Address to the Fifth Ministerial Meeting
of the
World Food Council

by
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This meeting provides an opportunity for the international community to assess progress made on the agenda laid out by the World Food Conference in 1974. As has been emphasized a series of good harvests have eased the pressure on global supplies and reserves but I think there is clearly little room for complacency. It is partly for this reason that the World Bank has placed such emphasis on work in the food sector. This has been a special priority for us, and our President has asked me to outline for you the World Bank's effort in this regard. With your permission I will discuss:

... Our total investment in agriculture.

... The way in which our projects have attempted:

- to increase production and reduce poverty,
- to enhance national food security,
- to improve the technological base for future growth,
- to address consumption issues. And

... Point out some of the major issues which must be faced if we are to make progress in the next 25 years.

The World Bank has responded to the food crisis of the early 1970s in a very positive sense. The World Bank and its affiliate the International Development Association have given agriculture and food production high priority over the past five years. The Bank is now by far and away the largest single source of external funding for this purpose; according to FAO we now provide over 40% of all official commitments to agriculture. In the quinquennium ending with the World Food Conference in 1974 Bank commitments to agriculture totaled $3.2 billion. In the quinquennium just ended, total lending commitments had risen to $11.6 billion. Disbursements have risen even more rapidly: going from $196 million in 1972 to $1,300 million in 1979 (a 42% increase over 1978 levels). As a percentage of total lending agriculture's share has increased from 21% of Bank lending in 1970-74 to 33% in 1975-79. Since each dollar invested by the Bank is supplemented by local investment, the total value of Bank projects in the last five years exceeds $26 billion, a figure which I believe represents around 15-20% of total public investment in agriculture in the developing world.
Many of the Bank’s projects have aimed at raising smallholder productivity. The increased output of traditional crops has come largely from the more effective use of improved seeds, fertilizer, and water in systems which have helped over 10 million farmers throughout the developing world increase their output of rice, wheat, corn, cassava, etc. Overall, about three-quarters of Bank-induced incremental production is expected to go to food. Other projects have involved changing the traditional product mix with farmers shifting from subsistence production to growing high unit value crops. These crops, grown on smallholder schemes in countries as diverse as Brazil, Indonesia, Kenya, Senegal, Tanzania, and Tunisia, have involved the production of sugar, tea, vegetables, sisal, and cotton. For example, the smallholder tea projects in Kenya, one of the oldest projects of this kind, for instance has already increased the incomes of the farmers three-fold.

Investment in Productive Assets

The Bank has emphasized support for the inputs that contribute most to increasing production. Specifically:

Irrigation: The effects of irrigation on the production and output of such crops as rice have been widely recognized. Irrigation permits the expansion of intensive cultivation—often making double or triple cropping possible—in areas that are otherwise too dry or too subject to climatic variation to be productive. The Asian Development Survey of the rice economy countries showed that where less than 35% of the farmland is irrigated average yields of two metric tons per hectare; where 75% of the farmland is irrigated average yields are over four metric tons per hectare. Perhaps 40% of all increases in rice yields over the last decade can be attributed to an expansion of irrigation—and this is the largest single component of Bank lending in agriculture.

As far as I can estimate, the Bank is now responsible for some 25% of all additional public investment in irrigation. Bank-financed irrigation programs now contribute to increasing annual grain production—primarily rice—by about 750,000 to 1,000,000 tons. Equally important, the construction and operating standards established by the Bank have become generally accepted by many domestic authorities, with very significant repercussions on the efficiency of national irrigation programs. Bank-financed irrigation schemes, especially in the rice producing areas of Asia, are typically located in areas of dense and long established settlement, frequently with a mix of small (often fragmented) holdings and some larger holdings. In such situations, benefits to the poor from these projects are significant, both from the increased incomes of the producers and from enhanced employment opportunities on and off the farms.

By way of illustration: a comprehensive analysis of incomes and investments that followed a Bank-financed rice irrigation project in Malaysia indicated that all classes, including the landless, benefited proportionately from the investment. In terms of absolute increase, the impact was greatest for the farmers who started at the highest income level. However, in terms of living standards, the greatest impact was unquestionably on the lower-income
small farmers and landless who were able for the first time to afford the necessities for a decent and productive life. The study also indicated that the "secondary" benefits generated in nonfarming activities were, in aggregate, about as large as the project's direct farm impact. For every dollar of direct investment in rice production, there was about 75 cents of investment by blacksmiths, small merchants, and local small-scale manufacturers. Careful post mortems of projects in other countries indicate that as a result of the projects, wage rates and employment opportunities increase, to the benefit of low income groups.

