

PB-223 884

JOB, POVERTY AND THE "GREEN REVOLUTION"

Uma J. Lele, et al

Cornell University

Prepared for:

Agency for International Development

January 1972

DISTRIBUTED BY:

NTIS

National Technical Information Service
U. S. DEPARTMENT OF COMMERCE
5285 Port Royal Road, Springfield Va. 22151

PB 223 884

**JOBS, POVERTY AND THE "GREEN
REVOLUTION"**

By

UMA J. LELE AND J. W. MELLOR

Reprinted from
INTERNATIONAL AFFAIRS
January 1972

Reproduced by
**NATIONAL TECHNICAL
INFORMATION SERVICE**
U S Department of Commerce
Springfield VA 22151

ROYAL INSTITUTE OF INTERNATIONAL AFFAIRS
Chatham House, St. James's Square, London, S.W.1

15

BIBLIOGRAPHIC DATA SHEET		1. Report No. 338.1-1539	2.	3. Reporting Agency No. PB-223884
4. Title and Subtitle "Jobs, Poverty and the Green Revolution"				5. Report Date Jan '72
7. Author(s) Uma J. Lele, and John W. Mellor.				6.
9. Performing Organization Name and Address Cornell Univ., Ithaca.				8. Performing Organization Rept. No.
				10. Project/Task/Work Unit No. Proj. 931-17-110-523
				11. Contract/Grant No. AID/csd-2845
12. Sponsoring Organization Name and Address Department of State Agency for International Development Washington, D.C. 20523				13. Type of Report & Period Covered
				14.
15. Supplementary Notes				
16. Abstracts Precisely because the development policies of the past two decades have been consistent with the old reality of stagnant agriculture, so the new reality of technological breakthrough in agriculture requires a new strategy. Accelerated growth in food production provides striking opportunities for a reversal of the low-employment, "basic indust" approach. Such a change has far-reaching implications not only for the industrial structure, but for the choice of production technique, the domestic savings rate, the scale of industrial organization, and the level and composition of trade.				
17. Key Words and Document Analysis. 17a. Descriptors				
17b. Identifiers/Open-Ended Terms				
17c. COSATI Field/Group 338				
18. Availability Statement			19. Security Class (This Report) UNCLASSIFIED	21. No. of Pages 15
			20. Security Class (This Page) UNCLASSIFIED	22. Price \$2.00-145

JOB, POVERTY AND THE "GREEN REVOLUTION"

Uma J. Lele and John W. Mellor

UNEMPLOYMENT and maldistribution of wealth are now at the centre of the stage in the drama of economic development. Mrs. Indira Gandhi's sweeping victory in the massive Indian poll of March 1971, based on the slogan *Garibi Hatao*—"down with poverty", is to be consummated through greatly increased employment of the poor. The Indian masses, impatient with politicians who blame political instability for lack of economic progress, gave a clear mandate to the leader who promised to get on with the job.

The Indian's demand for productive employment is equally that of his counterparts in Chile, Ceylon, Bangla Desh and Kenya. Despite the difficulties of defining and estimating unemployment in a manner that is universally acceptable, such estimates still provide a striking indication of the magnitude of suffering and deprivation in these low-income countries. A large number of people are either openly unemployed or largely underemployed in self-appointed, unproductive activities, earning pitifully low incomes. The estimates of open employment are as high as twenty per cent. in urban areas of Morocco; between ten to eighteen per cent. in various Bolivian cities; twenty per cent. in Kingston, Jamaica, and Georgetown, Guyana; and seventeen, fifteen and thirteen per cent. respectively in urban areas of Kenya, Ceylon and the Philippines.¹ These urban unemployment rates are comparable to those of Western nations during the worst years of the depression.

