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## **FOOD AND INTERNATIONAL TRADE**

This document is part of a series of  
technical papers being prepared for the World Food Summit.  
This provisional version, circulated in advance for review and comments,  
could not incorporate facts and conclusions from some other Technical papers not yet available.  
The final version will be issued closer to the time  
of the Summit.

- vi. Provided domestic policies are in place to spread around the gains and/or to compensate the losers, then trade liberalisation can play an important role in improving food security even though there can be problems with adjustment to the new trade regime. Although estimates of the impact of trade liberalisation, including the Uruguay Round, are fallible, studies do point to significant income gains over the next few years. Adding the immeasurable effects of improvements in trade rules and the impact of the Uruguay Round Agreement on services, the overall impact of the Uruguay Round should be to provide the wherewithal to improve income levels and hence food security. The difficulties that countries may face during the reform process has been recognised and developing countries have been given special and differential treatment, mainly in the form of longer periods to make adjustments and lower reduction commitments. The Uruguay Round accords also recognise that during the process of reform the least developed and net food importing countries may experience negative effects in terms of the availability of adequate imported supplies of basic foodstuffs on reasonable terms and conditions. Accordingly, great importance is attached to making sure that the Uruguay Round *Decision on Measures Concerning the Possible Negative Effects of the Reform Programme on Least-Developed and Net Food-Importing Developing Countries* is implemented rapidly.
- vii. It should be noted that the Uruguay Round may not make much difference to the volume of food aid<sup>2</sup> for while the amount linked to surplus disposal may decline, the quantities linked to assistance under the abovementioned Decision could well increase. Countries not giving aid-in-kind should actively consider the use of triangular food aid transactions and other means of technical and financial assistance to increase productivity in the countries affected.
- viii. Trade liberalisation as reflected in the Uruguay Round is not likely to affect significantly the global availability of food as reduced output in high cost countries will be generally replaced by increased output in other countries. In view of the likely change in the medium term in favour of food commodities' relative prices, countries should revise their agricultural policies and consider passing on some of the increase in world prices to their domestic sectors so as to stimulate food production. The effect of trade liberalisation on the stability of world food prices is uncertain. Four factors are at play: the positive effect of tariffication, the negative effect of declining global food stocks, the positive impact of the greater share of stocks in private hands and the uncertain effect of shifting the location of production.
- ix. Trade, environment, sustainability and food security are also closely related. In the long term, global food security depends on maintaining and conserving the national resource base for food production. Trade affects the environment in three ways: it raises incomes, hence boosting the demand for environmental goods and the means of satisfying these demands; it changes the location of production and consumption; and, the act of trading itself uses resources and may lead to spillages and other environmental damage.
- x. Of growing concern is the impact of higher environmental standards on agricultural trade and hence eventually on the export earnings of the developing countries and their food security. The international community is currently in the phase of developing new policies in this area. These issues will surely figure prominently in future multilateral trade discussions.
- xi. The case for further trade liberalisation in agriculture is that despite significant progress, agricultural protectionism is still extensive. Indeed the Uruguay Round Agreement on Agriculture recognized that the long-term objective of substantial progressive reductions in support and protection resulting in fundamental reform is an ongoing process. Negotiations for continuing the process will start in 1999.

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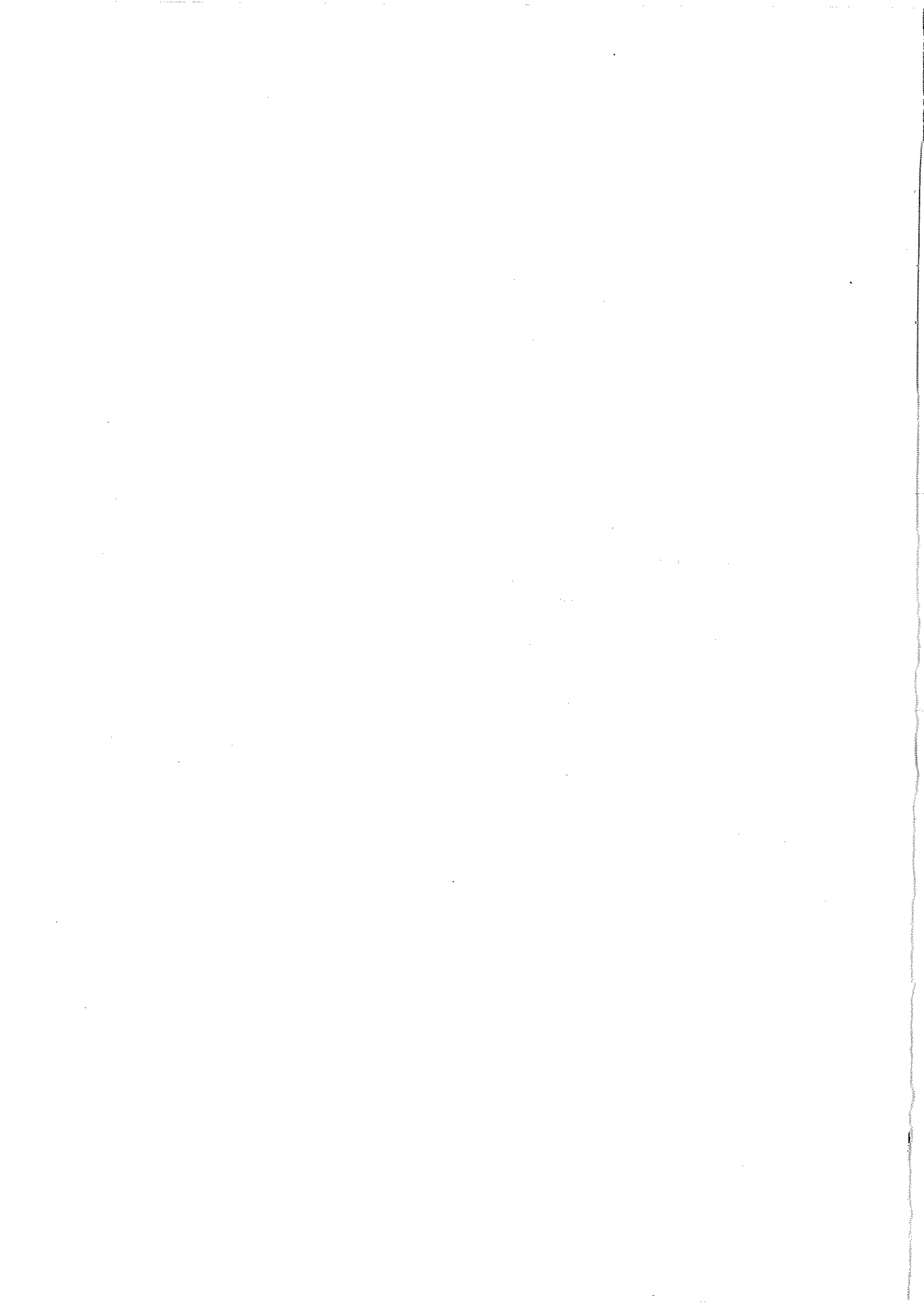
<sup>2</sup>. See forthcoming WFS companion paper, *Food Assistance in the Promotion of Food Security on a Sustainable Basis*, (1996).

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## INTRODUCTION

1.1 Major changes are currently taking place in the international trade environment. These are partly driven by breakthroughs in transport, communications and information technologies and partly by policy reforms. Globalisation of markets and increased economic integration mean that goods, capital and ideas move around the world ever more easily, bringing new opportunities as well as risks. Shifts in production patterns are leading to changes in the structure of world trade, particularly due to rapid growth in the East Asian economies, and in its composition, with the growth in importance of internationally-traded services.

1.2 These trends will be reinforced by the conclusion to the Uruguay Round of multilateral trade negotiations - the widest ranging and most ambitious agreement ever negotiated. Restrictions on manufacturing trade will be further reduced while significant steps are being taken to liberalise agricultural and services trade. In fact, the transition economies and many developed and developing countries have been adopting more market-orientated trade policies with the Uruguay Round serving as a catalyst in reinforcing such policies. Further liberalisation is taking place in the context of regional trade groupings which are taking on a new significance. Agricultural trade is fully included in the changes underway, and will be affected profoundly by ongoing deregulation and liberalisation given the extensive nature and scope of government intervention in agricultural markets in the past.

1.3 This document sets out to examine the nature of these changes and the adjustments that are needed in domestic and international agricultural policies. The focus of the paper is on whether the changes are leading us towards a more food-secure or insecure world, and on the necessary steps to ensure that food security is promoted in the new trade environment.

## CHARACTERISTICS OF AGRICULTURAL TRADE

2.1 A number of characteristics of food and agricultural trade performance during the past two decades can be highlighted: its continuing importance for both developed and developing countries; its uneven growth over the period, with rapid expansion in the 1970s followed by virtual stagnation in the mid-1980s and a slow recovery since then; the collapse of commodity prices during this latter decade; the changing directions and commodity composition of agricultural trade; and the disarray on world markets resulting from policy distortions in both developed and developing countries.

2.2 Since the World Food Conference in 1974, the volume of agricultural trade, including temperate zone and tropical products and fishery and forestry products, has grown by 75 percent and its value from US\$ 148 billion to some US\$ 485 billion in 1994.<sup>1</sup> Because trade in manufactures grew more rapidly, the share of agricultural products in merchandise trade fell from around 20 percent in the early 1970s to 12 percent in 1994. For developing countries as a group, the fall has been even more dramatic, from around 36 percent of their total export revenue in the early 1970s to less than 14 percent by 1993.<sup>2</sup> This average figure, however, conceals the much greater dependence on agricultural trade of many individual countries, both as exporters and as importers. In around one-quarter of the countries, the share of agricultural exports exceeded two-thirds of total exports in the early 1990s, while in a further 20 percent the agricultural export share exceeded one-third.<sup>3</sup> Low-income countries remain most heavily dependent on agricultural

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<sup>1</sup> The General Agreement on Trade and Tariffs (GATT (1995)).

<sup>2</sup> United Nations Conference on Trade and Development (UNCTAD (1994)).

<sup>3</sup> UNCTAD (1994).

trade, often still depending on one or a few agricultural exports for the bulk of their foreign exchange revenue. Agricultural trade is less important for high-income countries, but remains a substantial source of export earnings for some of them such as Australia, France, New Zealand, and the United States. Moreover, even for high-income countries, changes in agricultural trade conditions can have important economic impacts as shown by the volatility in land prices and the farm debt crisis brought about by the expansion and subsequent contraction of United States agricultural exports and cropland area since the early 1970s.

2.3 Growth in agricultural trade among developing countries, after having slowed down in the 1980s, became more vigorous in the early 1990s. By 1993 the value of agricultural trade among the developing countries was estimated at around US\$ 46 billion or over 10 percent of world agricultural trade. This represents an improvement over the shares registered in the past (Table 1). The main source of the more buoyant market in recent years has been agricultural trade among Asian countries and among countries in the Latin American and Caribbean region. However, the increase in trade is probably due more to the relatively rapid economic growth in these two regions than to the intensification of trading arrangements among groups of countries in these regions.

**Table 1 - Trade Flows in Agricultural Commodities <sup>1</sup>**

	1970	1980	1990	1994 estimated
World trade (US\$ billion)	63.8	295.0	419.9	485
Trade among developing countries Value (US\$ billion)	4.3	27.6	36.9	55
Share of world trade (%)	6.7	9.4	8.8	11.4

1 SITC 0,1,2 (excluding 27,28), 4.

Sources: UNCTAD Handbook of International Trade and Development Statistics 1993, Tables A2 and A3. GATT International Trade: Trends and Statistics 1995, Annex Table A7.

