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WORLD FOOD PROBLEMS AND PROSPECTS

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THE NATURE AND MAGNITUDE OF THE PROBLEM

Our concern about the world food problem arises out of our awareness that well over half of the world's population does not get the food it needs and that a generation from now there will be twice as many people living on this planet as there are today. Moreover, population is increasing most rapidly in those parts of the world where the food supply is least adequate and where incomes are lowest.

Against this awareness we must set the fact that at the present time food production is increasing barely fast enough to keep up with the increasing population. In the less developed countries of the Free World as a whole, food production has been increasing at about the same rate it increased in the United States throughout most of our history (about 3 percent per year between 1957 and 1965). But this increase has been achieved by increasing the cultivated area rather than yields per acre. There have been some increases in yields but they have been minor.

This is not the first time in the world's history when there have been predictions of imminent mass starvation. Each time a technological breakthrough in agricultural production postponed the evil day. Of course, in no previous period have we set the high standard of what ought to be. In former days, poverty was taken for granted. It is only recently that the people of many countries are increasingly adopting the view that every person has a right to the food he needs, and that the peoples of all of the world have become so interdependent for their livelihood that it is no longer rational to presume any of us can survive on this planet half privileged and half starved.

While our sights are now higher and our interdependence is complete, the potentialities for vastly increasing the world's supply of food are by no means exhausted. However, the present rapid rate of population growth is still a matter for serious concern. The time is far past when we could safely take a high rate of population growth as a datum and plan to accommodate whatever increased population might autonomously appear. We simply must intensify efforts of many kinds throughout the world to reduce drastically the rate of population increase.

The time has come when we must be blunt about this: For the foreseeable future it is socially irresponsible for any woman, anywhere in the world, to bear more than three children or for any man to cooperate in breaking this norm. Narrowing the income gap between nations, meeting the need for food, and getting other serious repercussions of expanding populations under control can be met *not* by decreasing the rate of population increase but by a “breathing spell” with no increase in population at all.

The population problem is at least as much a problem with respect to the growing congestion of our cities and the increasing per capita costs of providing the social services and other requisites of a decent life as it is our capacity to produce food. At the moment, we are holding our own in food production. There have been fewer widespread famines in recent years than in previous eras, and major technological breakthroughs with respect to food production are probable. But only by bringing population growth under positive control can its serious repercussions (particularly but not only in the less developed countries) be countered by appropriate technical and economic means.

HOW CAN FOOD PRODUCTION BE INCREASED?

There are three basic ways in which food production can be and will be increased within the next generation.

The first is by taking the steps that will lead to a yield takeoff on the presently cultivated area in the less developed countries. While enormous problems are involved, there is no reason why increases in agricultural productivity per acre comparable to those already achieved in North America, Europe, Japan, and Taiwan cannot be achieved on most of the presently cultivated area.

The second is by substantial expansion of the cultivated area. That will be more difficult, and more expensive, because it involves learning how to manage tropical soils of many types productively. It will require extensive ground water and hydrologic surveys and irrigation construction to allow double and triple cropping in much more of South and Southeast Asia. It probably will involve expanded application of atomic power to desalinization of sea water for irrigation purposes. These developments are going to take time and enormous expenditure. However, present indications are that it may be possible to double the cultivated area of the world's agriculture by expansion primarily in Africa and South America.

The third is by cultivation of the seas and the chemical synthesis of foods. While this method can ultimately be of considerable help, it is not likely to be an appreciable factor in the world's food production capacity within the next generation.

Each of these ways of increasing the world's food supply is going to be enormously costly and will require the lifetime careers of hundreds of thousands, if not millions, of scientists, engineers, businessmen, and lawyers as well as technicians serving farmers in many ways. To achieve a *yield takeoff* requires not only basic biological research but the development of a whole range of nonfarm facilities and services to farmers, and the construction of thousands of plants to manufacture fertilizers, pesticides, and farm implements and to multiply and process improved seeds. It will require several million miles of new rural roads, at least a hundred thousand miles of major highways or railways, and efficient marketing facilities for both farm products and farm supplies and equipment in half a million market towns. It will require several million extension and credit agents. It will require substantially increased irrigation. When we consider that in the United States today at least five tons of supplies, equipment, and products per acre are moved to and from farms in the process of farm production, the requirement for vehicles alone to serve a dynamic agriculture world-wide is staggering.

To achieve substantial *expansion of the cultivated area* will require large public expenditures for research and exploration and probably for construction.

Research and development with respect to the *chemical synthesis of foods* and the development of nonconventional agricultural systems is already being financed in substantial amounts by private investment but will undoubtedly require vast additional expenditures before it is widely established.

