

**International Grain Markets, Food Security and Developing
Countries**

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1. Broad Structure of International Grain Markets

In analysing the international grain market, and its relationship to food security issues in developing countries, it is important to be aware of some basic structural characteristics of the world grain market. International trade in grains forms a relatively low proportion of total world production, and may be divided roughly into wheat and coarse grains (comprising maize, barley, sorghum, oats and rye which are used primarily - though not exclusively - in animal feeds)¹. Around 25% of wheat production and between 12% and 15% of coarse grains production is traded internationally.

1.1 Grain Exports

The international grain market is dominated by a relatively small number of exporting countries which supply a high proportion of the grain traded on the world market. There are also a number of relatively less important exporting countries which export on a periodic basis when their domestic harvest is good and exceeds domestic requirements. The main exporters are shown in table 1.

Table 1: Major Grain Exporting Countries (000s tonnes)

Wheat Exports					
Country	1989-90	1990-91	1991-92	1992-93	1993-94
Argentina	5,778	4,940	5,734	7,322	4,493
Australia	10,866	11,925	8,283	9,526	12,771
Canada	17,045	20,721	24,378	21,582	18,169
EU	20,341	19,712	21,278	22,746	19,124
USA	33,549	28,893	35,061	37,148	32,941
Sub-total	87,579	86,191	94,734	98,324	87,497
World Total	95,023	92,460	108,170	105,405	92,608
Coarse Grain Exports					
Argentina	3,992	4,702	6,924	6,348	5,210
Australia	2,719	2,821	2,339	2,961	4,590
Canada	5,297	5,067	4,781	3,345	5,578
China	3,526	5,662	9,730	10,676	11,625
EU	9,458	7,553	8,493	9,342	8,410
South Africa	3,110	800	481	13	1,665
Thailand	1,116	1,329	897	174	128
USA	68,714	51,052	50,894	53,159	39,610
Sub-total	97,932	78,986	84,539	86,018	76,816
World Total	102,609	82,381	92,751	88,749	81,366

Source: World Grain Statistics 1994, International Wheat Council, London.

¹ Rice is excluded from this analysis due to the low proportion of production that is traded on world markets and its quite separate and specific market characteristics.

Among what may be termed 'developing' countries there are a relatively small number of significant exporters, as follows.

Argentina: major exporter of wheat (around 6 million tonnes) and coarse grains (around 5 to 6 million tonnes)

South Africa: occasional minor exporter of wheat, significant exporter of coarse grains, principally maize, depending on local harvests

India: exporter of surpluses of up to 1 million tonnes wheat, depending on local harvests, broadly self-sufficient in coarse grains

Saudi Arabia: exporter of around 2 million tonnes wheat mostly to Asia, but a large importer of coarse grains (up to 5 to 6 million tonnes)

Turkey: exporter of varying wheat surpluses averaging 1 to 2 million tonnes depending on local harvest, relatively small net exporter of coarse grains (around 300,000 tonnes)

Kazakhstan: (currently exporting around 3 million tonnes wheat)

China: net wheat importer, net exporter of coarse grains (up to 10-12 million tonnes)

1.2 Grain Imports

On the demand side a number of different types of importers may be identified:

- chronic food deficit countries whose import requirements are relatively stable and predictable (much of the Middle-East and North Africa [Algeria, Egypt, Libya, Morocco] would fall in this category, along with a number of Asian importers such as Rep of Korea)
- food importers with small, specialist import needs e.g. importation of hard wheat to Europe for flour quality blending
- countries that meet a large proportion of their consumption needs from domestic harvests but who import in order to meet the unfilled gap between domestic production and consumption - their import requirements fluctuate with domestic harvests (e.g. China, Former USSR, Brazil, Pakistan, Mexico)

The dominant role of developing countries as a whole in the international grain market is as food importers. Wheat imports are of key importance, in the following regions.

- Central and South America (Brazil, Mexico, Cuba, Venezuela, Colombia and many of the countries of central America). South American importers are supplied mostly by Argentina, with Central America supplied mostly by Canada and the US.
- The Middle East (supplied by USA, Canada, EU and Australia) and North Africa (supplied mainly by USA/EU).
- South Asia and South East Asia (supplied mainly by USA, Canada and Australia).
- Sub-Saharan Africa (relatively small but increasing quantities, with growing consumer demand for bread supplied mainly by EU and USA).
- The former USSR (supplied mainly by the EU and USA). Wheat imports currently drastically reduced due to economic difficulties.

There are major imports of coarse grains into:

- Central and South America (especially Mexico)
- North Africa and Saudi Arabia

- South East Asia (e.g. Taiwan, Rep of Korea, Malaysia)
- countries in Southern Africa - imports of maize for human consumption, with highly variable demand depending on local harvests
- Former USSR.

The larger importers of coarse grains among the developing countries tend to be the relatively richer countries (oil exporters of the Middle East, East Asian 'tigers') reflecting the growth in demand for livestock products and/or rapidly rising incomes. The income elasticities of demand for coarse grains are much higher due to demand derived from increases in consumption of livestock products (meat, poultry, eggs, milk etc). There is some evidence that multinational company (MNC) grain traders are becoming involved in these markets, particularly in the area of animal feeds - which is relatively less politically sensitive than human staple food markets.

Most of the growth in world wheat consumption has been due to population growth (due to its relatively low income elasticity of demand - particularly in developed countries), although urbanisation and dietary changes in developing countries are also influences on the growth of wheat consumption. Due to these factors, developing countries account for the majority of consumption growth. Some of the greatest increases in consumption over recent years have been in China and India, with much of this satisfied by increases in domestic production.