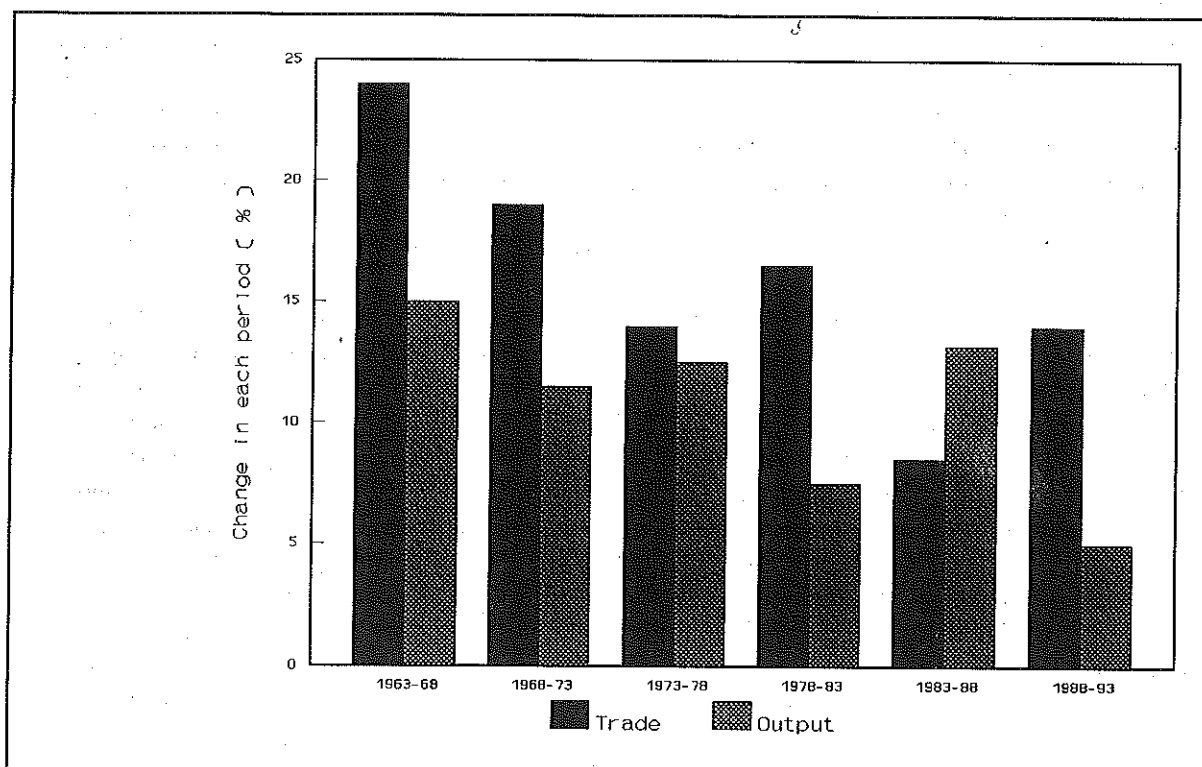
2.4 The expansion of agricultural trade has not occurred at an even pace in the past two decades but has reflected the influence of a number of global shocks; the commodity price booms during the 1970s; the oil price shocks of 1973 and 1979; the interest rate shock in the early 1980s which inaugurated the international debt crisis and the subsequent slow growth and recession in developed countries and most developing country regions. Two indicators highlight the difficult commodity trade environment in the mid-1980s. First, this was the only period in which trade in agricultural products failed to expand faster than agricultural output (Figure 1). Second, real commodity prices, which had tended to move downwards in the previous two decades, fell dramatically in the 1980s. A comparison of the three years 1990-92 with the years 1979-81 shows a decline of 30 percent in the net barter terms of trade between agricultural commodities and the imports of manufactures and crude petroleum (the decline was close to 40 percent for the agricultural commodity exports of developing countries and 20 percent for those of developed countries).<sup>4</sup>

2.5 Around one-third of international agricultural trade takes place between the countries of Western Europe. If trade among these countries is eliminated, then North America, Western

<sup>4</sup> FAO, *The State of Food and Agriculture 1994*, Rome, p. 51.

Europe and Asia have roughly equal world export market shares while Asia is by far the most important import market. Several notable trends can be observed over time. These include a decline in the once large import market in Western Europe and its shift to a net export position in a number of commodities; growth in import markets in Pacific Rim countries; a related but more general shift in import market emphasis from high-income to middle-income developing countries; increasing market surpluses in some agricultural export countries; and the proliferation in the use of export subsidies by major industrialised countries. Among developing country regions, Latin America is a significant net exporter of agricultural commodities, while Asia, the Near East, Africa and the transition economies are now net importers.<sup>5</sup>

Figure 1. Growth of agricultural trade and output, 1963-93



Source: GATT, *International Trade, 1985-86 and 1994*.

2.6 Trade in food commodities has exhibited the same trends since the early 1970s as that of agricultural trade as a whole. The value of food trade, at some USD\$ 266 billion in 1994, was over 300 percent greater than it had been twenty years earlier. Developing countries accounted for some 28 percent of total food imports in 1994, the same share as in 1974. However, their share of food exports in 1994 had declined to 26 percent from 30 percent. As a result the trade balance in food commodities, which was marginally positive twenty years ago, has turned negative valuing imports, including transportation costs and exports excluding transportation costs. In 1994, developing countries imported about US\$ 75 billion worth of food commodities, compared to US\$ 67 billion worth of food exports. These trends highlight the growing importance of trade in meeting food consumption needs, especially of the developing countries. In terms of cereals, imports accounted for some 14 percent of the domestic consumption of developing countries in 1994, up from less than 10 percent twenty years earlier.

2.7 Two dimensions of the commodity composition of agricultural trade are of interest; the horizontal differentiation by product and the vertical differentiation by level of processing. As

<sup>5</sup> GATT (1994).

agricultural trade has grown, there has also been a structural shift in the commodity composition of this trade from bulk commodities to value-added products. High value trade in products such as cut flowers, tropical fruits, etc. has been the source of agricultural export growth for a number of developing countries.

2.8 The sharp fall in world food prices during the 1980s was partly a symptom of the state of disarray of world markets in which national levels of production and consumption, and hence trade, were heavily influenced by government policies and many countries insulated their domestic markets from changes in world market conditions.

2.9 Government intervention in agricultural markets in developed economies usually provides support to the agricultural sector (though, because of vertical market relationships, the effective rate of protection for grain-using sectors such as pig and poultry production can sometimes be negative). The magnitude and modalities of this support vary widely across countries and commodities, Japan and some countries in Western Europe have had the highest levels of support, Australia and New Zealand the lowest levels of support, while the United States and the European Community have had intermediate levels. In all countries, dairy products and sugar tend to be more heavily supported than the average. The regular monitoring of agricultural support in developed countries undertaken by the Organization for Economic Cooperation and Development (OECD) showed that support (measured as the percentage Producer Subsidy Equivalent) increased from an average of 30 percent in 1979-81 to 44 percent of the value of production in 1990-92.<sup>6</sup>

2.10 The pattern of government interventions in developing countries is more mixed. Because of the relatively large share of agriculture in the economy and the relative ease of collecting border taxes, many governments have taxed agricultural exports. On the other hand, in the pursuit of self-sufficiency for food staples, governments have often provided protection to producers of grains. Input subsidies have also been a common feature of developing country agricultural policies. However, often more important than the direct effects of sectoral policies are the indirect effects on agricultural production incentives of industrial sector protection and exchange rate overvaluation. An important World Bank study of 18 developing countries, using a common methodology, found that over the period 1960-84 the effects of these indirect measures were typically stronger than the effects of direct policies for most countries (Schiff and Valdés, 1992). More recent data on protection for a wider number of countries, drawn largely from the data on agricultural trade distortions collected by the Economic Research Service of the United States' Department of Agriculture, confirm that implicit taxation continues to be an important feature of the policies adopted in developing countries, but also that protection, sometimes at high rates, is observed for a number of commodities and regions.<sup>7</sup>

2.11 Agricultural markets were also distorted in the economies in transition in the past. Both consumers and producers were subsidised in the pre-reform period, though to different extents for different commodities and in different countries. Most heavily subsidised on the consumer side were grains, beef and dairy products, while sugar was heavily taxed. Production was subsidised compared to world prices at the official exchange rate through both input subsidies and producer prices, though animal products were more strongly favoured. However, evaluation of producer incentives, particularly in the former USSR, is very sensitive to the choice of exchange rate<sup>8</sup>. On balance, these policies probably added to import demand on world markets.

2.12 Agricultural trade made a substantial contribution to the improvements in global and household food security which occurred during the 1980s. Ample food supplies were available on

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<sup>6</sup> Organization for Economic Cooperation and Development (OECD (1994)).

<sup>7</sup> Brandão and Martin (1993).

<sup>8</sup> Goldin, Knudsen, van der Mensbrugge (1993).



world markets at decreasing real prices. The volatility of world prices decreased. World grain stocks never fell below the 17 percent of world cereal consumption estimated by FAO as the minimum necessary to assure world food security. Food aid flows, particularly for emergencies, increased. Despite this overall positive balance, a number of weaknesses were also evident in the 1980s. Depressed commodity markets damaged the growth prospects of agricultural exporters, the continued insulation of many national markets from world market trends meant that world markets were excessively sensitive to changes in supply and demand conditions, and increased trade was at the expense of environmental degradation in many countries. To some extent the situation in the last six years has been different with stocks lower, prices higher and food aid flows by 1995 at their lowest since the mid-1970s.

## TRADE AND FOOD SECURITY

### The meaning of food security

3.1 Food security is defined as a situation in which all households have both physical and economic access to adequate food for all members and where households are not at risk of losing such access. There are three dimensions implicit in this definition: availability, stability and access. Adequate food availability means that, on average, sufficient food supplies should be available to meet consumption needs. Stability refers to minimising the probability that, in difficult years or seasons, food consumption might fall below consumption requirements. Access draws attention to the fact that, even with bountiful supplies, many people still go hungry because they are too poor to produce or purchase the food they need. In addition if food needs are met through exploiting non-renewable natural resources or degrading the environment there is no guarantee of food security in the longer-term.

3.2 Food security can also be defined at different levels, for the world as a whole, or for individual nations, regions or households. Ultimately, food security concerns the individual or family unit and its principal determinant is purchasing power - income adjusted for the cost of what that income can buy. Similarly, purchasing power at the national level - the amount of foreign exchange available to pay for necessary food imports, is a key determinant of national food security.

3.3 There are two broad options to achieve food security at the national level: the pursuit of food self-sufficiency or food self-reliance. Food self-sufficiency means meeting food needs as far as possible from domestic supplies and minimising dependence on trade. In several developed countries the motivation for the policy goal of high self-sufficiency in food has often been more the income transfer to farmers than protection against uncertain world markets. A number of larger developing countries adopted this policy because their import requirements would otherwise have been big enough to affect world prices - this was particularly true with respect to rice where the world market was relatively small. Another consideration that influenced the choice of self-sufficiency policies in some countries was that under a free trade regime they would have been exporters of basic food commodities, the prices of which would have been higher than affordable, to the detriment of the food security of poorer consumers. Other countries have however pursued as a policy goal that the country should produce enough food itself to provide some minimum level of food intake per person to protect against the contingency that it might be unable to import food at any cost - as in a time of war or embargo. The concept of food self-reliance takes into account the possibilities of international trade. It implies maintaining a level of domestic production plus the capacity to import in order to meet the food needs of the population by exporting other products. The benefits and risks of relying on international trade to ensure food security are at the heart of the debate between these alternative strategies.

3.4 Trade contributes to food security in a number of ways, through making up the difference between production and consumption needs, reducing supply variability, fostering economic

growth, making more efficient use of world resources and permitting global production to take place in those regions most suited to it. But reliance on trade may also bring some risks. These include the risks of deteriorating terms of exchange on world markets (falling prices for agricultural exports, higher prices for food imports), uncertainty of supplies, world market price instability and of increasing environmental stress if appropriate policies are not in place. These and other important linkages between trade and food security, both positive and negative, are elaborated on below.

### Trade and food availability

3.5 A major contribution of trade to food security has been to permit food consumption to grow faster than domestic food production in countries where there are constraints on increasing the latter. Over the period from 1970-90, gross agricultural production in the 93 developing countries covered by *AT2010* grew by 3.3 percent a year, while domestic demand increased by 3.6 percent per annum. Partly because the domestic production constraints on food consumption in developing countries could be relieved through food imports, Calories per head increased from 2 120 in 1969-71 to 2 470 in 1988-90 and the proportion of chronically undernourished in the population fell from 36 to 20 percent.<sup>9</sup>

3.6 Developing countries could have met more of their domestic food needs from domestic production provided food prices were allowed to increase to a high enough level or sufficient alternative incentives were provided to domestic producers. From a purely economic point of view, however, the cost of pursuing food self-sufficiency policies can be high, as shown by the differences between the domestic rice price and world prices in Japan, or between the domestic wheat price and world prices in Saudi Arabia.<sup>10</sup> In a more general sense, therefore, the role of trade is that it allows domestic food consumption to be met more cheaply by less costly imported supplies. Trade also increases consumer choice by providing access to a greater range and diversity of foods. This is particularly important in high-income countries where most food trade consists of the exchange of broadly similar but differentiated products. Much of the one-third of world food trade which takes place within Western Europe is of this kind. This is an important contribution as even countries with strongly-growing agricultural sectors pass through a phase where the dynamics of population growth, income growth and changing diets are such that declining self-sufficiency is almost inevitable.

3.7 While food imports can make a vital contribution to food security, countries relying on food imports have two key concerns; their capacity to maintain food imports at desired levels, and reliability of access to these imports. Food import capacity depends on the prices and other terms on which food can be imported (including food aid)<sup>11</sup> as well as the foreign exchange situation which, for many developing countries, is limited by debt repayments, declining terms of trade and limited export potential. Of particular importance are the market conditions facing agricultural exporters. Throughout the 1980s, the prices of agricultural commodities tended to fall on world markets while those of manufactures tended to rise. The net barter terms of trade between agricultural commodity exports and imports of manufactures and crude petroleum declined by close to 40 percent for developing country exporters between 1979-81 and 1990-92. Furthermore,

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<sup>9</sup> Alexandratos (1995).

