# TABLE OF CONTENTS

## CHAPTER 1: INTRODUCTION AND OVERVIEW

- Poverty and its rural dimension .................................................. 2
- Rural poverty reduction: the conceptual framework ...................... 3
- Assets and rural poverty reduction .............................................. 4
- Technology, natural resources and rural poverty reduction .......... 6
- Markets for the rural poor: exposure to the windows of opportunity .. 8
- Institutions and the rural poor .................................................. 11

**List of boxes**
- Box 1.1: Why focus on rural poverty? ........................................ 2

## CHAPTER 2: THE RURAL POOR

- Getting the priorities right ...................................................... 15
- Rural poverty? ......................................................................... 15
- Definitions of ‘rural’ ............................................................... 17
- What is poverty? ....................................................................... 18
- Who are the poor? ..................................................................... 20
- Vulnerability ............................................................................. 30
- Recent history of rural poverty and donor response .................. 35

**List of charts**
- Chart 2.1: Global distribution of rural poverty .......................... 16

**List of boxes**
- Box 2.1: Why does it matter how different countries define ‘rural’? 17
- Box 2.2: Can we have a common definition of ‘rural’? ............... 18
- Box 2.3: What does poverty mean? ........................................... 19
- Box 2.4: Measuring consumption poverty: identification and aggregation ........................................... 20
- Box 2.5: The human development and human poverty indexes .......... 21
- Box 2.6: Interlocking log-jams and lagging groups in Nepal ........ 24
List of tables
Table 2.1: Who are the poor? by region ........................................... 22
Table 2.2: Poor/non-poor mortality ratios ...................................... 25
Table 2.3: Trends in prime-age dependency ratios, rural and urban .... 32
Table 2.4: Extent of transient and chronic poverty ......................... 34
Table 2.5: Access to health and sanitation ..................................... 36
Table 2.6: Illiteracy rates ......................................................... 37
Table 2.7: Country classification of rural poverty trends .................. 39
Table 2.8: Aid and extreme consumption poverty by main regions, 1998 . 40

Annex
Table 2.1: Rural–urban differences in poverty (country-specific poverty lines) ........................................... 42
Table 2.2: Poverty trends and profiles, with growth and redistribution ..................................................... 46
Table 2.3: Age-structure and ratio of persons aged 15-59 to others, 1959-2030 ................................................. 60
Table 2.4: Summary of research on poverty dynamics and main findings ...................................................... 62
Table 2.5: Aid to agriculture, forestry, fisheries (percentage of sectorally allocable aid) ................................. 66
Table 2.6: Agriculture/forestry/fisheries: percentage of total technical cooperation ........................................ 66

CHAPTER 3: ASSETS AND THE RURAL POOR ........................................... 71
Asset poverty: scope for rural poverty reduction through policy changes .................................................. 71
Farmland assets and the rural poor .............................................. 74
Water-yielding assets and policies against rural poverty ................................................................. 90
Livestock assets and the rural poor .............................................. 99
Other physical assets and rural poverty reduction ................................................................. 101
Human assets .............................................................................. 105
Conclusions and policy implications ................................................ 112
Other assets .............................................................................. 114

List of boxes
Box 3.1: Assets: definition; ownership, control and benefit; gain and loss; and outcomes for the rural and the poor ........................................................................................................... 72
Box 3.2: Inequality of land distribution in selected countries ......................... 77
Box 3.3: Experience of land reform in Latin America ............................. 78
Box 3.4: The efficiency of small farms: some evidence ........................ 79
Box 3.5: Land reform in Southern and Eastern Africa: three situations ................................. 80
Box 3.6: Land reform in ex-Communist countries ................................. 81
Box 3.7: Four land reforms: high expectations, deep disappointment, medium achievement ................................. 82
Box 3.8: Obstacles to the purchase of land by women .............................. 86
Box 3.9: Partnerships and actions that contribute to successful agrarian reform ................................. 88
Box 3.10: Farmer-run dambos in Zimbabwe ........................................ 95
Box 3.11: Regenerated Freirean Literacy through Empowering Community Techniques (REFLECT) .......... 109
List of tables
Table 3.1: Poverty profile by landholding class, rural Bangladesh, 1988-89 ................................................. 76

Annex
Non-distributive land options: collective, state and cooperative farms,
titling communal land, tenancy restrictions .............................................. 115
Table 3.1: Gini Land Concentration Index ............................................. 117

CHAPTER 4: TECHNOLOGY, NATURAL RESOURCES AND RURAL POVERTY REDUCTION .......... 127
Technological choices and options .......................................................... 127
Technical change to benefit the poor: lessons from history ......................... 130
Bio-agricultural research .................................................................. 132
Improved land management technology (ILMT): land as a natural resource .......... 141
Water technology and the poor .............................................................. 147
Pro-poor techniques in other rural activities ........................................... 152
Technology, the second industrial revolution and the rural poor:
conclusions and implications for research organization .......................... 153

