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Impacts of Changes in Key EU Policies on Trade and Production Displacement of Sugar and Soy

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Study commissioned by WWF to IIED,
with the collaboration of IEEP



Explanatory Note

The study was carried out by IIED (the International Institute for Environment and Development), in collaboration with the IEEP (Institute of European Environmental Policy), and the views expressed herein do not necessarily represent those of WWF.

This study was commissioned by WWF's European Agriculture Programme, and funded by WWF's Forest Conversion Initiative and Sustainable Sugar Initiative. The aim was to obtain more information on the way EU agricultural and trade policies and agreements impact on the way key commodities, notably sugar and soy, are produced in the rest of the world. This information, alongside a wide range of research and field-work, aims to inform and potentially shape WWF's programme of work on agricultural policies and practices in Europe and globally.

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This study is also available online at www.panda.org/europe/agriculture.

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1. Introduction

The European Union (EU) is one of the most important players in global agricultural production and trade. EU agricultural trade accounted for 18% of global agricultural trade in 2003, and for some of these commodities the EU constitutes one of the biggest players worldwide. For instance, EU sugar production corresponds to 12.7% of global production, 12% of global consumption, 12.8% of global exports and 5.4% of global imports. The EU has traditionally been the largest importer of soy products, accounting for 32% of global soy imports in 2003.

Like other industrialised nations, it is well known that the EU has implemented important policies to protect its internal agricultural production from external competition, thereby creating significant production, trade and price distortions in global agricultural markets.

The EU is currently in the process of profound modification of its agricultural policies in order to comply with several WTO commitments. This includes, most significantly, the Common Agricultural Policy (CAP) reform - with its proposed sugar reform, among others. In addition, the EU is pursuing trade policies that may also have important implications on agricultural production and trade patterns, not least the Everything But Arms Initiative and Economic Partnerships Agreements. Given the EU's importance as a global producer, exporter and importer for some agricultural commodities, even small changes in these policies may have significant effect not only within the EU but also on production and trade patterns in other parts of the world.

This study aims to identify the major foreseeable impacts of prospective changes in key EU policies on global production and trade for some selected agricultural products, and to further identify potential mechanisms and opportunities to influence this displaced production in order to reduce its environmental impacts, in particular those related to freshwater and forest conservation. The paper scope concentrates on the main probable changes in production and trade patterns in developing countries, with a special focus on Brazil. In terms of products, the paper focuses on four main products - sugar, soy, beef and pigmeat- giving particular attention to sugar and soy.

In order to achieve this, the paper is organised around eight main chapters. After this brief introduction, a second chapter gives an overview on global trends in sugar, soy, beef, and pigmeat production and trade, positioning the EU within this global picture. Chapter 3 identifies the key EU policies affecting agricultural production and trade patterns worldwide, including the CAP and its Common Market Organisations (CMO) and some selected trade agreements, among other policies.

Chapter 4 identifies the likely impacts - in terms of production and trade displacement - of prospective changes in these EU policies on world production and trade of the selected products.

Chapter 5 identifies WWF main priority river basins and ecoregions and cross-references these with the previous chapter's results on the likely impact of EU policies on production and trade displacement of sugar and soy. Chapter 6 cross-references the production and trade displacement with issues of concern relating to fresh water and forest conservation in the WWF priority river basins and forest ecoregions. Chapter 7 identifies a number of mechanisms that may reduce or eliminate the environmental impacts identified in Chapter 6 and also discusses the likely effectiveness of these measures.

Finally, Chapter 8 focuses on the case of Brazil. In particular, it analyses production and trade patterns of sugar and soy in Brazil, including main production and trade patterns, the major market determinants, key policies governing these markets and the EU's role in this picture. Chapter 9 concludes.

In addition there is a list of Annexes providing data on: sugar, soy, beef and pigmeat global production and trade; projections for the sugar market; list of ACP (African, Caribbean and Pacific) countries; the Beneficiary Countries of the EBA Initiative; and data on sugar and soy production and trade in Brazil.

2. Agriculture in the EU: Trade and Production Trends

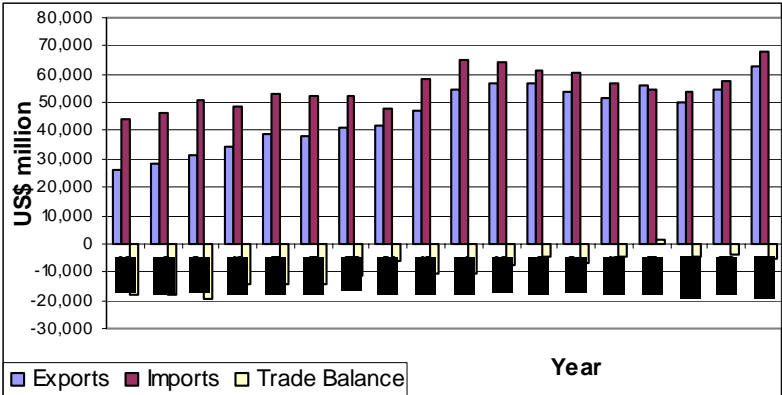
2.1. EU trends in agricultural trade

2.1.1. Evolution of EU agricultural trade balance and main products¹

2.1.1.1. Agricultural Trade Balance

EU agricultural trade^{2 3} – including agricultural commodities as well as processed food and drink products – accounted for 18% of global agricultural trade in 2003. Total EU agricultural exports and imports amounted to US\$ 62,648 million and US\$ 68,197 million, respectively. While EU agricultural exports have expanded by 140% since 1985, imports have increased by only 55% over the same period. This implies that the EU share of global agricultural exports has increased slightly over time (from 16.1% in 1985 to 17.4% in 2003) and its share of global imports has dropped considerably (from 24.2% to 17.9%, respectively). As a result, the traditional EU agricultural deficit has been falling over time and currently lies at around US\$ 5, 548 million.

Graph 2.1: EU Agricultural Trade Evolution 1985 –2003



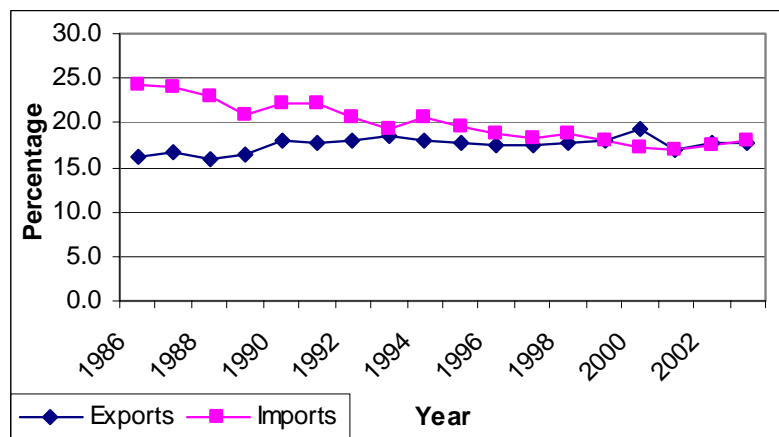
Source: FAOSTAT

¹ Trade data corresponds to EU15 and excludes EU15 intra-trade unless otherwise specified

² All the figures are from the FAO FAOSTAT database: www.faostat.fao.org

³ All the figures exclude EU intra-trade, unless otherwise indicated

Graph 2.2: EU Share of Global Agricultural Trade



Source: FAOSTAT

2.1.1.2. Main Agricultural commodity exports:

At domestic level, agricultural trade accounted for 6% of total EU trade in goods with non-EU countries in 2003. Exports of agricultural commodities represent about 40% of total EU agriculture exports.⁴

As shown in Table 1, the main EU agricultural commodity exports for 2003 included fruit and vegetables (11.1%), dairy products (8.3%), barley (4.3%), wheat (3.3%) and pigmeat (2.7%). For some of these commodities the EU constitutes one of the biggest players worldwide, sharing a significant proportion of the global exports of these products: 44.6% for pigmeat, 41.3% for barley, 36% for dairy products, 13.9% for wheat and 12.4% for sugar.

EU global participation for some of these exports has significantly changed over time. Pigmeat, for instance, increased its participation in world exports from 10.7 % in 1995 to 44.6% in 2003. Beef, on the other hand, decreased its share in global exports from 13.3% to 3.4% over the same period.

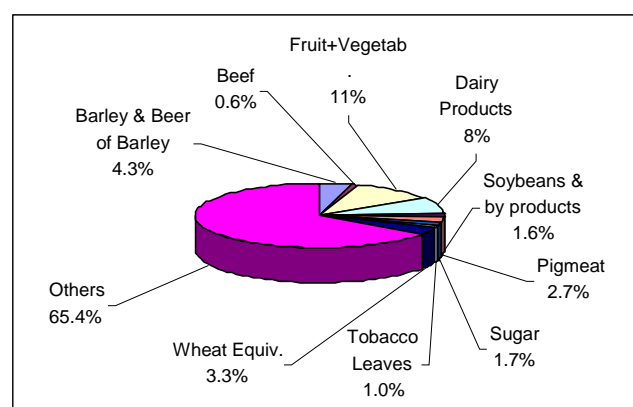
⁴ Commodities include: raw or semi-processed grains and oilseeds, fresh fruit and vegetables, tobacco leaves, dairy products, cattle (live animals) and fresh meat, among the most important. Processed products mainly include prepared food, confectionary and beverages.

TABLE 2.1: EU15 MAIN exported commodities

EU (15) Excl.Intra-Trade	Year (Value in US\$ 1,000)		Average Annual Growth (%)	Share in EU Agricultural Exports		Share in World Exports (%)	
	1995	2003		1995	2003	1995	2003
Barley & Beer of Barley	1,904,836	2,720,402	42.8	3.5	4.3	38.9	41.3
Beef	1,226,777	354,469	-71.1	2.3	0.6	13.3	3.4
Fruit+Vegetables	4,989,413	6,933,969	39.0	9.2	11.1	11.3	12.3
Dairy Products (*)	5,681,244	5,211,879	-8.3	10.4	8.3	44.9	36.0
Soybeans & by products	687,676	1,022,809	48.7	1.3	1.6	4.3	3.6
Pigmeat	134,476	1,702,376	1165.9	0.2	2.7	10.7	44.6
Sugar	2,083,371	1,081,354	-48.1	3.8	1.7	18.3	12.4
Tobacco Leaves	424,730	617,483	45.4	0.8	1.0	9.1	11.8
Wheat Equiv.	2,657,255	2,061,540	-22.4	4.9	3.3	16.5	13.9
Other Agricultural Products	34,714,024	40,942,346	17.9	63.7	65.4		
Total of Agricultural Products	54,503,802	62,648,627	14.9	100.0	100.0		

Source: FAOSTAT

GRAPH 2.3: EU15 MAIN EXPORTED COMMODITIES, 2003⁵



Source: FAOSTAT

2.1.1.3. Main Agricultural commodity imports:

On the imports side, agricultural commodities represented about 62% of total EU agricultural exports in 2003. As shown in Table 2.2, fruit and vegetables (25.4%), soybeans and their by-products (12.5%), coffee (4.1%) and cocoa beans (3.8%) constitute the principal EU imports of agricultural commodities. For some commodities the EU is also a big buyer worldwide. For cocoa beans and coffee, for instance, the EU accounts for 53.1% and 44.9% of global imports, respectively. For soybeans and their by-products this figure reaches 27.4%.

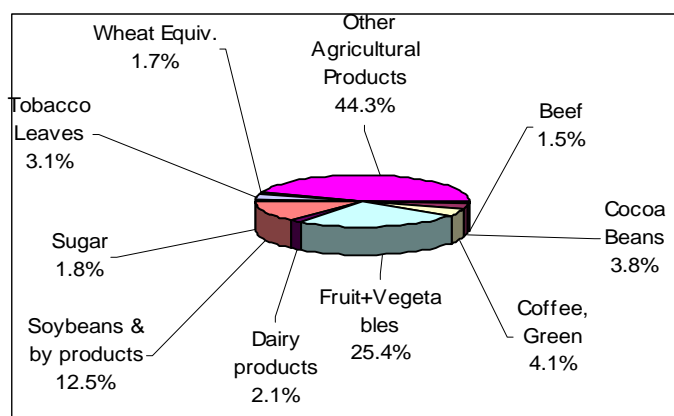
⁵ Percentages were calculated on the basis of total EU agricultural commodity export value (million of US\$)

Table 2.2: EU15 Main Imported Commodities (xc. Intra-Trade)

EU (15) Excl. Intra-Trade	Year (Value in US\$ 1,000)		Average Annual Growth (%)	Share in EU Agricultural Imports		Share in World Imports (%)	
	1995	2003		1995	2003	1995	2003
Beef	981,551	1,053,484	0.9	1.5	1.5	10.0	9.7
Cocoa Beans	1,627,129	2,595,773	6.0	2.5	3.8	60.2	53.1
Coffee, Green	7,063,248	2,766,725	-11.1	10.9	4.1	50.4	44.9
Fruit+Vegetables	15,155,924	17,339,103	1.7	23.4	25.4	29.9	26.9
Dairy products (*)	1,144,785	1,220,138	0.8	1.8	1.8	8.6	8.5
Soybeans & by products	6,602,287	8,552,855	3.3	10.2	12.5	36.9	27.4
Sugar	1,289,566	1,236,253	-0.5	2.0	1.8	10.6	13.5
Tobacco Leaves	2,210,981	2,101,171	-0.6	3.4	3.1	38.9	32.5
Wheat Equiv.	605,503	1,149,465	8.3	0.9	1.7	3.3	6.9
Other Agricultural Products	28,147,315	30,184,042	0.9	43.4	44.3		
Total Agricultural Products	64,828,289	68,199,009	0.6	100.0	100.0		

Source: FAOSTAT

Graph 2.4: EU15 Main Imported Commodities, 2003⁶



Source: FAOSTAT

A more detailed analysis of the EU agricultural trade for four specific commodities -sugar, soy, beef and pigmeat- is provided in the following section.

