

P2-ABK-495

152 75691

Poverty and Development: Prospects and Priorities for the 1990s

John W. Mellor

Reprinted from *Trade, Planning and Rural Development: Essays in Honour of Nurul Islam*, edited by Azizur Rahman Khan and Rehman Sobhan, The Macmillan Press Ltd.

©Azizur Rahman Khan and Rehman Sobhan, 1990

INTERNATIONAL
FOOD
POLICY
RESEARCH
INSTITUTE

1776 Massachusetts Avenue, N.W.
Washington, D.C. 20036-1998 U.S.A.

10 Poverty and Development: Prospects and Priorities for the 1990s

John W. Mellor¹

INTRODUCTION

The decade of the 1980s marked an unfortunate set-back in the effort to eradicate poverty and hunger in developing countries. Rapid growth throughout the sixties and seventies gave way to stagnation in the eighties as massive structural imbalances were generated out of a combination of underlying economic forces and often misguided economic policies. The interaction of a series of oil shocks, rapid growth in the Third World's foreign debt, high real interest rates, depressed primary commodity prices, increasingly distorted prices in many developing countries, and grossly unbalanced public budgets combined to distort seriously the functioning of the world economy. The major restructuring of policies and economies that followed in both developed and developing countries further slowed growth, the cost of which was borne most heavily by the Third World's poor through lower incomes and consumption of food.

While adjustments to these problems are well under way, the prospects for the alleviation of poverty and hunger in the 1990s are currently overshadowed by pessimism growing out of the economic turmoil of the 1980s and from the view that Third World growth is largely dependent on capital goods imports financed by exports to the mature economies in developed countries. Slow growth and increased trade restrictions in the developed countries, and the massive foreign debt of a substantial number of developing countries limits the availability of foreign exchange to finance capital goods expansion, and opportunities for Third World countries to base their growth substantially on foreign markets.

A different and more optimistic view of the prospects for develop-

ing countries in the 1990s arises with the recognition that economic growth is basically a process of technological development that raises factor productivity. That provides the basis for rapid increases in national income which, in turn, stimulate other sectors which may have fewer opportunities to benefit directly from modern technology. Productivity-increasing technology, in turn, is the result of human capital formation and the development of institutions that can effectively mobilise that human capital for productive purposes. An important example of those processes is in the development of the research institutions responsible for generating modern agricultural technology.

Recent global imbalances have largely overshadowed these processes in developing countries. And yet, underlying the distortions of the past decade has been continued growth in developing countries' stock of human and physical capital, and improvements in institutional structures. These changes provide a framework for tremendous strides in the 1990s towards renewed economic growth and, more importantly, towards abolishing poverty and hunger throughout most of the Third World.

In low-income countries dominated by agriculture, growth in a large domestic market is only possible if incomes are rising in the agricultural sector. Therefore, technological change in agriculture, which boosts production, incomes and consequently demand in rural areas, is central to a strategy that produces high rates of economic expansion and broad participation in the development process. By spreading productive resources over the largest possible segments of the population, such a strategy creates large, direct increases in agricultural employment and incomes. More importantly for poverty reduction, the linkage and multiplier effects of agricultural growth, by generating increased demand for labour-intensive goods and services produced in the non-agricultural sectors, indirectly stimulates further employment and income growth throughout the economy.

The prospect of growth in the 1990s offers a significant opportunity to reduce hunger and poverty in developing countries. It requires cost-reducing technological change in agriculture. Also, if agricultural development is truly to make a widespread impact on poverty, the rural sector must be integrated into the larger economy through increased investment in infrastructure and services that promote farmers' adoption of that technology. Specifically, because of the commercial process involved in rural growth, those rural people not

connected with effective infrastructure – particularly roads – cannot participate in and contribute to growth. Thus the whole rural area must be covered with adequate roads and other key infrastructure that require immense investment.

Efforts must also be undertaken to promote a climate of open trade among countries and to confront the problem of increasing instability in global agriculture. Finally, to make all this possible, the enlightened and coordinated participation of foreign donors is required. Foreign assistance, which is so susceptible to changing fads in development practice that can limit its potential impact, must be explicitly directed toward a strategy that uses agricultural development to foster and accelerate a broadly participatory process of growth. The remainder of this paper discusses each of these priorities in greater detail.

