FEAST OR FAMINE? Food security in the new millennium

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Introduction

As the new millenium approaches, the goal of ensuring food security - enough food for the world's population at all times - remains as elusive as ever. Although the world produces enough food, access is still highly unequal, despite the advanced technology and transport at our disposal. One in seven of the world's inhabitants - 800 million people - are still chronically undernourished.

World food stocks have dwindled to their lowest level for twenty years and more, and 60% of those stocks are now held by private traders who control their price, distribution and location. Seventy per cent of world grain trade is carried out by just six companies.

Two burning questions have emerged: can the world's food production keep up with increasing demand? And will economic liberalisation help achieve food security or widen the gap between rich and poor?

As food security has slipped down official development agendas in recent years, the World Food Summit in November is a chance to revisit these debates and seek a way forward. Convened by the UN's Food and Agriculture Organisation (FAO), the Summit aims to bring world leaders together to call attention to the threat of a global food crisis, challenging them to act to get food on every plate for the new millenium. According to FAO's Director General Jacques Diouf: "We are all living today in a state of impending disaster".

Some fear that the Summit will side-line the issue of trade and economic liberalisation and its impact on food security. Supporters of the free market believe this approach can solve the problem of food security by increasing wealth, stimulating agricultural innovation and matching demand to supply. Its critics, however, fear it gives transnational companies a free rein to pursue profits and over-exploit natural resources, while driving small producers and traders out of business.

FAO itself has recently shifted its approach to food security by supporting small farmers, emphasising staple crops and low-energy systems. Summit documents
now point to access to food - rather than global quantities - as the key issue, placing poverty firmly at the centre of the problem.

But some commentators point out that despite the good intentions expressed, actual commitments and targets for achieving food security are missing. In addition, FAO has stated clearly that the Summit does not aim to make new funds available: developing countries are likely to argue that they will be unable to act unless such funding is forthcoming.

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**Key Facts**

- The world's 5.8 billion people have on average 15% more food per capita than 20 years ago when the global population was 4 billion. In 1969-71, an estimated 35% of the population of developing countries was undernourished. By 1990-92, that figure had fallen to 20%.
- One in seven of the world's inhabitants, or 800 million people, are still chronically undernourished. One-third of the world’s children are malnourished.
- Most of the hungry are in developing countries: 37% of the population in Africa, 20% in Asia and 13% in Latin America and the Caribbean still have inadequate food. Sub-Saharan Africa is the one region where the situation has been worsening.
- Global demand for food is projected to rise by up to 50% in the next 15-25 years as a result of population growth and rising incomes.
- World food production grew 3% annually in the 1960s, 2.4% in the 1970s, 2.2% in the 1980s, and 1.6% in the last ten years between 1985-95. The FAO predicts the figure will be 1.8% up to 2010.
- Stocks of wheat are at a 20-year low, while those of maize are at a 50-year low. The shortages have pushed up world market prices by 30-50%, adding an estimated US$3 billion to the food bills of "low-income food-deficit countries".
- Some 60% of global food stocks are in the hands of private companies, while 70% of world grain trade is carried out by just six companies.
- Aid to developing country agriculture has fallen from $10 billion in 1982 to $7.2 billion in 1992 (in constant 1985 US$), indicating, in the FAO's words, a "decreasing political will to address the problem" of world hunger.
- Since 1974, world agricultural trade (including fisheries and forestry) has grown from $148 billion to $485 billion. But developing countries' share of world agricultural exports (excluding fisheries and forestry) fell from 40% in the early 1960s to 27% in 1993.
- For the least developed countries, food imports currently absorb more than one-third of export earnings. The FAO estimates that the food import bills for low-income food-deficit countries will be 55% higher in 2000 than in 1987-89, with 14% of the increase ($3.6 billion) due to GATT.
1 FOOD SECURITY: THE CURRENT SITUATION

Food security exists when all people at all times have access to enough safe and nutritious food to maintain a healthy and active life.[1] It requires not only that sufficient food is produced, but also that every individual and household has access to the food it needs. Food security is recognised as a basic human right in a number of international declarations.[2]

Since the World Food Conference was convened in 1974 to address a perceived crisis, considerable progress has been made towards reducing undernourishment.

- Today the world's 5.8 billion people have on average 15% more food per capita than 20 years ago when the global population was 4 billion.
- In 1969-70, the average daily supply of calories per person in developing countries was 2,120. Twenty years on, this figure had risen by 350 calories to 2,470.
- In 1969-71, an estimated 35% of the population of developing countries was undernourished. By 1990-92, that figure had fallen to 20%.[3]

The FAO says that "[global] food production has steadily increased faster than population and there is general consensus that this is likely to be the case for at least the next 20 or 30 years."

... but grave shortages persist

But congratulation will not be the theme of the 1996 World Food Summit.

- One in seven of the world's inhabitants, or 800 million people, are still chronically undernourished.
- Millions more suffer debilitating diseases linked to nutritional deficiencies.
- One-third of the world's children are malnourished.
- Undernourishment is a serious problem in some of the richest countries - one in nine people in the United States, including many children and the elderly, suffer chronic hunger.[4] But most of the hungry are in developing countries: 37% of the population in Africa, 20% in Asia and 13% in Latin America and the Caribbean still have inadequate food.

Asia and Latin America have nearly caught up with developed countries in terms of average calorie availability, but Sub-Saharan Africa has fallen farther behind. In 1969-71, average daily consumption in the region was 1000 calories below that of developed countries. By 1992-94, that gap had widened to 1,100 calories.
Most figures show that per capita food production in the region fell for three successive decades. However, one agricultural research body says it rose more than 3% a year between 1980-1994, keeping pace with population growth.[5]

**An uncertain future**

The two major areas of debate are:

- Can world food production keep up with increasing demand? Or have we reached the limits of what the available cultivable land, water and yield-improving technologies can give us?
- Will the prevailing market liberalisation policies help the world produce more food and distribute it equitably?

