable demographic context, the ration being at its height in 2010.

Consequently, taking the age structure into account allows us to identify key demographic features that will influence the capacity of regions to foster economic growth. In SSA, the age structure is a clear drawback that has hampered economic growth and will carry on doing so in the near future. EA will soon have to deal with an age structure much less supportive of the economic growth. In between, the age structure is much favorable to the other five regions since they will benefit from a high activity ratio over the next decades. Then, what is at stake is the capacity of the economies to actually reap the benefits of this structure, just like EA did.

¹⁴ This age structure also provides another clue to the difficulties SSA had to cope with during the 1980-90 while engaged in structural adjustment reforms: a very weak activity ratio, below 1, that hampered the increase of per capita income.

Whatever its position along the age structure evolution is, the capacity of every economy to provide jobs to its labour force is one of the main challenges. Fig x. presents estimated annual additional labour supply per region. The general shape of the evolutions for each region is necessarily closely related to the activity ratio. Several remarks have to be stressed:

Figure 5. Additional labour force entering annually the labour market, 1955-2050.



Source: World Population Prospects, 2006 Revision, and authors' calculations.

First of all, SCA is facing the greatest challenge with more than 23 million new comers, the highest level amongst the developing regions, before the situation smoothen progressively until falling sharply after 2035. Secondly, the SSA situation is very straightforward since the challenge seems to be ahead: economies have to absorb about 10 millions of new workers today and this figure will reach a peak of nearly 20 millions in 2025. For a median SSA country – 15 millions inhabitants – it means 250,000 people today and around 400,000 people per year in 20 years (Losch, 2006; Giordano and Losch, 2007a, and b). For these two regions, the dramatic increase of the labour supply directly questions the corresponding labour demand and its structural evolution from the economic development process point of view. Thirdly, in EA, the lowering of the population growth rate leads to a sharp decrease of the additional labour force after the peak of 20 million people in 1995. From 2020 on, more people will exit the labour market than those entering it, a stark contrast with SSA. Finally, for the other four regions, the absolute figures appear less important, with peaks occurring around 2005 and a less stringent situation in the future.

How is the adaptive capacity of the rural poor strengthened or constrained with respect to their access to markets, livelihoods, natural resources, services and governance?

The employment structure of the SSA countries has not much evolved since the 1960s' (Losch, 2008b): contrary to what some recent studies state (World Bank, 2007), the agricultural economically active population (EAP) decreased by 25% while in Latin America, this drop

amounted to 60 to 70%. Consequently, SSA agriculture remains the first sector of employment, gathering 65% of the EAP on average. The median is actually higher, around 70%, meaning that a majority of countries in Africa has an agricultural EAP above 70%. Therefore, SSA countries still constitute the archetype of what the World Bank calls agricultural based countries (World Bank, 2007, p. 30).

Such figures stress the key role played by agriculture as a major absorptive sector of the work force in SSA. Nevertheless, this agricultural absorptive capacity is not enough to cope with the cohorts of young people entering the labour markets. And contrary to what happened in other regions, the industrial sector did not take the lead as the classic economic transition would have suggested (Lewis, 1954): the level of employment in industry remains the lowest in the world and stagnated over the last decade around 9%; what better contributes to the absorption of the on-going labour force has been the service sector and its share in employment has risen from 21 to 27% between 1995 and 2007 (ILO, 2008).

One must acknowledge that formal jobs are very scarce, and therefore, they take up wage employment or self-employment in the informal sector because people can not afford to remain unemployed (Bourguignon, 2005; Fields, 2007)¹⁵. The problem is that the informal sector, though having a high potential for job creation, offers unequal opportunities to take up the slack. As mentioned by Ranis (2008), it can be divided into two sub-sectors. The first one, a dynamic modernizing sub-sector, frequently subcontracts to the formal sector and appear to be very competitive and to offer income opportunities; the second one, traditional 'sponge-like' sub-sector, emphasize self-financed, under-capitalized, small-scale, unskilled-labour intensive production leading to low revenue, bad work conditions and low productivity (DIAL, 2007; Pratap and Quintin, 2006). This is what Bourguignon (2005) calls 'bad jobs'. What is then at stake is the relative size of these two sub-sectors. Since the modernizing sub-sector depends very much on the dynamic of the formal sector, and since the formal sector is very weak, then it is more likely for the 'sponge-like' sub-sector to largely dominate.

The importance of this sponge-like sub-sector is related to one major characteristic of the strong urbanization process in Africa (and also in many parts of the developing world today): urbanization without industrialization (UN-Habitat, 2003, Davis, 2006). People tend to move directly from agriculture to services, but it does not necessarily mean an upgrade in terms of working conditions and personal welfare (ILO, 2006). This is a main difference with Europe and the USA, and with some regions of the developing world previously engaged in structural change (typically China, India) where industrialization fuelled internal migrations (Losch, 2008a).

The predominance of 'bad jobs' in an economy is likely to lead to a larger share of working poor; the predominance of the sponge-like sector in SSA countries very likely explain the very difficult employment context they face: 85% of the employed people living with less than US\$2 a day, and there does not seem to have been any improvement over the past decade. Such estimates clearly raise the question of whether the working poor are not trapped in 'bad jobs' with very heavy difficulties to get out of it. The situation is very similar in SA except that progresses have been achieved with the reduction of the share of the extreme poor in total employment. Only LAC and the Middle Eastern countries seem to manage to reduce the share of working poor. But as far as Africa s concerned, the major challenge lies behind.

¹⁵ Consequently, unemployment rates, as defined by labor economists, are rather low in SSA, at about 10% on average (ILO, 2007).

Table 3 Share of working poor in total employment, 1997-2007 (%).

	US\$1 a day working poor			US\$2 a day working poor		
	1997	2002	2007*	1997	2002	2007*
East Asia	18,8	16,4	8,7	59,1	49,7	35,6
South-East Asia and the Pacific	24,1	16,8	13,4	62,6	56,4	50,3
South Asia	53,3	42,4	33,0	91,5	86,8	80,3
Latin America and the Caribbean	11,6	10,9	8,0	33,6	32,6	25,4
Middle East	2,4	2,8	4,2	24,3	22,6	19,3
North Africa	2,6	2,0	1,6	50,1	48,7	42,0
Sub-Saharan Africa	57,4	55,6	53,0	86,8	86,7	85,4

Source: ILO (2008), *2007 are preliminary estimates.

This sponge-like sector is probably one of the reasons why, while urbanization should lead to a decrease of the global poverty, it does not seem to be the case in Africa (Ravallion et al., 2007). It clearly points out the difficulty of finding alternatives and the core issue of employment creation both in rural and urban areas. As Ellis (2006) pointed out, reducing poverty in SSA has to rely on a prosperous agricultural sector; but such an outcome is only possible if accelerated urban economic growth provides decent jobs to the on-going workforce so as to create a strong domestic market for agricultural and rural outputs: urbanization has to be a major component of rural poverty reduction strategy, and urban and rural poverty alleviation strategies have to support each other (UNFPA, 2007: 35-37). Such an evolution is crucial for Africa to seize the opportunities the demographic dividend will offer. This has to be emphasized especially at this time of great focus on the need to develop agriculture to respond to the high price crisis.

2c. Natural EPICs - environment and natural resources

A long list of environmental concerns affect the rural poor, as might be imagined for people the majority of whom depend directly on natural resources for their livelihoods — working on farms, in forests, or fisheries. Three have been picked out as particularly important — climate change, water scarcity, and soil loss and degradation — but that does not mean that in particular circumstances other environmental issues may not be equally or more pressing for some groups of rural poor. In the final section of this chapter, other concerns thus will be addressed in brief.

i. Climate change

Climate change owing to human activities is already underway, although most of the expected effects lie in the future. At the heart of climate change is global warming arising from emissions of greenhouse gases that will then affect rainfall and cause rises in sea levels, with major consequences for natural life on the planet.

Table 4. Expected effects of climate change

Climate driven phenomena	Evidence for current impact/vulnerability	Other processes/stresses	Projected future impact/vulnerability	Zones, groups affected
a) Changes in extremes				
Tropical cyclones, storm surge	Flood and wind casualties and damages; economic losses; transport, tourism; infrastructure (e.g., energy, transport); insurance [7.4.2, 7.4.3, B7.2, 7.5].	Land use/population density in flood-prone areas; flood defences; institutional capacities.	Increased vulnerability in storm-prone coastal areas; possible effects on settlements, health, tourism, economic and transportation systems, buildings and infrastructure.	Coastal areas, settlements, and activities; regions and populations with limited capacities and resources; fixed infrastructure; insurance sector.
Extreme rainfall, riverine floods	Erosion/landslides; land flooding; settlements; transportation systems; infrastructure [7.4.2, regional chapters].	Similar to coastal storms plus drainage infrastructure.	Similar to coastal storms plus drainage infrastructure.	Similar to coastal storms.
Heat- or cold-waves	Effects on human health; social stability; requirements for energy, water and other services (e.g., water or food storage); infrastructure (e.g., energy transportation) [7.2, B7.1, 7.4.2.2, 7.4.2.3].	Building design and internal temperature control; social contexts; institutional capacities.	Increased vulnerabilities in some regions and populations; health effects; changes in energy requirements.	Mid-latitude areas; elderly, very young, and/or very poor populations.
Drought	Water availability; livelihoods, energy generation, migration, transportation in water bodies [7.4.2.2, 7.4.2.3, 7.4.2.5].	Water systems; competing water uses; energy demand; water demand constraints.	Water-resource challenges in affected areas; shifts in locations of population and economic activities; additional investments in water supply.	Semi-arid and arid regions; poor areas and populations; areas with human-induced water scarcity.
b) Changes in means				
Temperature	Energy demands and costs; urban air quality; thawing of permafrost soils; tourism and recreation; retail consumption; livelihoods; loss of meltwater [7.4.2.1, 7.4.2.2, 7.4.2.4, 7.4.2.5].	Demographic and economic changes; land-use changes; technological innovations; air pollution; institutional capacities.	Shifts in energy demand; worsening of air quality; impacts on settlements and livelihoods depending on meltwater; threats to settlements/infrastructure from thawing permafrost soils in some regions.	Very diverse, but greater vulnerabilities in places and populations with more limited capacities and resources for adaptation.
Precipitation	Agricultural livelihoods; saline intrusion; water infrastructures; tourism; energy supplies [7.4.2.1, 7.4.2.2, 7.4.2.3].	Competition from other regions/sectors; water resource allocation.	Depending on the region, vulnerabilities in some areas to effects of precipitation increases (e.g., flooding, but could be positive) and in some areas to decreases (see drought above).	Poor regions and populations.
Sea-level rise	Coastal land uses: flood risk, waterlogging; water infrastructures [7.4.2.3, 7.4.2.4].	Trends in coastal development, settlements and land uses.	Long-term increases in vulnerabilities of low-lying coastal areas.	Same as above.

Table TS.1. Selected examples of current and projected climate-change impacts on industry, settlement and society and their interaction with other processes [for full text, see 7.4.3, T7.4]. Orange shading indicates very significant in some areas and/or sectors; yellow indicates significant; pale brown indicates that significance is less clearly established.

Source: IPCC (2007).

As Table 4 shows, one way to classify the expected effects is by changes in means versus increased variation in climate. The latter may be more threatening than the former, if only because the historical record suggests that people can adapt to relatively slow changes in their environment, but can be overwhelmed by sudden changes (Goldman 1995).

Of the changes predicted, those with the most widespread effects arise with rainfall. Patterns will alter, with different areas becoming wetter or drier. Although it is still difficult to estimate these effects with precision, Figure x shows one set of forecasts of changes in rainfall.

Figure 6. Predicted changes in global rainfall patterns

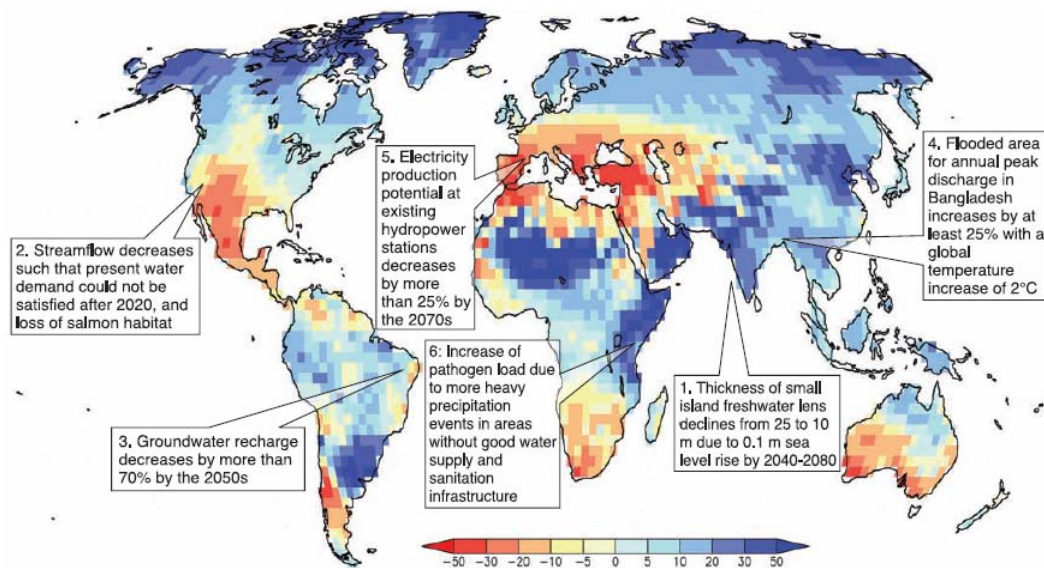


Figure TS.5. Illustrative map of future climate change impacts on freshwater which are a threat to the sustainable development of the affected regions. Background shows ensemble mean change of annual runoff, in percent, between the present (1981-2000) and 2081-2100 for the SRES A1B emissions scenario; blue denotes increased runoff, red denotes decreased runoff. Underlying map from Nohara et al. (2006) [F3.8].

Source: IPCC (2007).

Some relatively well-populated areas already with semi-arid climates are likely to become drier, such as Southern Europe and the Mediterranean basin, Southern Africa, North-East Brazil, northern Mexico and southern Australia. Water scarcity in such cases — see below — will be exacerbated.

Variability will also increase, with more rainfall falling in intense downpours and extreme events such as storms and cyclone, with potential for flooding and other damage. The seasonality of rainfall may become more pronounced, with greater potential for flooding in the wet season and for droughts in the dry. Agriculture is likely to suffer from increased variations in rainfall and harvest failures as periods of drought or to flooding and water logging probably become more frequent. If the current spike in the prices of food and other agricultural commodities is in large part caused by fluctuations in harvests, then such spikes could become more frequent than in the past.

Rising temperatures in some areas may allow more crop production and longer growing seasons,

above all in high latitudes where cold winters limit agriculture. Increased concentrations of carbon dioxide may encourage the growth of some crops — the ‘fertiliser’ effect. But against this, higher temperatures in other areas mean higher evapotranspiration and less effective rainfall, while temperature rises in the tropics will start to limit plant production.

Rising sea levels threaten coastal areas with higher tides, storm surges, flooding of low-lying coastal areas, salination of coastal freshwater, and loss of ecosystems such as mangrove swamps. Some low-lying coastal areas, most notably river deltas, may become uninhabitable.

Melting of glaciers will affect the lives of the one-sixth of the world’s population that live in catchments fed by meltwaters. Initial effects may be for more flooding, but as the glaciers retreat there is likely to be less storage within the river basins with more variation in river flows, less aquifer recharge, and seasons within the year of increasing water scarcity.

Changed climates are in turn likely to affect ecosystems, with changes in the range and distribution of flora and fauna. In some cases this may mean that insects as disease vectors spread to previously unaffected areas, as may occur with an advance of malaria into higher latitudes. Relatively rapid change in climate may mean some species cannot respond to their changed environment and will become extinct.

How is the adaptive capacity of the rural poor strengthened or constrained with respect to their access to markets, livelihoods, natural resources, services and governance?

Three effects will be particularly important for the rural poor:

First, increased variations in agricultural production in response to more variable weather. As farmers, farm labourers or workers in agricultural supply chains, the rural poor are likely to see more variation in days worked, wage rates, and incomes earned. Seasonal patterns in earnings and consumption, and especially the existence of hungry seasons, are likely to become more pronounced.

Second, more frequent disasters. Storms and tidal surges will probably harm the poor more than others, since the poor often live in places with least protection and resilience to extreme weather — such as low-lying areas or unstable slopes liable to collapse when soaked by storms. For lack of better constructed housing, they are likely to lose their homes to extreme weather; as well as their tools, household possessions, and livestock. In the aftermath of disastrous storms they may further lose access to clean water and live in unsanitary conditions, thereby creating conditions of high risk for water-borne diseases and those transmitted by vectors such as insects. Their children will be at particularly high risk.

More frequent and intense droughts will be another hazard, again straining the coping mechanisms of the rural poor.

In areas especially prone to the increased risks — such as low-lying coastal areas of which the great deltas of Asia are prime examples — there may be mass migrations to less susceptible locations further inland and on higher ground.

Third, more people living on ever poorer resources or mass migration.

As climate belts shift, the correspondence between rural population density and the quality of natural resources will alter. Areas of relatively heavy density of settlement on what become lands of limited potential will increase, with the probability that incomes from farming, forestry and

fishing will decline and become more variable. Examples of rural areas that are heavily populated in relation to the resource already exist — the Upper East Region of Ghana is a case in point — but it is likely that many more areas will come to share similar characteristics. Unless non-farm activities can be developed to compensate for the loss of natural potential, then these areas are likely to see out-migration and otherwise become pockets of deep poverty and vulnerability.

The alternative is that, faced by radical changes in the potential of their lands, farmers will undertake mass migrations to areas that were previously of low potential, lightly populated but which now have better potential. In the last two centuries there have been many examples of such movements of people looking to take advantage of lands that have either become accessible or which have become more attractive for farming. It is likely that such movements will become more common and larger in the future.