List of boxes
Box 4.1: The global sequence of agrotechnical progress ............................... 131
Box 4.2: Crop and animal improvement versus biodiversity .......................... 133
Box 4.3: IFAD-supported work in the CGIAR: focusing on poorer areas can succeed ........ 134
Box 4.4: Integrated pest management in Indonesia ..................................... 139
Box 4.5: Collaboration between farmers and researchers ............................. 140
Box 4.6: Labour availability and new technology in land management/conservation .......... 142
Box 4.7: Conservation tillage in Chiapas, Mexico and Ghana ......................... 144
Box 4.8: Community-led land reclamation efforts in China ........................... 146
Box 4.9: Land reclamation through soil and water conservation, Burkina Faso and Niger ......................... 147
Box 4.10: Water efficiency: conveyance, field, use; economic and social .............. 148

List of tables
Table 4.1: Rate of yield growth (percentage): cereals, roots and tubers, 1961-98 ................. 129

CHAPTER 5: MARKETS FOR THE RURAL POOR ............................................. 161
Market access: constraints and opportunities ........................................... 161
Problems of market access .................................................................. 163
Market access and commercialization ...................................................... 173
Liberalization, market access and rural poverty ...................................... 180
Market access and globalization ............................................................ 183
Conclusions ................................................................................. 185
### List of boxes

- Box 5.1: Market access constraints: physical, structural, information and organization .................................. 163
- Box 5.2: Rates of return to road building ................................................................. 166
- Box 5.3: Private traders in Zambia ................................................................. 169
- Box 5.4: Rural group enterprise development in Mozambique .................................................. 171
- Box 5.5: Grameen Bank village pay phones .................................................. 172
- Box 5.6: Commercialization and the rural poor .................................................. 173
- Box 5.7: Water sellers in Bangladesh .................................................. 176
- Box 5.8: Wage labour and the rural poor .................................................. 178
- Box 5.9: Changing market access after trade liberalization .................................................. 181
- Box 5.10: International supermarkets and local growers .................................................. 184
- Box 5.11: Two African exporters .................................................. 185
- Box 5.12: Fair trade .................................................. 186

### List of tables

- Table 5.1: The impact of reforms on agricultural prices, output and productivity .................. 182

### CHAPTER 6: INSTITUTIONS AND THE RURAL POOR: BUILDING COALITIONS FOR RURAL POVERTY REDUCTION .................................................. 191

- Institutions and empowerment .................................................. 191
- Decentralization .................................................. 192
- Delivery of financial services for rural poverty reduction .................................................. 206
- Partnerships for ending poverty .................................................. 214
- Capture or coalitions? .................................................. 218
- Conclusion .................................................. 223

### List of boxes

- Box 6.1: Increased accountability and performance through decentralization: does nature of polity matter? .................................................. 193
- Box 6.2: Decentralization with control: Bangladesh's Food-for-Education Programme .................................................. 194
- Box 6.3: Devolution: what's in a name? .................................................. 195
- Box 6.4: Key factors that facilitate collective action .................................................. 197
- Box 6.5: CAMPFIRE, Zimbabwe .................................................. 203
- Box 6.6: Joint forest management in Madhya Pradesh: transformation of a village society .................................................. 204
- Box 6.7: An approach to promoting MFIs for rural poverty reduction .................................................. 213
- Box 6.8: Community participation in health delivery for the poor .................................................. 217
- Box 6.9: Women's empowerment through income gains .................................................. 219
List of tables
Table 6.1: Successful local CPR management ................................................................. 199
Table 6.2: Recent developments and shortcomings hampering outreach and sustainability of MFIs ..... 208
Table 6.3: Financial products for the poor and possible innovations .................................. 210
Table 6.4: A typology of partnerships ............................................................................. 215

CHAPTER 7: ENDING RURAL POVERTY: CHALLENGES AND OPPORTUNITIES ................. 229
Emerging themes and challenges .................................................................................. 229
Resuming and spreading the retreat of rural poverty:
building a global partnership among the stakeholders ................................................. 232
Futures of success, futures of failure ........................................................................... 234

List of boxes
Box 7.1: Development partnerships ............................................................................. 233

Bibliographical notes ................................................................................................. 239

Acronyms and abbreviations ...................................................................................... 265
This Report examines the constraints faced by the extremely poor – some 1.2 billion of them – and the opportunities they have to escape from poverty in the near future. The focus is on the rural poor, who constitute the bulk of the poor. The Report examines the potential of smallholder production and water conservation in agriculture, of existing and recent technologies, and the roles of small producers, markets and institutions in providing opportunities to the poor. It builds on the argument that, with appropriate and focused support for enhancing the productive potential of the poor in a pro-poor environment, the poor can help themselves to escape from poverty. Growth and distribution are essential for poverty reduction. But sustained poverty reduction also requires pro-poor institutions and the building of partnerships between the rural poor and other stakeholders.