Global demand for food is projected to rise by up to 50% in the next 15-25 years as a result of population growth and rising incomes. Agricultural production is also forecast to grow, at a rate of 1.8% a year. The FAO and other organisations say that if current food production growth and economic trends continue, the food situation will improve slightly by 2010. Unless determined action is taken, the number of chronically undernourished people might still be about 680 million in the year 2010, with over 300 million of them in sub-Saharan Africa.

Some observers believe the FAO's modest predictions of agricultural growth are scientifically unfounded and fail to take account of many natural and political risks. The UK's Overseas Development Administration (ODA) notes that "it is important to recognise the risks inherent in the assumptions on which the forecasts are based" - risks which it says could include lack of research breakthroughs, climate change, loss of biodiversity, degradation of natural resources, failure to stop overfishing, and continuing low farm productivity in the former Soviet Union.[6]

Other critics feel that, for moral and political reasons, continuing high levels of food insecurity are not acceptable, especially given that the technical capacity exists to produce food for all. They say that because food is the basis of life, it should not be treated like any other saleable commodity, subject to the fluctuations of a free market. Southeast Asian activists, for instance, have declared that "access to food is a universally recognised human right. Protecting that right must be accorded a higher priority than the pursuit of commercial advantage and free trade."[7]

**Dangers of import dependency**

FAO Director-General Jacques Diouf admits that the current level of food security is fragile: "We are all living today in a state of impending disaster".[8] Production of some staple foods fell in 1995, partly due to bad harvests. World stocks of wheat are at a 20-year low, while those of maize are at a 50-year low. Such
stocks, at 14-15% of world annual consumption, are well below the 17% the FAO estimates is necessary. The shortages have pushed up world market prices by 30-50%, adding an estimated $6.5 billion to the cereal import bills of developing countries.

Such price fluctuations may be a short-term phenomenon rather than a dangerous long-term trend, but they do highlight a danger. Countries that import much of their food rather than grow it themselves are extremely vulnerable to fluctuations in price and availability. But dependence on imports is exactly the food strategy promoted for developing countries by global financial institutions. And since agricultural products were included in the Uruguay Round of the General Agreement on Tariffs and Trade (GATT), the strategy is set to become even more pronounced.

The impact of the global trend towards free trade and privatisation on food availability cannot be predicted with any certainty. But it is widely agreed that the poor will probably suffer, at least in the short-term.

**Political costs of volatile prices**

The Philippines liberalised rice trade as part of major economic structural adjustment, reducing price subsidies and running down its stocks. In 1995, the local retail price of rice almost doubled, adding the equivalent of a fifth of their wage to the food bill of the urban poor. With serious unrest looming, the government had to import a large amount of rice and distribute it cheaply. A Bill is now being proposed to re-orient national rice policy towards self-sufficiency.[9]

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**2 THE WORLD FOOD SUMMIT**

**Why now?**

The 1974 World Food Conference declared the goal of eradicating hunger "within a decade". The goal was not achieved and aid to developing country agriculture has been falling, both in absolute terms (from $10 billion in 1982 to $7.2 billion in 1992, in constant 1985 $US) and as a share of overall official development assistance (from 24% to 16%). This decline indicates, in the FAO’s words, a "decreasing political will to address the problem" of world hunger.

It is because of what the FAO calls "this dismal situation" that it has convened the 1996 World Food Summit in Rome on 13-17 November. The aim is to renew "the commitment of world leaders ... to the eradication of hunger and malnutrition and the achievement of food security for all". It is hoped that, for the first time in
the FAO's 50-year history, the highest-ranking leaders of member states will take part.

But the current context is very different from 1974. That conference took place in the shadow of serious famine in Africa, an oil crisis, and widespread fear that uncontrolled population growth would lead to famine and war. Strong commitments were signed at the 1974 conference, and global food production increased dramatically in subsequent years.

Today food security has slipped down the agenda, at least in official development circles. Contributing factors are aid fatigue; loss of faith in the value of big international conferences and in the UN system generally; the prevailing enthusiasm for laissez-faire economics and "rolling back the state" (i.e., less government intervention); and less stark food shortages.

FAO Director-General Jacques Diouf says, "It is unacceptable that hunger and malnutrition continue to diminish the human potential of nearly 20% of people on earth in an age when we explore the planets and beyond". But two months in advance of the Summit, it was not clear whether world leaders were taking the challenge seriously. Will the Summit succeed in shaking them out of their complacency?

What's on the menu?

The Summit is to endorse a policy statement - the "Rome Declaration on World Food Security" - and a Plan of Action based on seven "commitments". These have been developed during 1996 at various FAO intergovernmental and specialist meetings, with input from other multilateral bodies such as the World Bank, World Food Programme, World Health Organisation and Unicef.

The private sector and non-government organisations (NGOs) have also been invited to contribute to the preparatory discussions, and regional meetings of NGOs were organised for this purpose. According to Pedro Medrano, chairman of the FAO's Committee on World Food Security, more than 2,000 contributions and proposals have been received. Some NGO suggestions have been included in drafts of the conference documents.

The FAO has historically centred its activities around a "Green Revolution" approach, aiming to boost production by channelling research, resources and technology into areas deemed to have high agricultural potential. However, an alternative approach has recently gained ground within the organisation, and the FAO is now directing more of its efforts towards poorer farmers, less commercial crops and low-energy systems.

Conference documents show a further move towards identifying access to food rather than global quantities as the key issue, placing poverty at the centre of the
food security problem. ("Sustainable progress in poverty alleviation is critical to improve access to food." Paragraph 3, Draft Rome Declaration.) The first two of the seven commitments to be signed at the Summit relate to poverty.

The statements about poverty show an important degree of agreement among the major stakeholders on the causes of food insecurity. They are admirable declarations of intent, but can they have much effect in the absence of commitments to specific measures to achieve them? Differences among participating governments - and between departments within governments, such as Aid and Agriculture - may mean the Summit will not reach agreement on specific targets and actions.