The world markets for wheat and coarse grains are connected due to the substitutability between the two (wheat may be used as feed, and often is especially in Russia and Europe). However, this is limited by the differing conditions under which wheat is produced and their differing elasticities of demand, meaning that it is possible for wheat prices to be high when coarse grain prices are low, and vice versa.

2. Major International Grain Traders

2.1 The Major Players

The international grain trade is dominated by a small number of multinational companies (MNCs). The five largest players are usually listed as:

- Cargill (based in Minneapolis, US with subsidiaries and joint ventures around the world)
- Continental Grain (based in New York)
- Louis Dreyfus (headquartered in Paris)
- Andre (Swiss-based, but with a major US subsidiary under the name Garnac)
- Bunge and Born (headquartered in Sao Paulo)

There are also a number of other international grain trading companies which have emerged more recently. The Swiss-based company Glencore has a high trading profile in the countries of southern Africa across a broad range of commodities including minerals, petroleum as well as grains. Toepfer International is also another grain company which has emerged onto international markets in more recent years. A

number of Japanese companies have established sizeable interests in the US grain export market, including ownership of grain storage and handling facilities. These include Zen-Noh, Mitsui and Marubeni. In the key US market two other major grain exporters are worthy of mention due to their reported growth in recent years. These are ConAgra Inc. which is a Nebraska-based quoted company with a diversified set of interests in the food industry ranging from grain and oilseed trading, milling and processing to a wide range of branded consumer food products, and Archer Daniels Midland Co. which has also emerged as a major US grain exporter with significant interests in the milling sector, and links with Toepfer.

The most notable feature about the companies is the fact that all of the 'big five' are privately held companies (i.e. not publicly listed). As a result it is difficult to obtain independent information about their activities, and indeed the main international grain companies are renowned for their secrecy. There are good reasons why the companies are secretive - market information is a key determinant of success in the grain business. Due to the large size and importance of the major players involved, information about the activities of any one company constitutes a major piece of market intelligence. In addition, the culture of secrecy may be due to the need for companies to prevent knowledge about recently agreed forward contracts from becoming publicly known because this could potentially have a significant short-term influence on the price of futures contracts (or options) which they need to purchase in order to hedge price risks. Relatively small changes in the margins involved in deals involving large quantities of grain can have a major influence on the profitability of a transaction (Cramer, 1993).

It is important to note that most of the traders do not specialise in grain alone, but handle a wide range of commodities, especially feedstuffs and oilseeds, but also non-agricultural commodities in many cases. In addition, most of the large companies show signs of developing an increasingly diversified business base, perhaps reflecting the fact that margins are more attractive in value-adding processes and that the risks remain substantial in pure grain trading. In general the companies have tended to invest in developing activities more related to grain distribution and processing with much less involvement in upstream landowning and farming activities.

Atkin (1995) cites a number of reasons which underly the dominance of the major MNC grain traders:

- the need for large turnovers to bear the costs of maintaining global trading networks
- economies of scale in information - large grain companies have agents around the globe in major producing, exporting and importing nations monitoring market conditions
- economies of scale in grain storage and transportation - a function of the technology of storage and transport equipment
- greater size provides cheaper access to credit, giving a crucial advantage in a large turnover business where fractional differences in margins impact crucially on profit levels
- size provides for risk diversification - if one trade produces a large loss this can be offset against other more profitable trades, reducing the risk of catastrophic losses.

Cargill is perhaps the best-known, largest and most diversified of the international grain companies. It is the largest privately held company in the US, headquartered in Minneapolis and still controlled by the Macmillan family who are descendents of Cargill's founder. Cargill's interests spread across a broad range of commodity trading activities (including oilseeds, cotton, sugar, coffee and petroleum as well as grains), agroprocessing (including oilseed processing, flour milling, starch production, cotton ginning, and feed manufacture), fertilisers, hybrid seeds, steel manufacturing and financial and trade services.

Figures released by the company and quoted by Kneen (1995) suggest that Cargill has both grown rapidly and radically changed the structure of its business over the past two to three decades. Between 1970 and 1990 the proportion of Cargill's business accounted for by trading in bulk commodities declined from 37.3% to 17.6% of net worth, with a balancing increase in non-merchandising activities (i.e. milling, processing, agricultural products, industrial products and financial services). The value of total sales has grown from US\$2 billion in 1971 to US\$47 billion in 1994, reflecting the company's high level of reinvestment of profits and its stated strategy of doubling the size of its business every five to seven years. Another report from OECD suggests similar trends, with the share of trading in Cargill's total turnover reportedly falling from 55% to 25% between 1970 and 1985. Diversification and an emphasis on growth through long-term investment (and relatively lower dividend payouts) appear to be the dominant trends.

Bunge and Born are headquartered in Sao Paulo and appear to be strongest in South America, though they are also well represented in North America and Australia where they are involved in joint ventures with Goodman Fielder the largest Australian milling company. Bunge and Born is a major influence in the Argentine economy (Atkin, 1995, reports that Bunge and Born provided two successive Economics Ministers to the Menem presidency). It appears that Bunge and Born, along with Cargill, are dominant in the Argentinian grain market. Relatively little is known about the other grain trading companies. Louis Dreyfus are reportedly primarily a commodity trading company with less diversification into processing (although there are a number of large agroprocessing ventures in Argentina and Brazil) and a relatively greater profile in the shipping industry. Its interests in US grain elevators are managed under a joint venture agreement with Archer Daniels Midland. In addition, there are significant US and European interests in the petroleum and natural gas industries.