<sup>10</sup> Imported supplies can also be priced too cheaply in countries with overvalued exchange rates, in the sense that the resources used to purchase imports could have yielded a higher return if used to grow more food domestically.

<sup>11</sup> See forthcoming WFS companion paper, Food Assistance in the Promotion of Food Security on a Sustainable Basis (1996).

the global decline in prices has been so large that it has generally offset the expansion of production, thus actually reducing overall earnings.<sup>12</sup>

3.8 A sudden collapse in the purchasing power of export commodities can also put a country's food security at risk. For this reason, countries (and farm households) often maintain a higher level of food self-sufficiency than might otherwise be warranted as insurance against unexpected fluctuations in import purchasing power. Maintaining foreign exchange reserves is an alternative and, in theory, a more efficient approach but reserve levels in developing countries are rarely sufficient for this purpose.

3.9 The purchasing power of a country's export earnings in the world market is a partial but important indicator of food import capacity. For developing countries, the purchasing power of exports with respect to food staples has been variable over the past two decades as a result of shocks in the energy, financial and commodity markets. However, the ratio itself has inclined upwards for developing countries as a whole, including the least developed countries. Thus, despite difficult commodity markets, food imports have become less onerous over time. This has contributed to the fact that, even though developing country food imports have been increasing in absolute terms, the share of food import expenditure in total imports has remained relatively unchanged in most developing country regions and has fallen substantially in South and South-East Asia (where the share of food imports in total imports fell from 16 to 6 percent between 1970 and 1991). During the same period, the food import share in Latin America fell from 11 to 10 percent and in West Asia from 14 to 12 percent, though in Africa it increased slightly from 14 to 15 percent. A declining share of food imports in total imports implies that developing country food importers have greater flexibility to re-allocate foreign exchange to food imports in the event of major price increases. Conversely, those countries whose dependence on food imports has been increasing are now more vulnerable to shocks arising in food or other markets.

#### *Reliability of import supplies*

3.10 Policy makers in both developed and developing countries remain concerned about other risks associated with reliance on international trade as part of a food security strategy, in particular, whether imports will be available when needed and the possible impact of political trade embargoes. General trends in grain markets suggest these risks may have become lower than they were.<sup>13</sup> Because of the increased volume of trade, from some 120 million tons in 1970-71 to around 200 million in the mid-1990s, world grain markets are now more liquid than before. An importer can be more confident that additional import requirements can be supplied without a knock-on effect on market prices. The transport and handling infrastructure in exporting countries has been expanded and should be well positioned to meet medium-term needs; some 215 million tons of grain were handled in the peak year 1984/85. Importers now have a greater choice of suppliers in an increasingly competitive market. Improved information systems are in place to monitor harvests on a global basis and market surprises, such as effect of grain purchases by the former USSR in 1972, are now less likely to happen. Futures markets are more developed and are more likely to play a stabilising role in price formation.

3.11 Occasionally, food surplus nations place restrictions or 'embargoes' on their exports when domestic or political conditions provide the necessary justification. The United States embargoed soybeans in 1973 and 1975 because world demand was threatening domestic availability and driving prices to record highs. More recently, in 1995-96, some exporters in Europe restricted their exports of some cereals via quantity controls or taxes in order to protecting domestic consumers. Food may also be used as a political and strategic weapon. Often, however, food is exempted from embargoes imposed for political reasons. For example, the Islamic Republic of

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<sup>12</sup> FAO (1995).

<sup>13</sup> Donaldson (1984).

Iran continued to purchase United States grain throughout the 1979-80 period when almost all its other commercial, financial and political ties were cut off. Political embargoes are also difficult to enforce and the possibility of making purchases through trans-shipment facilities in other countries makes it relatively easy to circumvent exporters' attempts to exert political pressure.

Internationally-agreed embargoes may be more effective in this respect but are even less likely to include food. Nonetheless, any trend to greater use of trade sanctions to enforce, for example, human rights concerns or international environmental agreements will increase uncertainty about import supplies.

### Trade and food supply instability

3.12 For both developed and developing countries, stabilisation of both producer and consumer prices are important objectives. Under a system of complete food self-sufficiency, production fluctuations can only be absorbed by consumption adjustments or by changes in stocks. For most developing countries the former is unacceptable because of existing low levels of consumption for a large part of the population and the latter tends to be rather costly. Therefore most developing countries rely to a significant extent on trade to even out the bulk of their production fluctuations. This approach, however, does not eliminate price fluctuations as in addition to variations in exchange rates, the underlying world food prices exhibit a degree of price variability. The degree of price instability will be a function of global production variability, the degree to which markets absorb some of this variability, and of the size and behaviour of global stocks.

3.13 Food security is most sensitive to grain market instability. The volatility of grain consumption decreased between 1960-77 and 1978-89, indicating that since the late 1970s the world's grain stocks have been doing a better job of protecting consumers from the year-to-year volatility of grain production. Stock adjustments in the United States and, increasingly, in the European Community were major factors in this improvement.<sup>14</sup> Further, at least in the period up to 1989, the volatility of grain prices also declined, either because of the improved management of the world's stocks or because of more widespread willingness by countries to absorb a greater share of market volatility, despite the attempts by many countries to stabilise domestic prices and to prevent the transmission of world price changes to domestic markets. From a developing country viewpoint, an important aspect of this consumption adjustment in developed countries is the diversion of grain fed animals to livestock, the so-called 'feed grain buffer'. When world prices rise, the amount of grain fed to livestock tends to decline thus providing a partial response to production shortfalls. This can occur either when producers substitute grain with other feedstuffs or more usually by reductions in herd size. For example, when grain prices rose during 1972-74, the drop in United States feed consumption was as large as the total global production shortfall.

3.14 Since 1993, the global supply/demand situation has become tighter and there has been a significant fall in the size of aggregate stocks held in the main exporting countries, particularly the United States and the European Community. Wheat and maize prices are estimated to increase by one-third in 1995/96 over 1994/95 as a result.<sup>15</sup> Reviewing the experience of the past 25 years, the irregular appearance of price 'spikes' rather than instability *per se* appears to characterise world grain markets. For all countries which rely on food grain imports, but particularly the very poorest countries, an important aspect of the evaluation of trading regime changes for food security is their likely impact on world market instability. As global stocks are likely to remain relatively low in the 1990s compared with the previous decade, and notwithstanding the higher share of the more responsive private stocks, the chance of price "spikes" occurring is probably greater than in the past.

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<sup>14</sup> Martinez and Sharples (1993).

<sup>15</sup> FAO (1995), *Food Outlook*.

### Trade and income growth

3.15 An important way in which international trade contributes to food security is by accelerating national income growth. Economic growth can enhance food security in two ways. It can increase individuals' command over resources and thus their access to food, and as incomes grow, the fraction spent on food declines and the chances of falling into food insecurity decrease. However if national economic growth does not "trickle down" to the poor then the food security of such groups does not improve and may in some cases deteriorate.

3.16 Trade contributes to income growth in a number of ways. First, it enables countries to reap the benefits of comparative advantage. Second, an increase in export demand enables the production to be expanded. Third, trade is associated with greater possibilities for the transfer of capital and know-how, particularly through foreign investment. While the role of transnational agribusiness firms in developing countries has been controversial in the past, there is increasing recognition of the management benefits they can bring to production, processing and marketing. However, the impact may be more positive on the larger farmers producing cash crops and not necessarily on the small or subsistence farmers.

3.17 Economic literature offers much theoretical support for a positive relationship between trade and economic growth. Export growth may relieve a foreign exchange constraint and permit a higher level of imports, thus allowing more domestic growth if this has been constrained by the need to keep import demand at a certain level. It allows firms to escape the limitations of home market size and reap the benefit of economies of scale. Exposure to foreign competition helps to remove allocative inefficiencies that may build up in relatively closed economies and discourages unproductive activities such as lobbying and rent-seeking. Access to foreign markets means that countries gain access to ideas, knowledge and new technologies.

3.18 Inevitably, however, theoretical conclusions are derived from simplified models of the real world, giving rise to scepticism about their validity when policy choices must be made. Thus it has been the empirical evidence which has been the most persuasive. Two lines of enquiry are relevant; one has focused on detailed multi-country studies of protectionist practices and liberalisation episodes, while the other has relied on cross-country regression analyses on the relationship between export growth and economic performance.<sup>16</sup>

3.19 Examples of detailed multi-country studies include the United States National Bureau of Economic Research study conducted by Bhagwati (1978) and Krueger (1978), and the World Bank study of 19 different countries published as Michaely, Papageorgiou and Choksi (1991). These studies attempt to classify countries into different trade regimes (and, in the World Bank study, into different trade regimes at different periods) and examine whether there is any relationship between trade orientation and economic performance. The key is building an index of trade orientation and using it to classify countries along a trade orientation continuum. The classification of a country's trade strategy is carried out on the basis of a number of indicators such as the effective rate of protection, use of direct controls such as quotas and import licences, use of export incentives, and degree of exchange rate overvaluation. Building on earlier applications of this methodology by the World Bank,<sup>17</sup> the International Monetary Fund (IMF) recently compared the economic performance of four groups of developing countries following different trade regimes. The results generally support the conclusion that more open trade orientation is associated with better economic performance.

3.20 Studies of this kind suffer from a number of problems. The attribution of countries to particular trade regime categories is inevitably arbitrary and subjective. The question of causation

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<sup>16</sup> Edwards (1993).

<sup>17</sup> World Bank (1987).

is not directly addressed. It may be that rapidly expanding economies are more able to dismantle protection than stagnant ones. Various authors have queried whether the results hold consistently for countries at all stages of development (in particular, whether or not a 'threshold effect' exists such that growth is positively related to trade orientation only once countries achieve some minimum level of development). Others argue that the studies ignore the importance of world market conditions in determining the feasibility of a successful trade-opening strategy.<sup>18</sup>

3.21 The alternative approach investigates whether there is a positive relationship between exports and economic growth, making the (usually implicit) assumption that higher export growth is associated with a more open trade orientation. Research has generally shown that a positive relationship exists, and that faster export growth is correlated with higher productivity growth in developing countries.<sup>19</sup> The approach, however, has been severely criticized for its reliance on simplistic statistical methods and for by-passing the question of causality. Output growth may as plausibly be the cause of export growth as the other way round. There has also been discussion as to whether a fallacy of composition effect may exist if yet more countries adopt outward-orientated trade strategies and the resulting surge in export growth tends to overwhelm industrial country import markets and cause a negative protectionist response.

### **Trade, income distribution and household food security**

3.22 Economic growth will only contribute to greater household access to food if it is broadly based and includes the lowest-income households in society. Only if trade can contribute to broadly-based economic development that increases the employment possibilities and earning opportunities of the poorest households will it play an important role in improving household food security.

3.23 Although, for methodological reasons, research to date has had difficulty in rigorously proving that trade liberalisation causes faster economic growth, the circumstantial evidence remains strong that trade liberalisation is a basic element in growth-promoting policy packages. A separate issue, but one directly related to ensuring household food security, is the impact of trade liberalisation on poverty and income distribution. If the benefits of trade-induced growth are highly concentrated among better-off families, then household food security may worsen for many despite higher overall rates of economic growth.

3.24 It was pointed out that rapid economic growth in the newly-industrialising East Asian economies was accompanied by marked improvements in employment and income distribution and the reduction of levels of absolute poverty.<sup>20</sup> However, while rapid economic growth in these countries has been associated with export-oriented development, other factors such as land reform, prudent macroeconomic policies, an emphasis on agrarian development and improved education were also present. Given the difficulties in measuring poverty rates or changes in income distribution over time, studies which attempt to link trade and poverty tend to focus on intermediate variables, such as employment or real wages. The general presumption is that rapid economic growth resulting from trade policies should lead to higher rates of growth of employment and improved income distribution. But the relationship between trade strategies and employment is a complex one, and will be influenced by (a) the effect of the choice of trade strategy on the overall rate of growth (b) the effect on the demand for labour via the influence of

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<sup>18</sup> These studies are reviewed in Edwards (1993), Greenaway (1993) and Clarke and Kirkpatrick (1992).

<sup>19</sup> Greenaway and Reed (1990), and Edwards (1993) provide valuable surveys of many of these studies.

