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Three Issues of Development Strategy— Food, Population, Trade

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of Representatives Select Committee on Population

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FOREWORD

Each of the three items in this publication highlights a different aspect of the need to accelerate agricultural development as a central means of dealing with the world's predicament of increasing hunger and malnutrition.

Debate grows both within the high income industrial nations and between them and the Third World countries as to the efficacy of focusing development strategy in general and foreign assistance in particular on meeting what is termed the basic human needs of the poor. Rapid world population growth continues to be a source of both concern and controversy between high and low income nations as to the nature of and the priorities given to measures for reducing population growth rates. International trade in agricultural commodities is important to

developed and developing countries alike and may play a particularly important role in filling Third World food gaps. In each of these three areas the nature of the policy issues and of optimal policies is closely related to the choice of development strategy and to the role of agriculture within that strategy.

The three statements represent an effort of the Director of the International Food Policy Research Institute to speak in broad terms on the issues of the three policy areas involved and to relate these issues to development strategy and to strategy for the agricultural sector. They are part of the effort to bring the Institute's research results and the broad experience of its staff to bear in the context of current policy debate.

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**BASIC HUMAN NEEDS—
A DEVELOPMENT PERSPECTIVE**

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Paper presented at the plenary session, "How to Go About Meeting Basic Human Needs: Developing Countries Perspective," of the International Development Conference, February 8, 1978, Washington, D.C.

Introduction

It is time for the Western democracies to coalesce their disparate concerns with human rights, democratic institutions, and evolutionary change into an effective foreign assistance effort. The currently fashionable Basic Human Needs (BHN) approach could forward that effort. This approach requires targeting foreign assistance more to those elements of life most essential to the well-being of the poor—food, health, and literacy—and less to other aspects of growth. Properly implemented, the strategy can soften disillusion with the pace of development and unite humanitarian and growth concerns by trying to include the bulk of people in the development process. It can illuminate the importance of food as the basic element for improved health, education, and general welfare. In addition, it can marshal support for achieving accelerated overall growth from a development strategy that is built on rural development and increased employment.

Unfortunately, if it is presented as a substitute for the broad processes of modernization which have brought wealth and power to the West, if it slows the evolution towards improved development strategy, and if it is used to justify reduced foreign assistance for lack of worthy projects and qualified countries, the BHN approach can disrupt relations between the Third World and Western industrial powers. There has been a growing concern over the potential hypocrisy of such a strategy and increased suspi-

cion among many Third World governments about the intent of the BHN approach.

Relations with the Third World are now too important for the United States to plead naivete. The American public must understand that Third World aspirations not only include meeting the basic human needs of their poor, but other objectives as well. In addition, Americans must recognize that the United States is only one actor in the drama of Third World development and must begin to form a sophisticated view of the development process and how United States actions affect that process.

In the mid-1960s it became evident that in much of the developing world, economic growth was proceeding more slowly than had been expected, therefore greatly postponing the time when consumption by low income people could be increased as a product of growth. Concurrently, United States foreign assistance began its sharp decline to half its former level, which further postponed help to the poor through growth. It was also recognized that the specific short-term measures for dealing with the needs of the poor, such as community development programs, social organization, special adult literacy programs, etc., were not meeting the need. This spurred the search for an alternative or a modified strategy of growth that placed more direct emphasis on employment, agriculture, and improving the lot of the poor. When considering the BHN approach, three particular lessons from past experiences should be noted.

First, within the framework of Western-style democracies, decentralization to the village and district levels, which allows plans to be adapted to highly variable local conditions, is generally essential to modernization of agricultural production but is not very effective in dealing with the problems of the poor. As in the United States, local power structures can be controlled by local rural elites whose self-interest does not lie with a shift in the power structure toward the poor and the disadvantaged. Thus, there is a dilemma. On one hand, one would like to decentralize down to the poor so that there can be close adaptation of programs to their specific needs. On the other hand, it may be necessary to retain considerable power in the hands of central governments in order to have the interest of the poor explicitly considered.

Second, we know little about how the nutritional, health, and educational needs of the poor can be met through contemporary institutions. Generally, adult literacy programs have not been successful where existing power structures limit post-educational opportunities, such as access to employment, to the poor. Although improving diets for the mass of people has done wonders for health in China, the Chinese seem now to have more questions than answers about the system of slightly trained, part-time, bare-foot doctors. In other political systems the problems of providing widespread health services have been even less tractable.

Third, the financial costs and physical resource needs for the social services of a BHN approach are so immense that they must be met primarily through local means, thus causing all the coincident problems of organizing village people to tax themselves and directing a portion of the benefits to the poorest and least represented. The American experience with such problems is great, although generally not reflected in our

thinking about foreign assistance.

A Historical Perspective

From the beginning of the post-colonial period, the political leaders in most developing countries have been aware of the needs of those people in the lower 40 percent of the income distribution, in part because these leaders saw the political implications of a mass of poor, greatly deprived people. This is in marked contrast to foreign assistance legislation of the United States, which has only recently made specific mention of broadening participation in income distribution. People from developing countries marvel that it took us so long to see the need and wonder at how we can think there is a quick and easy solution for it.

In India, the very first Five Year Plan, which commenced in 1951, took explicit notice of the need for broadening income distribution and meeting the special needs of the poor. In the second plan, which began in the middle 1950s, the leadership recognized that the push toward industrialization and the development of the large scale, heavy industry sector so necessary to India's larger aspirations would do little for the poor in the short term. In response, special measures were included to meet the immediate needs of the poor. Among these were: organizing rural people for dealing with their problems, teaching labor intensive techniques, emphasizing what we now call appropriate technology but what was then called cottage industry, and developing agriculture. Then, as now, it was believed that basic human needs could be met largely by mobilizing the poor for their own salvation. It should give us pause to consider that such an explicit plan, so similar in its phrasing to the present BHN strategies, resulted in accomplishing so little for the poor.

Although present strategies addressing the issue of basic human needs are similar in

the way they meet these needs to the Second and Third Five Year Plans in India, they do not take industrialization into consideration. It is no wonder that many developing countries think that the concern for basic human needs springs from a desire to ensure that they do not become modern, and hence, able to compete effectively in international affairs.

Geographical Perspective

Despite difficulties, basic human needs have been met successfully in a few cases. The People's Republic of China is perhaps the most frequently cited and applauded example. However, the lessons from China will not be useful unless the following points are kept in mind.

First, and most important, China has been able to meet basic human needs largely through a radical redistribution of land, income from land, and food. This redistribution of power, income, and food has made it possible to meet basic human needs quickly, with modest growth in the production of consumer goods.

Second, quick effective pursuit of basic human needs may conflict with the civil rights (in the Western sense) of some involved. The type of radical redistribution of political power and assets brought about in China inevitably required a high degree of repression of the civil rights of those who had previously been the privileged classes. And, as demonstrated by the continuing use of the classifications of landlord; upper, middle, and lower peasant; worker; and intellectual, the class oriented repression may continue for generations.

