

This work is licensed under a
Creative Commons Attribution-NonCommercial-
NoDerivs 3.0 Licence.

To view a copy of the licence please see:
<http://creativecommons.org/licenses/by-nc-nd/3.0/>

OBJECTIVES AND SCOPE OF A FOOD
AND NUTRITION POLICY

By

Bruce F. Johnston

DISCUSSION PAPER NO. 210

INSTITUTE FOR DEVELOPMENT STUDIES
UNIVERSITY OF NAIROBI
P.O. Box 30197
NAIROBI, KENYA

September 1974

Any views expressed in this paper are those of the author and should not be interpreted as reflecting the views of the Institute for Development Studies or the University of Nairobi.

Bruce F. Johnston is affiliated with the Food Research Institute of Stanford University and is presently Visiting Professor at the Institute for Development Studies, University of Nairobi.

This paper has been prepared for the Ninth Session of the Joint F.A.O./W.H.O. Expert Committee on Nutrition, held in Rome in December 1974. Its coverage is therefore very general, but the author hopes that members of the Nutrition Study Group and others with an interest in nutrition in Kenya will have useful criticism and suggestions.

OBJECTIVES AND SCOPE OF A FOOD
AND NUTRITION POLICY

By

Bruce F. Johnston

ABSTRACT

This general paper suggests that the scope of a country's food and nutrition policy should embrace three related objectives: (1) the design and implementation of an agricultural strategy that achieves an appropriate rate and pattern of expansion of food and other farm products; (2) action to bring nutritional objectives to bear in influencing the combination of foods produced and the processing techniques employed; and (3) the identification and implementation of supplementary programmes of nutrition intervention aimed directly at certain important welfare objectives, such as overcoming nutritional deficiencies that may be common among some segments of the under-five age group. Principal emphasis is given in this paper to the first objective. It is argued that an agricultural strategy that brings about the progressive modernisation of a large and increasing fraction of a country's farm households is fundamental to the success of efforts to promote overall economic growth and structural transformation as well as achieving the social goals of employment creation, better income distribution, and improvements in nutrition and health.

OBJECTIVES AND SCOPE OF A FOOD AND NUTRITION POLICY

By

Bruce F. Johnston

Food Research Institute, Stanford University and
Visiting Professor, Institute for Development Studies,
University of Nairobi

INTRODUCTION

This examination of the objectives and scope of national food and nutrition policies might well be subtitled 'an economist's view'. To make clear the perspective from which I approach this topic, I believe that it is well to emphasise that over the years I have become sensitised to the importance of nutritional factors to a far greater extent than the average economist. My first job on leaving the university was an assignment with the U.S. Department of Agriculture promoting the expansion of the Food Stamp Plan and school lunch programmes. My work in Japan during the first three years after World War II was concerned with that country's food rationing and price control programme during a period in which acute food shortages were having severe nutritional and economic repercussions on the Japanese people. And for the past sixteen years I have had informal and formal relationships with F.A.O's Nutrition Division. Even so, I must emphasise that I view these problems as an economist and regard the goal of nutritional improvement as an integral part of economic development and social modernisation aimed at the elimination of poverty. An inadequate diet is unquestionably a frequent and important feature of a poverty standard of living. But it is obviously not the only aspect of poverty. More importantly, an attack on nutritional problems per se will fail to resolve the fundamental problem of poverty. I am persuaded that in most instances it will not make a very large contribution to achieving the large increases in a country's productive capacity that are a necessary condition for the elimination of poverty and will even fail to achieve substantial and long lasting improvements in nutrition.

With these opening remarks, many of you are likely to jump to the conclusion that I am trying to defend the typical approach to economic development which has focused so narrowly on the objectives of increasing saving, investment, industrial growth and G.N.P., that questions of income distribution and the health and well-being of the mass of the population

have been viewed only as long-term, almost incidental objectives. Such is not the case. For quite some time before the recent burgeoning of interest in problems of employment and income distribution, I was among the critics of the recently dethroned conventional wisdom which gave overriding priority to 'efficiency' -- narrowly defined -- and regarded a high degree of inequality of income distribution as a necessary evil to insure a sufficiently high rate of savings and investment.

