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Testimony prepared for recent Congressional committees which discusses ways in which food aid programs can play a more positive role in encouraging low income nations to choose a strategy of economic development which would provide accelerated growth in employment, consequently broadened participation of the poor in economic growth, effective attention to increasing agricultural production and as an eventual by-product, reduced rates of population growth. It is argued that United States foreign policy generally, and its aid policy specifically, can greatly affect perceptions in these areas and hence the choice of economic growth strategy.

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ON

WORLD FOOD PROBLEMS AND FOOD AID

by

John W. Mellor

- A. "Population and Food Assistance"
- B. "Food Aid and Agricultural Development"
- C. "Agricultural Production and Development
in South Asia"

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June 13, 1975

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April 17, 1975

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A. POPULATION AND FOOD ASSISTANCE*

Explosive population growth is surely one of the most pressing problems now facing the world community. As demonstrated at the Budapest World Population conference it is also one of the potentially most divisive issues between the rich and poor nations - not so much for disagreement as to objectives, but for disagreement as to the nature and complexity of the problem and the appropriate means to its solution. It is becoming increasingly clear that the population problem is intricately interwoven with the problems of health and nutrition and of food supplies and food aid. In this context I wish to make six points of relevance to today's hearings.

First, specific programs targeted to family planning and reduced birth rates can be highly effective, but only in an environment in which the target groups perceive opportunities for improved welfare for themselves and their children.

Second, the most important element of increased welfare for the poor is improved health. The most serious and basic cause of poor health amongst the low income people of the world is insufficient calories. Thus increased production of grain as epitomized by the "green revolution" is the first condition of improved welfare for the poor.

Third, increased production of grain will not automatically provide the poor with sufficient employment and income to purchase that grain at remunerative prices. Thus agricultural production policy and welfare policy both demand facilitation of employment growth which will provide increased purchasing power to the massive numbers of low income people in developing countries.

Fourth, we now know reasonably well the broad outlines of the requisites for effective agricultural production strategies for low income nations. The keys lie with trained manpower and complex institutional development. The United States is well placed to greatly assist in those efforts. Even at best, however, such processes are slow. And, thus a program of technical assistance for agricultural production may usefully be supplemented with food aid to tide over the lag period and to meet short run deficits arising from inclement weather. The promise of food aid may thus encourage nations to opt for a rural oriented, high employment, broadly participatory strategy

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Testimony prepared for the subcommittee on Foreign Assistance of the Foreign Relations Committee, United States Senate, June 13, 1975.

of growth, with its attendant rapid increase in demand for food, despite the domestic risks attendant on such a strategy.

Fifth, particularly in the short run, a rural oriented, high employment strategy of growth also requires massive capital investment in transport, power, fertilizer and irrigation. Thus capital assistance can also accelerate pursuit of such a strategy, thereby reducing the time and privation required to achieve broadly participatory growth with its associated increased welfare and reduced population growth.

Finally, whether a developing nation chooses such a strategy depends very much on its perception of the risks entailed with respect to its political base, its international position and to preservation of its existing level of welfare. United States foreign policy generally, and its aid policy specifically can greatly affect perceptions in these areas and hence the choice of economic growth strategy.

B. FOOD AID AND AGRICULTURAL DEVELOPMENT*

Introduction

Food aid can play a major positive role in encouraging low income nations to choose a strategy of economic development which provides accelerated growth in employment, consequently broadened participation of the poor in economic growth, effective attention to increasing agricultural production and as an eventual by-product, reduced rates of population growth. Such a role for food aid is consistent with the fact that demand for food is as much subject to the national policies of low income nations as the supply of food; that the extent to which nations emphasize food production is substantially a product of their policies with respect to food demand; and, that these are, in turn, very much related to the nature of the political system and its sources of support. A government which is based on broad popular support must be concerned, at least in the longer run, with increasing the incomes and employment of the poor, as well as with enlarging the food supplies on which they will spend their increased income. Conversely, a government that is not clearly assured of food supplies in the short run, dare not engage in the politics of rising expectations for the mass of its people. Rather, in those circumstances, it must be repressive of the poor and follow narrowly based, elitist approaches to growth, with little emphasis on agriculture. Then, slow growth in agricultural production is matched by slow growth in demand as the rural sector stagnates and as employment is contained by capital intensive, urban oriented, industrial development.

In succeeding sections I develop this argument; first by demonstrating the relation between food supply and broad participation in economic growth; and second, by showing the key role domestic food production plays in an employment oriented strategy of growth. In this context, I indicate the complementary and even catalytic role which food aid can play in that process. This is followed by a brief statement of the conditions for effective development of agriculture and the characteristics of a successful agricultural policy. From that is outlined an effective food aid strategy and its associated measures for developing indigenous agriculture. I close with a summary of the case for food aid over other forms of aid. Throughout I recognize that inappropriate food aid policies may be quite counter-productive.

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Testimony prepared for the subcommittee on Foreign Agricultural Policy of the Committee on Agriculture and Forestry, United States Senate, April 17, 1975.

Food Supply and Demand - The Relation to Employment

When incomes of the poor are increased there is an inevitable increase in the effective demand for food - indeed providing the poor with the financial means of improving their health and well being through improved diets is a principal objective of increased employment. Thus, in India, for a \$1.00 increase in income of the landless labor class, occupying the lower 20 percent in the income distribution 60 cents is spent on grain and 85 cents is spent in total on food (Table 1). This increased demand for food cannot be met by a simple redistribution of income, for a similar \$1.00 reduction in income of the top five percent in the income distribution only reduces demand for grain by five cents. The increased demand must be met by increased supplies. Otherwise prices will rise and government will be forced to fight the incident "inflation" by the conservative fiscal and monetary policies which can work only by reducing the employment and incomes of the poor. Thus, increased incomes and employment of the poor go arm-in-arm with increased supplies of food.