Globally, 1.2 billion people are in ‘extreme consumption poverty’. More than two thirds of them are in Asia; South Asia alone accounts for nearly half of them. About one fourth is in sub-Saharan Africa. Three quarters of the poor work and live in rural areas; significantly more than a half are expected to do so in 2025. The 1995 Social Summit in Copenhagen agreed that each member should devise a programme to reduce extreme poverty, monitor and measure progress against some agreed targets and adjust policy accordingly. Subsequently, the member states in the twenty fourth special session of the General Assembly of the United Nations in June 2000 committed themselves to halve extreme poverty by 2015. This put each developing country in the ‘driver’s seat’. In 1996 the aid donors agreed in the Organisation of Economic Co-operation and Development (OECD) to restructure aid to support monitored progress towards poverty-reduction targets. The World Bank, the United Nations Development Programme, the Development Assistance Committee (DAC) of the OECD have all placed emphasis on taking concerted action and reducing poverty at an accelerated rate to achieve the global target of halving poverty by 2015.

Progress with poverty reduction in the last decade has been slow. The rate of poverty reduction in 1990–98 was less than one third of what is needed to halve extreme poverty during 1990–2015. It was six times less in sub-Saharan Africa. The real value of aid fell sharply between 1987–88 and 1997–98. The share of aid going to low-income or least-developed countries, which contain over 85% of the poor, stayed around 63%, and agricultural aid collapsed. The rural sector has largely remained neglected, despite its great concentration of poor people.
POVERTY AND ITS RURAL DIMENSION
The ill-being caused by poverty has many dimensions. Low consumption is only one such dimension, but it is linked to others: malnutrition, illiteracy, low life expectancy, insecurity, powerlessness and low self-esteem. Poverty is also linked to frustrated capabilities due to asset deprivation, inability to afford decent health and education and lack of power.

Poverty can co-exist with rather high levels of income, widespread infrastructure development, technological achievements and urbanization – in Latin America, the United States, and South Africa, for example. The institutional environment in which the poor derive their livelihoods, and the socio-political factors that restrict their access to resources, can influence the relationship between economic growth and the level and the extent of poverty.

Countries use different, often non-comparable, national consumption poverty lines and rural-urban borderlines. There are serious measurement problems of poverty, which has to be linked to other non-consumption-based indicators and to self-assessment to allow comparisons.

However, we treat such measurement problems, the proportion of the poor making their living in rural areas has remained, and is expected to remain, strikingly high. And over half the world's extreme poor depend for their livelihoods mainly on farming or farm labour. The rural poor's welfare, of course, depends on many aspects of public action other than direct investment in support of agriculture – on schools, clinics and civil order – and on private as well as public action. Nevertheless, poverty reduction does depend, in part, on an adequate share of agricultural investment support within the portions of public spending and international aid that can be allocated among economic sectors.

Yet the absolute value of aid to agriculture fell by two thirds in 1987-98, and its share in aid that can be allocated to particular sectors halved. In key low-income countries where the poor are concentrated, agriculture's share in sectorally allocable investment, and aid, is far less than in Gross Domestic Product (GDP), let alone employment. Moreover, though price biases against agriculture have shrunk since 1980 (with ambiguous effects on the rural poor as food prices rise alongside job prospects), the slighting of agriculture and the rural sector in public investment and aid spending has increased.

Effective poverty reduction therefore requires resources to be reallocated to the rural and the

---

Box 1.1: Why focus on rural poverty?

Big rural-urban gaps in income, poverty, nutrition, health and education are not shrinking; through 2020 most of the dollar-poor will be rural.

Though rural poverty fell sharply in 1970-85, the decline has slowed; it bypassed countries, ethnic and other groups, and whole regions and agro-ecologies.

Addressing rural poverty raises food supply and may reduce migration, thus helping reduce urban poverty. Also, successful rural poverty reduction usually works by raising the productivity of the poor; but most treatments of urban poverty are welfare-oriented, often depending mainly on upgraded housing.

Poverty reduction and asset equalization, especially in rural areas, assist growth.

Ongoing big rises in worker/child ratios provide a 'window of opportunity' for poverty reduction. To that end, the rural poor need to share much more in female empowerment, and better health and education that permit fertility decline, and in research, investment and employment for the working poor.

Yet aid, even more than public investment, goes disproportionately to countries – and increasingly to non-rural sectors – where most of the poor do not live or work.
poor. But a focus on rural poverty reduction need not imply a neglect of economic growth; indeed, it can speed up economic growth (Box 1.1). It is inefficient to exclude people from schooling or managing productive assets because they are too poor to borrow; or because they are born in villages and hence lack urban facilities; or because they suffer from other forms of exclusion – upland, dryland or remote residence. Yet the rural poor suffer an inefficiently low share of schools, health care, roads, land, technology, research, and institutional and market access.

**Rural poverty reduction: the conceptual framework**

Poverty is multidimensional; therefore, poverty reduction efforts have to be multi-targeted and are expected to show wide and diverse dimensions. The solutions have to straddle different disciplines and must encompass economic, social, political and institutional factors.

Notwithstanding such diversity, four aspects are of critical importance for understanding the challenges facing rural poverty reduction.

First, institutions, markets, technology policy and asset arrangements need to reflect the critical role of food staples in the livelihoods of the rural poor. Most rural households build up livelihoods from several sources; and some very poor rural areas grow no food staples. Yet staples provide most of the poorest with most work, income, consumption and calories. Those in extreme poverty usually get 70-80% of calories from staples, which also absorb most of their working time. While a rising proportion of the rural poor rely for income mainly on livestock, cash crops or non-farm activity, in early development staples farming or employment provides most of their income.