The political leaders who have the dominant voice in determining economic policies, however, are generally not particularly devoted to the goal of efficiency unless it happens to provide justification for policies which appeal to them for other reasons. The principal force which has encouraged the adoption of policies emphasising growth of G.N.P. and, even more strongly, rapid industrialisation has been the widespread acceptance of import substitution strategies which rely on high tariffs, usually accompanied by the rationing of foreign exchange, import licensing and quotas. This mix of policies has fostered the growth of a highly protected industrial sector which has tended to remain an inefficient 'infant' industry because of the distorted structure of prices. This strategy, and the over-valued exchange rates and under pricing of capital which have accompanied it, has protected the 'modern sector' firms from foreign competition and has also resulted in relatively high wages for the small number of workers able to find employment in the modern sector. All of these price distortions and most of the direct controls have encouraged excessive reliance on capital-intensive technologies. To a large extent the burden of financing this type of inefficient growth has been carried by the agricultural population which has been forced to pay unnecessarily high prices for consumer goods and farm inputs and has received relatively low prices for its marketed output. These adverse effects on the agricultural sector have not passed completely unnoticed, but all too often the steps that have been taken to redress the situation have been measures such as duty-free imports of farm machinery and fuel and subsidies on certain inputs, measures that have mainly benefited the large-scale and relatively wealthy farmers. Indeed the effect has often been to encourage a lopsided, capital-intensive pattern of development within a 'modern' subsector of agriculture which has sometimes had even more serious effects on the growth of opportunities for productive employment and on income distribution than the protectionist policies aimed at industrialisation via import substitution.

Finally, it needs to be stressed that these economic policies, which have biased development toward the use of technologies and the manufacture of a range of products which are inappropriately capital-intensive and import-intensive, have been especially serious because of the rapid rates of population growth that characterise the developing countries. Throughout the developing world the upsurge of population growth rates has been followed by a similar upsurge in the rates of growth of the population of working age. This rapid growth of the total labour force, in combination with the capital-intensive pattern of investment in non-farm industries, has meant that most of the annual additions to the labour force have had to be absorbed within the agricultural sector, thus creating problems that I will be touching on shortly.

In countries where the pattern of agricultural development has had especially adverse effects on the growth of opportunities for productive employment in agriculture, severe problems arise because of premature and excessive migration to urban areas. A large percentage of these migrants are not able to obtain regular employment and are to be found eking out an existence in urban slums, an outcome which gives rise to social, political and health problems that may well be more acute than the problems of rural poverty. I find that nutritionists often assume that unemployment is primarily a consequence of the lack of training, knowledge or skill of those seeking employment. For the individual job-seeker, it is of course true that the prospect of finding employment is improved by a higher level of skill or training; but in aggregate terms it is the rate of growth of opportunities for productive employment, including very importantly self-employment in agriculture, which determines the fraction of the labour force that is either visibly unemployed in urban areas or left to eke out a miserable existence in agriculture because it lacks the land, purchased inputs and knowledge necessary to raise or even maintain the per capita level of farm income.¹

THREE OBJECTIVES OF A FOOD AND NUTRITION POLICY

What does this brief review of economic policies and development strategies have to do with the objectives and scope of a food and nutrition policy? I can answer that question most concisely by suggesting that the scope of a country's food and nutrition policy should embrace three related, but nonetheless distinct, objectives: (1) the design and implementation of an agricultural

1. I am aware that one economist has suggested that lack of motivation, related in turn to the availability of health facilities (rather than to health status), is a cause of unemployment and, even more, of under-employment in the rural areas.⁽⁸⁾ I find his line of argument singularly unpersuasive, and I have not encountered any support for his position among other economists.

strategy that achieves an appropriate rate and pattern of expansion of food and other farm products; (2) action to bring nutritional objectives to bear in influencing the combination of foods produced and the processing techniques employed; and (3) the identification and implementation of supplementary programmes of nutrition intervention aimed directly at certain important welfare objectives, e.g. overcoming nutritional deficiencies that may be common among some segments of the under-five age group.

The Rate and Pattern of Expanding Food Production

I will devote most attention to the first of these three objectives, in part because it involves some key issues on which there appears to be a considerable lack of mutual understanding between economists and nutritionists. There seems to be general agreement that agricultural development leading to a 'satisfactory' rate of increase in food production is a necessary condition for nutritional improvement - but not a sufficient condition. Hence, serious attention to the second and third objectives must be part of an effective food and nutrition policy. Some of the most difficult and controversial questions clearly relate to the allocation of scarce resources among the three sets of objectives. The major thesis of this paper, however, is that one of the most fundamental factors influencing the achievement of nutritional and many other objectives of economic and social development is the pattern of agricultural development, i.e. whether increases in production are concentrated within a 'modern' sub-sector of atypically large and capital-intensive farm units or are the result of widespread advances in productivity and income affecting a large and growing fraction of farm households. To achieve the second pattern requires the progressive modernisation of the existing small-scale farming systems, emphasising new technologies and new inputs that enhance the productivity of the labour, land and knowledge already available. And the principal conclusion is that a critically important task of those responsible for a national food and nutrition policy is to assist in mobilising support for a well designed and vigorously implemented strategy aimed at the progressive modernisation of the millions of small-scale farm units that account for the bulk of the population in most developing countries.

Interrelations between the Choice of Strategy for Agricultural Development and a National Food and Nutrition Policy: With the exception of a few small countries in a favoured position to finance expanding food imports out of increases in foreign exchange earnings, nutritional improvement is obviously impossible unless the rate of increase in food production exceeds the rate of population growth.