Disturbing as these figures are, they represent only the readily visible tip of the employment problem facing the poor nations of the world. The urban unemployed, piecing together a meagre living from occasional service jobs and handouts from relatives, have fled rural conditions which they considered worse. Few places in the world have a genuine frontier of adequately productive land to support the large numbers of people now being thrown on the labour market by the rapidly accelerated population growth of the past two decades. Using more of this labour in traditional agriculture or by reclaiming marginal land can only provide scant employment, meagre output and consequent poverty levels of living. The poor, who in Nigeria, Peru, Kenya and India alike have only

¹ David Turnham, *The Employment Problem in Less Developed Countries* (OECD, June 1970), pp. 193-195.

their unskilled labour to offer for a living, flock wherever there is even a slight promise of employment and income. Typically, this reserve army of the under-employed poor comprises over twenty per cent. of the labour force. For Latin America, the Latin American Institute for Economic and Social Planning estimates that over thirty per cent. of the total labour force is essentially unemployed with forty-five per cent. of the number in agriculture.²

The rapid increase in population continually adds to the army of unemployed; the long-term solution of the twin problems of poverty and lack of productive employment is a reduction in birth rates. In a typical low-income country, the expansion of productive non-agricultural employment at six per cent. per year will soak up the pool of unemployed in twenty years if the total population grows at two per cent. per year, but with the higher flow into the pool from a three per cent. rate of population growth it will take thirty-five years. The incentive to reduce birth rates is great.

Unfortunately, the new entrants to the labour force for the next fifteen to twenty years have already been born. In the next decade they will increase the total labour force by twenty to thirty per cent., expanding in number about thirty per cent. faster in the 1970s than in the 1950s as the accelerated birth rates of the 1950s mature into today's labour force.

To meet the immediate problem of a rapidly growing labour force imposed on existing high levels of unemployment requires new approaches to economic development, foreign aid and international trade. The old approaches are inadequate. From 1955 to 1965, less developed countries chose a pattern of growth which increased industrial production by 7.5 per cent. while industrial employment increased at only about half that rate.³ The consequent rate of growth of income was inadequate and the distribution inevitably went to a small class of capitalists and a labouring élite which obtained the few well-paying jobs in capital-intensive industry. To change this record so as to provide more employment and a broader distribution of income involves such difficult political and economic problems that many analysts still pose the problem as one of a choice between a fast rate of growth of national income and a fast rate of growth of employment. There is fortunately now at hand the knowledge and the means for resolving this conflict so as to provide faster growth of both income and employment.

The basis of both the political and the economic problem in development that is oriented towards employment is the unfortunate fact that increased employment exacerbates the equally explosive

² United Nations, Economic Commission for Latin America, *Economic Survey of Latin America 1968* (New York: United Nations Publication, 1970), p. 29.

³ David Turnham, *op. cit.*, p. 131.

problem of inflation. Because of the already heavy imports of capital goods, and low levels of exports, most low-income countries suffer chronic balance of payments problems and hence cannot avoid inflation by massive imports of consumer goods. Thus, if the poor are employed and spend their incomes on food and other consumer goods, domestic prices tend to rise. Most governments then sacrifice employment of the poor in order to restrain the price increases resented by the politically potent urban middle classes. It is this dilemma of employment versus price stability which gives special relevance to the potentials of the "green revolution". New agricultural technologies can provide the food needed to complement increased employment. Concurrently, as agricultural production increases, the employment-generated purchasing power of the poor can prevent the fall in prices which would dull incentives to farmers. Likewise, the greater purchasing power of farmers provides a demand for increased output from the industrial sector.

Unfortunately, the utopian promise of faster economic growth associated with greater employment is in sharp contrast to the widely reported realities of the "green revolution". All too often income inequity and unemployment have been dramatically highlighted by the new high-yield varieties of grain. As compared to smaller cultivators, the larger farmers can better afford the risks of innovation and they wield more political power over the developmental agencies which provide access to credit and crucial supplies such as fertiliser, seed and pesticides. More striking, the chasm separating the kulak cultivator from the landless labourer is drastically widened as yields per acre rise dramatically, and employment increases little. The introduction of labour intensive irrigation and multiple cropping may reduce the *rate of increase* of disparities, but the disparities remain and grow until additional action is taken.⁴ For labourers to receive the benefit of even these secondary effects, the political environment must be favourable and economic policy astute. The benefits for the poor do not rise automatically from the system as they do for the rich. An additional danger from the system is that the increased profitability of farming tempts landowners to resume cultivation of their tenancies and thereby convert poor tenants into destitute labourers.

