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World Agricultural Growth – Short and Long-term Aspects, Past and Future – An Overview

INTRODUCTION

World food and agricultural production has expanded in the past at an annual rate of 2.47 per cent from the mid-1960s to the end of the 1970s. There are, however, wide divergences among regions and countries. In the developed market economies where domestic demand for food and agricultural output is expanding rather slowly, production has outstripped demand growth. In the centrally planned developed economies there has been a slowing down in domestic production during the 1970s compared with the 1960s. An expanding demand, especially for livestock products, has resulted in growing cereal imports. The developing countries reveal widely different pictures in different regions or groups of countries. In general, demand growth (3.0 per cent annually) has outstripped domestic supply growth (2.84 per cent) in the developing countries as a whole, with a consequent rising import demand for cereals. In thirty-seven low-income countries during the 1970s, there has been a fall in cereal production per caput and in nineteen of them production also fell in absolute terms.

The basic fact is that food is in short supply in the majority of developing countries. Of 83 developing countries with populations over 1 million in 1980 (and excluding China), the food supply in 1978–80 was below nutritional requirements in 44 countries. They contained 1.24 billion people, more than half the total population of the 83 countries. In only 14 of the 44 countries (with just over 10 per cent of the population of the 44 countries) did average per caput calorie supplies increase during the 1970s – but not to the extent of meeting minimum national average nutritional requirements. These 44 countries constitute the core of the world food problem. Improved food distribution alone cannot solve even their present problems, quite apart from their growing food needs because of population expansion. They must depend on accelerating their own production and on the trade and assistance benefits of an improved world food system.

Over the years, the percentage of world cereal production which is internationally traded expanded consistently. The cereal imports of de-

veloping countries have expanded rapidly – more than doubled in the last decade. During this period the self-sufficiency ratio of many of the developing countries has declined. The developed market economy countries are predominant exporters of cereals in the world. This is especially true of North America: 67 per cent of the world cereal exports originated in North America in the late 1970s, with the United States providing 56 per cent of the world total, Canada 11 per cent, Australia 8 per cent, Western Europe about 7 per cent. Amongst the importers of cereals, the developing countries' share was 47 per cent, followed by Japan with 13 per cent, centrally planned developed countries with 20 per cent and Western Europe with 18 per cent. The imports of the developed countries, both market economy and centrally planned, consisted predominantly of coarse grains for feeding livestock.

The share of agricultural trade in world trade continues to decline but agricultural commodities remain a principal source of foreign exchange for developing countries. For the developing countries as a whole, earnings from agricultural exports constitute no more than 25 per cent or so; however, for low income developing countries, their share goes up to 50 per cent or more. Over the last decade and a half, the share of developing countries in world imports has increased, whereas that in world exports has declined. The agricultural exports of developing countries, other than cereals, fall into two categories: those which compete with developed country exports, consisting of temperate zone products, and those which are tropical non-competing products.

The competitive exports of developing countries which compete with developed country temperate zone products enjoyed a slower rate of growth in production than in domestic consumption. The competing exports appeared to have suffered a supply constraint arising from increasing domestic absorption of exportables in the developing countries. At the same time, in developed countries, the rate of domestic production increase exceeded that of demand growth, with an accelerated rate of increase in export surplus. The share of developing countries in world trade of competing products has declined over time. In respect of non-competing exports of the developing countries domestic consumption growth, at an annual rate of 2.48 per cent, exceeded demand supply at an annual rate of 1.83 per cent, thus restraining the growth of an export surplus. The trade in both these categories of non-cereal exports has been sluggish, contrasting sharply with buoyant trade in cereals and feedstuffs.

As is well known, a dominant characteristic of the world agricultural trade is the high degree of fluctuations in agricultural export earnings; both price and volume of trade in agricultural commodities fluctuate from year to year. The degree of fluctuations in export prices increased during the 1970s as compared with the 1960s; however, there was no evidence that instability of the volume of trade worsened from one decade to the next.

Interaction between domestic and external trade policies is nowhere more evident than in the field of food and agriculture. Domestic agricultural policies, including tax, subsidy and pricing policies, to raise, support or

stabilize income or prices in the agricultural sector, have important implications for international trade in agricultural commodities. These policies are stimulated by multiple objectives, for example, to reduce income disparity between the agricultural and non-agricultural sectors; to reduce poverty in low productivity areas or income groups; to reduce dependence on external sources and to enhance the security of food supplies likely to be disrupted by political or stragic factors. Search for self-sufficiency in agriculture, either food or essential raw materials, has often led to levels of supplies which are beyond the limits of domestic demand, as well as of considerations of efficiency and costs.

The above, rather brief, overview of world food and agriculture reveals a mixed situation. The essential point, however, is that while global food and agricultural supplies meet demand growth, the developing countries face severe problems in food and agriculture. Hundreds of millions of people remain seriously undernourished. In per caput terms food production is regressing in an alarming number of countries and the international framework is failing to provide either a suitable policy climate to encourage a maximum contribution from agriculture to economic growth in poor countries or the material means to assist them to do so.

A substantial expansion of the rate of growth of food and agricultural production is indeed urgently required if the increase in demand of a growing world population with rising income per caput is to be met. The continuation of past trends would create an unbearable burden of food imports for developing countries and result in an increasing number of their undernourished population. Lack of progress in reducing hunger and undernutrition is not inevitable and there is no inherent reason why the sector should not contribute substantially to overall economic growth, including a more dynamic and sustainable agricultural trade. In particular, the growth of food output in developing countries could be accelerated substantially.