ELIMINATING HUNGER

Hunger as a proportion of the total population has been declining in developing countries in recent years; however, its absolute size has grown rapidly, by as much as 14 per cent over the 1970s (Tables 10.1 and 10.2). According to World Bank calculations, in the middle-income developing countries, the absolute number of the hungry dropped by nearly a half from 1970 to 1980, while in the low-income countries the numbers increased by more than half. In regional terms, absolute levels of hunger have grown most rapidly in Africa and South Asia. By 1990, an estimated 700 million people in developing countries will lack the food sufficient for a healthy, active life. Of those, about 350 million will be in South Asia, 140 million in Africa, and 75 million in China. The remaining 135 million will be about half in Latin America, with the rest in East Asia and the Pacific, and North Africa and the Middle East. The methodology used by the World Bank probably overstates the decline in poverty in the middle-income countries, particularly those with initially highly skewed income distribution. But the numbers do at least indicate very divergent potentials to reduce poverty through growth in the middle- and low-income countries.

Two conclusions follow immediately from these observations. First, intense hunger is increasingly a problem of the poorest countries, largely those in Africa and South Asia, suggesting that a

Table 10.1 Projected incidence of undernutrition, 1990 (millions)

	Total	Low-income countries	Middle-income countries
Africa	137	99	38
South Asia	350	350	—
East Asia/Pacific	31	—	31
Latin America	72	2	70
Near East	34	4	30
China	76	76	—
Total	700	531	169

Note: The estimated incidence of hunger in 1990 is calculated using the proportions undernourished in 1979–81 as reported by FAO (1985) and the projected population for 1990 as reported in World Bank (1988). The breakdown of the Far East into South Asia and East Asia/Pacific is on the basis of the distribution of poor in the two areas as given in World Bank (1986). Estimates on China are based on Riskin (1987). Division on the basis of low-income and middle-income is by the distribution of population in the two groups in each region. Incidence of poverty among low-income countries is assumed to be double that in the middle-income countries and this proportion is applied to each region specific number. Low-income countries are those with per capita income of \$400 or less in 1983. Given the various assumptions in the calculations both in the original estimates and the projections, the numbers should be seen as broadly indicative, and not definitive.

general resource scarcity may be a major source of poverty. Second, given the experience of the middle-income countries, economic growth, albeit of a poverty alleviation orientation, is capable of producing major reductions in hunger.

However, large surpluses of food in the developed countries and in a few developing countries that were formerly deficient in food, have led some to the incorrect conclusion that poverty and hunger are problems not of production, but of distribution (Sen, 1981). But, because poor countries are generally short of resources themselves and the proportion of their population that is poor is very large, such redistribution would have to be substantially international. And it would have to grow enormously over time as the number of poor in the slow-growth countries continued to increase rapidly.

While reducing the number of poor purely through unending international redistribution is unlikely, reducing their number through economic growth can be highly effective, with considerable

Table 10.2 Changes in the prevalence of energy-deficient diets, 1970 to 1980

	Percentage change in share of population	Percentage change in number of people
Developing countries	-2	+14
Low-income	+3	+54
Middle-income	-9	-44
Sub-Saharan Africa	+4	+49
East Asia/Pacific	-14	-57
South Asia	+2	+47
Middle East and North Africa	-14	-68
Latin America, Caribbean	-4	-21

Note: The norm used is a calorie level which the World Bank defines as the benchmark below which there is 'not enough intake to prevent stunted growth and serious health risks'. The FAO in the Fifth World Food Survey shows somewhat different trends in that the proportions of hungry people declined in all regions, though for the least-developed countries as a group the proportions increased. It should be noted that not only is the FAO methodology different but their definitions of the regions are also not identical to those of the World Bank, e.g. the FAO does not separate out the poorer regions of South Asia from South-East Asia, aggregating them together as the Far East so that the disparate trends within the region are obscured. Nor do they separate out Sub-Saharan Africa from North Africa. Since we are interested in separating out the economically different regions, we use the World Bank trends. China is not included in the analysis.

Source: World Bank (1986).

scope for further progress. The reduction of poverty in the middle-income developing countries, such as in Latin America and East Asia, has been achieved largely in rural areas that are highly responsive to production-increasing agricultural technology, for which the employment multipliers are substantial both within agriculture and in the rural non-agricultural sector. While the number of poor in high-potential rural areas have been declining rapidly in the middle-income countries, that is not the case in the poorest countries. Some 250 million of the poor in low-income countries are still located in those high potential areas (Table 10.3). These data suggest that agricultural growth in those high-potential regions may be particularly effective in bringing about substantial future reductions in poverty and hunger in low-income countries.