The Key Role of Domestic Food Production

Accelerated growth in domestic food production in developing countries serves a dual role in a high employment, broadly participatory strategy of growth. First, it supplies the basic "wages goods" necessary to back the increased purchasing power of the expanded labor force; a point which has been elaborated in the preceding section. Second, increased agricultural production achieved through the improved technology of the "green revolution" offers net additions to national income which provide major stimulus to growth of demand, employment and output, in other sectors of the economy.^{1/} Thus, development of the agricultural sector has a crucial positive role to play in economic development and not simply a passive role of providing food for a growing population or as a reservoir for labor that the urban sector cannot yet absorb.

1/

This important point is spelled out in a general way in Uma J. Lele and John W. Mellor, "Jobs, Poverty and the 'Green Revolution'," International Affairs Vol. 48, Jan., 1972; in a more technical manner in John W. Mellor and Uma J. Lele, "Growth Linkages of the New Foodgrain Technologies," Indian Journal of Agricultural Economics, Vol. XXVIII, No. 1, Jan.-Mar. 1973; and with detailed specific application to India in John W. Mellor, India and the New Economics of Growth, The Twentieth Century Fund (forthcoming 1975).

TABLE 1. Division of Incremental Expenditure Among Expenditure Categories, by Rural Expenditure Class, India, 1964-65.

	Bottom deciles (mainly landless ag. & nonag. laborers)	3rd decile (laborers with less than 1 acre)	4th & 5th deciles (1-5 acres)	6th, 7th & 8th deciles (5-10 acres)	9th decile (10-15 acres)	Lower $\frac{1}{2}$ of 10th decile (15-30 acres)	Upper $\frac{1}{2}$ of 10th decile (30+ acres)
<u>Mean Per Capita Monthly Expenditure</u>	8.93	13.14	17.80	24.13	30.71	41.89	85.84
<u>Allocation of an Additional Rupee of Expenditure</u>							
A. Agricultural Commodities	0.79	0.69	0.59	0.52	0.46	0.40	0.33
(a) Food grains	0.59	0.38	0.25	0.16	0.11	0.06	0.02
(b) Nonfoodgrains	0.20	0.31	0.34	0.36	0.35	0.34	0.31
(i) Milk & milk products	0.07	0.11	0.12	0.13	0.13	0.12	0.09
(ii) Meat, eggs & fish	0.02	0.03	0.03	0.03	0.03	0.03	0.02
(iii) Other foods (a)	0.01	0.05	0.07	0.09	0.10	0.12	0.16
(iv) Tobacco	0.01	0.01	0.01	0.01	0.01	0.01	0.01
(v) Vanaspati	-	0.01	0.02	0.02	0.02	0.02	0.01
(vi) Other oils	0.05	0.05	0.04	0.04	0.03	0.02	0.01
(vii) Sweetners	0.04	0.05	0.05	0.04	0.03	0.02	0.01
B. Nonagricultural Commodities	0.21	0.31	0.41	0.48	0.54	0.60	0.67
(a) Textiles	0.09	0.08	0.07	0.08	0.07	0.06	0.07
(i) Cotton textiles	0.09	0.08	0.07	0.06	0.06	0.05	0.03
(ii) Woolen textiles	-	-	-	0.01	0.01	0.01	0.02
(iii) Other textiles	-	-	-	0.01	-	-	0.02
(b) Nontextiles	0.12	0.23	0.34	0.40	0.47	0.54	0.60
(i) Footwear	-	0.01	0.01	0.01	0.01	0.01	0.01
(ii) Durables & semidurables (b)	0.01	0.01	0.01	0.02	0.02	0.03	0.05
(iii) Conveyance (c)	0.01	0.01	0.02	0.02	0.03	0.05	0.10
(iv) Consumer services (d)	0.02	0.02	0.02	0.03	0.03	0.04	0.06
(v) Education (e)	0.01	0.01	0.02	0.03	0.03	0.05	0.11
(vi) Fuel & light	0.07	0.07	0.06	0.05	0.05	0.04	0.03
(vii) House rent (f)	-	0.01	0.01	0.02	0.03	0.04	0.08
(viii) Miscellaneous (g)	-	0.09	0.16	0.22	0.27	0.28	0.16
TOTAL	1.00	1.00	1.00	1.00	1.00	1.00	1.00

SOURCE: Mellor, John W. & Uma J. Lele, "Growth Linkages of the New Foodgrain Technologies," Indian Journal of Agricultural Economics, Vol. XXVIII, No. 1, Jan.-Mar. 1973.

It is particularly important, in the context of food aid, to see the relationship between economic growth strategy and population growth. It is now clear that the interacting forces of lack of employment, lack of education, high infant mortality and poverty generally, are associated with high birth rates. Conversely, birth rates will remain high in a nation so long as a major portion of its population is denied participation in economic growth - that is what the poor nations were trying to tell us at the Budapest meetings. And, as stated above, participation of the poor in growth greatly increases the demand for food. Thus, quite contrary to some arguments, gaining control of the world's population requires that much more food be supplied to the poor, not less.^{2/} Domestic programs of food production supply the food and through direct and indirect effects provide a favorable environment for providing the employment, income and purchasing power for buying that food.