Migration from one rural area to another can potentially lead to conflicts over land access with existing residents, especially where the latter have been using the resources extensively and claim rights over large areas. The problem, however, should not be exaggerated: in lightly populated lands with good agricultural potential, shortage of labour is likely to be more important than land, so that residents may welcome newcomers who are ready to help work the land. West Africa has various examples of such movements and accommodations between longstanding residents and ‘strangers’ in the last century. Of course, it helps when movements are relatively slow and gradual, and there is time for small groups of migrants to form amicable relations with residents: when the scale of migration is large and sudden, the potential for conflict rises.

Migration out of areas with declining resources may also be to urban areas, throwing up the spectre of large encampments of environmental refugees living in squalor on the margins of urban life. If, however, the pace of urban economic development is rapid, towns and cities may be able to absorb the migrants and they may find decent jobs. History does not seem to offer too many examples of urban growth rapid enough to do this, although parts of coastal China over the last quarter century provide one model.

It is easy to see that the rural poor will be particularly vulnerable to effects of climate change; since they often rely heavily on natural resources for the core of their livelihoods, live in areas susceptible to hazards, and for reasons of poverty have limited resilience to shocks. On the other hand, it would be wrong to see the rural poor as passive victims of circumstances. On the contrary detailed studies reveal plenty of cases of active reaction to change. Box 2 records cases of African farmers responding to climate change.

Box 2: Reacting to climate change in rural Africa

Climate change is fact of life for many rural people in Africa, whether those changes be part of fairly regular cycles or the effects of global warming.

For example, in the Sahel, the relatively wet 1950s were followed by drier periods — including the disastrous 1968–1974 droughts, that in turn was followed by wetter years in the 1990s. Cycles in some parts of West Africa are combined with trends towards lower rainfall seen over decades.

Rural people are acutely aware of such changes and react accordingly. Here are three examples:

- In south-east Benin, in response to later rains, farmers have planted shorter-season varieties on the now dried-out swamp forest lands;
- In Njoro Division, Kenya, more variable rainfall has seen farmers switch from wheat and potatoes to the faster-growing maize and beans, take up rain water harvesting and form savings clubs; and,

- In Mulanje, Malawi, faced by less rain and rising temperatures that have blurred seasonal differences, farmers have also adopted short-season varieties —
‘Farmers are now planting a minimum of two crops in their gardens, mixing cereals with pulses and tubers, often intercropping with nitrogen-fixing pigeon peas. Diverse crops and relay-cropping through the rainy season are effective means of ensuring at least some harvest. Community organisations have also developed partnerships with the local tea industry and development NGOs to manage wetlands, construct small-scale irrigation and experiment with wood-efficient stoves.’

Source: Vermeulen et al., (2008)

Three things can offset the bad effects of climate change on the rural poor. One is overall growth and development: the more people can be lifted out of poverty and the more successful the economy, the more scope there will be for people to adapt to change. Successful development enhances capabilities at all levels from individual education and health to collective ability to organise and respond to change.

Information is part of this: better developed societies may be more able to make use of forecasting, modelling, and scenario planning to prepare more effectively for hazards.

Another is diversification: the less the dependence on any one activity and especially those concerned with natural resources, the easier it will be to cope with the increased weather hazards being predicted. Economic growth in itself is likely to stimulate more diversified activity, an effect that is likely to be greater the broader the pattern of growth is both in coverage of sectors and engagement of different social groups and regions.¹⁶

A third is developing improved means of coping through appropriate forms of insurance, social protection, and more awareness and preparedness for disasters. This is a large agenda, with issues at scales from the individual and household to national government and to international forums.

One issue here will be striking a balance between the duty of individuals to be prepared for shocks, and that of the state to protect its citizens. For example, in areas where climate change has led to a failing local agriculture, should the state provide social protection for those living in such areas — with the possibility that the safety nets become a continuing provision marked by increasing dependency on the part of recipients and patronage by the state bureaucracy? Or should the state expect citizens to adapt, if necessary by wholesale out-migration? Do people have the right to remain in their areas of origin and still make claims on the state, no matter what the circumstances?

These three challenges set a rich agenda for policy and initiatives at all levels, from international down to village level, both public and private. At the heart of the debate on how to react to the challenge of climate change lies a key question: is it possible to prepare with some certainty for the changes afoot — as seen in the trend towards trying to make development plans ‘climate proof’; or given uncertainties, is the better option to develop the capacity to adapt, that is to increase the resilience of systems? Some combination of the two will almost certainly be needed.

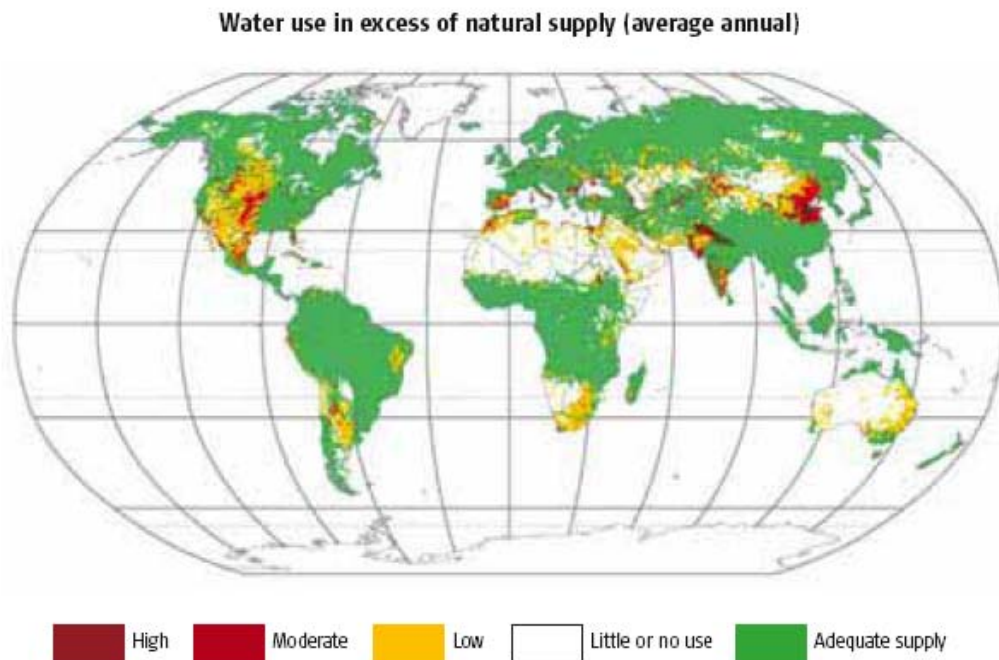
¹⁶ Narrow growth, as might occur with mining enclaves, could increase specialisation in the economy and increase vulnerability.

A danger here is that while ‘climate proofing’ of development plans does not require significant changes in policy-making, development planning and implementation; improving adaptive capacity probably does. To explain, trying to prepare for specific features of climate change allows a familiar process of setting fairly concrete goals, then finding effective and efficient ways to reach them. Increasing adaptive capacity requires wider changes across human systems — embracing education, governance, and information — that are less easy to programme. The general problem is they require systems to be less tightly coupled, measures that seen through paradigms of efficiency appear to be wasteful.¹⁷ Since improved adaptive capacity will almost certainly change the balance of power, some politicians will see this as threatening.

ii. Water scarcity and pollution

Already large numbers of people live in areas where water is scarce, including northern Mexico, southern Africa, North China, the North-West of the Indian sub-continent, and the Mediterranean basin, see Figure 7.

Figure 7. Areas of water scarcity



Source: UNESCO 2006

Water scarcity will get worse in the future under two pressures. One, economic growth and population will increase the demand for water, increasing the likelihood of additional areas facing acute scarcity of water. Two, climate change as described above will change rainfall patterns, make them more erratic, and reduce storage in glaciers. While overall water supplies may not fall,

¹⁷ See Hood (1991) on three sets of values in public management: lean and purposeful; honest and fair; and, robust and resilient.

uneven distribution through space and time will make for more scarcity.

Some forms of water pollution could get worse. For example, run-off from intensively farmed fields contaminated by agro-chemicals, industrial effluents and sewage from urban areas, and silt from soil erosion are all hazards that may increase from economic growth. More variable rainfall regimes may mean that at times of low flow the concentration of contaminants may rise.

Salination is a threat that may increase from sea levels rising for coastal areas, and in aquifers as groundwater reserves are drawn down.

Not all these processes are inevitable or unmanageable, but they do set challenges. Water scarcity can be mitigated by collecting more of the rainfall, as seen in rainwater harvesting. More efficient use of water supplies — through, for example, drip irrigation, mending leaks in distribution systems, and recycling water from one use to another — is another response. Finding institutions and forms of governance to allocate water in line with social priorities is another: currently most of the water used by society goes for agricultural irrigation. At the margin and in densely settled areas, some of this probably has a higher value as drinking water.

Most forms of pollution can be reduced through better use of farm inputs and management of wastes. Once again, the challenge is a combination of technical advances to facilitate this, combined with incentives and institutions that encourage reduction of pollution.

How is the adaptive capacity of the rural poor strengthened or constrained with respect to their access to markets, livelihoods, natural resources, services and governance?

The rural poor already pay a heavy price for water and its quality. In semi-arid areas it is not unusual for domestic water to be collected from water points that can be several kilometres from dwellings, and head-loaded home. The time taken by this can be measured in several hours a day, and usually the responsibility falls on females.

For health both quality and quantity of water are issues. Contaminated water increases the likelihood of enteric disease and parasites, with young children most at risk. Lack of water means that washing is likely to be minimal with consequent potential for the spread of enteric diseases.

Exacerbation of these problems through declining water supplies or their increasing contamination is thus a matter of concern.

In more humid areas, the rural poor may be affected by water scarcity in irrigation systems. Poor farmers living on the margins or tail ends of irrigation systems may find they get less allocation than the others. When groundwater supplies are first tapped, the first wells are usually sunk by better-off farmers: by the time the poor can invest in a well, the aquifers are sometimes drawn down and their wells have to be deeper and pumping costs are higher.

There are ways to combat these problems. One is through making the best use of new technology make efficient use of water, keep it cleaner, and recycle water. Small public investments can improve the efficiency of domestic water pumps and save time at wells. The benefits of these accrue particularly to poor women.

The other is through developing the institutions that encourage a fair and efficient use of scarce collective resources. At the local level this can mean devolving management and allocations decisions to local committees — provided that the committees include the poor. At higher levels, better management at the level of river basins and water catchments can also make a difference.

iii. Soil erosion and degradation

Reports of declining soil fertility and erosion in the developing world are widespread. For example, the World Bank (2007) *World Development Report on Agriculture* reports ‘Some sources suggest that globally, 5 to 10 million hectares of agricultural land are being lost annually to severe degradation’.

A recent overall assessment, looking at changes in net primary productivity (NPP) compared to rain-use efficiency as a measure of degradation between 1981 and 2003, reported that:

there was an absolute decline in NPP across 12 per cent of the global land area, with a strong negative change in a further 1 per cent of the land area. In respect of rain-use efficiency, there was an absolute decrease on 29 per cent of the land area and strong negative change on 2 per cent.

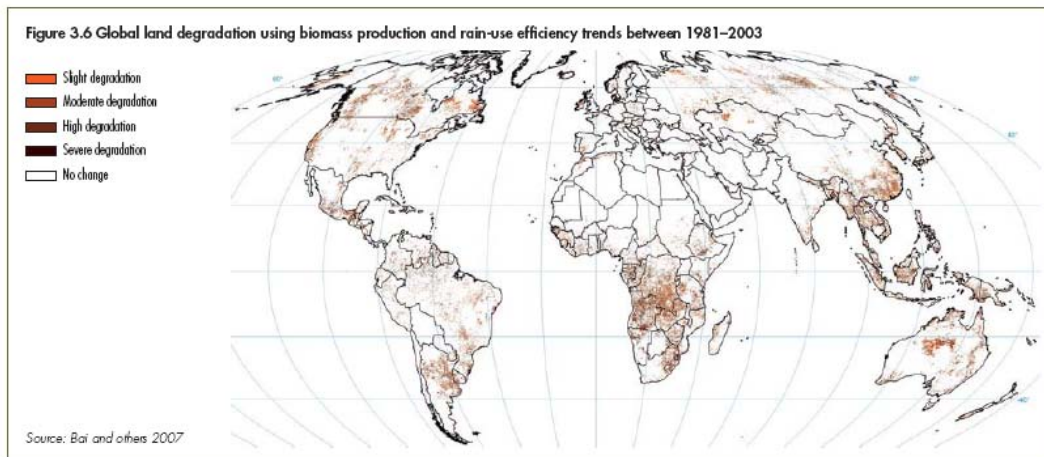
The areas affected are home to about 1 billion people, some 15 per cent of the global population.

Apart from the loss of farm and forest production, the degraded areas represent a loss of NPP of about 800 million tonnes of carbon over the period, meaning this amount was not fixed from the atmosphere. In addition, there were emissions to the atmosphere of one or two orders of magnitude more than this from the loss of soil organic carbon and standing biomass.

Areas of concern include tropical Africa south of the equator and southeast Africa, southeast Asia (especially steeplands), south China, north-central Australia, Central America and the Caribbean (especially steeplands and drylands), southeast Brazil and the Pampas, and boreal forests in Alaska, Canada and eastern Siberia. In areas of historical land degradation around the Mediterranean and West Asia, only relatively small areas of change are visible, such as in southern Spain, the Maghreb and the Iraqi marshlands.

Comparison of black spots with land cover reveals that 18 per cent of land degradation by area is associated with cropland, 25 per cent is in broad-leaved forests and 17 per cent in boreal forests. This is consistent with trends in forest degradation, even as the area of boreal forests has increased (see section on Drivers and pressures). This preliminary analysis will need to be validated on the ground by the country-level case studies being undertaken by LADA, which will also determine the different types of degradation (UNEP, 2007) The geography of degradation is shown in Figure 8.

Figure 8. Land degradation, 1981–2003



Source: UNEP (2007).

The evidence, however, is incomplete and sometimes contested, as are the causes of soil loss and degradation. In some accounts, over-use of soils and their loss are the result of ever-greater population pressure on the land, the land being over-worked as more people try to subsist off ever-smaller farms. Others point out that as population increases, land use may initially over-tax the soil especially when fallows are shortened, but that with further increases in population, farmers are likely to invest in soil fertility through manuring and fertilisation, and to conserve their fields. This last argument needs some qualification: farmers will only invest in their soils if the value of conservation outweighs the costs. When, for example, the value of agricultural production is low, then soils of indifferent quality may just be worked until they have reached what amounts to an equilibrium of low nutrients, after which low-input, low-output farming ensues — a situation reported in parts of the Indian Deccan and Northern Nigeria.

There are examples that illustrate both good and bad outcomes. Rather than proving any general case, they tend to show that outcomes depend on a combination of factors — including population pressure; the nature of soils and topography; relative prices of land, labour, farm produce, agricultural inputs and credit, knowledge of conservation measures, the possibility of employment off the farm, etc., — making for very different outcomes in different places and at different times.

Since the causes of degradation are both various and contested, the extent to which soil will be either conserved or over-used in the future is uncertain; even if the drivers of increasing population and greater demand for agricultural land and for agricultural produce are certain. Most likely there will be different pathways in conservation or degradation depending on the many factors that influence such outcomes. The challenge will be to find ways to support forces for conservation and offset those that push towards degradation. The one thing that is clear is that in a more populous world with a fixed land base, the costs of degradation will increase.

How is the adaptive capacity of the rural poor strengthened or constrained with respect to their access to markets, livelihoods, natural resources, services and governance?

Since the rural poor often depend either directly or indirectly on agriculture and other natural resource-based activities for their livelihoods land degradation is a significant threat. Some are more at risk than others, including those living in areas of low fertility soils, sloping land, where rainfall tends to be concentrated in intense downpours or where strong winds prevail, and where

the farming system leaves soil exposed at the start of the growing season. Risks increase when inputs to restore fertility, be they manure, green matter, or fertiliser are scarce or costly, and when the land cannot be fallowed. They rise when there is little alternative to farming for livelihoods and incomes depend on the land productivity. Often these combinations of circumstances mean that it those living on lands marginal for agriculture and in remote areas that are the most vulnerable to degradation.

Two implications stand out. One is that, where the resources merit it, conservation needs to be encouraged. There are examples where this has happened in the recent past. For example, from the early 1950s onwards the degraded lands of Machakos, Kenya were conserved as farmers intensified production in response to market opportunities. Terracing, tree planting and enclosure of pastures took place to good effect: productivity per hectare rose. (Tiffen et al. 1994)

Similarly and more recently, Reij and Smaling (2008) report on changes seen in the central plateau of Burkina Plateau an area in the 1970s marked by low rains, poor soils, low crop yields and much emigration. During the 1980s and 1990s the farming systems were intensified, with soil and water conservation—including the now famous stone lines and bunds of the Mossi plateau, tree planting, keeping livestock under semi-intensive systems and using the animal manure to fertilise fields. More grass and trees can now be seen from the air, water levels have risen in wells in areas conserved, and cereal yields have risen.¹⁸ Something similar has also taken place in neighbouring Niger, where farmers have been inspired to construct stone lines and bunds having seen examples in Burkina.

Accounts of conservation sometimes mention how locals have produced their own variants on techniques introduced from outside, to very good effect—the ‘fanya juu’ terraces of Machakos being a good example. Adaptation to local circumstances is often necessary and this means giving locals the encouragement and space to devise their own solutions, even if the inspiration or the principles come from outside.