⁶ Percentages are calculated on the basis of total EU agricultural commodity import value (million of US\$)

2.2. Trends in Sugar Production and Trade ^{7 8}

2.2.1 World Sugar Production

Sugar production amounted to 142 million tonnes in 2004⁹ – a 70% increase since 1980. Around 130 countries in the world produce sugar, both in the developing world and in the industrialised world. About 70% of sugar production is consumed and/or processed into semi-finished or finished products in the country where it is produced. Sugar is produced from two significantly different crops: sugarcane in the tropics and subtropics and sugar beet in temperate zones¹⁰. Sugarcane is the dominant source of sugar (about 70% of global sugar production)¹¹. Sugarcane production is split equally between sugar and alcohol production (for ethanol)¹².

Sugar is a highly political commodity. Although it is produced in both developing and industrialised countries, because it is a highly capital intensive product many countries have implemented policies designed to insulate their domestic sugar industries from the world market in order to provide a more favourable environment for investment in growing and processing.¹³

Sugar is an almost ideal commodity for some developing countries to grow for domestic consumption and export. It can be produced efficiently in tropical climates under a wide range of technologies from low-input labour-intensive methods to high-input fully mechanised ones¹⁴. Developing countries and transition economies collectively account for over 70% of world sugar production and consumption and the largest share of global raw and white sugar trade. Industrialised countries, on the other hand, despite having only a minority, and declining, share of the world sugar market, continue to have a major influence on the global sugar market through their sugar policies – contributing to distortions in sugar production (oversupply), trade and prices.¹⁵

Brazil (16.4%), India (14.1%) and the EU (12.7%) are the most significant producing countries. While the EU is the main producer and exporter of refined beet sugar, Brazil produces and exports cane sugar, both raw and refined. Brazil is the world's largest sugar producer and also one of the lower cost

⁷ Trade data excludes EU intra-trade unless otherwise specified

⁸ Note: figures correspond to FAOSTAT “Sugar total (Raw equivalent)” which includes Code 0162 “Centrifugal raw sugar” (Cane Sugar + Beet Sugar) plus Code 0164 “Refined sugar” but in raw equivalent. All the figures exclude EU intra-trade, unless otherwise indicated

⁹ FAPRI 2005 *Agricultural Outlook*, Food and Agricultural Policy Research Institute, January, Iowa

¹⁰ IIED et al 2004

¹¹ IIED et al 2004

¹² OECD 2005

¹³ IIED et al 2004

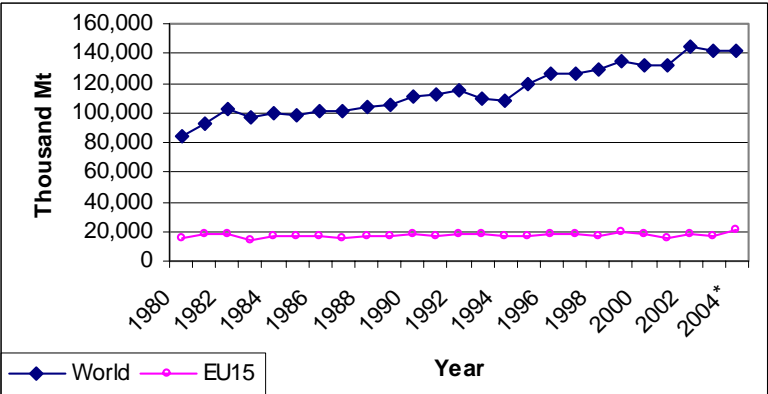
¹⁴ ODI-IIED, 2005

¹⁵ OECD, 2005

producers. It has demonstrated rapid production and export growth over the last decade, despite lower world prices. According to LMC international – summarised by USDA (2005) - the lowest cost cane-producing countries for 2001/2002 were Australia, Brazil (Central/ South regions), Guatemala, Malawi, Zambia, and Zimbabwe. As a group they accounted for about 25% of world sugar production. For sugar beet, low-cost beet sugar-producing countries were Belgium, Canada, Chile, France, Turkey, the United Kingdom, and the US. Together they accounted for 39% of the 2001/2002 beet sugar production.¹⁶

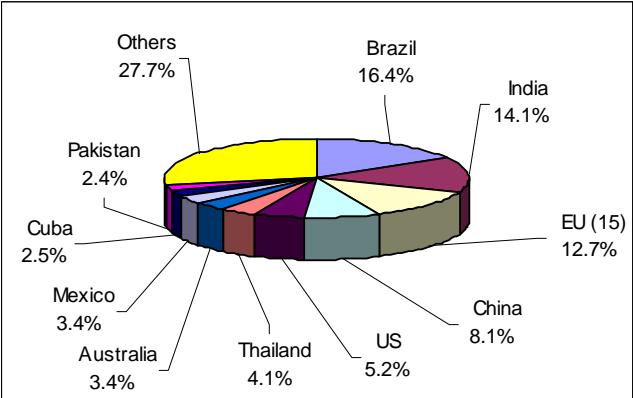
The EU has increased sugar production by 19% since the 1980s. However, its share of global production has steadily decreased from nearly 20% in the early 1980s, to a current 12.7%. With the inclusion of ten new members in 2004 (EU25), its share in global production increased to 15.2% (21.6 million Mt) (See Graph 2.5)

Graph 2.5: World Sugar Production



Source: FAOSTAT form 1980-2002; 2003-2004: USDA (2005): (*): 2004 is for EU25

Graph 2.6: Main Sugar Producing Countries, 2002



Source: FAOSTAT

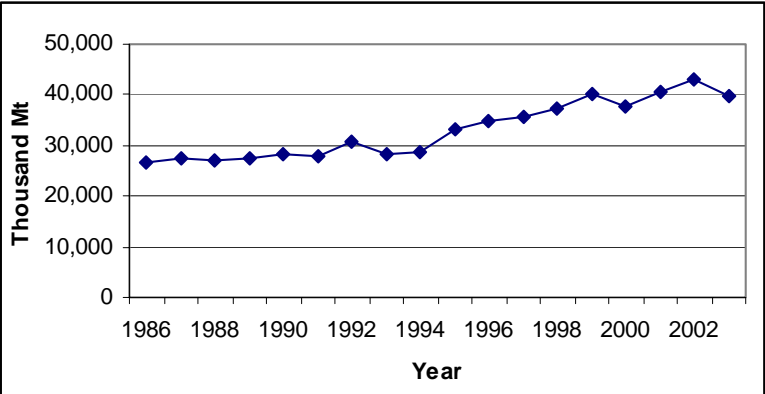
¹⁶ USDA, 2004, Sugar and Sweeteners Outlook, September 28, United States Department of Agriculture, available at <http://usda.mannlib.cornell.edu/reports/erssor/specialty/sss-bb/2004/sss241.pdf>

Types of producers: As a “semi-perennial” crop, sugarcane is suitable for plantation culture. Farm size and ownership vary enormously from country to country. In India, Thailand and Mexico, cane is produced by smallholder farmers, with each cultivating as little as one or two hectares. In Brazil, cane is usually produced on large estates operated by the sugar mills themselves. Contract farming schemes involving large numbers of small farmers have successfully complemented estate production in Kenya and Swaziland. In South Africa there is a strong dichotomy in the competitiveness of land-rich commercialised agricultural systems versus smallholders. In Queensland, where over 95% of Australia’s sugar is produced, most of the 6,500 farms are owned and operated by family partnerships. Beet farming is usually carried out on private family farms, with farmer co-operatives significant in the USA and EU.¹⁷

2.2.2 World Sugar Trade

International trade in sugar in 2003 accounted for 42 million tonnes (US\$ 15,465 billion) (See Graph 2.7). Global sugar trade accounts for 30% of world sugar production and is considered a widely traded commodity.^{18 19} However, as most international trade in sugar occurs under agreements, spot trade is seen as residual.²⁰

Graph 2.7: Global Trade in Sugar (Exports)



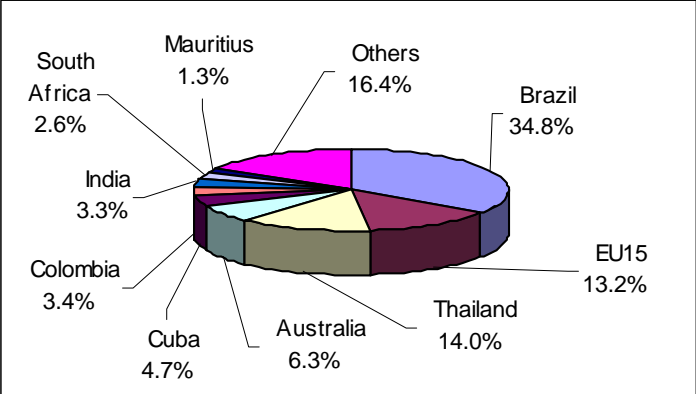
Source: FAOSTAT

With the exception of India and the US, main producer countries tend to coincide with those leading exporters. Graph 2.8 shows the main sugar exporting countries in 2003, suggesting that international sugar supply is highly concentrated in just a few countries. The three main exporting countries account for 62% of world sugar exports. Brazil is the world’s leading sugar exporter, with 34.8% of global

¹⁷ IIED et al, 2004
¹⁸ 20% on average EC, .
¹⁹ EC, 2003a, *Sugar- markets production structures within the EU*

sugar exports. It is followed by Thailand (14%) and the EU15 (13.2%). Other leading exporting countries are Australia, Cuba, Colombia, India, South Africa and Mauritius. The remaining exporting countries in total contribute less than 1% of global exports.

Graph 2.8: Main Sugar Exporting Countries, 2003



Source: FAOSTAT

Developing country exporters have few problems in meeting industrialised countries’ sanitary and health standards. The biggest problem for them is the limited export opportunities and low world prices, caused largely by the policies of industrialised countries. Industrialised countries’ export subsidies are considered the most pernicious form of state intervention for the developing world.²¹ It is calculated that about 80% of world production and 60% of world trade of sugar is at subsidised or protected prices. Only three major producers—Australia, Brazil, and Cuba—now operate at world market prices.²² Indeed, industrialised countries like the EU, Japan and the US provide domestic producers with price support that is at least double world market prices. Such high support prices have reduced the rate of growth of domestic consumption, encouraged production of alternative sweeteners and led to high production by local producers who would not be competitive at world market prices. Quotas and high tariffs have limited imports and surplus production has been exported with subsidies or disposed of at world market prices to avoid storage. The impact of such policies has been to depress world prices by about one-third and limit the growth of imports. Such policies have converted industrialised countries from importers of half the world’s internationally traded sugar in the early 1980s to net exporters on balance over the past decade.²³

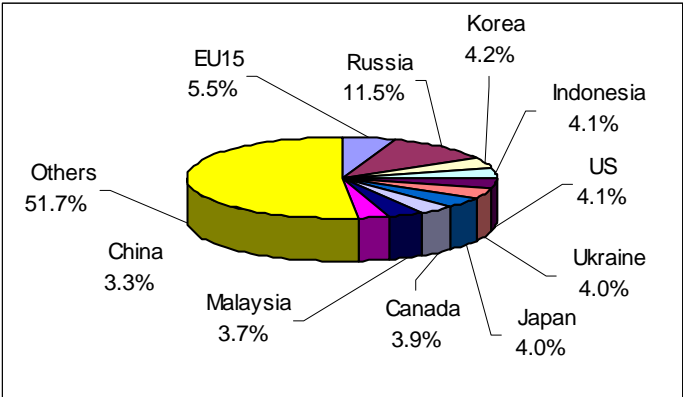
International demand, on the other hand, tends to be less concentrated than supply. Russia is the leading importer, accounting for 11.5% of world imports in 2003. Other significant importing

²⁰ EC, 2003a *Sugar- markets production structures within the EU*
²¹ FINANCIAL TIMES *Poverty, Have pious words left the poor in a spin?*, October 7th 2005
²² WWF, 2004, *WWF’s position on reform of the EU sugar regime*, available at http://www.panda.org/about_wwf/what_we_do/freshwater/publications/index.cfm
²³ ODI-IIED, 2005

countries are the EU15 (5.5%), Korea (4.2%), Indonesia (4.1%), the US (4.1%), Ukraine (4.0%), Japan (4.0%), Canada (3.9%), Malaysia (3.7%) and China (3.3%). Currently, approximately half of world sugar imports are to developing countries compared to less than one quarter in 1970.²⁴

There are regional differences between sources of sugar imports. Most US and Russian sugar imports originate from Latin America (Brazil) and the majority of Japanese imports are from Australia and Thailand. Virtually all EU imports originate from the ACP (Africa-Caribbean-Pacific), the Balkans and India. About three-quarters of sugar exports from ACP countries go to the EU.²⁵

Graph 2.9: Main Sugar Importing Countries, 2003



Source: FAOSTAT

2.2.3 EU Sugar Trade

- EU Sugar Trade Balance**

The EU is one of the key players in the world sugar market. In 2003 the EU15 share of the world sugar market amounted to 12.7% for production, 12% for consumption, 12.8% for exports and 5.4% for imports.²⁶ Graph 2.10 shows the evolution of EU trade in sugar between 1986 and 2003.²⁷