The seven commitments

1. To ensure an enabling social and economic environment designed to create the best conditions for ... the [reduction or eradication] of poverty ... which is most conducive to achieving sustainable food security for all.

2. To implement policies aimed at reducing poverty ... and improving access by all, at all times, to sufficient, nutritionally adequate ... food.

3. To pursue policies to enhance sustainable food production.

4. To ensure that food and overall trade policies are conducive to fostering food security.

5. To endeavour to prevent and be prepared for natural disasters and man-made emergencies and to meet ... emergency food requirements in ways that encourage recovery, rehabilitation, development and a capacity to satisfy future needs.

6. To promote investments to foster human resources, sustainable food and agricultural systems and rural development, to optimise the utilisation of available resources, nationally and internationally in both high and low potential areas.

7. To cooperate in monitoring and follow-up of the World Food Summit Plan of Action.

In addition, the FAO has stated clearly that the Summit is not about creating new funds or mechanisms. But developing countries are likely to argue that they cannot make any significant new commitments unless new funding is forthcoming.
**A missing ingredient**

Even champions of free trade acknowledge that some of the poorest countries - who import food but whose exports fetch low prices - will lose out as liberalisation expands. A widening trade gap will undermine their food security, but it is not clear to what extent this problem will be discussed at the Summit. Some delegations are unwilling to propose commitments which might pre-empt the discussions at the World Trade Organisation (WTO) meeting scheduled for December 1996. Others are reluctant to make any commitments which might restrict free trade.

Some NGOs and research institutions feel there is an underlying contradiction which compromises the Summit's ability to achieve anything and suggests a lack of real commitment to tackling poverty: on the one hand, the commitment to free trade, and on the other, food security goals such as "generation of employment and incomes" or "full participation and empowerment of people" (Paragraph 5, Draft Rome Declaration).

At the time of writing the Summit Declaration and Plan of Action are still under active negotiation. Many feel that the Summit documents may end up accepting unquestioningly that expansion of free trade will promote food security and that the WTO is well on the way to achieving market liberalisation. A significant proportion of the texts remain in square brackets (indicating that they are not currently agreed), particularly trade issues. Currently the draft documents do not place an emphasis on the alternative view - that liberalisation of trade will not necessarily be conducive to poverty reduction and food security - though it is widely held, not just among NGOs and experts, but also within governments and multilateral organisations.

The technical background documents prepared by the FAO for the Summit discuss the downsides and uncertain outcomes of current economic policies. For example, the paper on food and international trade acknowledges that "if the benefits of trade-induced growth are highly concentrated among better-off families, then household food security may worsen for many." This is in line with the argument of the UN Development Programme (UNDP) that "economic growth, if not properly managed, can be ....detrimental to human development."[10]

But the delegates of powerful countries who dominate the Food Summit process appear to dismiss such doubts in their pursuit of globalisation. This fuels concern among NGOs that "the development mandate of UN bodies, including the FAO, is in danger of being submerged by the macro-economic priorities of the World Bank, IMF [International Monetary Fund] and the World Trade Organisation."[11]
No one disputes that it will be a major challenge to produce enough to feed a global population that some predict will have nearly doubled by 2035. Production needs to increase by 75% by 2030, but there is not much more land to be brought into cultivation. The land available per capita has already fallen from about half a hectare in 1950 to just over a quarter of a hectare in 1990.

But there appears to be a consensus among major world institutions that we are on track to produce enough food. The FAO states that "the World Food Summit Plan of Action ... is based on [the] conviction that although the world is faced with major food insecurity, solutions to these problems exist ... if all parties at local, national, regional and international levels make determined and sustained efforts."

Pessimists versus optimists

A more pessimistic view is also current. Pessimists may not believe that adequate food supply is impossible to achieve, but they accuse the FAO and other official bodies of dangerously underestimating the scale of the challenge. Instead of leading us towards the major shift in priorities and resources needed to ensure food security, the critics say that institutions such as the FAO are lulling planners into a false sense of security with unrealistically optimistic figures.

Lester Brown, director of the Washington-based World Watch Institute, accuses the World Bank and FAO - producers of "the two most important agricultural forecasts" - of basing their projections on extrapolations from past production increases. He says they make the unwarranted assumption that "because the world's farmers were able to sustain rapid growth in the world grain harvest from 1960 to 1990, they will continue to do so ad infinitum." In fact, Brown argues, constraints are beginning to limit growth and production is falling. "Failure to notice what is really happening could lead to serious underinvestment in such key endeavours as family planning and agricultural research."[12]

Pessimists also maintain that future demand for food has been seriously underestimated. The UN Fund for Population Activities (UNFPA) predicts that the world's population will increase to 7.8 billion by 2050, but this figure (lower than some other projections) depends on an investment of $500 billion in meeting demand for family planning - investment which is unlikely to be forthcoming.

In addition, the amount of food demanded by each person will increase as incomes rise and more people are able to choose to eat more meat. (Meat is an inefficient way for humans to obtain energy: it takes 2 kg of grain to produce 1 kg of poultry meat, 7 kg of grain for 1 kg of beef.) Rising incomes and large-scale urbanisation in China and the high-powered Asian economies will have a major impact on world demand for food. Some estimates say China's consumption of
grain will reach 480 million tons by 2030, nearly double the country's own projected growth in production.