Two, where the resources are of low productivity, it may be better for the poor to change the balance of their livelihoods spending more time in the rural non-farm economy, or through migration. Marginal fields may then be left to revert to nature. Examples of these kind of changes come from the hills of Nepal, where for long farmers have cultivated steep slopes with terraces. But in recent times the chance to migrate to the Terai, India and the Gulf, has produced local labour shortages and some of the terraces that required much work in maintenance have been abandoned (Thapa and Weber, 1995).

iv. Other environmental issues

What other environmental issues affect substantially the livelihoods of the rural poor? A short list might include:

Pollution of air by smoke, especially within kitchens. This is a longstanding problem, arising from use of wood for cooking and heating on open fires and stoves. It is unlikely to worsen, since it is likely that rural households will increasingly either switch to other fuels, including kerosene and possibly even locally-produced biofuels, or use more efficient stoves, if only since the costs of collecting fuel wood rise and there are incentives to economise on its use;

¹⁸ A case study of one farmer’s struggle to improve his land is documented at:<http://www.unesco.org/most/bpik2-2.htm>

Reduced stocks of fish. A problem for the rural poor in coastal areas or close to large bodies of inland water, the key driver of over-exploitation — the demand for fish from larger populations with increasing incomes — is likely to intensify. Poor fisherfolk are liable to lose out to competition from capital intensive fishing — trawlers devastating the fishing grounds also used by artisan fishers; and from dispossession of access to inland waters as the rich and powerful claim exclusive rights over water bodies.

Progress lies in getting agreements amongst fisherfolk to limit offtake, and making sure there is a fair division of quotas between artisan and commercial operations — that is, in establishing property rights for the competing users. These, are, however significant challenges;

Deforestation can harm the rural poor when they are users of forest products, through local impacts on water supplies, and in the wider scheme, and through the contributions of deforestation to global warming and subsequent climate change. On the other hand, the rural poor may be active in clearing forests to create new fields and pastures, and when engaged in logging, so that deforestation may improve — at least in the short term — their livelihoods.

The outlook is that pressures on forests are likely to increase as demand for timber and for new agricultural land rise. Given the recognition of the value of many tropical forests in regulating climate and ecosystems, finding ways to stem deforestation becomes an ever more pressing issue. For the rural poor who may gain from forestation, there are the challenges of finding decent livelihoods that do not entail forest clearance.

Loss of biodiversity, including loss of ecosystems, species and genes. Loss of some ecosystems may harm the rural poor where they derive their livelihoods from the ecosystem — a good example being loss of forest for hunter-gatherer groups. The potential losses from reduced species and genes threaten them as they do everyone else through loss of resilience and adaptive capacity within the ecosphere. One specific impact for the rural poor may be that loss of genes may reduce their ability to mould and adapt local landraces of crops to specific environmental niches and to changing environmental conditions.

The outlook is for the pressure on biodiversity to increase.

In all but the first case, the challenges for defending both environmental goods and services and the livelihoods of the rural poor concern matters of managing common property, ensuring that externalities — including those that will apply to future generations — are fully valued in decision-making, and defending the rights of the poor from appropriation by richer and more powerful interests.

2d. Techno EPICs - technology and technological innovation

The following discussion addresses emerging processes and issues in rural poverty with reference to technology. First, we discuss the expansion, spread and development of existing technologies. This includes biotechnology, vaccines and water and sanitation technology. Second, we discuss new(er) technologies. This includes industrial biofuels, ICTs and climate change technology. Third we discuss technological innovation itself.

i. The spread of existing technologies

Here we discuss biotechnology and transgenic techniques, vaccine technology and water/sanitation technology.

The first, biotechnology and transgenics is a contentious subject. The area is attracting very large and growing investments and is largely driven by private sector interests although this has been challenged. Intellectual Property Rights and piracy are notable trends as some farmers mix local hybrid seeds and GM seeds. The IAASTD report called for a deeper study into the environmental, economic and social impacts of GM crops. However, a number of influential organizations and individuals have provided strong endorsement that modern biotechnology has significant potential in developing countries to raise agricultural productivity in a more environmentally friendly manner, enhance food security, and contribute to the alleviation of poverty (Byerlee and Fischer, 2002; Nuffield Council on Bioethics, 1999; Pinstrop-Andersen and Cohen, 2000; Royal Society of London, 2000; Serageldin and Persley, 2000; Spillane, 2000).

Countries such as India, China and Brazil have relatively large funds allocated to biotechnological research. Progressively, biotechnology has been placed high on the agenda in countries like Indonesia, Philippines and Malaysia (Pender, 2007: 137).

Donors provide between US\$40 million and US\$50 million per year for agro-biotechnology and the CGIAR which brings together the key Green Revolution research institutions is a major source of investments (Horstkotte-Wesseler and Byerlee, 2000; Byerlee and Fischer, 2002). Various type of funding is offered, for instance ‘direct funding research (e.g., the Rockefeller Foundation), supporting public–private partnerships and technology transfer (e.g., USAID), capacity building (the World Bank), and participatory needs assessment (the Netherlands)’ and several multidonor initiatives (Byerlee and Fischer, 2002: 935). The Rockefeller Foundation and the Bill and Melinda Gates Foundation recently announced a joint \$150 million Alliance for a Green Revolution in Africa (AGRA), provoking immediate criticisms that the proposal fails to take into account the failures of the original Green Revolution (Holt-Gimenez et al., 2006: 1).

Glover (2003a) argues there are three future trends. First, in the area of research and development there are concerns that investment in genetic engineering is diverting attention and resources from other promising technologies. Second, IPR is most likely to not encourage research in subsistence crops and traits pertinent to marginal farmers. At the same time, one can see larger developing countries taking advantage of the flexibilities in the TRIPS agreements to serve their own goals by allowing resowing, saving, exchange and even sell their seeds. Third, due to continuing commercialisation biotechnology development will be largely driven by the private sector rather than the needs of the poor.

Vaccines are also attracting large investments. Vaccines represent nearly an \$8 billion industry (or 2% of the global pharmaceutical market) and are projected to grow to \$10 billion in 2010. In 2001, worldwide spending on R and D for ‘biologicals,’ of which vaccines are the largest segment, was \$1.1 billion (about 4% of the total private pharmaceutical R and D) (Srinivas, 2006:

1742, Morel et al., 2005: 401-405). Much research is focused on vaccines for pneumonia and malaria. New funding sources such as the Global Funds and the Global Alliance on Vaccines and Immunisation (GAVI) encourage new pathways for developing countries to access these new vaccines. In spite of all the above the rates of immunization are stagnant, even dropping in many sub-Saharan countries and policy and health professionals wrongly assume that it is ignorance or misinformation that leads to lack of uptake of vaccines. The real reasons relate to vaccination approaches need to be more socio-culturally sensitive. (Leach and Turquet, 2006: 31).

Third, water and sanitation technology. WaterAid (2007: 2) note how the water and sanitation MDGs are the 2015 goals least likely to be achieved despite affecting child morbidity and child and maternal mortality. They argue there is a lack of interest among the donor community and national governments. Sanitation technology has always been the mandate of the professional engineers and sanitation experts. In this setting, there have been only a few major technologies for toilet constructions. These are the aqua privy and soakaway model, the single or double pit latrine, ventilated improved pit latrines etc. Often the model selection has not been matched with the environmental factors of the community like climate, soil type, population density, type of houses etc. This has resulted in unsustainable toilets which are either unusable or are used by the family as a storage room etc.

How is the adaptive capacity of the rural poor strengthened or constrained with respect to their access to markets, livelihoods, natural resources, services and governance?

Biotechnology optimists also advocate that it is the rural farmers and poor who will benefit the most from higher yields, lower risks, and larger outputs which will control the growth of food prices. Sceptics argue that it is the poor who suffer the most because biotechnology exacerbates trends towards industrialization of agriculture, erosion of the diversity of agro eco systems and undermining farmers' rights. As in most debates, there is no conclusive argument and both sides have evidence to back their argument (see for details, Keeley 2003).

One can see potential in biotechnology in many developing countries like South Africa, China and India. In China *Bacillus thuringiensis* (Bt cotton) has been reported to have increased yields, financial savings, reduction in pesticide use. India has also shown dramatically increased purchase in Bt cotton (Glover, 2003b). However, biotechnology has often proved to hinder farmers' livelihoods. If yields are destroyed or do not increase, the farmers may have to incur greater losses (due to the higher price of these seeds) and this would not only negatively effect livelihoods but also access to markets and credit services (in case of inability to repay loans). There is no conclusive research indicating the effects of biotechnology on natural resources like water, biodiversity, soil fertility, most importantly the complex ecosystems. This is not surprising when all innovations are lumped under the heading of 'biotech'. If we take individual innovations, then we can test propositions.

In the long run, this may result in lower soil fertility, decreased biodiversity and negative effects on the ecosystem. There is a concern in India and China about emerging pest resistance to Bt cotton. Like in biofuels, there are measures that can be implemented by various players at all levels to make biotechnology pro-poor. Policy and regulatory frameworks in international and national level governance, IPR laws and democratizing biotechnology in rural areas at the local level can seek to address these (Wakeford and Pimbert, 2003).

In terms of access to vaccines, the rural poor are especially vulnerable to diseases like malaria, measles etc. There are 30 million children lacking the 'basic six' vaccines. Improved vaccine technology might result in greater access to vaccinations and thereby substantially reduce health risks and morbidities. A decrease in diseases would result in physical well being and more

capabilities leading to secure livelihoods and more savings (due to lesser health expenditure). Also the demand for vaccines may create a larger market in rural parts thereby generating employment opportunities for the rural population as health workers etc.

More than 40% of the world's population lacks access to basic sanitation technology. WaterAid (2007) states that lack of sanitation and water is the second largest killer in the world. Lack of sanitation leads (directly and indirectly) to various diseases like cholera, diarrhoea, jaundice. Access to sanitation can improve livelihoods drastically.

ii. New(er) technologies

In this section we discuss new technologies - biofuel technologies, ICTs and climate change technologies.

First, Biofuel technologies. Biofuels like wood and charcoal have been used to generate energy for decades. However, what is new is the industrial processing to make these biofuels cleaner and more efficient than traditional forms of biofuel and the blending and production of them on a scale for large-scale usage. From the early 2000s there have been sharp increases and spatial proliferation in the production of biofuel, almost quadrupling between 2002–2006 according to OECD estimates, global trade is also expanding rapidly, triggered by biofuel targets set in various countries in combination with uneven conditions for feedstock and biofuel production (Mol, 2007: 300).

Biofuels have a high place on the global agenda, largely due to rising concerns about national energy security, higher energy prices, and increasing concerns about global climate change, as well as the income expectations of farmers and other investors (Braun and Pachauri, 2006). The Kyoto Protocol's Clean Development Mechanism (CDM) has schemes to offer funding to developing countries to start biofuel projects. However, the ability of substantial GHG reduction depends on the type of cultivation, the crop under cultivation, the technologies used for processing etc. Oil prices rises triggered by energy demand in India and China has also led to biofuel investments as an alternative energy. Major fuel importing countries' (especially EU and the US) dependence on large imports from regions like Russia and Middle East have triggered these former countries into launching programmes to lower their dependence on fossil fuel and increase their national energy security.

Bioenergy's potential is expected to increase as second-generation technologies become more widely available, enabling more efficient conversion of cellulose-rich biomass to transport fuels and electricity. According to Hazell and Pachauri (2006: 3), technology advances will not only help make bioenergy more competitive with fossil fuels on price, but will also expand the range of feedstock that can be used, some of which (like fast-growing grasses and trees) can thrive in less fertile and more drought-prone regions that are less competitive with food and feed than current feedstock like sugarcane, maize, and rapeseed. Many developing countries such as India and China see great potential investing in biofuel in rural areas. This would not only generate income through potential exports and domestic consumers but also provide employment for the rural populations.

Second, ICTs. The range of ICT technologies is increasing all the time and 'there is a convergence between the new technologies and conventional media' (Michiels and Van Crowder, 2001: 8). Thus most devices can now be linked to others to share and exchange information. There is also the US\$100 laptop launched this summer and web 2.0 (highly interactive internet sites), advances in enabling technical architectures (interoperability, open standards, XML-based modular designs) and a range of communication related sites such as peer-to-peer collaboration,

social networking sites, volunteer-created sources of knowledge such as Wikipedia, alternative news services and trading systems such as eBay.

There are very large donor and private investments in ICTs. The OECD DAC has documented a matrix of around 50 multilateral and DAC members who are involved in funding ICT related projects all over the world. Companies like Microsoft are taking keen interest in ICT related development programmes, especially in rapidly developing countries such as India. Microsoft has been one of the biggest investors in ICT related programmes. It is one of the biggest donor and partner in most of the big projects (MSSRF, NASSCOM etc.) under the umbrella alliance of Mission 2007 'Every village a knowledge centre'. Many governments are developing e-governance networks and ICT4D projects. NGOs are also investing in projects based on ICTs and development. They range from simple service delivery to participatory community owned ICT projects. Farmers and rural communities are not only involved in participatory ICT4D programmes but are also emerging consumers for these technologies. This is most apparent in the widespread use of mobile phones in rural communities. Subscriber rates have doubled in Africa and are increasing by 25% in most developing countries (Miller, 2007: 1).

Third, climate change technologies. There is increasing evidence proving that energy efficiency, carbon pricing and lowering carbon emissions are effective solutions for the short term but not for the long term. This is because, for instance, carbon pricing through national policies and international agreements can never be fully credible, the economics of risk point towards development and deployment of technologies etc (Stern, 2007: 347).

For longer term climate change objectives, there is an urgent need for new or highly improved technology in sectors like power generation, transport, and energy use (Stern, 2007: 347, Coninck et al., 2007: 4). CEPS (2007) goes further to explain that we will need a broad range of technologies: clean coal technologies, various renewables, carbon capture and storage, nuclear, to name but a few and energy storage systems, for both stationary applications and transport.

How is the adaptive capacity of the rural poor strengthened or constrained with respect to their access to markets, livelihoods, natural resources, services and governance?

Debates on Biofuel technology and its impact on the rural poor are fraught (Clancy, 2008). They relate to food security for the poor, energy-effectiveness (energy consumption to grow feedstock for the fuels), ownership of processing units, energy security for the poor and land use amongst other factors. Ideally, biofuels will give farmers the ability to tap into the energy market through their purpose-grown produce or the waste of their produce. Also biofuels are known to generate large scale semi/unskilled employment in rural areas but this is only in Brazil (Braun and Pachauri 2006: 7). The global trends in biofuel production indicate that higher biofuel production would positively impact the net exporters of biofuels like Argentina and Brazil.

However, there are others who don't see a very clear link of biofuels and poverty. Slater (2008) for example, stresses on the points that biofuels potential to be pro-poor are very context specific and how it is difficult to make generalisations. Biofuels impact on poverty depends on economies of scale, type of crop selected, the type of labour force required from the rural poor population etc. She also states how biofuels may run into the same problems that follow the increase in production of the classic cash crops.

Clancy (2008) too poses similar questions about poverty reduction and biofuels. She explores the complexities regarding food security, environmental concerns, and employment and gender issues. She poses the question of whether liquid biofuels help poor people by providing transport

fuels and explores how in Brazil employment in biofuels production has been comparatively low and has led to internal migration due to the seasonal nature of biofuel employment.

The IFPRI IMPACT model has predicted the prices of food namely oilseeds and maize. This analysis is done under two scenarios. First is the scenario with biofuel production growing as planned by the countries and the second, biofuel production growing at two times the rate in scenario 1. Under the planned biofuel expansion scenario (Scenario 1), prices increase for oilseeds by 18% and for maize by 26%. With the more drastic biofuel expansion scenario (Scenario 2), the rise of corn prices goes to 72% and oilseeds to 44% (Braun, 2007: 5). Also, increases in biofuel production in the OECD food exporting countries would drive up the food prices and make the developing importing countries vulnerable to price shocks (Peskett et al. 2007: 3). The IFPRI IMPACT model further goes on to analyse the impact on poverty with increase in production along with improvement in biofuel technology and farming technologies and innovations (Rosegrant et al. 2006, Braun and Pachauri, 2006). This analysis shows a marked difference in the increase in food prices with and without technological improvement. Second generation technology would mitigate food insecurity by a substantial margin and therefore have a positive impact on poverty. According to Rosegrant et al. (2006) this scenario seems most plausible since neither the national government nor the feedstock producers would indulge in large scale production without sufficient and cost effective supply of feedstock and food produce.

Tropical countries that have a comparative advantage in biofuel production may be able to promote employment and food security (Peskett et al., 2007: 1). However, biofuel production may take over land and crops that is presently used for food crops. This may drive the food prices up and benefit the farmers but not the non farming poor and the drop in energy prices may not positively affect the poor. Slater (2008) questions if there is verifiable evidence that demonstrates land being shifted from food production to biofuel production. In depth analysis has to consider the different feedstocks/production systems, varying downstream transportation costs, existing (non-biofuel) crop production and processing patterns, and patterns of land holding (Braun, 2007: 7).

Peskett et al., (2007: 3) divide the issues according to on and off farm activities. The expansion of the biofuel market is often beneficial to the large scale farmers or private companies which can achieve economies of scale in production. This is questionable if there are economies of scale in producing feedstock. In processing scale economies apply. Other challenges include change in cropping patterns resulting in lower soil rejuvenation and fertility, water pollution and 'downstream effects such as draining of wet lands'. Off farm challenges include more demand for skilled labour along with unskilled ones, large up front investments for processing and distribution units, converting current production systems into biofuel compatible systems (for instance, the sugar mills in Brazil (Braun and Pachauri, 2006: 8), adapting regulations.

There is a variety of literature that provides evidence that ICTs have the potential to reduce poverty in all sectors i.e. health, livelihoods, education and agriculture (see for review Scott et al., 2008).

There is however, a very distinct urban and rural divide in the case of ICTs which is widening. This divide results in the marginalization of rural population in markets, policies, and services. Efforts to narrow the divide have not been successful. To keep apace with the highly dynamic fast paced and complex markets, suitable information and knowledge for farmers and other rural businesses is necessary. A recognition of this has led to concern for dissemination of 'necessary' information through ICTs. ICTs have gained importance as a medium to access markets which

were not accessible to the rural poor or rural poor organisations previously. ICTs are also seen as important to disseminate information for new on and off farm methods and technologies. Warning and mitigation have become mandatory in the world we live in today with climate change related risks of disasters. ICTs have demonstrated their potential as periodic information systems and early warning systems; both very crucial in disaster and risk management. Traditional and new technological systems can be put in place to work effectively, depending on the geographical, socio-economic, political architecture (Wattegama, 2007: 9). ICTs could have three types of benefits. These will be incremental benefits and transformational and production benefits. The first will help people do what they were already doing, but in a cheaper and faster way. And the second implies that ICTs will offer new methods to access services and livelihoods. And the third implies that ICTs will hold new opportunities for the rural communities to sell and other related activities (Miller 2006: 1). On the other hand, increased ICT hardware waste in developing countries, either dumped by developed countries or the increased use the developing country themselves (without proper disposal systems) will result in environmental hazards.