This is not to deny the importance of the growth of the non-staples sector for rural poverty reduction, nor to indicate only a subsistence path of development. The non-staples sector (production of cash crops and other food crops, and small-scale non-farm production) is important and will become increasingly so. In fact, widening market access and liberalization increasingly allow rural people to escape poverty through non-staples production and exchange. In this process non-farm assets and skills are critical, as are infrastructure and institutions to help small units to maintain market access during globalization.

Second, rural poverty reduction increasingly requires better allocation and distribution of water. The tightening squeeze on rural water supply demands both priority for the poor and more efficient water use. Rice and horticulture create much employment income for the poor, but are heavy users of water. Many drylands already suffer from severe water stress. Groundwater tables are falling, and surface water may become scarcer due to climate change. There is also heavy pressure to divert water to urban areas and industrial uses. Securing the more efficient water use needed to increase staples output will be difficult. Increasing the availability, quality and efficiency of farm water for the rural poor is a major challenge.

Third, feasible growth alone, even in the rural sector, will in many countries not suffice to halve dollar poverty by 2015. In some very poor countries, too many people are too deeply poor. In some middle-income countries, initial inequality is too great. In such cases, achieving the poverty target requires redistributive empowerment of the rural poor through higher shares, access and control of appropriate assets, institutions, technologies and markets. Usually that is good for growth, as well as equitable.

Fourth, particular groups – especially women – and methods – especially participatory and decentralized ones – merit special attention. Redressing disadvantage for women, ethnic minorities, hill people and semi-arid residents helps the efficient use of anti-poverty resources – schools, land, water – as well as fairness. Women especially need direct
influence over resources and policies. Participatory and decentralized management, apart from securing democratic control and developing human potential, often improves the cost-effectiveness of a range of actions, from developing new seed varieties through microfinance to rural schools and public works programmes. Special measures are needed to enable the poor to participate.

Creating productive employment opportunities for the rural poor
Underlying all four themes is the fact that rural poverty reduction generally benefits from labour-intensive approaches. Labour-intensive development economizes on capital and/or land. Capital is always scarce in low-income countries, and land is scarce in more and more of them. Developing countries, with high ratios of labour to capital, also gain more from market liberalization if they encourage labour-intensive production lines - as is induced by world-market incentives. Employment-intensive policies, technologies and institutions usually help both economic growth and poverty reduction, since it is the poor who have mainly labour to supply. Thus, subsidies to labour-displacing tractors cannot normally be justified. Smaller farms and rural production tend to use more labour and less equipment than larger units.

The primacy of agriculture in development
As people become better off, their demand for food, as a proportion of income, falls, as reflected in the steady fall in the relative world price of farm products. Might this impede feasible agricultural expansion, and thus justify low public investment and aid for agriculture?

In early development, while mass poverty exists, poor and underfed smallholders (and their even poorer employees) use much of their extra income to obtain and consume their own and their neighbours’ extra farm produce - provided public investment and aid supports increased food production by the poor. Then, there is much less of a demand problem. What remains can be overcome, if, as in the Green Revolution, technical progress in seeds, infrastructure and water management on small private farms raises productivity faster than prices fall, leaving farmers, farm workers and food buyers all less poor.

In later development, extra public investment can underpin the infrastructures needed for small-scale and labour-intensive food production, partly traded and partly used to diversify and enrich the diets and employment of poor producers. In both phases rural non-farm growth contributes a rising share of rural incomes, but depends substantially on consumer demand based on smallholder prosperity.

Four themes
This Report explores four themes: access to assets (physical and financial), technology and natural resources for rural poverty reduction, markets for the rural poor, and institutions for the rural poor. This does not mean that other issues, such as the security and vulnerability, and the ownership and agency, of the poor are less important. These issues have been discussed in depth in various forums in recent months. Rather, this Report focuses on aspects of poverty reduction that are critical but often neglected. It concentrates very heavily on concrete production and income issues, and on agriculture. But the answer to rural poverty is not just agriculture, although this is a big part of the story. Agricultural change can work to reduce poverty, but only when linked to social changes that give the poor greater power over the social factors that shape, and far too often circumscribe, the horizons of their possibilities, including their agricultural options and assets.

Assets and rural poverty reduction
Assets empower the rural poor by increasing their incomes, reserves against shocks, and choices to
escape from harsh or exploitative conditions ('exit options'). The poor can directly control assets by ownership, rent or communal tenure, or indirectly gain from assets, whoever controls them: through employment, for example. Urban-rural and rich-poor gaps in asset ownership exceed greatly the corresponding gaps in income and consumption, making the rural poor especially dependent on their labour-power. Assets most help rural poverty reduction when they are employment-intensive, divisible into small low-cost units, and low-risk.

For many important assets, gender bias doubly harms the poor: as a source of injustice to children and women, and as a source of inefficiency and slow growth. Feasible remedies are indicated.