Fertilizer: All evidence shows that chemical fertilizers have played an important role in increasing yields and output in developing countries—and most projections indicate that increased supplies of fertilizers will be a major factor in future food production. The World Bank has become the most important source of financial and technical assistance for the construction of fertilizer plants in developing countries. Most of these plants are government owned (I emphasize that these plants are not owned by TNCs) and are aimed at encouraging import substitution. Bank-supported projects account for roughly 25% of the incremental nitrogen fertilizer, 35% of the phosphates, and 100% of the potash that has been produced since the early 1970s. This additional fertilizer—about 800,000 metric tons annually—can generate roughly 6 million tons of additional cereal, or about half the increase in the output of developing countries during the same period.

An example of a major effort based on increased use of fertilizer with a direct impact on production and income is the current Bank-supported program in northern Nigeria. Only a short while ago, Nigeria was a net exporter of food. But rising incomes brought a greatly increased demand for grains while production barely increased. The World Bank has committed about $1 billion to help the government finance nine area development projects. Interim results are impressive. The use of chemical fertilizers in the first 3 project areas increased from 2,000 to 50,000 tons in only 3 years. Since 1976, production has more than doubled and sales of improved plows, new seeds, and other inputs have increased at a remarkable rate. The projects are at present reaching 200,000 farm families, more than a million people, and in due course will be expanded to reach most of Nigeria's 18 million farming households. Elsewhere, in areas as different as Tanzania, Thailand, and Turkey, Bank-sponsored projects are enabling large numbers of low-income farmers to use fertilizers to increase their output and income.

Institution Building: The Bank has been paying particular attention to institutional arrangements such as the extension services. The Bank has been financing a "training and visit" extension system to improve the capabilities of working farmers. This system, ensures that field agents keep in close contact with a manageable number of "contact" farmers, who then disseminate improved techniques to their neighbors; at the same time, the agent is kept abreast of the advice he should give through fortnightly in-service training programs. The extension agent concentrates initially on basic details—such as timely planting, proper row spacing of seed or plants—which require no new cash inputs. The programs are cheap, averaging about US$1 per hectare. The observed impact as reflected in output figures has been impressive with food production and yields more than doubling only three years after the project.
In India after only 3 years, 90% of the farmers were following the extension agent's advice. While the amount of fertilizer used hardly increased at all, it was applied much more efficiently and there was a tenfold increase in the number of farmers using improved varieties of seed. Incomes per hectare grew by at least 50%. Moreover, the diffusion of the new technology from the contact farmers to others had proceeded smoothly, with the gap between their respective yields progressively narrowing (now at 9%). Programs in India alone are at present helping an estimated 9 million farm families, many of whom are smallholders, in 9 Indian states. Another 13 million farm families will eventually be reached; incremental production from the total effort is expected, by the Indian Government, to exceed 15 million tons of grains, leading a senior agricultural official to call the programs "the most special thing that has ever happened to Indian agriculture."

Financing places for students in agricultural training institutions is another example of institution building. Already the 23 projects that have been completed provide 10,000 places for training agricultural specialists. This represents a small proportion of the total places that will eventually be created when the 140 ongoing education projects are implemented.

Agricultural Credit: Bank-supported programs for rural credit institutions have been deliberately reoriented to make sure that an increasing proportion of these credits accrue to disadvantaged groups who formerly had no access to institutional credit. In this way many credit institutions in developing countries have "eased" into providing loans for the poor; as these institutions have gained experience, so the volume of loans for smallholders and tenants has increased. Such a shift has called for and resulted in considerable modifications in organization and criteria for determining the creditworthiness of small farmers.

A study undertaken by the Government of India is one of the few evaluations of the impact of rural credit programs on raising the incomes of the poor. More than 750,000 Indian farmers have taken advantage of the rural credits financed by the Bank. Half of these funds have helped to raise the incomes of very small farmers, much of it being used to provide supplementary irrigation, permitting double cropping, and increased production. The Government's own evaluation concluded that the credit program, and more especially the small farm component, has had a considerable impact on raising incomes of the rural poor.