While the magnitude of the task of increasing the world supply of food may stagger us, the processes are in no way different from those which have led to increases in agricultural productivity in the past. A progressive agriculture is always a combination of private and public activities. The self-reliant farmer is a myth except in a wholly subsistence agriculture. As soon as farmers begin to sell products and purchase inputs, they rely on many man-made resources and on continuing public expenditures for facilities and services. Farmers pay for some of the inputs that they use, but they do not pay (except indirectly through taxation) for many of the public facilities and services on which their increasing productivity depends.

WHERE SHOULD FOOD PRODUCTION BE INCREASED?

The *production* and *consumption* of economic goods in our world are linked together by an intricate system of costs and returns, income and expenditures. We cannot simply produce food wherever it might most easily be produced now to be used where it is most badly needed. Purchasing power at one end is as necessary as productive power at the other. No one with money in his pocket need go hungry. Those who have purchasing power eat. In deciding where food production should be increased, therefore, we must give as much attention to the question of economic demand as we do to the question of supply.

Moreover, the problem is complicated by the fact that we are organized into separate national economies, each with its own currency. Market transactions between countries require that imports and exports be kept roughly in balance. If one country is to import food, it must have an equivalent value of goods to export.

We must recognize that factors other than biological potential, such as harbors, navigable waterways, and transportation systems, also come into play in determining where the world's food supply should be increased.

Perhaps the most important factor (in addition to the availability of appropriate land resources) is productive employment for people. What people need in order to eat is purchasing power, and in order to have purchasing power they need jobs. Throughout the less developed world most of the employment opportunities are in farming. Moreover, the absolute number of persons dependent on agriculture for a livelihood in those countries is not likely to decline within the next generation.

One of the requirements for meeting the world's rapidly expanding need for food is a rate of *industrial* growth in each country sufficiently high to provide additional jobs for at least the net annual increase in the size of the labor force. On the average, \$1,000 to \$5,000 of capital equipment is required for each industrial job created, and population is increasing at rates varying from 2.5 to 3.5 percent in the less industrialized countries. Thus, we are going to have all we can do just to absorb the net annual increase in the size of the labor force in nonfarm employment without reducing the number of people engaged in farming at all.

These considerations lead to the conclusion that increases in food production and in general agricultural development must be sought

first and foremost in the less developed countries themselves. The development is needed both to increase the food supply and to increase the spendable incomes of over 50 percent of the people of most countries. Simultaneously, industrial development must be pursued in the less developed countries if people are to eat. This industrial development is needed, first, to increase nonfarm employment opportunities; second, to increase the ability of each country to purchase food from abroad; and, third, to support agricultural development itself, both through providing essential farm supplies and equipment and by building an economic demand for agricultural products that will stimulate farmers to expand production as rapidly as possible. In the last analysis *the world's food problem is not a food problem at all; it is a problem of expanding productivity*—no matter what form that productivity may take—coupled with achievement of an income distribution in each country that can convert the food *needs* of all people into an *economic demand*. In the light of this, food supply per capita is only a barometer; the problem is opportunities for rising productivity per worker.

IMPLICATIONS FOR THE UNITED STATES

For Farmers

First, for the foreseeable future the United States and Canada are going to be the major *residual suppliers* in meeting the world's food needs, particularly for grain. For several years to come, the countries of Asia, taken as a whole, will have to be net importers of food. During that same period they will have limited exports that we are eager to buy. Therefore, while they can pay for some food, the need for concessional sales and even for free gifts of food products will remain with us for many years. Concessional sales will be helpful, but the optimum level for these is not likely to increase.

The *second* implication for American farmers is that they must be prepared to face a rather long period of perhaps twenty to thirty years during which *repeated adjustments in production will be needed from year to year*. Harvests both here and abroad will fluctuate with the weather. Programs to increase agricultural productivity abroad will begin to show their effect at different times in different countries.

The *third* implication is that *ultimately there probably will be a commercial demand* for all of the farm products we may then want to produce. That day, however, is very far in the future. Our children may see it; we are not likely to.

For Agribusiness

By far the largest import need of the developing countries in

trying to increase agricultural productivity is farm supplies and equipment. The President's Science Advisory Panel on the World Food Problem estimated that to double present agricultural production on the acreage now in cultivation in Asia, Africa, and Latin America would require an annual expenditure by farmers for fertilizer alone of \$14.7 billion. If that amount of fertilizer had to be imported each year, the foreign exchange requirement undoubtedly could not be met. On the other hand, if this fertilizer were to be provided by plants located in the various countries, the capital requirement would be \$30 billion, and the subsequent annual cost of fertilizer to farmers would not have to involve foreign exchange. In either case, most of the technical know-how for the production of farm supplies and equipment is now in the more developed countries.