Income growth from technological change in the high agricultural

Table 10.3 Rural-urban distribution of poverty and the estimated number of people living in areas of high potential, 1990 (millions)

	Total	Urban	Rural	Agricultural potential	
				High	Low
Africa	137	14	123	61	62
South Asia	350	70	280	140	140
East Asia	31	5	26	6	20
Latin America	72	29	43	11	32
Near East	34	-	-		
China	76	-	76	26	50

Note: The distribution by rural and urban classification is based on a survey of country poverty studies. All poverty in China is grouped under rural poverty. There are indications that there is little malnutrition in urban areas but this should not be seen as a statement on the absence of poverty in urban China, rather a reflection on the paucity of definite data. All numbers are tentative and should be seen as merely indicative.

potential regions creates substantial employment multipliers within agriculture as well as in the rural non-agricultural sector. These effects are especially pronounced in the development of smallholder agriculture. Poor farmers spend as much as 40 per cent of their additional income on locally produced, labour-intensive non-agricultural goods and services and another 20 per cent on livestock and horticultural commodities that are also produced labour-intensively (Hazell and Roell, 1983). That increased spending provides for expanded employment in those regions and is responsible for a pronounced decline in the number of poor.

In addition, vigorous growth in the high agricultural potential regions can do much to alleviate poverty problems for the more than 25 per cent of the hungry located in urban areas, by alleviating the pressures of poverty through reduced migration. Good performance in the high potential areas and their urban enclaves also allows for increased migration from low potential rural areas, raising incomes in those regions by reducing stress on their resource base. In some cases, advances in technology might also be applied to low potential areas to transform them into high potential areas.

A critical component of a strategy to reduce poverty and hunger is the expansion of rural infrastructure. Rural roads, irrigation and drainage systems, communications networks and delivery systems are

necessary to integrate farmers into outside markets for both modern inputs and their increased output. In parts of Africa, the scarcity of rural roads has produced marketing margins that are as much as four times higher than those in Asia, thereby increasing costs and limiting the potential for growth (Ahmed and Rustagi, 1987). Improved infrastructure also accelerates the growth of technology use and paves the way for linkages and multipliers to expand growth and eliminate poverty throughout the economy. In Bangladesh, for example, areas with good infrastructure use 92 per cent more fertiliser per hectare than areas with poor infrastructure. The linkage effects of that growth can produce a level of non-agricultural employment as much as 30 per cent higher than the poor infrastructure areas and wage rates as much as 30 per cent higher (Ahmed and Hossain, 1987).

Infrastructure investment also provides a vital link between the long-term, self-reliant removal of hunger, and short-term amelioration. Rural public works schemes to build infrastructure provide immediate increases in employment and are clearly the best proved means of targeting food and income to the poor. However, such efforts must not be driven so much by immediate employment objectives that they fail to provide the larger permanent employment multipliers of which they are capable. Roads must be of an all-weather type which, in Bangladesh for example, means they should be paved, if they are to fulfil long-term development objectives. The budgets of these projects should not be so dominated by the food component for labour that resources are not available for materials to build permanent establishments.

HUMAN CAPITAL AND INSTITUTIONAL DEVELOPMENT

Because the agricultural sector is subject to Ricardian diminishing returns, increased production can only be stimulated by increases in output per unit of input which, in turn, can only be obtained through technological change (Mellor, 1985). If attempts are made to stimulate production through higher prices, for example, the inelastic supply of land causes the productivity of other inputs gradually to decline. Unlike the response to price, the production response to the investments that embody technological change may be elastic or at least only moderately inelastic (Lele and Mellor, 1988).

Fully realising the benefits provided by agricultural research, how-

ever, requires lumpy investments of resources on a scale which small farmers cannot mobilise. A great deal of such investment must inevitably be undertaken by the public sector, at least at the initial stages of development. Whereas economies of scale do not necessarily obtain in agricultural production, they do hold in the provision of services such as research, input supply, and marketing. For example, Lele and Myers (1987) stress the importance of public sector investments in the processing of smallholder tea and coffee in Kenya and especially of Kenya's 'tea roads' in the production of those crops since the 1960s. However, because of their relative inability to mobilise capital and labour, obtain purchased inputs and gain access to knowledge, yields of smallholders were half those of large-scale producers in tea and 80 per cent lower in coffee production. In Cameroon, SODECOTON, a public sector organisation that provides access to technology and services for cotton producers, increased returns to labour use in that crop beyond the already high wages in the non-agricultural sector. The services provided by that organisation explain Cameroon's increased production in spite of an output price environment much less favourable than in countries that have done much less well in cotton production (Lele et al., 1988).