In northeast Brazil, under the Bank-supported Polonoroeste program, specific credit mechanisms for helping sharecroppers and the landless have been developed. The mechanisms are designed to suit the needs of these people which cannot be fulfilled through conventional channels. To date, experience has demonstrated that such initiatives are feasible without unacceptable default rates and have led to increased production and income.
Investments in Food Security and Distribution

A substantial part of our lending has been used to improve the efficiency, reliability and security of food systems by construction of new grain storage and processing facilities and improving existing infrastructure. In the past quinquennium, almost $700 million has been invested in the construction of about 7 million tons of grain storage capacity and supporting facilities in 20 developing countries.

The lack of rudimentary road systems has been another bottleneck to increase food security or efficient marketing of needed inputs or production. Recent experience indicates that disruptions in transport are a more serious threat to food security than production shortfalls. Recognizing this, the World Bank investment program over the last 3 years has helped to finance the construction and rehabilitation of over 80,000 kilometers of rural roads, a network longer than the entire interstate highway system of the United States. In the last 5 years, Bank-supported projects invested $1.8 billion in rural road networks.

Providing Future Technology Investment

The Bank serves as chairman of the Consultative Group for International Agricultural Research and provides 10% of total funding for the international research system which is in the forefront of developing new high yielding varieties of seeds. The Bank also provides support for national research programs; in recent years we have assisted in the development of at least 23 national programs, and we expect this to be the fastest growing element in Bank lending for agriculture. We commend the recent commitment made at the Tokyo Summit of Industrial Nations to increase support in this area and hope that the proposal that the CGIAR's resources be doubled is accepted by donor governments.

These tangible investments in infrastructure, inputs, institution building and new technologies have had a substantial impact. Many provide the foreign exchange and transport needed to import food in the developing world. Other projects increase domestic production of food and have direct benefits that are both widespread and well documented by agencies other than the Bank. Such outside studies have shown that the principal beneficiaries from increases in farm productivity generated through the adoption of new technologies are low-income, non-farming, consumers. This group lives primarily in urban centers and spends a disproportionate amount of total income on staple foodstuffs. Increasing the supply of food has been directly translated into better nutrition for the malnourished, especially young children living in cities. By increasing productivity, consumer prices have decreased or remained lower than they would otherwise have been. At the same time, farmers have increased their own real incomes with a rise in overall output of staples. In sum, Bank-supported projects presently being implemented are expected to contribute roughly one-fifth of total incremental food production in the developing world.
Food Consumption Dimension

The alleviation of food problems has usually been sought, by the World Bank and others, through the increased production of food. However, we now know that increased production—even when it directly benefits poor farm households which are themselves malnourished—is a necessary but not sufficient way to meet national security (preventing famine when harvests fail) and to reduce the incidence of malnutrition (an objective which is not necessarily met through food security, or production schemes). It is personal income that is the major factor that determines nutritional well-being. Most of the malnourished are landless laborers and small farmers who make up the bottom of the income distribution ladder. Programs which provide more employment for unskilled laborers in rural and urban areas are most important and have become a fast growing component in our lending. So are special efforts to support food consumption by the poor.

The World Bank is financing 45 urban and rural projects which contain specific nutrition components. In addition, we are experimenting with large-scale interventions to improve the nutritional well-being of vulnerable groups directly. Major experimental projects are presently underway in Brazil, Colombia, and Indonesia. Our management has requested an assessment of Bank nutrition experience in the context of preparing objectives for future lending. This analysis is presently underway.

Looking Ahead to Future Requirements

All indications are that there will be growing pressure on supplies of grain. It will be important to diversify the source of world supply as well as to increase output. There will have to be substantial increases in domestic production, especially in the poorer countries of Asia, Africa and Latin America which cannot afford to use scarce foreign exchange to import food. Recent project experience shows that the marginal cost of expanding agricultural production is rising in real terms and that substantial investments will be required to increase production. For example, rehabilitating existing irrigation works to manage water resources more efficiently and increase yields costs around $800/ha (with yields increasing perhaps a ton per ha). To construct totally new works may cost eight times as much without including the social and infrastructure costs required to assist farmers to take full advantage of their new assets. These costs are escalating quickly, far faster than general inflation rates; and will continue to do so as we move into new and progressively more undercapitalized regions. Based on Bank project experience and given the obvious needs there appears to be a strong case for an increased level of investment in agriculture.