In reply to these criticisms, officials accuse the prophets of doom of massaging the statistics themselves. According to an editorial in CGIAR News: "the pessimists like to argue that grain harvests have stagnated since 1990... However, 1990 was a bumper crop year and therefore serves as a useful base year if you wish to paint a stagnation scenario. Taking 1988 as the base year shows that world grain production rose 1.4% annually to 1994."[13] FAO itself claims that Brown's attacks are "a gross distortion of FAO's position", and points to the very fact of organising the Food Summit, in the face of world leaders' lack of interest, as evidence of FAO's conviction that the situation demands serious action.[14]

Some NGOs and experts oppose the pessimistic, neo-Malthusian view for different reasons. They say that because it focuses primarily on the need to increase food production in relation to population growth, it lends weight to the arguments of those who promote technological, Green Revolution-type solutions. Those kinds of approaches, often top-down and market-based, promote overproduction in developed countries, exacerbate the wealth gaps between North and South and between rich and poor, and lead to overexploitation of natural resources - thus contributing to food insecurity. These critics point to the aftermath of the 1974 conference, when big production increases in the North led to price collapse, recession and dumping a few years later.

**Growth**...

World cereal production grew by 30% in the 1970s and 25% in the 1980s. These increases were largely the result of technological improvements, irrigation and increased use of chemical inputs, though bringing new land into cultivation was also significant. There is probably plenty of scope for continued improvement, by further increases in already developed "high-potential" areas, by extending existing techniques into areas which have not so far adopted them, and through greater efficiency in water use. The FAO predicts that 79% of future increases will come from increased yields and intensification, and 21% from expansion of cultivated areas.

Overall, world food production grew 3% annually in the 1960s, 2.4% in the 1970s and 2.2% in the 1980s but 1.6% in the last ten years between 1985-95. The FAO predicts the figure will be 1.8% up to 2010. Pessimists say this declining growth rate shows we are reaching the limits of what is possible. The FAO, meanwhile, contends that it reflects a levelling of demand - slowing population growth, saturation in developed countries, and inadequate purchasing power in developing countries. The world's farmers could increase their production further if there was effective demand.
... and its limits

In the 1970s, the concept of "limits to growth" gained currency - the idea that the "carrying capacity" of the globe is limited and that we are approaching the limits of what we can force the earth's natural resources to produce for us. Then the urgency of the question seemed to fade, partly because food production continued to increase and other aspects of our relationship to the environment began to be explored. The amount of land, water and nutrients is obviously finite, but whereas optimists believe technology will allow us to squeeze ever more out of the same limited resources, the pessimists have their doubts.

As the Food Summit approaches, some environmentalists are again highlighting the question, challenging governments' apparent assumption (backed up by the claims of agribusiness) that we need not worry. The pessimists believe that contrary to the FAO's predictions, we may already have reached the limits of our ability to expand production by the route of research and technology. Lester Brown identifies natural limits which he says are already reducing food production capacity, and which no known technological fixes can overcome. These include:

- loss of agricultural land, which is falling out of production as the soil is exhausted or disappearing under industry, housing and roads (Japan, South Korea and Taiwan have between them lost 40% of the grain land they had in 1960). "New" land waiting to be cultivated is marginal, or covered with forest we cannot afford to lose.
- water shortage is a worldwide problem, as industrial and domestic uses, increasing with urbanisation, compete with the also-expanding demands of intensive agriculture. Globally more than two-thirds of water taken from rivers, lakes and aquifers is already used for irrigation; in low-income countries, agriculture accounts for 90% of water use. Fossil aquifers are being depleted, rivers are drying up and water tables are falling - for instance, from 5 metres below ground level around Beijing in 1950 to 50 metres below today.
- intensive fishing, which increased the global catch from about 20 million tonnes in 1950 to nearly 100 million tonnes in 1989, has almost destroyed many fish populations' capacity to regenerate themselves.[15]

Besides these global resource limits, intensive agriculture systems create their own problems, which advances in science and technology may or may not be able to solve. These include the tendency of irrigation to cause salinity in the soil (as much as a quarter of irrigated land in developing countries may suffer from salinity); soil erosion and exhaustion; the vulnerability of modern hybrid varieties to pests and diseases; weeds, pests and diseases developing resistance to the chemicals and antibiotics used to control them; the ceiling beyond which
increased application of fertiliser does not increase yield. And dangerous deficiencies of minerals and vitamins, which can increase susceptibility to disease and impede children's ability to learn, have increased in populations whose diet has become heavily dependent on Green Revolution crops.[16]

Biotechnology introduces new risks, for genetic manipulations of crop plants may have unexpected and uncontrollable effects.

Biodiversity loss is also of increasing concern. High-tech agricultural systems are built on a narrow genetic base and have made the world's major food crops vulnerable to new pests or environmental changes. They also contribute to the destruction of biodiversity by displacing wild plants and traditional varieties. The FAO itself has stated: "The chief contemporary cause of the loss of genetic diversity has been the spread of modern, commercial agriculture."[17]

**Broader research**

As the drawbacks of the Green Revolution approach became clear - such as over-dependence on costly chemicals, exclusion of poorer farmers from the benefits, and concentration of land holdings - the scope of agricultural research has broadened. Multilateral and government supported research is now looking for solutions to some of these problems, instead of simply seeking to maximise the yields of major marketable crops regardless of the environmental or socio-economic consequences.

It is work like this that gives many people hope that research can continue to improve agricultural productivity while minimising negative environmental impacts. Biotechnology in particular, they feel, opens up new realms of possibility for creating plants and animals that are super-efficient at producing food and at outwitting their natural enemies.

**Even the poor benefit**

Cultivation of cassava, traditionally a food of the poor, has doubled in Africa in the past two decades. New varieties which bring five times the yield in a much shorter time are now being promoted. Yield is set to increase further, with few chemical inputs, and other new varieties with greater drought-resistance are being developed. Research by national research bodies and the International Institute of Tropical Agriculture in Nigeria has bred in genes for resistance to two major diseases - bacterial blight and leaf mosaic - and a biological control campaign has almost eliminated a devastating pest, the mealy bug. [18]

Scientists at the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) in Andhra Pradesh, India, are developing a sorghum variety that will
stay green for longer, giving more nutritious leaf and stem fodder for cattle and improving capacity to survive drought.