If the extraordinary promise of the emerging agricultural technologies is to be realised, a drastic change in policies towards employment and industrialisation will be needed. High-employment policies

⁴ A carefully developed set of estimates of the differential income effects of technological change, given full acceptance of new technologies on all sizes of farm, is presented in *An Economic Analysis of Resource Use in Farming, Jabalpur District, Madhya Pradesh, India, 1967-68*, by V. P. Shulka, Occasional Paper No. 26 (Cornell University, October 1969), p. 63; the tendency for small farms to lag behind the large in adopting new technology is documented in *Differential Rates of Adoption of the New Seed Varieties in India; The Problem of the Small Farm* by Michael Schluter, Occasional Paper No. 47 (Cornell University, August 1971).

require sharply increased supplies of food, but a "green revolution" also requires a high-employment policy if income disparities are not to be greatly widened.

* * *

Past failure to generate a rapid increase in employment can be largely explained in terms of the ascendant theories of economic growth and consequent policies of capital intensive production and import substitution. This development strategy was prompted by the emphasis on structuring the economy towards the production of heavy capital goods and reinforced by assuming low growth potential for exports. The domestic capital goods sector was to be built at an early stage of development in order to force immediate savings and investment and to refrain from long-run reliance on imports. At the extreme, one first produced not food, not fertiliser, not fertiliser factories, but heavy-machinery industries to produce fertiliser factories.

It was also believed that minimising employment and thereby consumption in the short run would conserve resources so that they could be ploughed back into further expansion of the manufacturing sector. The conclusions that follow from such assumptions may be stated succinctly but simplistically as follows: the lower the rate of growth of employment and consumption in the short run, the higher their levels in the long run. It is a bourgeois approach, for it is the poor who die in the short run.

Contrary to the theory, the practice of capital intensive industrial expansion has resulted in relatively low rates of savings. This is because the initial establishment costs of these industries are often excessively high compared to their counterparts in the high-income countries. While most of these industries enjoy substantial economies of scale, their size of operation in less-developed countries often tends to be too small to be economical. In addition, they often suffer from inadequate supplies of raw material, labour problems and problems of technical know-how. All of these factors result in frequent closedowns and under-utilisation of capacity leading to high unit costs of operation, a low level of profits and consequent lack of funds for reinvestment. Ironically, the prophecies of low growth potential for exports have been fulfilled precisely because the policies followed were based on that initial assumption. Clearly, the low-income countries have little immediate comparative advantage over their high-income counterparts in the export of capital intensive products. India's highly sophisticated Second and Third Five-Year Plans are classic examples of these various assumptions, strategies and consequences. The development policies of the Philippines and much of Latin America are less sophisticated but still conforming illustrations.

Unfortunately, though the hopes of the investment and capital goods orientation were belied, it is unlikely that a greater emphasis on employment, consumer goods and trade would have been generally successful without a technological breakthrough in agriculture. For example, when India accelerated the growth rate of non-agricultural employment in the early 1960s, relative food-grain prices rose by twenty-eight per cent in the four pre-drought years, despite a doubling of imports of food grains. It is doubtful if this growing sectorial imbalance could have been sustained even if the disastrous drought of 1965-66 had not occurred.⁵ Not only would the economic base for growth in employment have been cut off, but the situation would have been politically unacceptable as well. World supplies of food were not available on the massive scale needed to back employment-oriented growth strategies in the developing world as a whole, even though individual small countries such as South Korea, Hong Kong and Singapore have been successful in matching employment growth with imported food. It is also questionable whether the rich countries would have been willing to receive the vast quantities of labour-intensive manufactures that would have allowed massive commercial imports in the less-developed countries.

* * *

Precisely because the development policies of the past two decades have been consistent with the old reality of stagnant agriculture, so the new reality of technological breakthrough in agriculture requires a new strategy. Accelerated growth in food production provides striking opportunities for a reversal of the low-employment, "basic-industry" approach. Such a change has far-reaching implications not only for the industrial structure, but for the choice of production technique, the domestic savings rate, the scale of industrial organisation and the level and composition of trade. Further, because of its distributional bias towards the rural élite, technological change in the agricultural sector may itself be turned into an engine for growth in industrial employment.