There are strong complementarities among asset types. The poor (and economic growth) do better with some improvement in health, nutrition and schooling than with a lot of one and none of the others. Such human assets do more for a poor person if he/she also has some farm or non-farm assets and his/her productivity is rising. Previous education helps a poor person to get better returns from irrigation.

Land reform: back on the agenda
An important element in the quest for greater access to assets is land redistribution. Extreme land inequality is bad for growth, and steers its benefits away from the rural poor. Most of the rural poor depend on farm income, yet usually control little farmland. Land reform to create small, not-too-unequal family farms is often cost-effective in reducing beneficiary poverty. It also helps hired farmworkers; small farms employ more people per hectare than do large farms, and small farmers and their employees spend more of their incomes on employment-intensive rural non-farm products.

To escape poverty sustainably, post-reform farmers need appropriate infrastructure and services; these needs are likely to change with liberalization and globalization. It is important to draw distinctions between confiscatory, statist or top-down approaches and the 'new-wave land reform': decentralized, market-friendly, with support from and involvement of civil-society action and with consensus.

Imposition of modes of tenure can ‘go against the grain’ of preference or efficiency. Both communal land tenure and private tenancy can be pro-poor; restricting them is usually counter-productive. Furthermore, exclusive emphasis on land asset control by households misses the problem that many households, laws and customs discriminate against women, thus damaging efficiency, equity, child health and poverty reduction.

Poverty reduction among the rural poor would require increased support, from governments and aid agencies, for farmland redistribution to poor communities, households and women. Extreme land inequality appears to ‘fix’ social relationships: its impact on overall inequality does not appear to diminish, even after agriculture’s role does. Hence land redistribution remains cost-effective against poverty in Latin America and Southern Africa, where some ethnic groups remain in rural poverty, largely due to exceptional inequality of farmland as well as education.

Access to water
Some control by the poor over water is essential if they are to realise the full benefits from farmland. East and South Asia’s fast poverty reduction and farm growth owe much to the 30-35% of irrigated cropland – and the persistence of rural poverty and agricultural stagnation in most of sub-Saharan Africa to its mere 1-5%. Water control is also vital for adequate and healthy drinking water and sanitation. Yet the rural and the poor have even less access to water-yielding assets, and hence water control, than to land. Worse, climatic and eco-
nomic developments threaten many rural people – especially the poor – and their food production with growing water stress. Improving this depends partly on redistributing water-yielding assets, and partly on incentives for asset types that save water by using labour. Small, divisible, farmer-controlled water supply systems benefit the poor most, but in some conditions, and with environmental caution, large systems remain essential. In either case, user participation in design, management and maintenance are proven keys to asset efficiency, yet are usually absent.

Special attention to women’s water rights is needed. Women and children are also the main losers from distant, inadequate and unhealthy drinking water. Modest but enforced water charges (payable as maintenance labour), complementary water improvement and health care, and managed credit to acquire water-yielding assets are keys to pro-poor and efficient use of increasingly scarce rural water for production or consumption.

Access to other assets and non-farm activities
Livestock in a few areas, and small stock in many, are more than proportionately controlled by the poor. Improving returns from such stock through better marketing, extension, and research, and supporting institutions for small or joint herd control, are necessary.

Rural non-farm activity provides 25-40% of rural income – sometimes more for the poor, sometimes less – and is growing faster than farm income. But its dynamism usually depends on demand from a growing, fairly equal farm sector. So neglecting poor farmers and farmworkers in order to free resources for the non-farm poor is often self-defeating. Further, usually some rural non-farm activities (trade, transport, construction) are dynamic, but other activities (traditional services and crafts) contract as the rural economy develops; the poor are helped much more by skills and infrastructure for the former than for the latter.

Usually, poor people, who are primarily rural, are deprived of ‘human assets’ – health, child nutrition, education, skills – and are especially prone to gender biases in their allocation. In the medium term, extra human assets are the most effective, just and growth-inducing ways to advance the rural poor – provided there are also natural or physical assets, or work, yielding more to the educated, in a growing economy.

More (and better) health, education and nutrition normally stimulate each other, are complementary and, if acquired by parents, especially mothers, also benefit children. Usually, provision and quality discriminate heavily – and inefficiently – against rural areas, remote places, ethnic minorities and (in education) women. Such discrimination is most severe among the poor.

Most human assets, notably primary schooling and health care for the poor, must be financed mainly by the public sector. Financial viability and participatory management are real problems. But user fees in primary health and education are not the answer. They have proved almost impossible to target correctly; have saved little public money; and have discouraged use of services by the rural poor and hence growth of their incomes. Other ways to financial viability and participation for human asset provision are feasible.

TECHNOLOGY, NATURAL RESOURCES AND RURAL POVERTY REDUCTION
The importance of technology for rural poverty reduction and recent trends
Technology is central in reducing rural poverty.

In 1965-85, rice, wheat and maize, in much of Asia and Central America, experienced a big technology shift, the ‘Green Revolution’, that increased yields, enhanced employment and brought about a rapid fall in poverty. But these effects have since slowed.
Technical progress has by-passed hundreds of millions of poor people – many of the remaining hardcore poor – in specific regions (including most of Africa), agro-ecologies (dryland, upland), and products (sorghum, yams, cassava, smallstock).