Thus an annual rate of growth of output of something like 3 per cent is needed simply to prevent deterioration in an already precarious food situation, and this is no easy task. In the half dozen years preceding the Green Revolution, for example, India and Pakistan were failing to expand food production in pace with the growth of effective demand; and even with large and expanding imports of food grains (mainly under United States P.L. 480 concessional arrangements), which were satisfying a substantial part of the increase in demand, there was a clear trend for the level of food prices to rise. Although many of the side effects of the Green Revolution have been quite properly criticised, it nonetheless made a notable contribution in accelerating the rate of growth of food production. The trend toward growing dependence upon imported supplies was reversed, and the new seed and fertiliser technologies offer promise for continued expansion of food production at a rate sufficient to support the achievement of national economic and social development goals.

Unfortunately, the rate of progress has faltered during the past two or three years as a result of unfavourable weather conditions and the abrupt shift from a situation of abundant and cheap fertilisers to a worldwide shortage and sharply increased fertiliser prices. In fact, I would assert with considerable confidence that the most important single factor adversely affecting world progress toward the achievement of nutritional goals in recent years has been the failure to expand fertiliser manufacturing capacity and output to keep pace with the rapid growth of demand for this key input. It is true, of course, that in particular areas such as the African Sahel the repeated failure of the rains has been the decisive factor. It is also important to recognise that the upsurge in fertiliser prices has been influenced greatly by a considerable rise in world fertiliser demand associated with weather-related crop failures which have led to sharp increases in agricultural prices.

The challenging problem of achieving rapidly expanding food production in developing countries has produced a number of different reactions. I would like to take note of several of these reactions before I summarise my reasons for emphasising the importance of fostering the expansion of farm output by a strategy aimed at the progressive modernisation of a large and increasing fraction of farm households.

One response has been to argue that the problem of increasing agricultural output at a sufficiently rapid rate is so enormous and urgent that it must be regarded as an overriding concern. Thus David Hopper stated,

on the basis of his considerable involvement with India's agricultural problems during the 1960's, that increased food production must be regarded as "the priority objective". As a final example in a "long and depressing" list, he declares that "policies to discourage the development of mechanized agriculture because of its assumed impact on rural labor-force employment are incompatible with the need for careful timing and precision in farm operations for multiple cropping ...". (5, p.105) It is clear from his full text that he is thinking mainly of tractor mechanisation. He emphatically dismisses goals other than maximisation of output, and he also ignores the possibility of achieving an equal or more rapid increase in production by a broader effort to raise yields, including investments in irrigation and widespread use of improved types of bullock equipment.

In my view, policies that encourage a more uniform size distribution of farm management units and measures to foster widespread increases in productivity among small- and medium-size farms are to be preferred for both economic and social reasons.²

Another viewpoint suggests that it would not be particularly difficult for a developing country to achieve the goals of improved health and nutrition if political leaders appreciated the critical importance of those problems and gave them overriding priority and mustered the 'will' to plan the country's development accordingly. This view, in my opinion, is based on a faith in the results that can be achieved by economic planning which is not supported by the available evidence. On the contrary, there is considerable evidence that lends support to the view that the most effective governmental strategy for promoting rapid and efficient expansion of agricultural production is one that emphasises changing the production possibilities available to farmers by a combination of (1) agricultural research that generates technical innovations adapted to the needs of small-scale farm units with limited cash income and purchasing power; (2) rural education and farmer training programmes to assist in diffusing knowledge of more productive, scientifically-based technologies; (3) investments in irrigation, rural roads and other types of infrastructure; (4) programmes to improve the marketing of farm products and the distribution of inputs; and (5) appropriate and consistent policies related to prices, taxation and land tenure. Such a strategy is based on a recognition of the significant advantages of decentralised decision-making by individual farmers and the fact that the price mechanism fulfills a critical and inherently

2. The size distribution of farm management units is a key factor determining the choice of technology; it is only on large operational units that labour shortages will be a serious constraint on multiple cropping in a country like India.

difficult communications function by harmonising decentralised decisions and by harnessing the powerful motive of profit.

A final set of responses share the common assumption that economic development alone cannot be expected to achieve key objectives such as employment expansion or nutritional improvement. Hence, the emphasis is on direct measures such as public works programmes to provide jobs and additional income, or direct action through food distribution programmes, food subsidies or other measures to meet the nutritional needs of low-income and nutritionally vulnerable groups. The pessimistic assessment of the likelihood that economic development will achieve significant progress toward the goals of employment, income distribution and health is, however, coupled with a very optimistic view of the possibilities for substantial redistribution of income through subsidies or rural works programmes financed by taxation of the wealthy.