Upland rice production, carried out by poor farmers on fragile soils, suffers badly from weed infestation. Scientists at the International Rice Research Institute (IRRI) in the Philippines are seeking to reduce the need for chemical herbicides by developing a rice species that will release its own weed-control compounds into the environment.

In some developing countries, most people suffer the "hidden starvation" of micro-nutrient deficiencies. Iron deficiency causes anaemia in 50% of pregnant and 40% of non-pregnant women worldwide, and is responsible for up to 40% of deaths related to childbirth. Zinc deficiency impairs mental functions in children and adults. Vitamin A deficiency reduces resistance to diseases. Researchers at the Washington-based International Food Policy Research Institute are launching a programme to identify and improve strains of staple foods - maize, rice, wheat, beans and cassava - that are rich in these three micro-nutrients and can absorb them even from poor soils.[19]

Privatisation of research

But is the future secure for publicly funded research such as the examples cited above? In the current economic climate, public funding is being withdrawn from research and extension services - by donors, and by governments undertaking structural adjustment. Agricultural research is increasingly being carried out by the private sector, whether directly or indirectly (through sponsorship of university departments).

Biotechnology research, in particular, is mostly controlled by large corporations and almost entirely (97.5%) carried out in the United States, European Union and Japan, with Canada and Australia accounting for most of the rest. Agribusinesses naturally concentrate their research in the most profitable areas - high-value cash crops and larger producers. They develop new products to increase sales rather than to reduce the need for external inputs. The five largest corporations involved in biotechnology all have important interests in agrochemical sales: Dupont, ICI, Monsanto, Sandoz and Ciba-Geigy.

Who profits?

Crops that are resistant to herbicides allow greater use of such chemicals to keep down weeds and therefore increase yields. Pesticide companies are developing such crops so that they can sell the seeds and herbicides as a
package. (Monsanto, for example, has developed a Soya bean resistant to its own herbicide "Roundup", and 2 million acres of it are ready for harvesting in the US.[20]) The high cost of the gene-transfer research involved ensures that only a few high-value world crops can profitably be developed for herbicide resistance. A major potential market exists in developing countries, where herbicide use is low at present, accounting for less than 14% of total pesticide use as opposed to 40% worldwide. Promotion of the new seed varieties will increase production but also bring disadvantages such as input dependency, mono-cropping and displacement of labour.[21]

Bacillus thuringiensis, an insect-destroying bacterium, can be introduced by biotechnology into some crops and is being hailed as a miraculous eco-friendly bio-insecticide. It is also potentially very profitable. In 1994, 35% of biological pesticide research was focused on Bt. By March 1995, 440 Bt-related patents had been granted or requested. The research has concentrated on maize, while other crops under study include potatoes, cotton, rice, wheat and soya. The risks of such heavy reliance on a single microbe are great. Harmful insects might develop resistance, beneficial insects could be harmed, the gene might transfer to weeds or affect human health in some way. But commercial development of the technology is proceeding at speed. The US-based Union of Concerned Scientists feels the dangers are not being properly addressed and is calling for a moratorium on further crop approvals.[22]

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**A new Green Revolution?**

Critics of the Green Revolution are sometimes accused of wanting to return humanity to the Middle Ages, but the situation is not a simple "either/or". Many sustainable agriculture solutions being proposed and tested now use some elements of technology and plenty of scientific method, but aim to avoid the pitfalls of the original Green Revolution.

Around the world, NGOs, farmers' organisations and researchers, including within the major development institutions, are countering what has been the conventional wisdom by demonstrating that satisfactory yields can be achieved with low levels of external inputs; that so-called "low-potential land" can respond well to appropriate varieties and systems and become economically viable; that taking into account the social and micro-economic aspects of agriculture does not have to mean sacrificing profit and production; and that farmers can be partners in research, rather than - as they have often been depicted - ignorant obstacles to modernisation.
Small farmers and sustainable systems

In Rwanda, government scientists collaborated with women farmers on research and breeding of higher-yielding varieties of beans, the national staple food. The collaboration brought together the scientists' breeding skills with the farmers' knowledge of local conditions and needs. In two years, 21 new varieties were adopted, as many as had been released by the formal national programme in the previous 25 years. The new varieties have increased yields by up to 38%, have been adopted by four out of 10 farmers - especially those with the smallest holdings and lowest incomes - and are spreading rapidly in neighbouring countries.[23]

In Vietnam, a traditional homestead farming system combines fruit and vegetable gardens, fish ponds and livestock. Researched by the government as part of a post-war drive to improve nutrition, a pilot project made one formerly food-deficit area self-sufficient in all foods but rice, and the system was then promoted throughout the country. It produces three to five times as much income for families as rice cultivation would generate in the same areas, is environmentally sound as it uses all wastes, and provides a high level of nutrition.[24]

The FAO itself is calling for "a new Green Revolution" which will focus more on small, resource-poor farmers, embrace equity issues and "see farmer participation as essential for blending new technologies with traditional knowledge, and for setting research agendas for the future". However, some still doubt that the FAO has moved away from its earlier commitment to global high-input approaches; pressure on the FAO from private agribusinesses, they feel, reinforces its tendency to espouse the approach most compatible with free trade and the growing power of transnationals.

Increasing productivity is far from being merely a technical matter. The economic, land tenure and policy context are also crucial. Under the pressure of structural adjustment programmes, governments have to varying extents withdrawn from subsidising farm inputs and from state-controlled production and marketing. But they still play a role in less direct aspects, such as setting research priorities; providing the infrastructure for transporting, storing and distributing inputs and products; ensuring that markets function effectively at local and national levels; and managing imports and food aid so that they do not undermine national production.

That government actions may make the difference between a dynamic or a stifled national agricultural sector is sometimes ignored amid the enthusiasm for rolling back the state and letting the market rule. As one academic put it: "In Southern Africa, policy makers know that grain is not moved from fields by the invisible hand of Adam Smith. Grain is moved from the fields with a great deal of
government intervention and much careful planning."[25] In Vietnam and Thailand, government investment in irrigation systems has been identified as a major factor in the production of exportable surpluses of rice. Even the World Bank recognises the need for some government intervention. It has not made any loans for land reform since 1983, but is now discussing it with several governments, including Brazil, Colombia and South Africa.