In this context a complex point about price effects of food aid and price policy can be seen. Food aid need not depress domestic agricultural prices if it is accompanied by measures which expand employment of lower income people and hence expands demand for food commensurately - but similarly, such demand increasing policies should not be undertaken lightly by governments unsure of the reliability of their grain supplies.

The Positive Role of Food Aid

The preceding section shows that there is great advantage to pursuit of broadly participatory increase in human welfare and associated reduction in population growth through a strategy that emphasizes the complementary elements of increased food production and increased employment. However, pursuit of such an objective and strategy is fraught with grave risks for a government - risks which food aid may reduce.

First, agricultural development is at best a complex and slow process. While measures to increase employment and incomes of the poor may quickly succeed, measures to increase agricultural production may be delayed - and yet their eventual success may require political actions and support that themselves create immediate additions to demand for food. A government may understandably feel trepidation at the threshold of such an accelerating gap between its food needs and domestic capability. A

^{2/}

See John W. Mellor "Population, Resources and Jobs - A Summary Statement," Dept. of Agricultural Economics, Occasional Paper No. 77, Cornell University USAID Employment and Income Distribution Project, July 1974. See also John W. Mellor India and the New Economics of Growth, The Twentieth Century Fund, Chapter 10 (forthcoming, 1975).

politician may not be assuaged by the economist's advice that the problem is only a short term one - for both know where they will be in the long run. We see this problem in the context of broader political and economic events in Tanzania, Chile and more recently in Ethiopia.

It is perhaps worth emphasizing the distinction between domestic policies which create a food shortage as part of a process which lays the groundwork for a more egalitarian society and one which does so as part of a process of maintaining a narrowly based society. In the former case, much of the problem arises from increase in demand and possibly from production setbacks accompanying a restructuring of the institutional framework which may lead to later increases in production. In the latter, the problem arises despite stagnant demand, because of a refusal to reorganize the institutional framework. Further, the magnitude of a food shortage is likely to be much greater in the former case than the latter.

Second, weather induced year-to-year changes in agricultural production are large compared to either the changes in demand or in supply that accompany changes in development policy. Thus, as will be shown later, an increase in the trend of agricultural production of one percentage point, say from three percent to four percent is indeed revolutionary in its implications to growth strategy. And yet weather may easily cause single year declines in production of 10 to 20 percent (Table 2). What is a government to do if it has just implemented a significant program of employment growth and then is hit by a ten percent reduction in food supplies? Perhaps a prudent government, facing such possibilities would opt for a more narrowly based strategy of growth which was not so dependent on growth in food supplies and rising expectations of the masses. Food aid could provide the insurance necessary to encourage a prudent government to take those risks. It is clear, that for food aid to be effective it must be reliable. A nation cannot tune its longer term economic and political processes to an aid program which is, on the one hand, essential to that process and which is, on the other hand, subject to rapidly changing political and economic fashions.

The preceding analysis shows how terribly misleading is the triage analogy in the context of food aid. First, the analogy is inapt - individual casualties on the battlefield may die and disappear, nations of people do not. As much as some of the partisans of the view might wish it, Bangladesh's 75 million people will not disappear for lack of American aid. The question is not whether Bangladesh will survive - indeed it is inevitable that in a few years there will be millions more Bengalees; but rather, is the groundwork being laid for the broadly participatory system of growth which will eventually bring down birth rates and stabilize population. And further, will that groundwork be

TABLE 2. Estimates of Foodgrain Production, India, 1949/50 to 1971/72

Year	Official Estimates of Production	Percent Change from Previous Year	Growth Rate	Trend Line of Production	Input Estimates of Production	Percent Change from Previous Year	Growth Rate
in million metric tons							
1949/50	60.8	0.0		60.8	60.8	0.0	
1950/51	55.0	-9.5	2.2	62.5	60.4	-0.7	2.6
1951/52	55.6	1.1		64.2	61.0	1.0	
1952/53	61.8	11.1	4.8	66.0	64.2	5.2	3.2
1953/54	72.4	17.1		67.8	68.6	6.8	
1954/55	70.8	-2.2	2.8	69.7	68.7	0.1	2.6
1955/56	69.4	-2.0		71.7	70.8	3.1	2.9
1956/57	72.5	4.5	4.1	73.7	72.0	1.7	2.6
1957/58	66.7	-8.0		75.7	73.6	2.2	
1958/59	78.9	18.3	3.4	77.8	76.9	4.5	2.6
1959/60	76.9	-2.5		80.0	79.2	3.0	
1960/61	82.2	6.9		82.2	80.5	1.6	2.0
1961/62	82.9	0.8	2.1	83.9	82.6	2.6	2.4
1962/63	80.3	-3.1		85.7	84.4	2.2	
1963/64	80.7	0.5	2.1	87.5	85.7	1.5	2.9
1964/65	89.3	10.7	2.1	89.3	87.0	1.5	2.9
1965/66	72.3	-19.0		91.4	88.0	1.1	2.9
1966/67	74.2	2.6	2.8	93.5	91.8	4.3	2.9
1967/68	95.0	28.0		95.6	94.9	3.4	
1968/69	94.0	-1.0	2.2	97.8	99.6	4.9	2.9
1969/70	99.5	5.8		100.0	104.8	5.2	3.5
1970/71	108.4	8.9	3.3	102.3	106.7	1.8	3.5
1971/72	104.7	-3.4	2.3	104.7	110.6	3.6	3.5

SOURCE: Mellor, John W., India and the New Economics of Growth, The Twentieth Century Fund (forthcoming-1975), Chapter II, Table 2.

laid and the final increase in population occur from a 50 million base (for which it is now too late, but which was possible in the early years of independence from Britain); a 75 million base (as of now); or an even larger base (for the future).