<sup>20</sup> Fields (1984).

the trade strategy on the composition of output, and (c) the effect of the trade strategy on factor prices.<sup>21</sup>

3.25 Empirical evidence on the long-term relationship between trade orientation and employment creation showed that, in most developing countries, exportable industries tended to be more labour-intensive than import-competing industries. They also tended to be relatively more intensive in the use of unskilled labour than import-competing sectors. Employment also tended to grow faster in outward-orientated economies.<sup>22</sup> More recently, the World Bank has pointed out that, during the past two decades, real wages rose at an annual rate of 3 percent in those developing countries where the growth of exports as a share of Gross Domestic Product (GDP) was above the average, while wages stagnated in those countries where exports expanded least.<sup>23</sup> In general, the impact on poverty will be affected by the nature of trade-induced growth. Issues such as the degree of access of small and medium-scale firms to export markets are important, as well as attention to the improvement of human capital through education, training and health, although a lack of entitlements remains the basic problem of the poor; unless hunger is tackled people cannot benefit from human capital development.<sup>24</sup>

3.26 Fears are expressed that in areas where production for export increases, food consumption and the nutritional status of the poorest households declines. The mechanisms through which export production can influence consumption and nutritional status include its effects on local and national food availability, household access to food and intra-household distribution of food. For example, if increased production for export reduces local food availability, local food prices will rise. The nutrition of the rural poor who do not share in the benefits from export crops but purchase food in the same markets may suffer. Here, however, the principal problem is deficiencies in rural marketing and transportation infrastructure, or policy decisions, which prevent the movement of food from one area to another. If export production is less labour-intensive than staple food production, then the resulting employment effects may have adverse effects on the food security of landless farm labourers. Similarly, when the export crop income is controlled by male heads of households, and as men are usually less likely to spend this income on food, then the food security of women and children in the household may be put at risk.

3.27 Hypothetical linkages of this kind need to be tested by evidence. Recent evidence from a series of coordinated studies by the International Food Policy Research Institute (IFPRI) suggests that a move by smallholders from staple food to export production did not impact negatively on nutrition. In the areas studied, they found that, despite the reallocation of land to the new cash crops, staple food production per person was maintained at high levels or even increased in the participant groups as compared with non-participants. Employment, particularly of hired labour, and income were higher and in no area was child nutrition adversely affected.<sup>25</sup>

3.28 The impact of trade is part of the wider issue of the impact of agricultural modernisation and transformation on welfare and distribution. Trade provides new opportunities for specialisation and exchange and is usually associated with structural change. Because small-scale producers often lack the resources necessary to grow export-oriented crops, they may not be able to participate in this growth. On the contrary, they may find that commercial expansion has an inflationary effect on production costs and on land rent that may even make their traditional

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<sup>21</sup> Krueger (1978).

<sup>22</sup> Krueger (1981).

<sup>23</sup> World Bank (1995).

<sup>24</sup> UNCTAD (1995).

<sup>25</sup> von Braun and Kennedy (1994). See also von Braun (1995).

production less feasible. Small producers may abandon their land or be bought out by larger commercial interests. Export production is sometimes associated with the expansion of large-scale capitalist enterprises which displace small-scale farmers from their land. More generally, where productive assets are controlled by a few and inegalitarian social relationships predominate, export agriculture may worsen the position of the poor majority. In evaluating such concerns, it is important not just to consider the impact of trade from the perspective of producers but also to take into account the induced effects on employment and consumers in other sectors of the economy. Where a problem exists, it is more often a question of policy bias and institutional failure rather than due to trade per se.

3.29 Another fear associated with opening up a country's food markets to trade is that it will lead to increased competition for food supplies between rich consumers in high-income countries and low-income consumers in developing countries. Meat consumption in developed countries and, increasingly, in middle-income countries is criticized for making additional demands on grain production for use as feed, raising world prices and reducing the food security of the poor. This fear raises a number of issues. First, not all livestock is produced from feedgrains and animal production may make use of agricultural resources which would otherwise go unused. Second, in the absence of feedgrain demand, a part of the grain would not be produced. The lower demand for grain in the absence of feed grain demand might have reduced the rate of price-reducing technical progress in grain production. Third, as noted above, following a sharp increase in world grain prices, the feeding of grain to livestock will become less profitable. Thus, as the derived demand for feed grain begins to fall, the pressure on supplies should begin to ease, and price increases would be mitigated.

## TRADE, SUSTAINABILITY AND FOOD SECURITY

### General considerations

4.1 Over time, global food security depends on maintaining and conserving the natural resource base for food production in both developed and developing countries. There is increasing evidence that, as agricultural production becomes more intensive, there are substantial risks that the natural resource base can become degraded unless specific conservation measures are put in place. Soil erosion and desertification, waterlogging and salinisation, deforestation, the exhaustion of water supplies and chemical pollution from fertiliser and pesticide use are all serious threats to maintaining and increasing food production levels over time.

4.2 Because agricultural trade affects the volume and location of agricultural production it may have important positive or negative environmental effects. For example, there has been concern in the United States that along with exporting commodities the country was also, in effect, exporting its soil. Based on a pollution impact index for different farm commodities, one study found evidence that the crops in which the United States performs best in world trade are also the most polluting.<sup>26</sup> This concern led to the introduction of provisions to deal with excessive soil erosion (the Conservation Reserve Programme and conservation compliance provisions), the conversion of fragile lands to cropland (the sodbuster provision) and the conversion of wetlands (the swampbuster provision) in the 1985 Food Security Act. In general, with fewer distortions and appropriate prices reflect the environmental concerns, the volume, pattern and location of agricultural production would be different, and so would be the levels of trade.

4.3 Agricultural interventions have often led to environmental problems. In some developed countries certain subsidies for agriculture have reinforced market failures by encouraging intensification, although in other cases subsidies have been paid to withdraw land from crop

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<sup>26</sup> Tobey (1991).



production<sup>27</sup>. Similarly, in some developing countries prices for farm inputs such as water, fertilisers and pesticides have been kept artificially low. In these cases the effect has been to encourage producers to specialise in certain crops and to intensify their use of inputs, contributing to soil and water degradation and other types of environmental mismanagement. However, most developing countries suffer from low levels of productivity and need to increase their input use in order to raise output and to avoid environmental problems associated with expanding the area under production in marginal lands.

4.4 As awareness of the environmental and health impacts of agricultural practices has grown, countries have introduced increasingly stringent environmental, food safety and food quality standards. Such standards have been introduced unevenly across countries, however, giving rise to some fears that agricultural competitiveness in high-standard countries will be undermined and to demands for the use of trade measures, either to protect producers from competition from low-standard countries or to try to raise environmental standards in these countries. At the same time, some countries fear that the higher standards may have indirect protectionist effects and make it more difficult for them to gain access to developed country markets.

4.5 Trade and environment issues thus interact in two ways. First, there is concern about the effects of trade - how trade impacts on the environment. Second, there is concern about the way in which environmental standards may change conditions of competition and induce demands for protection against products from countries with lower environmental standards. As discussed below, trade and the environment can be compatible and complementary to each other provided certain policies are in place. Both interactions are currently being studied by the Committee on Trade and Environment (CTE) of the World Trade Organization (WTO), the terms of reference of which include the examination of the effect of environmental measures on market access, especially in relation to developing countries, as well as the environmental benefits of removing trade restrictions and distortions.<sup>28</sup>

#### **Environmental implications of agricultural trade liberalisation**

4.6 Trade reform has both scale and structural effects. The scale effect refers to the market expansion and growth induced by trade reform. The structural effect relates to the changes in the pattern of production and resource use following the reform. Following agricultural policy reform, prices will fall in subsidising countries, but rise in non-subsidising countries. Thus the scale effect will be limited,<sup>29</sup> and the main issue is empirical i.e. whether the environmental benefits from reduced production in subsidising countries is offset by the environmental costs of increased production in non-subsidising countries.

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<sup>27</sup> Subsidies have also contributed to environmental problems in the fisheries sector. Governments in both developed and developing countries have subsidized the modernisation and expansion of fishing fleets, contributing to overfishing and excessive pressure on sensitive fish stocks.

<sup>28</sup> In particular, the terms of reference of the CTE include making appropriate recommendations on whether any modifications of the provisions of the multilateral trading system are required, compatible with the open, equitable and non-discriminatory nature of the system, as regards, in particular:

- the need for rules to enhance positive interaction between trade and environmental measures for the promotion of sustainable development with special consideration for the needs of developing countries, in particular those of the least developed among them;
- the avoidance of protectionist trade measures, and the adherence to effective multilateral disciplines to ensure responsiveness of the multilateral trading system to environmental objectives set forth in Agenda 21 and the Rio Declaration, in particular Principle 12; and
- surveillance of trade measures used for environmental purposes, of trade-related aspects of environmental measures which have significant trade effects, and of effective implementation of the multilateral disciplines governing those measures.

<sup>29</sup> FAO (1995).

4.7 Estimates of the environmental impact of trade liberalisation cannot be directly estimated from conventional measures of changes in the volume of agricultural output. Thus, for example, while one tonne of rice is priced at twice the level of one tonne of wheat, one cannot assume that the environmental impact of an additional tonne of rice is twice as great as the environmental impact of an additional tonne of wheat. Assessment requires weights more closely reflecting the environmental impact of each commodity in each region. Environmental impacts are not equivalent across countries. Intensive pig production is common to both China and the Netherlands, but in the former manure is a valuable by-product which is recycled as a fertiliser or to produce fuel in the form of methane, while in the latter enormous pollution is generated from the large quantities of undesirable manure output. The Food and Agriculture Organization has developed a manual for use in the economic evaluation of environmental effects associated with the production and local processing of commodities in producing countries which should facilitate more of this type of analysis in the future.<sup>30</sup>

4.8 Agricultural trade liberalisation could well reduce global environmental damage, although it is not necessarily the case that environmental pressures in each individual country will be reduced and in some it may increase. What is relevant is the environmental impact of the change in resource use in each country relative to the environmental impact of alternative uses for these resources. The main effects of such liberalisation would derive from three sources. Firstly, an international relocation of crop production from high-subsidy (and high chemical input) to low-subsidy countries would reduce the use of chemicals in world food production.<sup>31</sup> Chemical use in low-subsidy countries, including developing countries, would increase, though from a relatively low base. Secondly, trade reform will also lead to a reduced demand for land in high-subsidy countries and an increased demand for land for agricultural production in low-subsidy countries, including developing countries. Empirical evidence shows, however, that land is the least responsive input to changes in farm prices and that the expansion in agricultural area induced by the price increases expected from the Uruguay Round will be small. Thirdly, if trade reform encourages export crops which are more labour-intensive than staple food production, this will help to reduce the pressures on forests from the encroachment of subsistence farming. Liberalisation of trade in tropical timber will have a more direct impact on deforestation trends. The rise in producer log prices following liberalisation may lead to increased felling of the remaining commercial timber reserves in producer countries, but it could also provide an important incentive for sustainable timber management.<sup>32</sup>

4.9 Where, nonetheless, environmental problems are exacerbated by trade; in general, trade is not the root cause of the problem. Environmental damage is generally because of (domestic) policy distortions and because private costs do not reflect the full social cost of resource use. In the case of market failures, the appropriate policy response to address such failures is the internalisation of unaccounted environmental costs. This can be done either through regulation and/or the use of market-based economic instruments but it must be recognised that, in developing countries in particular, the administrative and market mechanisms to implement these policies may not yet be in place. Moreover, many developing countries are under tremendous economic pressures to exploit their resources regardless of the long-term consequences. Because this is a consequence of poverty rather than a deliberate desire to exploit the environment for the purposes of competitive gain, multilateral assistance towards the implementation of environmental policies is an appropriate policy response.

4.10 Even in the absence of appropriate environmental policies, trade can still be welfare-improving. The standard welfare gains from trade liberalisation may be sufficiently great to offset

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<sup>30</sup> FAO (1994), Winpenny and Willis.

<sup>31</sup> Anderson (1992).

<sup>32</sup> See the discussion in FAO (1995).

the environmental costs of increased agricultural production. Over time, these income gains if substantial will have a positive effect on the demand for environmental sustainability.

### Effect of higher environmental standards on agricultural trade

4.11 Environmental and other standards fall broadly into two categories: process and production method (PPM) standards which set out standards as to how goods should be produced, while product standards define characteristics which products must have for consumption. Process standards impose norms on producers regarding emission and pollution levels, e.g. norms relating to the maximum permissible levels for the discharge of effluents into water. Examples of production method standards include regulations governing management practices for forest resources, norms that should be used in catching fish, methods used for fattening animals intended for slaughter, technologies for enhancing the milking capacities of dairy animals, and methods used for killing animals for food. Process and production method and product standards give rise to two sets of concerns. In the case of PPM standards, the fear is that higher domestic standards give producers in other countries a competitive edge; in the case of product standards, it is other countries who fear their trade will be adversely affected by higher standards in import markets. Even in the case of PPMs, to the extent that the importing country imposes its own environmental preferences and environmental assessment on the exporting country, their use may also adversely affect market access.