Private agribusiness concerns obviously have a very significant role to play either by extending their current operations into the less developed countries by trade, or by creating in those countries the capacity to produce farm supplies and equipment. As a matter of fact, if the people in the United States are really serious about helping meet the world's need for food, we ought to be making concessional sales and gifts of many other farm supplies and equipment to the less developed countries than just grain. The cost to the United States would be far lower, and instead of depressing farmers' production incentives in less developed countries (as too great reliance on concessional sales of foods can do), it would increase those incentives through the greater availability of the materials and supplies required to increase agricultural production locally. Agriculture is not just farming; it is farming plus agribusiness, plus agricultural research and education, plus a congenial total national environment within which these can flourish. Within this total complex there are widespread implications for American agribusiness.

For Public Policy

For one thing, we must find ways to participate to a far greater extent in agricultural research programs in the developing countries. For the most part, we cannot effectively transfer specific agricultural technology from the United States to countries that differ widely from ours in soils, climates, crops, and types of farming. However, we can transfer scientists with knowledge of techniques for finding solutions to the specific agricultural problems of other countries. Some of this research needs to be directed to raising the technical ceiling to agricultural production per acre for whatever crops will grow well in a particular country, without respect to whether these crops compete or might compete with American farm production

in international trade. Some of the research needs to be devoted to finding economic uses for additional land areas not now being cultivated; some to analyzing the economic and social factors influencing the rate of agricultural development; and some to improving methods of food handling and processing, transportation, and storage. Much of the research needs to be devoted to evolving effective patterns of farm credit, extension, marketing, and other services to agriculture.

In addition, even if our sole objective were to help increase the world's supply of food, we should give increased support to industrialization in each developing country. We should do this by stimulating private investment by U.S. firms; by developmental loans channeled primarily through international agencies such as the World Bank, the Inter-American Bank, and the Asia Development Bank; by lowering U.S. trade barriers for all imports from developing countries; and by grants of industrial equipment under a plan similar to the Food for Peace program to industries including, but not limited to, those that produce farm supplies and equipment.

But these are matters of detail. The implications for the United States of the world's increasing need for food are much broader than these. I am convinced that we shall not be doing what we should until we have made three basic and profound policy commitments.

First, we must admit and accept the long-term necessity for what are essentially transfer payments between countries in the interest of economic development. Call these transfer payments "gifts," if you like, or "foreign aid," but the fact is that they are exact parallels to what we do all the time within our own economy and that we call transfer payments. These are payments not for services rendered but a transfer of funds from one person to another or from one part of our country to another in order to do the jobs that need to be done and where they need to be done. Those who delight in calling foreign aid a give-away program should apply the same term to the progressive income tax. It is the same process. It has the same purpose. It transfers funds from one to another and on the grounds that there are tasks to be done in our society that cannot be accomplished through the mechanism of the market. One of our major problems in trying to meet the world's need for food is that we do not have similar institutions for systematically making such transfer payments between countries. For the time being the only mechanism we have is voluntary joint assumption of a share of the world's burden, which we as citizens give our government a mandate to undertake on our behalf. This is not a short-term need.

It is going to be with us for at least a generation. Unless or until we accept the fact and embody it in legislation we shall be unable to do anything like our share toward meeting the world's need for more food.

Second, we must give this commitment definite priority among the many legitimate objectives of our government by putting a floor under the amount of budgetary support to be given to this program annually for at least twenty years. All of us have seen numerous columns coming out of Washington in the past few weeks decrying our lack of agreed priorities among our many national responsibilities. Instead of a sober review of all these responsibilities to determine the portion of our limited governmental revenues to be devoted to each, we continue to operate with a "crisis mentality," getting concerned about one problem this month and another problem next, each time sending a special message to Congress and a special request for another appropriation.

If we could get some sort of commitment that we will devote a particular proportion of our resources to the task of world-wide economic development annually for at least twenty years, our continuing public discussion about foreign aid could be centered on *how* it is to be done rather than on the total amount to be devoted to it. Others have made this proposal before; it needs to be made again. I understand that Canada has recently made a commitment under which it will gradually increase its contribution for foreign aid purposes annually until 1970 at which time and thereafter it will continue indefinitely at an amount equal to 1 percent of the gross national product of the country. Certainly this does not seem to be too large a contribution to make to world economic development.

The most frightening crisis of our day is not the food problem, *per se*; it is the widening gap between per capita incomes in the rich and the poor countries. For the United States now to commit itself to substantially greater transfer payments abroad can, at the worst, only mean for me a smaller sailboat and slightly less expensive clothing and food. For millions of people in the less developed countries the consequence of what *we* do is the difference between children growing up alert and healthy or permanently retarded mentally by poor nutrition when they were very young.