The case for land reform: Brazil

Brazil is one of the world’s biggest food exporters, selling $4 billion worth every year, yet one-fifth of its people go hungry. Among them are the 5 million landless poor. The Movement of the Landless lobbies government and landlords to obtain land, and the fight is bitter. In April 1996, 19 peasants were shot by military police while demonstrating for land. But where the Movement has won victories and established new agricultural settlements, productivity is high and, according to an FAO/government study, incomes far exceed the national agricultural average.

4 DISTRIBUTION: IS FREE TRADE THE ANSWER?

Self-reliance takes on new meaning

Until the 1960s, the conventional wisdom was that national self-sufficiency was the best guarantee of food security. Every country should aim, as far as possible, to produce all the basic food it required. This was the doctrine behind the great expansion of agricultural production in Europe in the 1950s, shaped by the spectre of Second World War food shortages. Many countries have continued to restrict imports of staple foods.

But a pervasive development philosophy, centred on industrialisation, led many governments to base their food policies on importing cheap food for their urban populations. Such policies had the unintended effect of depressing local production, and industrialised countries were quick to exploit the opportunities to create markets for their food surpluses.

By the late 1980s, the idea of a global free market had emerged as the new orthodoxy. Countries were to buy the food they needed at the best price on the international market, earning the foreign exchange to do so by exporting whatever they could produce most efficiently. This doctrine (which, confusingly, is termed "self-reliance" in many FAO documents) was summed up by the chairman of the transnational company, Cargill: "There is a mistaken belief that the greatest agricultural need in the developing world is to develop the capacity
to grow food for local consumption. That is misguided. Countries should produce what they produce best - and trade."[26]

The case for free trade

❖ Where the market is working freely, demand for goods will quickly generate the supply of them, so food will be produced and traded to satisfy demand.
❖ Purchasing power itself will continuously rise, because when there are no restrictions on imports and exports, the volume of trade increases - and trade stimulates economic activity and creates wealth. "Alternative agricultural exports" will bring new income for countries which have traditionally depended on export of low-value primary commodities.
❖ Competition between producers in a global marketplace will keep prices low, which is good for food-importing countries and consumers everywhere.
❖ Countries will only produce what they can sell, relying on their "comparative advantage" (which might, for instance, rely on relative abundance of natural resources, skills or cheap labour). This and the need to keep prices down provide incentives to use resources efficiently, which means in a socially responsible and environmentally sound and sustainable way.
❖ The need to maintain profits by keeping ahead of the market stimulates research and development, and constant improvement in products and efficiency, so that constraints on food production will be solved as they appear.

Since 1974, world agricultural trade has grown from $148 billion to $485 billion. The trade is associated with increased food availability: in 93 developing countries studied by the FAO, consumption of agricultural products grew 10% faster than production in 1970-1990.

For the many countries which do not produce an exportable surplus of staple foods and whose traditional exports have been hit by low commodity prices, non-traditional agricultural exports are attractive. These higher-value goods destined for export to developed countries have been a success in some countries. Colombia, for instance, exports 100,000 tons of flowers annually, mostly to the United States, and Kenya’s flower trade is now its fourth-largest foreign exchange earner after coffee, tea and tourism.

GATT rules on agriculture

GATT was established in 1947 to encourage free trade in industrial goods after the economic collapse of the 1930s was seen as resulting from trade restrictions. For 40 years, trade in agricultural goods was not included in GATT because food self-sufficiency, which often requires national production to be protected from
imports, was seen as a right. This view changed during the 1970s and 1980s, and the Uruguay Round, completed in 1994, brought agriculture fully into multilateral trade negotiations for the first time and established the World Trade Organisation (WTO).

Contributing to the change was the fact that developed countries had been too successful in their pursuit of self-sufficiency. The generous support given to farmers, especially in the European Union, led to large food surpluses. To sell those, the US and EU competed to give ever greater subsidies to food exports, driving down world prices and destabilising international markets, as well as incurring high costs for their own (mostly non-farming) taxpayers. Bringing agriculture under GATT rules was intended to outlaw subsidies and make prices more realistic and stable, thus restoring confidence in the market for all the world’s food buyers and producers.

The Uruguay Round of GATT commits members to:

- reduce support to the part of the domestic farm sector that is production or trade-distorting by 20%. The target reduction for developing countries is at least two-thirds of 20%
- reduce expenditure on export subsidies by 36%
- reduce volume of subsidised exports by 21%
- convert all import restrictions to tariffs and reduce those by an average of 36%
- increase share of market open to agricultural imports from 3% of domestic consumption to 5%
- introduce all these limits over a six-year period from 1995; 10 years for developing countries. (The 43 least-developed countries, whose per capita GNP is less than $500, are exempt from all the above commitments but they do not have a free hand - they may not, for example, increase support.)

The cuts in subsidies are expected to increase world prices of some goods, and there is a provision (not yet implemented) to compensate developing countries for the higher food import bills they may face. It is early days yet to see what impact the new rules will have. Projections of the costs and benefits vary widely. The FAO has estimated that the food import bills for "low-income food-deficit countries" will be 55% higher in 2000 than in 1987-89, with 14% of the increase ($3.6 billion) due to GATT. The rich countries group, the Organisation for Economic Cooperation and Development (OECD), among others, has produced lower figures.

A ministerial meeting of the WTO in Singapore in December 1996 will start preparing for a major review of the Uruguay Round rules in 1999. This may result in further moves towards liberalisation, and lowering of allowed subsidy levels.
Many of the least developed countries do not have delegates at the WTO, so their concerns are under-represented.