Andre trade in the US under the name of the Garnac Grain Company but appear also to have significant international interests in agroprocessing (for example, they have a major joint venture in South Africa with Genfoods a local company in the flour milling and feed manufacture subsectors). They are also reported to be strong in Far East markets (De Maria, pers comm.). Continental Grains are a US-based company and are usually considered to be the second largest presence in the international grain market (after Cargill). Continental have a broad geographical spread with a trading branch in Geneva. Continental Grain were reportedly the first of the major trading companies to enter the Chinese market, and now have a range of joint ventures in feed, poultry and agroprocessing. They also reportedly have a significant presence in central and south America, with some local involvement in flour milling e.g. flour milling joint venture in Grenada.

2.2 Concerns about the role of MNCs

There has been concern about the oligopolistic structure of the international grain trade and the role of multinational corporation (MNC) grain traders over a number of years. Farmers in the US have been accusing Cargill of manipulating the price of grain for over a century (The Economist, 9.3.96). The most important concerns about the role of the MNCs revolve around their ability to affect prices. Atkin emphasises the fact that the profits of the MNCs grain traders are derived from margins, rather than the absolute level of prices. Thus, over the longer run, Atkin argues that MNCs do not have a strong interest in influencing the level of prices. Nonetheless, commentators from the industry in the trade literature clearly view higher prices as an opportunity to improve profit levels, and the dynamics of markets would suggest that rising and higher prices in general offer greater scope for widening trading margins. Thus, Atkin's observations on this area appear questionable.

However, it is unambiguously in the interests of MNCs to influence short-term prices and there are frequent rumours about big companies trying to affect closing prices in Europe or Chicago. It seems likely that this sort of price manipulation is possible in certain markets. There may be a case for particular concerns over possible manipulation of interlocking markets in physical commodities and futures and derivatives due to the strength of most of the MNC grain traders in both physical commodity markets and related financial instruments.

Over the longer term, grain prices are determined by broader forces affecting supply and demand including technology, policy, weather, demographic trends, dietary changes and macroeconomic performance. Given this framework it appears unlikely that the oligopolistic structure of grain trading exerts a significant influence on the longrun price level. The only possible means by which grain traders could influence the longrun cost of food would be for a lack of competition to inhibit the efficiency with which traders carry out the grain exchange and distribution functions, resulting in higher marketing margins than under perfect competition.

Commentators suggest, however, that the major grain traders do compete aggressively with each other, and that there is little evidence of collusive behaviour in the market (Atkin, 1993; Brown & Goldin, 1992). This has been confirmed by past studies by the United States General Accounting Office and academics (Caves & Pugel 1982, quoted by Donaldson 1987) which have suggested that international grain markets are highly competitive and that returns to capital of the major traders are comparable to those in other industries.

The pattern of US grain storage does not suggest that the big MNC grain traders have a dominant position in terms of control over storage and stocks. In 1991 the 10 largest US grain companies owned an aggregate storage capacity of 1.579 billion bushels, out of a total US grain storage capacity of over 21 billion bushels. Around 60% of the total US storage capacity is located on-farm, this pattern having been stimulated by government subsidy incentives to farmers (Oehrtman and Schnake, 1993). In the case of export elevator capacity, USDA figures show that in 1989 the five major multinationals controlled 46% of capacity (down from 50% in 1981). The

remaining capacity is held by farmer-owned cooperatives (15% down from 21% in 1981) and others including port authorities and rising export traders such as ConAgra and various Japanese interests (39% up from 28% in 1981).

Events over recent years suggest that the grain trade market is highly contestable with the newcomers mentioned above demonstrating an ability to overcome the barriers to entry to the market. The rise of various challengers to the 'big five' illustrates this possibility, although it is not possible to illustrate trends in this area with comprehensive quantitative evidence. Another example of a new entrant was the rapid rise of the Italian-based company Ferruzzi which expanded agricultural trading activities throughout the 1980s, growing to be a widely diversified corporation with an active profile in US markets. Only in the past two to three years has the company been forced into restructuring due to trading losses and greatly reduced its profile in international grain trading.

Finally, Atkin cites the rise of Cook Industries during the 1970s, eventually to a position where this grain and soybean trading company challenged the big five. Subsequently, Cook Industries collapsed due to a very large unhedged position in the soybean market. Nonetheless, the collapse of Cook Industries opened the way for major asset acquisitions by Mitsui, a major Japanese trading company in the US grain market. This has been followed by further Japanese incursions, so that in the 1990s Japanese trading interests own significant grain storage and handling facilities across the US which, combined with their financial strength and global networks, offer a genuine challenge to the big five.

