



## Overseas Development Institute \*

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### Briefing Paper

#### WORLD FOOD PRODUCTION AND SECURITY

On 16 October 1981 the Food and Agriculture Organisation (FAO) will be marking its 36th anniversary with the inaugural World Food Day. Its main purpose will be 'to heighten public awareness of the nature and dimensions of the long-term world food problem'.

The 'world food problem' primarily affects those living in the less developed countries (ldcs). The number of what FAO terms 'severely under-nourished' people in ldcs (excluding China) rose from around 360m in 1969-71 to almost 490m in 1980. Inadequate intakes of proteins, vitamins and minerals are major causes of ill-health, physical disability and high mortality (especially among infants) in ldcs. But sheer hunger is a more immediate concern. Almost a quarter of the people living in ldcs are not getting sufficient *calories* to provide their bodies with the energy required for a normal healthy life.

Widespread hunger – the symptom of the world food problem – is nothing new, but the nature of the problem is less straightforward than invocations to 'grow more food' would suggest. There is not a single world food problem, but rather four main areas of concern from which a large number of specific problems arise. These areas of concern are:

- the inadequate global rate of increase in the per capita production of food crops, with parts of the world where per capita production is falling;
- the inability of large numbers of people to buy the food they need even where supplies are sufficient;
- the extent of under-nutrition and malnutrition in ldcs;
- the weak balance of payments position of food deficit ldcs.

This paper considers each of these concerns in turn and then examines the various measures which have been proposed to increase food production and consumption, and to ensure food security. The paper concludes by describing the current state of international action to promote world food security.

#### Areas of concern

##### 1. Global supply and food requirements

The 1979/80 and 1980/81 seasons were poor ones for world cereal production, partly because of bad harvests in the USSR and South Asia. Cereals contribute around 70% of the world's dietary energy and for two successive years the world produced less cereals than it

consumed. By the end of the 1980/81 season cereal stocks were down to around 15% of annual world consumption, only slightly above the level of the crisis years of 1973 and 1974. But in the current season, higher prices have increased wheat plantings in most regions and the same pattern is anticipated for later-planted coarse grains and rice.

The immediate prospects for cereal supplies are fairly encouraging, but on present trends of food<sup>1</sup> production and consumption, much of the world remains vulnerable to periodic severe imbalances between supply and demand, and consequent high fluctuations in price. The statistics are not particularly reliable, but it appears that in over 40 ldcs the rate of increase in food production failed to keep pace with population growth in the 1970s. In ldcs as a whole the FAO Index of Food Production shows that the average annual rate of change in per capita food production rose slightly from 0.6% in the 1960s to 0.7% in the 1970s; but in sub-Saharan Africa the corresponding figures are 0.4% in the 1960s and minus 1.2% in the 1970s.

Looking ahead, the picture may not be as bleak as these figures suggest. Global population estimates have changed substantially over the past ten years or so. In the early 1970s, most estimates were that there would be 8bn (double the present world population) to feed by 2000. Now estimates are much lower. The US Office of Population, for example, estimates 5.5bn by 2000.

On the production side the world is still in the throes of a major agricultural revolution which over the past 30 to 40 years has transformed ideas of land resource limitations on production. Improved farming methods, including plant breeding, nutrition and protection, have increased possible yields per land unit of crops such as maize, rice and wheat two or three times. A few States in India (such as Punjab) have registered over 75% increases in production over the last 15 years, helping to make India self-sufficient in grain. The Philippines has also eliminated its rice deficit over the past decade.

Globally there is no reason to believe that population growth and the limits of physical resources will inevitably overwhelm the capacity to produce more food: the problems of increasing production – through higher yields and developing new land – are not insuperable. The major problems are for particular countries, especially in Africa, where low levels of production expose them to short-term food-crises. These crises are caused by three main factors. *Political instability* – where military conflict or civil disorders severely dislocate existing patterns of production and marketing. (Africa's 5m international

<sup>1</sup>All crop and livestock production less non-food commodities such as stimulants, fibres, rubber, etc.

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refugees now require 2m tonnes of food a year; but there are an equally large number of 'internal refugees' now unable to support themselves because of civil conflicts.) *Physical contingencies* – such as sustained droughts or flooding within ldc, or major crop failures in big grain producing countries which force up world prices. *Commercial and administrative deficiencies* – where pricing policies or inadequacies in input supplies, in storage, or in distribution, lead to severe local shortfalls.