ICTs thus have the potential to enable the rural communities to access markets and access multiple and improved livelihoods. ICTs can also dramatically improve access to services through mobile banking, mobile knowledge extension services, mobile micro enterprise services (as done in Bangladesh, India), and credit facilities through organisations like Kiva.

Third, is climate change. Many of the rural poor depend on agriculture related activities and climate acts as a big threat to them. Also, there is grave threat of climate change leading to conflict over scarce resources and resulting scarcities associated with resource scarcity (for instance, water leading to inefficient agriculture, migration to inland areas resulting in scarce jobs). Climate change technology will enable adaptation, thereby increasing livelihood opportunities and lower the associated risks.

Lower emissions through technology will enhance the sustainability of agriculture as a livelihood and mitigate environmental risks (droughts and floods). Technology for climate change is vital for the survival of fisher-folk and other coastline dwellers. The production of biofuels for emission reduction will increase rural on and off farm opportunities. Also, the rural population may involve themselves in innovating and operating climate change technology for a living. Climate change technology can also lead to better infrastructure such as water storage tanks and other water harvesting mechanisms. Certain climate change technologies enable access to timely information to facilitate adaptation and disaster management and other related services. For instance, disaster management training services etc. (Pachauri, 2008).

iii. Technological innovation

Reaching the MDGs requires new and more effective solutions to the obstacles facing the rural poor and concerted action to increase access to and upscale these solutions. IFAD's work specifically focuses on enabling the rural poor to overcome their poverty, promote equity and gender equality, and increase productivity by: (i) strengthening their capacities, their organisations and building sustainable institutions, (ii) improving equitable access to productive natural resources and technologies and (iii) increasing access to financial services and markets. To achieve these objectives, the need for innovation and sharing successful experiences has long been recognised, for example by international agencies such as IFAD which has developed an 'Innovation Strategy' (2007). This takes a pro-poor people-centred approach and promotes the integration of innovation into development operations and processes. Innovation is not an isolated activity, but locally-driven, field oriented, based on partnership with rural actors, flexible and responsive to need. Innovation processes and results also need to be carefully monitored and evaluated in order to ensure they successfully address priorities and challenges of the rural poor,

mitigates risks for poor people and lessons and knowledge gained are shared. IFAD (2007) defines innovations as ‘processes that add value or solve problems faced by the rural poor in new ways... These encompass institutional and technological approaches, as well as pro-poor policies and partnerships’.

Freeman classified four types of technological innovations (Stern 2007: 348). Each one of the types corresponds with one of the major technologies we have focused on in the report. First is the ‘incremental innovations represent the continuous improvements of existing products through improved quality, design and performance’ (ibid). ICTs are a good example of continuing innovation through the above stated characteristics. One of the main reasons for mobile phones to have latched on to the rural poor at this speed is due to the supply driven innovations for the rural communities. In a very short period of time, mobile phone companies have come up with prepaid cards, options of native languages as options etc. Second, is ‘radical innovations are new inventions that lead to a significant departure from previous production methods’ (ibid). The innovations in Bt cotton and local hybrid seeds by the farmers and the local seed company ‘Navbharat’ in Gujarat demonstrates a radical innovation. Many farmers claim that these seeds have increased their yield more than pure Bt Cotton seeds. Third are ‘changes in the technological systems occur at the system level when a cluster of radical innovations impact on several branches of the economy, as would take place in a shift to a low-emission economy(ibid).’ As stated by Stern, climate change technology corresponds to this type of technology. A shift to low emission economy would not only require large scale production of bioenergy but also a shift in ‘several branches of the economy’ such as the automotive industry, the petroleum industry etc’. Fourth, changes of techno-economic paradigm occur when technology change impacts on every other branch of the economy, for instance the internet. The internet has changed resulted in a major shift in economic opportunities, the transaction cost of several businesses across the globe and governance structures in not only developed countries, but in developing countries too.

How is the adaptive capacity of the rural poor strengthened or constrained with respect to their access to markets, livelihoods, natural resources, services and governance?

There is no doubt that innovations can impact the rural poor directly (mobile phones) and indirectly (reduction in emissions from cars), but as mentioned above. Innovations also enhance opportunities, and competitiveness in an increasingly globalised world.

In order for access to innovations, there are certain conditions that have been identified by Hussein et al., (2008) in ‘Promoting technological innovation and innovative practices for rural poverty reduction in Western and Central Africa’. They are as follows:

- Use of participatory technology development and dissemination approaches;
- Strong partnerships between farmers, their organisations, research, government agents and other private sector actors;
- Strong synergies between the formal and informal sources of knowledge and innovation;
- Access to finance and credit at a scale and level relevant to small farmers, women and youth in particular;
- An institutional context that encourages innovation and fosters learning organisations;
- Global networks focused on the dialogue among all innovators.

III. GOVERNANCE AND THE EPICS

3a. Governance across the EPICS

A strongly recurring theme across the EPICs is that of governance.¹⁹ For example, aid governance is related to the markets EPICs via the reforms at the IMF changing trade/market access negotiations, to the tying of Chinese aid to trade and investment and the emergence of regional integration, notably via EU and NEPAD. It is also linked to the demographic and technology EPICs because of the increased funding of health and agriculture technology by private foundations and expected decreases in disease burdens as a result. Supply chain governance is – of course – also strongly linked to the market EPICs because it relates to markets themselves.

Economics and market linkages to governance include: Changes in the systems of governance of the IMF through an expansion of the quota system may lead to more influence of developing countries over economic policy. The increased presence of China in Africa may lead to an increase in trade and improved access to Chinese markets for the rural poor through better investment in infrastructure. Moreover, increasing regional cooperation carries the potential for high economic cooperation between member states, better bargaining power for producers within regional entities and expansion of markets. The globalisation of markets is leading to increased trade in natural resources which in turn is leading certain nations to ignore rights based governance and also become less responsive to the demands of its citizens. The strengthening of RPOs is intended to allow rural producers to engage with globally integrated markets better and increase their bargaining power in free market systems. The link of New Public Management and Public Private Partnerships with markets is that they are founded on the principle of market-based competition in provision of public services.

Demographics and employment linkages to governance include: The dramatic rise in funding from new philanthropic foundations to the health sector may lead to a decreased disease burden. Emerging modalities of governing international supply chains may lead to improved working conditions and greater regional integration may lead to greater mobility of labour and possibly more job opportunities. Along with these potentially positive changes, the increased dependence of certain countries on aid and natural resources for revenue will lead to decreased quality of governance in rural areas which may impact of rural livelihoods and migration strategies.

Environment and natural resources linkages to governance include: The emergence of China as a donor has potentially negative impacts on the environment as Chinese aid is outside the OECD guidelines. Expansion of decentralization might lead to populations having a greater say over their environment which in turn might lead to better environmental management.

Technology and technological innovation linkages to governance include: The emergence of new philanthropic foundations will lead to an increase in funding for innovation in health and agriculture technology. The links of emerging trends in governance with technology are also evident as the globalisation of social movements is being facilitated by the use of sophisticated information technology.

3b. Governance and aid, value chains and the private sector and public services

In particular, there are three arenas of governance that reoccur throughout our discussion. For each of these governance arenas we can discuss governance responses. The first arena is aid

¹⁹ Cross EPICs interactions are also tangible across the EPICs (see annex 1 for examples).

governance. The second is the supply chains/private sector/globally integrated markets governance. The third is the public services governance. Each can be further sub-divided between changes in context/institutions and changes in actors and roles (see box 3). Each has implications for the rural poor (RP).

Box 3. Three Governance Arenas

Governance Arena A: Governing Aid

There is new aid governance via,

- The Paris Declaration on Aid Effectiveness, signed in 2005 (to be reviewed in Sept. 2008).
- The IMF is reviewing its quota system.
- The emergence of new state donors amongst the BRICS.
- The emergence of large private donors.
- The emergence of stronger regional integration bodies in North and South such as EU and NEPAD and NEPAD CAADP in particular.

In sum,

- New contexts/institutions: The Paris Declaration on Aid Effectiveness and reforms in IMF voting rights;
- New actors and roles: New donors such as China and the Philanthropic Foundations, new roles for the EU following enlargement and NEPAD.

Governance Arena B: Governing Value-Chains, the Private Sector and Globally Integrated Markets

There is changing value-chains governance via,

- The emergence of globally integrated markets.
- The proliferation of international conventions and global technical institutions.
- The emergence of (largely voluntary) supply-chain codes of conduct.
- The strengthening of RPOs (Rural Producer Organisations)
- The new roles of transnational CSOs in international supply chains and their collaboration with local and national social movements.

In sum,

- New contexts/institutions: the emergence of international supply chains and proliferation of international conventions.
- New actors and roles: the rise of regional aid initiatives such as NEPAD and CAADP, the new roles of transnational CSOs in international supply chains and in providing support to local and national social movements.

Governance Arena C: Governing Public Services

There is changing public services governance via,

- New Public Management and Public Private Partnerships.
- Greater calls for citizen's voices in public service delivery.

- The increased in state funding from increases in aid and/or natural resource revenues.
- Global social movements in response to privatisation and globalisation of public services.
- The reduction of civil space and freedoms in many countries.
- Increased decentralisation of service delivery

In sum,

- New institutions: Greater calls for citizen voice in public services at a time when there are decreases in democratic space and adoption of counter terrorism measures/legislation.
- New actors and roles: the changing roles of states due to changes in state financing, the expansion of state decentralisation, the increased role of private actors in service delivery in modalities of PPP and via the emergence of new agencies under the New Public Management paradigm.

i. Governance and aid

One can identify various governance responses as follows in this arena:

The Paris Declaration on Aid Effectiveness, signed in 2005 is to be reviewed in September 2008. The Paris Declaration seeks to provide principles for donor-recipient relationships based on 5 principles – ownership (of partner countries), alignment (of donors and partner countries), harmonisation (of donors-donors), results based management and mutual accountability. There is also a shift to budget-support. Participation of civil society in processes has been mixed and the nature of true participation contentious. There are 12 indicators of aid effectiveness including alignment, harmonisation, and ownership (see table 5). The main indicator is that more countries will have national development strategies (for further discussion on agriculture see Cabral, 2008).

Table 5. Paris Declaration principles and Indicators

Principle	Indicator
Ownership	1. Increase the number of countries with national development strategies.
Alignment	2. Increase the number of countries with procurement and financial systems that adhere to broadly acceptable good practice or have a reform programme in place.
	3. Aid flows will be aligned on national priorities.
	4. Partner country capacity strengthened by coordinated support programmes.
	5. Donors will use country systems where they meet broadly acceptable good practice standards.
	6. Use of parallel project implementation units to be reduced.
	7. Aid disbursements will be more predictable.
	8. Aid will be untied.
	Harmonisation
10. The increased use of shared analysis.	
Managing for results	11. More countries will have results based frameworks for monitoring progress of national development programmes.
Mutual accountability	12. More countries will undertake mutual accountability assessments of progress in improving aid effectiveness.

Source: OECD Working Party on Aid Effectiveness.

The IMF is reviewing its quota system. Quota subscriptions generate most of the IMF's financial resources. Each member country of the IMF is assigned a quota, based broadly on its relative size in the world economy. A member's quota determines its maximum financial commitment to the IMF and its voting power, and has a bearing on its access to IMF financing. The reforms are broadly founded on the principle of extending more voice to developing countries by an increase in voting shares with a particular emphasis on African countries. The quota system will be reviewed every five years to ensure the voice of developing countries continues to grow (see for further discussion IMF, 2008; WDM, 2006).

The emergence of new state donors amongst the BRICS+. These donors such as China, Brazil, India, China and the N11 (next 11) tend to blend aid (grants and loans) with non-aid modalities (including state-led FDI, infrastructure, trade policy and payment 'in-kind'). New donor's aid does not necessarily come with the kind of conditionalities common to aid arrangements and may not for example conform to OECD best practice standards – e.g. in terms of environmental impact and social standards. Such new (state) donors arguably also place importance on geo-political consideration in their aid relationships (see for further discussion, Kurlantzick, 2006; Lönnqvist, 2007).

The emergence of large private donors. The influence of new philanthropic initiatives, exemplified by the Bill and Melinda Gates Foundation is being felt increasingly. The annual budget of the Gates foundation are greater than the Official Development Assistance of ten of the twenty-two OECD Development Assistance Committee members. The Foundations are redefining the 'rules of the game' of aid in at least two inter-related ways. First, the expansion of the private sector in traditionally public sector domains. Second, the increased dominance of Northern actors as foundations often channel aid through northern NGOs, public private partnerships, international organisations and bilateral aid programmes and tend to not favour direct grants to developing states (see for discussion, Moran, 2008).

The establishment of global challenge funds. This includes funds for health and the MCA. There have also been recent moves to establish a fund for African agriculture, (though African governments may not keen to see the establishment of a potential rival to CAADP). Although it is not a challenge fund, there is also the Millennium Villages Project which argues that the most effective way to address poverty in Africa is by trying to deliver effective assistance as directly to the village as is possible.

The emergence of stronger regional integration bodies in North and South such as EU and NEPAD and NEPAD CAADP in particular. The EU following expansion, accounts for half of global ODA and is the largest trading partner for many developing countries (and EPAs have been contentious recently). The EU is likely to become more of a global player. It is likely to promote what its declared EU values – notably liberal democracy and human rights. The NEPAD is another example of strengthening regional integration. It was ratified by the African Union in 2002 with three primary objectives, the eradication of poverty, the sustainable growth and development of African nations and the increased empowerment of women (see for discussion, Kotze and Steyn, 2002; Mbaku, 2004). An important component of NEPAD for rural poverty is the Comprehensive Africa Agriculture Development Programme (CAADP). CAADP aims to improve yields, improve access to agricultural markets, and increase exports. In particular, the CAADP hopes to increase the capacity of private entrepreneurs including commercial and small-holder farmers, to promote regional and cross-country trade. What's special about CAADP? a. It's Africa owned. b. It represents a re-commitment to farming, above all in the Maputo declaration of 2003 that at least 10% of budgets should go to agriculture (see for further detail FAO, 2008; NEPAD, 2008).

How is the adaptive capacity of the rural poor strengthened or constrained with respect to their access to markets, livelihoods, natural resources, services and governance?

In sum, the main changes in aid governance are as follows:

- New institutions: The Paris Declaration on Aid Effectiveness and reforms in IMF voting rights;

- New actors and roles: New donors such as China and the Philanthropic Foundations, new roles for the EU following enlargement and NEPAD.

The consequence of changes in aid governance suggests two things relevant to the RP.

- More aid and more diverse aid. There will be large increases in aid from various sources and a greater diversity and new types of aid.
- More voice for national governments internationally. Potentially more voice for the rural poor but this depends on national governance structures.

How will these changes likely affect the RP access challenges? Access of the RP governance could increase but this depends on pre-requisites (see background paper to chapter 6). Access to natural resources, markets, multiple livelihoods and services are then all a function of RP access to governance structures.

Access to governance and access to services of the RP could improve. The Paris Declaration is largely owned by central government with participation of civil society encouraged but led/convened by national governments. The implications for the rural poor and their organisations is there is an entry point to influence policy processes but with a gatekeeper.

Aid does not necessarily strengthen states but, overtime, can potentially weaken them (see for discussion, Van de Walle, 2001). This is because the state instead of being accountable to the citizen, tends to orient itself externally.

The impact on domestic governance of new donor relationships is unclear. Chinese aid is outside of the DAC best-practice approach. The increasing amount of Chinese debt being accumulated by some African nations is concerning. Africa already relies heavily on China for certain manufactured goods (as we all do). Africa might one day be a large market, but right now and for the next 10 years the big markets are not in Africa. African exports (especially of natural resources) continue to expand arguably leading to a form of economic growth that is not pro-poor and that may be governance-distorting (see later discussion). The influence of private philanthropic foundations continues to expand too. The Paris Declaration may lead to more effective aid delivery (if assessment is made on its own indicators noted above).

ii. Governance and value chains and the private sector

One can identify various governance responses as follows in this arena:

The emergence of globally integrated markets. Supply chains have created a number of international governance questions because they have led to a reduction in the regulatory capacity of the state due to the split between the national political structures and the international structures of production (see for discussion, Macdonald, 2004; Thompson et al., 2007).

The emergence of (largely voluntary) supply-chain codes of conduct. There are a multiplicity of such codes including corporate codes, the OECD multinationals code, industry association codes, multi-stakeholder codes and NGO-driven codes, fairtrade and other forms of consumer labelling (see for more details Keohane and Nye, 2000; MacDonald, 2004).

The strengthening of Rural Producer Organisations (RPOs). The liberalisation of markets that started in the 1980s led to the reduction of government support to small, rural producers and exposed them to fluctuations of a free market. In response there has been an increasing collectivization of rural producers seen through emerging producer organisations like co-

operatives and farmer's associations. Though co-operatives have existed for many decades, the 1990s saw renewed interest in supporting them, after a decline in funding for them in 1980s. There was a period, dating roughly from the late 1950s to the mid-1970s when there were high hopes for farmer co-operatives - dealing specifically with marketing and input supply. Based in part on the success of some farmer co-operatives in parts of Europe, and partly on a political preference for co-operatives rather than private enterprise, many developing countries support encouraged the formation of such associations with the active support of donors. Although some co-operatives were undoubtedly effective and successful, there were also many disappointments — arising above all from leadership and management that were either inefficient or corrupt or both. Consequently, enthusiasm for farmer co-operatives waned notably in the 1980s and 1990s (See for greater discussion see background paper to RPR chapter 6 and case studies).