These are not simply wishful assertions. They are the findings of a careful assessment, country-by-country, of longer-term perspectives of ninety developing countries made in a very recent study by FAO, *Agriculture: Toward 2000*. One of the contributed papers¹ to this Congress goes into the detail of the study. But the essential findings are that it is feasible for agricultural output growth to be doubled by the end of the century, implying an increase of about one-third over the historical trend in developing countries. Food supplies in *each* of the 90 developing countries would be 100 per cent or more of minimum nutritional requirements by 2000 and even without improvement of the distribution of income, the numbers of seriously undernourished would be almost halved. The agricultural trade surplus of developing countries would be raised considerably in the Far East and Latin America. The deterioration in the food self-sufficiency of developing countries would be arrested even though their imports of cereal and livestock products would rise in absolute amounts. The developed countries would, of course, benefit from the expansion of agricultural trade. An acceleration in the rate of increase in production

would require not only a large increase in investment in agriculture but also a significant shift in policies and institutions, both in developing as well as developed countries.

Three major and interrelated aspects of world agricultural growth, especially growth in the developing countries, are considered in the following sections. They are international assistance for accelerated growth in developing countries and its implications for international trade in agriculture and world food security.

INTERNATIONAL ASSISTANCE FOR ACCELERATED PRODUCTION IN DEVELOPING COUNTRIES

Developed countries have a long-term interest in increasing food production in the poor countries. Cereal imports by developing countries which have already reached 100 million tons in 1981, would double – or more than double if the past trends in their per caput consumption and domestic production continue. This would throw an increasing burden on the developed, exporting countries with a pressure on prices at least in the short-run owing to inelasticity of output. In the long-run as well, if a growing and substantial proportion of world demand is to be met from North America, the likelihood of rising food prices in real terms cannot be ruled out, in the absence of significant technological breakthrough. Higher costs would depend on the timing and extent of increasing soil erosion, rising prices of water and energy-intensive inputs, diminishing returns from extension of cultivation to marginal less productive and fragile soils and from increasing application per acre of such inputs as fertilizer and pesticides. Consequent rising unit costs of food production could fuel inflation.

Growing food imports would also impose a heavy burden on international marketing and transportation facilities, including marketing and distribution networks in the developing countries. Moreover, financing of food imports on such a large and growing scale would require unrealistically high levels of either food aid or of rates of growth of non-food exports from developing countries. Widespread undernutrition and distress, following from food shortages caused by stagnation or slow growth in domestic production, would socially and politically destabilize poor societies with possible international consequences. Finally, a more vigorous expansion of food production in developing countries will stimulate their national growth; in turn, this will make them better customers for the manufactures, food grains and livestock products which the developed countries export.

Acceleration in domestic food and agricultural production would require shifts in domestic policies, higher priority and greater incentives as well as increased rate of national resource mobilization for the agricultural sector. Timely and adequate assistance, both technical and financial, from the international community is a *sine qua non*, because domestic efforts in developing countries, especially low-income countries, would be far from adequate.

The FAO Study, quoted above, indicates that a rate of growth in food and agriculture at a rate between 3.5-3.8 per cent in the next two decades would require an aggregate investment of between \$1,700 billion and \$1,400 billion (in 1975 prices) for the period 1980 to 2000. This includes investment not only in primary agriculture but also in storage and marketing, as well as in transport and processing. These four components amount to about \$600 billion for the whole period. FAO estimates that the average annual investment requirements would rise to between \$100 billion and \$132 billion in the year 2000. In terms of the DAC/OECD narrow definition, which excludes transport and processing, annual gross investment requirements would rise to between \$50 billion and \$63 billion by 1990 and to between \$74 billion and \$100 billion by 2000 (all in 1975 prices). These requirements would imply a twofold increase in 1990 and a threefold increase in 2000 above the level of 1981. Annual gross investments would have to rise by three to four times the annual estimated flow in the late 1970s or in early 1980. Investment requirements, according to these estimates, would correspond to about 25 per cent of agricultural GDP of developing countries. The required level of annual aggregate investment for overall economic growth during 1980-2000 has been variously estimated at 25-30 per cent of GNP.

The FAO estimates that corresponding to such a large increase in investment, there would be large increases needed in external assistance to agriculture. Requirements, in terms of the DAC/OECD narrow definition, would rise to \$12 billion a year in 1990 and \$18 billion in 2000 (in 1975 prices). This implies a more than twofold increase in development assistance by 1990 and a three-and-a-half times increase by 2000. In 1980, the flow of external resources to agriculture amounted to \$4.9 billion in 1975 prices, as against the estimated annual requirements of \$8.3 billion for the period 1975-80. This would constitute 0.12 per cent of GDP of developed countries during the 1980s and 1990s as compared to 0.08 per cent in 1975. To realise this external resource flow would require either an increase in overall assistance or an increase in the share of agriculture in overall development assistance or a combination of both.