3. *Evidence on Regional Involvement of International Grain Companies*

3.1 Sub-Saharan Africa

There appears to be relatively little involvement of international grain companies in local grain purchasing in sub-Saharan Africa (SSA). Cargill have the highest general business profile in SSA, with involvement in hybrid seeds, fertiliser, oilseed processing and cotton ginning, though relatively limited involvement in grain trading within the continent. The lack of involvement in grain marketing is not surprising given political sensitivities and the history of government intervention and control of grain marketing in the region. International companies have undoubtedly been involved in supplying much of the food aid which has entered Africa, on behalf of a variety of donors. In addition, commercial imports of relatively small quantities of wheat are common throughout most SSA countries to supply local milling companies. South African interests appear to control much of the milling industry in southern Africa, and there is evidence of international investment in milling in other parts of SSA e.g. German interests in flour milling in Ghana and Nigeria. Otherwise it appears common that local milling industries in SSA are owned to a large extent by the various trading minorities scattered throughout SSA (communities of Indian, Lebanese or Chinese origin). Imports of grains are thus, often arranged by the local milling industries, purchasing from the international grain companies or other external suppliers. For example,

Cargill, Andre, Louis Dreyfus and Glencore have been involved in supplying Australian and European wheat to countries in southern Africa (Mozambique, Namibia, Swaziland) on a C&F basis (i.e. delivery to port).

However, there are one or two signs that international grain companies are showing more interest in sub-Saharan Africa as a trading arena. The political transformation of South Africa, and the lifting of sanctions has encouraged international trading companies to become involved in the South African grain market. South Africa is a major international producer of white maize which is the staple food for the southern Africa region, but which has a thin world market. The South African Maize Board has recently been reformed and the grain trade has been largely liberalised - although the Wheat Board remains a single channel parastatal marketing system. Cargill re-established their office in South Africa at the start of 1995, and have concentrated initially on trading operations. During the past year South Africa has been exporting 3 million tonnes of maize, with 1.8 million tonnes allocated to the private sector. Most of the private sector exports have been undertaken by international companies with Cargill, Glencore, Andre and Louis Dreyfus accounting for the bulk of private sector exports to markets in Japan, Korea, Indonesia, Malaysia, Iran, Mexico and Venezuela. Mitsui, the Japanese trading company, are also active in the South African maize market. The focus this year has been on markets outside the African continent due to the good harvests experienced throughout the southern Africa region, resulting in a regional maize surplus. Louis Dreyfus and Continental Grains have also recently opened trading offices in South Africa, while Bunge and Toepfers operate in South Africa through agents. Andre, having never left South Africa throughout the period of sanctions, are involved in a joint venture in the flour milling and feed manufacture subsector with Genfoods a large privately held South African food company.

Cargill's manager in South Africa reports that the usual strategy for Cargill in moving into a new market would be to initially establish a trading operation with a relatively low asset base. Following a learning process about local market conditions, Cargill would then normally seek to diversify its operations through investment in value-added processing activities where margins are usually more attractive than in trading. Up to now Cargill have not been involved in grain trading in other countries in the region citing the difficulties of unreliable rail systems, costs associated with transport delays (demurrage etc) and theft. However, there are plans to explore opportunities for cross-border grain trading in the southern Africa region, now that a greater understanding of the market conditions has been built up. In addition, Cargill expect to start developing a local asset base and begin to move further into value-added processing businesses, such as cotton ginning, flour milling, oilseed processing, animal feeds etc.

With the privatisation of wheat imports in many countries in the region private millers are becoming directly involved in purchasing from the world market, increasing the demand for supply contracts which deliver wheat to the millgate with payment in local currency. Thus, international grain companies may invest in local operations in order to supply this fuller service. Another important influence that the international traders have had is in developing the agricultural futures exchange in South Africa, through adding greatly to the liquidity of this market and in educating and motivating change.

Zimbabwe and Zambia are two other countries in sub-Saharan Africa where international grain traders have shown some interest. Both countries have commodity exchanges and a significant commercial farming sector. Zambia, in particular, has implemented a radical programme of agricultural marketing liberalisation which has opened the path for the involvement of international and South African commodity traders. Evidence cited by Coulter, Heath and Stringfellow suggests that foreign-owned companies have been able to purchase maize stocks financed through dollar borrowings at interest rates related to LIBOR, with the borrower carrying the foreign exchange risk. This has enabled foreign companies to purchase large amounts of grain at harvest, and creating effective demand at the farmgate.

One interesting recent development is the involvement of Glencore in purchasing government warehousing facilities under Tanzania's privatisation programme. Glencore reportedly have the most developed trading network of international companies in the southern Africa region, having stayed on in South Africa during the period of sanctions and also developed relations with the Zimbabwe Grain Marketing Board. The move into Tanzania signals further penetration into the region by foreign interests, and may herald the likelihood of further incursions associated with the privatisation of public marketing infrastructure. It has also raised concerns about the possibility of monopoly control of warehousing. Coulter (pers comm.) argues that the development of a warehousing service industry which is publicly accessible to trading interests may be one of the key pre-requisites for the development of a competitive and efficient private sector grain marketing system. In this regard, the consolidation of ownership of privatised warehousing facilities under the control of a single trading company may not be a desirable development.

To summarise, SSA does not at present exhibit heavy involvement of MNC grain traders - in grain trading per se. There are a number of reasons for this:

- the relatively small size and low purchasing power of most African markets
- the existence of local trading minorities who have built up local distribution and processing businesses in many countries
- the history of government intervention, and difficulties in financial markets, foreign exchange
- the lack of development of large-scale commercial grain production, with the exception of South Africa, Zambia and Zimbabwe where MNC grain traders are now showing signs of interest.