Continued shortage of food only ensures that governments will narrow their political base to a group to which they can supply adequate food and for which other material goods may be relatively more available. To continue the analogy of Bangladesh, that country has failed for 25 years to develop the basis for a broadly participatory process of growth, while its population grew by an amount which would in 1946 have been considered impossible to sustain. In my view, the changes in the government system in Bangladesh in recent months are fully consistent with the food situation but do not bode well for improvement of that situation.

In a similar vein, it is not surprising that Mrs. Gandhi's government laid great emphasis on increasing employment in 1970 when government held stocks of grain were being built rapidly to what were generally considered uncomfortably large levels, and has talked, and acted, much less on this point more recently when refugees, drought, and high world prices have wiped out those reserves.

In this context, it should be recognized that once a nation opts for a low employment elitist approach to growth, perhaps because of lack of food, that then reduces the demand pressure to increase agricultural production and ensures lack of the attention necessary to success in agricultural development.

The preceding is not to say that food aid is necessarily facilitative of a broad based strategy of growth. Even narrowly based governments need some control of food supplies. They may pursue a program of capital intensive growth and not even provide the minimal resources for agriculture necessary to support that minimal growth in food demand. Food aid may then facilitate further neglect of agriculture and continuation of a narrowly based strategy of growth. Indeed, for a low income nation with a political system built on a narrow urban base or wealthy rural landlords, it may be convenient to meet much of urban demand for food from food aid so that it will not be necessary to unsettle rural areas with the reorganization and change incident to rural development. It is clear then that effective food aid requires choices - but, fortunately, not the morally repugnant choices of the triage metaphor.

Thus a food aid policy effective in reaching long run goals of increased agricultural production, broadened participation in growth and eventually reduced rates of population growth will favor countries which first foster rapid growth in employment through encouraging small and

medium scale industry, broad based rural development and expanded trade, and second,^{3/} which take effective long run steps for increasing agricultural production. For economic reasons, it is likely that both efforts will be more successful in countries with broadly based political systems which lend themselves to considerable decentralization in operation of programs.

Given favorable circumstances in the receiving country, food aid will be more effective if it is associated with an international trade environment facilitative of increasing labor intensity in the low income countries and with specific development assistance to agriculture. Such assistance can of course be no more than a marginal addition to a nation's basic effort, and thus its success depends on the nature of the development process itself and the dedication of the receiving nation to that process. Nevertheless food aid itself may encourage that dedication - and it is presumably in this area that the humanitarian would bargain with food aid. However, to bargain effectively the means of developing agriculture must be understood.

The Means of Developing Agriculture

The specific requisites of agricultural development differ across areas and over time. However, one basic generalization does stand out as important. In low income nations, agriculture, in contrast to industry, is a large existing sector already commanding the bulk of the economy's land, labor and even capital resources. The traditional agricultural sector uses those resources at low levels of productivity, a condition due not to the ignorance of farmers but to the lack of modern high yielding technology appropriate to the specific conditions facing those farmers and the necessary set of supporting investments and institutions.^{4/} From this we can state the essential prerequisites of modernizing agriculture.

^{3/}

See Uma J. Lele and John W. Mellor, "Jobs, Poverty and the Green Revolution," International Affairs, Jan., 1972, for a more complete exposition of these conditions.

^{4/}

For a full statement of these points see John W. Mellor, The Economics of Agricultural Development, Cornell University Press, Ithaca, N. Y. 1966. For an operationally oriented analysis emphasizing administrative and institutional aspects and based on a survey of the experience of representative rural development projects, see Uma Lele, Design of Rural Development, Johns Hopkins University Press, July 1975.

First, and most basic, local research institutions are needed for developing new high yielding varieties of crops and livestock suited to indigenous conditions. In contrast to a decade ago, this need is widely recognized, and yet there seems still to be more lip service than action. This need is perhaps greatest for the small farmer because in the past the crops he grows have been most neglected. The U. S. participation in the International Research Institutes is a useful step for meeting this need. That activity needs to be expanded and much more needs to be done to develop national research systems which can plug into the international grid.

Second, there needs to be a vast development of rural institutions for facilitating the spread of new technology - these include credit, marketing and extension, and may include revised systems of land tenure and community organization as well. As in the case of research, the key characteristics of these institutions is their requirement of large numbers of trained people. Thus one of the prime development requisites is the means to enlarge the quantity of trained personnel and to facilitate organization of these personnel into effective organizations. As always, the more the effort is intended to reach the large numbers of small farmers the greater the requirement for trained personnel. Programs for the poor are personnel intensive and hence inconsistent with narrowly based elitest education. The United States has played and can continue to play an effective role in expanding capacity to train personnel in developing countries and to help fill the short run gaps with technical assistance.

Third, a modernizing agriculture requires an immense investment in physical works and supplies. Irrigation systems need to be built, roads constructed, even domestic airlines built to integrate the far corners of a country, and fertilizer imported. These require such large quantities of resources that they are unlikely to be accomplished without a broadly participatory government which at once can mobilize local rural resources for much of this task and which is dedicated to allocating massive quantities of resources to the rural sector. Again, while the necessary institutional and political structures are being built, foreign aid can play a useful role. Food aid itself releases domestic resources and adds to government resources and so is effective in this context, as is financial aid for fertilizer imports, building of irrigation structures and similar investments.