EU sugar exports reached 5.1 million tonnes in 2003, while EU sugar imports accounted for 2.0 million tonnes in the same year. The EU sugar trade balance remained largely positive for the whole period. However, when considering import and export values, the trade balance remained positive till 2001 and then negative for the following years. This is the result of large fluctuations in EU sugar exports. The difference between the quantity and value trade balances reflects the gap between the

²⁴ ODI-IIED, 2005

²⁵ ODI-IIED, 2005

²⁶ The difference between this figure and the percentage provided in Table 2.2 is explained on that for the former, the estimation was made on the basis of import quantities (metric tonnes) and for the later they were made on the basis of import values (US\$).

high price paid for imports and relatively low price for exports, with refunds used to bridge the gap compared with world prices.^{28,29} Another factor that may explain part of the value fluctuations is the relative importance of food aid. In 2001, the European Community and its Member States provided up to 80% of the sugar sent as food aid throughout the world. However, compared to the total trade in sugar, food aid remains very limited.³⁰

With the inclusion of the ten new Members States to the EU in 2004 (the EU25), sugar production in the EU increased by 26%³¹ - accounting for 15% of global sugar production. However, this increased production is not expected to be reflected in larger exports, as six of the new Members are deficit countries or not sugar-producing countries (the ten acceding countries in overall currently absorb 8% of EU15 exports), thus increased production will be traded intra EU25.³²

Current patterns in EU sugar trade are a result of the CMO (Common Market Organisation), which organises EU sugar production through a system of quotas. This policy was set up in 1968 and was designed with the general aim to support internal prices to ensure producer returns, maintain refining capacity, restrict imports to specified trading partners, and subsidise exports of domestically produced sugar. In simple terms, under the CMO, EU Members States are allocated an “A” and “B” production quota. Any sugar produced in excess of this yearly quota is classified as “C” sugar. A and B sugar are used for domestic consumption and as subsidised exports, while “C” sugar must be exported into the world market without subsidy or carried over into the next marketing year. Export refunds are also paid for sugar imported under the ACP (Africa-Caribbean-Pacific) agreement and India. (See Chapter 3 for a more detailed analysis of CMO functioning.)

EU sugar policies, together with the US system, are considered one of the main causes of current sugar production oversupply. EU sugar policy has resulted in Europe consistently producing more sugar than it consumes and having to dump more than 6 million tonnes of that excess on world markets. It has been estimated that the EU sugar regime depresses the world price of sugar by some 17%, which alone loses the global industry about \$1.4 billion a year. There is also lost revenue from unfair competition from EU sugar dumped at a price below its production costs.³³

²⁷ Trade data for EU15 excluding intra-trade data only available since 1986

²⁸ As shown in Table 2, the EU share in value on global sugar imports was 13.5% in 2003

²⁹ EC, 2003a *Sugar- markets production structures within the EU*; EC, 2004

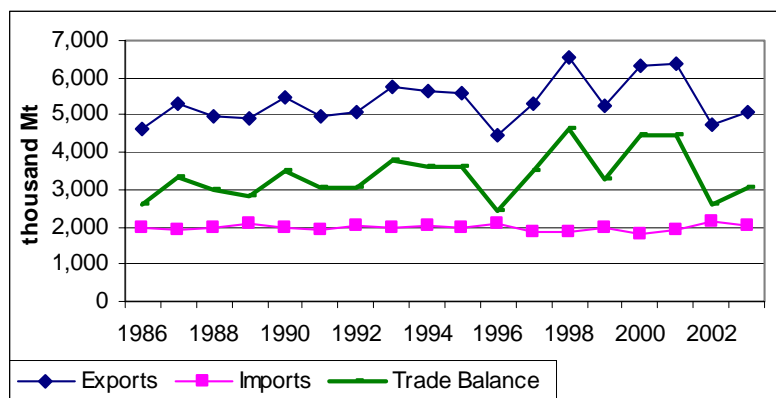
³⁰ EC, 2003a

³¹ EC 2003a *Sugar- markets production structures within the EU*

³² EC, 2003a; EC, 2004a

³³ WWF, 2004 *WWF's position on reform of the EU sugar regime*, available at http://www.panda.org/about_wwf/what_we_do/freshwater/publications/index.cfm

Graph 2.10: EU15 Trade in Sugar



Source: FAOSTAT

On the whole, although the EU is both a leading sugar importer and exporter, overall it is a net exporter. Currently, net exports represent 14% of EU sugar production. In 2003, the EU was the second leading world exporter after Brazil, and the second main importer after Russia. However, when considering net trade, the EU remains the second net exporter in quantities after Brazil, but falls to the fourth position in value.³⁴

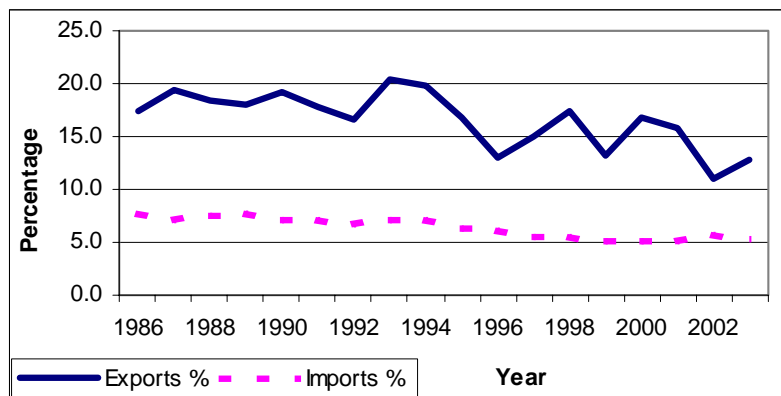
The EU turned to net exporter at the end of the seventies, mainly thanks to increased production versus stable consumption.³⁵ Increased production responded to the CMO introduced in the late 1960s to increase domestic production of sugar.³⁶ After this, the EU ranked as the leading sugar producer for several decades. However, over recent years its share in world production, consumption and exports has declined in favour of southern countries that have steadily gained importance. Indeed, since the mid-1990s Brazil has started to dispute the first place and is now the world's leading exporter. Thailand is also increasing its share in global exports. As a result, the EU share in global sugar exports has been falling from a peak of 20.3% in 1993 to a current 12.8% (see Graphs 2.11 and 2.12).

³⁴ EC, 2003a

³⁵ EC, 2003a

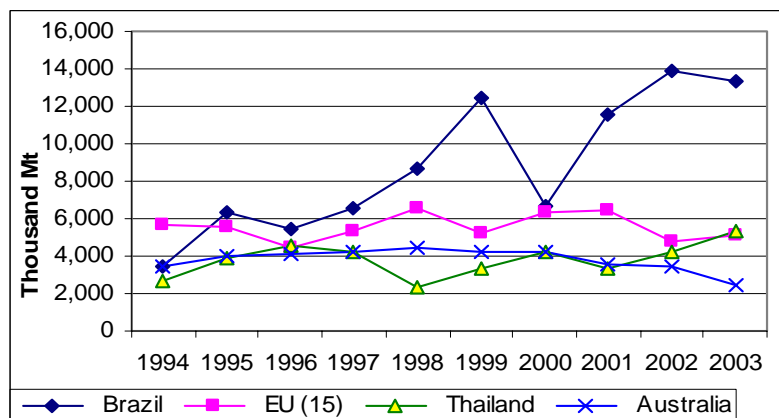
³⁶ See section 3.1.2 for a detailed analysis of the CMO

Graph 2.11: Evolution of the EU Share in Global Sugar Trade



Source: FAOSTAT

Graph 2.12: Evolution in Sugar Exports, Main Exporting Countries



Source: FAOSTAT

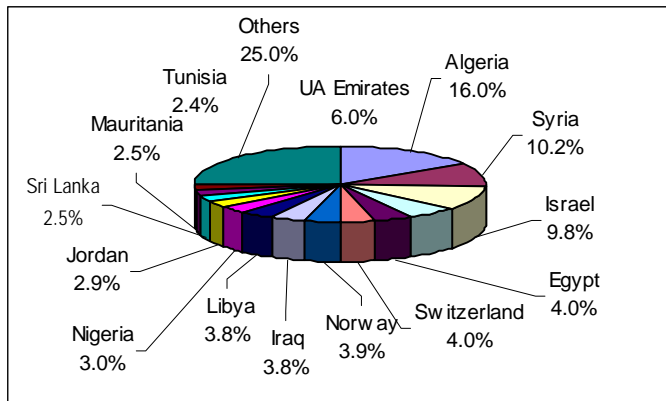
- **Main country destinations for EU sugar exports**

The main destinations for EU sugar exports are countries from the Mediterranean area. In particular, countries from the Euro-Mediterranean Partnership absorb more than (45%) of EU sugar exports.³⁷

Members of the European Free Trade Association (EFTA) such as Switzerland and Norway are also important. (See Graph 2.13)

³⁷ The Euro-Mediterranean Partnership comprises 35 members, the EU25 plus 10 Mediterranean Partners (Algeria, Egypt, Israel, Jordan, Lebanon, Morocco, Palestinian Authority, Syria, Tunisia and Turkey). Libya has had observer status since 1999. See http://europa.eu.int/comm/external_relations/euromed/index.htm

Graph 2.13: Main Destinations For EU15 Sugar Exports, 2001

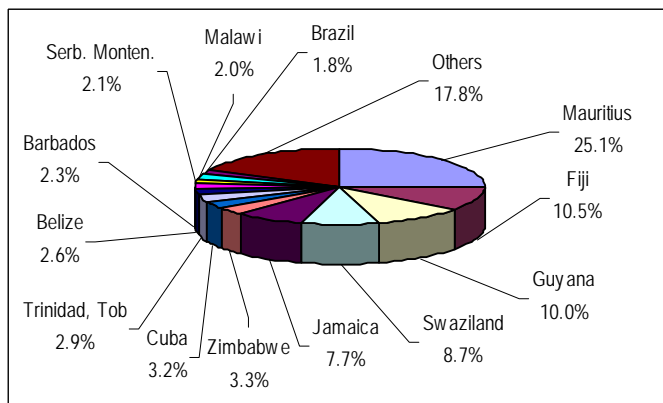


Source: EC, 2003

- **Main source countries for EU sugar imports**

On the other hand, EU sugar imports come basically from Africa-Caribbean-Pacific (ACP) countries, which benefit from the Sugar Protocol.³⁸ Mauritius accounts for 25.1% of imports, followed by Fiji (10.5%), Guyana (10%) and Swaziland (8.7%). Under this Protocol, duty-free import quotas are allocated to signatory countries for a total of 1.3 million tonnes. Sugar is imported above these quotas as special preferential sugar.³⁹

Graph 2.14: Main Destination Of EU15 Sugar Imports, 2001



Source: EC, 2003

Finally, it should be noted that new EU partners have emerged in recent years as a result of recent trade agreements. The Balkans in particular have raised their share of EU imports (about 15% in 2003). Also, some Least Developed Countries (LDC), especially Sudan and Mozambique (about 1.2% together in 2003), have raised their share, which may reflect the entry into force of the Everything but

³⁸ See Section 3.2.2 for details on the Sugar Protocol

³⁹ EC, 2003a

Arms Agreement (EBA)⁴⁰, under which products from LDCs have duty-free and quota-free access to the EU market.⁴¹

⁴⁰ EC, 2003a

⁴¹ See Chapter 3 for more detail on the Balkans Agreement and the Everything But Arms agreement.

2.3. Trends in Soy Production and Trade ^{42 43}

2.3.1 World Soy Production

The soybean is an essential and dominant source of protein and oil with a multitude of uses in both human foodstuffs and animal feeds and with numerous industrial applications.⁴⁴ It is an annual crop traditionally grown in temperate and subtropical regions worldwide, and is currently expanding into tropical regions.⁴⁵ Most soybeans (88%) are crushed to produce soymeal (e.g. cakes for animal feed) and soy oil. However, a small percentage is used directly in food consumption, primarily in Asia.⁴⁶ Between 1980 and 2004 global soybeans production increased by 152%, reaching 204 million Mt (Graph 2.15). Other important soy products are soy cakes and soy oil, which account for 38% and soy oil for 9% of total soy products (including soybeans, soy cakes and soy oil).