At present about 17-18 per cent of the total official development assistance goes to the agricultural sector. The percentage is much lower (10-12 per cent) for the average bilateral donor, whereas the multilateral financial institutions devote between 30-40 per cent of their total assistance to the agricultural sector. The current tendency to reduce the relative role of multilateral institutions would particularly adversely affect the agricultural sector. This, combined with a relative stagnation in total official development assistance, implies that achievement of the required flows of external assistance for the agricultural sector would necessitate a substantial reallocation of external resources to the agricultural sector; this is also the sector which plays the dominant role in low-income countries, to which priority in development assistance was, until recently, accepted by the donor community. The increasing emphasis on political, strategic and security objectives in the inter-country allocation of development assistance

is bound to hurt the agricultural sector. In addition, a growing tendency to tie aid by sources and commodities, in an attempt to boost exports via external assistance, as a means of stimulating the domestic economy of the donor countries, has adversely affected the flow of programme assistance and local cost financing. This would have an unfavourable impact on the agricultural sector, since programme loans for agricultural inputs and local cost financing are not only essential for many agricultural and rural development projects, but also for promoting poverty-orientated programmes. The FAO Study indicates the need for a considerable increase – at an annual rate of 7 per cent compared with the rate of growth of gross output at 3.5–3.8 per cent in the use of current inputs (modern inputs like fertilizers, improved seeds and pesticides and so on) for the modernization of developing country agriculture. Non-agricultural inputs as a proportion of the gross value of farm output would need to rise from 20 to 30 per cent by 2000.

Thus, in the aggregate, gross investment would need to rise to 20 per cent of gross agricultural output. Gross investment in primary agriculture (excluding storage, marketing, transport and processing) during the period 1980–2000, on average, would be about 10 per cent of total investment for the economy, as estimated in some comparable studies. This compares with the share of agricultural GDP in the total GDP of about 13–14 per cent during the same period. It will be necessary to overcome the prevailing impression that agricultural development is relatively cheap or not capital demanding, even apart from the investment in rural physical infrastructure and so on, which is not included in the above estimates (rural roads or rural electrification are excluded). Labour productivity and agricultural output cannot be raised substantially without investment, however appropriately labour intensive is the strategy of development in labour abundant countries.

In the immediate future, overall growth prospects and resource availability both domestic and foreign, are unfavourable. It is important to ensure that the higher priority now being attached to agriculture does not suffer. Indeed, the more stringent the restrictions on resource availability, the greater is the need for allocations to high priority sectors to be preserved at the expense of less essential sectors, keeping in view the minimum and necessary degree of inter-relationship between sectors. In many areas of the developing world, prospects of obtaining substantial increases in agricultural output by increasing investment are high. They must be exploited. The agricultural sector provides the livelihood and employment for the majority of the world's poor. With the slowing down in overall growth rate, the poor would suffer most, and the agricultural sector needs greater attention in the interests of the poor as well.

INTERNATIONAL TRADE ASPECTS

The principal policy questions in world agricultural trade are how to expand and stabilize it, both in response to growing demand and production and as an instrument for securing an efficient and growing agricultural economy.

Protectionism

How far is trade expansion hampered by trade barriers?

Protectionism in agriculture has persisted for a long time, and is pervasive. Non-tariff barriers, often in support of domestic support measures, are of much greater importance than tariff barriers in agricultural trade. Protectionism, an FAO analysis indicates², has increased in recent years, as trends in various measures of protectionism (that is differentials between domestic and world prices, as well as measures of producer subsidies in agriculture) indicate.

A recent study indicates that a 50 per cent reduction in agricultural protectionism in OECD countries would lead to increases in world trade to the amount of \$8.5 billion in 1977 prices, of which increases of about \$3 billion at the minimum would occur in the agricultural export earnings of the 57 most populous developing countries. The exports of OECD countries would expand by \$1.7 billion as a result of liberalization. There would be reallocation of production and trade amongst the developed countries, with the United States, Canada and Australia enjoying a significant expansion of exports, as against losses sustained by France and Italy.

The increase in exports would amount to an increase of 15 per cent of the total exports of 79 commodities included in the analysis. For the developing countries it would lead to an increase of export revenue to the extent of 10 per cent of current value of exports in 1977 prices. The additional resource transfer to the developing countries, resulting from an increase in exports, would amount to \$1 billion, the domestic resource cost of producing the export commodities being about \$2 billion.

In spite of a broad international consensus, as evidenced in resolutions at various international fora, including FAO, UN and UNCTAD, on the need for a greater measure of liberalization in agricultural trade, progress to date is limited. There is an increased pressure towards protectionism. The Multilateral Trade Negotiations, first in the Kennedy Round and then in the Tokyo Round, were directed more towards trade in manufactured goods and towards tariff barriers. Moreover, trade liberalization under MTN was, to a large extent, concerned with developed countries rather than removing obstacles to exports of primary interest to developing countries. However, adoption of generalized preferential systems in favour of the developing countries was a step in the right direction; but a limited step, hedged in with many qualifications.

Agricultural protectionism can be reduced only if it is accompanied by significant adjustment in the structure and pattern of domestic agricultural production, which is buttressed by an array of domestic support measures. In a period of recession and unemployment, structural adjustment is most difficult: resources can be reallocated and output can be redirected more easily in a period of growth rather than of stagnation. Among the developed market economy countries, especially the United States, EEC and Japan, protectionism in agriculture has become the most intractable component in the overall trade negotiations. This is particularly so when agricultural surpluses of commodities such as sugar, cereals, dairy and meat products,

accumulated through domestic support policies, seek competitive export outlets, often with subsidies (as in the EEC). The frequency of complaints in the GATT in respect of violation of its rules, confirms the intense protectionist pressure in several countries. At the same time it is paradoxical that in a period of inflationary pressures at home, cheap imports, which could exercise a deflationary impact, are kept out. The policy of controlling inflation *via* restrictionist monetary policies is aggravating recession and hence protectionist pressure from various interest groups.