Our future volume of lending for agriculture will depend in good measure on the resources available to the Bank. This is presently being discussed in other fora, in the context of a general capital increase for IBRD and IDA VI. If we assume that enough resources will be forthcoming for lending to expand by 5% a year in real terms then, taking inflation into account, this
would be more than a doubling of resources. Present projections indicate that 1980-84 lending for agriculture would then total $24 billion versus the $12 billion spent in 1975-79. Given the resources we would therefore be prepared to double operations over the next five years, generating a total investment of approximately $50 billion if locally financed elements in Bank projects are included.

The total investment requirements of the developing world are difficult to calculate, but estimates based on partial data indicate that total gross investment in agriculture in the developing world was around $12-13 billion in 1975. The great bulk of this was used to maintain and expand rural infrastructure. We would estimate that if food production in the lower income countries is to meet future demand - even while allowing for increased imports by middle and upper income countries who will be expanding and shifting their own agricultural sectors - then something like $40 billion of investment in all developing countries will be needed in 1985. The Bank's projects may well continue to provide 15-20% of this, with other external sources meeting 10% of the need. However, the greatest increases must come from the developing countries themselves.

The developing countries must raise their investment rates in agriculture - which are now running at about half of the investment rates for their economies as a whole. Judging from the successful experiences of Taiwan, the Republic of Korea, Ivory Coast, and others, this should prove possible. Overall, investment as a percentage of total agricultural product must rise from the current 7-8% to 11-12% in 1985. Studies have shown that marginal savings rates in rural areas exceed those of urban areas with small farmer marginal saving rates equal to that of larger operations. This implies that, given the correct mix of domestic policy incentives and investment opportunities, the estimated $28 billion to be provided by farmers - large and small - can be realized. If it is, then, projected annual increases in food production could reach 3.6% per annum. While this would have a marginal impact on trade (particularly because it would primarily affect rice production consumed directly by malnourished inhabitants in relatively isolated rural areas), the nutritional and income effects would be substantial.

Confining my remarks to four aspects of a vastly increased investment program for agriculture, I would like to say:

First: We and governments have learned that it is possible to devise projects that can help make small-scale producers more productive. There can be no doubt about this. However, such projects usually involve higher administrative costs and are more manpower intensive than are projects intended to benefit larger-scale producers. Thus it has been easier for those governments with a plentiful supply of skilled manpower and relatively strong administrative services to undertake these projects on a large scale than for governments with weak services and low levels of trained manpower. Some countries have shown how to build up an effective institutional and infrastructural framework to assist the small farmers who account for the bulk of total production and population.
Continuing this task will become increasingly expensive as we expand our reach but returns will more than justify costs. Bank projects which directly assist low income farmers in the poorer developing countries demonstrate this trend. Although per capita benefits seem small in absolute terms, they represent substantial proportions of the poor's income—often projects bring about a 100% increase in living standards. It has taken roughly $3 of investment to increase small farmer output by $1. Our analysis indicates that this rate will rise in the 1980s. But even if costs do rise they will still be substantially lower than the cost of incremental production in Western Europe and Japan.

Second: Looking ahead, it is clear now that the "food problem" is not only a production problem—even where there are adequate supplies there are substantial numbers who are not adequately fed. Throughout the developing world many million remain malnourished even where "surplus production" is stockpiled. There is thus a need to think of strategies that link production and consumption by raising incomes and improving diets of those actually living in food producing areas. This is why the Bank is moving into new areas such as non-farm employment, the development of small-scale rural industries, and experimental consumption interventions like the food subsidy program in Colombia, monitoring of child nutrition in Indonesia, supplemental feeding schemes, or rehabilitation programs for seriously malnourished.

Today perhaps a third of all rural inhabitants are engaged in non-farm activities and it is the landless who form the core of the world's poverty problems. The plight of the landless has proven most difficult to alleviate. New ways to increase the productivity of this group, which enables them to support needed services and food consumption must be developed. The projections of the Bank and others indicate that the problem of absolute poverty in rural areas is far from marginal. Its resolution will call for a new approach to distribution systems of food and increasing the incomes of particular groups in society.