Given the complexity and variability of development and the understandably complex mix of objectives there is no clear way to state a measurable set of criteria for food aid and related assistance. One can, however, make general judgements and provide some rank ordering of priorities. I would reiterate the earlier statement that it is well to recognize the congruence between a more egalitarian society and one which

meets the objectives set forth here. Hence it is necessary to distinguish policies that may impede production growth in the short run as part of a process of broadening a polity, from those policies which impede production growth as part of a process of maintaining a narrow political base.

The Characteristics of Success in Rural Development

Successful rural development will increase the supply of grain, diversify agriculture to a wider range of crops and livestock and be associated with accelerated growth in national income and hence in the demand for food.

For the bulk of low income nations for whom basic food production is barely exceeding population growth, success in agricultural development is raising the rate of growth of grain production from 2½ or 3 percent to 4, or, at the most, 5 percent. That degree of acceleration is difficult to detect, given the oscillations in weather and the concomitant growth in demand. As in the case of Taiwan, which is a great success story in rural development, the very success of agriculture may stimulate growth in demand of such a magnitude that it can only be met by increased imports - imports which can soon be commercially financed within this pattern of growth. To illustrate characteristics of agricultural growth, Table 3 shows for India, past rates of foodgrain production increase and the potential for the future given a favorable national and international environment. Note that India has indeed experienced significant acceleration in growth subsequent to onset of the "green revolution" in the middle 1960's and that there is potential for further modest acceleration. Note also that the proportion of increments to production dependent on fertilizer increases steadily from about ten percent in the early 1960's to nearly 80 percent in the next decade. Fertilizer reflects a complex of technical changes including new high yielding crop varieties.

As incomes rise in the context of rising employment, demand for vegetables and livestock products also rise rapidly. This is favorable to employment growth since in most low income countries such commodities are produced by labor intensive techniques. Production of such commodities requires complex diversification of the economy which can be assisted through technical aid.

Most important, the short run pressures on agriculture's capacity to produce are exceedingly heavy as a rural, employment oriented strategy gets underway. It is conceivable that in such a strategy the need for food aid and the eventual scope for commercial exports would grow. The currently low income nations surely contain potential Britains and Japans as well as Denmarks and New Zealands.

TABLE 3. Change and Sources of Change in Foodgrain Production and Marketings, India, 1949/50 to 1983/84

Year	Estimated Production Attributable to Specific Inputs				Input Estimate of Total Production	Domestic Marketings from the Foodgrain Sector	Domestic Marketings Plus Imports ^{a/}
	Unirrigated Land	Irrigated Land	Intensification Labor	Fertilizer			
	(Percent of Increased Production from Previous Period Attributable to Each Input in Parenthesis)				(Rate of Growth Between Periods in Parenthesis)		
	(in million metric tons)						
1949/50	47.5	13.3	0.0	0.0	60.8	31.0	35.7 ^{b/}
					(2.4)	(2.3)	(1.1)
1956/57	52.7	15.5	2.9	0.9	72.0	36.4	37.8
	(46)	(20)	(26)	(8)	(2.8)	(2.4)	(4.5)
1960/61	54.4	16.7	7.6	1.8	80.5	40.0	45.1
	(20)	(14)	(55)	(11)	(2.0)	(2.2)	(2.6)
1964/65	54.8	18.1	9.8	4.3	87.0	43.6	49.9
	(6)	(21)	(34)	(38)	(3.5)	(4.5)	(3.0)
1971/72	52.7	23.8	14.9	19.1	110.6	59.3	61.3
	(-9)	(24)	(22)	(63)	(4.2)	(5.4)	(4.9)
1978/79	56.9	26.8	18.8	45.2	147.7	85.8	85.8
	(11)	(8)	(10)	(70)	(4.7)	(5.8)	(5.8)
1983/84	56.9	31.6	22.2	74.8	185.5	113.8	113.8
	(0)	(13)	(9)	(78)			

^{a/} Assumes no imports for 1978/79 and 1983/84

^{b/} Import figures for 1949/50 were not available. Therefore 1951/52 figures for production and imports were used. See Appendix Tables 3 and 9. The growth rate given is for 1951/52 - 1956/57.

SOURCE: Mellor, John W., India and the New Economics of Growth, The Twentieth Century Fund (forthcoming 1975), Chapter II, Table 1.

The Pattern of Effective Food Aid

Food aid effective in alleviating poverty and fostering improvement in the long term world food-population balance would be:

- (1) oriented towards countries effecting broad participation in growth through employment and rural development programs;
- (2) long term in nature so that countries may adjust their development plans accordingly. This requires appraising our own capacity to produce and many long run decisions as to how that capacity is to be deployed;
- (3) associated with technical and capital assistance to the agricultural sector of low income nations. Within this context family planning assistance could also become effective;
- (4) associated with international trade policies which are consistent with an employment oriented pattern of growth.

It is clear from this presentation, that the details of effective food aid can be stated in general terms, but are in practice highly complex. Most important, food aid must be seen and offered as complementary to the totality of aid policies and in the context of other elements of foreign policy.

Why Specifically Food Aid?

The basic argument in opposition to food aid is that aid in that form will depress agricultural prices in the recipient nation and in other ways reduce incentives for production of food. Thus, it is argued, food aid not only reduces long run food supplies but inhibits more generally that very strategy of growth which promises most, in the long run, to reduce birth rates. As pointed out above, the price problem cannot only be met by appropriate action on the demand side, but such changes on the demand side are the sine qua non of any program to relieve poverty.