Third, vigorous action on intra-regional redistribution of income, hence satisfying basic human needs, may require political processes that impede inter-regional redistribution. Thus, China has achieved less inter-regional redistribution than India. Both

intra- and inter-regional redistribution may be necessary to meet basic human needs of those people in the lower income, least developed regions.

Fourth, we know that China has had very slow rates of growth in its agricultural sector. While China appears to have achieved little better than a 2 percent production growth rate for foodgrains, India has managed a growth rate of close to 3 percent during the post-colonial decades. The agricultural production growth rate achieved in China is not adequate to meet basic human needs for food in countries that have failed to achieve China's degree of radical redistribution of assets.

Fifth, it must be recognized that China, even more than India, has centered its growth strategy on the large scale, heavy industry sector. While India has been surpassing China in the growth rate of its agricultural sector, China has been surpassing India substantially in the growth rate of its heavy industry sector, including the production of steel and other products necessary for a strong national defense.

Sri Lanka is another success story in meeting basic human needs, even though in the first decades of independence Sri Lanka did not have a growth option. Its economy was primarily based on the production of tea, which was mainly exported to the stagnant U. K. market. Until the Sri Lankan economy was restructured, it grew slowly.

Sri Lanka had a democratically experienced electorate with a large literate population. This created not only powerful political pressures for an egalitarian approach, but also substantial capability to administer prerequisite social programs.

For many years Sri Lanka was cast as having one of the worst approaches to development. Its purportedly socialistic approach was blamed for the country's slow growth. Indeed, American foreign assistance for Sri

Lanka was terminated on occasion because of the government's pursuit of socialist policies, which included nationalization of properties owned by United States' interests.

A third example of successfully meeting basic human needs is the Punjab of India. There, rapid growth resulted from emphasizing production of food and growth in small and medium scale, labor intensive, modern industry. However, basic human needs purists tend to dislike the Punjab case because incomes of the kulak farming class rose even more than those of the poor, and migration of some of the poorest from other parts of India helped retain the notable income disparities.

The Punjab had significant advantages. It had a good climate for agricultural production and a relatively high proportion of irrigated land. Under such conditions agricultural production growth rates of 4 to 6 percent may be achieved, which in turn provide food for the poor and stimulate the employment growth requisite to adequate purchasing power to the poor. In this sense, the Punjab had much in common with Taiwan, another success story of this type.

In addition, the Punjab had a long history of broad access to education and to organizational capacities and skills, the latter coming in part from its special military relations during the colonial period. Finally, it had a virtually limitless domestic market for its relatively labor intensive manufactured goods in India. The same cannot be said for India as a whole, which has to turn outside to a potentially inhospitable foreign trade environment.

While the Punjab case is not easily reproducible, it offers elements for a useful lesson in how to meet basic human needs through growth.

A Basic Human Needs Oriented Strategy of Growth*

A basic human needs strategy of growth must emphasize two features: increased production of food and increased employment. Food is the most basic of human needs. The poorest 40 percent of Third World population is deficient in energy intake. Employment is crucial since land may be owned by small peasants who are not among the poorest people in society and who, themselves, will not greatly increase their consumption of grain as production rises. If production is to rise, there must be a market. If the poor are to have enough food, they must have their incomes expanded. In such circumstances, increased employment is the normal mechanism by which incomes of the poor are raised.

The examples of the Punjab, Taiwan, South Korea, early Japan, and even the United States at certain periods demonstrate that high rates of growth in food production require rapid technological advances, introduction of modern science to develop high yielding varieties, and modern methods of using fertilizer and controlling water. These in turn require a vast, expensive physical infrastructure of roads, rural electrification, and water control systems, as well as a diverse institutional infrastructure staffed by large numbers of trained people. There needs to be a careful balance between the development of local government, which can provide the adaptation of national programs to highly varying local conditions, and the development of national government, which can provide the necessary technical support for local government and, more importantly, ensure that the interests of the lower income rural poor are also tended.

* The elements of the strategy presented are developed and illustrated in John W. Mellor, *The New Economics of Growth: A Strategy for India and the Developing World* (Ithaca, N.Y.: Cornell University, 1977).

A Foreign Assistance Role for Meeting Basic Human Needs

A strategy of growth oriented to basic human needs requires a massive infusion of resources. The bulk of that need must be met locally, but foreign assistance can give additional incentive for pursuing this strategy if it provides a significant quantity of resources for such expensive requisites as irrigation, fertilizer, rural infrastructure development, and rural electrification. Opposition to the necessary infrastructure investment on the grounds that it does not go directly to the poorest encourages the hypocrisy nascent in the BHN approach.

Rural development is a highly technical process. The United States in particular has been extraordinarily successful in developing the technology and the institutional structure for a modern, high yielding agriculture that includes much of what is most needed in the low income countries. Although America's mechanization is often cited as the reason for its agricultural success, increasing yields per acre and intensive farming are more important and often forgotten reasons why American agriculture is so successful. American technical assistance was once, and could again be, a powerful force in helping poor countries prepare to produce food for their poor. In order to be, it must return to a concern for building the national institutions essential to a high productivity agriculture.

Investment in infrastructure and development of institutions takes time to show results. For example, India's renewed attention to agricultural modernization in the early 1960s is only now showing capacity for steady, accelerated growth in agricultural production. A concern for immediate amelioration of hunger and abject poverty must therefore turn to food aid. The old style of

dumping surplus food without concern for its effects on domestic producers, the poor, or continuity of supply will not do. Only an expanded, reliable program, attuned to filling the gap in the decade or so required to modernize the recipient agriculture or at least to meeting shortfalls arising from temporary circumstances can be consistent with a basic human needs orientation.

If Third World countries are to pursue a high employment strategy, they must use their capital largely in relatively labor intensive industries. This requires larger imports of capital intensive goods, such as fertilizer, steel, and synthetic fibers. To pay for those and to create even more employment they must export many more labor intensive goods. Thus, we can say that if the high income countries really want to help the low income countries to pursue a basic human needs strategy, they must solve their own basic human needs problems. They must help their own poor in the low wage, labor intensive industries shift to better, more remunerative employment, making room for the poor of other countries to fill the need for such goods.

In summary, if the United States is to be effective in assisting the world's poor in meeting their basic human needs, it will need to develop a much greater sophistication toward the process of development and enlarge the flow of resources toward this objective. Increased resources and greater efficiency in their use are essential to a timely meeting of basic human needs. Providers of foreign assistance must also increase their understanding of the political processes required for any change in the distribution of the benefits of growth. If these considerations are made, it will be possible for the countries of the developing and developed world to work together to accomplish their mutual goal of alleviating misery.

POPULATION, FOOD, AND EMPLOYMENT

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Testimony presented to the United States House of Representatives Select Committee on Population, April 19, 1978. Printed in *Population and Development: Overview of Trends, Consequences, Perspectives, and Issues*, Hearings before the Select Committee on Population, Ninety-Fifth Congress, Second Session, April 18–20, 1978, Vol. 1, No. 6 (Washington: U.S. Government Printing Office, 1978), pp. 403–413.