I must take special pains at this point to make my position clear. My thumbnail characterisation of each of these three reactions has no doubt made it clear that I have strong reservations with respect to all of these viewpoints. At the same time, it is important to recognise that there is some validity in each of them. The food needs of the developing countries almost certainly cannot be met without increasing emphasis on new, more productive inputs associated with scientifically-based technologies. The possibility of rapid economic growth, which is an urgent need if only because of the rates of population growth which now prevail in the developing countries, hinges on the possibility of drawing upon the enormous stock of scientific knowledge and the highly productive technologies available in the economically advanced countries. However, the large number of choices that exist for raising productivity in agriculture and industry is a mixed blessing because of the strong possibility that the technologies that are borrowed will be poorly adapted to the needs of low-income countries. The adverse effects of the price distortions in developing countries noted earlier are particularly serious because of the capital-intensive character of so many of the technologies that have been evolved in the technology-exporting countries. One of the most demanding tasks faced by today's developing countries is to draw maximum advantage from the technology backlog while avoiding the pitfalls.

Although I believe that it is dangerously misleading to suggest that a commitment to planning will transform a difficult task into an easy one, there is no doubt that planning has a crucial role to play in accelerating economic and

social progress in developing countries. It has been argued with considerable cogency that systematic diagnosis of nutritional needs and opportunities and careful planning of education and intervention programmes can be expected to give better results than an ad hoc approach.³ It is also clear that intelligent planning is required to design and implement appropriate strategies for agricultural development. However, I am persuaded that such planning should be concentrated on those areas in which government action is critical and likely to be effective. I am especially skeptical of an emphasis on setting production targets for agricultural commodities. Although demand and supply projections for selected commodities can often serve a useful purpose, detailed production targets cannot be very meaningful because the outcomes depend on the interacting effects of government policies and programmes, decisions and action by millions of farmers, weather factors, and price changes which government has only limited capacity to control.

Progressive Modernisation of Agriculture and Improvements in Health and Nutrition: My reservations about the final set of responses is a matter of emphasis rather than basic disagreement. It is abundantly clear that economic development measured solely by growth of per capita G.N.P. often fails to improve the well-being of a large part of the population in developing countries. I am, however, moderately optimistic about the extent to which well conceived economic policies and the pursuit of a suitable strategy for agricultural development can lead to a pattern of economic advance that will make possible widespread increases in productivity and in income-earning opportunities, including self-employment in agriculture which embraces improved productivity in food production for home consumption together with enlarged commercial sales to satisfy the requirements of a growing nonfarm population and to provide expanded farm cash income. Furthermore, it seems clear that unless developing countries are successful in promoting the progressive modernisation of the millions of small farm units which predominate in their overwhelmingly agrarian economies there is little hope for achieving the economic development and social modernisation which are necessary conditions for improving the economic wellbeing, nutrition

3. I have in mind particularly Berg and Muscat (3), Call and Levinson (4) and Joy (6).

and health of the population at large. The considerations that lead me to this conclusion are complex, and I cannot do justice to them in this short paper.⁴

The argument in brief is that an agricultural strategy which emphasises a sequence of divisible innovations, such as high-yielding varieties and fertilisers, which are capable of being used efficiently by small farmers and progressively adopted by the bulk of the nation's farm households, has important economic and social advantages. The economic advantages arise first of all because a strategy that emphasises innovations that complement rather than displace a country's abundant resources of labour fosters a less costly sectorwide expansion of farm output and in the long run favours a more rapid expansion of farm output than a strategy that concentrates resources within a sub-sector of large-scale farms using technologies that could not be widely applied because of the economic structure and demographic characteristics of most developing countries. The fact that such a pattern of agricultural development makes relatively modest demands on the particularly scarce resources of capital and foreign exchange means that it permits more rapid structural transformation-- the process by which a predominantly agrarian economy evolves into a diversified industrial economy-- than would otherwise be possible. Moreover, the relatively equal distribution of income associated with this pattern of development generates rural demand which is mainly directed toward types of farm inputs and consumer goods that encourage rapid growth of output and employment in the nonfarm sectors of the economy. In the introductory section I condemned the emphasis on industrialisation based on a high-protection import-substitution strategy with distorted prices that lead to a lopsided pattern of growth. But those unfortunate consequences should not blind us to the fact that industrial development is an important goal. Healthy growth in the size, diversity and technical competence of manufacturing and other nonfarm sectors is essential to the achievement of high levels of productivity in agriculture and throughout the economy.

4. A fuller treatment of these is contained in my forthcoming book with Peter Kilby, Agriculture and Structural Transformation: Economic Strategies in Late Developing Countries, Oxford University Press, 1975. The term 'late developing' is used to describe the subset of less developed countries in which some 50 to 80 per cent of the population and labour force are in agriculture and which face special problems and opportunities as latecomers. Two of our articles summarise our treatment of two aspects of the subject: "The Choice of Agricultural Strategy and the Development of Manufacturing," Food Research Institute Studies, XI (2); and "The Design and Implementation of Strategies for Agricultural Development," Journal of Agricultural Administration, forthcoming. Although in my (no doubt biased) view, my joint efforts with Kilby provide the most systematic treatment of these issues, including some of the relevant historical evidence, this is far from being an isolated viewpoint. There has been considerable cross-fertilisation of ideas from our work and from the work of John Mellor, Kazushi Chkawa, Yujiro Hayami, Vernon Ruttan and Guy Hunter, and we owe a considerable debt to all of them.