South American countries are the growth engine in world soy production. Brazil is the second largest soy producer (67 million tons or 19.7% of world soy and by-products production in 2002), after the US (35.2%). Argentina, Paraguay and Bolivia are other significant South American producer countries with market shares of 15%, 1.3% and 0.7% respectively. Other big producers are China, the EU15 and India (13%, 4.9% and 3.2% respectively), but their entire production is consumed domestically (Graph 2.16). The main driver for expansion of soy is the increasing global demand.⁴⁷

⁴² Trade data excludes EU intra-trade unless otherwise specified

⁴³ Unless otherwise specified production and trade data on soy products correspond to FAOSTA Codes 0236 Soybeans; 0238 Cake of Soybeans; and 0237 Oil of soybeans

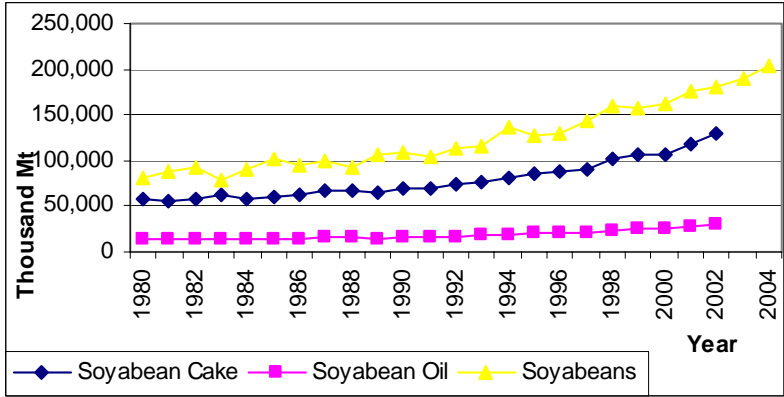
⁴⁴ IIED et al 2004

⁴⁵ IIED et al 2004; Dros, 2004

⁴⁶ IIED 2004; Dros, 2004

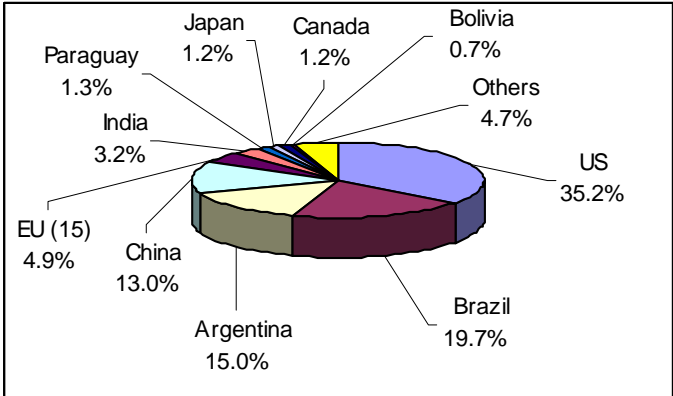
⁴⁷ Bickel and Dros 2003 *The Impacts of Soybean Cultivation on Brazilian Ecosystems- Three case studies*, study commissioned by WWF

Graph 2.15: World Soy Production



Source: FAOSTAT

Graph 2.16: Main Soy Producing Countries, 2002



Source: FAOSTAT; Includes: soybeans, cakes and oil

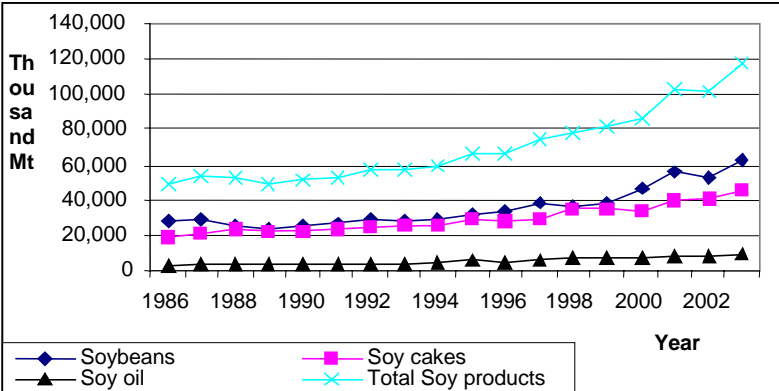
Type of producers:

Soybean is not a subsistence crop and is generally grown on a large scale with extensive mechanisation and low labour inputs. In the Americas, soybeans are mostly grown on large-scale farms (1,000 to 3,000 ha), whereas there are some small-scale producers in Asia.⁴⁸

2.3.2 World Soy Trade

Trade in soy accounted for 118 million Mt in 2003. From this total, soybeans comprised 53.8%, soy cakes 38.3% and soy oil 7.8%. Soy is the most important internationally traded oilseed. Soybean accounts for 80% of all oilseed trade. Soybean cakes represent 80% of all oil cake trade. Soybean oil is second only to palm oil in global oil trade. Soybean dominates world oilseed trade due to high protein demands, particularly in the EU, which accounts for more than a third of total world soybean and soybean cake imports.

Graph 2.17: Global Trade in Soy Products



Source: FAOSTAT

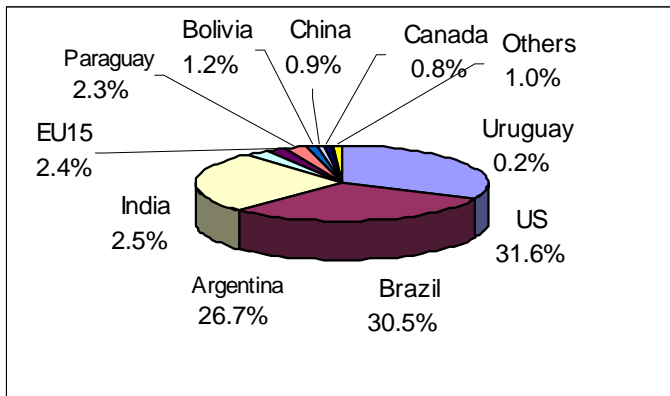
Total soy exports have increased by 140% since the mid-1980s. International supply of soybeans and soybean cakes is highly concentrated in three countries: the US, Brazil, and Argentina, which together accounted for 90% of global exports in 2003.

Traditionally the US has dominated oilseed exports in the world market, with a market share of nearly 70% in the late 1970s. However US dominance has been falling over the last decade, with Brazil and Argentina gaining market shares over the same period.⁴⁹ Due to their ongoing soy production growth, these countries have steadily increasing market shares and since 2003 Brazil has been disputing the US’s lead position as the world’s biggest soy exporter. In 2003, the US held 31.6% of the soy export market, followed by Brazil (30.5%) and Argentina (26.7%).

⁴⁸ IIED et al, 2004

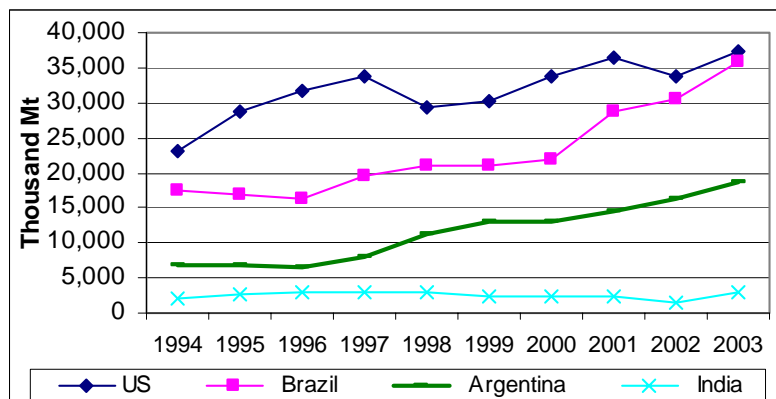
⁴⁹ ERS/USDA (1999) *Oil Crops situation and outlooks/OCS-1999*, October

Graph 2.18: Main Soy Exporting Countries, 2003



Source: FAOSTAT; Includes: soybeans, cakes and oil

Graph 2.19: Evolution of Soy Exports -Main Exporting Countries



Source: FAOSTAT; Includes: soybeans, cakes and oil

International demand for soy products is also highly concentrated. The EU15 is the main global importer accounting for 31.7% of global imports in 2003⁵⁰ (34% for EU25), followed by China (21.7%) (See Graph 2.20). Japan (5.4%), Mexico (4.3%), Thailand (3.1%), Korea (2.7%), Indonesia (2.4%) and Iran (2.2%) are other important buyers of soybeans, cakes and oil. As shown in Graph 2.21, rapid economic growth in China has been reflected in an over 300% increase in its soy demand since the mid-1980s, and this trend is expected to continue its three digit growth over the next decade.⁵¹ Indeed, driven by population growth and increased income per capita, global demand for soy is expected to rise by 60% to 300 million tonnes by 2020, with China and the EU25 each importing over 40 million tonnes of soy products annually.⁵²

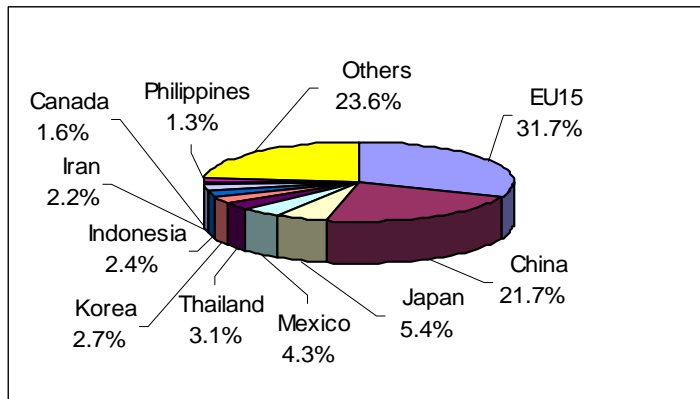
⁵⁰ The difference between this figure and the percentage provided in Table 2.2 is explained on that in the former, the estimation was made on the basis of import quantities (metric tonnes) and in the later it was calculated on the basis of import values (US\$).

⁵¹ See OECD-FAO (2005) for forecasts for oilseed international market

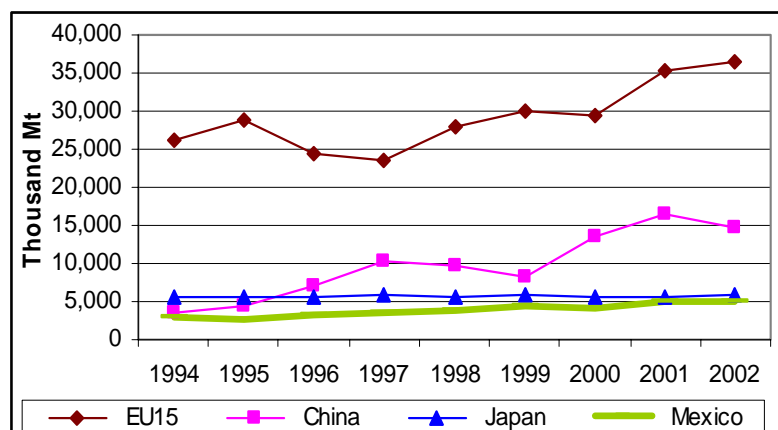
⁵² Dros, 2004

Graph 2.20: Main Soy Importing Countries, 2003

Source: FAOSTAT; Includes: soybeans, cakes and oil



Graph 2.21: Evolution Soy Imports -Main Importing Countries



Source: FAOSTAT

Trade-distorting policies have played an important role in the character of world oil crop markets in the last few decades. Although tariffs on oil crops are less restrictive than on other commodities (e.g. the EU, the US, Japan and Canada have no tariffs on the import of soybeans), tariff escalation occurs with processed oil crop products, especially vegetable oils⁵³ (e.g. a tariff of 8.8% to soy oil imports applied in 2003, which should be gradually reduced to 6.4% to comply with WTO agreements)⁵⁴. Subsidisation and domestic support for oil crops has been another key issue. For example, in the 1980s the EU introduced production support policies to increase self-sufficiency in oilseed products. Oilseed production under these mechanisms nearly tripled and contributed to the US decline in market share. The US reacted to EU subsidies with its own supportive measures including soybean's inclusion in the

⁵³ Maltais et al , 2002

⁵⁴ van Gelder J and Dros J 2003

Export Enhancement Programme. The trade disputes between the US and the EU in the oil crops sector was a major issue in the negotiations leading the URAA (Uruguay Round), and resulted in the 1992 “Blair House Memorandum of Understanding on Oilseeds”. Under the agreement the EU agreed to limit oilseed production. Also, under the 2000 CAP reform, compensatory payments for oilseeds will be reduced.^{55 56}

2.3.3 EU Soy Trade

The EU soy market demonstrates a relatively low level of self-sufficiency and it has traditionally been the main importer of soy products at a global level (32% of total imports of soy products in 2003 for the EU15). The EU has traditionally been the main importer of soy cakes and the second largest importer of soybeans. The enlarged EU accounts for 26% of global soy cake consumption. Indeed, the strong presence of EU soy imports is due to the fact that the EU produces less than 1% of world soybeans and nearly 6% of the total soybean domestic consumption. Thus, the EU imports approximately 94% of its domestic consumption.^{57 58} The EU soy market is mostly driven by the livestock feed industry.

EU15 soy imports have increased by more than 50% since the mid-1980s, while global imports increased by 140% during the same period. EU15 soy imports amounted to 8.5 million Mt in 2003, accounting for 12.7% of all EU15 agro-commodity imports.^{59 60} From this total, soy cakes and soybeans accounted for 53% and 47%, respectively. Soybean oil imports are far less significant, thus reflecting the tariff escalation system applied to soy products. With the enlarged EU, the EU share of global imports of soy products remains almost unchanged – it went from 32% to 33% in 2003.⁶¹

However, as shown in Graph 2.2, EU participation in global imports of soy products has been declining over time. It reached its peak during mid-1970s – near to 60% of global imports - and since then its market share has been decreasing and now accounts for about 32% of global soy imports. The drop in the EU share is mainly explained by slow import growth over recent years as well as the emergence of other important international buyers such as China.