The upper income rural people who receive the primary benefit of

⁵ During the 1950s, non-agricultural employment grew at about two per cent. per year, food grain production increased at between 2.5 and three per cent. per year, relative food-grain prices fluctuated around a stable trend line and there was no upward trend in food-grain imports. From 1961 to 1964, before the great drought of 1965-66, non-agricultural employment increased at nearly five per cent. per year, food-grain production increased at about the same rate as in the 1950s, imports increased from 3.5 million tons in 1960-61 to 6.3 million tons in 1963-64, to 7.5 million tons in 1964-65 and relative food-grain prices rose twenty-eight per cent., or 6.5 per cent. per year, from 1960 to 1964. For analysis of the data for the 1950s, see John W. Mellor and Uma J. Lele, "Alternative Estimates of the Trend in Indian Foodgrains Production During the First Two Plans," *Economic Development and Cultural Change*, Vol. XIII, No. 2. (January 1965); data for the period 1960 to 1964 is from various issues of the "Reserve Bank of India Bulletin".

the new yield-increasing agricultural technologies already eat well. Consequently, they market the bulk of their additional production and thereby support growth in non-farm employment.⁶ This tendency is reinforced by the rapidly increasing importance of purchased production supplies, such as fertiliser, which require increased marketings in payment. In contrast, production increases achieved by traditional labour-intensive methods of land reclamation and more careful crop husbandry are paid in more substantial part to the labouring classes and directly consumed. Thus, while the new agricultural technologies accelerate growth in production, they accelerate growth in marketings even more.

Unfortunately, the potential for increasing employment provided by larger marketings and food may easily be lost by inappropriate supporting policies. If increased domestic food production is used only to replace foreign food aid, no significant increase in non-agricultural employment will occur. If the food is exported instead of being consumed domestically, the growth in employment will depend on the manner in which the foreign exchange is used. In most Latin American countries, the pattern has been one of investment abroad or increased imports of consumer goods for upper-income classes, instead of alleviating the domestic employment problem.⁷ If the foreign exchange is used to import capital goods, so as to expand the domestic industrial sector, employment will increase. How much employment increases will, of course, depend on the technology of industrial development. The tendency has been to fritter away the potential on capital-intensive industries. Mexico seems to be a classic case of the agricultural breakthroughs adding to rural income disparities but not being used to accelerate the growth of industrial employment.⁸ Taiwan and Japan illustrate the particularly successful use of agricultural progress to increase employment.⁹

If food imports cannot be reduced or exports increased, the politically powerful landed classes will press for price supports and government purchases to maintain high agricultural prices. What policymakers

⁶ Analysis of consumer expenditure data for India shows that the lower twenty per cent. in the income distribution, corresponding to the rural labouring class, spend over half of increments to total expenditure on food grains alone. In contrast, in the sixth, seventh and eighth expenditure deciles, corresponding to peasant cultivators, only fifteen per cent. of added expenditure goes to food grains. See John W. Mellor and Uma J. Lele, "Farm Cash Income and the Growth of Markets", a paper delivered at the Stanford Conference on Agricultural Development Strategies in the 1970s, Food Research Institute, December 13-18, 1971.

⁷ A series of related policy factors are discussed in: Celso Furtada, *Diagnosis of the Brazilian Crisis* (Berkeley: University of California Press, 1965), p. 115.

⁸ Donald K. Freebairn, "The Dichotomy of Prosperity and Poverty in Mexican Agriculture," *Land Economics*, Vol. XLV, No. 1 (February 1969).

⁹ See the detailed analysis in: T. H. Lee, *Intersectoral Capital Flows in the Economic Development of Taiwan, 1895-1960* (Ithaca, New York: Cornell University Press, 1971); and Kazushi Ohkawa, Bruce F. Johnston, Hiromitsu Kaneda (editors), *Agriculture and Economic Growth: Japan's Experience* (Japan: University of Tokyo Press, 1969).

often fail to realise is that an employment-oriented policy increases demand for food and thereby maintains agricultural prices without other action. It is thus obvious that the landed classes will receive a pay-off from technological change no matter what the strategy for maintaining prices, *i.e.*, whether prices are maintained by increased exports, reduced imports, building up "surplus" stocks or increased employment. Since the labouring class, comprising a large majority of the population, will benefit only from increased employment, the best strategy is obviously the latter. Unfortunately, the landowning classes, with their desire for speed in the delivery of benefits, do not support the employment option.