On the positive side, while increased assurance of a growing food supply is necessary to an overall strategy of poverty alleviation, the U. S. has such a capacity to produce food that the cost to our society of the added several million tons involved in a significant food aid program is probably considerably less than the average payments otherwise needed to maintain a generally healthy agriculture or than the cost of transferring those resources elsewhere. If the question is posed: does the United

States have highly productive resources of land and personnel and institutions that would best be kept in agriculture and tuned to a high level of production with food aid as the marginal recipient of that output; I would reply yes. I would add that attention needs to be given to how that resource is mobilized and used so that it does not serve as a price and income depressant to American farmers. Although the problem is not insoluble neither will it solve itself.

Finally, food aid can be used to structure growth strategies in a manner leading not only to more rapid alleviation of poverty but in a direction which will lead some countries to greater demand for and capacity to pay for commercial imports. Thus, the very structuring of American agriculture to assist in food aid may create the very demand which will eventually justify that production on a commercial basis. The alternative of winding down American agriculture after the passing of a short term crisis of shortage may represent a permanent opportunity missed.

C. AGRICULTURAL PRODUCTION AND DEVELOPMENT IN SOUTH ASIA*

Introduction

The five countries of India, Pakistan, Bangladesh, Nepal and Sri Lanka include approximately 723 million people or 19 percent of the world's population. The area is marked by great diversity in the physical conditions of agricultural production, the stage of institutional development, the degree of food self-sufficiency and the degree of industrial development. To manage this diversity I will first comment on the situation in India, which comprises 78 percent of the South Asian population, followed with a comparative statement on Bangladesh, which comprises 10 percent of the population of the area.

In this statement I emphasize the intermediate term problems because the very short-run problems appear so intractable in light of the current very tight world situation with respect to food and fertilizer.

India

Background

Following gradually accelerating economic growth from 1955-65, the Indian economy has been in a state of near stagnation for close to ten years -- despite a period of accelerated growth in food production from 1964-65 to 1970-71. This situation is accounted for by a series of unfortunate, jolting events during this period.

First, and by far most important, net foreign resource transfers to India declined sharply from \$1.27 billion in 1965-66 to \$0.13 billion in 1970-71. These figures translate into a decline from 15 percent of gross investment to less than two percent and a drop from 43 percent of the import bill to six percent. Such a sharp reduction in foreign assistance was bound to set the economy back significantly -- and one would expect multiplier effects that would prolong the impact and increase its magnitude. Since food aid, which had previously comprised a substantial portion of foreign assistance to India, also experienced a sharp decline, the benefits of the modest green revolution in India were nullified. Though the rate of growth of foodgrain production in fact accelerated by 75 percent in 1964-65 to 1970-71, compared to 1960-61 to 1964-65, when corrected for imports, which were rising in the earlier period of buoyant American aid and declining in the latter period, the rate of growth of domestic supplies hardly increased at all. The green revolution simply substituted for aid and provided the basis neither for improved welfare nor for accelerated economic growth.

*Testimony prepared for the Sub-Committee on the Near East and South Asia of the Committee on Foreign Affairs, House of Representatives, September 24, 1974.

Second, in 1965-66 and 1966-67 India was struck by the worst drought in her history -- foodgrain production declined 19 percent during this period. Furthermore, at just the time when the economy might have expected to recover from the decline of foreign assistance a second serious drought struck in 1972-73. Food stocks, which had been built up in the preceding good crop years, had already been substantially reduced by the influx of refugees from East Pakistan and subsequent food shipments to Bangladesh. The second drought completed the depletion of these reserves.

Third, the worldwide fertilizer shortage, arising from inadequate investment in plant capacity and exacerbated by recent sharp price increases for agricultural commodities, has temporarily stalled the continued advance of the green revolution.

Last, sharp price increases in petroleum products and, even more importantly, in foodgrain prices has reduced India's ability to mitigate these hardships through imports.

The result of these various blows to the Indian economy, coming on top of an underlying need for difficult structural changes, has not only brought a period of economic stagnation, but has resulted in a significant deterioration in morale, at least among the middle classes which play such an important role in administration of economic development.

The Special Role of Food Grains in Growth and Distribution

There is currently a great worldwide concern for increasing participation of the poor in the processes and the benefits of economic growth. In India those individuals who comprise the lower 20 percent income bracket spend 60 percent of additions to their income on foodgrains alone and 85 percent on agricultural commodities in general. Thus increased real income for the poor requires increased supplies of food. Those supplies cannot be provided by simple transfer taxes from the rich to the poor, for the top ten percent in income distribution spend only two percent of increments to income on grain. In other words, participation of the poor in economic growth requires increased food supplies. Those supplies must come largely from the new technologies of the green revolution. However, because of the continued impact of weather on production and the still erratic progress of the green revolution, imports need to play an important role in securing a high employment strategy.

In this context, let there be no misunderstanding -- the increase in price of grain from the United States has wreaked greater havoc on the poor of the world generally, and on the economies of India and

Bangladesh specifically, than has the increased price of oil from the Arab countries. In passing it may be noted that the recent massive sale of wheat to the Soviet Union not only played a significant role in tightening the world grain market, it has also greatly increased the leverage of the Soviet Union in South Asia, both through its enlarged control of grain supplies, as well as by the enhanced value of its fertilizer supplies accruing from the higher grain prices.