I am pleased to have the opportunity to contribute to the Select Committee's deliberations on the complex topic of population. You asked specifically that I discuss population growth in relation to the food needs and production potentials of Third World countries. Since population growth and food supply interact in a complex manner that can be understood only if placed in the broader context of development processes, I will discuss how population, food, and development strategy interrelate.

You also requested that I make policy recommendations to assist you in formulating legislation. For my recommendations to be useful, they must be considered along with the objectives of population policy. Since these objectives are varied, complex, and often poorly understood, I will comment briefly on some of these objectives and how they relate to food.

Population, Food, and Development Strategy

Development strategies emphasizing rapid employment growth, and hence participation in development, and the distribution of the benefits of growth to most of the population bring tremendous increases in the demand for food. In India, for example, people in the lower 20 percent of the in-

come distribution spend up to 90 percent of their income increments on food products, and 60 percent of these increments on grain alone.¹ In contrast, people in the top 10 percent of the income distribution spend only 5 percent of their income additions on food. Thus, the distribution of income is a particularly powerful determinant of the effective demand for food.

Substantial declines in population growth rates on a nationwide basis are associated with increased incomes for most of the population. The broad-based processes of economic growth in the Western industrialized nations, as well as in Japan, Taiwan, and South Korea have been accompanied by sharp declines in birthrates and population growth rates. However, countries experiencing rapid economic growth where participation by the population in general is very limited have experienced relatively little decline in birthrates and population growth rates. To illustrate, the birthrate in Brazil declined only marginally from 41 per thousand to 38 per thousand in the decades from 1950 to 1970, while it declined from 42 to 30 per thousand in South Korea for the same period, and from 36 to 26 per thousand in Taiwan in the much shorter period of 1963 to 1970.²

¹ John W. Mellor, *The New Economics of Growth: A Strategy for India and the Developing World* (Ithaca, N.Y.: Cornell University Press, 1976).

² From James Kocher, *Rural Development, Income Distribution and Fertility Decline* (New York: The Population Council, 1973), Table 4.1; and William Rich, *Smaller Families Through Social and Economic Progress* (Washington, D.C.: Overseas Development Council, 1973), pp. 68-69.

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Evidence suggests that the countries making the demographic transition in more recent decades did so faster than those in earlier periods. Thus, during their major periods of economic growth, birthrates fell more rapidly in Taiwan and South Korea than in Japan, and in Japan more rapidly than in industrializing Europe and North America. This may well represent the influence of improved birth control technology in more recent times.

Evidence from the People's Republic of China further suggests that a major redistribution of income may reduce birthrates substantially even when it is not accompanied by growth in overall consumer expenditure, and hence an increase in per capita food availability. However, when generalizing about the People's Republic of China, three points must be kept in mind.

First, we know very little about the relationship between population and income in the People's Republic of China. It seems clear that birthrates have declined sharply in urban areas (as is true of most developing countries) and in the well organized rural areas visited by foreigners. However, we know little about the rural areas visited infrequently by foreigners which may not be as well organized.

Second, there is no doubt that the immense redistribution of income in China implemented through major changes in political ideology and economic and social organization has been a major contributor to the declining birthrate.

Third, there has been slow growth in agriculture and consumption expenditures, which has resulted from the concentration of productive investment in the heavy industrial sector so vital to a wide range of national objectives.

Thus we may conclude that within the

context of political systems supported by United States policy in the past, decline in population growth rates of the predominantly rural Third World countries requires the type of accelerated economic growth that provides broad participation of the rural population in growth. This necessitates paying particular attention to the rural sector, not only to guarantee that most of the population is included, but to ensure an increase in food production so that the principal consumption good on which the lower income people want to spend rising real incomes is provided.

Given these powerful, broad relationships, it is important not to be misled by the occasional evidence of declining birthrates among very poor populations that are not participating in rising real incomes and consumption. Such evidence is particularly suspect because it comes from areas for which data are most likely to be inaccurate. In addition, such declines appear to be a product of increasing poverty, misery, poor health, and incapacity. In such circumstances, when incomes improve, birthrates rise—at least temporarily.

Finally, it should be noted that in the demographic transition described, while population growth will decline in the long run, large population increases will occur in the short run. The same processes of industrial and economic growth that caused the European population to rise from one-fifth of the world's total in 1600 to one-third in 1950 before stabilizing, will cause the same substantial population increases for the late pursuers of development and industrialization. Indeed, based on present projections, developing countries which included 68 percent of the world's population in 1960, will include 82 percent of the world's population in 2025.³ It is interest-

³ UNESCO, *Statistical Yearbook 1974* (Paris: UNESCO Press, 1975).

ing to note that these processes will return the proportions of population in the developed and developing world very close to what they were before the industrial revolution. Of course, these processes will proceed more rapidly in the future than they did during earlier decades.

The relevant question is not *whether* demographic change will occur, but *when* it will occur. The sooner broad-based development policies leading to demographic transition are implemented, the sooner the transition will be completed and the smaller the final population number will be. As minimizing population growth becomes more important to the rich industrial countries, they will have to give more serious consideration to faster, more substantial, and more effective contributions to accelerating the processes of broad-based economic growth.

Population Pressures on Food Supplies

Given the tremendous increase in demand for food that must accompany the demographic transition, the question must be asked: Will it be possible to achieve the necessary increases in food supplies? The answer has three parts.

First, most of the food production potential of the tropics and subtropics using controlled water supplies and intensive double and triple cropping has not been developed. For example, Indian officials document a potential to triple agricultural production through increases in irrigated land.⁴ This would allow absorption of a doubled population and a 50 percent increase in per capita consumption as well. It should be noted that

with a doubled population, India would have a population figure that, in terms of unit area of cultivatable land, would be 10 percent less than that of Germany and one-third less than that of Japan today.

The problem of increasing food supplies for the next quarter century depends on how quickly food production potentials are exploited. Rapid increases in food production require massive investments in physical resources, training, and institution building. During the next few decades this will require hundreds of billions of dollars and considerable planning.

Second, the International Food Policy Research Institute projections based on past production and income growth rates and expected population growth show a food supply gap of 120 to 145 million tons by 1990. Closing this gap would require acceleration of production growth rates from its level in recent decades of less than 3 percent to 4 percent. Rapid pursuit of the demographic transition would bring even faster growth in demand for food. Rarely have any large areas exceeded a 4 percent growth rate in grain production for extended periods of time. Thus it can be concluded that making the demographic transition will require a major production effort and that at the height of demand pressures, commercial imports and food aid could be of major importance.