Water resources in many areas, and land in some areas, face serious threats of depletion and pollution, which appropriate technical change can reduce or reverse.

Recent scientific advances bring new prospects for reigniting and spreading to laggard areas and crops the technical progress that can reduce poverty and conserve resources.

Bio-agricultural technology: old and new

In bio-agricultural research, the goals must be enhanced yield potential (and yield growth) in ‘lead’ areas and spreading progress to neglected regions and main staples. Both require a sharp reversal of the long fall in levels (and security) of funds for public-sector agricultural research – and of the growing diffusion of such research systems, often at the behest of donors, into matters other than yield enhancement, stabilization and sustainability. Also needed is much more public-sector research into transgenic food staples, with traits selected by labour-intensive smallholders. This requires different incentives for scientists – and research – now increasingly locked into a few large science-based companies and directed towards traits, crops, and farmers of little interest to the poor.

The priority for bio-agricultural research is employment-intensive but sustainable yield growth, in a context of improved transformation and recycling of water and nutrients. Land/water technology should aim at outcomes attractive to farmers by links with varieties fertilized for sustainably higher and more profitable yields – not, in most cases, with ‘low-external-input’ farming, which usually raises the dilemma of whether the land should be used for low outputs or soil mining.

Transgenic crops and animals have triggered justified public demand for open, participatory systems, involving farmers and consumers in scientific decision-procedures that effectively regulate food safety and the environmental impact of introduced varieties, species and foods. To realize the huge potential of transgenics, especially for areas hitherto little affected by research, requires big changes in the criteria and incentives now guiding the allocation, use, and civil-society overview of scientific resources. Public/private, and donor-agency/civil-society, partnership action is urgent, especially for those developing countries that have limited scientific capacity yet are heavily dependent on food staples yield growth. Inaction in agricultural and water technology could undermine all other efforts for rural poverty reduction in coming decades.

Often, especially in West Africa, chemical fertilizers, better germplasm and humus enrichment by natural manures, though presented as rivals, are complements in sustainable small farming. Participatory methods are allies of, not populist alternatives to, formal research, including early-generation plant breeding and even biotechnology.

Pro-poor, sustainable technical progress should seek robustness, stability, yield enhancement and labour-intensity. In moving from such principles to selecting product and method priorities in technology policy, complementarity is desirable, and hence cooperation between research groups and types, including groups of farmers. So is allowing for time-lags: the conditions prevailing when research is planned often differ greatly from those when farmers adopt the resulting innovations – worker/land ratios may be sharply higher, or water-tables lower, for example.

Existing technologies: write them off?

It is certainly premature to write off existing technologies. In many cases, their potential has
not been exhausted and needs to be explored further. In many cases, their potential in breaking the barrier of higher yield and sustainable development is constrained by institutional factors: lack of water and extension and of adequate support services. New technologies are not panaceas for such problems. On the contrary, they remain issues for all forms of technical progress at the small-farm level.

Technologies for land and water management
Improved land management technology is historically slow to spread, or to improve farm income. It is often inadequately integrated with bi-agricultural research, yet is vital to reduce land depletion. To attract poor farmers, such technology needs to show production returns (such as vegetative erosion barriers usable for fodder, rather than stone bunds), and should employ labour (preferably slack-season) rather than equipment. For these purposes, some forms of conservation tillage and land reclamation have proved far better than others.

Technical choices are crucial to solving the water crisis that increasingly threatens many rural poor people. Agriculture is being pressed in most developing countries to ‘use’ less water. But ‘using’ need not mean ‘using up’. With appropriate drainage and recycling, significant water saving can be achieved. Employment-intensive ways to improve conveyance and use efficiency of water have proved feasible with proper incentives and user institutions. However, the justified emphasis on farmers’ methods of water control and irrigation should not be allowed to distract attention from the need for faster progress in this area with formal, ‘frontier’ invention and innovation suitable for smallholders.

Markets for the rural poor: exposure to the windows of opportunity
Most of the rural poor are already substantially involved in markets for labour, food, farm and non-farm inputs, and credit. But poor people and remote places often face very high physical and transactions costs of marketing per kilometre-tonne, which restrict trade, specialization and growth.
The market access problems of particular groups (such as the illiterate) are different from the problems of remote areas. In each case, problems of physical access (e.g. bad or no roads) are distinct from, but often compounded by, the transactions costs of, or bias in, institutional market access (e.g. trader or marketing-board monopsony). Problems interact: women, and indigenous ethnic minorities in both Asia and Africa, are more likely to be remote dwellers; bad roads are linked to trader monopsony power. But resources can be saved by deciding at the start which problems are tackled most cost-effectively, so as to achieve a given poverty reduction through better rural market access.