Supply side measures to stimulate growth through greater investment and high incentives need to be combined with policies towards structural adjustment. Otherwise, to superimpose growth stimulating effects on the old structure would create further rigidities in the future.

As one looks towards the future, if developing countries are to significantly accelerate growth in their food and agricultural production, as a *sine qua non* for their overall growth they need to find expanding markets for their agricultural exports. At the same time, under the impact of rising domestic demand, resulting from rising incomes and population, their imports of basic foodstuffs and cereals will go up. In spite of the fact that they would produce more food, they will eat more as well; in the middle-income and high-income developing countries there will be a rapid increase in indirect consumption of cereals, that is *via* livestock products. This emphasizes the point made earlier that in an environment of overall growth there will be need and scope for adjustment in production and trade, but not for absolute contraction overall or even sectoral. For example, in a scenario of accelerated growth there would be no occasion for the developed countries undertaking an absolute reduction in output, even in respect of commodities competing with the exports of developing countries. As noted earlier, the FAO Study, *Agriculture: Toward 2000*, indicates that the developed countries will be able to expand significantly their output and exports of cereals to developing countries. Depending upon alternative scenarios of growth, developed countries would be able to expand their net export surplus by 80–150 per cent above the current level. Total cereal production in developed countries could then go up by 25–30 per cent. The developing countries, on the other hand, would generate larger exportable surpluses in tropical products ranging from beverages to rubber, bananas, tobacco, cotton and fruits and vegetables. In some of these products, the rate of domestic production growth in developed countries needs to slow down. In no case is there a need for absolute decline below the current level.

As the growth in demand would be mainly located in developing countries, those with substantial production possibilities could take advantage of growing export demand in cereals as well as in tropical products. In respect of commodities in which developing countries face competition with developed countries, that is rice, cotton, vegetable oils, sugar and so on, the increased intra-developing country trade will depend upon how far international trade is liberalized, and how far developing countries are able to increase productivity and build up transportation, markets, distribution and information networks for the promotion of trade amongst themselves.

World agriculture needs a long-term target or perspective for trade liberalization. The individual countries should in the first instance agree to slow down the pursuit of increased self-sufficiency or expensive non-competitive surpluses through restrictive trade and domestic support measures. They should fix targets, if necessary commodity by commodity, as to the upper levels of the share of total domestic consumption which would be met from imports. A target of self-sufficiency ratios for protected commodities would over time help to prevent unplanned or unpredictable rises in domestic self-sufficiency and allow appropriate measures to be planned in advance by both importing and exporting countries.

INSTABILITY IN PRICES AND EXPORT EARNINGS

Prices of agricultural products not only fluctuate but also many of them have shown a long-term downward trend in the last decade or so. Eleven commodities – tea, jute, rubber, bananas, wheat, maize, beef, soyabeans, palm oil, rice, and cotton – have shown downward trends in real prices during the period 1960–1980³. UNCTAD's Integrated Programme of Commodities was designed to stabilize and maintain prices of agricultural commodities in world trade; in addition, this was intended to strengthen the long-term earnings of developing countries from agricultural exports through expansion of research and development efforts and through their improved and more efficient marketing, distribution and processing, along with a greater participation of developing countries in incomes and earnings from these operations. High expectations were raised about the prospects of commodity agreements for twelve agricultural commodities which were included in the UNCTAD Commodity Agreement. An international agreement on the Common Fund generated confidence that both the developed and the developing – the producing and consuming – countries were eager and willing to accept the instrument of commodity agreements as a principal means of international price stabilization.

Actual experience of commodity negotiations in the last six or seven years has not fulfilled these expectations. Only one new international agreement, on rubber, has so far been negotiated; two existing agreements on sugar and cocoa have been renegotiated, but without universal participation. The EEC, with a growing export surplus of sugar, stays outside the Sugar Agreement, and the largest producer of cocoa, Ivory Coast, and the largest consumer, the United States, stay out of the Cocoa Agreement. The Coffee Agreement was extended in 1981 for another two years. The effectiveness of these price stabilizing provisions has been severely constrained, with the ruling market prices often lying substantially outside the 'price bands' included in the agreements. A careful and objective analysis of the long or medium term forces operating on the demand and supply prospects of a commodity is crucial to the success of selection of (a) a realistic and defensible 'price band' and (b) a relatively cost-effective size of buffer stocks.

The Common Fund agreement provided eventually for resources of only \$750 million, of which \$400 million is for buffer stock financing, rather than about \$6 billion as was originally proposed. Principal reliance for resources was to be placed on borrowings from the capital market, which is plagued by abnormally high interest rates, and contributions from individual commodity agreements, which tend to jealously guard their resources. Individual commodity agreements were expected to receive substantial assistance from the Common Fund rather than the other way round; moreover, the expectation that each commodity agreement would face almost equal probability of lending to and borrowing from the Fund is not shared by the managers of existing commodity agreements. The success of the Common Fund is inextricably linked with the number and viability of commodity agreements. The limited success in reaching commodity agreements inhibits the prospects of the former.