3.2 South and Central America

As noted earlier the international grain companies are well-represented in South America, particularly in Argentina where Cargill and Bunge appear to be the biggest players. These two companies also have extensive interests in Brazil. Privatisation of much of the state's interests in the Argentinian grain marketing system suggests that these companies are likely to strengthen their hold over Argentinian grain exports through further purchase of storage and handling facilities. This will further reinforce a trend since the mid 1970s of increasing private multinational control of Argentinian grain exports (OECD, 1993). Examination of the 1995 pattern of ownership of grain export/import terminals in Argentina shows that Cargill and Bunge have already

established a presence, although the Junta Nacional de Granos is, as yet, still the dominant owner of these facilities. This is likely to change over the next few years. Similarly Brazil's wheat marketing system has been liberalised. Cargill have had a grain purchasing presence in Brazil over a number of years, even though Brazil is a net importer of wheat and coarse grains.

With the exception of Argentina most of the Central and South American countries are grain importers, purchasing large quantities of wheat and coarse grains. The extent of involvement of international grain companies in local markets in Central and South American countries appears to vary. This is probably due to the variations in the extent of government intervention in the grain market. For example, in Venezuela which imports nearly 100% of its annual wheat requirement of about 1.1 million tonnes, three subsidiaries of multinational grain companies account for around 75% of the national wheat milling capacity. This may be a function of the fact that import licensing and other restrictions have been eliminated. By contrast, in Colombia which imports about 900,000 tonnes of wheat (as well as 1 million tonnes of maize mostly for human consumption) most of the milling industry appears to be in local hands. In this case, the government obliges local processors to purchase local crops at prices above the world market level through 'absorption agreements'. In addition, the Ministry of Agriculture controls import licenses.

It is not clear the extent to which multinational grain companies are involved in the development of local marketing structures which serve the marketing needs of local farmers. It appears, like southern Africa, that the involvement of international grain trading companies is mainly concentrated on the supply of imported grains, value adding activities serving primarily urban food markets (and feed markets). Local purchasing appears to take place where large-scale commercial farms are producing grain in commercial quantities.

3.3 Asia/Pacific Rim

Developments in grain markets in the countries of Asia and Pacific Rim are being driven by the dynamic economic growth throughout the region. Thailand, Malaysia and Indonesia, among others, are all exhibiting fast economic growth, with rising incomes and increasing urbanisation. Populations across Asia are increasing their intake of livestock-based products, resulting in rapid growth in demand for feed grains across the region. There is also a related growth in demand for processed and consumer food products resulting in expanded demand for wheat imports.

The evidence on the role of MNCs is that there is increasing investment, but mainly in processing industries - milling and animal feeds, and moderated by the influence of government policies. Reuters (12.12.95) report that Cargill plan to invest US\$1.5 billion over 10 years in Asian markets, raising their proportion of net worth in the region from 4.5% to 10%. This investment will focus mainly on grains and oilseeds, particularly oilseed crushing, animal feeds and poultry sectors. Again government policy appears to play a major part in influencing the investment decisions of MNC grain traders. Indonesia is reportedly rapidly liberalising its grain and oilseeds sector allowing Cargill to enter this market. However, Vietnam presents more difficulties with foreign traders still prevented from operating internal distribution networks.

Involvement in actual grain trading appears to be relatively limited due to government controls in many countries in the region. The huge grain markets of China and India are heavily controlled by the state, and are likely to remain so for the foreseeable future. In China, despite a general trend towards privatisation, the State Council has banned all but selected state-run trading firms from trading in grains and edible oils. Nonetheless, China represents a huge potential market and the MNC food giants are actively investing in processing, livestock production and feed industries, usually through joint venture arrangements with local interests. Similar developments are taking place in India, where foreign companies are able to obtain clearance for investments. Cargill have established a hybrid seed facility in Bangalore, but the Indian agribusiness market remains very difficult to enter for foreign investors.

It is also apparent that the dynamic Asian economies are also spawning their own food industry giants. For example, the CP Group is a Thai multinational with businesses across South East Asia. A subsidiary of the CP Group has recently taken over Bogasari the Indonesian milling company which controls around 85% of the Indonesian flour market, and is also planning to invest heavily in China. It would not be surprising in the future to see Asian companies begin to challenge the established MNC grain traders. Japanese companies also appear to be well-established in Asian markets.

3.4 Former USSR

There is relatively limited information about the activities of MNC grain traders in the countries of the former Soviet Union. At present Kazakhstan appears to offer the greatest potential as a grain exporter, currently exporting around 3 million tonnes of wheat. Analysts at the International Grains Council report that international grain traders are beginning to invest in the major grain producing areas of the former Soviet Union. As the big companies will be aware, in the longer run, there is a high potential for grain production in Russia, Kazakhstan, the Ukraine and other parts of the former Soviet Union provided the current difficulties of economic transition can be overcome.

One major example which can be cited is the involvement of Cargill in grain trading in Kazakhstan through Cargill-Dan, a joint venture with a local Kazakh company. The main activities are purchasing Kazakh wheat and barley for export, and importing vegetable oil and sugar. Investments in grain silos have been made, and Cargill are adapting to the business conditions in transitional economies by offering to supply diesel fuel and other inputs to local farmers in return for supplies of grain at pre-agreed prices. The Financial Times sees the possibility of foreign investors acting as key catalysts in overcoming major problems in the agricultural sector including wastage and poor distribution systems.

4. Key Structural Trends in International Grain Markets

It is possible to identify a number of key structural changes which are taking place in the international grain market.

4.1 Policy Changes, Storage and Price Behaviour

The structure of world grain storage is changing profoundly in response to agricultural policy changes and related trends in the international market. Throughout the world there is a general trend towards decreased government intervention in agricultural markets, though agricultural policy remains a key influence. Reform of the EU's Common Agricultural Policy and US Farm Policy will result in relatively less government intervention in the form of price support and subsidised storage activities resulting in lower stockholding by government bodies such as the US Commodity Credit Corporation or various intervention boards in the EU.