Third: The key to increasing future food production lies in improving the efficiency of existing resources and protecting the ecological base required to feed and provide employment opportunities for the additional 2 billion people who will be living in the developing world by 2000. A first step might well be to stop thinking of water as a free good. Our analysis indicates that by the end of the century a shortage of fresh water for agriculture may well be a constraint to growth as important as projected shortages of petroleum. A tangible illustration of how this resource is presently wasted comes from Bank project experience in the four most important irrigation systems of the world which cover about 40 m ha (Ganges - 16.2; Indus - 14.1; Euphrates/Tigris - 4.7; Nile - 4.9). Improved management on these water systems could bring another 200 million tons of cereal production (over half of total 1976 developing country production). The present low-standard approach to irrigation is wasteful in physical and economic terms because water is lost, it irrigates a smaller area than possible, constrains yields and limits adoption of a more highly valued cropping pattern. In these major systems only about 25-30% of water released from any given dam is available for productive use in a farmer's field under present conditions and a 60-100% increase in overall water-use efficiency is feasible.
The 700 million cubic meters of water used for irrigation and the 100 million cubic meters of topsoil on developing country farms are taken for granted today. If these resources are to last immediate action is needed: salinization of land must be arrested through improved drainage, village water networks should be improved; and badly needed on-farm investments made to protect soils and assure efficient water management. The cost of doing this is relatively modest, roughly 2% of the annual value of the production on affected lands, but it would assure that future generations could continue farming in areas that are today the breadbasket of the developing world.

The foundations for future sustainable agricultural growth must be laid now and must reflect a changing environment:

... The groundwork for the "Green Revolution" was laid in the 1930s in American Land Grant Universities. This technical base has been largely exploited and we must accelerate work on the technology for the 1990s and beyond.

... In the past fifty years the area of land under irrigation has increased threefold; an average dam's effective life span is about fifty years, implying that much of today's irrigation system will gradually be silting in the years after 1990. The lead time to replace those dams is 25 years which means work must start today if we are to avoid a crisis by 2000.

... Sixty percent of the cost to produce nitrogenous fertilizer is linked to energy prices, and most production is dependent on hydrocarbon feedstocks. Although there have been huge gains in fertilizer plant productivity and we foresee adequate supplies well into the 80s, problems of cost and timely availability may well become increasingly important.

Fourth is the importance of sound domestic policies. Increasing investment and the supply of external capital to agriculture are important but in our view making better use of existing investments, with comparatively modest incremental outlays to improve efficiency, can be much more important than a program of major new investments. Furthermore, the World Bank has found that there is no substitute for sound domestic policies to ensure agricultural production. National policies on pricing, land reform, taxation, institution building, etc., are at least as important in influencing production and consumption as the total flow of resources to a particular country.

The limited capabilities of operating agencies within developing countries is often a bottleneck which most governments are trying to overcome. A concerted effort to improve agricultural training is urgently needed to
overcome the specific manpower and institutional limitations affecting services designed to benefit farmers and the capacity to prepare and implement projects. The current quality and size of the project pipeline for food and agriculture needs to be increased. More needs to be done to lay the groundwork for large-scale investments which will have to come on stream in the 1990s to sustain and increase production. The decline in the technical assistance effort especially by the bilateral donors has exacerbated problems of absorptive capacity and project preparation. Possible solutions to this set of problems are: new approaches to large scale lending, especially sector lending and a greater reliance on domestic authorities; better sector work; coordination of technical assistance and training efforts; flexible small scale projects to build up institutions capable of implementing large projects and which test technical packages.

It is in this context that we have undertaken some experimental work in assisting governments to prepare food sector strategies that link production to consumption, aid flows with absorptive capacity and food security with short-run production gains. Past attempts at "food planning" have not been successful, but it is clear that the food problems which will be emerging in the 1980s and will require integrated action. A holistic approach to deal at the national level with these problems will be required; this is why food strategies hold such promise. However, let me assure you that our efforts are designed to assist developing countries and will not become a prerequisite for aid or an additional burden on recipient countries.

One attempt at overcoming past deficiencies in food strategy exercises is being undertaken in the Philippines, through a joint Bank-Government effort. Preliminary discussions with the Government have gone well and major preparatory efforts within the Ministry of Agriculture and National Nutrition Council are underway. We expect that the various components of a food strategy could be integrated into a single report by November. This report could then be discussed by the Philippines Aid Group. A good deal of Bank effort is presently directed toward helping prepare a food strategy for Bangladesh. A medium-term production plan for wheat and rice will be issued as a Joint Bangladesh World Bank report in January 1980. In addition, a Bank food sector mission will prepare a report on short- to medium-term prospects for discussion by the Bangladesh Aid Group in January. This report will also consider the most appropriate institutional framework for longer-term planning and monitoring of food production.

The Bank is prepared to support other efforts to develop food strategies provided we have the resources and expertise required. We will help when we can; furthermore we will endeavor to provide fora where food strategies can be discussed by donors. This might be done through the use of currently functioning groups or the convening of special groups for this purpose.

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