Of course, the basis of success in technological and institutional development rests largely on the rate of human capital formation. Agricultural research and service institutions and the management of rural public works programmes all require large numbers of people with highly developed technical and administrative skills. In addition, well-educated farmers benefit more from a good technical extension system than poorly-educated farmers. For example, complex management systems associated with raising cross-bred livestock, which are usually more productive and profitable than traditional breeds, require well-educated farmers for their adoption (Alderman, 1987; Mergos and Slade, 1987). Higher levels of education are thus necessary to the growth of a technically efficient livestock industry. While, in the short-term, technical assistance from the developed countries can be very influential in moving these processes forward, increased investment in education is vital to the long-term growth prospects of developing countries. And growing human capital must be mobilised into productive systems by effective institutional structures, which themselves require high-level human capital in the provision and use of foreign technical assets.

AGRICULTURAL TRADE

Development must largely be driven by growth in domestic demand generated out of the processes of technological and institutional development described above. With few exceptions, it cannot be led by export growth in the sense that the bulk of the demand for increased output from a developing country comes from abroad. Nevertheless, trade is extremely important to the development process. Because of the high elasticity of demand for food among the poorest in developing countries, once they accelerate their growth substantially, even their best efforts in the agricultural sector cannot keep up with the domestic growth in demand for food. Thus, trade is needed to facilitate the import of basic food staples, including cereals and vegetable oils, into developing countries. Equally important, if developing countries are to grow rapidly, they must spread their own capital resources across a high proportion of their labour force. This means they cannot concentrate on capital-intensive industries like steel, petrochemicals and fertiliser. They must import those capital-intensive goods and services as well.

Agriculture itself can play an important role in meeting the export needs to pay for those imports. The opportunities are particularly great in labour-intensive agricultural commodities like fruits, vegetables, and certain types of livestock commodities. In fact, developing countries have been increasing market share in horticultural trade and experiencing high growth rates of export – despite current trade policies in developed countries that limit incentives to developing country farmers – illustrating how large potentials in those commodities are (Islam, 1988).

Three further points on trade must be made clear. First, successful rural development efforts create broad-based internal markets that, in turn, can strengthen developing-country agricultural trade performance. Rising incomes create a dynamic structure of demand in developing countries, increasing domestic consumption of diverse foods including horticultural and livestock products which provides further stimulus to the export sector. Second, efforts to exploit the trade potential in developing countries require a strong research effort both to reduce costs in production of these crops and to develop new export markets. Third, and finally, eliminating trade restrictions in developed countries is essential in providing added incentives for small farmers to expand their production. Liberalisation of world markets can eventually contribute to increased trade on

Table 10.4 Changes in the coefficients of variations of world cereal production, 1960/61–1970/71 to 1971/72–1982/83*

<i>Cereal</i>	<i>Coefficient of variation of production (per cent)</i>		
	<i>First period</i>	<i>Second period</i>	<i>Change</i>
Wheat	5.46	4.83	-11.5
Maize	3.29	4.41	34.0
Rice	3.97	3.80	-4.3
Barley	4.81	7.50	55.9
Millets	7.78	7.66	-1.5
Sorghum	4.75	5.70	20.0
Oats	11.30	5.35	-52.6
Other cereals	4.57	9.22	104.2
Total cereals	2.76	3.40	21.7

* Does not include China.

Source: Hazell (1988).

the basis of comparative advantage that benefits both developed and developing countries (Mellor, 1989).

AGRICULTURAL INSTABILITY

The world has experienced rapidly increasing instability in cereal production in recent years. The coefficient of variation of total world cereal production rose from 2.8 to 3.4 per cent between 1961/71 and 1972/83, an increase of 22 per cent (Table 10.4). Most of that increase was accounted for by increasing variability in maize, barley, and some other cereals. On the other hand, it appears that sizeable increases in world wheat and rice production were not accompanied by significant increases in instability.