The required number of countries have yet to ratify the Common Fund Agreement, thus delaying its operation at least by another year. In some developed countries there is an exaggerated ideological shift towards reliance on the 'magic of the market place', and an international commodity agreement is looked upon as interference with the market place.

Greater interest seems to be evidenced in the Second Window of the Common Fund (with a meagre sum of \$350 million) designed to help research, development in the face of competition from synthetics and slow growth in demand, and improved productivity of export commodities included in an international commodity agreement, with or without buffer stock operations. Often the weakest commodities, in terms of long-term growth prospects, such as tea, sisal, jute, and so on, are the principal export earners of the poorest countries.

The producers of agricultural exports in developing countries do not receive more than a small fraction of the final consumer prices. If all processing stages for five major export commodities (rubber, cotton, jute, cocoa, coffee) were undertaken exclusively within developing countries, the current value of their export earnings would be increased by 25 per cent with a total gross income from processing of about \$12 billion in 1980 prices.

An FAO analysis indicates that if potentials for agricultural growth are realized in the developing countries in the next decades, the annual requirements of investment in 1975 prices in storage and marketing alone would amount to about \$4.5–\$5.2 billion in 1990 and \$5.8–\$7.2 billion by 2000; corresponding annual requirements for investment in transportation and first-stage processing of agricultural commodities would be much higher – \$18.6–\$21.2 billion in 1990 and \$25.4–\$31.3 billion in 2000.

WORLD FOOD SECURITY

International trade issues are closely linked with food security issues. Access to and assurance of supplies and access to markets are two sides of

the same coin. Food security at the international level requires that access to supplies adequate to meet average nutritional requirements for all countries at all times is assured, especially at times of world food shortages and rising prices. This assurance is intended to meet the impact of fluctuations in output and prices on the availability of food supplies, especially in low-income food-deficit countries. The impact of shortages in food supplies falls most severely on the poor countries and on poor peoples.

The fluctuations in world supplies – traded in the world market – are the combined effect of fluctuations in a production and trade policy. To the extent that fluctuations in domestic production are not allowed to be reflected fully in fluctuations in consumption, either through changes in imports or exports, amounts traded in the world market would fluctuate to a greater extent than the domestic production would.

Moreover, since trade in cereals/food constitutes a small percentage of production, a given percentage fluctuation in production would be accompanied by a much higher percentage change in traded supplies.

In the course of the last two decades the degree of fluctuations in yield and production of cereals has increased. The average variation from trend in yield and production of cereals increased from 2.26 per cent in 1960–69 to 3.36 per cent in 1978–79 in respect of yield and from 2.57 to 3.32 per cent in respect of production for the same period. The largest degree of fluctuation occurs in the USSR. In the United States the degree of fluctuation increased from 3.19 per cent in 1960–69 to 10–38 per cent in 1970–75 in respect of yield; the average variation for developed countries is higher than that for developing countries and has increased over time.

According to some observers, uncertainty of cereal supplies in North America is likely to be aggravated in the future due to a variety of reasons. First, the likely frequency of climatic hazards is thought by a number of climatologists to be greater than recent historical experience might suggest. There appears to be a consensus that northern hemisphere weather in recent decades has shown less variability than evidence from a longer historical period would suggest, with the implication that levels of future production are at a greater risk from climatic factors. Second, concentration of cereal production on a limited and small number of varieties, as in the case of wheat, increases the genetic vulnerability of crops to epidemics (pests and diseases) under present farming systems. Third, risks of man-made hazards are also greater, due, for example, to risks of radiation from nuclear reactors.⁴

Aggregate world cereal production fluctuates less than production at the regional country level. A liberal international trading system partly mitigates the impact of fluctuations in a region or a country with food supplies moving from the surplus region to the deficit region or country.

That restrictive trade and domestic policies have aggravated fluctuations in world cereal prices is widely recognized. The fluctuating exchange rates and volatile interest rates in recent years have also contributed to the fluctuations in food and other commodity prices. Stock-holding costs are vitally affected by interest rates, and hence stocks vary in response to

varying interest rates, resulting in variations in commodity prices.

International action to achieve a greater stability in prices of basic foodstuffs or cereals would contribute towards world food security. That the 1973–74 rise in food prices was disproportionately high in relation to the shortfall in production, was due, amongst other reasons, to the low level of stocks as well as to the speculative or panic purchases in all countries, both exporting and importing. A major influence was also the unexpected change in the grain import policy of the USSR which in order to maintain domestic livestock production compensated the shortfalls in the domestic availability of feedgrains by large-scale purchases in the world market.

The FAO International Undertaking on World Food Security, confirmed by the decisions at the 1974 World Food Conference, emphasized not only the role of adequate world food reserves for promoting market stability and food security, roughly estimated in the early 1970s as between 60 million tons (both coarse grains and wheat) and 30 million tons (wheat), but also the need for international co-ordination of national reserves. The management of national food reserves, including the criteria for and the manner of release and acquisition of reserve stocks in relation to quantifiable indicators of variations in world supplies or prices, was to be governed by an international agreement. FAO has estimated the minimum safe level of food reserves for food security at about 17–18 per cent of annual total consumption, that is 11–12 per cent of annual world consumption as pipeline stocks and 5–6 per cent as stocks to meet the probability of shortfall from the trend level of average world production.