The fundamental factor underlying the high levels of productivity and per capita income associated with the distinctive process which Simon Kuznets refers to as "modern economic growth" is the pervasive growth of specialisation in all areas of economic activity. This includes the progressive differentiation in the roles of institutions as well as of individuals which facilitates not only increasing use of capital equipment but also advances in education, science and technology. It is also reflected in the sort of inter-industry specialisation whereby agricultural productivity is enhanced by use of more and more inputs purchased from specialist firms in a country's industrial sector-- or from overseas. It is this sort of reciprocal interaction between agriculture and other economic sectors, involving increases in the productivity and output of each, that permits rapid increase in national income and in opportunities for productive employment throughout the economy. But again it is important to stress the need for an appropriate sequence of innovations - and not only in the choice of farm innovations and associated inputs but also in the products manufactured and the technologies employed by the industrial sector. Fertilisers, being divisible and mainly yield-increasing in their effect, are usually a far more appropriate farm input than tractors or combine harvesters when the bulk of a country's labour force still depends on agriculture for its work and income. Yet domestic manufacture of relatively simple items of farm equipment is almost certain to be a more appropriate investment than a plant to manufacture nitrogen fertiliser, one of the most capital-intensive of all manufacturing processes.

The social advantages of a strategy aimed at the progressive modernisation of the agricultural sector can be summarised more quickly. Both directly and through its indirect effects on industrial expansion, this type of agricultural development strategy will lead to a much more rapid growth of employment than an inappropriately capital-intensive pattern of development. It thus offers promise of reasonably rapid progress in reducing both unemployment and underemployment. This process can also be expected to lead to a narrowing of the extreme income disparities that prevail because of the miserably low returns to labour which characterise a situation in which a country's labour force is increasing more rapidly than the growth of opportunities for productive employment. Finally, it is at least a plausible hypothesis that an agricultural sector characterised by widespread participation in opportunities for technical and economic advance and a proliferation of supporting institutions and expanding communications networks will provide a favourable environment for the spread of the knowledge and motivation required for the success of family planning programmes.

Before turning to the final consideration that prompts this very strong emphasis on the influence of a country's pattern of agricultural development, let me mention two of the many ways in which there is a mutual reinforcing relationship between this first objective of a food and nutrition policy and the second and third objectives which are concerned with the nutritional characteristics of the foods available and nutrition intervention programmes. First of all, it is apparent that a number of the expected benefits of improved nutritional status will only be 'potential' benefits if a country's rural development strategy and associated economic policies do not promote widespread participation of the population in opportunities for economic progress. To put it very briefly, the favourable effects of increased health and vigour on productivity are likely to be quite limited if the individual concerned is unemployed or underemployed.

The second point of contact concerns the views that have been put forward concerning the favourable interactions between nutrition programmes and the success of efforts to promote family planning. It has been suggested, for example, that linking family planning services with maternal care programmes in rural clinics might well increase the attractiveness and effectiveness of both types of services. Also it has been argued, and with a fair amount of supporting evidence, that reductions in infant and child mortality, which give parents greater assurance that the children they already have will survive, is of great importance in overcoming resistance to the practice of family planning. Carl Taylor has suggested in this regard that "perhaps the most important area requiring investigation is the changed attitude to the future that seems to follow better nutrition". (12) This observation, suggested strongly by Dr. Taylor's work in the Indian Punjab, parallels in an interesting way the principal conclusion reached by Eva Mueller, an economist, on the basis of her analysis of the interrelations between socio-economic factors and the degree of acceptance of family planning among farm households in Taiwan. She suggests:

Where agricultural improvement is confined to a minority of cultivators ... the expansion of economic horizons will be more limited than in Taiwan. Only a minority will then experience the rising aspirations that in Taiwan seem to be contributing so importantly to acceptance of family planning in rural areas. The majority of farmers will have no experience with progress and no reason to raise their sights. They will continue to feel that yield-raising investments, a better education for their children, and modern consumer goods and services are not 'for them'. The transformation of household preferences which we observed in Taiwan will be much less extensive. (9, pp. 37-38)

Clearly, it is not a question of which view is correct but rather that the effects of an agricultural strategy which promotes widespread participation of the rural population in economic and technical progress and health and nutrition programmes can and should be mutually reinforcing.