Third, pressure on food supplies is most apparent in a broad-based, high-employment strategy of growth. If, for any reason, a country does not want to make a major agricultural effort or believes such an effort will not succeed, it may choose to grow

⁴ Dr. Raj Krishna, member of the Indian Planning Commission, recently stated, "We now have a potential to increase food production three times. If we can increase our irrigated area from 137.5 million to 167 million acres as planned in the next five years, and get the pumps, inputs, and credit out, Indian agriculture is going to make huge strides. Two or three bad monsoons might delay things a bit and make them look bad, but nothing can really affect what's happening." Richard Critchfield in the *Christian Science Monitor*, March 15, 1978.

through capital intensive industrial efforts with the narrow participation of its population in the benefits of growth. While growth rates under such a strategy might be rapid, implementation of such a strategy would delay the demographic transition. Foreign capital assistance, food aid, and food security can encourage those countries with more broadly participatory strategies.

Population Objectives

The nature and effectiveness of policies pursued by high income and low income countries for reducing population growth depends on the nature and strength of the population objectives. These objectives are best seen in the context of global, national, and individual concerns.

Global concerns for reducing population growth rates are usually expressed in terms of humanitarian considerations based on the limitations of food supplies, the demand placed on other natural resources, and the effects on the environment. While the case is clear for reduced global population growth on these grounds, it should be noted that few developing countries have as yet reached population densities anywhere near those of Japan, Taiwan, Western Europe, and the Eastern seaboard of the United States. Thus it is not surprising that developing countries may feel less urgency than developed countries on this issue and that they believe that they have time before adopting the approaches to limiting population growth practiced by the developed world.

Unfortunately, the potential conflict between global and national concerns is considerable. The high income, industrial countries often appear to attach an immediacy to arresting population growth that is more consistent with an objective of preserving existing power relationships than fulfilling global concerns. The rapid relative growth in population associated with the industrial

revolution was important to the global power and control achieved by those nations. Chairman Mao noted the importance population size can play in determining the power of poor nations. Thus national objectives for population policy may create conflict between the interests of low and high income countries. Concern for population growth without tangible evidence of concern for improved human well-being reinforces that sense of conflict.

On the individual level, the conflict in population policy between families, especially poor families, and global concerns is, of course, the basis for the argument for broad-based economic development. For poor families the cost of raising children is low and is heaviest during the years of peak physical strength for the parents, when it is most easily borne. Children earn their way at an early age and provide security in later years. The economic case for the poor to have large families is easily made. All that, of course, changes with modernization and development which explains the close relationship between broad-based economic growth and decline in fertility.

United States Policy

If the United States wishes to help accelerate the decline in world population growth rates in order to forward the global objectives of humanitarianism, preservation of the environment, and conservation of natural resources, there are four appropriate thrusts to consider.

First, a food aid program could be developed on a scale and in a manner that has aggregate and immediate impact. To be effective such a program must provide large-scale support of efforts to increase the real incomes of the poor. It must be remembered that two major characteristics of agriculture dissuade policy makers from a broad, rural-based approach to development. Accelerat-

ing agricultural growth requires time-consuming institution building. Food aid can allow the demographic transition to proceed during the 5 to 15 years needed for those processes. Weather changes can induce fluctuations in production of up to 20 percent, a large amount when compared to the changes in trend of 2 percent or less that occur after a few years of development effort. Food aid can eliminate these major weather-induced risks. Of course, an effective food aid program must also facilitate growth of domestic agricultural production in developing countries. This requires thoughtful administration. To be effective in these contexts, food aid must be reliable and substantial in size. It is neither at present.

Second, major programs of capital and technical assistance for agricultural development are needed to meet food needs over the longer run. Such an effort will require large investments in the infrastructure, including roads, electrification, and irrigation, as well as in technical institutions for research, education, credit, and marketing. The global population problem cannot be affected if the large populous countries are untouched by food aid and agricultural development assistance. Further, in the short run, supplying those countries that have a substantial number of trained people with large amounts of resources can have a great effect on the problem. So can assisting the

least developing countries by increasing their supply of trained people in order to enlarge the capacity for productive investment.

Third, a widespread research effort to improve birth control technology is needed. There has already been testimony to this Committee indicating that available birth control techniques are still quite unsatisfactory. Yet they have assisted rapid declines in birthrates in appropriate socioeconomic environments. Further improvement could bring even faster declines in the future. The United States has a high proportion of the world's research resources for this effort. The fact that legislative policy impeded mobilizing those resources in the 1950s undoubtedly caused the world population to be much larger than would otherwise have been the case.

Fourth, direct assistance to low income countries for the financial and technical costs of family planning programs can be helpful. However, compared to the costs of the development necessary to create the desire for a small family, family planning programs are inexpensive and easily paid for by the recipient country. The real test of priority to population control is shown not by the appropriation of tens of millions of dollars to family planning, but by the appropriation of billions of dollars to the appropriate forms of development.

**THIRD WORLD DEVELOPMENT
AND THE DEMAND FOR AGRICULTURAL EXPORTS—
THE ROLE OF THE UNITED STATES**

Paper presented at a symposium sponsored by the Federal Reserve Bank of Kansas City, May 18–19, 1978. Printed in *World Agricultural Trade: The Potential for Growth, Proceedings of a Symposium Sponsored by the Federal Reserve Bank of Kansas City, May 18 and 19, 1978*, (Kansas City: The Federal Reserve Bank of Kansas City, 1978), pp. 38–50.

Accelerated economic growth in Third World countries can result in immense growth in their agricultural imports. Because of the close interrelation of employment growth, demand for food, and the supply of agricultural commodities, the policies that stimulate development of the domestic agricultural sectors of Third World countries may provide the most rapid growth in their agricultural imports. How quickly and to what extent the import potential of a developing country expands is influenced substantially by international policies with respect to trade, general development assistance, food aid, and food security.

The United States has a major effect on the environment within which Third World countries select their development strategy. It accounts for 43 percent of the gross national product (GNP) of the Organization for Economic Cooperation and Development (OECD) nations (roughly North America, Western Europe, Japan, and Oceania), 13 percent of world trade, and 32 percent of OECD nations' foreign assistance (even though the percent of the U.S. GNP devoted to foreign assistance is among the lowest of the OECD countries). As the largest exporter of agricultural commodities, the U.S. has a particular interest in Third World decisions affecting agricultural trade. In 1974 the value of U.S. agricultural exports was

\$22 billion, 19 percent of the world total. This exceeded the total for the sum of the next three largest exporters—France, the Netherlands, and Australia—and was four and a half times that of Brazil, the fifth largest exporter.

The Dynamics of Demand for Agricultural Commodities

Agricultural commodity demand and supply have grown at roughly equal rates throughout the early stages of economic development of most Third World countries. However, substantial weather-induced, year-to-year fluctuations in production have caused large variations in prices, imports, and the privation of the poor.

During the next few decades, as many Third World countries move into the middle stages of economic development, growth in demand for agricultural commodities is likely to outpace supply, resulting in upward pressure on prices and burgeoning import demands.¹ This move contrasts the mature, late stages of economic development characteristic of North America and Europe in which growth in supply of agricultural commodities significantly outpaces growth in demand, resulting in downward pressure on prices, surplus building, and attempts to restrain production.