Foodgrain Production Trends and Needs

Correct estimation of foodgrain production trends is more a matter of judgement than of technical statistical measurement. Change in growth rate from three percent to four percent has great economic significance, while actual annual fluctuations in production may be five to ten percent and even as high as 19 percent. There has clearly been a green revolution in wheat production in India, which significantly accelerated the overall growth rate of grain production for the periods 1964-65 to 1970-71. It seems likely that the growth rate has declined since 1970-71. While the wheat revolution has slackened -- due to the fact that new varieties have already spread to the most adaptive areas, as well as to shortages of fertilizer and electric power -- the much more difficult task of devising new varieties for the highly heterogeneous rice areas has continued to lag.

Accelerating foodgrain production to the 3.5 to 4.0 percent growth rate essential to broad participation of the poor in economic development requires that priority be given to the following specific elements of agricultural growth.

First, the agricultural research system must continue to expand both in terms of its geographic and its disciplinary coverage. There can be no question but that the institutional structure for agricultural research in India is amongst the world's best. Nevertheless there is a need for more training, for interaction with foreign counterparts, and for expanding the personnel available to areas with special problems. Foreign technical assistance, offered with sensitivity to the needs for long-run development of a national system, can play a significant role in this area.

Second, production growth is increasingly dependent on rapidly expanding supplies of fertilizer. For the next few decades, India can effectively use an annual addition to its nutrients consumption of at least 200,000 to 400,000 tons. Such a magnitude of fertilizer production requires massive capital investment that creates essentially no direct

increase in employment. Ideally such investment would be made by the capital rich countries of the world in areas of surplus natural gas. No problem deserves greater emphasis at this fall's World Food meetings in Rome. Not only is lack of fertilizer the single greatest barrier to food production growth, but it is by no means certain that maximum effort is being made to rapidly remove this bottleneck.

Third, the new high yielding crop varieties greatly increase returns to irrigation. Expansion of the irrigated area in India is greatly hampered by the same acute electric power shortage which is causing major underutilization of industrial capacity. Just as the shortage of fertilizer is caused by poor planning at the international level, so the power shortage is created by poor planning at the national level: it would take two to five years to break this bottleneck even if it were given maximum priority.

As long as the basic inputs of fertilizer and water are in scarce supply, it is unlikely that the well conceived programs for including small farmers in growth can succeed. Quite to the contrary, the trend would be towards reduced overall growth rates and increased inequity.

Adapting to Food and Fertilizer Scarcity

The primary means of adapting to reduced growth rates in domestic grain production is to increase imports and to squeeze consumption of the lower income classes. Of course the high prices of grain on world markets limit the extent to which imports can be obtained. Thus employment programs and ration shops for the poor must be curtailed, as imports are increasingly subject to the foreign exchange constraint. In the short run, privation is severe and morale declines. In the long run, development policies necessary to higher employment growth rates are delayed -- perhaps thereby becoming politically infeasible. The economics of existing income disparities and the politics of what may perhaps be termed "middle India" preclude alleviating the lot of the poor by massive redistribution of income and food.

With respect to fertilizer an effort is made (1) to purchase abroad despite the tight market; (2) to reallocate consumption among crops, often with counterproductive effect; and (3) to increase operating ratios of domestic plants, a task made difficult by the power shortage, plant design errors, transport inadequacies and management problems still apparently inherent in public sector plants. In practice, supplies grow less rapidly than demand and the food production deficiency is exacerbated.

Policies for the United States

The United States has the prime bases for effectively supporting food production growth in India and for encouraging an employment oriented development strategy which will ensure broad participation in the fruits of growth. The strategic position of the United States lies with the crucial role of food production to an employment-oriented strategy and in the particular ability of the United States to assist in three critical areas of a food and employment strategy.

First, a high employment strategy requires assured food supplies. Employment cannot easily be expanded and contracted in accordance with the vagaries of the monsoon. While a vigorous policy of Indian domestic production priorities could assure accelerated production, the old United States role of providing the "ever normal grainary" could guarantee support for an employment strategy in years of poor weather. The question for the United States is whether, when world supply-demand balances return more nearly to normal, she will once again contract production or alternatively take advantage of the opportunity for humane influence by building stocks and guaranteeing supplies -- quite possibly on at least a semi-commercial basis. It should be emphasized that such a policy will only be effective in assisting developing countries which have made agricultural growth a national priority. It will not succeed in countries attempting to use the guarantee of supplies as a substitute for domestic effort in agriculture.

Second, a successful agricultural strategy requires rapid improvement in agricultural research systems. The United States has the capacity to contribute substantial technical assistance in training scientific manpower, in providing scientists, and in contributing to the international grid of scientific research into which the various national systems may fit. Because of the importance of building national capabilities this important task needs to be approached with great sensitivity to the political as well as to the scientific realities.

Third, the sharp cycles of over and under production of fertilizer must be changed to a rational pattern assuring fully adequate supplies at reasonable costs. The United States as a repository of technical knowledge, as a source of much of the world's capital stock, and as world political leader could play a key role in facilitating sharply accelerated production in the near future and in ensuring more rational growth in supply over the longer term.