4.12 In principle, the adoption of environmental regulations will alter the international structure of relative input costs (or availability) with potential effects on patterns of specialisation and world trade. Environmental regulations will lead to reduced specialisation in the production of polluting or environmentally-damaging outputs in countries with stringent environmental standards. In contrast, countries with less stringent or no environmental protection programme (on PPMs) should be able to increase their market share in the production of commodities that damage the environment. How important these trade effects are in practice will depend on the dispersion of environmental standards across countries, the impact of environmental standards on the structure of relative costs, and the extent to which altered relative costs modify the structure of comparative advantage.

4.13 The demand for environmental protection generally rises with levels of individual income, so that environmental regulations are first introduced in developed countries. Also, if developing countries are producing less intensively, the assimilative capacity of the environment may be higher so that there is less need for environmental protection in developing countries in the first place. There is thus an incentive for developing countries to increase their export market share in those commodities which are highly pollution intensive (in the developed countries). Some evidence has been found that environmental policies have had a discernible impact on trade patterns of agricultural commodities.<sup>33</sup> Others are more sceptical, arguing that developing countries are not very effective competitors in the most environmentally-damaging crops.<sup>34</sup> Competitiveness impacts may also occur between developed countries, as in the impact of environmental regulations on the location of intensive animal production in North-Western Europe.

4.14 There are legitimate economic as well as environmental reasons why PPM standards vary across countries. For example, countries with lower levels of nitrate pollution in water supplies may not need to enforce the same standards with respect to nitrogen fertiliser use as countries where nitrate pollution is a serious problem. Also, countries at different levels of economic development will not necessarily want to make the same trade-off between economic development and the alleviation of poverty on the one hand, and environmental quality on the other hand. From this perspective, trade facilitated by differences in environmental standards is an important

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<sup>33</sup> Diakosavvas (1994).

<sup>34</sup> Tobey (1991) found that the Least Developed Countries had a market share greater than 20 percent in only three of the five crops which ranked in the top half of his list of most pollution-intensive United States crops, namely tobacco, peanuts and sorghum.

mechanism for raising incomes in low-standards countries, thus ensuring higher environmental standards in the longer-term. However, harmonisation of standards may be desirable where the pollution results in transborder spillovers or has an effect on the global environment. The Rio Declaration makes clear, however, that such problems should be solved through international co-operation and consensus.

4.15 An issue that has arisen in recent years is the attempt to enforce value preferences of the importing countries on the PPMs followed by exporting countries even where unrelated to the characteristics of the products.<sup>35</sup> For example, the United States banned the import of tuna fish from Mexico because its fishing methods killed dolphins. It has also banned the import of shrimp from countries which have not taken sufficient steps to protect endangered sea turtles. The European Community has proposed banning imports of tropical timber from those countries which are not following policies for the sustainable development of forests. Some European Community countries also banned imports of furs if animals are caught with leg-hold traps. The justification for these measures is often that they are necessary to protect the global commons. Other countries will often see them as disguised protectionism. Another danger lies in the proliferation of unilateral measures, thus pointing again to the desirability of international cooperation and consensus as the best approach to deal with these issues.

4.16 Currently, under the General Agreement on Trade and Tariffs (GATT), there is little a country can do if imports from a country with lower PPM standards (as opposed to product standards) result in damage to the competitiveness of domestic agriculture burdened with higher environmental costs, except in cases where it is established that such standards have affected the quality or performance of the imported commodity. Some countries argue for a change in these rules to bring PPM standards more fully (e.g. even where unrelated to product characteristics), within the ambit of the Technical Barriers to Trade (TBT) agreement. This would enable countries to impose restrictions on imports from countries which adopt lax or lower standards, and thus indirectly encourage the raising of standards in exporting countries.

4.17 Standards requiring eco-labelling are also a source of concern to exporting countries, though they could help many developing countries turn environmental awareness in developed country markets to their advantage, e.g. allowing fibre producers to exploit the environmental advantages of natural fibres over synthetics. The ability of the Uruguay Round agreements to defuse disputes between countries and to prevent trade tensions arising from the clash between trade and environmental interests will be severely tested in the years ahead.

## THE CHANGING POLICY ENVIRONMENT FOR FOOD SECURITY

5.1 For countries dependent on agricultural trade (either as exporters or importers) the prospects for global trade growth provide the context for assessing the implications of agricultural trade growth and its regimes for food security. The global trade context is important primarily because of the link between trade and income growth. If greater trade volumes or particular trade regimes lead to higher incomes or faster growth, then agricultural exporters will benefit from more buoyant demand while agricultural importers will more easily be able to finance food import bills. A more stable general trade regime should also increase the food security of agricultural traders by diminishing fears that arbitrary trade policies might lead to the disruption of foreign exchange earnings and a fall in purchasing power with respect to food imports.

5.2 The general changes underway in the international trading and policy environment will have far-ranging consequences for the food and agriculture sector and specifically food security.

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<sup>35</sup> Although Article XX of the GATT permits countries to introduce trade barriers necessary to protect the environment, this refers to the environment within their own territory.

Although the most recent and noteworthy of these changes is represented by the Uruguay Round Agreement on Agriculture, other policy changes at the national level having a bearing on food and agriculture are underway in all groups of countries.

### Changing national agricultural policies

5.3 In addition to the changed agricultural policy environment due to the Uruguay Round (as discussed below), many countries have embarked on autonomous policy reforms, the effects of which could in many cases be greater than those flowing from the Uruguay Round. It is possible to identify three additional sources of change in the world food economy: one, structural adjustment programmes in many developing countries; two, the transition to market economies in the countries of the former USSR and Eastern Europe; three, budgetary pressures on agricultural policy in developed countries. The process of adjustment to a new trade regime may itself generate social impacts that must be carefully monitored and alleviated for those whose food security becomes threatened. While trade instruments are not adequate means for this purpose, social safety nets and prudent sequencing are frequently indispensable components of policy adjustment.

#### *Structural adjustment programmes in developing countries*

5.4 The deterioration in the external environment arising from the adverse shocks of the global recession of 1979-82, the increase in real interest rates and the decline in the terms of trade for producers of oil and primary commodities led to large and growing external imbalances in many non-oil exporting developing countries just when external financing from private sources declined sharply because of the debt crisis. Thus many countries had to turn to the international lending agencies (the World Bank and the IMF) for their financing needs. Loans from these agencies were made conditional upon acceptance of comprehensive policy reform packages aimed at macroeconomic stabilisation and structural adjustment, and the incorporation of cost-effective social safety nets is now recognised as a necessary component of such programmes in many cases.

5.5 The agricultural focus of structural adjustment programmes varies extensively across developing regions. For Southern, Central and Eastern Africa, out of 36 loans between 1980 and 1987, 80 percent included conditions for agricultural policy. In other developing countries in the same period, 33 percent of loans (out of a total of 46 loans) contained agricultural policy conditions.<sup>36</sup> Typically, agricultural policy conditionality required pricing changes, institutional reform and macroeconomic policy changes. In the case of pricing, countries have been required to bring producer prices closer to world market prices and to change the mechanisms of domestic price formulation. Input prices have also been increased. Many loans have required some element of trade liberalisation; for example, loan conditions have been linked to the removal or reduction of restrictions or taxes on exports, and in some cases to a reduction in import barriers. Institutional requirements often include some reduction in the monopoly powers of state marketing boards, measures to reorganise public enterprises so that they operate more efficiently, and deregulation of internal markets. Finally, most agricultural adjustment programmes have required exchange rate reform of some kind, with the most common requirement being for more rapid devaluations.<sup>37</sup>

5.6 The intended effect of these reforms is to enhance incentives to agricultural production. Their actual impact to date is more difficult to assess. This is partly because (a) many reforms are fairly recent (b) governments have not always been fully committed to the reforms, thus the necessary private sector response has been hesitant and limited (c) pricing and institutional reform are only part of the story and need to be complemented by significant public investment in roads,

<sup>36</sup> Knudsen and Nash (1991).

<sup>37</sup> Ibid.

irrigation systems and research and extension services. However, cutbacks in public expenditures have often fallen on agricultural investment with the result that the expected supply response has been very limited. There is also some evidence that the position of smallholders and those producing staple food crops has worsened under structural adjustment programmes compared to larger, cash crop producers<sup>38</sup>.

#### *Transition to market mechanisms in the former centrally-planned economies*

5.7 The potential for reform to affect world markets is particularly great in the transition economies. As a result of pricing distortions, waste and low productivity growth, a number of these countries became significant net food importers over the past two decades. Net imports have continued to grow in the early years of the reform period, partly due to a severe price-cost squeeze on agriculture and partly due to the disruption caused to agricultural production by political and institutional upheaval. As these economies stabilise, however, agricultural production should recover and self-sufficiency should increase. On the assumption that per caput income levels would reach pre-reform levels by the year 2010, the AT2010 study projects that production growth in the transition economies (measured from pre-reform 1988-90 levels) will be 0.7 percent annually (given the levels reached in 1995, growth to reach this target will be higher), compared to 0.2 percent growth in consumption.<sup>39</sup> However, there remains considerable uncertainty about the success of reform efforts, particularly in the former USSR, and about the pace and unevenness of reforms, if they do occur.

#### *Budgetary pressures in developed countries*

5.8 For both of the major food exporters, the United States and the members of the European Community, agricultural policy has been under pressure because of its budgetary cost. In the United States, target prices were frozen for five years under the 1990 Farm Bill and farmers were given greater planting flexibility, which was further extended in 1993 through programmes such as 0/92 and 50/92. Although the debate over the new farm bill is not as yet over, it is widely expected that under the new bill spending on farm programmes would be cut further and farmers given even greater flexibility in choosing crops to plant. Moreover, it is expected that the additional area currently set aside under the Conservation Reserve Programme would again be brought under cultivation. Analysis suggests that these changes are likely to reduce the government's ability to control the supply of programme commodities as a result of lower programme participation, resulting in prices more strongly influenced by market forces. For several commodities, market prices could fall as well. In the European Community, agricultural expenditure is constrained by a financial guideline agreed between the European Council and the European Parliament until 1999. An important motive in the so-called MacSharry reform of the European Community's *Common Agricultural Policy* (CAP) in the direction of more decoupled support was the necessity to prevent agricultural spending from breaching this ceiling.

5.9 These on-going reforms raise an important additional issue in attempts to quantify the impact of the Uruguay Round. They emphasize the importance of establishing what might have happened in the absence of reform. If the view is taken that agricultural support in developed countries was going to be reduced in any case, then only any incremental reforms required to fulfil the Uruguay Round constraints should be attributed to the agreement. This is the view taken in the FAO projections below which includes CAP reform effects in the baseline scenario. For example, the reduction in the volume of European Community subsidised exports is an important constraint arising from the Uruguay Round agreement which, other things remaining equal, will

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<sup>38</sup> 'Structural adjustment and food security' (pp. 190-191) in Alamgir and Agora, (1991), *Providing Food Security for All*, IFAD Studies in Rural Poverty No. 1, New York University Press for the International Fund for Agricultural Development.

<sup>39</sup> Alexandratos (1995).

have the effect of raising world prices for the commodities affected. Within the Community, however, the issue of the 'compatibility' of the GATT commitments with CAP reform has been intensively studied. The European Commission concluded, for example, that the GATT agreement requires no additional changes to the Community's agricultural policy beyond those already agreed. In this case, attributing the Community's policy changes to the Uruguay Round will overstate the latter's effects. The other perspective is to argue that CAP reform would not have been undertaken, or would not have been so extensive, in the absence of pressure to come forward with a negotiating offer in the Uruguay Round.

### The Uruguay Round and income growth

5.10 The *Final Act of the Uruguay Round Multilateral Trade Negotiations* (the Final Act) has led to very significant changes in the global trade regime for both merchandise and services trade, and particularly agriculture, which, as noted above, was included for the first time in a significant way in such negotiations. The liberalisation process is a dynamic one, in that negotiations on further liberalisation, particularly in agriculture and services, are scheduled to begin in 1999. In some instances, individual country trade policies, particularly those of developing countries, may actually be changing more rapidly than as signified by their schedules to the Uruguay Round which establish maximum levels of protection or minimum access opportunities. Furthermore, the greater interest in new regional trade groupings<sup>40</sup> with ambitious objectives of freeing intra-regional trade also implies a more rapid reduction in barriers on certain trade flows than were foreseen in the Final Act.

5.11 Over the years many attempts have been made to estimate the impact on world income of trade liberalisation. Recently the focus of this literature has been on the Uruguay Round, including an effort to assess liberalisation in all sectors of the economy which have been significantly affected by the Round.