¹ For example see International Food Policy Research Institute, *Food Needs of Developing Countries: Projections of Production and Consumption to 1990*, Research Report No. 3 (Washington, D.C.: International Food Policy Research Institute, December 1977). Conservative estimates of per capita income growth show a continuing food gap for developing countries.

In very low income countries, at least half of the population have inadequate calorie intake and lack the protein and other nutrients necessary to support a healthy, active life. The International Food Policy Research Institute (IFPRI) recently estimated that in the developing market economy countries, the deficit between actual consumption and that required to meet gross dietary energy requirements is equivalent to 64 million tons of grain² (see Table 1).

During early development, population growth is apt to be modest, while per capita income shows little or no growth, particularly among the lower income people who have the largest potential demand for food. More importantly, the demand for food is strongly affected by the supply. Since most of the population of the Third World depends on agriculture for income, slow growth in agricultural production impedes growth in per capita income, the principal determinant of effective per capita demand for food. In addition, when per capita income grows slowly or declines, death rates rise, thereby restraining population growth.

On the other hand, when low income countries have rapid population growth, the increase in the supply of rural labor will be reflected in more intensive agriculture and therefore in greater total output, even though growth in output probably will lag behind the increase in population and have a depressing effect on per capita income.³ Thus, a contemporary very low income country is likely to have characteristics of demand for agricultural products as shown

in the top row of Table 2. Even the slow growth in productivity, characteristic of traditional agriculture, is likely to keep pace with such rates of growth in demand. Further, if agriculture and gross national product in a largely rural country grow slowly, little foreign exchange is likely to be available to finance food imports, and the governments will be reluctant to allocate scarce resources for such imports.

As a nation commences economic growth, demand for agricultural commodities tends to accelerate. Per capita incomes begin to grow more rapidly and income elasticity of demand, although it may decline somewhat, remains high. Population growth accelerates with rising incomes and improved organization of health and other services. But the interaction between supply and demand for agricultural commodities will continue to be close as long as a high proportion of population is engaged in and a high proportion of the GNP is generated by agriculture. Poor performance in agriculture will further slow growth in per capita income, squeezing per capita demand and possibly slowing population growth. (Row 2 of Table 2 depicts such a situation.) Demand growth at this stage may well be contained further by skewing distribution of increased income largely toward higher income people.

During the low income phases of growth, weather-induced fluctuations in production may induce widespread privation which domestic and foreign governments may attempt to mitigate through imports. Because of balance of payments constraints, relief will also be needed in the form of conces-

² *Food Needs of Developing Countries*, p. 63. The developing market economy countries include the bulk of Third World developing countries, with the exclusion of the centrally planned countries, principally the People's Republic of China, Cuba, and Vietnam.

³ For a fuller discussion of these complex relations between labor supply and agricultural output, see Uma Lele and John W. Mellor, *Estimates of Change in Foodgrains Production in India, 1960-61*, Cornell International Agricultural Development Bulletin No. 2 (Ithaca, N.Y.: Cornell University, August 1964).

Table 1—Staple crop requirements to meet the dietary energy gap in developing market economies, by IFPRI category and region, 1975

(million metric tons, cereal equivalent)		
IFPRI Category	Amount Required to Meet 110% Dietary Energy Requirement <u>a/</u>	Gross Dietary Energy Gap <u>b/</u>
Food Deficit	439.4	61.4
Low Income	291.2	52.2
Middle Income	110.8	6.0
High Income	37.4	3.2
Grain Exporters	36.9	2.5
Total DME*	476.3	63.9
Region		
Asia	247.4	38.2
North Africa/Middle East	66.9	8.2
Sub-Sahara Africa	71.4	13.1
Latin America	90.6	4.4
Total DME*	476.3	63.9

Source: International Food Policy Research Institute, *Food Needs of Developing Countries: Projections of Production and Consumption to 1990*, Research Report No. 3 (Washington, D.C.: International Food Policy Research Institute, December 1977), p. 63.

* Developing market economies.

a/ Dietary energy standards are based on 110 percent of the dietary energy requirement for each country in order to allow for inequality of income distribution.

b/ Total for all countries with dietary energy targets above respective consumption levels; dietary energy gap for 1975 was calculated from consumption trend estimates.

Table 2—Comparison of growth of demand for agricultural commodities, at different stages of development, hypothetical cases

Level of Development	Percent of Population in Agriculture	Rate of Population Growth	Rate of Per Capita Income Growth	Income Elasticity of Demand	Total Growth in Demand
Very Low Income	70	2.0	.5	1.0	2.5
Low Income	60	3.0	1.0	.9	3.9
Medium Income	50	3.0	3.0	.6	4.8
High Income	35	1.5	5.0	.5	4.0
Very High Income	20	1.0	3.0	.1	1.3

Source: John W. Mellor, *The Economics of Agricultural Development* (Ithaca, N.Y.: Cornell University, 1966), p. 78.

sional credits and grants for food imports. Supplies available for such relief today are much smaller than in the early 1960s.

As a country moves to middle income status, three major changes occur that may cause domestic demand for agricultural commodities to substantially outpace domestic supply. First, the rate of per capita income growth accelerates sharply. Even though the income elasticity of demand will decline, it will continue to be high. Second, population growth rates tend to rise, or at least remain at a high level, due to reduced death rates from improved public health measures, higher per capita income, and a lag in the decline in birthrates. Third, and most important, demand for agricultural commodities becomes increasingly determined by events in the nonagricultural sector and hence independent of agricultural production. Concurrently, demand may diversify to a wider range of grain products and to vegetables, fruits, and livestock.

This diversification may not be met by diversification in production. As depicted in row 3 of Table 2, demand may grow at a rate of about 5 percent in this phase. This is likely to exceed growth in agricultural production which has rarely sustained such a growth rate over large areas and substantial periods of time.

Accompanying these developments, the accelerated growth of manufacturing provides potential for foreign exchange earnings to finance agricultural imports. From this stage on, demand for and supply of agricultural commodities become less and less dependent on each other. As per capita income growth continues to accelerate, even with continued decline in income elasticity of demand, income becomes a more dominant determinant of demand. Population growth rates begin to decline sharply. Overall, demand for agricultural commodities continues to grow rapidly though its rate of increase begins to turn down.

The gradual separation of the forces that determine the demand and the supply for agricultural commodities is of such great importance to long-term trade relations that it deserves discussion at greater length. The contrast between high and low income countries in the interrelation of supply and demand is illustrated in Table 3.