## 2. Poverty and low demand

The problem of world food is not simply to increase production to match growing requirements: it is also to provide those who need food with the ability to buy it.

This is a problem for farmers themselves as well as for those without land or jobs. Many small farmers are involved in 'distress selling' of food crops to meet immediate obligations and have to repurchase food at high cost. In Africa many farmers and stock-keepers in low rainfall areas simply do not produce enough to eat. In Asia land-holdings are often too small or fragmented to meet family food requirements. Increases in production on small, or poor, farm units are not easily achieved by the application of modern technology. Poorer farmers cannot afford the risks involved and they also lack the capital (and often access to physical resources such as adequate land and water).

## 3. Nutrition

The nutrition problem has often been regarded in terms of particular dietary deficiencies. There is concern at the widespread lack of protein (particularly in diets based on cassava, yams or plantains), or vitamin A (which causes blindness) and iron (which leads to anaemia among mothers and young children). And there is also concern at the health hazards and lack of health-care facilities in ldc as infections can promote or exacerbate dietary deficiencies.

But the attention of nutritionists is now primarily focussed upon problems of calorie intake. The UN defines *under-nutrition* in terms of a deficit intake against nutritional requirements. The term *malnutrition* is used where there are deficits in both calories and proteins with clinical symptoms. In fact, malnutrition among poorer people is mainly due to insufficient calories, rather than proteins. Most cereals (eg rice, maize, millet) contain 8-12% protein and they are normally eaten with some legumes and vegetables. If calorie requirements can be met from such diets, *protein* deficiencies are uncommon.

Taking ldc as a whole, there were substantial improvements in calorie intake in the 1960s and 1970s. On UN figures, calorie intake as a percentage of nutritional requirements rose from 91% in 1966-68 to 100% in 1977. (In developed countries as a whole intake as a percentage of requirements was 131% in 1975.) But these figures hide substantial under-nutrition among, and within, ldc – and, to a much lesser extent, within developed countries. In low-income countries of Africa and South Asia, intake declined from 93% in 1969-71 to 90% in 1975-77. The low consumption of cereals, and other food staples, is the most stark concern of the 'world food problem'.

## 4. Balance of payments problems

In its report on *Agriculture: Toward 2000* the FAO claims that if food production and population trends in ldc in the 1960s and 1970s are maintained, ldc as a whole would be faced with a greatly increased dependence on food imports by 2000. In sub-Saharan Africa, food imports are already five times greater than they were in the 1960s. At present ldc are 92% self-sufficient in food: by 2000 they would (on FAO's assumptions) be only 80% self-sufficient. This is not in itself a matter for concern, provided that ldc can pay for food imports. But their ability to do this is increasingly in doubt. The combined current account deficits of oil-importing ldc deteriorated from \$26bn in 1978 to \$70bn in 1980, largely due to lower demand for ldc exports in developed countries and to sharp increases in oil prices. The debt burden of these countries had risen to \$280bn by the end of 1980 which is equivalent to nearly three-quarters of the annual value of their exports. The cost of servicing this debt has almost doubled over the last seven years, and furthermore, it is proving increasingly difficult to finance current deficits from the international banking system.

There has been a growth in food imports to ldc over the last decade, but the greatest increases have been in middle-income countries, reflecting rises in their export earnings. For ldc in the low-income category, there are growing difficulties in paying for food imports and for agricultural requirements such as fertilizer.

## Areas of action

The complexity and breadth of the world food problem means that the range of policies and strategies to meet the problem is similarly broad. There are, however, four main areas of action. They are: increased ldc food production, changing domestic priorities, ensuring food security nationally and internationally, and trade-related measures.

### 1. Increasing production

FAO, in its *Agriculture: Toward 2000*, says that for agricultural production in ldc to increase its growth rate by 1% per annum (thus bringing it closer to the growth rate in population), there will have to be major increases in investment. Investment is currently running at around \$52,000 m (at 1979 prices) per annum. This will need to rise to \$107,000 m per annum by 2000. External assistance to agriculture in ldc (\$5,000 m per annum now) will need to rise to \$17,000 m per annum by 2000.

Where should this investment go? There are three broad approaches:

- to increase the land under cultivation through measures such as the development of water resources, or land clearing, for new settlement;
- to increase productivity of land, and labour, on existing farmland, particularly through the application of fertilizer and other agro-chemicals, improved seed varieties, and the intensification of mechanical and animal sources of farm power;
- to increase production opportunities through the development of physical infrastructure such as irrigation, soil conservation and storage.