Some powerful players believe the most useful function of the Food Summit will be to reinforce the WTO process of reducing trade restrictions. According to the UK's ODA, for instance, "the role of the World Trade Organisation should be supported and trade liberalisation promoted such that the ability of developing countries to achieve food security for their people is enhanced rather than damaged."[27]

**Free trade's limitations**

The difficulties of carrying out the structural adjustment programmes (SAPs) and privatisation seen as vital to liberalisation are well known. Lifting subsidies from staple foods leads to unrest, such as the bread riots in Jordan in August 1996. Lifting subsidies from agricultural inputs means farmers cannot afford them, for the higher incomes which are supposed to compensate are a long time coming, and production drops. Sudden withdrawal of state structures and functions can mean paralysis in the agricultural sector, as has happened in the former Soviet Union.

Many people are sceptical of the ultimate benefits of liberalisation. Others call for a less brutal and absolute approach to the changeover: for instance, SAPs could be planned so that food security remains a top priority. Some critics say the FAO "greatly exaggerates the importance of the international food trade for food security".[28] They believe that liberalisation is of limited benefit for food security and has many negative impacts, and that the positioning of a "food security summit" so firmly within the pro-liberalisation camp risks distorting and avoiding the real issues.

Critics of free trade argue that it favours rich countries, and large corporations and producers, while creating dependency and impoverishment for poor countries and households. They say that by enthroning privatisation as the means and profit as the driving force, free trade reinforces the "short-termism" which acts against stewardship of natural resources and sustainable production methods. Many non-traditional agricultural export crops, in particular, have environmental costs, such as high use of chemicals and water, as well as the risk of diverting land from family food production.

Many NGOs and farmers' groups are opposed to the inclusion of agriculture in GATT. Some propose that staple foods should be exempted. They say countries should have the right to decide their food security policies according to their own priorities, which might include social, equity and environmental considerations.

A meeting of family farmers in Tokyo in 1993 declared that GATT is "a disaster for the environment, rural economies, food quality and food security around the
world", especially because of its tendency to destroy family farming systems. Whether their fears are fully justified perhaps depends on how far the WTO moves towards total liberalisation after 1999. The rules still allow quite a degree of protection, and considerable limitations on imports.

A tilt towards the rich

For liberalisation to work, competition among producers must be fair. But in fact, during the Uruguay Round negotiations, EU and US producers won the effective continuation of subsidy levels almost as high as before. Selling of subsidised US and EU agricultural surpluses on the world market is set to continue, undercutting other nations' producers.

One means by which they achieved this was to switch payments to farmers from export subsidies to direct income support, and then get the income support exempted from reductions (the "Green Box" provisions). This kind of support is more likely to be affordable by rich Northern governments than by poor Southern ones. EU support to farmers - an indirect export subsidy - actually increased by 25% in 1994.[29] Even with the agreed reductions in place, 40% of the wheat traded internationally is still likely to be subsidised for the next few years.

Total elimination of export subsidies would theoretically give developed country producers a fairer chance to compete, and there may be moves towards this soon, as the Agreement on Agriculture negotiations are due for reform from 1999. A new (1996) Farm Bill in the US has already brought the US agricultural sector closer to the free market by reducing financial support and lifting production restrictions, and the EU will probably have to follow suit. However, in the Food Summit agenda, no targets have been suggested for greater liberalisation or for addressing GATT's tilt in favour of developed countries, despite the frequent reiteration of commitment to free trade as a principle.

As the volume of global trade increases, how much of it will be to and from developing countries? How much of the newly generated wealth will they share? To critics, the picture does not look promising.

Terms of trade for agricultural commodities, which form the bulk of many developing countries' exports, declined drastically in the 1970s and 1980s. Developing countries' share of world agricultural exports fell from 40% in the early 1960s to 27% in 1993, while the EU's share rose from 20% to 45% in the same period. The US share of world agricultural trade is 23%, and will grow if aggressive market penetration plans succeed, for instance, in boosting grain exports to Pacific Rim countries.

The much-vaunted increased trade seems to be mostly among the already rich, adding to the variety and luxury of their consumption. Seventy-nine per cent of trade to and from western European states is among themselves. Of total world
trade in coarse grains (mainly maize), 70% is for animal feed rather than for
direct human consumption.[30]

Even without subsidies, agricultural imports from developed countries can be
cheaper than local products, which may be disadvantaged by labour
intensiveness or by poor local transport and marketing infrastructures. Imports
may be used to keep growing urban populations supplied with cheap food, in the
process creating a taste for foods such as wheat flour which often cannot be
satisfied from local production. At best, such a situation is a disincentive for
investment in the country’s own agriculture. At worst, local producers are forced
out of business, communities are destroyed, and more people are rendered
unemployed, destitute and dependent.

It takes two to dump

Until the late 1960s, Nigeria was largely self-sufficient in food. But from 1970,
wheat imports grew by 20% a year, while production of local staples such as
yams, cassava and millet fell. This was the result of government policies on both
sides: a producer with a surplus to dispose of, and an importing government
which gave priority to cheap food over other considerations such as local
agricultural production. The wheat came from the United States, heavily
subsidised. Its price advantage was maintained by the Nigerian government, in
line with its wish to stimulate rural-urban migration to create an industrial labour
force. Commercial interests, both Nigerian and American, helped shape the
profound change in consumer tastes. Will any future Nigerian government
succeed in reversing a situation so skewed in favour of US producers?[31]

Liberalisation favours large corporations, tending to concentrate production and
trade in their hands. Small farmers may be squeezed out, and jobs in agriculture
lost to "efficiency gains". Large corporations may gain patent protection for new
technological developments, which small producers would rarely be able to do.
Some of these factors might help keep prices down while some might push them
up, but they all increase the wealth gap between rich and poor.