5.12 The existing studies modelling the impact of the Uruguay Round only cover parts of the Final Act, typically those that are more amenable to quantification. These include the Agreement on Agriculture, market access reforms in manufactured and industrial products and the phasing out of the *Arrangement Regarding International Trade in Textiles* (MFA)<sup>41</sup>. Table 2 summarizes the results of two studies which make comprehensive assessments of income effects of these three components of the Final Act using general equilibrium techniques. Income effects are measured under a number of scenarios, reflecting different model specifications such as competitive structure, returns to scale and capital closure rules. The results show a fairly high degree of sensitivity of income effects to these assumptions, which, in turn, calls for a careful interpretation of the results. The impact of the Uruguay Round, (to be precise, of its three components referred to above, as incorporated in the models), on aggregate incomes range between 0.17% (about US\$ 40 billion) of the 1992 base period GDP to 0.94% (about US\$ 215 billion) in one of the models and between 0.41% (about US\$ 94 billion) to 0.75% (US\$ 172 billion) in the other model reviewed. Thus, despite the delicate nature of modelling such complex agreements, the difference in aggregate income effects estimated by these two general equilibrium models are not that far off, when one considers a global GDP in 1992 of some US\$ 23 000 billion. Also, both models show a

<sup>40</sup> The long-term impact of these regional arrangements on the global trading system is an important issue. Are they welfare-increasing or welfare-reducing for trading partners outside these arrangements? Can they be seen as stepping stones on the way to more extensive multilateral agreements or as a threat to the multilateral regime? Because regional preferences in trade, services and capital flows necessarily imply discrimination against third parties, the critics' fear is that they will lead to the disintegration of the world economy into protectionist economic blocs. A recent WTO study suggested that regional and multilateral integration are more often complements rather than alternatives in the pursuit of more liberal and open trade.

<sup>41</sup> Some attempts have also been made to measure the impact of the General Agreement on Trade in Services (GATS), but only in a limited way due to a lack of suitable data and related parameters.



relatively marked impact of the Uruguay Round on developing regions, in particular, for East and South Asia. One area where the two models seem to disagree is on estimating income effects for Africa. While one of the models finds this region to gain from the overall (modelled) Uruguay Round package, the other model consistently shows negative effects. Clearly, there is a need for further work in this area, in particular in identifying the sources of loss or gain to specific regions.

**Table 2: Estimated Income Effects of the Uruguay Round**

Region	MRT model <sup>1/</sup>				FMN model <sup>2/</sup>			
	MRT-1		MRT-2		FMN-1		FMN-2	
	% of base GDP	billions of US\$	% of base GDP	billions of US\$	% of base GDP	billions of US\$	% of base GDP	billions of US\$
<b>Developing</b>	<b>0.38</b>	<b>17.7</b>	<b>1.20</b>	<b>55.2</b>	<b>0.29</b>	<b>10.3</b>	<b>2.57</b>	<b>89.9</b>
Africa	-0.24	-0.4	-0.40	-0.7	0.24	1.8	1.41	10.7
East Asia	0.86	12.3	2.30	32.8	0.50	7.2	3.39	48.7
South Asia	0.99	3.3	2.03	6.7	0.37	1.2	3.07	10.3
Near East <sup>3</sup>	-0.07	-0.4	0.26	1.5	-	-	-	-
Latin America	0.27	3.3	1.11	13.6	0.01	0.1	1.68	20.3
<b>Developed</b>	<b>0.41</b>	<b>75.2</b>	<b>0.63</b>	<b>115.4</b>	<b>0.14</b>	<b>26.9</b>	<b>0.48</b>	<b>93.1</b>
Oceania	0.45	1.5	1.40	4.7	0.09	0.3	0.43	1.5
Japan	0.47	16.7	0.64	22.7	0.04	1.3	0.40	14.2
United States	0.22	12.8	0.45	26.7	0.17	10.1	0.62	36.6
EC-12	0.58	38.8	0.74	49.9	0.22	14.6	0.48	31.9
EFTA	0.34	4.2	0.73	8.8	0.03	0.3	0.18	1.7
East Europe and former USSR	-0.05	-0.4	0.14	1.2	-0.04	-0.3	0.42	3.4
Rest of world		-	-	-	0.98	2.5	12.34	31.5
<b>World</b>	<b>0.41</b>	<b>92.9</b>	<b>0.75</b>	<b>170.6</b>	<b>0.17</b>	<b>39.7</b>	<b>0.94</b>	<b>214.5</b>

1 MRT-1 is the base scenario; MRT-2 simulates high elasticity, increasing returns to scale and steady state solution;

2 FMN-1 is the base scenario (constant returns, perfect competition and fixed capital stock); FMN-2 simulates imperfect competition, increasing returns to scale, and endogenous capital stock and saving rates.

3 In FMN, Near East region is covered under Africa.

Sources: MRT model by G. Harrison, T. Rutherford and D. Tarr "Quantifying the Uruguay Round" and FMN model by J. Francois, B. McDonald and H. Nordstrom "Assessing the Uruguay Round", both in The Uruguay Round and the Developing Economies, edited by W. Martin and L. Alan Winters, World Bank Discussion Paper No. 307, World Bank, Washington, D.C., 1995.

5.13 Overall, as regards the quantification of the impact of the Uruguay Round, an important limitation needs to be emphasized. The estimated trade and income gains from the increase in market access for goods underestimate the full impact of the Uruguay Round on world trade and income. First, there are many possible dynamic effects mentioned in the economic literature that were not considered. Second, the estimates implicitly assume that the status quo in commercial relations and business confidence would have been maintained if the Uruguay Round had failed. Many observers would argue that a failure of the Round would have meant a distinct worsening

of trade relations for a considerable period into the future and a delay in world economic recovery. The avoidance of the associated losses in trade and income would have to be included in a full accounting of the gains from a successful Uruguay Round. Third, and in many ways most important of all, the estimates ignore every result of the Round except the liberalisation of trade in goods. Because it simply was not feasible, models have not attempted to include the beneficial impact of the strengthened rules, procedures and institutions - including the market access commitments and rules for services in the *General Agreement on Trade in Services* (GATS) - on the more than US\$ 4.5 trillion in current world trade in goods and services.

5.14 Irrespective of the size of the impact of the Uruguay Round, there are also important distributional shifts both between and within countries with significant implications for household incomes and therefore household food security. On balance, the United Nations Conference on Trade and Development (UNCTAD) estimates that the Uruguay Round will lead to a small reduction in absolute poverty (1.4 percent), though there will be gains and losses across regions as well as groups within countries.<sup>42</sup>

5.15 Finally, an important issue for some countries is the loss of preferential margins. UNCTAD has calculated the loss of preferential margins under the Generalised System of Preferences (GSP) scheme at around 40 percent for the European Community and Japan (though much less, at around 20 percent, for textile products in the European Community), 50 percent for the United States and almost 100 percent for Canada. Countries whose competitive advantage resulted from quotas, for example, under the MFA, may also lose quota rents. In regional terms, Asia and Latin America are expected to gain most from additional market opportunities, while the Caribbean and sub-Saharan Africa could become worse off. If China and India increase substantially their share of world markets in clothing and other labour-intensive export manufactures, since around half of the world's absolute poor live in these two countries, significant gains to them will swamp all other effects on poverty in other developing countries.<sup>43</sup>

### The Uruguay Round Agreement on Agriculture

5.16 The main elements of the Uruguay Round *Agreement on Agriculture* (the Agreement) are summarized in Figure 2. The Agreement covers market access, domestic support, export subsidies, export prohibitions and restrictions and introduces important rule changes in each of these areas. The Uruguay Round *Agreement on Sanitary and Phytosanitary Measures* introduces new disciplines in this increasingly important area and is designed to minimize the discriminatory and adverse trade effects of such measures. Special and differential treatment was provided for developing countries under the rules on domestic support and export subsidies in the form of lower reduction commitments and longer implementation time frames, as well as through more substantial tariff reductions on tropical agricultural products. Least developed countries were not required to make reduction commitments. Particular concerns of the net food-importing and poorest countries were met through the Marrakesh Ministerial *Decision on Measures Concerning the Possible Negative Effects of the Reform Programme* on these countries.

5.17 The rules and commitments on domestic support are broadly designed to consolidate domestic policy reforms at the international level and to encourage a progressive shift towards domestic policy measures which are less trade distortive and are exempt from reduction

<sup>42</sup> UNCTAD (1995b). Its assessment of poverty reduction is based on a statistical relationship between the share of the poor in developing countries, GDP per caput and an income inequality variable, albeit this approach significantly underestimates the impact on poverty as it does not take into account developing country responses to the new opportunities and the changes in economic structure likely to follow as countries take advantage of new opportunities.

<sup>43</sup> UNCTAD (1995b).

commitments. Initially there may be some scope for switching support from one commodity area to another under these sector-wide or global domestic support commitments. However, the provisions of the *Peace* clause (Article 13 of the Agreement) will operate to limit the scope for such support switching, because raising support for a specific commodity in excess of that decided in 1992 will result in the subsidies concerned becoming actionable under the GATT (1994) and the WTO Subsidies Agreement. Developing country members enjoy specific exemptions in respect of investment and input subsidies, as well as for encouraging diversification from growing illicit narcotic crops. Overall, distorting domestic support is to be reduced from US\$ 197 to USD\$ 162 billion, mainly by developed countries.

5.18 Export subsidies are subject to reduction commitments and to new rules which prohibit WTO Members from using export subsidies on agricultural products that are not subject to such commitments. Developing country members enjoy a temporary exemption from this provision in the case of certain marketing and transportation subsidies. Overall, export subsidy outlays are to be reduced from US\$ 22.5 to US\$ 14.5 billion. These new rules and commitments should ensure that market shares of the commodities concerned (mainly temperate zone) are increasingly determined by basic ability to compete rather than by countries' ability to finance export subsidies.

5.19 The new rules and negotiated commitments on import protection, together with the binding of virtually all agricultural tariffs, represent an unprecedented and important step in the direction of systematically liberalising trade in agriculture, both in terms of improved conditions of competition and trading opportunities. Under the new rules border protection may only be provided through tariffs<sup>44</sup>. Border measures such as quantitative restrictions and variable levies are now formally prohibited, except for a couple of timebound product-specific exceptions (mainly rice) in the case of four countries. Measures applied under generally applicable, non-agriculture specific WTO provisions, such as measures taken for balance-of-payments purposes, are not affected by this new rule.

5.20 The provisions of the Agreement and the related Marrakesh Ministerial Decision on the least developed and net food-importing countries also reflect a number of concerns that were taken into account in the negotiations.

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<sup>44</sup> Under the Uruguay Round's negotiating modalities participants had the option of converting non-tariff border measures to tariffs at higher levels than had existed previously. On the basis of a broad sample of country schedules, about 15 percent of total agricultural tariff lines were subject to this "tariffication" process. Given the flexibility inherent in the tariffication modalities, the resulting new tariffs are in many cases, at least initially, highly restrictive, like the non-tariff measures they replaced. In a number of cases the new tariffs were initially set at lower levels than the measures they replaced. Moreover, tariff quotas at low or less restrictive rates were negotiated as part of the tariffication process in order both to maintain current import access opportunities and to create new access opportunities where current access as a percentage of domestic consumption was below a minimum threshold level. The manner in which these tariff quotas are administered and allocated, which is subject to the general provisions of the GATT 1994 including the requirements of Article XIII concerning the non-discriminatory administration of such measures, is the subject of regular scrutiny by the Committee on Agriculture of the WTO. Non-tariff border measures in respect of the wide range of agricultural product lines that were not tariffied in this way had to be eliminated under the new tariff-only provisions of the Agreement on Agriculture. All tariffs on agricultural products, both these pre-existing tariffs as well as the new tariffs resulting from the tariffication process, have been legally bound and are being reduced: WTO Members from developed countries, by an average of 36 percent over six years, with a minimum reduction of 15 percent; and in the case of developing country Members (except least developed) by two-thirds of these parameters implemented over ten years. Under the special treatment provisions of the negotiating modalities a number of developing countries made commitments in the form of tariff ceilings which have been bound at final rates and generally do not involve staged reductions.

5.21 Firstly, the Marrakesh Ministerial Decision reflected the concerns of a number of net food-importing and least developed countries that, while the implementation of the results of the Uruguay Round as a whole should generate increasing opportunities for trade and economic growth for the benefit of all participants, negative effects might be encountered by these countries during the implementation of the trade liberalising reform programme on agriculture. In this regard specific reference was made by Ministers to the need for adequate supplies of basic foodstuffs from external sources on reasonable terms and conditions, and to short term difficulties in financing normal levels of commercial imports of basic foodstuffs. The Marrakesh Ministerial Decision contains a number of provisions relating to these aspects, including on export credits, technical assistance to agriculture and access to the resources of the international financial institutions or such facilities as may be established. In addition, Ministers have agreed to review the level of food aid established periodically under the Food Aid Convention (FAC) and to initiate negotiations in the appropriate forum to establish a level of food aid commitments sufficient to meet the legitimate needs of the developing countries during the reform programme; and to adopt guidelines to ensure that an increasing proportion of basic foodstuffs is provided to least developed and net food-importing countries in fully grant form and/or on appropriate terms.