I stress this second interrelationship because I am convinced that high priority should be given to programmes to provide a package of services combining family planning, nutrition and maternal and child care. And there is reason to believe that if such programmes are based on the use of auxiliaries with limited but well-focused training, they can have a broad impact, even in countries subject to severe financial and manpower constraints. For reasons to which I now turn, I am convinced that the direct programmes of nutrition intervention must be limited to a few high priority activities; and nutritionists and economists will readily agree that bringing birth rates into a tolerable balance with sharply reduced death rates is a high priority objective in all developing countries.

Political Constraints Affecting the Choice of Strategy for Agricultural Development and Programmes of Income Redistribution: Although I am moderately optimistic about the possibility of designing and implementing development strategies that make a substantial contribution to broader social goals, including improved nutrition and health, I am unable to muster much optimism concerning the prospects for achieving these goals by direct measures requiring massive programmes of income redistribution. There have been many exhortations about the need to mount large rural works programmes as a major instrument for reducing rural unemployment and underemployment and augmenting the incomes of the lowest income groups. I share the view that well planned and executed works programmes can make a useful contribution to improving infrastructure facilities in rural areas; and any contribution, however, small, toward improving the employment opportunities and incomes of the most underprivileged groups in rural areas would be welcome indeed. But even the more ambitious rural works programmes, such as the programme carried out in the former East Pakistan with substantial financial assistance from United States P.L. 480 counterpart funds, only achieved a very small reduction in the extent of unemployment and underemployment.

The basic problem is that poverty in the developing countries is a huge and pervasive problem, not a matter of isolated pockets. This fact affects the feasibility of rural works programmes as well as food distribution

or food subsidy programmes which require large allocations of scarce resources if they are to have a substantial impact. In a relatively few less developed countries-- Argentina and Chile being examples that come to mind -- the agricultural sector no longer dominates the economy and relatively high incomes are being received by a sizeable fraction of the population. Thus the tax base exists for financing income distribution programmes on a fairly large scale. But in countries such as Bolivia, Tanzania, India, Pakistan or Indonesia with average annual incomes on the order of U.S. \$100, the scope for income distribution programmes capable of having a real impact on the 30 per cent or more of the population subject to acute poverty is very slight. Admittedly, even in those countries government could and should be doing more for vulnerable and disadvantaged groups. Also, as Alan Berg has argued, imaginative and well administered programmes of nutritional intervention probably have more political appeal than most types of income redistribution. (2) Nevertheless, it seems to me that those of us concerned with effective action to improve the health and nutritional situation in developing countries are being unrealistic if we assume that the political obstacles to large-scale programmes of nutrition intervention can be overcome if politicians can only be made to appreciate the serious consequences of nutritional deficiencies and persuaded to face up to their responsibilities.

It has been argued by Colin Leys, a political scientist with considerable experience in developing countries, that the type of social structure normally associated with poverty tends "to produce a particular type of politics, which is the type least likely to set a high premium on so generalized an objective as national economic development ...". (7, p.137) This view may be disputed, but there is no doubt that political leaders in developing countries face pressing problems and demands that are enormous in relation to their command of 'resources' - money, votes, prestige, patronage, force, etc. Government resources in the narrow sense of tax revenues often yield receipts that are the equivalent of only U.S. \$15 or \$20 per person even if taxation takes 15 to 20 per cent of the national income. Often the most critical problem facing the government of a developing country is to achieve a modicum of national integration in a country divided by linguistic, cultural, racial and religious differences; and in developing countries, as elsewhere, the overriding concern of politicians is likely to be a preoccupation with staying in power. Leys also reminds us that the political and administrative elites in most developing countries "are rarely

eager for measures that would entail redistribution of wealth or any threat to their own status or prospects". We may regard this as deplorable, considering the magnitude of the problem of poverty that exists, but we should not find it surprising. Even among revolutionary regimes which have seized power with the avowed aim of replacing selfish and corrupt leaders, there are few examples to match the disciplined devotion of Mao-Tse-Tung and other leaders of China in their attack on poverty. Furthermore, the conditions which created the monopoly of power and the remarkable cadre of leaders in China are not easily replicated. Moreover, even though a country's leaders may be deeply committed to the achievement of egalitarian goals, they are likely to encounter difficulties in mobilising the energies and initiative of the population and in implementing programmes which are really effective in increasing productivity and national output.

Given the political constraints on decision-making, it is clearly a formidable task to mobilise support for an agricultural strategy designed to foster progressive and widespread modernisation of the rural population. Strong resistance must be expected from large farm operators and others with a vested interest in a dualistic pattern of development, including some administrators and politicians who benefit from the controls associated with an import substitution strategy of industrialisation. Yet it seems probable that the constraints will be reduced to the extent that it is recognised that such a strategy has important advantages in achieving the economic goals of output expansion and structural transformation while simultaneously promoting broad participation in economic opportunities, the narrowing of income inequalities, and improvements in health and nutrition. On the other hand, if the mounting concern with problems of income distribution and employment is mainly focused on measures such as mass public works programmes, subsidised distribution of credit to low-income farm households, or food distribution programmes or subsidies to directly ameliorate the condition of the poor by income redistribution on a large scale, the political constraints are likely to be more serious. They may be so serious in fact that such programmes are likely to turn out in practice to be of very limited benefit to low-income groups while diverting attention from the need to make progress toward employment creation, a better distribution of income, and widespread improvements in health and nutrition as an integral part of a country's development strategy.