The rapidly rising income of prosperous landowners and peasants also offers a large and growing tax base for the support of employment programmes. Even before the "green revolution", the landed interests were undertaxed. Latin America is notorious in this respect and in India upper-income rural people pay only about one third as much in taxes as urban people in the same income bracket.

The landed interests evade the taxes which could support employment programmes and maintain high agricultural prices despite the poverty of the masses. It is these tendencies, founded on greed and ignorance, which turn the green revolution red, not the underlying nature of the new agricultural technologies.

* * *

Sharp acceleration in the agricultural growth rate places the immediate burden of employment expansion on programmes for rural public works. Fortunately, increased demand for purchased supplies such as fertiliser and increased marketings of food, both of which accompany the agricultural break-through, greatly increase the rate of return on labour-intensive rural public works such as roads, land-levelling, irrigation schemes, and rural electrification. Some of the increased food production may thus be used to feed an expanded rural labour force, which in turn facilitates further increases in agricultural production. In addition, productive public works may be financed by taxing local farmers who will benefit from the works and who would not find it politically acceptable to pay taxes for distant central government purposes.

A high degree of scepticism exists among bureaucrats regarding the effectiveness of rural public works. They believe, with some reason, that resources allocated to rural public works will disappear in the coffers of local politicians and enlarge the scale of political patronage. Their views are also influenced by the failure of many such schemes in the pre-"green-revolution" environment of largely subsistence agriculture in which there was little economic incentive for villagers to support them.

The increased employment and income arising out of agricultural growth cause a much more than proportionate increase in the demand for fruits, vegetables and livestock products. These in turn use large quantities of both production and processing labour. As long as the basic food-grains sector is stagnant, however, its effect both on labour supply and output demand prohibits an increase in the production of these types of agricultural commodities. In the case of livestock products, grain shortages also raise the costs of production. A rough estimate for India shows that the increase in incomes associated with the "green revolution" will increase a demand for milk alone sufficient to provide the equivalent of a fifty per cent. increase in annual employment and income to the fifteen million landless labour families. These secondary potentials in agriculture require substantial public investment in new forms of research, education, credit and market development.

While one set of policies expands rural employment, care must be taken not to allow other policies to throw additional labourers on the market. Tenants must be protected from eviction by avaricious landowners. Small farmers must be assisted by reducing the risks of innovation and increasing the availability of credit and production supplies. Labourers must not be capriciously displaced by machinery. Mechanisation is a particularly complex issue. Engine-driven wells may reduce water costs so much that more intensive cropping actually results in a net increase in the use of labour; tractors for carrying farm output to market and fertiliser to the farm may further encourage intensive operation which uses more labour altogether. Tractors may occasionally break a labour bottleneck at peak periods, facilitating double cropping and a net increase in the use of labour. In contrast, tractors may facilitate the consolidated operation of land, with displaced small farmers and tenants thrown unnecessarily onto the urban job market. As is the case with much of development policy, no simple rule can provide optimal mechanisation. What perhaps could be avoided through carefully thought out policies is uneconomic mechanisation that occurs because of direct and indirect subsidies.

Manufacturing and service industries must be the principal long-run source of added employment. The rapidly rising incomes of agriculture must facilitate accelerated growth in industrial employment through increased demand for industrial consumer goods and greater savings for investment in those industries. It may be necessary to reinforce these tendencies with a redistribution of income through taxes and land reform as well as through direct investment incentives.

Economists have for too long been the jesters who rationalised the desire of the rich to keep their money by stating that growth requires investment and saving and that the rich save more than the poor. In

many countries the rich not only save little, but the pattern of their consumption is loaded towards imports and capital intensive types of domestic production. A higher proportion of wealth in the pockets of those with lower incomes would in many countries direct consumption towards products providing more local jobs, and raise savings and investment rates in newly profitable local industries as well. In Latin America, there are many countries needing redistribution of income in order to foster a more employment-oriented industrial structure. It is no accident that the high growth-rate countries such as Taiwan, South Korea and Japan have a much broader distribution of income than lower growth-rate countries such as the Philippines.