⁵⁵ ERS, 2005 *Soybeans and oil crops: trade*, Economic Research Services, USDA, available at: <http://www.ers.usda.gov/briefing/soybeansoilcrops/trade.htm>

⁵⁶ See Chapter 3 for details on the EU policies

⁵⁷ RIDES, 2003

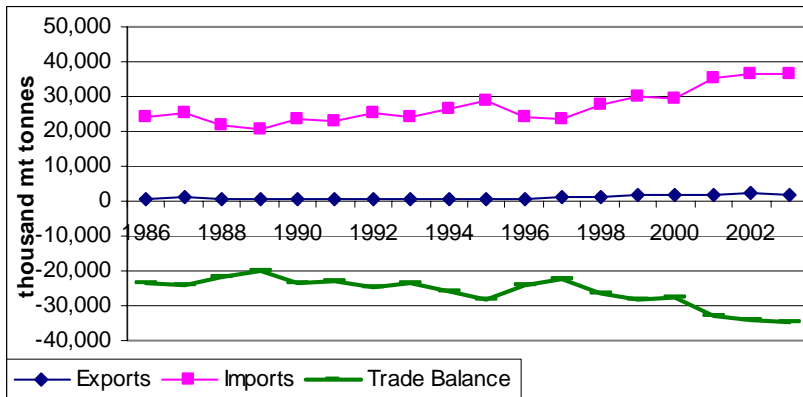
⁵⁸ From FAPRI

⁵⁹ See Table 2

⁶⁰ ERS (2005) *Soybeans and oil crops: trade*, Economic Research Services, USDA, available at: <http://www.ers.usda.gov/briefing/soybeansoilcrops/trade.htm>

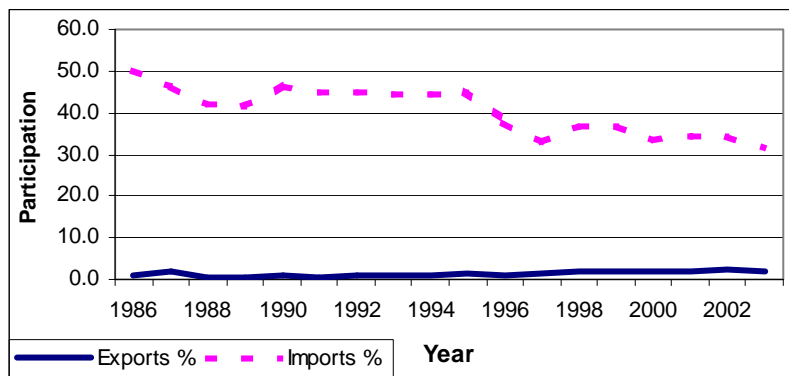
⁶¹ Calculated using data from USDA (2005) *Oilseeds: World Markets and Trade*, United States Department of Agriculture, Circular Series FOP6 –05, June 2005

Graph 2.22: EU Soy Trade



Source: FAOSTAT

Graph 2.23: EU Share of Soy Trade



Source: FAOSTAT

The US has traditionally been the leading supplier of soy to the EU (and Asia). However, with over 80% of US soy being genetically modified (GMO), the US share to EU soy imports has declined. Brazil, in contrast, has benefited from severe restrictions in planting of GMOs up until 2003 and its market share has been rapidly expanding, supplying 63% of the EU soybean imports in 2003. Argentina is also an important EU provider, supplying about 50% of EU imports of soy meal in 2003. However, given that about 99% of Argentinean soy production is GMO, it has virtually ceased exporting soybeans to the EU (diverting them to Asian markets). With the introduction of the new EU GMO labelling requirements for animal feed, EU demand for Argentinean soy meal has fallen and demand for Brazilian GMO-free meal has increased.⁶² However, this situation may change in the future given the approval of several decrees approving the planting of GMO soy in Brazil,⁶³ though not for trade. In the long term, the final impact on Brazilian imports will depend on whether Brazilian producers decide to remain GMO-free and their ability to meet the identity preservation requirements.

⁶² Dros (2004)

The net importer status of the EU reflects several policy measures introduced in the past. Since the 1960s, EU soybean imports have increased due to rapid growth in livestock production and duty-free concessions signed in world trade agreements.⁶⁴ But in the 1970s and 1980s, soybean consumption slowed as EU agricultural policies subsidised a large expansion in domestically produced oilseeds, eroding the market for oilseed imports. The US challenged these subsidies and as a result in 1992 the “Blair House Memorandum of Understanding on Oilseeds” was signed. Under the agreement the EU committed to a number of reforms of its Common Agricultural Policy (CAP). Among them, the EU limited the oilseed production. In addition, under the 2000 CAP reform, compensatory payments for oilseeds must be reduced, and the elimination of crop specific payments for oilseeds is foreseen.⁶⁵ Thus, incremental reductions in oilseed subsidies and lower prices stemming from further CAP reforms have caught up with EU farmers, who recently scaled back oilseed planting. Direct payments to oilseed producers were reduced in 2002/03 and now equal the per-hectare payments received by grain producers.⁶⁶ This large decrease in oilseed payments decreased the profitability of oilseeds, and contributed to a shift from oilseed into grains.⁶⁷ This is considered the main factor behind the recent drop in EU oilseed production.⁶⁸ As a result, in the longer term the EU is expected to remain a large net importer since internal production is not expected to increase (land expansion is constrained by the Blair Memorandum).^{69 70}

⁶³ GM soy planting in Brazil is illegal. However, it has been accommodated through several decrees that allow planting of GM soy.

⁶⁴ ERS (2005) Soybeans and oil crops: trade, Economic Research Services, USDA, available at: <http://www.ers.usda.gov/briefing/soybeansoilcrops/trade.htm>

⁶⁵ Maltais et al, (2002)

⁶⁶ ERS 2005 *Soybeans and oil crops: trade*, Economic Research Services, USDA, available at: <http://www.ers.usda.gov/briefing/soybeansoilcrops/trade.htm>

⁶⁷ FAO 2002 *THE STATE OF FOOD AND AGRICULTURE IN THE REGION*, TWENTY-THIRD FAO REGIONAL CONFERENCE FOR EUROPE, NICOSIA, CYPRUS, 29-31 MAY 2002

⁶⁸ FAO 2003 *Review of Basic Food Policies, Commodities and Trade Division*, Rome

⁶⁹ EC 2004b *Prospects for Agricultural Markets and Income 2005-2012*,

⁷⁰ See Section 4.1 for sugar trade and production forecasts

2.4. Trends in Beef Production and Trade

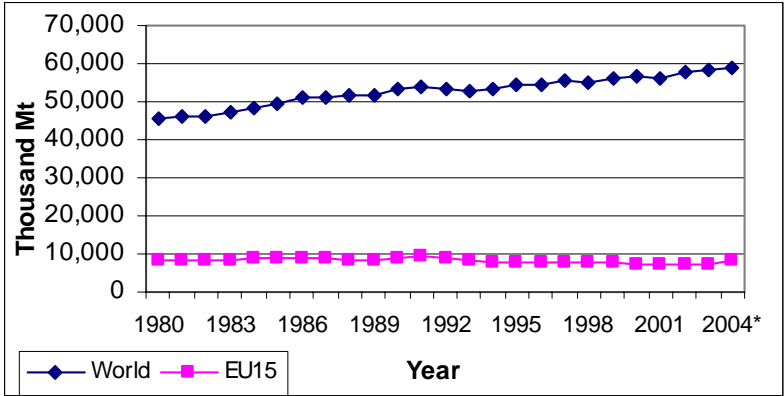
2.4.1. World Beef Production⁷¹

World beef production has increased steadily since the 1980s, reaching a total of 59 million Mt in 2004 - a growth of 30%. This is clearly below the growth of other meat products such as pigmeat (90%) and poultry (200%), suggesting that beef is losing its share in the global meat market.

Production is highly concentrated as four countries account for two thirds of the 2004 global production. The largest producer is the US with 19.2 %, followed by the EU25 (13.7%), Brazil (13.2%) and China (11%). They are followed by Argentina, Australia and Russia (see Graph 2.25). The US is also the largest beef consumer accounting for 19% of world consumption, followed by the EU (11%), Brazil (9 %), China (9%) and India (4 %).

A major contributor to the market loss of beef is its higher relative price. In the main protected markets, higher levels of protection have been afforded to beef compared to pigmeat and poultry (an exception being the high level of protection afforded to the pigmeat industry in Japan).⁷²

Graph 2.24: World Beef Production



Source: FAOSTAT; (*): 2004 includes EU25

The beef market in the EU is highly concentrated in domestic production and consumption. Self-sufficiency accounts for more than 90% of domestic demand.⁷³ Although imports from third countries are relatively small, they have been increasing steadily in recent years while domestic production has been declining. Until the early 1980-1990s production remained within the range of 8-9 million Mt, but since the mid-1990s there has been a clear trend of decline. As a result the EU15’s share of global

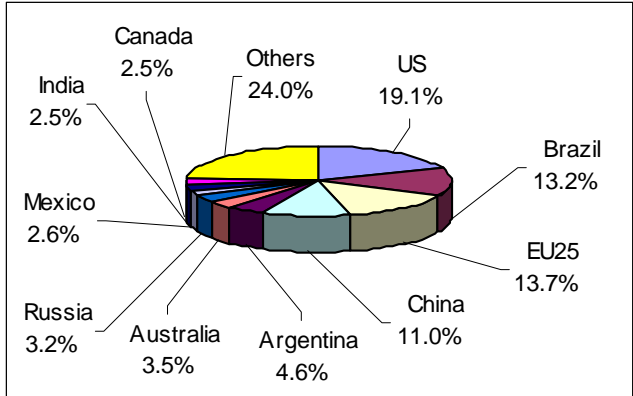
⁷¹ Production data includes FAOSTAT Codes 0867 Beef and Veal

⁷² ODI-IIED, 2005

⁷³ RIDES 2003

beef production dropped from 18.7% in 1980 (8.5 million Mt) to 12.6% in 2003 (7.4 million Mt). EU enlargement has had little impact on total beef production as the EU25 produced 8.1 million Mt – and the new Member States only contribute some 8% and 6% of EU25 production and consumption, respectively.⁷⁴

Graph 2.25: Main Beef Producing Countries, 2003



Source: FAOSTAT

The EU beef and veal market was strongly disrupted by the 1996 and 2000/2001 BSE (Bovine Spongiform Encephalopathy) scares, Foot and Mouth Disease (FMD) and by the measures taken in response to these crises, including animals withdrawn.⁷⁵ The impact of these measures reinforced the structural reduction of the EU cattle herd due to a constant reduction in the dairy herd linked to the joint effect of constant milk quotas and increasing milk yields. In addition, the 2000 CAP reform introduced more stringent cattle stocking density constraints. All these factors have had a profound impact on beef production.⁷⁶

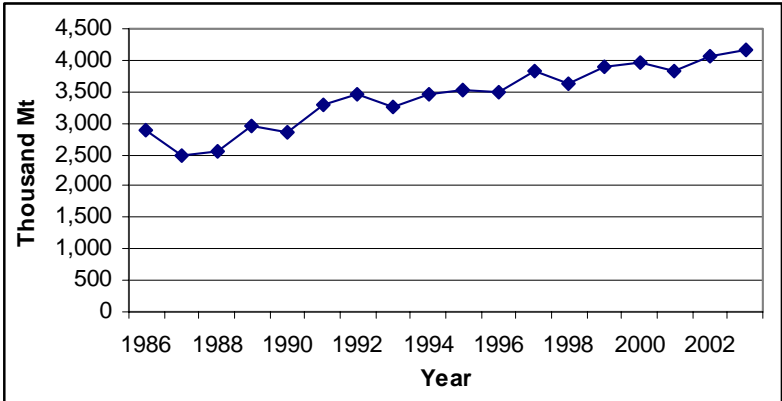
2.4.2. World Beef Trade^{77 78}

One quarter of world beef production enters into international trade⁷⁹. Trade in beef increased by 44% between 1986-2003, trading a total of 4.1 million Mt in 2003. Growth in beef trade, however, is lower than that shown for other meat products such as poultry or pigmeat, reflecting a market decline in beef.

⁷⁴ EC 2004b *Prospects for Agricultural Markets and Income 2005-2012*,
⁷⁵ EC 2004b *Prospects for Agricultural Markets and Income 2005-2012*
⁷⁶ EC 2004b *Prospects for Agricultural Markets and Income 2005-2012*,
⁷⁷ Trade data include FAOSTAT Codes 0867 Beef and Veal and 0870 Beef and Veal Boneless
⁷⁸ Trade data excludes EU intra-trade unless otherwise specified
⁷⁹ ODI-IIED 2005

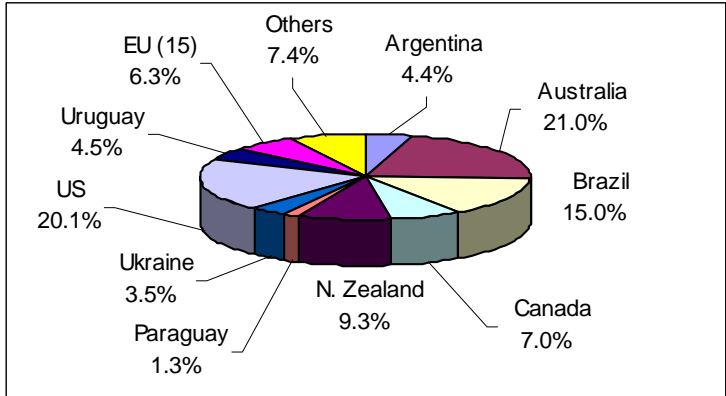
Australia is the largest exporting country, with 21% of global exports in 2003. This reflects a clear exporting inclination as the country only holds 3.5% of global production. It is closely followed by the US (20.1%) and Brazil (15%). Other important international suppliers are New Zealand, Canada and the EU (see Graph 2.27). Brazil has shown a marked increase in its global participation since the late 1990s, growing from 2.3% in 1994 to 15% in 2003. The EU, the US and Canada, on the other hand, have experienced a fall in their participation, especially during the last couple of years. In the case of the EU, its market share fell from 22% in 1994 to only 6.3% in 2003 (See Graph 2.28). This may be explained by the BSE scares that have taken place first in Europe and then in North America.