MEASURES TO INFLUENCE THE NUTRITIONAL CHARACTERISTICS OF THE NATIONAL FOOD SUPPLY

I must deal in summary fashion with this second objective of a food and nutrition policy and also with the third objective related to nutrition intervention programmes. They concern topics which will figure prominently in other papers on our agenda, and the thrust of my remarks concerning these two objectives will be to emphasise the need for nutritionists and others concerned with these problems to reach a consensus on a limited range of activities that merit high priority. In discussing priorities for the prevention of malnutrition, J.M. Bengoa has suggested that the determination of priorities should be guided by an assessment of the extent of the various conditions of malnutrition, their social significance, and the feasibility of preventing them. (3) In Dr. Bengoa's view, which I suspect would command wide agreement among nutritional scientists, protein-calorie malnutrition, vitamin A deficiency leading to Xerophthalmia, nutritional anemias and endemic goitre merit the highest priority on a worldwide basis. Needless to say, actual programmes need to be guided by the situation in a particular country and within its various agro-climatic regions and socio-economic groups. My remarks about measures to influence the composition of a country's food supply and the nutritional characteristics of the processed foods available and even briefer comments about programmes of nutritional intervention will touch on a few points relevant to these problem areas. I assume that some of the later papers will consider more elaborate procedures for assessing needs, identifying promising points of intervention, and assessing costs and benefits of alternatives. I also hope that we shall learn something about the effectiveness of the systems approach to these questions which was undertaken by the government of Tamil Nadu in India.

In view of the strategic role that soy products have played in Japan, it is disappointing that such limited success has been achieved elsewhere in encouraging increased production and consumption of this relatively high-quality, low-cost source of protein. Even the production of more widely popular pulses such as cowpeas, grams, and phaseolus beans has often been stagnant or even declining in recent years, especially in areas where the availability of high-yielding varieties of wheat, rice or maize has increased their profitability relative to pulses. It is encouraging that a number of pulse crops are now receiving increased attention at several international research centers,

especially at the International Institute of Tropical Agriculture (IITA) in Nigeria and the International Crop Research Institute for the Semi-arid Tropics (ICRISAT) in India, and it is to be hoped that national research and extension programmes will devote increased resources to these crops. The frequent emphasis given at maternal and child care centres to simple techniques for preparing bean-cereal mixtures as a supplemental and post-weaning food is certainly appropriate for economic as well as nutritional reasons. Frequently priority should also be given to encouraging expanded use of oilseed meals for human consumption for similar reasons. In fact, it would seem to me that this is an area where the use of government funds to stimulate both production and consumption of such products is likely to yield substantial returns that would accrue in large measure to nutritionally vulnerable and low-income groups. Also a programme of compulsory fortification of bread with soybean or other oilseed meal could be introduced in such a way as to provide a stimulus to increased production of those products and increase the protein intake of those who consume significant quantities of bread, although in some countries this will be a relatively high-income group with better than average diets.

I would also like to suggest that more attention should be given to altering the composition of foods available and consumed by tax or other measures to discourage consumption of foods that tend to lower the nutritional quality of the diet - and thus divert food demand toward items which in general will yield greater nutritional benefits. The F.A.O. report on Zambia's food economy by Périssé, Stoces, and Paci (11) suggests a discriminatory tax on lager beer for that reason, and the authors are highly critical of a 'national fixed price market' which has apparently contributed to extremely rapid growth of consumption of lager beer which is supplanting consumption of the more nutritional and less costly types of beer which retain the nutrients of brewer's yeast because they are not clarified. The same type of price policy has also contributed to extremely rapid growth of consumption of soft drinks, and again a tax to discourage consumption would seem appropriate. The universal tendency for sugar consumption to increase rapidly with rising incomes poses something of a dilemma for the economist interested in nutrition. He is likely to concede at least some validity to the proposition that consumer welfare is maximised when consumers can allocate their income to goods and services according to their preferences expressed in the market, and he certainly recognises that sugar is often a very low-cost source of calories. But in a situation in which under-nutrition is not

a significant problem but malnutrition is serious, I believe that a case could be made for financing appropriate programmes of nutrition intervention by a tax on sugar. Tax experts tend to be critical of this sort of direct link between a tax and revenue allocation, but it seems to me to be justified in this instance to offset the regressive effect of an excise tax on an item that weighs much more heavily in the budget of low- than high-income households. As a final example, perhaps some type of action should be taken to discourage the shift toward sifted maize meal that is occurring in Kenya and other countries. Consumer objections to such a policy would no doubt be reinforced by the problem of rancidity with the unsifted product, but such a policy would certainly have nutritional advantages. At the very least, a strong case can be made against making available subsidised loans and other government assistance for the expansion of an industry which is 'modern' but which has adverse employment as well as nutritional effects.