Six years of negotiations on the conclusion of an international grains arrangement, with legally binding provision for international co-ordination of national reserve stocks on the basis of a set of 'trigger prices', ended in a stalemate in 1979. Subsequent negotiations for a more flexible agreement also failed to evoke acceptance. No viable and effective agreement seems to be in sight. FAO's Five Point Plan of Action, launched in the wake of failure of international grains negotiations on World Food Security, is the only available international framework for voluntary action with a view to adopting concerted measures for promoting world food security; the individual countries are requested to determine specific stock policies and targets as well as spell out criteria for the management of stocks so that once known, their consistency, adequacy and relevance for ensuring world food security can be assessed and monitored. Many countries, including developed exporting countries, are still unwilling to meet these requests.

Measures for meeting the rising and fluctuating import requirements for low income, food deficit countries are also important elements of FAO's Five Point Plan of Action. They include the early achievement of (a) the food aid target, set by the World Food Conference, of a minimum of 10 million tons and (b) the International Emergency Food Research target of 500,000 tons (as determined by the UN General Assembly Resolution in 1975) to meet emergencies. In response to the call by the FAO Plan of Action supported by the World Food Council and the UN General Assembly, a special Food Financing Facility has recently been established

by the IMF as a modification of the Compensatory Financing Facility for export shortfalls to meet the exceptional import bills caused by either a fall in domestic production or a rise in import prices.

The current Food Aid Convention assures a food aid flow of 7.6 million tons of cereals but falls short of the minimum target fixed in 1974 of 10 million tons; however, the target itself is in need of upward revision in view of rising import requirements of the developing, especially low-income food-deficit, countries. The proportion of their imports met by food aid has been falling over the years, while their balance of payments gap caused by rising oil import bills and debt service payments continues to rise.

The International Emergency Food Reserve, placed at the disposal of the FAO/UN World Food Programme, reached its target of 500,000 tons for the first time in 1981; but being voluntary, partly bilateral and partly multilateral (partially earmarked for specific emergency use of country situation, even when multilateral), it is neither a stable nor an assured source of emergency assistance. It is not freely available to meet at short notice any emergency anywhere in the world.

Recently, the FAO Council and Conference have agreed upon an Agenda for Consultative and Possible Action in the event of an acute and large-scale food shortage. This agenda systematizes and extends the various criteria and indicators, quantifiable or otherwise, relating to production stocks, prices, exports and imports, which are needed to characterize or identify the emergence or occurrence of a large-scale and acute food shortage; it delineates the various measures which should be adopted by the international community, at national and international level, for conserving limited supplies and for managing stocks at times of shortages with a view to making supplies available through aid or commercial sales to vulnerable countries, including logistic and distribution arrangements. It further specifies the various alternative or concomitant institutional procedures and arrangements within the UN system or outside which need to be mobilized for meeting a food crisis.

Food aid, however, continues to be a subject of criticism. Food aid has multiple objectives; it can be and is provided in different forms and ways. Apart from being an instrument for relieving emergency food shortages, it can be a developmental tool, so long as it is neither a mere outlet for surplus disposal of food exporting countries, nor an alibi for domestic failures in production in recipient countries.

Project food aid related to socio-economic development projects through food for work projects or target group-orientated nutrition projects, including feeding programmes for vulnerable groups such as women and children, contribute to both growth and equity.

In a low-income country, an acceleration in income growth has an immediate and significant impact on food demand, especially when labour intensive technology and projects are the main thrusts of the development strategy. Rising food demand confronted with a low elasticity of domestic food supply causes an upward pressure on food prices. In this context, food aid can moderate a rise in domestic food prices and hence cost-push

generated overall inflationary pressure.

Increased domestic food supply through food aid can discourage domestic production if food prices fall below the domestic opportunity cost of food production. Recent experience has demonstrated ways in which use of food aid to keep consumer prices low can be combined with measures to maintain incentive prices for domestic production. Dual prices could be introduced by driving a wedge between high incentive prices for farmers and the low concessional prices for 'target groups' of consumers. The differences between the two sets of prices can be subsidised by the sales proceeds of the food aid. Moreover, food aid can be used to build up buffer and food security stocks, without adding to current market supplies for consumption and not depressing prices.

An important international measure for promoting food security is the assurance of access to supplies for commercial purchases, so long as total import requirements are unlikely to be met from food aid at times of tight supplies and high prices in the world market. This is particularly so for low-income food-deficit countries, when they are likely to be 'crowded' out of the market, as in 1973-74, in the face of competition from high income importing countries. If the food deficit countries have national food security reserves they can draw upon them in times of domestic food shortages, as well as at times of tight world supplies and high prices, and avoid, at least partially, the resort to purchases on the world market.

In the absence of any international agreement, however, to maintain a minimum safe level of stocks which are available at times of shortages, each country is left to its own devices to build up stocks. The major exporting countries would build up stocks on the basis of their own assessment of likely fluctuations in domestic and export demand.

The objection has been raised that it is cheaper for individual developing countries to rely on imports rather than domestically held stocks to meet fluctuation in domestic production. Reliance on imports is liable to disruption because of changes in export policies including trade embargoes in the exporting countries due to either political reasons or domestic shortages, or through dislocations in transportation and distribution systems caused by wars, strikes or other logistic bottlenecks. The risks, both economic and political, in not having secure and independent access to and control over minimum food security stocks, are judged too great by many developing countries. Depending upon particular circumstances, each country should strive to achieve an appropriate combination of imports and domestic food security stocks.