5.22 The Decision is to be subject to regular review by the WTO Ministerial Conference, with the follow-up to the Decision being monitored by the WTO Committee on Agriculture. Notification requirements were adopted in June 1995 by the WTO Committee on Agriculture to facilitate this monitoring role. In November 1995 the WTO Committee on Agriculture adopted a decision to establish a list of WTO net food-importing developing countries and to set up a preparatory work programme for a review in 1996 of food aid levels and related guidelines.

5.23 A second area of concern, related specifically to the implications that agricultural trade reform and liberalisation could have for domestic food security, is reflected in the provisions of the Agreement on (quantitative) export prohibitions and restrictions. The new disciplines specifically require WTO Members instituting export prohibitions or restrictions to prevent or relieve critical shortages of foodstuffs to give due consideration to the effects of such measures on importing members' food security. Specifically, members instituting such measures are required to give advance, detailed notice to the WTO Committee on Agriculture and to consult, upon request, with any other member having a substantial interest as an importer. For developing countries, these provisions only apply to developing country WTO Members that are net-exporters of the specific foodstuff concerned.

5.24 Concerns relating to price and currency fluctuations in the context of tariffication are also reflected in the provisions of the Agreement relating to the use of the special safeguard clause. Where the right to resort to the special safeguard has been formally reserved in a member's schedule of commitments (a right that was only open to members that tariffied), it may be used to impose an additional duty (but not on imports under current or minimum access tariff quotas) to offset partially import price decreases below certain trigger levels. The special safeguard clause may also be used in response to import surges. Overall this clause, which may not be used in conjunction with the general GATT 1994 safeguard provisions, is applicable to about 15 percent of total agricultural tariff lines.

5.25 Overall, the Agreement represents a major improvement in the conditions of competition governing trade in agriculture. The new rules are not just systemic improvements. In a practical sense they will enhance the quality of the trade concessions and other commitments. The new rules prohibiting the use of export subsidies not subject to specific reduction commitments and prohibiting non-tariff access measures have already entered fully into force and will have a beneficial effect on conditions of competition for trade in all agricultural products. Moreover, these new rules and disciplines, which apply to all WTO Members, are backed up by the new WTO arrangements for the settlement of disputes and for effective implementation of rulings by panels and the new WTO Appellate Body.

Figure 2. Summary of the main provisions of the Uruguay Round Agreement on Agriculture

Policy	Developed countries	Developing countries
Market access	Prohibition on the use of restrictions on imports other than tariffs; All tariffs bound; Special safeguard provisions against import surges or persistent import price decline (limited to "tariffied" products and not applicable to imports under related tariff quota commitments); Tariffs resulting from conversion of non-tariff border measures under negotiating modalities plus pre-existing tariffs on all other agricultural products to be reduced; Implementation of current and minimum access opportunity commitments in respect of tariffied products.	
	Average tariff reduction of 36% (minimum 15%) over 6 years.	Average tariff reduction of 24% (minimum 10%) over 10 years; Where ceiling binding commitments undertaken reductions not required except on <i>ad hoc</i> basis; Least developed not required to undertake reduction commitments.
Export subsidies	Definition of export subsidies subject to reduction. Other export subsidies subject to anti-circumvention provisions which include disciplines relating to food aid; Prohibition on the use of export subsidies on products not subject to reduction commitments.	
	Distinct reduction commitments on both volume basis (21%) and budgetary outlay basis (36%) over six years; for incorporated/processed products budgetary outlays only (36%).	Two-thirds of the reduction required for developed countries over ten years; Exception during the implementation period in respect of certain marketing and transportation subsidies.
Export prohibitions and restrictions	Foodstuffs: requirement for advance notice and obligation to consult on request and supply information.	
		Applicable only to developing countries that are net-exporters of the foodstuff concerned.
Domestic support	Policies divided into two groups: (i) permitted policies (Green Box), (ii) other policies included in the Aggregate Measure of Support (AMS) subject to reduction commitments; Decoupled direct payments associated with production limiting programmes not in Green Box but excluded from AMS.	
	<i>De minimis</i> provision allows exclusion of support less than 5% of output value from AMS; Total AMS support to be reduced by 20% over 6 years.	Developing countries allowed to use some other policies, i.e. investment and input subsidies, under certain conditions; <i>De minimis</i> provision allows exclusion of product-specific support less than 10% of output value from AMS; Total AMS support to be reduced by 13.3% over 10 years; Least developed countries must bind AMS support level if applicable but not required to reduce it.
Sanitary and phytosanitary measures	Reaffirms right to countries to set their own health and safety standards provided they are justifiable on scientific grounds and do not result in unjustified or unnecessary barriers to trade; Encourages use of international standards.	
Other aspects	<i>Peace clause</i> ; • WTO Committee on Agriculture which will oversee the implementation of the commitments generally; and the • Marrakesh Ministerial Decision on Measures Concerning the Possible Negative Effects of the Reform Programme on Least-Developed and Net Food-Importing Developing Countries.	

5.26 Closely linked to the Agreement is the *Agreement on Sanitary and Phytosanitary Measures* (SPS). The SPS recognises that governments have the right to take sanitary and phytosanitary measures but that they should be applied only to the extent necessary to protect human, animal or plant life or health and should not arbitrarily or unjustifiably discriminate between members where identical or similar conditions prevail.

5.27 In order to harmonise sanitary and phytosanitary measures on as wide a basis as possible, members are encouraged to base their measures on international standards, guidelines and recommendations where they exist. However, members may maintain or introduce measures which result in higher standards if there is scientific justification or as a consequence of consistent risk decisions based on an appropriate risk assessment. The SPS spells out procedures and criteria for the assessment of risk and the determination of appropriate levels of sanitary or phytosanitary protection.

### Implications of the Uruguay Round

5.28 The changing policy environment has implications for the size and stability of world food markets and the likely levels of prices prevailing. As developed countries subsidised while developing countries taxed their agricultural sectors, the net effect on world markets is ambiguous. The Uruguay Round disciplines bear most heavily on developed countries, but structural adjustment programmes in developing countries are being implemented simultaneously.

#### *Trade and world price effects*

5.29 Bearing in mind the difficulties of modelling the results of the Uruguay Round (in particular the fact that some important achievements of the Round in terms of improved trade rules are essentially unmeasurable or, like changes in the Services sector, not modelled), projected world price effects of the Round are reported in Table 3. Developed country exports of **wheat** are expected to decrease and imports to increase (the latter in Western Europe being only partially offset by decreased feed wheat imports by the states of the former USSR and Eastern Europe). This should push up wheat prices by 6-7 percent in the year 2000 due to the Uruguay Round and encourage developing countries to produce more grains for their own requirements. The Uruguay Round is expected to have a significant influence on the **rice** market because of the reduction of subsidised rice exports by developed countries and the opening of previously closed markets for rice. The volume of global trade is expected to increase by 1.2 million tonnes and international rice prices to increase by 4-7 percent above the without trade Agreement situation. Both imports and exports of **coarse grains** are expected to increase slightly in both developed and developing regions as a result of the Uruguay Round. Though the increase in the overall volume of trade is slight, coarse grain prices are expected to rise by between 4 and 7 percent. In **oils**, the Uruguay Round is expected to lead to increased import demand in developing countries, particularly in the Far East and including China which will be met largely by the low-cost producing countries of the Far East and Latin America. **Oilmeal** trade and prices are expected to be little affected. The Uruguay Round is projected to induce a minor rise in the volume of overall **meat** trade. It should stimulate an increase in imports by countries in the Far East, North America, Eastern Europe and the area of the former USSR as well as Japan, while improved market access should benefit mainly countries in Latin America, North America and Oceania. Partly because of the commitments to reduce subsidised exports, FAO projects a boost in international meat prices of the order of 8 to 10 percent although this is significantly less in the World Bank/OECD model (3 to 6 percent). Overall **milk** trade is not expected to change significantly as a result of the Agreement although there will be some redistribution of trade flows in terms of regional origin and destination. The reduced volume of subsidised exports permitted to several developed countries will be offset by increased exports from Oceania, while imports into developed countries could rise as a result of the minimum access provisions of the Agreement. An overall boost in milk prices of 7 to 10 percent is projected.

Products	WFM	ATPSM		RUNS	
		I: W/O policy response	II: With Policy response	I: 1982-93 base	III: 1991-93 base
Wheat	7	8.6	1.0	1.2	6.3
Rice	7	9.6	0.7	-1.5	0.8
Coarse grains	5	9.0	3.2	0.1	3.2
Fats and oils	4	-	-	-	-
Oilseeds	-	7.7	3.8	-	-
Veg. oils	-	5.9	2.5	-0.6	3.9
Bovine meat	8	10.1	5.3	0.2 <sup>2/</sup>	1.4 <sup>2/</sup>
Pigmeat	10	6.3	2.7	0.9 <sup>2/</sup>	-0.1 <sup>2/</sup>
Sheepmeat	10	10.2	5.5	0.2 <sup>2/</sup>	1.4 <sup>2/</sup>
Poultry	8	9.3	4.9	0.9 <sup>2/</sup>	-0.1 <sup>2/</sup>
Dairy products	7	7.9	4.5	-1.3	2.3
Sugar	-	11.3	4.5	-1.0	2.5
Coffee	-	-	-	-1.7	-1.4
Cocoa	-	-	-	-1.3	-0.6
Tea	-	-	-	-1.6	-1.2
Wool	-	-	-	-1.1	0.5
Cotton	-	-	-	-1.3	-0.3

Note:  
ATPSM I refers to a scenario where non-OECD countries are assumed not to respond to world price changes while ATPSM II assumes that they do. RUNS III (from Table 3 of Goldin and Mensbrugge 1995) simulates the Uruguay Round reform from the 1991-93 average base protection level, while RUNS I uses 1982-93 as the base period.

1 These are year 2000 for WFM and ATPSM, and 2002 for RUNS.  
2 In the RUNS, there are only two meat groups, bovine and sheep meats, and pigmeat and poultry meats.

Sources: WFM: FAO (1995a); ATPSM: UNCTAD (1995); RUNS: Goldin and van der Mensbrugge (1995).

5.30 As a result of these changes the total food import bill of the developing countries is projected to expand from US\$ 40 billion in 1987-89 to US\$ 65 billion by the year 2000, with US\$ 3.6 billion (15 percent) due to the Uruguay Round (recalling the caveats mentioned above on all such projections). For the low-income food-deficit countries (LIFDCs), the food import bill is projected to rise by US\$ 10 billion, of which some 14 percent may be attributable to the Uruguay Round.

5.31 Looking further ahead, recent FAO analysis implies a continuing decline in the degree of self-sufficiency and rising import requirements in developing countries in aggregate, particularly in cereals, from the base period 1987-89 to 2010, offset by an increased self-sufficiency ratio in the transition economies and in the other developed countries.<sup>45</sup> Import requirements to 2010 are derived as a residual from production and consumption projections and are thus subject to a high margin of error. Even a very small difference of one-tenth of one percent in projected production growth rates can, over a twenty-year time horizon, make a substantial difference to projected trade. Other commentators predict the necessity for much larger trade flows, particularly in grains.<sup>46</sup> They argue that the FAO projections underestimate emerging constraints on growth in output, such as the shrinking backlog of unused yield-increasing technologies, the diminishing yield response of cereals to the use of additional fertiliser, the need to reduce excessive irrigation

<sup>45</sup> Alexandratos (1995).

<sup>46</sup> Brown and Kane (1995).

pumping to restore a balance between pumping and aquifer recharge, the effects on agriculture of social disintegration and political instability, and the effect on production of various forms of environmental degradation. If these constraints are, indeed, more binding than assumed in the FAO analysis, developing countries will face much higher import requirements and much higher import prices. Differences in these baseline scenarios should be borne in mind in interpreting the consequences of the policy changes in the international trade regime currently under way.

### *Price stability*

5.32 The welfare effects of the Uruguay Round as noted above, and of agricultural trade liberalisation in particular, can differ for agricultural importers and exporters depending on the importance of the terms of trade effects, but all countries have an interest in greater global price stability. The Uruguay Round will influence price stability in at least three ways. Production will shift from high-subsidizing regions to low-subsidizing regions with differing likelihoods of production variability. Even if the low-subsidizing regions experience greater production fluctuations, there could be less global instability if these fluctuations are less linked to each other. Little empirical work has addressed this issue, and history may be an imperfect guide if the adoption of new technologies in low-subsidizing regions in response to higher prices alters the amount of production variability they experience.