Almost everywhere, remote and ill-connected rural people are poorer. If they have potential tradable surpluses, then realizing these, usually through better farm technology, is a precondition for generating exchange and cutting poverty through better roads. If an area feeds itself adequately but lacks transport links, these are usually needed to make yield-enhancing staples technology attractive. For cash crops or non-farm products, better roads are usually needed to permit expansion, marketing and growth through specialization. There are many cases of poor non-remote people - separated by terrain, not distance, from nearby markets - whose welfare increases greatly when improved access to such markets allows trade and exchange.

Beyond physical access to markets
Physical access is not just about access to roads. Even if the rural poor or the remote have roads, their lack of choice over modes of transportation and other forms of market access can expose them to large transactions costs or institutional costs. Private monopoly traders and parastatal marketing boards expose the poor to market power, while the non-poor can more readily find alternatives. Yet withdrawal of parastatals or monopsony traders following liberalization often leaves the rural poor stranded altogether. Marketing cooperatives, to bulk up for purchase or sale, are a decentralized solution, depending for success on acceptance as ‘institutions of trust’ or so-called ‘social capital’. Regulation to control adulteration, weights and market-rigging can be useful; improving market institutions is often a necessary complement to liberalization, if the effect of better prices on poor rural people is not to be swamped by marketing costs.

Commercialization usually improves the welfare of the poor. Being intelligently risk-averse, they usually avoid premature commitment to all the risks of commercialization, e.g. keeping part of their land for self-provisioning. Indeed, cash-crop income is often used to acquire improved staples technology. Crop diversification is another way of diffusing risk, but rapid change is often not practicable: for example, tree crops require several years growth before a crop can be harvested.

Access to input markets and technology
Access to transparent input markets is crucial for the poor. Land tenure reform is a poor substitute for land asset distribution. Water markets, while providing fewer benefits for the poor than ownership of water-yielding assets, are almost always more pro-poor than non-price water rationing and subsidy, which benefit mostly the non-poor and leave the poor with the distortion costs. Hence rural user charges for water are usually pro-poor. In many regions, too, the tightening rural water squeeze makes some form of water pricing essential on efficiency grounds.

New farm technology is sometimes embodied in costly capital confined to the better-off (e.g. deep tubewells or tractors, whose services can of course be marketed), but has often been distributed free, as information - sometimes alongside free or subsidized seed or seed-fertilizer packages - through agricultural extension. Returns have often been high and in Asia remain so; but in Africa most...
public extension services are in disarray, and unresponsive to the demands of the rural poor while in Latin America extension, like research, is increasingly privatized, even for the poor. New market routes or other mechanisms to reduce the time-lag before the poor adopt better technologies are badly needed if the poor are not to miss out on new opportunities.

**Access to labour market**

Labour markets affect the main income source of the poor. Discrimination against indigenous and ethnic minorities and women, though prohibited by law, is common in practice, but it works less through specific wage rates than through exclusion from high-productivity tasks or places: through lack of education and skills needed to upgrade tasks; through women's domestic 'duties' that restrict tasks; and through remoteness and language for ethnic rural minorities. Rural public works can powerfully enhance access to labour markets.

The poor are restricted by asymmetric information and high unit costs from most formal credit, and, given the co-variance of local loans, by lack of collateral from much money-lender lending. Efforts to reach the rural poor through directed, subsidized state-backed credit have largely failed. The current approach is to generate unsubsidized, but non-exploitative, microfinance markets through local peer-monitored intermediation. This has had considerable success, but outreach to the very poor may conflict with financial sustainability at least until the difficult problem of the interface between informal and formal institutions has been solved.

**Trade liberalization, globalization and the rural poor**

Markets for the rural poor are being restructured by trade liberalization and globalization. This removes biases against farm prices, thus raising food production and employment but also food prices, with ambiguous effects on the poor.

Economic growth should normally benefit them in the long run, as should labour-intensive specialization. However, such gains can be destroyed by bad market transmission and functioning. Remote areas, benefiting despite gross inefficiencies from pan-territorial pricing, have lost out where subsidies have been removed, and where the parastatal has been withdrawn and not replaced by competing private buyers.

Though the poor on the whole gain from liberalization, substantial and disparate groups often lose, and need compensation. People with little education, few roads or contacts, or not speaking a majority language, are especially likely to be 'stuck' as immobile losers. Conversely, reasonably equal access to markets and to asset control greatly help the poor to gain quickly from liberalization; great rural inequalities, conversely, ensure that higher food prices penalize many of the rural poor as net food buyers, rather than benefiting them through extra farm income. Moreover, liberalization probably increases income fluctuations, especially through exposure to changes in export crop prices. Access to quasi-insurance or safety-nets therefore becomes important if the poor are to realize secure gains from trade.

Finally, though small farms are generally efficient and employment-intensive, globalization brings new strains – and prospects. It links product sales – especially in the booming horticultural sector, in principle ideal for small labour-intensive farms – increasingly to exports to rich countries and to supermarkets, abroad and (especially in Latin America) at home. This exposes farmers to a range of requirements, from uniform product appearance through pesticide rules to restrictions on child labour. The cost per unit of output, both of meeting these requirements for farmers and of supervising them for buyers, is initially much higher on small farms. Such agricultural globalization can undermine their economic advantages. Stimulating and supporting institutional remedies
may be vital to a pro-poor trajectory. It can be done: such solutions are emerging; no trend to larger farm size has appeared in most of Asia, nor has one been well documented in Africa or Latin America, despite globalization.