High cost schemes for rapid transformation to 'modern' agriculture are often preferred by ldc governments to gradual improvements in small scale 'traditional' agriculture although returns on investment (in terms of increased output) are often higher in the latter, and rises in employment and incomes are more widely spread. For traditional agriculture particularly important investments are in – *storage* (as in some countries up to 20% of the crop is often lost); *research* (particularly to develop higher yielding or more resistant varieties of food staples); *irrigation and flood control*; and *soil and moisture conservation*.

Even in the 15-20 m hectares of India already irrigated (where average holdings are below 2ha), there is the potential for a 100% increase in production. In dryland farming areas which are relatively neglected (in terms of research and services) the potential for production increases among peasant farmers is even higher in percentage terms. The problem is that small, or peasant, farmers are often confronted with formidable barriers to increased production and incomes within their own societies.

## 2. Internal policy

Most ldc governments have neglected the agricultural sector, particularly the small farmers, in relation to the industrial and public service sectors where investment and incomes are considerably greater than in agriculture. The result has been a slow expansion, or even decline, of agriculture in many countries.

There are three broad measures of policy which are most frequently advocated to redress this neglect of small farmers and agriculture generally: land reform; increased public spending on services and infrastructure in favour of smaller farmers; and adjustments in agricultural prices.

*Land reform measures* which are advocated include redistribution of land, enforcement of ceilings on holdings, and protective rent and tenancy legislation. The implementation of such policies inevitably meets with major opposition from those who stand to lose. But even where governments are prepared to re-structure agrarian economies in the interests of poorer farmers, there is no guarantee of immediate or even long-term aggregate increases in production, especially where the ownership of land has been closely linked to the structure of rural commerce (merchants, moneylenders, etc) and government itself has to step in to provide small farmers with trading opportunities.

*A re-orientation of services* in favour of smaller farmers is similarly vulnerable to political obstruction. There are, nonetheless, changes taking place. For example, many countries (such as India and Malaysia) make credit or farm inputs available to smaller farmers at concessionary interest rates. Of particular importance to farmers in areas of food insecurity and higher price fluctuations are local storage facilities such as India's proposed national network of rural *godowns* (or warehouses) to prevent distress selling and to allow small farmers credit against a pledge of stocks.

In some countries, such as Nigeria, the *prices* offered by crop purchasing boards and fertilizer supply agencies are subsidised to encourage farmers to produce more. But governments in ldcs are often stuck on the horns of a pricing dilemma. Higher producer prices normally encourage greater production, but if

these are transferred to consumers many of the non-farming poor will be unable to buy sufficient food.

Further, government subsidies on food or input costs do not always work in the interests of those most in need, and the financial resources which are committed to subsidy programmes constitute a substantial opportunity cost in terms of resources for investment in neglected areas such as research and extension, which in the long run may have a more significant impact on levels of production.

## 3. International food security

Turning aside from domestic policies, the third main area is international food security measures. There are four main possibilities. Firstly, there is the establishment of international *emergency grain reserves* (with stocks put at the disposal of an international agency such as the World Food Programme) or internationally co-ordinated national reserves with agreed criteria for the release of stocks onto the market.

A second possibility is a *commodity agreement* which would use buffer stocks to be released, or held, at agreed price levels to ensure that shortfalls, or gluts, in anticipated production do not lead to rapid price changes. But negotiations within the framework of the International Wheat Council have made very little progress and the existing Wheat Trade Convention is little more than a loose system of information-sharing.

The third measure concerns *food aid*. This has been declining over the past decade as a share of total food imports to ldcs and its potentially distorting effect on domestic production has meant that donors have become more careful about its use, often ear-marking it for wage labour or for particularly vulnerable communities. Food aid comes mainly from the US (60-65%), the EEC (10-15%) and Canada (10%) and reflects the particular surpluses of those areas (cereals from North America, skimmed milk and butter oil from Europe). Its advocates point to its benefits, for example, in releasing foreign exchange or land for export crops, and its role in stabilising prices.

The fourth measure particularly concerns rapid price rises and countries with serious balance of payments problems. It is the provision of *concessionary finance* for buying food and the main focus of attention is upon the International Monetary Fund which agreed in May 1981 to an expansion of the Compensatory Financing Facility to cover exceptional import needs arising from domestic crop failure or sharp rises in world cereal prices.