5.33 The Uruguay Round will also influence world price stability through the tariffication process. If prices in all countries now become more responsive to changes in world market conditions, the magnitude of the changes needed in world market prices in response to supply or demand shocks is reduced<sup>47</sup>. While most agricultural tariffs are now bound, countries may apply lower tariffs at any time. This gives countries some flexibility to soften the effect on the domestic economy of world price fluctuations, for example, by applying a sliding scale of tariffs, subject to the constraint that tariffs may not exceed the bound levels.<sup>48</sup> Where non-tariff measures were replaced by tariffs and WTO Members have reserved the right to invoke the special safeguard clause as indicated in their schedule, use of that clause would also make imports less responsive to a significant decline in world prices.

5.34 Another way in which the Uruguay Round could influence the extent of world price instability is through changed incentives for stock holding. The reduction in market intervention, particularly by developed country exporters, makes it less likely that government stocks will accumulate in the same way in the future as seen in the past, and thus the size of global stocks may fall. Limited global stocks mean that the world is less able to buffer consumption adjustments to changes in production. However, the reduction in government storage for exporters in developed countries will increase the incentive both for increased private storage and for more government storage by developing country importers as government purchase of food security stocks continues to be permitted under the Agreement). Even though the degree of substitution of private for public stocks will not be complete, a reduced level of global stocks with a higher proportion in private hands could make the same contribution to stability if private stocks are more sensitive to world market fluctuations than stocks in government hands. On balance, price stability should improve for most commodities but, because of the stock-holding effect, may deteriorate for grains and for some livestock products.

5.35 A further, more general, effect is that liberalisation of trade is often associated with the removal of barriers to the international flow of capital. International capital movements are now much less linked to underlying trade in goods, and much more responsive to speculative assessments regarding rates of return in different asset markets. As a result, international capital

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<sup>47</sup> Some preliminary experimentation on this question using FAO's World Food Model did not support the conclusion that price instability would be lower in the future (1995b).

<sup>48</sup> It is recognised that such a practice may be challenged by other WTO members as Article 4.2 of the Agreement on Agriculture specifically mentions variable levies among the measures that are not permitted.



flows are much more volatile. A sudden change in investor sentiment, such as occurred recently in some Latin American countries, can necessitate large changes in a country's exchange rate, with knock-on effects on the domestic prices of imported goods, including food. The magnitude of such currency-related shocks, in future, may be much greater than those arising from food markets themselves.

#### *The future of food aid<sup>49</sup>*

5.36 Food aid makes an important contribution to food security by providing relief in emergencies and by adding to imports in countries with a shortage of foreign exchange. Most food aid has been provided in the form of cereals, though non cereals such as milk powder and vegetable oil are also important. For developing countries as a whole, the share of food aid in total cereal imports has been declining. In recent years food aid amounted to only one-tenth of cereal imports by developing countries compared to between one-fifth and one-quarter in the early 1970s. Nevertheless, for a large number of countries food aid remains an essential source of imported supplies. For over 40 recipient countries the share of food aid exceeded 40 percent of their total cereal imports in the late 1980s.

5.37 The consequence of the Uruguay Round for food aid flows is of importance to those food-insecure countries which rely heavily on food aid deliveries. Under the Agreement, *bona fide* food aid is exempt from the prohibition on export subsidies or export subsidy reduction commitments, so the possible consequences for food aid flows are indirect. Food aid flows in the past have been largely related to the disposal of surplus production in food exporting countries. The reduction in government intervention in agricultural markets and, in particular, reduced public stock holding in exporting countries, might be expected to lead to a reduction in the willingness of donor countries to provide food aid in kind. Working in the opposite direction, food aid could become a more attractive outlet for countries with surplus disposal problems now that tight limits on the volume of subsidized exports are in place. On balance, the Uruguay Round may not affect food aid flows very much. However, providing that donors are still prepared to assist countries with food aid, a useful approach would be to provide cash for triangular food aid transactions. This has the advantage of matching more closely the particular food requirements of recipient countries while stimulating South-South trade.

5.38 The volume of food aid in future will be more responsive to general public perceptions of its usefulness and value in the donor countries. There has been a sharp increase in the number of people affected by disasters and in need of emergency assistance during the past decade. Thus the need for transitory and emergency food aid seems likely to increase. Minimum guaranteed food aid quantities under the FAC were recently revised downwards from 7.4 million tonnes to 5.3 million tonnes annually from 1 July 1995 for the next three years. While actual food aid deliveries exceeded the agreed FAC minimum as well as the 1974 World Food Conference target of 10 million tons of cereals annually over the past decade, this reduction may be a sign that donors foresee some reduction in programme and project food aid over the next few years.

#### *Export market opportunities*

5.39 While the Uruguay Round represents only a partial liberalisation agreement and the benefits from increased trade are not shared equally by all countries, there are still potential opportunities for all of them. In the case of the products that were subject to the tariffication process, the main trade opportunities are expected to be generated through the arrangements negotiated under tariff quotas and the related concessions. As noted above, the tariffied products represent only about 15 percent of total agricultural tariff lines and in many cases concern basic agricultural commodities the trade growth of which has been relatively sluggish. The vast majority of other tariff lines,

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<sup>49</sup> See also forthcoming WFS companion paper, Food Assistance in the Promotion of Food Security on a Sustainable Basis (1996).

many of which relate to processed and other high value products where international trade has been expanding rapidly, are to be significantly reduced, in many cases by rates close to or in excess of the 36 percent (developed countries) and 24 percent (developing countries) average reductions that were required. In addition, for tropical agricultural products, where tariffs were already generally low the reductions to be implemented by WTO Members from the developed countries average 43 percent within a range of 37 to 52 percent, according to the product categories concerned. Another important feature of the improved trading opportunities following the Uruguay Round is that, on the basis of the broadly based sample mentioned above, about 14 percent of all agricultural tariff lines will be bound as duty free, with more extensive duty free bindings in a number of areas of trade interest for all developing countries<sup>50</sup>. As the Agreement itself makes clear, the Uruguay Round reform programme is a first step in the direction of more liberal and open trading arrangements for trade in agriculture and further negotiations are to be initiated in 1999. There have also been certain improvements in tariff escalation (GATT, 1994). This is inevitable in the situation where the higher tariffs on more processed products are reduced by, on average, 36 percent in developed countries bringing them down closer to duty free or the very low rates often charged on the raw product. The reduction of tariff escalation allows more value added (in the form of further processing, packaging, etc.) to be introduced into what would otherwise be exports of raw products. The developing countries should use any new opportunities for such *vertical* diversification. Likewise, developing countries should be encouraged to continue current moves to diversify away from "traditional" agricultural (and other) products to the higher value products such as fresh fruit (including "exotic" fruit) and vegetable exports benefiting, for example, from the seasonal differences with the major northern hemisphere markets (*horizontal* diversification). Finally, developing countries should be encouraged to look for (new) market opportunities in non-traditional export markets (*geographical* diversification). For example, many African countries have a "Euro-centric" export structure; they should look more systematically for new outlets for their exports within the region and in the Americas, Asia, etc. The rapidly expanding trade in high value and processed agricultural products, unlike trade in bulk commodities, is made up of hundreds of expanding regionally diverse "niche" markets. The Round is providing new opportunities for developing countries over the whole range of trade, from agriculture to minerals, industrial products and services.

5.40 It is evident that improvements in developing countries' agricultural (and other goods' and services') output and export performance depend on many other policy-related factors, including improvements in: infrastructure (transport systems, energy networks, irrigation, etc.); education and training; dissemination of knowledge about appropriate (new) production technologies and product varieties; pest and disease control systems; quality management; reforms of the domestic regulatory system (including the agricultural price system, the distribution system, land reform); etc. Better market access abroad and better trade and trade-related policies at home are clearly not a panacea for these requirements, but they can help to raise agricultural (and other sectors) productivity, income and employment and, at least indirectly, help to overcome the wider impediments for economic development and food security in developing countries, including by way of making these countries more attractive for, and increasing the efficiency of, foreign direct investment (including the transfer of capital, skills, technology and marketing channels), official aid and technical assistance.

#### **Special concerns of developing countries**

5.41 Some developing countries have been concerned that the restrictions imposed on the policy instruments permitted to pursue agricultural policy objectives will make it more difficult for them to achieve their agricultural growth and food security objectives in the future. While direct subsidization of production will be increasingly limited, and the use of quantitative restraints on imports is prohibited, there are no restraints on the use of public investment measures for agricultural and rural development purposes. Investment and input subsidies, both frequently used

<sup>50</sup> GATT (1994).

measures in developing countries to promote increased production, continue to be permitted to developing countries under the Uruguay Round agreement.

5.42 In many respects, reforms undertaken within the framework of structural adjustment programmes (SAPs) go well beyond the adjustments countries are required to make under the Uruguay Round. Structural adjustment programmes usually require greater reductions in border protection than are required under the Uruguay Round. Input subsidies and consumer food subsidy programmes, permitted under the Uruguay Round, must often be cut back under SAPs. Structural adjustment programmes usually require currency devaluation and institutional reforms as well, areas not covered by the Uruguay Round. Generally, however, the Uruguay Round underpins the reforms undertaken by developing countries, and provides some assurance of increased market access in return for the risks they have taken or will take in opening up to trade.

5.43 Not all developing countries will share equally in the expected gains from global trade liberalisation. The LIFDCs, in particular, fear the loss in the value of preferences, greater constraints in taking advantage of new trade opportunities, and the possibility of higher food import bills. Their concerns were reflected in the *Decision on Measures Concerning the Possible Negative Effects of the Reform Programme on Least-Developed and Net Food-Importing Developing Countries* included in the Final Act of the Uruguay Round. The early implementation of this Decision is necessary.

5.44 Notwithstanding the prospects for expanding export earnings, the fear of a sudden sharp decline in import purchasing power is the biggest concern of countries relying on trade for food security. Holding foreign exchange reserves is the best guarantee that food consumption levels can be maintained in such circumstances, but in many developing countries the level of reserves is inadequate for such purposes. A second line of defence in such circumstances is easy access to quick-disbursing credit. One instrument which addresses this issue is the Compensatory and Contingency Financing Facility (CCFF) of the IMF which includes medium-term credit for cereal imports. Drawings on the CCFF are additional to resources available under other IMF arrangements. However, the CCFF has been little used, partly because price shocks had been relatively minor since the inception of the cereal element in the early 1980s and the relatively short repayment period for borrowed funds, which carried a market-related interest rate. Balance of payments assistance can also be provided under stand-by or extended arrangements for low-income countries under the Enhanced Structural Adjustment Facility, which provides resources on concessional terms. Fund arrangements can provide for flexibility in the case of unanticipated external terms of trade shocks, such as higher prices for cereal imports, through the inclusion of a contingency mechanism and/or through augmentation of access under the arrangements.

## FUTURE DEVELOPMENTS IN TRADE NEGOTIATIONS

6.1 The purpose of the international trade regime is to facilitate the mutual exchange of goods and services so as to maximize each country's opportunities to exploit the gains from trade. An efficient trade regime in this sense is likely, as a by-product, to enhance both global and national food security. By encouraging income growth, by broadening the range and variety of food domestically available, by diffusing the risks arising from domestic production fluctuations, and by enabling global production to be produced as efficiently as possible, trade contributes to food security in each of its dimensions of access, availability and stability.

6.2 Nonetheless, international trade brings change, and change usually implies winners and losers. Agricultural trade liberalisation has been accompanied by concerns that the structural changes which accompany economic growth can lead to reduced food security among the very poor countries and households unable to take advantage of the new opportunities, that food imports may become more expensive, that global food price instability may increase if global stock levels are run down, and that the intensification of agricultural production in low-subsidizing regions could contribute to further environmental degradation in those countries. That is, trade can

also impact adversely on food security in each of its four dimensions of access, availability, stability and sustainability.

6.3 In negotiating further trade liberalisation, these concerns should be understood and steps taken to minimize their adverse impact. There is a need for flanking policies at both global and national levels to ensure that the gains from trade are widely distributed and that the potential for greater food security is fully exploited.

6.4 The Uruguay Round made very substantial progress in integrating agricultural trade into the general GATT disciplines but less progress in actually reducing barriers to this trade. Even by the end of this century, agricultural trade will remain heavily restricted and although part of it will take place at low tariffs the average level of tariffs will still be many times those applied on industrial trade. Too much agricultural production will still take place in high-cost regions while low-cost exporters will continue to have limited access to some markets. Substantial gains from trade will remain unexploited even when the Uruguay Round agreement is fully implemented.

6.5 It has been agreed that negotiations to continue the reform process take place one year before the end of the implementation period for developed countries - that is in 1999. This should take into account (a) experience to that date in implementing the reduction commitments; (b) the effects of the reduction commitments on world trade in agriculture; (c) non-trade concerns, special and differential treatment to developing country members, and the objective of establishing a fair and market-orientated agricultural trading system, and the other objectives and concerns mentioned in the preamble to this Agreement; and (d) any further commitments which may be necessary to achieve the abovementioned long-term objectives.

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