The new roles of transnational CSOs in international supply chains and their collaboration with local and national social movements. There is a proliferation of transnational CSOs/NGOs involved in value-chain advocacy in solidarity with local and national social movements, trade unions and workers groups (see for more discussion Goodwin and Jasper 2003; Leach and Scoones, 2007).

How is the adaptive capacity of the rural poor strengthened or constrained with respect to their access to markets, livelihoods, natural resources, services and governance?

In sum, the main changes in value-chain governance are as follows:

- New contexts/institutions: the emergence of international supply chains and proliferation of international conventions and codes of conduct.
- New actors and roles: the rise of regional integration in NEPAD CAADP, the new roles of transnational CSOs in international supply chains and in providing support to local and national social movements.

The consequence of changes in value-chain governance suggests two things relevant to the RP.

- i. Greater integration between local and global markets.
- ii. Greater linkages between transnational and local CSOs on value-chains.

How will these changes likely affect the RP access challenges? The emergence of globally integrated markets hold potential for the RP to access those markets. Whilst the emergence of global solidarity campaigns might leverage RP access to governance over those markets. However, the barriers to entry may be insurmountably high (see economics EPICs) and global solidarity is no guarantee of access to governance structures.

RPOs can contribute to supporting RP access to markets and RP governance. The networking of small producers leads to more equitable negotiations with buyers on behalf of producers, facilitates increased specialisation through knowledge and resource sharing and lastly, fosters solidarity and confidence amongst small producers. There is also an issue of access of the rural poor to RPOs. Most smallholder co-ops and producer organisations are driven by the better-off small farmers and not the rural poor.

The NEPAD CAADP also has the potential to increase access to markets of the RP. In particular, the CAADP hopes to increase the capacity of private entrepreneurs including commercial and

small-holder farmers, to promote regional and cross-country trade.

These are to be realised through various measures, including the provision of information on the export market and appropriate training, promoting better farming and manufacturing technologies and removing barriers to the cross border movement of goods.

The impact of codes of conduct and international solidarity remains to be seen. On the one hand the non-enforcement of international governance could lead to the further exploitation of workers by multinational corporations. However, mobilization and transnational solidarity could empower workers through new forms of 'civil regulation'.

Though effective in bringing about some kind of institutionalised accountability within industry, codes of conduct can devalue other emerging governance institutions as these codes are sometimes promoted by industry themselves to exercise control. Though there could be a number of reasons for the emergence of these institutions, two central ones could include the increase in the density of networks and the increased intensity of contact within networks.

What will be the impact on diverse rural livelihoods? Changes in value-chains (and market EPICs) via prices in particular and labour supply have clear impacts on RW 1 and such impacts are transmitted to RW 3 and 4 who they may employ. In the past risks were reduced by state involvement in production via marketing boards, public investments in agriculture R and D and agricultural services. This is no longer the case in many countries leaving the RP to bear market risk.

iii. Governance and public service delivery

One can identify various governance and rural poor responses as follows in this arena:

New Public Management and Public Private Partnerships. These new public services modalities are based on the adoption of private sector management practices in the public sector; an emphasis on efficiency; a movement away from input controls, rules and procedures toward output measurement and performance targets; a preference for private ownership, competitive tendering and contracting out of public services; and the devolution of management control with improved reporting and monitoring mechanisms (for greater detail see Hood, 2007).

Greater calls for citizen's voices in public service delivery. Gaventa and Valderrama (1999: 2) refer to 'citizenship participation' or 'direct ways in which citizens influence and exercise control in governance'. This means that people can assert their citizenship through seeking greater accountability via participation in policy processes and claiming such activities by right rather than by invitation. This is particularly so in the case of public services. Citizens have moved 'from being simply users or choosers of public services policies made by others, to 'makers and shapers' of policies themselves.' (Gaventa, 2004: 150). There are new arenas for citizen participation at various levels. At a local level in programmes of democratic decentralization (i.e. planning, budgeting and monitoring of public services), at a national level (in sectoral programmes, poverty policies and PRSPs) and at a global level in policies of global governance and treaties and conventions and summits. Such trend have changed the role of states to creating an 'an enabling environment' where the poor have an incentives to mobilise (for greater discussion on public services see in particular, Goetz and Gaventa (2001).

The increases in state funding from increases in aid and/or natural resource revenues. Increasingly governments have additional resources from increases in natural resources revenues and aid (for greater detail see Leonard, 2003; Moore, 2007).

Global social movements in response to privatisation and globalisation of public services. There is a proliferation of new actors and institutions like transnational NGOs that are providing momentum to social movements (see for more discussion Leach and Scoones 2007).

The reduction of civil space and freedoms in one-fifth of all countries. Freedom House (Puddington, 2008) noted a retreat of freedoms in 2007. However, that means the remaining 80% things may well be improving. It outlines four global trends. First, ‘...a resurgence of pragmatic, market-oriented, or energy-rich dictatorships. Most visibly in Russia and China, but also in other parts of the world ‘rights based governance’ is deemed to be an anachronism (ibid., p. 4). Global governance monitoring bodies such as the UN Human Rights Council and the Organisation for Security and Cooperation in Europe are being undermined by such trends. Secondly, an increasing ‘...decline in freedom of association. As repressive regimes move to strengthen their authority and eliminate sources of political opposition, they increasingly target human rights organizations, advocates of government transparency, women’s rights groups, representatives of minority groups, and trade unions,’ (ibid p4). Countries in this category include a number of countries from the Middle East, Africa and the Baltic States. Third, a weakening of non-electoral governance, Freedom House notes, ‘nearly two-thirds of the world’s countries rank as electoral democracies, but many score poorly on government effectiveness and accountability,’ (ibid., p. 5). Corruption and lack of transparency are the causes of weak systems of governance in a number of countries in Africa, Latin America and Asia (ibid). Finally, terrorism remains a critical problem, ‘while the world has been spared terrorist attacks of the magnitude of 9/11, the violent actions of Islamic radicals remain an important challenge to freedom, both in Muslim countries and in the wealthy democracies,’ (ibid p5). Pakistan, Afghanistan, the Middle East seem to be in the grip of this phenomenon. Further, ‘...the threat of terrorism often provides an unjustified rationale for repressive emergency laws, torture, and the suppression of opposition political parties,’ (ibid p5). NGOs and CSO increasingly find themselves implicated in complex legal situation due to the emergence of these counter-terrorism measures (CTMs). The State is using its increased powers under CTMs to monitor civil society (see for more discussion Sen, 2007).

Increased decentralisation of service delivery. There has been a trend towards the transfer of public functions to lower tiers of the state in administrative, fiscal and political terms. The aim being to deliver better governance and public services. Over 75 countries have undertaken policies of decentralisation in the past 25 years (Ahmad, 2005), it is clear that more and more countries will opt for decentralised systems for service delivery. Decentralisation involves fiscal decentralisation, entailing the transfer of financial resources in the form of grants and tax-raising powers to sub-national units of government; administrative decentralisation (sometimes referred to as deconcentration, where the functions performed by central government are transferred to geographically distinct administrative units; political decentralisation where powers and responsibilities are devolved to elected local governments; this form of decentralisation is synonymous with democratic decentralisation (Robinson, 2007: 10). The road to decentralisation is pretty rocky, but it can bring dividends. Decentralised government can play a useful role: locally based leaders and civil servants are more likely to be aware of local circumstances and issues than national actors. That said, experience with decentralised government has been mixed. If decentralised government is to be effective, some fairly demanding conditions have to be met. The decentralised body needs to be granted the political authority and funds²⁰ commensurate with

²⁰ Or the authority to raise funds locally. This, of course, has its dangers: Ellis (2001) observing local government in Malawi, Tanzania and Uganda, notes the danger that local governments can impose heavy and regressive — flat rates imposed on firms however large or small — taxes on local businesses.

its remit; its leaders should be accountable to the electorate; and it requires sufficient administrative capacity. Decentralisation, as Manor stresses, is not a one-off reconfiguration of government. Decentralised government, and local administrations in particular, need to develop their capacity and competence. Most reviews of Bolivia's experience since 1993, when central funds were allocated directly to municipalities, report that while many of the local administrations struggled at the start, many have since learned lessons, and gained capacity, competence, and confidence. (Whitehead and Gray Molina 2004)

How is the adaptive capacity of the rural poor strengthened or constrained with respect to their access to markets, livelihoods, natural resources, services and governance?

In sum, the main changes in public services governance are as follows:

- New institutions: Tension between greater calls for citizen voice in public services at a time when there are changes in democratic space and the NPM.
- New actors and roles: the changing roles of states due to changes in state financing, the expansion of state decentralisation, the increased role of private actors in service delivery in modalities of PPP and via the emergence of new agencies under the New Public Management paradigm.

The consequence of changes in public services governance suggests two things relevant to the RP.

- i. Conflict between greater claims for citizen voices and decentralisation whilst voice and freedoms are retreating in many countries.
- ii. More finance available for public services from natural resource revenues, aid and (contentiously) private sector.

How will these changes likely affect the RP access challenges? The increase in resources available may lead to greater spending on public services although this is by no means guaranteed. NPM has the potential to deliver more efficient public services through improved public management techniques. Decentralisation may lead to better public services. However, throughout there are likely to be greater conflicts as citizen's claim to voice may sit uneasily with the retreat of freedom in a number of countries.

SECTION IV: CONCLUSIONS

4a. EPIC conclusions

i. Market EPICS

Two threads run through the implications of economic changes for the rural poor. One is that their rights need to be protected and respected when economic opportunities mean that the resources they control, including their own labour, become valuable. This requires action at several levels: national legislation to give legal backing to the rights of the poor; active state monitoring to prevent the powerful abusing those rights; and freedom of association to allow civil society to help monitor rights and to allow the poor themselves to organise to defend their rights and interests.

The other is the importance of facilitating linkages within the rural economy and interactions with the urban economy. Economic opportunity is most likely to be taken up in the first instance by those not poor, so that the poor need to look to derived benefits through linkages. Easier interactions with urban areas should also open new opportunities for the rural poor, including the possibility of migrating out of the rural areas.

Linkages and interactions can be improved through public investments in physical infrastructure, in the health, education and skills of the poor — and especially of their children, and by working to reduce market failures in rural markets and above in credit and financial systems.

ii. People EPICs

Policymakers should take heed of the demographic structure of each region. In this respect, in SSA countries the challenge is twofold: to manage both their demographic and economic transition. SSA countries are mired in a situation of high mortality, high fertility, and rapid population growth that could not be overcome without a tremendous increase of agricultural productivity (Conley and Al., 2007; Galor, 2005). It is in this context that development and poverty reduction strategies have to be developed.

The classical structural transformation process and its employment pattern evolution are challenged. Could low income countries follow the classical model of structural transformation in the future to develop, just like European countries at the end of the 19th or the Asian dragons in the 60s-80s? Probably not because just as in the past development path has not been unique, the current features of local, national, regional and international contexts plead for a broadening of the development path possibilities. Rural households have developed specific strategies to cope with the difficulties they have faced based on income diversification to reduce risk exposure and vulnerability. This situation modifies the way poverty reduction strategies should be defined: it is not possible anymore to separate urban and rural poverty, rural and urban development. These challenges come together: any policy to reduce poverty should be embedded in a broader strategy of both rural and urban development.

Such a situation leads to rethink the role of agriculture and rural development in the global development process, to take into account the challenges raised by this unaccomplished demographic transition both in term of population increase and of on-going labour force, and to design poverty alleviation policies as part of a global development strategy.

iii. Natural EPICs

Changes in the environment affect everyone, but can have a harder impact on the rural poor since

so many of their livelihoods depend directly and immediately on the productivity of natural resources, and since their resilience to changes may be lower on account of poverty.

The challenges that environmental change produce for the rural poor consist in most cases of matters of:

Governance and rights — ensuring that the poor are able to influence decisions that affect their lives, and that their rights to natural resources are respected;

Finding ways to manage common property and the global commons in the interests of current and future generations;

Building capacity to adapt to changes that will increase the resilience of the rural poor to current and future hazards. This in turn generates a challenging agenda that includes improved education, access to knowledge and information, and the defence and establishment of rights within a framework of democratic governance.

iv. Techno EPICs

Firstly, social, cultural and institutional dimensions are key to all technologies. Therefore to understand technological relevance in a community, one needs to understand the dynamics of the community first. This has implications for methodologies to introduce and evaluate a technology for the poor. The methods need to be participatory and inclusive.

Secondly, a careful questioning of the framings of various debates and ‘sound science’ around technologies is required. For instance, when we discuss biotechnology we need to ask whether hunger is due to lack of production or result of distribution.

Along with the debates, one needs to recognise players at all levels involved in the development and utilization of technology and their vested interests in diverting technological trajectories in certain directions.

For technologies to be pro poor support from the government in terms of political will, enabling policies and regulatory frameworks are required. Policies and regulations need to incorporate developing countries at the international level and the rural poor and relevant communities’ at the national and local level. Generally international regulatory standards make certain assumptions about developing countries which hinder the latter to integrate themselves in the global markets. These regulations also need to include communication of risks to the communities concerned.

4b. Governance across the EPICs

A strongly recurring theme throughout is that of governance. Governance matters across the EPICs. We focused on aid governance, value-chain governance and public services governance.

The consequence of changes in aid governance suggests two things relevant to the RP. First, more aid and more diverse aid. There will be large increases in aid from various sources and a greater diversity and new types of aid. Second, more voice for national governments internationally. Potentially more voice for the rural poor but this depends on national governance structures.

The consequence of changes in value-chain governance suggests two things relevant to the RP. First, greater integration between local and global markets. Second, greater linkages between transnational and local CSOs on value-chains.

The consequence of changes in public services governance suggests two things relevant to the

RP. First, conflict between greater claims for citizen voices and decentralisation whilst voice and freedoms are retreating in many countries. Second, more finance available for public services from natural resource revenues, aid and (contentiously) private sector.

Across the EPICs it is difficult to analyse all the changes across all types of livelihoods, households and people. Two examples, climate change and food prices, demonstrate the level of complexity.

In terms of climate changes, small-scale herders and agro-pastoralists result to be the most affected groups: as rainfall decreases, rangelands turned to desert and small-scale producers are often forced to sell livestock at a loss, increasing poverty at a time of drought. Small-scale producers often resort to selling their land and livestock and moving to cities in search of jobs, accompanied by increased pressure on urban centres and urban poverty. They are also directly affected as climate change (CC) has direct impacts on crop development. Water scarcity, or floods e.g. low rainfall resulting from CC, constitute difficulties for rain-fed crops to complete their growing cycle, accelerating land degradation and erosion, having a high impact on yields and hence on food insecurity and general poverty in rural areas accelerating men's emigration.

In terms of rising food prices: This has rapidly become a critical international concern. There are important differences in impacts of price rises among socioeconomic groups and typologies of farms and households within countries. Higher food prices can harm those poor households that are net food consumers because food accounts for a large share of their expenditures. In many countries, food can account for 70 to 80 % of the expenditures of the poorest quarter of the population, including farmers. In such circumstances, food price increases impact heavily on the purchasing power of the poor, particularly poorer consumers and net buyer smallholders. Poorer urban households - low wage earners and net buyers of food - are likely to be negatively affected by the higher costs of food. The transmission of price changes is expected to take effect earlier in urban areas, as most of them are close to ports or are well connected to international markets. In rural areas, a distinction needs to be made among households. For households which are net food buyers such as labourers and landless farmers, rising food prices will affect them negatively during the hungry season when food stocks are depleted and these households have to buy food in local markets to satisfy their family food needs. These net food buyers need safety nets to help them cope with rising high food prices during the hungry season. In contrast to small-scale farmer households that are *net food sellers* are faced with market opportunities to increase their incomes. However, they face many constraints and barriers to taking advantage of this situation. For these net sellers, policies (e.g. trade, agricultural services etc), infrastructure, and value chains need to be improved to them take advantage of rising food prices.

4c. What do case studies of rural poor responses tell us about strengthening the adaptive capacity of the rural poor?

One question we have referred to throughout the discussion of EPICs is how is the adaptive capacity of the rural poor strengthened or constrained with respect to their access to markets, livelihoods, natural resources, services and governance?

We have collated a number of case studies in annex two here and in the RPR background paper to chapter 6 of rural poor responses to challenges raised by the EPICs.²¹ In discussing access to

²¹ Cases presented in the annex here focus on technology and governance in particular others relating to economics/markets and environment/natural resources are presented in the background paper to RPR chapter six and in a supplementary document to chapter six. On markets see RPR background paper to

governance in the background paper to chapter 6 (and supplementary paper to chapter 6) we found the case studies of rural poor responses identified a *spiral of empowerment* with four entry points. The four stages were, first, mobilization of the rural poor policy narrative, ideally via participatory techniques – what policies matter and what to argue for? Second, access to the policy processes - are the rural poor ‘in the room’? Third, engaging in and influence of the rural poor in policy processes – do the rural poor have the capacity to influence policy. Fourth, achieving change or the citizens monitoring and evaluation of policy change? This leading back to further mobilization. The nature of each of these is determined by dynamics of actor-specificity (interests, capacities), context-specificity (institutions, incentives and constraints) and competing narratives or world-views on rural development. We found in our case studies that participation in policy processes was mediated in particular by innovation in informal policy spaces, incentives to participate and inequality across caste, gender and income which shaped who participated and how. The prerequisites for enabling access to governance are reproduced in the table 5 of the background paper to chapter 6.

Here, with regard to the adaptive capacities of the rural poor we can draw - in parallel to the above - an empowerment approach to adaptive change.

In terms of the rural poor we identify, from case studies, enabling factors to strengthen adaptive capacity.

We suggest four stages in a cycle of adaptation.

First, there is the capacity of the rural poor to mobilise a response to the EPICs. This requires in-depth understanding of the nature of the issues and possible responses and a capacity to form collective response.

Second, there is a dialogue stage. This is the planning of putting into practice the adaptation responses of the rural poor. It involves the rural poor dialoguing with other stakeholders on adaptation responses of the rural poor and in particular it involves dialogue with local and national governments on adaptation options in order to enable such adaptation.