The rapid expansion of small scale industries, both directly in the production of consumer goods and ancillary to larger-scale firms, offers one of the most effective means of expanding employment. Products such as sewing machines, bicycles, transistor radios, agricultural implements and other small tools and machinery can to a considerable extent be manufactured in whole or in part in small-scale industries that make many more jobs per unit of capital than do the large-scale industries introduced under modern import displacement schemes of development. In addition, in the absence of an organised capital market and of investment-oriented price and fiscal policies in the agricultural sector, small industries provide an efficient way of fostering and mobilising small savings in the agricultural sector. The development of medium and small industries may also help countries to avoid the rural-urban dichotomy that has arisen in most industrialised nations today, with unfortunate social, political and environmental consequences. The development of small-scale industries requires large public investment in power and transport and attention to many special problems of credit, relations with large-scale industry, and access to export market, supplies of raw materials and machinery.

All the employment measures described here are initially more profitable and progress more rapidly where agriculture is already prospering. Consequently, the explosive widening of regional income disparities is one of the most intractable consequences of the "green revolution". It is the poorer class in the backward regions who suffer the greatest inequity in economic development.

Unfortunately, the politics of regionalism often reinforce an already difficult economic problem because they restrict the free transfer of food to backward regions and of surplus labour away from them, thus seriously hampering a regional balance in development. The political bargaining power of the economically stronger regions also diverts disproportionately large financial resources to these regions. Further, it is the regions which have made considerable headway in development that

are capable of exploiting the investments in new projects more effectively. They thus show a high rate of return on investment in the short run. These forces have been strongly reinforced by foreign aid-givers and planners who must often justify the financing of projects on narrowly defined cost benefit ratios. A fresh view must be taken of the problems of allocating resources between different regions. This must incorporate much broader and longer-run effects of investments on growth. The economic disparities and the consequent civil war between the two wings in Pakistan have vividly brought home the stark effects of the politics of regionalism and narrowly defined investment criteria.

* * *

In the past, massive foreign aid has pushed low-income countries with a stagnant agriculture towards capital-intensive industries in which they have the least comparative advantage. This has meant high cost production, a relatively low rate of return, and a consequently poor capacity for the repayment of loans. The aid-giving agencies have also encouraged low-income countries to adopt the technology of high-income countries, which are suited to different proportions of capital and labour.

Success in the agricultural sector has provided a new impetus for the development of agricultural technologies which cater for the different physical conditions prevailing in low-income countries. A similar effort must be launched in other sectors of the economy to evolve technologies suited to the economic condition of abundant labour. Foreign aid can play a significant role in developing the necessary scientific infrastructure. But the development and appraisal of programmes will have to make less use of foreign consultants and their technological biases and more use of the rising research and development capabilities of the aid-receiving nations.

Carefully used, in conjunction with a buoyant agricultural sector, foreign aid may supply the capital to complement labour-using industries. Light electronics, a wide range of other modern consumer goods industries and even some capital goods industries such as light machine tools can all profit from the advantages of cheap labour. The result is low cost production, high profits and consequent high rates of capital formation. As the potential for such industries experiences an initial rapid expansion, the need for capital is likely to outrun the supply from domestic savings, creating a major opportunity for effective foreign aid. The contrast between this approach and the capital-intensive one may explain why foreign aid has been so effective in some countries, such as Taiwan and South Korea, and so ineffective in others.

Since the agricultural break-throughs have been significant mainly in foodcrops, shortage of other agricultural raw materials such as

cotton and oilseed are now likely to be serious constraints on the expansion of employment. Foreign aid could play a particularly significant role in identifying and supplying these commodities in the short run and in providing technological assistance to increase their production in the long run.

The form of aid thus needs to be complementary to the form of the development process. Where the agricultural sector moves rapidly there may be a need for foreign aid in the form of capital goods and foreign exchange. If the agricultural sector is stagnant, however, and hence inhibits the growth of employment, foreign aid should emphasise the development of the technological infrastructure for fostering the seed-fertiliser revolution. Where water control constitutes a major bottleneck in the spread of the new varieties, it should take the form of investments in irrigation, particularly as a way of reducing regional disparities. While these longer-term policies are being implemented, food aid can be used for expanding employment in balance with growth in capital. East Pakistan was particularly in need of the latter strategy, and Bangla Desh will continue to remain so.