Increasingly, production instability can be attributed to factors associated with modern seed/fertiliser technologies. A country's production of a particular crop may be dominated by varieties from a single parent, increasing the entire crop's susceptibility to particular disease outbreaks. An extreme example was the devastation to the United States' corn crop in 1970 caused by the southern corn leaf blight (Figure 10.1). Susceptibility to that disease was limited to only a few related hybrids which, unfortunately, were in wide use at the

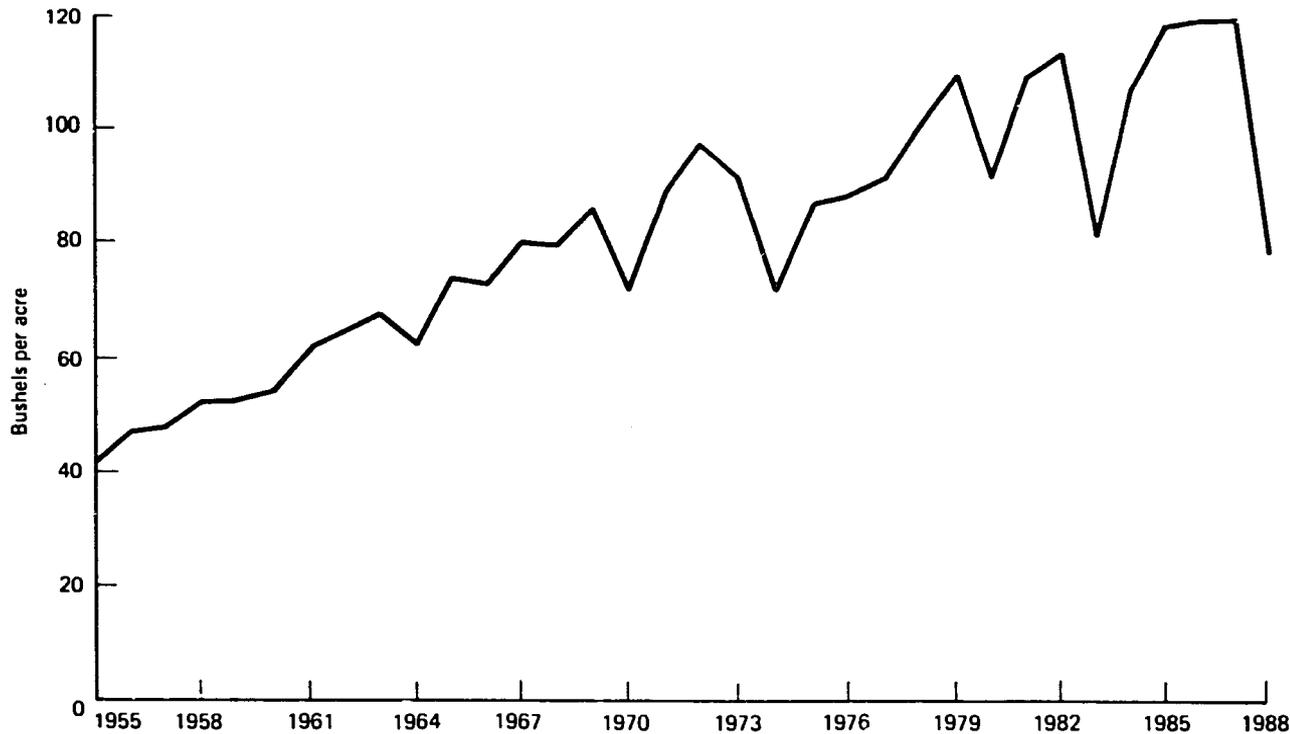


FIGURE 10.1 US corn yields, 1955-1988

Source: USDA (1988).

Note: The downward fluctuation in corn yield in 1978 was due primarily to widespread corn blight. Since then, most fluctuations can be attributed to severe weather conditions.

Table 10.5 Changes in coefficients of variation of world and national cereal prices,* 1961/71 to 1974/81, per cent

	Wheat		Rice		Maize	
	1961/71	1974/81	1961/71	1974/81	1961/71	1974/81
World	4.05	20.50	17.76	28.16	7.37	12.35
France	3.02	2.41			2.51	4.27
United States	15.03	20.20	2.56	20.29	7.98	16.77
Mexico	2.92	5.47			7.60	10.03
India	9.89	7.20	22.36	11.10		
Japan	3.37	8.39	13.50	4.24		
Canada	7.37	20.06				
Turkey	2.67	25.48				
F.R. Germany	2.92	3.00				
United Kingdom	2.68	4.78				
Italy	2.53	3.43				
Pakistan	7.84	8.11				
Argentina	24.58	50.17			23.15	33.05
Brazil			13.75	18.69	5.04	26.07
Yugoslavia					18.07	14.00
Kenya					10.91	10.00
Burma			2.54	0.66		
Philippines			12.57	4.17		
Colombia			14.05	9.32		

* Variation represented by fluctuations in prices around trend of the periods indicated.