However, dialogue with other stakeholders such as local and national governments is not enough. There is a third stage of shaping or influencing the dialogue towards the interests of the rural poor. This involves the ability of the rural poor to shape or influence the terms of their own adaptation. It is about implementing the adaptation choices of the rural poor.

Fourth, there is achieving or actual adaptation and monitoring and evaluation of the achieved adaptation. This would then feed back into the first stage for new mobilisation.

If we ask what pre-requisites are required to strengthen the adaptive capacity of the rural poor we can identify, across the above four stages a number of enabling factors. We draw these from the case studies presented in the annex here and in the RPR background paper to chapter 6.

The series of enabling factors to stronger adaptive capacity of the rural poor includes:

chapter 6, template numbers 2, 3, 31, 32, 33, 49, 53 and on environment and natural resources see templates 1, 5, 7, 8, 9, 19, 20, 23, 25, 28, 29, 33, 35, 37, 43, 45, 58, 46, 65, 67, 74, 75.

- Establishment and development of rural poor CSOs to articulate rural poor adaptation demands;
- Awareness raising of rural poor CSOs on the EPICs;
- Access of rural poor CSOs to information necessary to understand and advocate adaptive preferences;
- Capacity development for rural poor CSOs to engage in debates on adaptation via technical, advocacy and language skills and skills in negotiation, lobbying, and communication;
- Availability to rural poor CSOs of means of communication to make the voices of the rural poor heard, and to network with other stakeholders;
- Capacity development for rural poor CSOs to engage in monitoring and evaluation of EPICs and adaptation options;
- Receptivity to rural poor voice from governance structures, bureaucracy and politicians;
- A defined and publicized procedure for providing feedback and support in the fulfillment of adaptation to rural poor CSOs and policy makers;
- Effective local and regional co-ordinating mechanisms.

Development of strong local institutions and producer organizations in particular is essential, with a voice to help shape strategy development and policy making processes as well as to ensure interventions are demand led meeting the needs of their members at the local level. Initiatives to support and strengthen these institutions and organisations are critical to the adaptive capacities of the rural poor.

REFERENCES

- Ahmad, J, Devrajan, S. Khemani, S. and Shah, S. (2005) Decentralization and Service Delivery. World Bank Policy Research Working Paper 3603. World Bank: Washington, DC.
- Bhatnagar, S. (2007) Impact assessment study of e-government projects in India: E-government improves service delivery in India. Indian Institute of Management: Ahmedabad, India.
- Bloom, D., Canning, D. and Sevilla J. (2001) Economic Growth and the Demographic Transition. NBER Working Paper No. 8685. NBER: Massachusetts, MA.
- Bloom, D. and Williamson J. (1997) Demographic Transitions and Economic Miracles In Emerging Asia. NBER Working Paper No. 6268. NBER: Massachusetts.
- Bourguignon, F. (2005) Development Strategy for More and Better Jobs. Paper presented at the conference 'Help wanted: More and better jobs in a globalized economy' organized by the Carnegie Endowment for International Peace, April 14, Washington, DC.
- Braun, J.V. (2007) When Food Makes Fuel: The Promises and Challenges of Biofuels. Biofuels, Energy and Agriculture. Keynote Address. IFPRI: Washington, DC.
- Braun, J.V., Pachauri, R. K. (2006) The Promises and Challenges of Biofuels for the Poor in Developing Countries. IFPRI: Washington, DC.
- Buckley, C. P. (2007) Producer Organisations: A Guide to Developing Collective Rural Enterprises. Oxfam: Oxford
- Byerlee, D., Fischer, K. (2002) Accessing Modern Science: Policy and Institutional Options for Agricultural Biotechnology in Developing Countries. World Development, 30(6): 931–948.
- Chambers, R. (1997) Whose reality counts? : Putting The First Last. Intermediate Technology Publications Ltd: London.
- CDER WHO. Africa Regional Office. (2003) Communicable Diseases Epidemiological Report. Accessed on May 1, 2008 at <http://www.afro.who.int/hib/bulletins/july-2003-cder.pdf>
- CEPS. (2007) Its Time to Reframe the Climate Change Debate. Accessed on May 5, 2008 at http://enarpri.org/Article.php?article_id=492
- Clancy, J. S. (2008) Are Biofuels Pro-Poor? Assessing the Evidence. Department of Technology and Sustainable Development (TSD), Centre for Clean Technology and Environmental Policy (CSTM). The University of Twente Enschede: The Netherlands
- Coninck, H. Fischer, C. Newell, R. and Ueno, T. (2007) International Technology Oriented Agreements to Address Climate Change. Energy Resource Centre of the Netherlands: The Netherlands.
- Conley, D., McCord G.C. and Sachs J.D. (2007) Africa's Lagging Demographic Transition: Evidence from Exogenous Impacts of Malaria Ecology and Agricultural Technology. NBER Working Paper No. 12892. NBER: Massachusetts, MA.
- Davis, J. (2003) The Rural Non-Farm Economy, Livelihoods and their Diversification: Issues and Options. National Resource Institute Report No. 2753. NRI: London.

- Davis, M. (2006) *The Planet of Slums*. Verso: London.
- DIAL. (2007) *Youth and Labour Market in Africa: A Critical Review of Literature*. DIAL Working Paper. DIAL: Paris.
- Diao, X., Hazell P., Resnick D. and Thurlow J. (2007) *The Role of Agriculture in Development*. IFPRI, Washington, DC.
- Ellis F. (2006) Agrarian Change and Rising Vulnerability in Rural Sub-Saharan Africa. *New Political Economy*. (3):387-397.
- Ellis, F. and Biggs S. (2001) Evolving Themes In Rural Development 1950s-2000s. *Development Policy Review*. 19(4):437-448.
- Ellis, F. (1998) Household Strategies and Rural Livelihood Diversification. *The Journal of Development Studies*. 35(1):1-38.
- EURODAD (2008) *Turning the Tables: Aid and Accountability Under the Paris Framework*. EURODAD: Paris.
- FAO. *Process And Scope Of The Agriculture Programme* accessed on 17/05/2008 at <http://www.fao.org/docrep/005/Y6831E/y6831e.htm>
- FIDAfrique (2008) Accessed on May 10, 2008 at www.fidafrique.net/article1619.html
- Fields, G. (2007) *Labor Market Policy in Developing Countries: A Selective Review of the Literature and Needs for the Future*. World Bank, Policy Research Working Paper No. 4362. World Bank: Washington, DC.
- Galor, O. (2005) From Stagnation To Growth: Unified Growth Theory. In Aghion P. and Durlauf S. (Eds) *Handbook of Economic Growth*. North-Holland, pp. 171-293.
- Gaventa, J. and Valderrama, C. (1999). *Participation, Citizenship and Local Governance – Background Paper for Workshop: Strengthening Participation in Local Governance* mimeo, IDS. Brighton, UK.
- Gaventa, J. and Goetz, A. M. (2001) *Bringing Citizen Voice and Client Focus Into Service Delivery*. Institute of Development Studies Working Paper 138. IDS: Brighton, UK.
- Gaventa, J. (2004) *Towards Participatory Governance: Assessing the Transformative Possibilities in Hickey, S. and Mohan, G. (eds) From Tyranny to Transformation*, Zed Books: London.
- Giordano, T. and Losch B. (2007a) *Transition: Risques d’impasse?* *Courrier de la Planète*, No.81-82, pp. 22-26.
- Giordano, T. and Losch B. (2007b) ‘*Structural Change in Agriculture: Confronting the Transition Issue*. 45th Annual Conference of the Agricultural Economics Association of South Africa, Johannesburg, 26-28 September.
- Glover, D. (2003a) *Corporate Dominance and Agricultural Biotechnology: Implications for Development. Democratising Biotechnology: Genetically Modified Crops in Developing Countries Briefing Series. Briefing 3*. IDS: Brighton, UK.

- Glover, D. (2003b) Bt Cotton: Benefits for Poor Farmers? Democratising Biotechnology: Genetically Modified Crops in Developing Countries Briefing Series. Briefing 9. IDS: Brighton, UK.
- Goldman, A. (1995) Threats to Sustainability in African Agriculture: Searching for Appropriate Paradigms. *Human Ecology*. 23 (3):291–333
- Goodwin, J. and Jasper J. (eds.) (2003) *The Social Movements Reader*. Blackwell Publishing: London.
- Guengant, J.P. (2007) La démographie africaine entre convergence et divergence. In Ferry B. (Ed.) *L’Afrique face à ces défis démographiques*. Karthala, CEPED, AfD, pp. 27-121. AfD: Paris
- Hazell, P., Pachauri, R K. eds. (2006) *Biofuels: An Overview. Bioenergy and Agriculture: Promises and Challenges*. Focus 14. IFPRI, Washington, DC.
- Holt-Gimenez, E. Altieri, M. Rosset, (2006) Ten Reasons Why the Rockefeller and the Bill and Melinda Gates Foundations’ Alliance for Another Green Revolution Will Not Solve the Problems of Poverty and Hunger in Sub-Saharan Africa. *Food First Policy Brief No.12*. Oakland, USA.
- Hood, C. (1991) A Public Management for All Seasons? *Public Administration*. 69:3-19.
- ICRISAT. (2007) Pro Poor Biofuels for Asia and Africa: ICRISAT’s Perspective.. Accessed on May 1, 2008 at <http://www.icrisat.org/Investors/Biofuel.pdf>
- IFAD (2007) *Innovation Strategy*. IFAD: Rome.
- IFAD (2008) Farmer’s Forum accessed on 4/6/2008 at- <http://www.ifad.org/farmer/2008/roundtable/e/policy.htm>
- ILO (2006) *Global Employment Trends*. International Labour Office. ILO: Geneva.
- ILO (2007) *African Employment Trend*. International Labour Office. ILO: Geneva.
- ILO (2008) *Global Employment Trends*. International Labour Office, January. ILO: Geneva.
- IMF (2008). *IMF Quotas*. Accessed on 01/05/2008 at <http://www.imf.org/external/np/exr/facts/quotas.htm>
- IPCC (2007) *Technical Summary Working Group II, Fourth Assessment*, Cambridge University Press: Cambridge, UK.
- Ivanovic, M. and Martin, W. (2008) *Implications of Higher Global Food Prices for Poverty in Low Income Countries*. World Bank, Policy Research Working Paper No.4594. World Bank: Washington, DC.
- Keeley, J. (2003) *Democratising Biotechnology: An Overview*. *Democratising Biotechnology: Genetically Modified Crops in Developing Countries Briefing Series*. Briefing 1. IDS: Brighton, UK.
- Keohane, R. O. and Nye, J. S. (2000) *Globalisation: What's New? What's Not? (And So What?)*. *Foreign Policy*. 118:104-119.
- Koch, D. J. Dreher, A. Nunnenkamp , P. and Thiele, R. (2008) *Keeping a Low Profile: What*

Determines the Allocation of Aid by Non-Governmental Organizations? Kiel Working Paper No. 1406. Kiel Institute for World Economy: Germany

Kotzé, H. and Steyn, C. (2002) The African Opinion Leader Survey on NEPAD and AU-2002 Preliminary Report' Centre for International and Comparative Politics in Cooperation with Konrad-Adenauer-Stiftung. Stellenbosch.

Kurlantzick, J. (2006) Beijing's Safari: China's Move into Africa and Its Implications for Aid, Development, and Governance. Policy Outlook No. 29, Carnegie Endowment.

Leach, M. Bloom, G., Ely, A., Nightingale, P., Scoones, I., Shah, E. and Smith, A. (2007) Understanding Governance: Pathways to Sustainability. STEPS Working Paper 2, STEPS Centre. IDS: Brighton, UK

Leach, M and Scoones, I. (2007) Mobilising Citizens, Social Movements and the Politics of Knowledge. IDS Working Paper 276. IDS: Brighton, UK.

Leach, M., Turquet, L. (2006) Making Vaccine Technologies Work for the Poor. IDS Policy Briefing. IDS: Brighton, UK.

Lee, R. (2003) The Demographic Transition: Three Centuries of Fundamental Change. *Journal of Economic Perspectives*. 17(4):167-190.

Leonard, D. K. and Scott S. (2003) Africa's Stalled Development. Lynne Rienner: London

Lewis, A. (1954) Economic Development with Unlimited Supplies of Labour. *Manchester School of Economic and Social Studies*. 22:139-191.

Lönnqvist, L. (2007) China's Aid to Africa: Implications for Civil Society. INTRAC: Oxford.

Losch, B. (2008b) La recherche d'une croissance agricole inclusive au coeur de la transition économique. In Devèze J.C. *Les défis agricoles africains*. Karthala. Forthcoming. Paris.

Losch, B. (2006) Les limites des discussions internationales sur la libéralisation de l'agriculture : les oublis du débat et les « oubliés de l'histoire ». In OCL, Vol.13, No.4, pp. 272-277.

Losch B. (2008a) Migrations and the Challenge of Demographic and Economic Transitions in the New Globalization Area. Paper prepared for the Social Science Research Council Conference on 'Migration and Development: Future Directions for Research and Policy', February 28 – March 1, New York.

Macdonald, K. (2004) Emerging Institutions of Non-State Governance within Transnational Supply Chains: A Global Agenda for Empowering Southern Workers? Paper presented at the annual meeting of the American Political Science Association, Chicago.

Mbaku, J. M. (2004) NEPAD and Prospects for Development in Africa. *International Studies*. 41(387).

McNamara, K.S. (2003) Information and Communication Technologies, Poverty and Development: Learning from Experience. World Bank: Washington DC, USA.

Michiels, S.I. and Van Crowder, L. (2001) Discovering the 'Magic Box': Local Appropriation of Information and Communication Technologies. FAO: Rome.

- Miller, D. (2007) *Mobile Phones and Development*. id21 Insights 69. IDS: Brighton, UK.
- Mingers, J. (1995) *Self-producing Systems: Implications and Applications of Autopoiesis*. Plenum Press: London.
- Mol, A.P.J. (2007) Boundless Biofuels? Between Environmental Sustainability and Vulnerability. *Sociologia Ruralis*, 47(4): 297-315.
- Moore, M. (2007) *How Does Taxation Affect the Quality of Governance?* Institute of Development Studies Working Paper 280. IDS: Brighton, UK.
- Moran, M. (2008) *The 800 Pound Gorilla: The Bill and Melinda Gates Foundation, the GAVI Alliance and Philanthropy in International Public Policy Paper* presented at the annual meeting of the ISA's 49th Annual Convention, Bridging Multiple Divides, San Francisco, CA.
- Morel, C. M. et al. (2005) Health Innovation Networks to Help Developing Countries Address Neglected Diseases. *Science*. 309(401): 401-404.
- Nuffield Council on Bioethics. (1999) *Genetically Modified Crops: The Ethical and Social Issues*. Accessed on May 5, 2008 on http://www.nuffieldbioethics.org/go/ourwork/gmcrops/publication_301.html
- OECD-FAO (2008) *Agricultural Outlook 2008*. OECD: Paris.
- Pachauri R. K. (2008) Interview on Climate Change. IFPRI website. Accessed on May 15, 2008 at <http://www.ifpri.org/PUBS/newsletters/IFPRIForum/200803/if21Pachauri.asp>
- Pender, J. (2007) *Agricultural Technology Choices for Poor Farmers in Less-Favoured Areas of South and East Asia*. IFPRI Discussion Paper 00709. IFPRI: Washington DC, USA.
- Peskett, L. Slater, R. Stevens, C. and Duffey, A. (2007) *Biofuel, Agriculture and Poverty Reduction. Natural Resource Perspective*. Overseas Development Institute: London.
- Poulton, C., Kydd J., and Dorward A. (2006) *Overcoming Market Constraints on Pro-poor Agricultural Growth in Sub-Saharan Africa*. *Development Policy Review*. 34(4):243-277.
- Pratap, S. and Quintin E. (2006) *The Informal Sector in Developing Economies*. UNU-WIDER, Research Paper No. 2006/130. UNU: Helsinki.
- Puddington, A. (2008) *Freedom in Retreat: Is the Tide Turning? Findings of Freedom in the World 2008*. Freedom house: Washington, DC.
- Ramalingam, B. Jones, H. Reba, T. and John Young (2008) *Exploring the Science of Complexity: Ideas and Implications for Development and Humanitarian Efforts*. ODI: London.
- Ranis, G. (2008) *Relationships Between Migration and Development*. Paper Prepared for the Social Science Research Council Conference 'Migration and Development: Future Directions for Research and Policy', 28 February – 1 March, New York.
- Ravallion, M. Sangraula, P. and Shaohua, C. (2007) *New evidence On The Urbanization of Global Poverty*. World Bank, Policy Research Working Paper No. 4199. World Bank: Washington, DC.
- Reardon, T., Berdegue J and Esobar G. (2001) *Non-Farm Employment and Incomes in Latin*

- America: Overview and Policy Implications. *World Development*. 29(3):395-409.
- Reardon, T. (1997) Using Evidence of Households Income Diversification to Inform Study of the Rural Nonfarm Labor Market in Africa. *World Development*. 25(5):735-747.
- Reij, C.P. and Smaling, E.M.A. (2008) Analyzing Successes in Agriculture and Land Management in Sub-Saharan Africa: Is Macro-Level Gloom Obscuring Positive Micro-Level Change? *Land Use Policy*. 25:410–420.
- Rihani, S. (2005) Complexity Theory: A New Framework for Development is in the Offing. *Progress in Development Studies*. 5(1).
- Robinson, M. (2007) Does Decentralisation Improve Equity and Efficiency in Public Service Delivery Provision? *IDS bulletin*. 38(1):7-17.
- Rosegrant, M W et al. (2006) Biofuels and the Global Food Balance. *Economic and Social Issues. Bioenergy and Agriculture: Promises and Challenges*. Hazell P and Pachauri R K. (ed). Focus 14. IFPRI: Washington, DC.
- Scott N. et al. (2008.) *The Role of ICTs in Development – A Summary of the Evidence*. Gamos: Reading.
- Scoones, I. et al. (2007) *Dynamic Systems and the Challenge of Sustainability, STEPS Working Paper 1*. IDS: Brighton.
- Senge, P. (1990) *The Leader's New Work: Building Learning Organizations*. *Sloan Management Review*. 32(1):7–23.
- Slater, R. (2007) *Biofuels and poverty reduction: Is there a way through the maize? Events*. Accessed on May 15, 2008 at http://www.odi.org.uk/events/biofuels_07/index.html
- Srinivas, S. (2006) *Industrial Development and Innovation: Some Lessons from Vaccine Procurement*. *World Development*. 34(10):1742–1764.
- Stern, N. (2007) *Stern Review: The Economics of Climate Change. Part IV: Policy Responses for Mitigation*. Cambridge University Press: Cambridge.
- Sumner et al., (2008) *Access to Governance of the Rural Poor: Background Paper to the Rural Poverty Report 2009*. IFAD: Rome.
- Thapa, G. B. and Weber, K. E. (1995) *Status and Management of Watersheds in the Upper Pokhara Valley, Nepal*. *Environmental Management*. 19(4):497-513.
- Thompson, J. Millstone, E., Scoones, I., Ely, A., Marshall, F., Shah, E. and Stagl, S.I. (2007) *Agri-food System Dynamics: Pathways to Sustainability in an Era of Uncertainty, STEPS Working Paper 4*. IDS: Brighton, UK
- Tiffen, M., Mortimore, M. and Gichuki, F. (1994) *More People, Less Erosion: Environmental Recovery in Kenya*. John Wiley: Chichester.
- UNDESA (2006) Department of Economic and Social Affairs, Population Division (UN) accessed on 21/6/2008 at <http://www.un.org/esa/population/publications/wpp2006/English.pdf>
- UNESCO (2006) *Water a Shared Responsibility. The United Nations World Water Development Report 2*. UNESCO: Paris.