The top part of the table shows the interaction of supply and demand for a typical low income country. Assumptions concerning the rate of growth of population, the income elasticity of demand for agricultural commodities, the proportions of the population in the agricultural sector, and the rate of growth of per capita income in the nonagricultural sector are held constant throughout. The table indicates the effect on the rate of growth in the demand for agricultural commodities of various rates of increase in agricultural production. A further assumption concerning the price elasticity of demand for agricultural commodities is made to show the effect of various rates of growth of supply and demand on agricultural prices. This is a fair proxy for the pressures to import. It is implicitly assumed that in the agricultural sector per capita income is directly proportional to production. This is a reasonable approximation in most low income countries where production costs other than family labor are very low. A further simplifying assumption is made that income elasticities are the same in urban and rural areas. A more precise assumption on that point would further narrow the spread between rates of growth in demand and supply in the low income country and would do so less in the high income country.

In the low income case, under the unlikely assumption that agricultural production does not increase at all while nonagricultural incomes and total population increase as stipulated, we could expect agricultural prices to rise by about 2.6 percent

per year. If we make the more logical assumption that the marginal productivity of the rural labor force is two thirds of the average product, we could then logically further assume that a 3 percent rate of population growth would be reflected in a 2.0 percent rate of growth in agricultural production. In that case, with the given assumptions, agricultural prices would be expected to increase by only 1.6 percent per year. This would be a noticeable increase, but is perhaps containable in most political systems and hence would not be a strong inducement to import.

With the given assumptions, a constant relationship of prices would require a rate of growth of agricultural production of about 5 percent per year. A rate of increase of 6 percent per year would result in only a 0.4 percent per year rate of decline in agricultural prices.

There is a further interaction of variables which is not accounted for in the above discussion. With a given level of production, a rise in agricultural prices would raise agricultural incomes and thereby raise demand somewhat, thus causing a somewhat greater increase in prices than that shown in these calculations. This influence would be small, however, since only about 30 percent of agricultural production is marketed and higher prices would cause some substitution of other goods in both the rural and urban sectors. Also there might be some further balancing supply response from the higher prices.

These points are emphasized by the high income case in Table 3. The 3 percent population growth assumption is carried over from the top of the table. The rate of growth of demand is greater at all levels of agricultural output growth except at 6 percent. This is due to the greater rate of growth of nonagricultural income and its being weighted by a higher proportion of the

Table 3—The effect of different rates of increase in agricultural production upon the demand for agricultural commodities and agricultural prices, with various hypothetical assumptions

Rate of Growth of:									
Food Production	Population	Per Capita Agri. Income	Per Capita Nonagri. Income	Proportion of Population in Agriculture	Rate of Growth of Overall Average Income Per Capita	Income Elasticity of Demand for Agri. Products	Rate of Growth in Demand for Agri. Products	Price Elasticity of Demand for Agri. Products	Rate of Growth of Agricultural Prices
Q	P	$g_a = Q-P$	g_n	d	$\frac{g = g_a(d) + g_n(100-d)}{100}$	n	$D = P + ng$	e	$\frac{p}{r} = \frac{Q-D}{e}$
Case I — Low Income Country									
0.0	3.0	-3.0	4.0	70	-0.90	0.8	2.3	-0.9	2.6
1.5	3.0	-1.5	4.0	70	+0.15	0.8	3.1	-0.9	1.8
2.0	3.0	-1.0	4.0	70	+0.50	0.8	3.4	-0.9	1.6
3.0	3.0	0.0	4.0	70	+1.20	0.8	4.0	-0.9	1.1
4.0	3.0	1.0	4.0	70	+1.90	0.8	4.5	-0.9	0.6
6.0	3.0	3.0	4.0	70	+3.30	0.8	5.6	-0.9	-0.4
Case II — Relatively High Income Country									
2.0	3.0	-1.0	6.0	33	3.7	0.5	4.9	-0.6	4.8
3.0	3.0	0.0	6.0	33	4.0	0.5	5.0	-0.6	3.3
4.0	3.0	1.0	6.0	33	4.4	0.5	5.2	-0.6	2.0
6.0	3.0	3.0	6.0	33	5.0	0.5	5.5	-0.6	-0.9

Note: The interaction factor would be rounded out in nearly all the above calculations and, in keeping with normal practice, is therefore ignored.

Source: John W. Mellor, *The Economics of Agricultural Development* (Ithaca, N.Y.: Cornell University, 1966), p. 75.

population in the high income case. But, most important, an increase in growth of agricultural production from 2 to 6 percent is accompanied by an increase of demand of only 0.6 percent from 4.9 to 5.5 percent. In the very low income case, such an increase in output was accompanied by an increase of demand of 2.2 percent from 3.4 to 5.6 percent. The difference is due to the smaller proportion of the population in agriculture and the lower income elasticity of demand in the high income case. The effect on prices, however, is greater in the more developed country. Thus, while in the low income case an increase in production growth rate from 2 percent to 6 percent was accompanied by change in rates of price increases from 1.6 percent to -0.4 percent, in the relatively high income country the change in rate of price increase ranged from 4.8 percent to -0.9 percent.

The table indicates that as a country progresses toward high income status the demand related pressures to import become substantial. When England entered the dynamic stages of its industrial revolution, it became highly dependent on imported food. The debates about the Corn Laws in the early nineteenth century marked that transition. Japan became a major importer of food at a similar stage. Taiwan is the notable present-day example of a country passing through the period of rapid growth in demand for food. A net exporter of grain in the early 1950s, Taiwan was importing nearly one half of all the grain consumed by 1975.⁴ Although Taiwan is a notable success

story in agricultural modernization, demand grew even more rapidly than supply because of rapid income growth.⁵ Increased exports, particularly of manufactured goods, facilitated commercial purchase of rapidly growing quantities of agricultural commodities. The ready availability of agricultural commodities on world markets at stable prices favored continued growth in demand.

South Korea has often been considered a failure in agricultural development because of the rapid growth in imports. In fact, however, South Korea achieved a quite respectable 2.9 percent rate of growth of agricultural production between 1965-73.⁶ The rapid growth in demand and the ability to buy in world commercial markets gave the appearance of production failure.

Countries with a high proportion of the world's population are on the threshold of the middle income stage of economic development. During this lengthy, but nevertheless finite period, demand is likely to grow more rapidly than supply. Eventually, with continued economic growth and rising income, population increases will slow and income elasticities will drop to a low level. This will result in a gradual slowing in the growth in demand for agricultural commodities. By that time, demand and supply factors will be largely disassociated. However, under the stimulus of past rapid growth in demand, agricultural production growth will have become institutionalized at relatively high rates and surpluses are likely to accumulate. That stage is several decades away for the bulk of the world's population.

⁴ Unpublished USDA report, January 30, 1978.

⁵ See T.H. Lee, *Intersectoral Capital Flows in the Economic Development of Taiwan, 1895-1960* (Ithaca, N.Y.: Cornell University Press, 1971).

⁶ World Bank, *World Tables, 1976*.

Alternative Development Strategies

The preceding discussion dealt with central tendencies in the relationship between economic development and the supply and demand for agricultural commodities. There is, of course, immense potential for variation in these relationships. The variation derives primarily from the extent to which those in the lower income groups share in the increased income resulting from economic growth.