Population, Food and Growth

The strident emphasis on the needs and the costs of economic growth at the recent world population conference must have come as a surprise to

many Americans -- I hope that the message is not lost. The United States appears to agree that reduced rates of population growth are in the essential self-interest of all the peoples of the world. The message of the poor nations is that there are no examples of reduced birth rates not preceded by increasing income. The point can be refined to say that no group of people reduces its birth rates unless its income is rising and its participation and mobility in the larger society is assured. Thus, not only is economic growth essential to reduced population growth, but it must be a type of growth which includes the bulk of the population. This relationship is empirically demonstratable and is backed by a clear logic of family economics. Note the low birth rate of upper income groups in low income countries as well as of upper income countries compared to low income countries. An analogous relationship exists between food and population control. Growth with broad participation obviously requires employment for low income people, who will spend the bulk of any increased income on food. Thus increased food supplies are an inevitable requisite for reduced birth rates. There are of course other conditions as well -- for example growth of capital supplies as complements to increased employment. The challenge to the rich nations is that if they see reduced population growth as an important objective then it is not enough to give inexpensive lectures to the poor nations. Rather it is necessary to take an active interest in choosing a strategy of growth with a major role for agriculture and employment and to put money on the line to accelerate the growth needed to eventually depress birth rates. The ray of hope is the clear evidence that modern birth control technology reduces birth rates more rapidly among populations participating in growth than was the case in the past. To put the point baldly, given the right strategy of growth massive foreign aid could save the world many hundreds of millions of births -- to the benefit of both rich and poor.

Bangladesh

The broad framework of comment on India applies as well to Bangladesh. Three points of modification are in order.

First, a substantial task of rehabilitation of the economy and the polity remains. This fact conditions the development problems and determines the feasibility of various approaches to these problems.

Second, institutions available for development are less highly developed than in India, constraining the approaches to development.

Third, the great scarcity in the economy and the difficulties of development have led to severe problems of national morale.

Bangladesh, as a major exporter of jute, has long traded for a significant proportion of the grain consumed in its urban centers. At

present some 15 percent of grain consumption is imported. The potential for large increases in grain production are substantial -- through augmenting the irrigated acreage in the dry season and by introducing new varieties of rice and supplemental irrigation in the rainy season. Success in agriculture will, however, require a high proportion of the nation's resources and hence requires a clear priority in development appropriations. A substantial acceleration in domestic agricultural production can in turn stimulate growth in employment and in output of small scale industries thereby adding further to national income and broadening the effect to include lower income, laboring people. If the favorable effects of increased agricultural production are to be realized both ancillary policies and strategic decisions must be correct.

First, it should be recognized that substantial foodgrain imports must continue for many years. If successful domestic production programs simply displace imports, then there will be less addition to net domestic supplies, less ability to improve nutritional levels and less capacity to back the greater purchasing power of increased employment with the supply of goods needed to prevent politically unacceptable rates of inflation. By international standards a rate of growth of foodgrains production of four percent per year would be a sterling performance and yet, with a three percent rate of population growth it would take on the order of ten years to eliminate all imports even if no increase in per capita consumption were allowed - and without such increase dynamic development is unlikely and without dynamic development even birth rates are unlikely to decline. Imports may be maintained in the short-run through foreign assistance - which would thus play a critical role in a dynamic development process. In the longer-run the revival of jute exports could play a substantial role in financing imports. However increased jute production is dependent on increased rice production since the two compete for land and the current, high relative price of rice has caused large shifts of acreage from jute to rice.

Second, for the necessary success in rice production, priorities have to be set which will in turn require massive allocation of resources. The communications network requisite to vigorous rural development itself requires large investment. Irrigation in the dry season has great potential for expansion and hence for absorbing resources. Expansion of the agricultural research system is essential to provision of the new technologies upon which production growth depends. Fertilizer will be consumed in massive and increasing quantity. And, a network of institutions for such elements as education, input distribution and credit must be built. These requisites of rural development can be provided only if clear rural oriented priorities are set. And, they will require substantial foreign assistance at least in the short run.

The United States can be of immense assistance to Bangladesh by ensuring imports of food during the lengthy period during which domestic agriculture accelerates its growth; by assisting with the capital requirements for development of an adequate infrastructure of communication facilities; and by providing technical personnel and advice for building the research and other institutional needs of a vigorous agriculture.

While the longer term efforts of growth are being tackled, Bangladesh faces a difficult short-run problem of providing food for the urban population. Marketings of grain represent only a very small proportion of production and are exceedingly difficult to increase because of the strong rural demand. For powerful technical and political reasons attempts by the government to purchase grain domestically will force dramatic increases in prices, except in years of unusually large production. Thus a major portion of urban supplies will be imported until a vigorous rural development program succeeds in shifting supply significantly more rapidly than demand. The magnitude of the urban requirement for foodgrain remains substantial, in large part irrespective of the normal weather related fluctuations in domestic production. This set of technical and political factors lends a particular urgency to U. S. food aid over the next few years.

The more than tripling of U. S. wheat prices in the past few years has had a disastrous effect on Bangladesh and in itself has provided an income transfer of hundreds of millions of dollars from Bangladesh to the United States. That is perhaps in itself a justification for an aid transfer from the United States of the type we have been recommending to the Arab oil nations who have benefitted similarly from sharp price increases.

Conclusion

The preceding points implicitly argue for four priority elements of foreign assistance, all of which are related to the broad participation in growth that is so necessary both to equity and to reduced rates of population growth. First, technical assistance is needed for development of agricultural research. Second, capital assistance is required to complement rural development with emphasis on transportation and power. Third, there is a need to return to the position of providing stability in world grain markets and hence of offering a steady, reliable supply of grain to carry high employment programs through temporary periods of weather induced production decline. Fourth, it is crucial to encourage a rapidly growing world fertilizer supply. These elements may be provided on a commercial basis, with subsidized export credits, or on a large scale grant basis. Given an appropriate

development strategy in the receiving countries, grants for these purposes would accelerate the achievement of self-sustaining growth, as well as reducing the population growth rate and ensuring eventual profitable commercial relationships. Finally, the United States has benefitted highly from recent grain price increases while Bangladesh has been the single largest loser, in terms of relative deterioration in terms of trade, suggesting large short-run assistance.