- UNFPA (2007) State of the world population: Unleashing the potential of urban growth. United Nations Population Fund: New York.
- UN-Habitat (2003) The Challenge of the Slums: Global Report on Human Settlements 2003. Earthscan Publications: London.
- United Nations Environment Programme (UNEP) (2007) Global Environment Outlook GEO4, United Nations Environment Programme: Nairobi.
- Wakeford, T., Pimbert, M. (2003) Power-reversals in Biotechnology: Experiments in Democratisation. Democratising Biotechnology: Genetically Modified Crops in Developing Countries Briefing Series. Briefing 13. IDS: Brighton. UK.
- Waldrop, M. (1994) Complexity: the Emerging Science at the Edge of Order and Chaos. Penguin Books: London
- Warner, M. (2001) Complex Problems ... Negotiated Solutions: The Practical Applications of Chaos and Complexity Theory to Community-based Natural Resource Management. ODI: London.
- Water Aid. (2007) The State of the World's Toilets 2007. WaterAid: London.
- Wattegama, C. (2007) ICT for Disaster Management. Asia Pacific Development Information Programme. United Nations Development Programme: Bangkok, Thailand.
- WDM (World Development Movement) States of Unrest (2006) accessed on 22/6/2008 at <http://www.wdm.org.uk/>
- Wiggins S. and Davis J. (2003) Rural non-farm economy. National Resource Institute, NRI Report No. 2754. NRI: London.
- World Bank. (2007) World Development Report: Agriculture for Development. World Bank: Washington DC, USA.
- Vermuelen, S., Dossou, K. Macqueen, D. Walubengo, D. and Nangoma, E. (2008) Springing Back: Climate Resilience at Africa's Grassroots. Sustainable Development Opinion. International Institute for Environment and Development: London,UK.
- United Nations Division for Sustainable Development. Case studies for sustainable development. Accessed on May 16, 2008 at <http://64.233.183.104/search?q=cache:uAYidFR2S24J:webapps01.un.org/dsd/caseStudy/public/Welcome.do+UN+sustainable+development+case+studies&hl=en&ct=clnk&cd=2>

ANNEX 1: EXAMPLES OF CROSS EPIC INTERACTIONS

Demography and employment

The past evolution of the population growth and the employment pattern have to be confronted to the factors that allowed such development, so as to identify what the binding constraints to any future development process are or could be. Table 6 below emphasizes the interdependences between demography to the others EPICS. While not trying to be exhaustive, the table emphasizes the interdependences between the different EPICS.

Table 6. Population growth and labour force interactions with emerging issues.

	Economics	Environment	Technology
Population growth	<ul style="list-style-type: none"> • Role of international and regional trade to meet food excess demand and supply • Balance between food demand and supply • Price level and access to food (and corresponding income level) • Employment challenge • Poverty and inequality reduction 	<ul style="list-style-type: none"> • Increasing pressure on natural resources • Biodiversity loss 	
Agriculture capacity to absorb labour supply	<ul style="list-style-type: none"> • Markets structures and development: vertical and horizontal integration => inclusion / exclusion of farmers? • Regional markets and non tradable food vs. global markets and tradable agricultural productions • Overcome market failures and develop new markets 	<ul style="list-style-type: none"> • Increasing pressure on land and water => reduction of the size of the farm + area available per agricultural worker • Loss of biodiversity, deforestation • Stringent issue in the context of climate change and desertification 	<ul style="list-style-type: none"> • Increase the productivity of land more rapidly than the productivity of labour • Expansion of technologies to enhance agricultural productivity
Alternative jobs to agriculture	<ul style="list-style-type: none"> • Mobility of labour: domestic and international migration • State of labour market (industry, 	<ul style="list-style-type: none"> • Pressure on the environment of other primary sectors 	<ul style="list-style-type: none"> • Competitiveness of industries and services

	services) • Formal / informal labour markets • Rural / urban non farm employment		
--	--	--	--

Technology and technological innovation

Governance linkages include: The (profitable) production of biofuels depends on governance policies and regulations. Subsidies for biofuel production could be regressive for the poor if not designed appropriately. Biofuel production may drive up food prices and potentially lower energy cost. This would prove harmful to the poor, since a majority of their expenditure is on food consumption. On the other hand subsidizing biofuels would give incentives to grow and process biofuels (as the environmental benefits are externalities). The growing complexities between biofuels and food security would suggest the need for rural social protection policies for the food insecure. ICTs and e-governance have the potential to increase transparency, inclusiveness and knowledge sharing. A study in five states of India showed that ‘the cost of accessing service has been reduced of the three projects where significant corruption was reported in the manual system, one project was able to eliminate corruption. In the other two projects the impact was marginal’ (Bhatnagar 2007).

Market linkages include: There is no doubt that biotechnology is a profitable business for global life science companies such as Syngenta and Monsanto. The TRIPS agreement and other IPR laws have provided security against information externalities (where enforced). One of the most pertinent debates in biotechnology is its cost effectiveness for poor small farmers under all natural and physical conditions.

Biofuels trade which faces trade barriers via the WTO. Unless changed, these barriers will retard development of the bioenergy sector in countries with a comparative advantage (often developing countries with tropical climates) and encourage the development of protected and more costly bioenergy production in many rich countries.

ICTs have a role in economic growth and market efficiency, but there is little conclusive evidence (McNarama, 2007: 3). Economic growth is severely constrained in environments where markets and institutions perform poorly because of weak information, communication and knowledge flows. ICTs can boost the productivity of individuals and firms, both by permitting greater outputs for a given input of scarce resources and by making available new information and knowledge about processes, products, techniques and markets.

Demography linkages include: Biofuel production will impact land and labour markets in rural areas. There will be increased pressure on both these factors of production. This pressure may adversely affect food crop agriculture. However, but it may also create new jobs and incomes.

ICTs have the potential to interact with migration trends in two ways via information flows both ways on employment and remittances.

Environment linkages include: One of the most common debates in biotechnology and transgenic techniques such as GMOs is its impact on the environment. There remains a certain amount of uncertainty surrounding the issue because the long term assessments on environment cannot keep pace with the fast moving research and innovation in the field.

Biofuels technologies have the potential to reduce greenhouse gases. However, the GHGs produced in the process of manufacturing biofuels may greatly undermine this reduction. Second generation biofuel technology may have be cleaner. The production of biofuels depends on the natural resource base of a region. One could adapt to unfavourable land through the second generation technologies. Biofuels technologies can also lead to conversion of shrubs, grass and other non-food plants into biofuel. These could very well grow on marginal land (this is so-called 2nd generation). The really big danger of high GHG from biofuels is in land use change, both

direct and indirect (displacement). For example, if growing maize for ethanol results in soy being displaced, and to compensate land in the Cerrado is converted to soy fields, then say goodbye to any savings of GHG.

ICTs can interact with the environment in three dimensions. First, environmental risks and changes: This dimension is more apparent against the threat of climate change. As mentioned above, periodic information systems like the radio, internet, even relatively traditional ones like loud speakers can efficiently act as warning mechanisms and as weather forecasts. Second, stable environmental characteristics: These characteristics along with the former affect livelihood strategies and opportunities. For instance, the geothermal snapshots of regions can reveal a lot about potential natural resources and dangers which could impact livelihoods. This information can be disseminated to large audiences through another set of ICTs such as projection screens, internet etc. Third, although this is not often discussed the hardware of ICTs may create toxic waste if not disposed safely.

Market Linkages Include: Changes in the systems of governance of the IMF through an expansion of the quota system may lead to more influence of developing countries over economic policy. The increased presence of China in Africa may lead to an increase in trade and improved access to Chinese markets for the rural poor through better investment in infrastructure. Moreover, increasing regional cooperation carries the potential for high economic cooperation between member states, better bargaining power for producers within regional entities and expansion of markets. The globalisation of markets is leading to increased trade in natural resources which in turn is leading certain nations to ignore rights based governance and also become less responsive to the demands of its citizens. The strengthening of RPOs is intended to allow rural producers to engage with globally integrated markets better and increase their bargaining power in free market systems. The link of New Public Management and Public Private Partnerships with markets is that they are founded on the principle of market-based competition in provision of public services.

Demographics and Social Characteristics Linkages Include: The dramatic rise in funding from new philanthropic foundations to the health sector may lead to a decreased disease burden. Emerging modalities of governing international supply chains may lead to improved working conditions and greater regional integration may lead to greater mobility of labour and possibly more job opportunities. Along with these potentially positive changes, the increased dependence of certain countries on aid and natural resources for revenue will lead to decreased quality of governance in rural areas which may impact of rural livelihoods and migration strategies.

Environment Linkages Include: The emergence of China as a donor has potentially negative impacts on the environment as Chinese aid is outside the OECD guidelines. Expansion of decentralization might lead to populations having a greater say over their environment which in turn might lead to better environmental management.

Technology Linkages Include: The emergence of new philanthropic foundations will lead to an increase in funding for innovation in health and agriculture technology. The links of emerging trends in governance with technology are also evident as the globalisation of social movements is being facilitated by the use of sophisticated information technology.

ANNEX 2: EXAMPLES OF RURAL POOR RESPONSES

Technology and technological innovation

Existing technologies

- Democratising Biotechnology in India

A citizens jury held in Andhra Pradesh was an example of an exercise in deliberative democracy. It was devised as a means of those affected by the government's Vision 2020 for food and farming in Andhra Pradesh to shape a vision of their own. DFID with other partners initiated a citizens' jury of small and marginal farmers as jurors to comprehensively assess GM crops. After listening to various stakeholders, the jurors sought to build their own sustainable agriculture scenario (see background paper to chapter 6, template 11).

- Water management technology in Peru

Farmers in Peru suffer from a deterioration of natural resources and to curb this, the national government designed a national strategy. IFAD is helping implement a part of this strategy in the certain high Andean communities. This project had three core features, a) Management of productive natural resources through a clear framework for the transfer of funds to communities. b) Development of private technical assistance and training services, which corresponded to increase supply by a cascade training of local professionals. c) A community level competition-based selection of an innovative irrigation technique that increased irrigation efficiency by 30% (see background paper to chapter 6, template 46).

- Community Led Total Sanitation (CLTS) in Bangladesh

CLTS does not prescribe any technological models and encourages the communities to develop and innovate models that are most convenient to them. The Community Led Total Sanitation Approach was initiated by WaterAid in the rural parts of Bangladesh. The aim was to achieve 100% open Defecation Free status in the targeted villages without any external subsidies and participatory technological processes. Communities evolved more than 300 innovations to build latrines and toilets. Communities made these toilets more technologically sophisticated as time passed. The programme acted as an entry point for other locally empowered initiatives. The programme brought about sustainable change in hygiene behaviour. The technological innovations were very context specific would have to undergo some change to be adopted elsewhere (especially in heavy rain prone areas).

Source: http://www.livelihoods.org/hot_topics/docs/CLTS

- Childhood vaccination in the Gambia, the Republic of Guinea, Nigeria and Sierra Leone

IDS and other co-researchers, collaborating partners took a distinctive anthropological approach to explore how parents' own perspectives and experiences, embedded in broader cultural and political processes, shape immunisation demand, supply and interfaces with providers in. Research findings included most mothers have culturally-grounded demand for vaccination. Vaccination default or lateness reflects haphazard problems (e.g. family events, illness, travel) and intra-household relations. Rumours that vaccines cause sterility, violence and paralysis circulate, but have led to mass refusal only when top-

down campaigns are privileged; technological practices intersect with cultural conceptions; providers' motivations are interpreted within political tensions, and influential individuals and media networks operate.

Source: <http://www.ids.ac.uk/index.cfm?objectId=9344AE87-A02E-10F4-CA97611188ACF9FE>

- The WHO AFRO Pediatric Bacterial Meningitis (PBM) surveillance network

The WHO AFRO Pediatric Bacterial Meningitis (PBM) surveillance network was launched in 2001 and focuses on laboratory confirmed meningitis in children younger than 5 years. The project included 26 countries. The primary goals of PBM are to provide a framework for providing advocacy for new vaccine introduction, demonstrating the burden of disease and contributing to the generation of information that is critical for the design and selection of new conjugate vaccines appropriate for African countries. The number of Hib cases began to decline after a lead period of 6 months following the introduction of the vaccine. Good surveillance data, cost-benefit and cost effectiveness analyses and strong advocacy are central to the continued efforts to control and significantly reduce the mortality and morbidity caused by diseases.

Source: Communicable Diseases Epidemiological Report. 2003. CDER WHO. Africa Regional Office.

New(er) technologies

- Pro-Poor Biofuels and the Participatory Tribal Development in India

Powerguda in Adilabad district of Andhra Pradesh State, India is inhabited by poor tribal people. The Integrated Tribal Development Agency (ITDA), Adilabad District asked ICRISAT to assist by providing its integrated watershed management expertise. ITDA donated an oil extracting machine to the village. Seeds of Pongamia, Neem etc. can be crushed in this machine to extract biodiesel oil that is used locally or sold on the market. This oil mill has become an important source of income for the village. A parallel interesting benefit of planting Pongamia is that because this energy source is renewable, it qualifies to earn carbon credits to offset global warming. Also, the planting of Pongamia trees on wastelands helps to sequester atmospheric carbon into tree biomass. The World Bank recently bought carbon credits from the village and the villagers reinvested this on a nursery and sell Pongamia and other biofuel compatible seeds to the Forest Department.

Source: Pro Poor Biofuels for Asia and Africa: ICRISAT's Perspective. Working Paper 2007. <http://www.icrisat.org/Investors/Biofuel.pdf>

- IFAD Information and Communication Centres in Senegal

Information and communication centres aim to bridge the information gap and set up a platform for the exchange and sharing of knowledge and experience among the various actors involved in the local development process. The initiative has the overall aim of helping to improve rural inhabitants' living conditions through development of local information and knowledge management capacities (generation, access, use), promotion and strengthening of local information systems, allowing information and knowledge to be shared within grass-roots communities and organizations and strengthening of the

implementation framework and conditions for local development processes (see background paper to chapter 6, template 79)

- Rural Information Helpline, Bangladesh.

In 2004, the Development Research Network (D.Net) in Bangladesh set up the Rural Information Helpline. Specialist helpdesk operators in the capital Dhaka have Internet access and a database of responses to common livelihoods-related queries. However many villagers were disconnected from the Helpline so the 'Mobile Ladies' initiative was introduced. For many, a mobile phone call is made directly to the Helpline with quick answers. A 'no exclusion' policy has helped create confidence among the villagers. The Helpline was accessed by more than 4,000 users over a 15 month period. Challenges of cost, sustainability, turning information into action, assisting the poorest people remain.

Source: Miller D. Mobile Phones and Development. Id21 insights no. 69.

- 'Sousveillance' in Elections, Cambodia, Ghana

In 2007, 500 NGO election monitors were sent out with mobile phones to polling stations in Sierra Leone. Their job was to send reports via SMS/text messages. Benefits included rapid awareness of irregularities and unofficial voting tallies that could be compared with official results. In the 2004 Ghanaian presidential elections, individual voters called radio phone-in shows by mobile to report intimidation or obstruction. This prompted a police response in a way that a direct call to the police might not have. This proves a reminder of the power of combining mobiles with other information and communication technologies. Similarly, combining mobile phone cameras with websites has proven effective in reporting electoral misdeeds in a number of countries.'

Source: Miller D. Mobile Phones and Development. Id21 insights no. 69.

- Vulnerability Assessment and Enhancing Adaptive Capacity to Climate Change in Semi-arid Areas in India.

The Swiss Agency for Development and Cooperation along with established organisations in India started the programme. The overall goal of the Program is to secure the livelihoods of rural poor and vulnerable communities by promoting adaption measures. The coping capacity of rural communities in semi-arid areas shall be enhanced by awareness creation on climate change at village and district level, dissemination of best practices and participatory technology.