Upper income people spend relatively little of their additions to income on agricultural commodities. Thus, if only the upper income classes receive increased income, growth in demand for agricultural commodities will be relatively small. Of the income groups in India, for example, the lowest 20 percent spend 60 percent of increments to income on grain and some 85 percent on agricultural commodities generally.⁷ In contrast, the top 10 percent spend less than 5 percent of increments to income on grain and about 35 percent on all agricultural commodities. As long as growth in income is restricted to relatively higher income families, it will have a muted effect on growth in the demand for agricultural commodities. Conversely, rapid growth in income of low income people results in explosive growth in demand for food.

In developing countries, the distribution of additional income is strongly influenced by development strategy. To simplify, we may distinguish two quite separate strategies of economic growth—high employment and capital intensive. The high employment strategy is characterized by rapid develop-

ment of the rural sector, rapid growth in agricultural production, and rapid growth in foreign trade. The capital intensive approach has opposite characteristics.

With the exception of a few city states such as Singapore and Hong Kong, a low income country has 60 to 80 percent of its population in rural areas. If development is to include the bulk of the population, it must be based on modernizing the agricultural sector, thereby raising its productivity and increasing the rate of growth of agricultural production and rural incomes. Both small and large farmers must participate.

Because many in rural areas are landless or nearly so, accelerated growth in agricultural production alone cannot be assumed to automatically bring broad participation of low income people in the development process. Population growth and the rise in agricultural productivity will reinforce the need for rapid growth in nonagricultural employment. Development of agriculture will require a substantial portion of the limited stock of capital and the remaining capital for the nonagricultural sector must be spread thinly. Thus, growth must take place in labor intensive industries with high potential for generating employment.

Maintaining a relatively low degree of capital intensity will be easier if there is a potential for foreign trade. In this case excess production of low capital intensity commodities may be traded for needed high capital intensity goods. Thus, the potential for foreign trade may play a crucial role in the choice of a low capital intensity, high employment strategy of growth.⁸

The low employment strategy of growth,

⁷ John W. Mellor and Uma J. Lele, "Growth Linkages of the New Foodgrain Technologies," *Indian Journal of Agricultural Economics* 28 (January–March 1973), pp. 33–35.

⁸ For a detailed exposition of the rural based, high employment strategy of growth, see John W. Mellor, *The New Economics of Growth: A Strategy for India and the Developing World* (Ithaca, N.Y.: Cornell University Press, 1976).

gives relatively little emphasis to the agricultural sector. It emphasizes the growth of capital intensive large scale, heavy industries, and a high degree of self-sufficiency. Although there may be substantial imports of capital goods in the early stages of development, this strategy seeks to develop the capacity to produce domestically the goods and services needed for further growth. Since growth in employment is relatively slow, there is relatively little pressure on agricultural supplies and therefore little economic incentive to emphasize that sector. Foreign trade also is relatively unimportant under this strategy.

The low employment strategy is likely to be most appropriate to a country that has poor prospects for foreign trade, particularly in exports of labor intensive commodities, and for developing its domestic agriculture. The implications for the agricultural sector are clear. It will grow slowly, as will the demand for agricultural commodities, because of the slow growth in employment. There also will be very little capacity to generate exports in order to pay for imports of agricultural commodities.

There will come a time, of course, when the capital stock will have grown enough that it will be possible to raise consumer incomes, particularly of poorer people. This will create a rapid growth in demand for agricultural commodities. Whether that demand can be sustained will depend primarily on the potentials for developing agriculture and increasing exports to pay for imports of agricultural commodities.

Thus, we may say that the difference between the two strategies is really one of timing. In the high employment strategy, the increase in demand for agricultural commodities comes considerably sooner than in the

low employment strategy.⁹ Thus, Japan, Taiwan, and South Korea became major importers of agricultural commodities much sooner than the Soviet Union in terms of their relative per capita incomes and their stages in economic growth. The Soviet Union, of course, is the epitome of the low employment, capital intensive strategy of growth. Even though its agricultural production has lagged considerably, the Soviet Union became a major importer of agricultural commodities only very recently. In contrast, Taiwan, Japan, and South Korea became major importers at much lower levels of per capita income and despite much greater success in their agriculture.

Potential for External Influences on Choice of Development Strategy

The choice of development strategy depends on the perceptions of national leadership of the costs and benefits of alternative strategies to national development and to the political stability that maintains their power. These perceptions are also substantially influenced by the international environment.

Since growth in the agricultural sector is crucial to the high employment strategy, the influence of external powers on those perceptions is important. If the prospects for accelerated growth in agriculture appear very poor, a country may be reluctant to choose a strategy that depends so much on success in increasing agricultural production. In judging the potentials in agriculture, emphasis will be placed on the long-run potentials and the ease and rapidity with which external assistance will be available to help realize them, or the risks and uncertainties that may result from short-term fluctuations in weather.

⁹ Countries with highly skewed income distributions may, of course, develop in a capital intensive manner and never reach a stage of rapidly rising incomes of low income people.

The decision about which strategy to adopt will also be affected by the nature of the country's political system. The more the government relies upon support from a small, high income elite, the less willing it will be to emphasize development of the agricultural sector. Narrowly based political systems are more prone to choose a capital intensive development route. Support for such systems does not come principally from the mass of the people who would benefit most from increased employment and rising incomes. Instead, it comes from those who benefit substantially in income and consumption from growth in large scale industry, and from government officials whose power will be increased by the planning processes associated with such an approach.

The characteristics of the alternative strategies of development and the conditions for each indicate clearly the role external forces may play in influencing the choice of strategy.

External assistance to protect against the risks from unfavorable weather is a potentially important means of encouraging developing countries to opt for a rural employment oriented strategy of growth. Success in the agricultural sector involves accelerating growth rates from about 3 percent to about 4 percent. Unfortunately, weather fluctuations may reduce agricultural production as much as 10 to 20 percent in one year. Thus, several years of accelerated growth can easily be wiped out by one bad weather year. For a conservative politician, this is a powerful argument against choosing a development strategy for which agriculture is a key element. Such risks can be greatly reduced by a well-organized food security system. IFPRI has estimated the costs of an insurance system that might be most effectively carried out by the International Monetary Fund. A variant would use large quantities of grain from the PL 480

Food for Peace program to back up the insurance system. Such insurance would reduce the cost and thus increase the incentives for low income countries to emphasize the agricultural sector as part of a major change in development strategy.

Food aid also could play an important role in helping maintain supplies in the period between the development and initiation of programs for increasing agricultural production and the actual increase in output. Food aid can be brought immediately to the scene in order to back up a high employment program while the efforts to develop indigenous agriculture are being pursued vigorously. Thus, food aid may perform a dual role by insuring against the effects of poor weather and the difficult-to-predict lags associated with the development process.