The ability of developing countries to build up national food security stocks is inhibited by the lack of physical infrastructure, that is storage capacity, transportation, marketing and distribution facilities as well as by limited capacity to obtain food for stocks either from domestic production or from imports. Storage costs, especially in tropical conditions, can also be heavy. Most developing countries require financial and technical assistance to build up and operate food security reserve stocks.

FAO's Food Security Assistance Scheme provides such assistance but

its resources, however, fall short of requirements. Since variation in production is likely to be less for a region or a sub-region than for an individual country, regional or sub-regional food security schemes like the Asian Food Security Reserve or a co-ordination of national stocks on a regional basis are an economical way of meeting the impact of fluctuations of supplies and prices. FAO estimates that developing countries (excluding China) need to invest \$1 billion a year to build up the storage capacity for cereals alone in the next few years.

To avoid the extra cost of imports because of high prices at the time of worldwide shortages, developing countries could buy up from the world market stocks at times of low world prices and draw upon them at times of high prices. This would have a stabilizing effect on the world market, depending upon the amount of aggregate purchases by developing countries. The extent to which they would be able to do so would depend upon their access to financing facilities for not only the purchase of cereals but also for building storage capacity apart from meeting operating costs. An international agreement to help developing countries to make additional imports at times of low world prices should be supported by the provision of additional external financing, preferably through a modification of the existing buffer stock financing facility of IMF. The developing countries need to have discretion to use such stocks within the context of their own domestic needs and requirements related to their food security and price stabilization policies.

Stocks built up in developing countries are unlikely to be adequate to obviate the need for imports at times of tight world supplies. Long-term sales and purchase agreements could be reached between low-income developing countries (singly or in combination), on the one hand, and exporting countries, on the other, for ensuring secure access to adequate supplies for the former. To the extent that exporters are food aid donors, supplies under long-term agreements could be provided under varying degrees of concessional sales combined with purchases at commercial prices, the degree of concessionality increasing at times of high prices and decreasing at times of low prices.

CONCLUSION

To sum up: world agricultural growth is conceived basically in this paper in terms of accelerating the rate of growth of production in developing countries. This is in the mutual interests of both the developed and developing countries. It would help correct the growing imbalances in world trade caused by rising food imports of developing countries. Furthermore, world agricultural growth would contribute to overall world economic growth.

Acceleration of agricultural growth in developing countries has implications for the developed countries both in the short and long-term. The primary responsibility for agricultural growth lies with the developing

countries themselves. However, timely and adequate assistance is required from the international community. International action would be required not only in the form of greatly expanded financial and technical assistance; it would also be necessary for the developed countries to undertake over time an adjustment in the structure of their production and trade. In the near term future until the food deficit countries are able to increase substantially their domestic production, the developed, exporting countries are expected to harness their considerable production potential to generate a large export surplus, especially of cereals, in response to growing import demands of both the developing and the centrally planned countries.

In the short run, instability in production, in trade and in the prices of agricultural commodities, including in particular cereals, generates problems of food insecurity on the one hand, and of unstable and uncertain agricultural export earnings, on the other. The developed countries have not only an excess capacity for food production to respond to a fluctuating export demand, but also a greater ability, financial and otherwise, to hold stocks. The search for international measures or agreements for access to markets and assurance of supplies with a view to ensuring stability and security in the field of world food and agriculture should be high on the agenda of the international community.

NOTES

¹J. P. O'Hagan, et al., 'Agriculture towards 2000: long term perspectives in world food and agriculture', in *Rural Development for Growth and Equity*, IAAE Occasional Paper No. 3, Gower.

²FAO *Commodity Review and Outlook*, 1980-81.

³FAO *Commodity Review and Outlook* 1981-82. The real prices are current prices deflated by a composite index reflecting the overall structure of imports of the main exporters of each commodity concerned.

⁴H. Wagstaff, *Food Policy*, February 1982, Vol. 7, No. 1, P. 6567.

DISCUSSION OPENING – JOHN CLEAVE

I am honoured firstly to be opening the discussion on a paper by such an eminent and influential person as Dr Nurul Islam and secondly because the paper covers such an important topic, a subject which should be of concern to all of us. Indeed, I must congratulate Dr Islam on the wide range of his discourse which certainly has something for everyone here, whatever his area of specialization.

The paper makes some provocative assertions and raises some extremely important questions. In the limited time available, it is impossible to explore all of these. I would, therefore, like to focus on just a few propositions so as to stimulate the discussion which this paper deserves.

First, I want to suggest that the emphasis in the paper on the role of international assistance to improve the world food position is rather one

sided: that the effectiveness of such investment will be reduced or negated unless rates of population growth can be lowered, and unless domestic policies are supportive. I would have liked to have seen both of these topics treated explicitly.

Population in the developing countries as a whole has been growing at more than twice the rate of the developed countries. As a result, while in the developed countries food production per caput increased by about 50 per cent, the gains in per caput production in the developing countries were modest. And, as Dr Islam points out, even among the developing countries the picture varies. In South East Asia overall agricultural output and food production have been rising steadily – to give, in the last decade, a per caput increase averaging 1.4 per cent a year. At the other end of the scale quite similar rates of production growth in Africa have been swamped by the population increase, resulting in a decade of declining production per caput. Population growth in Africa, in the very countries in which the ‘food problem’ particularly prevails, is, at 2.7 per cent a year, the highest in the world.