Source: [http:](http://webapps01.un.org/dsd/caseStudy/public/displayDetailsAction.do?code=411)

[//webapps01.un.org/dsd/caseStudy/public/displayDetailsAction.do?code=411](http://webapps01.un.org/dsd/caseStudy/public/displayDetailsAction.do?code=411)

Technological Innovation

- Nerica

Keeping birds away is vital for rice farmers, as attacks or damage caused by birds to crops can cause them to lose their entire investment. However, this can take a large proportion of time and prevent farmers from doing other things, a situation that can lead to food insecurity in a highly agriculture-dependent household. Household heads often ask their wives and children to take over the task of scaring away birds while they

undertake other activities such as hunting, fishing etc. However, children's involvement in bird-scaring can mean they miss schooling and women lose time from other important farming. In 2006, it was noted that the NERICA 4 variety sown alongside other varieties of rice was attacked less by birds. The study of the migratory patterns of birds improves the impacts of this innovation. In the Bumba zone of the Democratic Republic of the Congo, for example, March-sown rice coincides with the arrival of flocks of birds. On the other hand, May-sown rice suffers very little from attacks by birds. Parallel with this innovation, during the growing phase, during testing, leaf and twig miner caterpillars were observed to be resistant to chemical treatment, since they are so well wrapped in the leaf that it prevents contact with the chemical product. The use of broken palm nut spread over the field as bait attracted sufficient numbers of ants, which attacked the caterpillars, even in their hiding places. With this trial, good results were obtained: the high cost of treatment was eliminated, and risks of human poisoning and environmental pollution avoided.

- Soil and water conservation in Niger

In the Tohoua region of Niger, regular floods used to bring fertile sediment to the valley floor but a succession of droughts led to loss of vegetation on the valley slopes. As a result, water runs off rapidly, causing gully erosion on the slopes and damage to fields downstream. In 1988, a ten-year programme of soil and water conservation was launched in Tahoua, Niger to reintroduce simple, replicable conservation practices. Thirteen local farmers made a study visit to Yatenga, in Burkina Faso, where they discovered the successful use of a land rehabilitation technique known in Yatenga as *zai*, that resembled their own traditional planting pits. The improvements consisted of increasing their dimensions from a diameter of 10 cm to 20-30 cm, from a depth of 5 cm to a depth of 10-25 cm, to collect and store more rainfall and runoff, and putting organic matter in the pits to improve soil fertility. This organic matter attracts termites, which digest it and make the nutrients more easily available to the plant roots. They also dig channels and by doing so increase the water holding capacity of the soil. When farmers dig the pits, they remove the soil and bank it on the downstream side. This forms a small ridge which helps retain more water. When it rains, the holes fill with water and farmers plant millet or sorghum in them. When the Nigerian farmers returned home, some decided to revive the traditional hand-dug planting pit technique, known locally as *tassa*. They started with 4 ha of land on which the technique was applied, including one field next to a main road so people passing by could see the impact. The results were so impressive that the following year *tassa* use increased to 70 ha. This was a drought year; only those farmers using *tassa* had a reasonable harvest. Over the next few years, *tassa* was instrumental in bringing 4,000 ha back into production. In 2007-8, *tassa* has become an integral part of the local farming scene and is still spreading at a rate of about 2 to 3 ha per year. It has improved household food security and mitigated agricultural risk for many impoverished families in Niger. The technique is now being disseminated and taken up in Yatenga in Burkina Faso, and is being introduced in Cape Verde.

- Micro-irrigation in Senegal

With the aim of effectively reducing poverty in a structurally defective agricultural production zone, the PRODAM project financed by IFAD, working closely with local people, launched an intensive production system based on the use of micro-irrigation. Initiatives have focused on: (i) The installation of a drip-irrigation system to rationalize water use while improving productivity (increased yields, reduced plant health risks); (ii) Connecting market gardens (3 to 5 ha) to the boreholes of beneficiary villages in order to

reduce investment costs; (iii) Social and financial mobilization of emigrants and the rural community in support of the beneficiaries in financing part of the investment for the market gardens (about 25%); and (iv) Establishment of a technical and organizational support mechanism for farmers composed of the PRODAM and permanent technical services (water, agriculture etc.) in preparation for sustainability after the close of the programme.

- Unfermented cassava (*Manihot Esculenta Crantz*) flour

Cassava is a tropical species native to the Americas and it is grown in tropical zones with one or two rainy seasons with annual rainfall of 600 mm to more than 4,000 mm. The future of this crop in developing countries in general, Africa in particular, is based largely on a variety of products related to cassava, which include starch, miondo, tapioca and cassava flour. However, all these products are faced to varying degrees with the problem of conservation. This situation led us to take a closer look at such the demand and potential for marketing products such as unfermented cassava flour. In the medium and long term, cassava flour can provide additional income for rural people and thus help reduce poverty. The potential of unfermented cassava flour has not yet been fully tapped, however. Its strong points are good quality, odourless, pure white colour, a granularity similar to that of wheat, perfect uniformity, good moisture content, capacity to replace wheat flour in about 90 % of its uses, particularly in breads, cakes and pastries, and good conservation for about six months in the right conditions. However, production of this flour suffers from a number of constraints, including those linked to its cutting up, drying, grinding and conservation. These constraints have now been addressed through the development and dissemination of appropriate farming and processing that can be used in both urban and rural contexts. With the support of appropriate policy frameworks, small-scale farmers that grow cassava roots should be able to obtain higher incomes and improved livelihoods through the processing and more secure markets for cassava flour, thus enabling them to improve their living conditions.

Further information on all above mentioned case studies are available on FIDAFrique website at www.fidafrique.net/article1619.html

Governance

Aid

- The IFAD support program to the PRSP process in West and Central Africa

This IFAD project aims to assist in evaluating ‘the effectiveness of different institutional arrangements and mechanisms for successfully involving the rural poor in the design, implementation, and monitoring of the Poverty Reduction Strategy (PRS) process. This is done through the development of low costs instruments, tools and guidelines for monitoring and evaluating PRS processes, outcomes and impacts of proposed PRS options on rural poverty to make PRS a viable framework for poverty reduction (see background paper to chapter 6, template 36).

- The Government of Cameroon’s participatory approach to PRS

The government of Cameroon adopted a participatory approach to poverty reduction under the HIPC (heavily indebted poor countries) initiative. Public consultations on poverty reduction were initiated with a province-based programme in 2000, and in 2002, each of which were followed by a national seminar to discuss the findings of the public consultations. ‘At one level, public involvement has been quite broad. Important sectoral linkages have been made, interesting initiatives funded. However, these owe much more to donor influence of an essentially conditional nature than to national participation.’ (see background paper to chapter 6, template 76).

- IFAD support to the NEPAD Agriculture Programme: Africans Speak Out

NEPAD’s agriculture programme is an expression of the will of African heads of State to lay the groundwork for African development geared towards making the best possible use of the continent’s own resources and skills. One of the main failings of NEPAD and state policies is the lack of broad based participation and this project, supported by IFAD, helped incorporate the voice of the rural poor in policy processes. There were various findings from this project one was that ‘...priorities among the policy and strategy objectives pursued by the farmers’ and producers’ organizations for agricultural and rural development relate to promoting family farming through rural and economic development policy, seeking food sovereignty, preserving the farming identity, and defending the agricultural profession against the threat of globalization (see background paper to chapter 6, template 33).

- Aid and Accountability in Honduras and Mozambique

UNDP has set up ‘poverty observatories’ in different districts of Honduras to consult with the population about what they think have been the results of donors projects in their area. UNDP also supported a poverty observatory that the Government of Mozambique set up in 2003 to monitor and evaluate the implementation of the PRSP. It brings together the government, donors and CSOs. The twenty CSOs involved from the outset grouped themselves in a network called the G20; this group has subsequently grown substantially. Through this observatory, the G20 has been involved in government working groups, in donor mid-year and joint reviews and carried out an independent evaluation of poverty reduction policies.’

Source: EURODAD (2008).

- IFAD and governance of water bodies in Bangladesh

An IFAD funded project aimed at improving the governance of inland water bodies in Bangladesh has benefited landless fishers. Contesting the dominance of the wealthy on annual leasing arrangement of lakes and shores, ‘...long-term lease arrangements for public lakes and shores have been introduced and fisher groups now have a more active role in resource management.’ This demonstrates how ‘reforms in leasing practices, combined with the legal establishment of fisher organizations and the empowerment of these groups to sustainably manage their resources, can lead to broad benefits for both poor communities and the government.’ (see background paper to chapter 6, template 23)

- IFAD’s Farmer Forum

‘There are promising cases where the organisations of poor rural women and men are becoming stakeholders exerting influence on policy processes. At the national level, for example, the formulation of National Agriculture Laws (Loi d’Orientation Agricole) in Senegal and Mali was deeply influenced by consultations with, and inputs from, national FO apex organisations. At regional level, processes of dialogue on family agriculture between governments and organisations of poor rural people are occurring. This is, for example, the case of the REAF process (Specialized Meeting on Family Agricultura - Reunión Especializada sobre la Agricultura Familiar) in Latin America Southern Cone Common Market (MERCOSUR).’

IFAD Farmer’s Forum at- <http://www.ifad.org/farmer/2008/roundtable/e/policy.htm>

Governance: Value-chains and the private sector

- Coordination Framework for Rural Producer Organisations

A Coordination Framework for Rural Producer Organisations (CCOF) (consisting of 3 million male and female farmers of all status) was asked by the Government of Burkina Faso to study the Agrarian Land Reform Act and make recommendation for its improvement. Some of these recommendations included suggestions such as small and large producers should both have equal access to land and investment facilities, paper work for legalising land ownership needs to be simplified and certain securities against eviction should be provided (see background paper for chapter 6, template 65).

- CAADP

CAADP is concerned with improving trade capacity and market access. Examples of activities under this include the funding of regional trade facilitation programs in the COMESA and ECOWAS regions to promote the integration of regional markets and raise the competitiveness of local products in these markets.

- EPAs and the Network of Peasant Organisations of Agricultural producers in West Africa (ROPPA)

This IFAD grant given to the West African Network of Farmers’ Organizations and Agricultural Producers aims ‘to promote the participation and effective contribution of Africa’s farmer organisations in the process of negotiating trade and Economic Partnership Agreements (EPAs) between EU and ACP countries. The overall objective is to enable farmers in ACP countries to share their views and perceptions on EPAs with negotiators from ACP countries and other civil society stakeholders (see background

paper to chapter 6, template 40).

- Labour standards in South Africa and Costa Rica

In South Africa since 1994 employment legislation has mandated unemployment insurance, conditions, labour relations and the right to combine, security of tenure and employment equity. The problem is achieving those standards in rural areas. Even in South Africa, amongst internationally competitive apple farms in the Cape, the introduction of standards since 1994 has been of ever less benefit to the work force since there has been a steady process of casualisation of labour. The permanent work force has shrunk, and contracting in gangs for specific tasks has increased. Contract labour is apparently not covered by the legislation and such workers do not enjoy unemployment, security or other benefits. This development apparently also applies to the private standards that concern some buyers in global chains, such as the Ethical Trading Initiative Baseline Code. Once the staff are contracted in, as opposed to being formally employed, the standards apparently no longer apply. In contrast, there have been more positive experiences with a large multinational banana company that operated farms in Costa Rica (Smith 2006). The Ethical Trading Initiative Code had been introduced in the context of poor labour relations historically, although it was one of several overlapping initiatives that affected the company²² — including a 2001 signing of an International Framework Agreement (IFA) with the International Union of Foodworkers (IUF) and COLSIBA (Latin American Coordination of Banana Workers Unions).²³ Some good had come from this, especially in health and safety — more use of protective equipment, adherence to norms, and reported less sickness; and in fewer cases of harsh treatment of workers by supervisors. Women workers felt less likely to be harassed, but although open discrimination was absent, female workers tended to be confined to particular jobs. Hours

²² ‘The Company was working with a number of voluntary code initiatives to manage and monitor its social (and environmental) performance.

- Since 1992 with Rainforest Alliance’s Better Banana Project (BBP). This largely focuses on the environmental impacts of banana production but includes some assessment of working conditions and community relations. All of the Company’s owned farms were certified BBP. 79% of their Costa Rican suppliers were also certified BPP.
- Since 2000 with Social Accountability International’s SA8000 standard, which is almost identical to the ETI Base Code. All owned farms in Costa Rica were certified. The largest supplier and a couple of others were working towards certification.
- Since 2003 with Eurepgap, which includes a section on worker health and safety. All owned farms in Costa Rica were certified.
- Since 1996 with ISO14001, but only in Costa Rica.

‘In 2000 the company consolidated its policies into a Code of Conduct based on core values of integrity, respect, opportunity and responsibility. It embarked on a programme of internal and external monitoring and public reporting, as well as communication and capacity building throughout the company and its value chains. A governance structure was created headed by the Corporate Responsibility Office who reports to an Audit Committee comprised of Board members. Responsibility for implementation lay with the Senior Management Team supported by a Corporate Responsibility Steering Committee, with further delegation of responsibility to officers in each division. The Code was the foundation of the company’s management approach and implementation of the ETI Base Code could not be distinguished from it. Furthermore BBP, which pre-dates the Code, includes elements of the ETI Base Code.’ (Smith 2006)

²³ The same agreement is reported in ILO 2003 and Hurst et al. 2005.

had been reduced, but 60 hour weeks were common — in part encouraged by low pay. Less progress had been made on allowing association, since while workers reported that they could join a union, some feared the consequences — apparently a fear transmitted by supervisors. Following the Code, the company had ceased to hire 16 and 17 year olds. But this was seen by workers and management as negative since adolescents no longer at school have nothing to do. There are some high profile cases where multinationals employ local staff on plantations and estates where campaigns have been mounted to shame the company into improving labour conditions. In these cases the campaigns have been led by international NGOs based in the North where the company has a high public profile. Examples include the Firestone rubber plantations in Liberia and tea estates in Sri Lanka owned by Lipton and Brooke Bond. More generic campaigns, since they target a set of employers rather than a single large company, have been launched on the use of pesticides on export flowers. In addition there are the struggles mounted by unions, such as those affiliated to the International Union of Food Workers, for better wages, conditions and decent treatment of workers.

- RPOs in West Africa

The Sahel and West Africa Club Secretariat (SWAC) of the OECD supports efforts of the Network of Peasant Organisations of Agricultural producers in West Africa (ROPPA) to strengthen its capacities for analysing and developing farm policies in West Africa. The SWAC secretariat commissioned an agricultural economist specialised in agricultural policy analysis to complement the independent deliberations of ROPPA members on this issue (see background to chapter 6 paper, template 63)

- Value Chains Governance in Nicaragua

The Government of Nicaragua was left with little effective control over the condition of workers in garment factories as they were a part of globally integrated supply chains. Three emergent forms of global governance were seen to affect change in this case. The first were transnational networks of labour campaigners, the second was a factory based international solidarity campaign and the third was the emergence of ‘supply-chain codes of conduct. There is a multiplicity of such codes and including, corporate codes, industry association codes, multi-stakeholder codes and NGO-driven codes.

Source: Macdonald (2004).

- RPOs in Viet Nam

‘Since 2003, three Clam Clubs have been established in the coastal district of Tra Vinh province in southern Viet Nam.’ These were set up with the help of Oxfam collaborating with the local authorities, using monetary contributions by community members to purchase baby clams. ‘There is strong demand for the clams and a lot of competition between the buyers, so the clubs are able to negotiate a good price. For this reason, the clubs do not make any agreements with the buyers before the harvest. The first harvest of clams in 2005 was a success and the clubs were able to sell the clams at a considerable profit. The profits were distributed to each member according to how much money they had invested at the start.’

Source: Buckley (2007)

- RPOs in El Salvador

‘Agrolempa was established in San Vicente in El Salvador in 2001, as a rural association with a commercial trading company that is 100 per cent owned by the association’ The start up capital for this company was provided by a local NGO and an Oxfam project, funded by the European Union. ‘The aim of the association is to improve the livelihoods of small-scale producers by helping them to obtain better prices for their agricultural produce. It tries to achieve this by helping its members to improve the quality of their fruit and vegetables and by buying their produce and selling it directly to the hospital industry, supermarkets, caterers, processors, and wholesale markets. In this way it cuts out the traders who pay low prices to the producers... Agrolempa has become one of only three agricultural trading companies supplying the major institutional markets and the retail and catering trade in El Salvador. It has achieved this by focusing heavily on improving the quality of its members’ fruit and vegetable production and by developing a quality management system.’

Source: Buckley (2007).

Governance: Public service delivery

- Health and Education Councils in AP, India

Village Education Committees (ECs) and Mothers' Committees (MCs) (‘user committees’) which promoted parents' participation in the management and monitoring of local schools and maternal/child health services were established (see background paper to chapter 6 template 15).

- Health Councils in Brazil

The setting up of the Local Health councils, over two years, involved the mobilisation of over 2500 people to participate in at least one monthly meeting. The councils consist of 24 effective and 24 substitute councillors, half of whom represent civil society, and the other half the govt, service providers, and health workers (see background paper to chapter 6 template 21).

- Water Privatisation in Bolivia

Protests broke out soon after the water supplies to Cochabamba and La Paz were privatised. Popular protest has led to both contracts being rescinded (see for further details on water protests WDM, 2006).

- Vigilance Committees-Bolivia

‘Vigilance committees are set up parallel to local elected bodies in Bolivia with a mandate to monitor these bodies. They are composed of six elected leaders of traditional local governance systems, such as peasant syndicates and neighbourhood councils. The VC’s main responsibility is to ensure that community priorities are reflected in municipal investment decisions. But it is also empowered to wield a legal instrument called a *denuncia* against local councils. The VC can call for regular audits of local government, and if it detects corruption, it can lodge a complaint with the national executive branch, which passes it on to a special committee of the senate, which can in turn suspend central funds to the erring council until the case is resolved.’

Source: Goetz and Gaventa (2001).

- Participatory Local Governance in the Philippines

‘The local Government Code of 1991 establishes a Local Development Council (LDC), for every province, city, municipality, and *barangay*. The primary responsibility of the LDC is to draft comprehensive multi-sector development plans, including a comprehensive land-use plan for each local government unit concerned. At least one-fourth of the total membership of the LDCs should come from the NGO –Pos (people’s organisation) and private sectors. LDCs have become vehicles for these civil society organisations to mobilise people in the *barangay* to claim from the government minimum services and to prioritise projects to be supported from local projects.’

Source: Goetz and Gaventa (2001).