More general economic assistance programs may facilitate a high employment, agriculture oriented strategy in two ways. First, foreign assistance funds earmarked specifically for the agricultural sector may load the incentives in that direction. Perhaps more important, foreign assistance may facilitate expenditure patterns which satisfy old political support systems while the new support systems are being built. This may permit the building of a broader political base with a much larger and relatively lower income constituency.

Finally, trade policies of the major industrial nations play an important role in the choice of development strategy. Although food aid and general economic assistance may be very important in the short run in determining the choice of strategy, in the long run, trade relationships may well be much more important. Trade plays a critical role in two respects. First, it facilitates the high employment strategy directly by offering enlarged markets for relatively labor intensive goods. Second, it provides the foreign exchange for purchasing agricultural

commodities as a backup to domestic production.

Timing, Potentials, and Extent of Growth in Agricultural Exports to Developing Countries

The extent to which low income developing countries increase their aggregate demand for agricultural exports depends particularly on events in Third World countries with very large populations, in particular, China, India, Indonesia, and Nigeria. These four countries alone contain nearly half the world's population.

When we project past agricultural production growth rates, expected future population growth rates, and per capita income growth rates of the recent past, we see large gaps opening between supply and demand of agricultural commodities in those countries. IFPRI projections indicate that by 1990 India will have a 4.3 million ton deficit in production of major staples if there is no change in per capita income, a 17.6 million ton deficit with low income growth, and a 21.9 million ton deficit with high income growth. For Indonesia the deficits are, respectively, none, 6.0 million tons, and 7.7 million tons; for Nigeria they are 9.3 million tons, 17.1 million tons, and 20.5 million tons.¹⁰ Similar deficits are shown for many other Third World countries. They may respond to this situation not by accelerating their agricultural production growth rates, but by containing their domestic demand more fully. They could do so, as indicated above, by following relatively capital intensive processes of economic growth. If, however, they attempt to accelerate their agricultural production growth rates in order to meet that increase in demand, they are very likely to further accelerate their growth in

per capita income and thereby push demand up more rapidly than in the past.

At present, Indonesia and Nigeria are experiencing rapid growth in imports of food as increased income from oil revenues has allowed significant expansion in domestic employment and consumption of agricultural commodities. It is not yet clear whether in the longer run these countries will use their oil revenues to accelerate rural development and provide a base for continued rapid growth in per capita incomes and demand for food, or whether they will emphasize capital intensive types of development that will slow growth in demand for food.

The People's Republic of China has chosen a generally capital intensive strategy of development that has provided relatively little increase in incomes of the mass of people since recovery in the early and middle 1950s from the privations of civil war. Subsequent to the war, per capita food consumption of the mass of rural people had been raised substantially, primarily through a radical redistribution of assets, income, and food supplies. Average consumption did not rise much. In the future, industrial development might become relatively more labor intensive and wage rates may be allowed to rise. This would result in rapidly rising incomes for the mass of people and hence a rapidly rising demand for food, that might result in increased imports. This however, would require an improvement in exports which would depend on change in policies in both China and in the nations to which exports might go.

In India, the initial development strategy from the late 1950s into the 1960s was based on the assumption that increasing trade would be very difficult for India.

¹⁰ *Food Needs of Developing Countries*, Table 10, pp. 70–71, and Table 14, pp. 90–91.

India's chief trade partner at that time was the United Kingdom, which had a low growth potential. In addition, a high proportion of India's exports were agricultural commodities such as tea and jute, for which the demand was assumed to be highly inelastic. It was also assumed that very little of the scarce development resources would go to agriculture. Thus, it was expected that growth in agriculture would be at best modest.

In the late 1960s and the early 1970s there was some indication of a change in strategy towards greater emphasis on the agricultural sector and on increasing employment. The present government of India seems to have strong predilections in that direction. The critical questions are whether government would be able to obtain sufficient food during the period agriculture is being developed and protect against the possibility of two or three bad crop years in a row.

Using India as an example, one may argue that with the old capital intensive strategy of growth, imports would be likely to run in the 4- to 6-million-ton range. This would be sufficient to take care of a significant portion of urban food needs with imported foods under government control. An alternative high employment strategy might give another percentage point per year to the rate of growth in agricultural production. It might also provide the confidence in domestic production and in the trade regime which might make imports of 10 or more million tons of grain acceptable. That might then encourage further acceleration in employment growth and hence in demand for agricultural commodities. The key question lies with employment policy and incomes of the lower half of the income distribution. During the recent period of excellent supplies, per capita consumption did not increase.

If a substantial number of large population Third World countries were to undertake a labor intensive, rural oriented strategy of growth, pressure on world food supplies would be immense. Of course, some Third World countries, for example, Brazil and Thailand, might improve agricultural production enough to greatly increase their agricultural exports. It is notable that Thailand has maintained a growth of agricultural production of more than 4 percent per year, but the percent of production exported has declined. In general, the less developed countries that have a high agricultural growth rate and are food deficit have increased the absolute quantity of food imports and some have increased the percentage of food imports (e.g., Mexico, Morocco.) The U.S. could presumably expand its rate of growth of agricultural production significantly. It is conceivable, however, that the pressure on food supplies would be considerably greater than the capacity to meet those pressures. One may then raise the question as to what extent the terms of trade might then turn significantly in favor of the agricultural sector. One cannot give an unequivocal answer to that question. However, one may speculate that a significant portion of the rapid increase in demand would be traceable, as in the case of Japan, Taiwan, and South Korea, to accelerated growth in the demand for livestock products with the consequent growth in derived demand for grain. The demand for livestock products is relatively elastic. Thus, it may well be that choice of a development strategy that emphasizes agriculture and employment in the Third World would provide rapidly rising demand for agricultural commodities as long as that demand could be met at relatively constant real prices, but that an equilibrating mechanism would come into effect as rapidly rising prices reduced growth in livestock consumption.

Conclusion

Major agricultural exporters have an incentive to foster growth strategies in developing countries that emphasize rapid employment growth. Because demand for food under such strategies will grow rapidly, they must give major emphasis to accelerated growth in agricultural output. However, if employment growth is rapid, demand is likely to grow even faster than supply, opening a gap to be filled by imports that are likely to be small as a percent of production but very large in absolute terms.

Developed nations may foster such a development strategy by assisting growth in agricultural productivity, providing food aid to encourage accelerated growth in employment, providing food security, and fostering trade.

If demand growth for agricultural commodities substantially exceeds supply growth, prices of grain will rise and check

growth of demand in the low income countries in which it is elastic. To some extent that may shift consumption away from agricultural commodities. It will not take large price increases to cause this shift because of the highly elastic demand, especially for livestock products. Alternately, developing countries will turn to a less employment oriented strategy.

Thus, world agricultural development goals are compatible with the interests of the United States and other surplus producers in increasing agricultural exports. The U.S. can foster such development with programs of food security, food aid, capital assistance, and trade. Agricultural development will permit some developing countries to increase their exports. However, an attempt by the U.S. to prevent growth in output of particular commodities, or to prevent all exports, would be likely to impede attaining development, demand stimulation, and humanitarian objectives.