Food stocks in private hands

With 60% of world food stocks in the hands of private companies, their power to
control the availability and price of food must be cause for concern. And 70% of
world grain trade is carried out by just six companies: Cargill (US), Continental
Grain (Canada), Dreyfus (France), Andre/Garnac (Switzerland), Bunge and Born
(Brazil), and Mitsui/Cook (Japan).[32]
For the least developed countries, food imports currently absorb more than one-third of export earnings, while debt service payments take up much of the rest. But liberalisation more easily increases a country’s imports than its exports, of manufactured as well as agricultural products. Tanzanian President Benjamin Mpaka has warned that “the prospects of integrating our countries into the global economy are extremely dim”, and that competition from multinationals “is already leading to the de-industrialisation of our countries”.

Flower power in India?

The Indian government has welcomed GATT and is encouraging farmers to boost exports, on the grounds that the subcontinent’s great diversity and cheap labour will make its products competitive on world markets. But critics point to the risks that export-oriented policies may pose to India’s hard-won food security, and to the still unsatisfied food needs of much of its own population. In the words of TN Prakash of the University of Bangalore: “Thinking about the export of agricultural commodities from a country like India is not only ridiculous, but also unethical.”

If export production were increased, it would be at the cost of consolidating land holdings and displacing small farmers. Most farms in India occupy less than two hectares, too small for effective commercial production. Small farmers cannot hope to export rice, because the costs of growing and milling export-quality Basmati rice are too high. Nor are they able to achieve the high quality and residue-free standards demanded for export of fruits and vegetables. Bangalore has been identified by some studies as having potential for flower production second only to Kenya, and the government is investing heavily. But the high capital investment puts this out of reach of small farmers. Flowers are also water-intensive: one large company can consume as much water as a village of 20,000 people.[33]

5 THE ROLE OF FOOD AID

Food aid is one of the seven commitments in the Plan of Action. This refers to emergency aid and to “transitory requirements” - gaps between national production and import capacity - which might be more unpredictable if world prices become more volatile. Critics say the Summit is in fact giving disproportionate weight to “safety nets” and emergency preparedness, addressing symptoms of food insecurity rather than seriously addressing the causes. If more attention were paid to increasing farmer-level production and wealth, there would be less need for aid.
Shrinking aid

In the 1980s, food aid was popular with Northern governments, which saw it as a way of getting rid of massive food surpluses. Food aid has declined in the 1990s from 15.2 million tonnes in 1992/93 - when large shipments were made to the economies in transition - to 7.6 million tonnes in 1995/96 following a reduction in commitments by the donor countries. Large stocks of surplus food no longer exist, and there is scepticism about the value of non-emergency food aid and its contribution to development. In the 1980s, four-fifths of food aid was related to development projects. Now more than half is for emergencies.

Food aid will shrink and become more expensive in the future. World food stocks will be held by grain trading companies, not governments, and the companies will release food in response to price opportunities, not need. There is a danger that developing countries will face unpredictable shortages. If world prices rise, they will not be able to meet their import bills, and no "free food" will be available. Some specific mechanisms that have been proposed to reduce this risk, such as the establishment of international or regional-level food reserves for emergencies, do not appear in the Plan of Action.

If there is to be less food aid, it will be more carefully targeted. Early warning systems for food needs are burgeoning. Donors and governments will take more care to ensure that the impact of aid helps rather than hinders development, as has often been the case in the past. The European Union, for example, has announced a new policy of buying food aid locally, thus contributing to rather than undermining local economies.

Donors and recipient agencies now understand the limited impact of food aid in emergencies - it is never more than a small proportion of a family's food needs in times of famine - and its possible negative impacts at all times. These include undercutting local production, creating dependency, encouraging unhelpful consumption habits and propping up undesirable regimes. Debate is sure to continue about effective strategies, for instance, about whether the impact of Food For Work schemes is more positive (keeping people working and getting jobs done) than negative (undercutting local prices).

Footnote: Cuba's Organic Revolution

Cuba provides both an illustration of the dangers of dependency and an example, so far unique, of government action to build an entirely new national food security system. From its revolution in 1959 until the collapse of the Soviet system 30 years later, Cuba was highly dependent on its Soviet bloc partners: for agricultural inputs such as fertilisers, pesticides and petroleum; for markets for its export crops (mainly sugar); and for food. In 1989, 57% of Cuba's human calorie consumption was imported. Then, with the Soviet collapse, the country was
suddenly faced with the challenge of doubling food production while using less than half the amount of external inputs.

In 1991, the Havana government declared the "special period in peacetime". In collaboration with the Cuban Association of Organic Agriculture, it launched a major programme to re-orient the entire system, working with research and training institutions, extension staff and farmers to establish organic agriculture as official policy and low external input as actual practice.

The results have been impressive, both in terms of production increases and reduced input use. Draft animals have replaced tractors, farmer participation in decision-making and development is emphasised, different tillage systems and crop/livestock integration have been introduced or re-introduced. Particularly successful has been the move away from use of chemical insecticides, even for commercial sugar production. Now, 284 centres produce and distribute biological control agents such as parasitic wasps and flies.

Food shortages and rationing still exist, but are much less severe than in 1991-93. Rice and wheat are still, and may always have to be, imported. Beef production is still too low, because the switch to mixed livestock/crop systems requires new research and breeding programmes. But the country is more or less self-sufficient in beans, fruit and vegetables. For the first half of 1996, production of vegetables was 25% higher than in the first half of 1995, and production of the main export crops - sugar cane, tobacco and citrus fruit - was up 30% on the previous year.[34] The Association of Organic Agriculture hopes that, encouraged by these successes, Cubans will move from "ecology by necessity" to "ecology by conviction".

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[3] FAO, op. cit. (All figures are from FAO unless otherwise stated)


[7] "So our rice bins may always be full", The Balay Declaration of the Southeast Asian NGOs Conference on Trade and Food Security, the Philippines, February 1996


[18] This and the next two examples come from CGIAR News, op. cit.


[27] ODA, Draft position paper, op. cit.


[34] Dalia Acosta, "Cuba: Food shortfall continues", IPS, September 1996

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