Graph 2.26: Global Trade in Beef



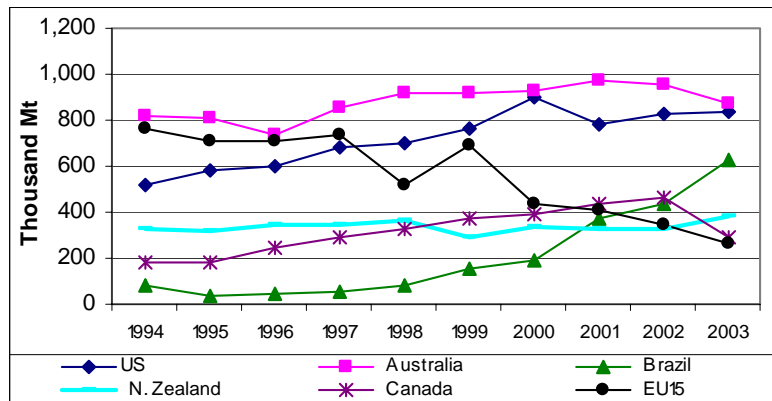
Source: FAOSTAT

Graph 2.27: Main Beef Exporting Countries, 2003



Source: FAOSTAT

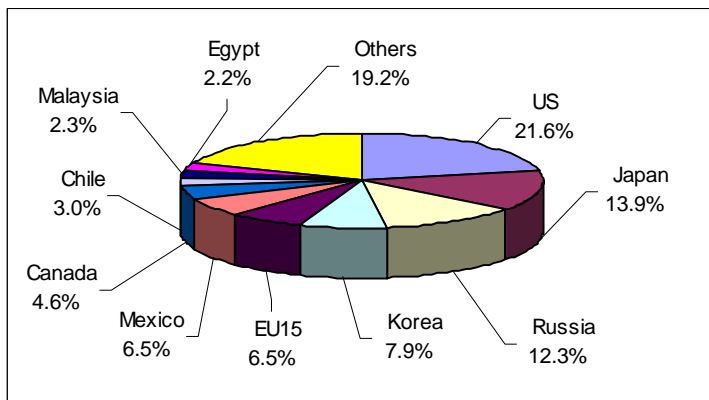
Graph 2.28: Evolution Beef Exports -Main Exporting Countries



Source: FAOSTAT

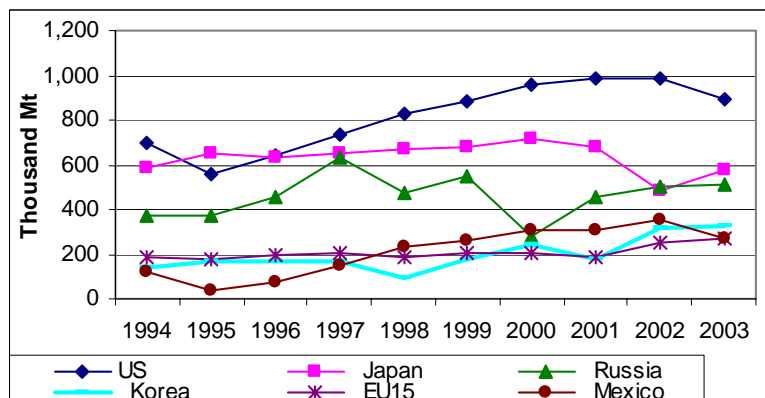
Main importer countries, on the other hand, are the US (21.6%), Japan (13.9%), Russia (12.3%), Korea (7.9%), the EU15 (6.5%) and Mexico (6.5%). (See Graph 2.29.)

Graph 2.29: Main Beef Importing Countries, 2003



Source: FAOSTAT

Graph 2.30: Evolution Beef Imports -Main Importing Countries



Source: FAOSTAT

Global beef trade is segmented into a 'Pacific' market and an 'Atlantic' market.⁸⁰ The Pacific market mainly comprises Japan, South Korea, other East Asian and South East Asian markets, the US, Australia and New Zealand. The Atlantic market mainly comprises the EU, North Africa, the Middle East and Latin America. Countries trading in the Atlantic market are geographically closer, have historical trade links and tend to be affected by FMD. Mostly, they have been denied access to the FMD-free and more lucrative Pacific market. At times, there are exceptions to this general trade pattern, but overall Australia, New Zealand and the US tend to concentrate their exports in Pacific markets, particularly Japan and South Korea, while South American countries concentrate on the EU, North African and Middle Eastern markets.⁸¹

The pervasive effects of animal diseases are increasingly affecting global meat supplies and prices. Since 1996 BSE has been affecting the EU beef supply. In late 2003, BSE concerns also restricted North American beef export. Indeed, the major high value Asian beef markets remain closed to Canadian and US exports. While constrained export supplies in 2004 put upward pressure on meat prices, the long-term ability of some of these countries to access key meat markets remains uncertain.⁸² Developing countries, especially large exporters from South America, are expected to retain or even further increase their net export position in global markets.⁸³

2.4.3 EU Beef Trade

EU beef exports have been falling over the last two decades, accounting for 262 million Mt in 2003. This is just about a third of the annual average exported during the second half of the 1980s. As a consequence, the EU share of global exports fell from an average of 28% from 1986 to 1990 to only 6.3% in 2003.⁸⁴ EU15 beef imports, on the other hand, have grown by 63% since 1986. They reached 270 million Mt in 2003 accounting for 6.5% of global beef imports.⁸⁵

EU beef consumption quickly returned to pre-BSE level and has been higher than production, explaining the import increase of recent years. Overall, the EU is a net beef importer, and its beef trade balance has dramatically worsened. (See Graph 2.31.) The deteriorated EU net export position has

⁸⁰ ODI-IIED 2005

⁸¹ ODI-IIED 2005

⁸² OECD-FAO 2005

⁸³ OECD-FAO 2005

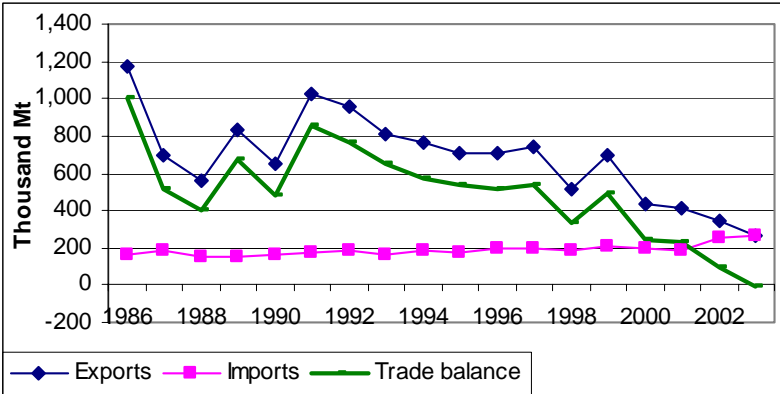
⁸⁴ The difference between this figure and the percentage provided in Table 2.2 is explained on that in the former, the estimation was made on the basis of import quantities (metric tonnes) and in the later on import values (US\$).

⁸⁵ The difference between this figure and the percentage provided in Table 2.2 is explained on that the former estimation was calculated on the basis of import quantities (metric tonnes) and the later using import values (US\$).

been strongly influenced by BSE disease, high price (due to lack of domestic supply) and an adverse exchange rate. The main EU export market is currently Russia.⁸⁶ A high proportion of EU exports also compete with low-cost South American beef exports in the North African and Middle East markets.⁸⁷ This EU negative export trend will persist, as high EU beef prices are likely to remain. Indeed the recent 20% drop in export refund levels is also hampering further exports.⁸⁸

About 90% of EU imports come from South America (Atlantic market). Access to the EU by Pacific market exporters is restricted by tariff quotas and the requirement to be free from hormone growth promotants, rather than any disease issues.⁸⁹ It should be noted that the EU, together with Japan and South Korea are the most protectionist countries in the world beef market, accounting for almost 90% of total support to beef producers. Beef protection in the EU is exceptionally high (beef import tariffs now average 80%) and has increased. The EU is the only producer which uses export subsidies in the beef sector. Government expenditures to combat BSE and FMD in recent years have added to measured protection levels. The EU provides at least half of its aggregate assistance to the beef sector through domestic support and export subsidies⁹⁰

Graph 2.31: EU Beef Trade



Source: FAOSTAT

Brazil, Argentina and Uruguay are the main beneficiaries of expanding EU beef demand whereas quarantine restrictions, including the hormone ban, continue to restrict US exports to the EU. In some member states Latin American beef has started to replace traditional imports from African countries with preferential import quotas.⁹¹ Currently, four Southern African countries (Botswana, Namibia,

⁸⁶ USDA, 2005c, *EU-25 Livestock and Products Annual 2005*, GAIN report Number: E35141, USDA Foreign Agricultural Service

⁸⁷ ODI-IIED 2005

⁸⁸ USDA, 2005c, *EU-25 Livestock and Products Annual 2005*, GAIN report Number: E35141, USDA Foreign Agricultural Service

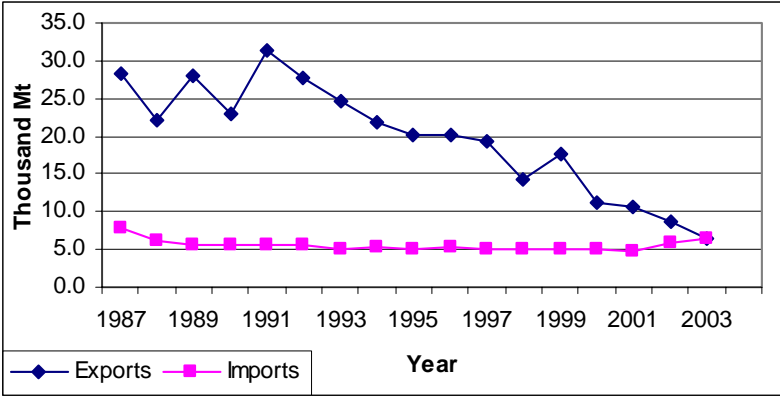
⁸⁹ ODI-IIED 2005

⁹⁰ ODI-IIED, 2005

⁹¹ ODI-IIED (2005)

Zimbabwe and Swaziland) enjoy access to the EU market under preferential conditions (subject to quota) through the Beef and Veal Protocol attached to the Cotonou agreement.⁹² This protocol waives the EU’s ad valorem duty (12%) and reduces the specific duty charged on specified volumes of chilled de-boned beef (ranging from €1,414/tonne to €3,041/tonne) by 90%.⁹³

Graph 2.32: EU Share of Beef Trade



Source: FAOSTAT

Beef exports from Southern Africa beneficiaries of the Protocol to the EU market largely consist of high quality cuts of beef for which premium prices can be obtained. This means that prices received by Southern African beef exporters tend to be much higher than the EU intervention price for beef. It also means that supplies of these high-grade quality cuts are limited. As a consequence, during periods of drought the supply of high-grade meat tends to be disproportionately reduced. This is a major factor in the under-supply of beef to the EU market in certain years under the Beef Protocol.⁹⁴

Seven Southern African Least Developed Countries (Angola, Lesotho, Malawi, Mozambique, Tanzania, Zambia and the Democratic Republic of Congo) now receive duty-free access to the EU market for beef under the EBA Initiative. However, stricter SPS standards and the investment costs associated with meeting these standards are likely to constitute a major barrier to Least Developed Southern African Countries exploiting the new arrangements.⁹⁵ The introduction of measures to assist in complying with EU hygiene standards, most notably the establishment of livestock identification schemes, is having adverse consequences on small-scale cattle farmers in Southern Africa.⁹⁶

On the whole EU beef production and exports are projected to continue their negative trend in the long term. A steady demand and a tight domestic supply are expected to result in steady prices in the long

⁹² See section 3.2.2 for detail on the Cotonou Protocol
⁹³ ODI-IIED (2005)
⁹⁴ ODI-IIED (2005)
⁹⁵ ODI-IIED (2005)
⁹⁶ ODI-IIED (2005)

term, attracting more imports entering at full duty, notably high-quality beef cuts from South America. Extra-EU25 exports will be more and more constrained by low domestic availability and lower competitiveness and exports are projected to continue their declining trend during the next decade.⁹⁷

⁹⁷ EC 2004b; OECD-FAO (2005)

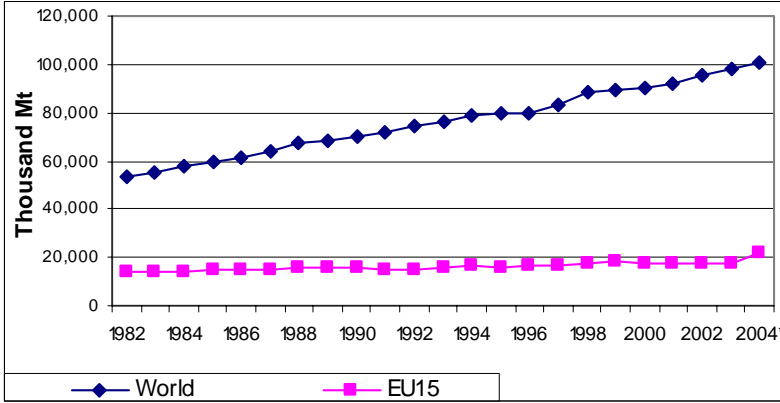
2.5. Trends in Pigmeat Production and Trade

2.5.1. World Pigmeat Production ⁹⁸

Pigmeat production has increased by 90% since the early-1980s, reaching a total of 101 million Mt in 2004. Pigmeat together with the poultry sector are considered the most dynamic segments of the meat sector (200% increase for poultry over the same period). A displacement of the demand away from beef has clearly benefited the positive development of the pigmeat sector.