FAO (1993) projects that global food stocks are likely to be reduced if the private sector does not step in to undertake storage activities following government withdrawal. In addition, market analysts at the International Grains Council indicate the likelihood that a variety of hidden costs of storage may now be pushed into the private sector. Thus there is considerable uncertainty over the likely response of the private sector grain trade to the withdrawal of government from much storage activity. While the private sector may need to increase their involvement in storage activities to safeguard access to supplies, most analysts expect that much of the public sector stockholding will not prove to be privately profitable, resulting in an overall reduction in stockholding.

With reduced worldwide stock levels, some commentators, including the International Grains Council and the World Bank (*Commodity Markets and the Developing Countries*, 1996), project the likelihood of increased price volatility. The price buffer that government-subsidised storage effectively provided will in future be removed, with a much sharper market response to production-shocks, raising the possibility of sharp price spikes. This has obvious implications for food security in LIFDCs, and for their ability to finance food imports on commercial terms. This is likely to be combined with a reduced aggregate availability of food aid and supplies at subsidised prices. The CAP reform, for example, will reduce exportable surpluses of cereals from the EU by reducing prices, and the Uruguay Round GATT agreement also places limits on the use of export subsidies, for example through the US Export Enhancement Programme.

However, a number of other commentators point to the fact that agricultural liberalisation should contribute to more stable international prices by removing the effects of policies which insulated major markets such as the EU, effectively exporting price volatility onto world markets. For example, an analysis based on econometric modelling by Sarris (1993) suggests that agricultural trade liberalisation should result in an unambiguous decline in world price volatility. This may be combined with increases in production volatility due to operation of short-run production responses on more variable domestic prices. Hazell (1993) argues that liberalisation, while likely to result in an overall reduction in price variability, could still result in occasional very

sharp price spikes in response to production shocks due to a lower overall stock buffer. These problems could be particularly severe in certain thin markets (e.g. for white maize) and possibly in regions where production volatility was increased as a consequence of liberalisation.

The livestock feed grain market would still provide an important 'hidden' buffer with the possibility of diverting large quantities of feed wheat and certain coarse grains into human consumption. Donaldson (1987) cites several occasions during the 1970s when rapid decreases in feed consumption occurred as a response to grain production shortfalls and associated price rises.

In general, most analysts agree that recent and likely future changes in agricultural and trade policies are likely to result in an upward adjustment in grain prices. FAO projects price increases of 4%, 7% and 10% respectively for international wheat, maize and millet/sorghum prices between 1987-89 levels and 2000. The OECD (1995) projects a 35% increase in nominal wheat prices on the international (unsubsidised) market between 1990-93 and 2000 - largely due to strong demand and declining export subsidies in the EU and US. For coarse grains, a weaker price increase of just 5% in nominal terms is projected over the same period due to an anticipated strong increase in production and exports, particularly from the US. The World Bank commodity projections, on the other hand, point to significant declines in real cereal prices over the medium term to 2000 and 2005, presumably reflecting assumptions about the dormant production potential in major producing countries as a result of production restricting policies, and the scope for continuing yield growth.

Much depends on assumptions made in the modelling dealing with imponderables such as the behaviour of stocks in China, or likely future rates of growth in yields. However, for the foreseeable future it appears safe to assume that there is likely to be a moderate worsening in the terms of trade for food importers, particularly low income food deficit countries, in the short to medium term. This is likely to lead some policy changes in developing countries, such as the reduction of consumer subsidies which have frequently been applied to imported wheat, and greater incentives for domestic food staple production.

4.2 Privatisation

Privatisation has been a major trend in the international grain trade, particularly with the withdrawal of governments in importing countries from centralised purchasing of imported grains. Richard Rominger, a senior official in the US Department of Agriculture, estimates that the current 50% of the grain trade handled by private buyers could rise to 80%-90% by 2000. Private millers and feed compounders are now increasingly involved in direct importation of supplies from world markets (frequently purchasing from one of the major MNC grain traders). Major grain importing countries such as Egypt, Tunisia and Morocco in North Africa or Brazil are at various stages in the process of replacing government controlled procurement with imports undertaken by private commercial interests. The trends are clear and, given the financial demands which governments are facing, are unlikely to be reversed.

Privatisation has also opened the way for MNC grain traders to extend their control over markets in exporting countries e.g. in Argentina (and possibly in future in Canada and Australia). The details of the future for the government grain export monopolies in Canada and Australia (the Canadian and Australian Wheat Boards) are not yet clear. In both cases there are pressures for change and a more liberal or commercial style approach. The prospects of changes in this, together with the reduced role of government intervention in the US and EU markets is clearly viewed as a major opportunity by the major grain traders (P Fribourg [Continental Grains], quoted in World Grain, 1996), allowing greater freedom of operation. For example, Kneen (1995) provides an account of how Cargill has positioned itself in Canada in order to benefit from potential changes to the Canadian Wheat Board.

However, the end of centralised procurement has also opened the way for relatively smaller competitors to supply the smaller quantities required by many individual importers. It has increased the importance placed on quality and specialist requirements, reducing the relative importance of some of the inherent economies of scale advantages enjoyed by the big five.

It is also important to note that large parts of the world grain market are still subject to considerable public control. The Indian and Chinese grain markets are heavily regulated by government action, and future policy changes in these two countries will have a major influence on the overall shape of world grain markets. At the present time, it is difficult to predict policy developments in these markets.