The development of a labour-intensive industrial sector also has significant implications for the expansion of trade. Demand will expand rapidly for many types of imported raw materials and capital goods to combine with labour. The immediate need for foreign exchange is often viewed by the planners as unfortunate. However, what is not recognised is that the development of a growing domestic market for labour-intensive industrial products may prepare the way for the eventual development of exports. The experience of Japan and Taiwan and more recently of India demonstrates the large potential for exports of labour-intensive goods, not only to other low-income countries, but also to advanced industrial nations where labour has become increasingly dear. Success in exports may even make it possible to supplement domestic agricultural production with food imports to sustain a somewhat faster growth of employment than would otherwise be possible. Commercial food imports by Communist China appear to have allowed a much more employment-oriented approach than that followed by the Soviet Union. India could profitably develop rice imports from Thailand for the same purpose.

In the long run, the expansion of trade is to be preferred to aid because trade encourages specialisation in those types of commodities which use more labour relative to capital. However, foreign aid can play a particularly useful role during the interim period when the demand for imports of capital and raw materials outstrips the long-run export capability.

* * *

The development approach outlined above provides a positive alternative to the capital-intensive, import-displacing, low-employment growth pattern followed by many low-income countries. At the theoretical level, our approach emphasises a consumer-goods orientation. We contend that this would accelerate the growth of employment, savings and exports. We have shown how a rapidly expanding food supply is a *sine qua non* for such an approach. Several factors play a crucial role in determining whether the potentials offered by the technological breakthrough in agriculture are fully exploited.

First, although the magnitude and the momentum of the agricultural revolution may be disputed, it is a *fait accompli* in the important sense that the concept of agricultural development has been drastically changed. However, if the myriad scientific, administrative, institutional and political intricacies of the "green revolution" are not attended to diligently the revolution may halt.

Second, both to accelerate growth in agricultural production and broaden the distribution of benefits, effective policies are needed to extend the "green revolution" to small farmers, to prevent the displacement of tenants, to confine farm mechanisation to the few socially desirable functions and to expand rural employment through the diversification of agriculture into intensive crops and livestock and the development of productive rural public-works programmes.

Third, success in agriculture provides an opportunity for a fresh look at industrialisation policies. The governments of many countries are dominated by the ideology of large public sector capital-intensive enterprises and are often neither willing nor equipped administratively to cater for the needs of a more atomistic employment-oriented type of industrial development. Investment in the public sector need not be discouraged, but it may need to be redirected. New industrial policies may also need to be coupled with the encouragement of private investment through tax incentives, market development, research support and other devices, as well as by discouraging import-oriented conspicuous consumption by high-income groups.

Fourth, export markets must be sought more zealously. Industrialised countries have often followed a policy of too much rhetoric and too little action on allowing imports of competitive products from low-income countries. On the other hand, the low-income countries' lack of initiative, poor quality standards, and delays in deliveries of goods must often take some of the blame. Improved agricultural and employment conditions should give an impetus to the reform of export and import policies.

Fifth, a strong argument must be made for accelerating the flow of aid to low-income countries. The appalling drop in aid from the United States reflects the growing frustration of American liberals at

their failure to provide aid more meaningfully, and of conservatives at their inability to interfere with the policies of the less-developed countries. While some poor countries are lectured for not sharing the income of their faster-growing regions with their laggard ones, others have been idealised as models of growth precisely for these same reasons. The high-yielding varieties, for which foreign assistance can claim significant credit, provide new potential for self-sustained growth in low-income countries. Our analysis emphasises the need for a careful examination of the manner in which growth is fostered through aid and a clear need for a discriminate increase in economic aid while growth of agricultural production is accelerating. It is unfortunate that the supply of aid may decline precisely when the opportunities for its effective use are growing.

Maintaining a high growth rate in food production and fostering employment-oriented industrialisation obviously require new policies in low-income countries that go beyond socialist slogans and symbolic nationalisations. It also requires more from the high-income countries than pious lectures about free trade and bootstrap development.

Uma J. Lele, now an economist at the World Bank, was a visiting professor at Cornell University when this piece was written. Views expressed in this paper are her personal views and do not necessarily reflect those of the World Bank. She is co-author of Developing Rural India and author of Foodgrain Marketing in India.

John W. Mellor is a professor of agricultural economics at Cornell University. He is co-author of Developing Rural India and author of The Economics of Agricultural Development and a forthcoming Twentieth Century Fund book, India and the New Economics of Growth.