China alone accounted for about 50% of 2004 production, followed by the EU25 (21.4%) and the US (9.2%). It should be noted that the EU15 accounted for about 79% of EU production in 2004 while the ten new Members States contributed with the remaining 21% (mainly Poland and Hungary).

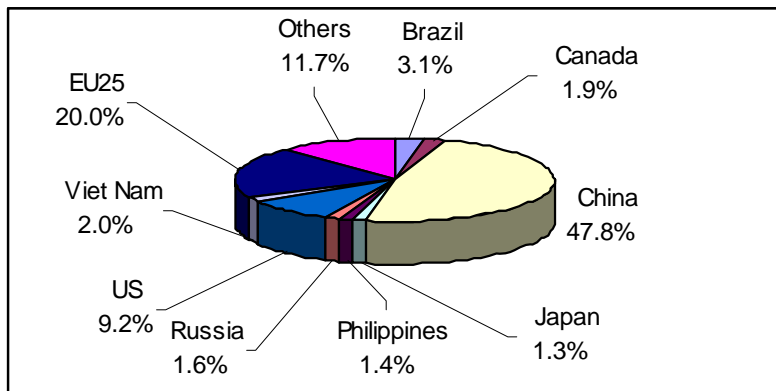
Graph 2.33: World Pigmeat Production



Source: FAOSTAT; (*): Year 2004 id for EU25

⁹⁸ Production data includes FAOSTAT Codes1035 Pigmeat

Graph 2.34: Main Pigmeat Producing Countries, 2004

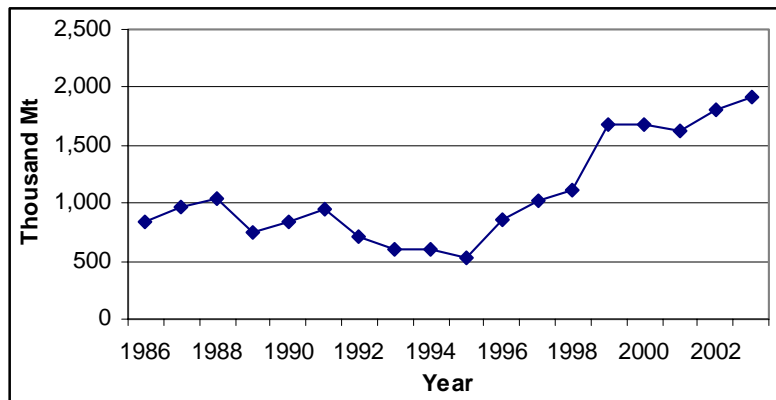


Source: FAOSTAT

2.5.2 World Pigmeat Trade

After several years of stagnation, world trade in pigmeat has grown significantly since the mid-1990s. In 2003 global trade in pigmeat accounted for 1.9 million Mt, a 262% increase compared to 1995. Only 2% of world pigmeat production enters into international trade, which may reflect the fact that the largest pigmeat producer - China- is mostly oriented to supply its domestic market.

Graph 2.35: Global Trade in Pigmeat

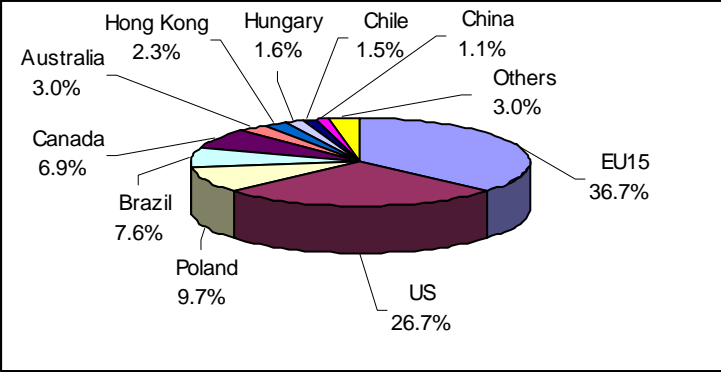


Source: FAOSTAT

The EU and the US are the largest exporting countries together accounting for more than 63% of global exports in 2003 (See Graph 2.3). The EU has increased its exports by more than 370% during the last 10 years, positioning itself as the largest pigmeat exporter (see Graph 2.37). In 2003 the EU15

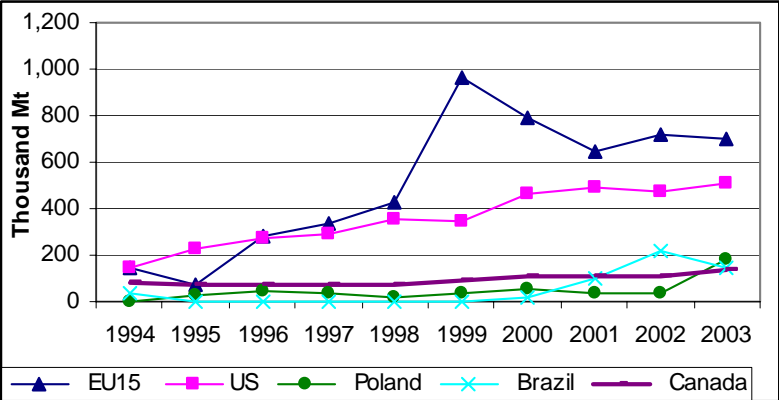
accounted for 36.7% of world exports (703 million Mt).⁹⁹ Following EU enlargement (the EU25) this figure rose to 48%, an increase that is basically explained by exports from Poland and Hungary. The US is the other important international pigmeat supplier, accounting for 26.7% of global exports. The US has increased its exports by 241% over the last decade. Other countries that are profiling as important pigmeat exporters are Brazil (7.6%), Canada (6.9%) and Australia (3.0%).

Graph 2.36: Main Pigmeat Exporting Countries, 2003



Source: FAOSTAT

Graph 2.37: Evolution Pigmeat Exports



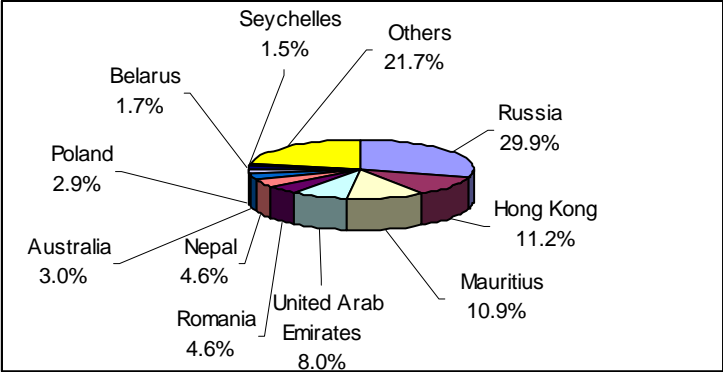
Source: FAOSTAT

Pigmeat imports, on the other hand, accounted for 1.8 million Mt in 2003. Main pigmeat importers are Russia, Hong Kong and Mauritius accounting together for 52% of pigmeat imports in 2003. Russia has dramatically increased imports since 1999 (by 153%) consolidating itself as the main global buyer of pigmeat. In 2003 Russia shared 29.9% of global imports, followed by Hong Kong (11.2%) and Mauritius (10.9%). It should be noted, however, that until the mid-1990s Japan was the largest pigmeat importer, comprising about 41% of global imports in 1994. However, since then it has dramatically reduced its imports (passing from 494 thousand Mt in 1994 to less than 2 thousand Mt or

⁹⁹ The difference between this figure and the percentage provided in Table 2.2 is explained on that for the former, the estimation was made on the basis of import quantities (metric tonnes) and for the later on import values (US\$).

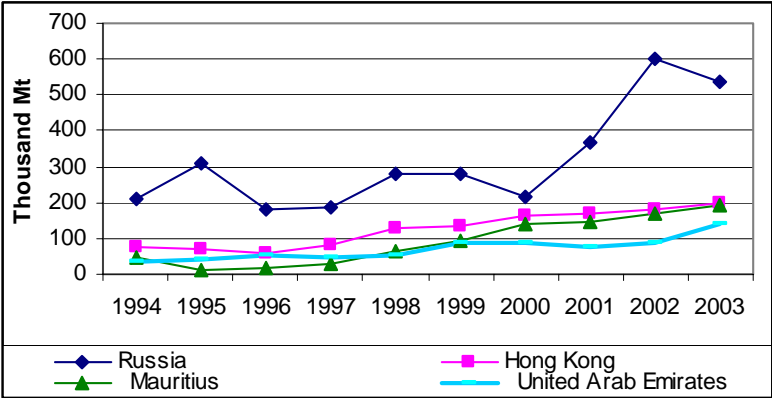
less than 0.2% of global imports in 1995) and this situation still persists. This can be attributed to a high level of protection for the pigmeat industry in Japan.¹⁰⁰

Graph 2.38: Pigmeat – Main Importing Countries, 2003



Source: FAOSTAT

Graph 2.39: Evolution Pigmeat Imports



Source: FAOSTAT

2.5.3 EU Pigmeat Trade

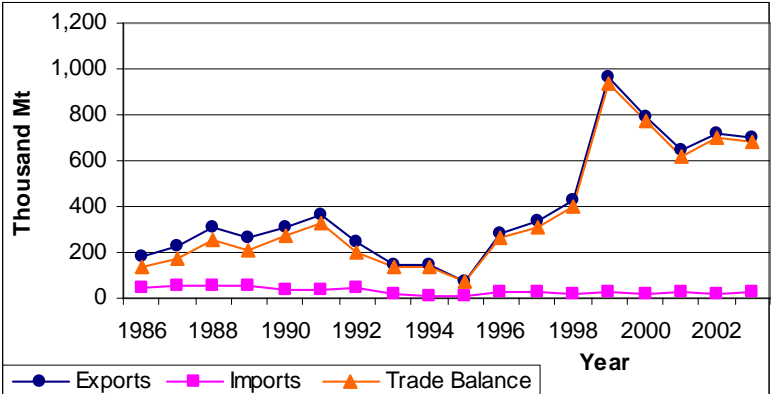
The EU has traditionally been a net exporter of pigmeat. Total EU pigmeat exports in 2003 accounted for 703 thousand Mt while imports were only 25 thousand Mt. EU exports tend to show a positive trend (285% increase for the period 1986-2003) while imports have been decreasing (a 50% drop during the same period). Therefore, the EU pigmeat trade balance is increasingly favourable for the EU.

¹⁰⁰ ODI-IIED, 2005

EU pigmeat exports exploded in mid 1990s, reaching a peak in 1999 (966 thousand Mt). However, EU food scares (BSE disease) at the end of the decade and changes in demand preferences towards other meat products (poultry) led international demand (Asian countries mainly) away from both the EU market and the pigmeat sector. In 2002, EU pigmeat exports started to show a positive trend once again (positively influenced by a substitution effect from Avian Influenza), although they are still 37% below 1999 levels.

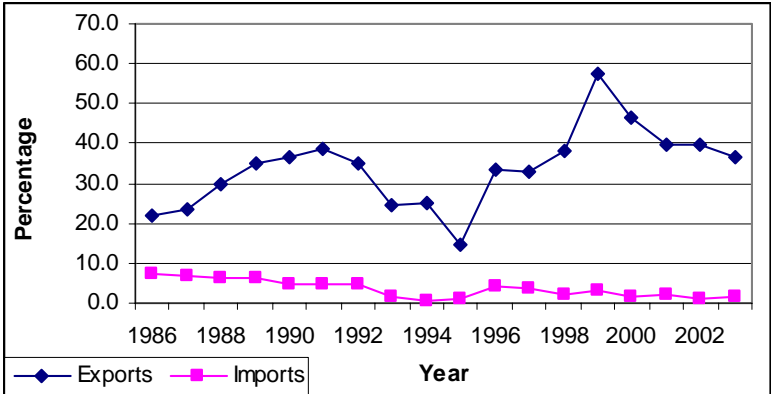
Forecasts predict that EU exports will continue to expand but at a slower rate than in the nineties, due to the competition of poultry meat which is foreseen to capture most of the increase in overall meat consumption. However, the EU will remain the largest pigmeat supplier.

Graph 2.40: EU Pigmeat Trade



Source: FAOSTAT

Graph 2.41: EU Share of Pigmeat Trade



Source: FAOSTAT

3. Key EU Policy and Tools Affecting World Trade and Production Patterns in Agriculture

The focus of this report is primarily on sugar and soy. Therefore the relevant CMOs and CAP measures are examined in more detail below. The sugar CMO is very complex and provides a high level of market protection for EU producers. In contrast, the soy sector, which does not have a CMO, is not particularly supported in the EU. A brief summary of the CMOs for beef and pigmeat concludes this section.

3.1. The CAP

The Common Agricultural Policy (CAP) is an integrated system of measures originally designed to stabilise commodity prices and production levels in the EU, and to deliver a range of broader structural and environmental goals in rural areas. The contemporary CAP is structured according to two ‘Pillars’. The first Pillar sets out the EU’s approach to agricultural market policies, and is the key area of concern for this report. The second Pillar concerns structural, rural development and environmental policies and is aimed at, for example, tackling the problems associated with rural infrastructure and improving the environmental management of agricultural land.