4.3 Technical and Efficiency Improvements

The past two decades have witnessed dramatic changes in the technology and infrastructure on which international grain trading depends. Improvements in communications and information technology have contributed to increasing integration of world markets in all major traded commodities. Among major exporting countries there has been a very large increase in the capacity of grain handling and export systems, stimulated to some extent in the aftermath of the 1970s commodity boom. This capacity is now more than enough to handle any foreseeable needs.

In many importing countries there have been huge strides in improving the efficiency of port and grain handling systems and general supply logistics. The IGC argues that privatisation and decentralisation of grain marketing in many countries have also advanced the efficiency of grain marketing and distribution, greatly reducing the risks of supply bottlenecks and food shortages. Nonetheless, the perception is that sub-Saharan Africa significantly lags behind most of the rest of the world in these types of improvements.

4.4 Changes in Industry Structure

A number of observers have attempted to comment on the impact of the various forces affecting the grain trade on the structure and organization of the industry. It is difficult to discern clear cut trends, but a number of observations can be made. Some commentators suggest that the past decade has witnessed a trend towards concentration in the grain market in exporting countries. Rabobank (a Dutch bank

with considerable involvement in agribusiness) suggest that farm level purchases are now controlled by smaller numbers of larger traders. Similarly, Oehrtman and Schnake (1993) argue that in the US farmer cooperatives have become less important in grain marketing, with a trend towards joint ventures and mergers with larger grain trade companies. At the same time, it appears that the number of large private companies has increased with the entry of companies such as ConAgra and the Japanese traders.

The shifts away from centralised purchasing may reduce the barriers to entry for grain suppliers because this is likely to result in a relatively larger number of buyers, purchasing smaller quantities and paying greater attention to quality specifications with the importance of price per se declining somewhat in relative importance. On the other hand, the end of centralised purchasing has led to some concentration in the processing/milling industries in importing countries who were previously supplied through centralised procurement agencies. This is because larger mills are in a better position to secure larger international grain shipments on advantageous terms and to exploit economies of scale. There is some evidence that the MNC grain traders are playing a significant role in this process of consolidation and concentration in processing industries in some markets. For example, Santista Foods, the leading millers Brazil (and controlled by the Bunge group), have been involved in a number of large acquisitions in the Brazilian market (World Grains, Sept 1996).

The end of centralised purchasing has also reduced the importance of volume handling of generic commodities and led to a greater focus on quality and niche requirements of specific users/processors. This leads naturally into a greater emphasis on vertical integration, with traders either investing directly in increased involvement in processing, or through forming strategic alliances. However, it is not clear that these forces will necessarily result in consolidation of the ownership of all stages of production, marketing and value-adding. Increasing product differentiation may also lead to a greater focus on specialisation within a broader framework of strategic alliances. For example, Continental Grains recently sold their barge line and contracted with the buyer, in a move to concentrate more fully on their core expertise in grain trading.

Commentators also suggest that the financial structure of international grain companies is likely to evolve over the coming years, with the likelihood of increasing pressure to make use of public capital markets. The Economist, for example, anticipates increasing pressure on continued private family control of Cargill, while Continental Grains are publicly contemplating the use of public capital markets (World Grain, Sept 1996). The withdrawal of governments from storage will increase the importance of companies' balance sheet strength in financing business. The use of securitisation of commodity assets is also likely to increase in importance to reduce the risks of commodity financing, particularly in developing markets, and facilitate access to capital from lenders.

5. Key Issues for Food Security in Developing Countries

5.1 Food Security Projections

Most projections suggest that developing countries as a whole will account for larger proportions of the world grain trade, and that in general there will be a growing reliance on imported foods to meet nutritional requirements, with a declining self-sufficiency ratio for developing countries as a whole. For example, an OECD analysis (OECD, 1995) projects that imports of wheat and coarse grains by non-OECD countries outside the former USSR will rise by 21% and 65% respectively by 2000 relative to the 1990-93 average. Similarly other projections suggest that developing countries will account for more than 75% of world wheat imports in the year 2000. In developing countries outside sub-Saharan Africa this will be a reflection of economic growth and the growth of demand for livestock and other processed food products.

Most of this requirement is likely to be met from increased supplies from OECD countries (Brown & Goldin, 1992) - although in South America growth in exports from Argentina are likely to play a dominant role. Thus, the international grain trade will play a key role in satisfying the food needs of developing countries. Its structure, operation and role in world food markets, therefore remain crucial factors in the global food security picture.

Projections on world food security suggest that there will continue to be major problems of access to adequate food supplies for large numbers of people. FAO project for example, that per capita food supplies will remain inadequate in many developing countries, particularly in sub-Saharan Africa, and that approximately 800 million people will be undernourished in the year 2010. While most analysts suggest that the growth of aggregate world food production will be sufficient to meet growing aggregate demand, food security problems arising due to a complex array of forces will continue to affect large numbers.

5.2 Competition in the International Grain Trade

Within this context, the structure, conduct and performance of the international grain trade will remain a legitimate focus of attention. Overall, past analysts have suggested that the international grain trade is broadly competitive and does not adversely affect public welfare. This will need to be monitored closely, particularly with respect to the way in which the grain trade responds to reduced government involvement in grain marketing and stockholding. The ability of national competition policy and authorities to handle the international grain trade must be questionable, suggesting a role for international initiatives or cooperation.