Finally, we must in some way devise an administrative structure for foreign aid that allows our efforts in this field to go forward uninfluenced by other foreign policy considerations. The Agency for International Development and its predecessor agencies have

been blamed for this policy and that, when they have never had a clear and continuing mandate that would *allow* them to develop programs based on the needs of recipient countries rather than trying to meet the criticism of the next session with a Congressional committee. Congress has been blamed when the American people have not been clear in their understanding of the issues at stake or in their commitment to the task. Moreover, we have not recognized sufficiently clearly that much of Congressional criticism (when it is not based on the commodity interest of particular groups of constituents) is due to the constitutional prerogatives of the executive branch of our government in the field of foreign policy. Our constitution entrusts the conduct of our foreign policy to the President. The Senate's only real opportunities with respect to foreign policy arise in the approval or rejection of treaties, ambassadors, and proposals for foreign aid. The House of Representatives has *no* explicit function with respect to foreign affairs. But it must initiate all appropriation bills. Since international economic development requires substantial appropriations, consideration of each foreign aid appropriation gives the House its *one annual opportunity* to express its sentiment with respect to the way in which the executive branch is conducting our whole foreign policy. It seems too bad that the only way a Congressman can express his displeasure of the executive branch with respect to foreign policy is by taking food out of the mouths of people unfortunate enough (through no fault of their own) not to have been born in the United States.

If we American people are as ingenious as we seem to think we are about devising solutions to problems, why can we not solve this one? Why can we not devise an administrative structure for our own government that can effectively formulate and execute a constructive American contribution toward the noncommercial aspects of contributing to international economic growth? It is not because such an arrangement is impossible. We had one almost fifteen years ago that was well designed for the purpose in the Institute of Inter-American Affairs. It was set up as a government corporation with a Board of Directors made up of private citizens appointed by the President. It had continuing authorization from the Congress. It was able to make commitments of funds up to five years in the future. It had the power to set its own personnel policy and accounting procedures and to determine its own program subject to approval by its Board of Directors. There are other patterns now being used by other government agencies that would also be appropriate, provided we as American citizens insist that one of them should be adopted.

One of the worst mistakes we have made was in 1952 when military aid, economic aid, and technical assistance were all brought together in one agency on the grounds that all of them constituted types of foreign aid. The result of that action has been disastrous. It was never fully implemented except on paper because the Department of Defense immediately demanded that it have the administrative authority over all programs of military aid. As Professor Max Millikan rightly pointed out in 1962, foreign aid is used for a wide variety of purposes including the shoring up of particular governments abroad that have supported our foreign policy objectives. Economic aid has been withheld to show our political displeasure with foreign governments. By putting military aid, all forms of economic aid, and technical assistance into a single agency, the technical assistance program has been downgraded both in its budget and in the amount of administrative attention it receives.

In one way or another this mistake must be rectified. We shall not be able to do what we ought to do about world food needs unless or until we have an appropriate separate agency in the United States government with the *sole mandate* of helping the poorer countries develop their productive capacity whether in agriculture or industry, and with this agency isolated administratively from foreign aid devoted to any other purpose.

Some of you may feel that in these last few minutes I have wandered far afield from my assigned topic. If so, I must disagree. We start from the fact that today there are hundreds of millions of people who are inadequately fed at a time when population is increasing very rapidly and when over half of the people in the less developed countries depend upon farming for a livelihood. We noted that while the rate of population growth must be a matter for grave concern it need not inevitably lead to starvation in the foreseeable future because there are still substantial technological opportunities greatly to expand food production on the *presently* cultivated area. But as important as an adequate supply of food in the world is, an equally important problem is adequate income for everyone who is not a producer of food to buy the food he needs. This latter need makes industrialization to provide additional employment opportunities as important as improving farming itself in resolving the world's need for food.

In all of these efforts we face a substantial obstacle in the fact that the world is organized at present into a number of nation-states each with its own largely autonomous economy. Under these circumstances, meeting the world's need for food will require at least

a temporary transfer of a large amount of scientific skill to find solutions to the problems standing in the way of increased agricultural and industrial development throughout the world. It will require enormous investment across national boundaries, not only through normal international trade but also through what are essentially transfer payments.

If we of the United States are to play our part in this we must first accept the long-term necessity for noncommercial transfer payments between countries; we must assign this effort relative priority among the many responsibilities we face both domestically and overseas; and finally we must create an adequately supported, separate agency devoted solely to administering our contribution toward the economic development of other countries.