It is in particular – although not exclusively – to Africa that we must look when we say that ‘food is in short supply in the majority of developing countries’: to Africa, a continent with land still available and which, although periodically hit by adverse weather, was probably showing gains in production per caput averaging 1–1.5 to 2 per cent a year through the first 50 years of this century.

A recent World Bank Study attempted to isolate the sources of the recent slow agricultural growth on the continent. While it found that disruptions have certainly been caused by wars and civil strife, and drought and poor rainfall patterns in the 1970s have taken their toll, it has been the adverse policy environment which has been the prime cause. For example:

- there has been excessive emphasis on large scale government operated schemes, ignoring the enormous potential and responsiveness of the smallholder sector. State farms have been beset with problems of management, over-employment of staff, and under-utilization of machinery;
- price incentives for agricultural producers have been insufficient. Export crop producers have been heavily taxed while prices of food crops have been systematically set at below market levels. The average tax burden on export crops in the last decade has been in the 40 to 45 per cent range. This taxation has not only been direct, through export taxes or levies but, also indirect, through excessive marketing costs incurred by inefficient State-run boards and by overvalued exchange rates;
- in most African countries governments control producer and consumer prices for basic foodstuffs, seeking to provide incentives to producers but at the same time to protect consumers. In practice, consumers’ interests dominate. Moreover, imported cereals have often become cheaper than domestic staples because of the over-valuation of many currencies;

- procurement and distribution of inputs is also monopolized by governments or para-Statal agencies in more than 60 per cent of African countries. These agencies have failed to deliver inputs at the right time at the right place and in the right amounts because of difficulties in adapting bureaucratic procedures to commercial operations.
- extension services have lacked recurrent resources and logistic support, and with a poor research base on which to build and faced with an adverse economic environment, have tended to be ineffective.

Unless the domestic policy environment is conducive to agricultural growth, international assistance simply will not be effective. It is significant that the decline in African food production occurred in a period when external sources of finance focused strongly on food production: between 1973 and 1980 about 5 billion dollars in aid flowed into agriculture, nearly half of this from the World Bank.

The second area I would like to touch on is that of trade and measures to improve world food security. Dr Islam's paper makes a lucid plea for international action to provide developing countries with access to adequate food supplies and to reduce price fluctuations, in particular by developing reserves and buffer stocks at appropriate levels.

Concern about world food security has in particular stemmed from the 1972 'world food crisis' when, at the time that the United States was reducing its stockholdings, both the USSR and India came on the market for substantial grain purchases. The run-down in stocks caused prices to soar, aggravated by panic buying. Demand and supply adjustments were rapid and the situation soon settled, but other factors have given developing countries concern about their dependence on external food supplies. Prices have been more volatile than formerly and at the same time food aid has declined. Major developed country blocs have increasingly insulated their consumers in times of production instability, making up their deficits by additional global trade. A further concern is the perception of unreliability of supplies from a few major supplying countries.

While these concerns are legitimate, the question I would like to raise is: do the risks justify enormous and expensive buffer stock operations? I would suggest not.

Prospects for global food security are certainly no worse than in the past. World food and agriculture production has been expanding over the past two decades at around 2.5 per cent per annum. Moreover, global food production has increased consistently at a rate faster than population growth for over 50 years. There is scope to continue this trend: new land is available in many parts of the world and high-yielding variety wheat and rice technology is currently used on less than 24 per cent of the land for which it is suited.

Moreover, the volume of food trade has increased four-fold in the last thirty years and the proportion of total grain production entering trade has tripled to 18 per cent, about half, by value, being feed grains. The efficiency of handling and shipping has significantly improved in recent years and the

wider use of future contracts has removed some of the risks associated with market operations, although this is an area which many developing countries have still not exploited to the full.

Despite concerns to the contrary, there seems little risk that any country would not be able to obtain adequate supplies of food from the world market. The 600 million tons of grain fed to livestock provides a buffer stock at very low cost; we certainly should expect grain to be diverted from livestock production to direct human consumption if supplies become tight and prices rise. This is what happened in 1972–73 with reassuring efficiency and speed.

Against this, public sector buffer stocks are extremely expensive – especially in the tropics. Bank projects show costs ranging from about \$80 per ton per year in parts of South Asia to over \$150 per ton per year in land-locked African countries. In addition, turnover of stocks can be disruptive of local markets. If it costs anything up to \$500 to use a ton of grain originating from a buffer stock, imports are clearly less expensive even under the most extreme market conditions.

In summary, then, I would suggest that in discussing Dr Islam's stimulating paper we should firstly address ourselves very seriously to population planning and improvements in the policy environment, both as alternatives and complements to investments to assist food production. (At a time when the international community is having difficulty maintaining in real terms the current level of development assistance it seems unrealistic to expect increases of up to 3½ times in the next few years. Conditions may improve, but whether they do or not we should seek to identify the optimum package of interventions to encourage growth.) Secondly we should explore ways of enhancing food security other than massive investment in and costly handling of stocks. The ultimate food security is an enhanced and more reliable local production of staples: and we should remember that, in many of the poorest areas of the world, such staples are often not internationally traded cereals.