I am keenly aware that measures such as I have just mentioned would encounter political resistance. However, they have the considerable advantage of requiring very little in the way of scarce resources, even of administrative resources. I am inclined to believe that it would be somewhat less difficult to mobilise support for this type of action than for measures involving a substantial redistribution of income.

IDENTIFYING AND IMPLEMENTING NUTRITION INTERVENTION PROGRAMMES

I have suggested that direct intervention via food subsidies or direct distribution of foods or nutrients should be proposed only when the benefits are very large relative to the cost. It seems quite clear, for example, that even a country with very limited resources can scarcely afford not to require that salt be fortified with iodide or iodate, even if this requires a subsidy to avoid a price increase. The possibility of using salt as a vehicle for distributing supplementary iron is also attractive, especially since nutritional anemias are a more widespread nutritional problem than endemic goitre. Similarly, the availability of high-potency vitamin A capsules, which can provide a highly effective supplement for a six-month period at remarkably low cost, has certainly increased the feasibility and attractiveness of mass distribution programmes to prevent blindness resulting from Xerophthalmia.

I have emphasised earlier that maternal and child care programmes which provide a package of health, nutritional and family planning services merit particular attention because of the contribution which they can make

to several major economic and social goals. I am particularly impressed by the arguments put forward by Asok Mitra concerning the importance of direct intervention to improve the nutrition of expectant mothers during the last trimester of pregnancy and of infants up to six months of age. (10) He notes particularly the prevalence of premature births in India and the fact that children who experience fetal undernutrition are especially vulnerable to disease because they are born with inadequate reserves of stored nutrients, notably vitamins A and B12, iron and folic acid. In addition to measures to improve the quantity and quality of mothers' milk, efforts to counter a shift away from breast feeding are also important for the reasons emphasised by Derrick Jelliffe and others. Dr. Mitra further emphasises the importance of including immunisations of mother and child as part of the programme and suggests that "such a program would also serve to put the rural mother firmly on the road to family planning". He goes on to note "that there is a compelling difference in the death rate beyond 6 months between those children who do not receive any solid food and those who do - even where the food causes digestive difficulties and weaning diarrhea". In his view, however, education rather than physical distribution of food is the most effective instrument for promoting improved nutrition in the post-weaning group.

I will make no attempt to summarise this paper which has already gone somewhat beyond its assigned limit. In any event, it is intended simply as an introduction, hopefully a provocative one, to the discussion during the remainder of this Ninth Session of the Committee.

REFERENCES

1. Bengoa, J. M. "Significance of Malnutrition and Priorities for Its Prevention". In Berg et al, eds., M.I.T. Conference Proceedings.
2. Berg, Alan. The Nutrition Factor. Washington, D.C., Brookings Institution, 1973.
3. Berg, Alan and Muscat, Robert. "Nutrition Program Planning: An Approach." In Alan Berg, Nevin S. Scrimshaw and David L. Call, eds. Nutrition, National Development, and Planning. Proceedings of an International Conference held at Cambridge, Massachusetts, October 19-21, 1971. Cambridge, Mass., M.I.T. Press, 1973. Here cited as Berg et al, eds., M.I.T. Conference Proceedings.
4. Call, David L. and Levinson, F. James. "A Systematic Approach to Nutrition Intervention Programs." In Berg et al, eds., M.I.T. Conference Proceedings.
5. Hopper, W.D. "Investment in Agriculture: The Essentials for Payoff." In Strategy for the Conquest of Hunger: Proceedings of a Symposium Convened by the Rockefeller Foundation. New York, 1968.
6. Joy, Leonard. "Nutrition Intervention Programs: Identification and Selection." In Berg et al, eds., M.I.T. Conference Proceedings.
7. Leys, Colin. "Political Perspectives." In Dudley Seers and Leonard Joy, eds. Development in a Divided World. Middlesex, England, 1971.
8. Malenbaum, Wilfred. "A Note on the Poor Nation Situation." In Berg, et al, eds., M. I. T. Conference Proceedings.
9. Mueller, Eva. Agricultural Change and Fertility Change: The Case of Taiwan. Ann Arbor, University of Michigan, 1971, mimeo.
10. Mitra, Asok. "The Nutrition Movement in India." In Berg et al, eds., M.I.T. Conference Proceedings.
11. Périssé, J., Stoces, F. and Paci, C. The Food Economy of Zambia. ESN: DP/ZAM/69/512. Technical Report No. 1. Rome, UNDP/FAO, 1974.
12. Taylor, Carl E. "Nutrition and Population." In Berg et al, eds., M.I.T. Conference Proceedings.