The international grain trade is becoming increasingly complex with close integration with financial markets. For example, the World Bank (1996) suggests that speculative interest in commodities from hedge funds and other investors may have contributed to the recent price increases recorded on international grain markets. Thus, there may be a need for research on the modalities and effects of the interaction of international

financial and commodity markets. This is particularly so with the large grain traders increasingly developing interests in financial services.

5.3 Risks from Price Volatility

Despite studies which suggest an overall decline in price volatility as a consequence of liberalisation, concern remains about the risk of sharp price peaks caused by production shocks combined with markedly reduced world stock levels. A number of commentators suggest that developing countries may be able to guard against such price risks by taking positions on futures markets. With the move away from centralised parastatal procurement in many developing countries, Hazell (1993) suggests that there is no reason why a finance ministry or central bank should not engage in such trading in the national interest. There appears to be a good case for further investigation of the potential and details of this type of risk mitigation.

There are a number of other risk mitigation measures which may be considered for food deficit countries, including:

- self insurance by carrying a foreign exchange reserve specifically earmarked for food imports to enable immediate response to domestic shortages
- actions to promote domestic grain production and reduce production variability
- improvements in transport capacity and infrastructure to improve the reliability of import routes and facilitate greater inter-regional trade - with important risk pooling effects in some regions.

In general, the perceived role of food security reserves has become less important. The emphasis in most discussions is now on food security reserves as a small emergency stock to cover the lead time in bringing in imports. It is generally accepted that the use of physical food reserves to stabilise prices is usually costly and difficult to administer.

At an international level some analysts suggest that there is a potential role for an international grain stock in buffering consumption against production shocks (Reinsel, 1993), but it is difficult to foresee how such a programme could be administered in a practical way without high costs or distortion of market incentives. Hazell (1993) argues that a more cost-effective approach may be some form of foreign exchange insurance to enable LIFDCs to compete for imports in years when prices are high. There are current examples of arrangements which fulfil this role already in place, including the IMF's Compensatory Finance Facility which provides balance of payments support to compensate for sharp increases in imported cereals prices, and export credits issued by some OECD countries. Hazell foresees an enhanced role for these types of risk mitigation measures under a more liberal trading framework.

5.4 Food Security Scenarios in Food Deficit Countries

An FAO analysis argues that the food trade balance of many low income food deficit countries (LIFDCs) has deteriorated over the last two decades, with neither production nor the ability to finance food imports keeping pace with growing food demands. FAO identify 31 countries which have the lowest capacity to finance food

imports most of which are in sub-Saharan Africa. There are question marks over the sustainability of such high food import dependence, with many LIFDC's purchasing far more food than their export sectors can afford through reliance on large irregular flows of resources from non-export origins (transfers, concessional finance etc.). In addition, these problems are likely to be exacerbated with a reduction in food aid availabilities and food exports on concessional terms. As a result FAO argue that developing the productive potential of domestic agriculture is likely to be a major element of strategies to enhance national food security in many LIFDC's despite evidence which points to the role of food imports in improving food availability in countries where significant nutritional progress has been made.

In general, however, it is a failure of food entitlements, rather than aggregate availability at national level, which will be primarily responsible for the food insecurity of millions of people in the developing world over the next one or two decades. For example, projections suggest that India is likely to be approximately self-sufficient in food, but with nutritional entitlement patterns that are likely to leave hundreds of millions of people in hunger. More simply expressed hunger is overwhelmingly a reflection of poverty. While there will be a requirement for policies which address the issues of national food availability, there will be equal need for increasing focus on policies and structures which influence the access of food insecure groups to adequate food supplies. This may involve paying specific attention to the concerns of particular groups at risk, improving marketing structures and harnessing the potential of the private sector to distribute food efficiently, increasing understanding of the role of women in food production and consumption and understanding the interaction of forces which determine livelihood security in risk-prone areas. In the meantime, there is likely to be a continued role for food aid in overcoming entitlement failures, particularly in sub-Saharan Africa.

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Annex: Terms of Reference & Note

1. In November 1996 the FAO will be hosting the World Food Summit, which has occasioned an upsurge of interest in all aspects of food security. Since an important element of food security is the trading mechanisms, both national and international, between suppliers and consumers, ODA is commissioning a short paper to provide guidance on the structure of the grain trade.

2. A short review of the structure and operations of grain markets should be produced along the following lines:

- who are the major companies in the international traded grains market, what are their shares of the market, and how are the companies structured?
- what are their stockholding practises (i.e. where are the grains held and by whom)?
- how involved are multinational corporations in less developed countries (LDCs), specifically in low-income food-deficit countries (LIFDCs)? In particular:
 - what percentage of LDC and LIFDC food exports and imports do they account for?
 - to what extent are their local purchases of grain sold locally?
 - what are their market shares in LDC and LIFDC food markets?
 - how integrated are their operations in LIFDCs (i.e. do they own a significant amount of land, local milling and marketing capacity)?
- how has the above changed in the last 5-10 years?

3. It is acknowledged that evidence is patchy on all these issues, therefore it is not expected that the paper be comprehensive. The study should be desk based, and no other agencies should be approached. The paper should be no more than 15 pages, should consist of no more than 5 person days (later amended to 7 person days), and should be completed by the end of September 1996.

Note:

The paper has attempted to address the points above as fully as possible, and to include other relevant information where appropriate. Due to the fact that many published statistics and analyses deal with data at a country-level there is incomplete information, particularly quantitative data, on the detailed operations of multinational companies. However, as much information and comment as possible has been included from available sources.