**Institutions and the rural poor**

The distribution of benefits between rich and poor, urban and rural, men and women, depends on institutions: organizations such as banks, and rules (customary or legal) such as those affecting division of inherited land or the shares of landlord and tenant in a sharecropping arrangement.

Some acceptance of institutionally mediated outcomes is essential if transactions are not to be impossibly costly and unreliable; but, unless institutions can change under pressure, a society’s outcomes are ‘frozen’ in the interests of the existing controllers of the institutions. This favours the rural poor only if they control the institutions, or at least can compel attention to their needs from those who do.

All efforts to benefit the poor through institutional reform face a serious problem. Institutions are usually created and run in the interests of the powerful. That rural big men run local institutions in their interests is the problem for current modes of top-down institutional devolution, decentralization and participation. Governance is not only a macro issue.

**Decentralization and devolution**

Decentralized institutions for natural resources management and financial services rarely help the rural poorest ‘directly’ but often reach the moderately poor and help all through increased efficiency and sustainability, as the locally powerful are driven to recognize their shared interests with the poor in these. We review striking examples – all in more or less open societies – of the rural poor’s ‘learning by doing’ to enhance their political power, influence and agility in the ‘civic culture’.

The case for decentralization arose partly from increasing consensus that the state needed to retreat from many formerly centralized areas of production, regulation and provision, whereas in developing countries most central governments, even if motivated to perform well, lacked information to do so. While some such areas could be privatized, in others – including the management of common-property natural resources and the provision of financial services to the poor – that policy was, for various reasons, seldom considered sufficient. Various forms of decentralized control by common rural groups have therefore been tried, often with NGO facilitation and sometimes with government support for administration.

State attempts to manage formerly common property in grazing land, forests, or water-bodies generally failed; centralized exclusion of outsiders, and rationing among insiders, could be enforced, but not without tyranny or profligacy, and seldom without corruption. Privatization too proved inefficient and unequal. The third way – participatory decentralization – has become a growing trend with potential for better conservation and efficiency. What are the necessary preconditions for improving the record of conservation and efficiency and ensuring a better share for the poor? What methods are needed, what processes need to be built in to enlist the poor in natural-resources conservation? And how can women benefit from this devolution of natural resources management?

**Financial institutions: making them work for the poor**

State credit subsidies, credit labelled ‘for the rural poor’, usually benefited mainly the rich (and ‘gatekeepers’ in banks or bureaucracies), permitted low-yielding investment, and drove out competitive financial institutions. Untrammelled markets, too, did not adequately reach even the creditworthy poor. Hence microfinancing agencies were widely attempted, usually lending with-
out subsidy to small groups of borrowers with joint liability, and often providing deposit and other financial services. They were often supported by NGOs and often targeted on women and on non-farm lending. In respect of sustainability, repayment, and outreach to the moderately poor, microfinance greatly improves on most previous public and private rural credit; yet it, too, seldom reaches the poorest. Their risk-proneness and complex, fluctuating household economies require a wider range of financial services, often at high unit cost, and centering on insurance (and occasional consumer credit) rather than microenterprise support.

This experience of improved sustainability and efficiency, but limited outreach to the poorest, is thus shared by two of the most important types of decentralized rural institutions. To the extent that they participated, the poor did so by sharing in gains, not by raising their share: by coalition, not redistribution. This can achieve something, but seldom for the poorest, and seldom fast. With regard to the poorest, the microfinance and decentralization ‘revolutions’ are very far from complete.

More generally, development programmes can be captured by elites or vested interests, or can give rise to broad coalitions which share the gains. The rich may get the lion’s share, or may find that it pays them to do with less, especially if the poor have political voice or can organize themselves into counter-coalitions with other persons of power. There are several examples of successful actions by women’s and poor people’s groups. But they need options and voice; hence the importance of a reserve of land, even if tiny, and of literacy and political openness.

**Partnership and participation**

Finally, the dilemma of ‘willing participation into being from above’ is increasingly softened, if not solved, by partnerships involving donors, governments and NGOs. But these partnerships will have an impact only if they are directed to where it really matters for the rural poor. Poverty is not an intrinsic attribute of people, but a product of livelihood systems and the socio-political and economic forces that shape them. Concretely, most rural people, and especially the rural poor, make their living in and around agriculture. Thus, for sustainable poverty reduction, the problems of smallholder agriculture must be addressed directly and effectively. This involves change in material factors – land, water and infrastructure – and in technology and knowledge for, and in the hands of, the poor. But it also means change in social and economic relations, usually involving institutional change that gives the poor more control over their own environment. Many of the policy changes in the developing world have the potential to benefit the poor. But globalization and decentralization will work for them only if broad partnerships are mobilized to solve the challenges they confront: equitable and efficient market-mediated relations, and accountable social and political institutions. Economic empowerment is creating an institutional framework in which the poor can put assets, both public and private, to work on their own behalf.