## 4. Trade-related measures

A fourth area of action which would ease the balance of payments problems of food deficit ldcs is trade-related measures. One approach is the provision of finance to make up for shortfalls in export earnings in countries. But for ldcs, access to world markets is a more important constraint. This applies to manufactured goods as much as agricultural commodities, and 'industrial protectionism' in developed countries is more important than 'agricultural protectionism' to most ldcs. In those countries where agriculture is the primary source of export earnings, there is no difficulty of access where commodities do not compete with farming in developed



countries. But there are protective barriers to the imports of crops such as sugar, beef and vegetable oils which compete with developed country agriculture.

### International action programmes

These four main areas of action cover virtually the entire field of development. What are the *particular* measures which are regarded as priorities for international action? The programme which warrants closest attention is the detailed agenda of activities to promote food security which is part of a complex network of agencies, committees and conventions of which FAO is the centre through its Committee on World Food Security. This is the Plan of Action on World Food Security. There are also action programmes from the as yet imprecisely-formulated International Development Strategy which form the basis for 'global negotiations' within the UN General Assembly context and there are the recommendations of the Brandt Commission which are on the agenda for the Mexico Summit. Neither of these are detailed however, and cover ground already subject to discussions in UNDP, FAO, the World Food Council and the International Wheat Council.

There are five points to the FAO Plan of Action on World Food Security.

1. *The adoption of food grain stock policies* (ie richer countries to maintain stocks to balance more vulnerable countries). Almost half of the 80 signatories of the 1979 International Undertaking on World Food Security (which was itself partly a response to the collapse of the International Grains Arrangement negotiations) have adopted specific national targets for reserves which earmark a proportion for external use, and a further 30 non-signatories have reported to FAO that their grain stock policies are consistent with the undertaking to ensure domestic food security. Many developing countries have failed to implement national grain stock policies however, partly because of balance of payments difficulties since the 1979 rise in world cereal prices.

2. *The establishment of criteria for managing and releasing nationally-held stocks.* This is to ensure that stock depletion does not occur and that price stability is maintained. The technical difficulties relate to price levels which would trigger the accumulation and release of reserve stocks and the appropriate overall size of stocks. But the more fundamental issue is that for countries or trading blocks in the developed world there is no immediate political or economic advantage in sustaining the increased costs of stockpiling particularly where they already have stock policies which protect domestic markets from price fluctuations and ensure consistently high incomes for their own producers.

3. *Special measures to assist low-income countries.* This involves two main areas. *Food aid:* a second Food Aid Convention was signed in 1980 (after the International Wheat Council had 'de-linked' food aid from international grain stocks negotiations) with a

minimum target of 7.6 m tonnes per annum of grains either in kind or as cash value. Pledges have exceeded this, and they are close to the FAO target of 10 m tonnes, but there is no guarantee of pledges or disbursements being maintained in years of short supply. *Emergency reserves:* the International Emergency Food Reserve was established in 1975, but it has not reached its target of 500,000 tonnes (to be at the disposal of the World Food Programme), and the target itself is only a fifth of the recent average annual emergency requirements.

#### 4. *Special arrangements for food security assistance.*

The main activity is the Food Security Assistance Scheme, which is mainly for projects to improve cereal storage and handling facilities. Under the scheme, a feasibility study for regional food security reserves for the Sahel has been prepared with an estimated development cost of \$217 m. Another 'action programme' is for the Prevention of Food Losses with pledges slightly exceeding the initial target of \$20 m.

5. *The promotion of collective self-reliance among ldc's.* The main success has been the establishment of the ASEAN Food Security Reserve which includes an emergency rice reserve of 50,000 tonnes to be administered by the Board. It is a tiny amount however, Indonesia alone normally imports 2 m tonnes per annum; and in poor years (when imports can double) all the countries of the region are likely to be affected by the same factors creating low production.

But international action programmes, however important, cannot do more than alleviate the problems of hunger, malnutrition and high mortality rates which are, at root, caused by poverty – or low production and incomes – within developing countries. The causes of poverty itself are complex and long-term but in the short-term it is domestic action in favour of the rural poor which is required and this is often possible only with international support through trade and aid arrangements which benefit those low-income countries which are failing to increase per capita food production and cannot carry the costs of food imports.

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