Source: Hazell (1988).

time of the blight (Hargrove, Coffman and Cabanilla, 1979).

In addition to the widespread adoption of relatively few varieties, and in the developing countries especially, policies affecting the availability of fertiliser, electricity and water inputs can also affect production stability. Changes in those policies can have a large and unfavourable impact on production which becomes more and more dependent on the supply of those inputs with the increased adoption of new technologies.

As seen in Table 10.5, increasing price instability has accompanied greater production instability between 1961/71 and 1974/81. The coefficients of variation for world prices for the two periods increased 400 per cent for wheat, 59 per cent for rice and 67 per cent for maize. Many countries, however, have been able to insulate their domestic prices from fluctuations in world prices. Countries in the European Community have been particularly successful in that regard. Other

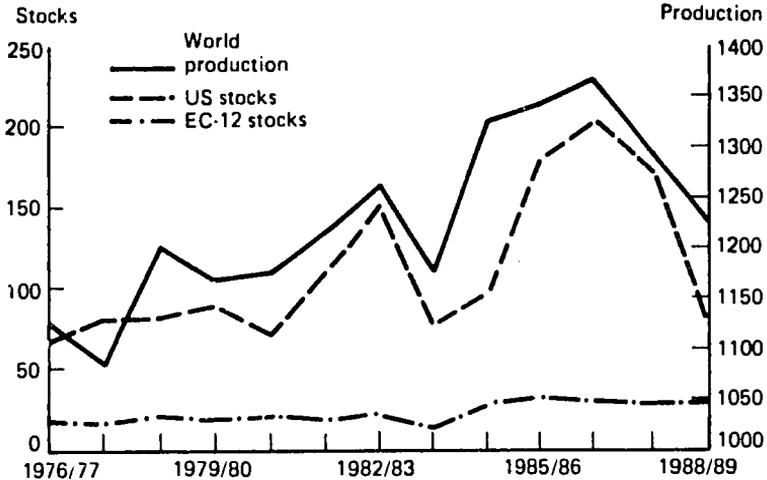


FIGURE 10.2 Responsiveness of US and EC-12 wheat and coarse grain stocks to world production, 1976/77 to 1988/89 (million metric tons)

Note: Data for 1988/89 based on USDA projections as of 11 August 1988.

Source: USDA (1988).

countries, like the United States, Canada and Argentina, on the other hand, have shown greater variability in their domestic prices.

Studies argue that the European Community's storage policies have actually exacerbated market instability (Koester and Valdes, 1984). The European Community relies mainly on trade to stabilise its domestic markets. On the other hand, in the face of increasing world production, the United States has historically increased its own stocks, limiting the potential decline in international prices (Figure 10.2). By extending price support loans to encourage farmers to store part of their output for extended periods of time, policies explicitly encourage food stockpiling during periods of low demand and/or high production, in order to make such stocks available when production declines or export demand increases. However, market-competitive actions authorised in the US 1985 Food Security Act have drastically reduced the level of carryover stocks of all major grains. The 1988 drought has accelerated the drawing down of US stockpiles, undermining the country's ability to be a stabilising influence on world markets. The US Department of Agriculture estimates a 56 per cent drop in US cereal stocks from the end of 1987 to the end of 1988 (USDA, 1988).

Instability in agriculture reduces and destabilises incomes and

consumption in developing countries, a burden that is borne especially by the most poor. In India, for example, a 10 per cent reduction in supplies of food-grains results in reduced consumption of as much as 37 per cent for the poorest segments of the population, compared to only 8 per cent by the wealthiest (Mellor, 1978).

The impact of that instability makes it politically difficult for developing country governments to undertake a growth strategy based on increased production in agriculture. While most countries should be able to deal with instability by building stocks sufficient for a single poor year, the cost of providing for two successive bad years through a stocking policy is prohibitive. Therefore, a strategy of agriculture-led growth requires a broader scheme to deal with the threat of production instability.

Open international markets are the most effective way to deal with more severe shortages. But again, for developing countries to be able to import needed food supplies to provide stability, they must have access to markets for their own exports. Foreign assistance may also be necessary to finance the flow of agricultural goods to the neediest countries. Finally, international financial institutions, including the IMF's cereal facility, can be a major source of stability by providing concessionary financing for food imports by needy countries. However, in regard to the IMF facility, significant modifications are necessary to encourage developing countries to make full use of its resources (Ezekiel, 1985).

FOREIGN ASSISTANCE

Foreign assistance is an essential component of the development processes described above. In Africa, between 35 and 65 per cent of government expenditures and public investments since the early 1970s have come from foreign aid. However, aid has always been shown to have inefficiencies in the development context. If recipient country institutions and human capital are underdeveloped, for example, they use both foreign assistance and their own resources ineffectively. And, because there was relatively little growth or a slowing down of growth in much of the developing world foreign assistance has performed pretty badly in recent years.

In the context of the structural imbalances of the 1980s, the deficiencies of foreign assistance became spotlighted. First of all, both governments and donors grossly underestimated the importance of establishing human and institutional capital. In addition, the rapid

growth in the number of foreign assistance donors over the last few decades has prevented meaningful coordination of their efforts. While in the 1950s, the United States dominated foreign assistance programmes, coordinating assistance efforts almost by default, it now provides only 29 per cent of the total official development assistance in the world (OECD, 1987). Since that is unusually heavily concentrated on just a few countries, the ability of the US to direct, coordinate and influence foreign assistance in the bulk of the developing world is very small indeed. Another, related shortcoming has been the tendency in recent years for development assistance to shift its emphasis quickly from one development fad to another, with each fad representing only a small portion of the developmental process, and all donors clustering around that particular fad. In moving from one fad to another – the infrastructure fad of the 1950s, the poverty orientation of the 1970s, and the market orientation of the 1980s – recipient countries have been overwhelmed with far too much assistance for certain aspects of their development, while other areas were sorely neglected. Without attention to complementary aspects of development, the objects of fads themselves failed to reach their potential.

Broad agreement among donors on an appropriate development strategy is the best solution to current problems in foreign assistance. For reasons outlined above, donors should focus initially on agriculture to raise factor productivity in that sector and thereby stimulate effective demand and even rapid growth in the non-agricultural sector. Such an agreement on an overall strategy would allow for natural coordination of assistance along the lines of something analogous to market processes. Donors would be free to use their resources to deal with different aspects of the agreed-upon strategy on the basis of comparative advantage and the support of their differing constituencies (Mellor and Masters, 1988).

CONCLUSION

The 1990s can put us firmly on the path of eliminating the bulk of poverty and hunger in the world. This is possible because of the vast investment in human capital and institutional structures that has been occurring for the past several decades. The returns are beginning to flow – first in the richer countries of Asia and Latin America, then in the poorer countries in these regions, and finally in Africa.

To realise those opportunities, developing countries must concentrate on a development strategy that emphasises growth in the labour-intensive agricultural sector. The prospects for that growth and for the alleviation of poverty and hunger in developing countries will depend largely on their ability to reduce costs and intensify agricultural production through technological innovation. That, in turn, will require increased investment in agricultural research to provide the basis for an accelerated increase in resource productivity in the high-production-potential areas, as well as in the more difficult environments. An expansion in rural infrastructure is also needed to integrate the poor fully in development processes by providing farmers with access to new technology and by providing the basis for employment multipliers to create new jobs in other sectors of the economy.

Foreign assistance must also be directed towards growth in small-holder agriculture and a broad agreement on that strategy must be obtained to allow donors to take full advantage for the comparative advantage of their resources and to maximise the impact of their efforts. Technical assistance from developed countries towards the further expansion of human capital and necessary development institutions – most importantly, those that undertake scientific research in agriculture – is crucial to progress in developing countries. In addition, recognising that rapidly rising incomes in developing countries generate a dynamic structure of demand and a consequent need to earn large amounts of foreign exchange through non-traditional agricultural exports, developed countries must open their markets to promote developing-country trade and take measures to ensure the stability of food supplies. Finally, food aid from the surplus-producing developed countries must be made available to support the expansion of rural infrastructure and meet the immediate needs of the hungry.

Cooperation by developing and developed countries can help both to eliminate hunger in the short-term and to encourage the long-term growth processes in developing countries. It is essential that they do so. Success in meeting the complex challenges and opportunities confronting us in the 1990s can ensure a shared and widespread prosperity well beyond the next decade.

Notes

1. The author greatly appreciates the assistance of Frank Z. Riely in preparing the text.

References

- Ahmed, R. and M. Hossain (1987) *Infrastructure and Development of a Rural Economy*. Washington: International Food Policy Research Institute.
- Ahmed, R. and N. Rustagi (1987). 'Marketing and Price Incentives in Asian and African Countries: A Comparison', in D. Elz, ed., *Agricultural Marketing Strategy and Price Policy*. Washington: World Bank, pp. 104-18.
- Alderman, H. (1987) *Cooperative Dairy Development in Karnataka, India: An Assessment*. Research Report 64. Washington: International Food Policy Research Institute.
- Ezekiel, H. (1985) *The IMF Cereal Import Financing Scheme*. Washington: Report of a study prepared for the Food and Agricultural Organisation and the International Food Policy Research Institute.
- Food and Agriculture Organisation (1985) *Fifth World Food Survey*. Rome: FAO.
- Hargrove, T.R., W.R. Coffman, and V.L. Cabanilla (1979) 'Genetic Interrelationships of Improved Rice Varieties in Asia', *IRRI Research Paper Series 15*, Manila: International Rice Research Institute.
- Hazell, P.B.R. (1988) 'Changing Patterns of Variability in Cereal Prices and Production', in J.W. Mellor and R. Ahmed, eds, *Agricultural Price Policy for Developing Countries*. Baltimore: Johns Hopkins University Press, pp. 27-52.
- Hazell, P.B.R. and A. Roell (1983) *Rural Growth Linkages: Household Expenditure Patterns in Malaysia and Nigeria*. Research Report no. 41. Washington: International Food Policy Research Institute.
- Islam, N. (1988) *Horticultural Exports of Developing Countries: Past Performance, Future Prospects, and Policy Issues*. Washington: International Food Policy Research Institute.
- Koester, U. and A. Valdes (1984) 'The EC's Potential Role in Food Security for LDCs: Adjustment in its STABEX and Stock Policies', *European Review of Agricultural Economics* 11: pp. 415-37.
- Lele, U. (1988) 'Agricultural Growth, Domestic Policies, the External Environment and Assistance to Africa: Lessons of a Quarter Century', Paper presented at the World Bank's Eighth Symposium on Trade, Aid, and Policy Reform for Agriculture, Washington.
- Lele, U. and J.W. Mellor (1988) 'Agricultural Growth, Its Determinants, and Their Relationship to World Development: An Overview', Paper presented at the XXth International Conference of Agricultural Economists, Buenos Aires.
- Lele, U. and L.R. Myers (1987) *Growth and Structural Change in East*

- Africa: Domestic Policies, Agricultural Performance and World Bank Assistance, 1963-1986*. MADIA Research Report no. 1. Washington: World Bank.
- Lele, U., A. Oyejide, V. Bindlish and B. Bumb (1988) 'Nigeria's Economic Development, Agriculture's Role and World Bank's Assistance, 1961 to 1986: Lessons for the Future', Washington: World Bank, mimeo.
- Mellor, J.W. (1978) 'Food Price Policy and Income Distribution in Low-Income Countries', *Economic Development and Cultural Change*, 27 (1) pp. 1-26.
- Mellor, J.W. (1985) 'Determinants of Rural Poverty: The Dynamics of Production, Technology and Price', in J.W. Mellor and G.M. Desai, eds, *Agricultural Change and Rural Poverty*. Baltimore: Johns Hopkins University Press, pp. 21-39.
- Mellor, J.W. (1989) 'Food Demand in Developing Countries and the Transition of World Agriculture', *European Review of Agricultural Economics*, No. 15.
- Mellor, J.W. and W.A. Masters (1988) 'The Changing Roles of Multilateral and Bilateral Foreign Assistance', in I. Nabi and U. Lele, eds, *Aid and Development: The Transition from Agriculture to Industrialisation and from Concessional Assistance to Commercial Capital Flows*. San Francisco: International Center for Economic Growth.
- Mergos, G. and R. Slade (1987) *Dairy Development and Milk Cooperatives: The Effects of a Dairy Project in India*. Discussion Paper 15. Washington: World Bank.
- Organisation for Economic Coordination and Development: (1987) *Development Cooperation: 1987 Report*. Paris: OECD.
- Riskin, C. (1987) *Feeding China: The Experience Since 1949*. WIDER Working Paper no. 27. Helsinki: World Institute for Development Economics Research.
- Sen, A. (1981) *Poverty and Famines: An Essay On Entitlement and Deprivation*. Oxford: Clarendon Press.
- United States Department of Agriculture (1988) *World Grain Situation and Outlook*. Circular Series FG 1-88. Washington: USDA, Foreign Agricultural Service.
- World Bank (1986) *Poverty and Hunger*. Washington.
- World Bank (1988) *World Development Report, 1988*. Washington.