The first Pillar, or Pillar I of the CAP, was originally designed to meet the objectives of the 1957 Treaty of Rome. These objectives were, and continue to be:

- to increase agricultural productivity by promoting technical progress and by ensuring the rational development of agricultural production and the optimum utilisation of the factors of production, in particular labour;
- to ensure a fair standard of living for the agricultural community, in particular by increasing the individual earnings of persons engaged in agriculture;
- to stabilise markets and to assure the availability of supplies;
- to ensure that supplies reach consumers at reasonable prices.

These objectives were pursued mainly through a series of related, but separate ‘common market organisations’ (CMOs). There are CMOs for sugar, beef and pigmeat, but not for soy. Each CMO was designed to manage the overall market for a specific commodity with variable levels of intervention. The characteristics of every CMO therefore vary, and some are more complex in nature than others. Typically, each CMO might include the following tools:

- a price support system, designed to achieve a particular price for the commodity in question;
- a system of direct support payments, paid to the farmer in return for the production of a certain quantity of the commodity in question;
- a suite of production constraints, aimed at limiting the total quantity produced, or the amount eligible for support payments;
- and a range of tools aimed at controlling the overall level of imports of the specified commodity entering the EU, as well as some tools designed to assist the export of EU produce on the world market.

The above tools impinge, to varying levels, on the EU's production, exports and imports of sugar, beef and pork. In comparison, the soy sector is relatively unprotected. Table 3.1, below, summarises which tools apply to which CMO, and shows how the application of the tools varies between each of the CMOs. The following section explains the purpose of each of these tools in more detail, and explains a little more how they work in practice.

Table 3.1. Theoretical Structure of the CMOs for Sugar, Beef and Pigmeat and Overview of Support for the Soy Sector.

	Price Support System	Direct Support Payments		Production Constraints	Management of Trade with non-EU countries						
		Included in SFP	Coupled payment?	Quotas	Import and export licences required	Application of Common Customs Tariff to Imported Goods	Levy System	Option to Implement Safeguard Measures	Tariff Quotas	Export Refunds	Prohibition of Preference Arrangements for Unprocessed Imports
Sugar CMO	Yes – complicated system of floor prices.	No	No	Yes, but do not limit production.	Yes	Yes	Yes	Yes	Yes	Yes – but limited to 1.2m tonnes.	Yes
Pigmeat CMO	Yes – prices fluctuate more regularly than for sugar.	No	No	No	Yes	Yes	Yes	Yes, but seldom used.	Yes	Yes – but not used in past 20 years.	Yes
Beef CMO	Yes –	Yes	Yes, various premia can be coupled to production.	No	Yes	Yes	Yes	Yes, but seldom used.	Yes	Yes – used regularly and recently.	Yes
Soy (no CMO)	No	Yes	No – only indirectly through coupled arable payment.	No	No	No	No	No	No	No	No

	Other
Sugar CMO	Manufacturers levy to cover costs of export commitments. Export levies – if world market price is 10% higher than intervention price.
Pigmeat CMO	Support to adapt industry more closely to market requirements

3.1.1. Characteristics of the CMOs

This section gives an overview of the various tools available within the CMO to influence both production and trade-flows. The application of these tools, in practice, varies between the CMOs. These differences are expressed in the following section (section 3.1.2), which presents more detail the precise make-up of each of the CMOs under consideration in this report. It should be noted that the CMOs are tremendously complicated devices. This report does not aim to provide a comprehensive overview of each CMO, but rather to illustrate what they are aiming to achieve, and how as a result, they affect the production of certain commodities in the EU, and the trade-flows of the commodity into and out of the EU. All of the details are not captured here; for example, the difference in the application of the CMOs between the EU15 (the older Member States) and the EU10 (the newer Member States which acceded to the EU in May 2004).

- **Price Support System**

One of the main aims of each CMO is to set a floor certain price for agricultural products. In most, but not all cases, this is achieved by setting an *indicative price* and an *intervention price*. The indicative price is the target price level at which the Council or Commission would expect the commodity to sell on the internal EU market in reasonably normal conditions. The intervention price is set below the indicative price. If the market price falls below the intervention price, certain official bodies within the Member States buy up and store an agreed quantity of the commodity in order to raise the internal market price. This is called intervention. There is a third price, called the *threshold price*, which is the minimum price at which imported goods may be sold. This raises the market price of imported goods up to the EU target price, and is aimed to encourage EU businesses to buy from within the EU.

- **Direct support payments to farmers**

Historically, the CAP rewarded farmers financially for producing certain commodities. Following the 2003 reform of the CAP, the link between production and producer support payments was mostly broken. Farmers now receive the *Single Farm Payment (SFP)*, which is calculated according to how much the farmer received in subsidies during the 2000-2002 reference period and is paid on an area basis. Each Member State has decided whether to fully or partially *decouple* the SFP from production. In the case of full decoupling, the farmer does not have to produce a specific commodity, or indeed anything, in order to receive the SFP. Full decoupling is seen to increase the freedom of the farmer to produce according to market demands. In the case of partial decoupling, a certain proportion of the relevant subsidy payment remains dependent on production. Some of these payments are of relevance to this study and can remain coupled to production at the following rates:

- arable sector: up to 25% of the current per hectare payments;

- beef sector: up to 100% of the slaughter premium for calves and up to 100% of the suckler cow premium and up to 40% of the slaughter premium, or up to 100% of the slaughter premium or up to 75% of the special male premium.

In order to avoid any penalty deductions to the total SFP a farmer is entitled to, the farmer must comply with a range of environmental and non-environmental EU Regulations and Directives (such as the birds and habitats Directives) as well as a set of additional environmental standards. This is called cross-compliance. Compulsory deductions from the SFP are made to increase funding for Pillar II (in the process called ‘modulation’). Additional voluntary deductions can be made by a national government to increase the level of modulation and the level of Pillar 2 funding, or to create a ‘national envelope’. The funds generated for a national envelope can be used either to target certain types of farming which are important for the environment or to improve the quality and marketing of certain agricultural products.

- **Production Constraints**

Some CMOs restrict the total amount produced to a fixed quantity, generally referred to as quotas. This is particularly true for the milk regime, but as a whole does not apply to other regimes. There are some production constraints relevant to this report, such as set-aside on arable land and limits to production in the sugar regime.

- **Management of Trade with non-EU countries**

The trade element of the CAP affects the level of imports and exports of agricultural produce coming into and out of the EU.

Importers require an *import licence* for certain products and need to pay an *import duty* as shown in the common customs tariff. In certain cases, an additional levy may be charged. If there is a possibility that the Community market may be unbalanced by certain imports or exports, the Council may implement *safeguard measures*, which may include the suspension of imports. This tool is used only very occasionally. There are certain trade agreements with non-EU countries, explored in section 1.2, that exempt the import of certain products from customs duties or privilege them with preferential tariffs. *Tariff quotas*, which fix the quantity of imports that may be imported into the EU without incurring import duties, may also be set on a non-discriminatory basis.

In terms of exporting agricultural produce to non-EU countries, EU exporters of some commodities, mainly milk and sugar, benefit from the provision of *export refunds*. These refunds are paid in order to subsidise European exports so that their price is reduced to world market levels, therefore improving the competitiveness of European produce. Exporters may require an *export licence*.

- **Preference Arrangements for Unprocessed Imports**

There is a system of special preference arrangements which, in certain cases, allows a product to be imported into the EU from a non-EU country without the payment of customs duties, so long as it is processed and re-exported. Similarly, goods may be exported to a non-EU country for processing and re-imported without a levy. The EU has the option to suspend these preferential arrangements.

3.1.2 The CMO for Sugar

The sugar CMO, which came into force in 1968, is due to be reformed for the first time in 2005. The sugar CMO is one of the most complex and unreformulated CMOs in the EU. An explanation of the current sugar regime will be followed by an overview of the proposed reform, the final version of which, once agreed, is expected to come into effect in 2007.

3.1.1.1. The Current Sugar CMO

The sugar CMO can be characterised by a system of price support for European producers and a system of levies and tariffs which control imports into and exports from the EU, and therefore shield European producers from competitive, external competition. There are three levels of support for different quantities of EU sugar production, divided between three different headings: 'A', 'B' and 'C'. It is important to stress the differences between these three quotas as they impinge in both world production and trade. The total quantity of 'A' sugar is set according to European demand. The total quantity of and 'B' sugar is set according to the needs which arise from a shortfall in supply or an increase in demand. Any sugar produced in excess of 'A' and 'B' quotas is classified as 'C' sugar and cannot be sold in the EU. These quotas are divided between the different Member States.

- **Guaranteed prices**

The intervention price for white and raw sugar is fixed until 2006. The intervention price for white sugar is €3.19 per 100 kgs and the intervention price for raw sugar is €2.37 per 100 kgs. For 'A' beet the minimum price is €46.72 per tonne and for 'B' beet the minimum price is €32.42 per tonne. The world market price is two to three times lower than these figures. If the world market price falls below the intervention price, intervention agencies in the relevant Member States can buy the sugar from the producer at the intervention price. This sugar is either stored and exported or destroyed. The sale of subsidised exports on the world market has been called 'dumping'¹⁰¹. Dumping affects the

¹⁰¹ Sustain (2000) Sugar, trade and Europe. A discussion paper on the impact of European sugar policies on poor countries. London: Sustain.

income of farmers in developing countries because firstly, sugar grown in and exported from the EU is often cheaper than locally grown sugar, and secondly, the influx of large quantities of cheap sugar onto the world market depresses the world market price.

- **Quotas**

Quotas are used to limit the total quantity of sugar eligible for price support. Each Member State allocates fixed 'A' and 'B' sugar quotas to the relevant farm holdings. The level of producer levies varies between these two types of quota. 'C' sugar is produced outside of these quotas and must be sold at world market prices outside of the EU without the use of export refunds.

Certain lobby groups have argued that 'C' sugar is effectively subsidised by 'A' and 'B' sugar beet production because 'C' sugar production makes up a small proportion of overall farm production alongside both 'A' and 'B' quota production¹⁰². Australia, Brazil, and Thailand appealed to the WTO in July 2004 about the trade distorting effects of the cross-subsidisation of 'C' sugar. The WTO Panel agreed with Australia, Brazil, and Thailand, and following an appeal by the EU, the WTO Appellate Body came to the same conclusion in May 2005. The EU had already commenced work on the reform of the sugar CMO and the necessary changes required by the WTO's ruling should be accounted for in the sugar reform proposals published in June 2005.

3.1.1.2. Reform of the Sugar CMO

The new sugar regime is scheduled to start in 2007 and last until 2015. The main elements of the reform proposal made earlier this year by the Commission¹⁰³ are as follows:

- **Price cuts**

In order to help improve EU competitiveness and reduce the gap between the current EU intervention price and the prevailing world price, an overall 39 % cut in the EU price for white sugar has been proposed. The intervention mechanism will be gradually phased out and replaced by a private storage scheme whereby aid will be granted to temporarily withdraw sugar from the market. This will be implemented if the market price falls below the reference price, which is the new name given to the intervention price. In practice, a 20 % reduction will apply in 2007/8, rising to 39 % by 2008/9. The new 'reference' sugar price will be €31.9 per tonne in 2006/07, declining to €35.5 per tonne in 2009/10. There will be an accompanying cut in the price of sugar beet starting at 24.7 % in 2006/7

¹⁰² Sustain (2000) *ibid.*

¹⁰³ COM (2005) 263 22.06.2005 Proposal for a Council Regulation on the common organisation of the markets in sugar

rising to 42.6 % by 2007/8. This translates to a price of €32.86 per tonne in 2006/07, decreasing to €25.05 per tonne in 2008/09.

- **Revised sugar quotas**

The current 'A' and 'B' quotas will be merged into a single production quota for farmers. However, there will be no compulsory quota reductions during the four-year restructuring period. If, after the end of the restructuring period there has not been sufficient voluntary quota reduction, the Commission will propose compulsory linear quota cuts across the board from 2010. An additional one million tonnes of non-quota 'C' sugar will be allocated to producers in relevant Member States for a payment of €730 per tonne. Sugar for the chemical and pharmaceutical industries will be excluded from production quotas.

- **Compensation for price cuts**

Sugar beet producers will be compensated for price cuts through a new direct payment made to them. This will be paid through an existing support mechanism, the Single Farm Payment. The total value of the contribution of sugar payments to the overall SFP budget for each Member State will be equivalent to 60 % of the estimated revenue loss that is expected to result from the 39 % price cut. This will be calculated according to **each** producer's output during the reference period 2000-2002. The overall amount calculated will feed into each Member State's overall national budget for the SFP and be redistributed to each farmer claiming the SFP according to the criteria adopted by each Member State. These direct aids will be subject to cross compliance rules as well as modulation. The ten new Member States will receive exactly the same aid rates as the EU15. This aid will be added to their overall envelopes for direct aids but will not be subject to modulation or any reductions as the envelopes are not yet equivalent to those of the EU15.

Sugar farmers will therefore be less well-off under the new regime and it will become less cost-effective for smaller scale farmers especially to produce sugar. This decrease in profitability is likely to mean that smaller, less-efficient producers, particularly in more peripheral areas of the EU could cease production

- **Restructuring Scheme**

A voluntary restructuring scheme is proposed to operate for four years until 2009/2010. The scheme would provide incentives to encourage less competitive producers to exit the industry, provide funding to manage the social and environmental impacts of factory closure, and provide funds to promote the diversification of the economy in the most affected regions. In order to promote early uptake of the scheme, any factory that opts to leave the sector will be eligible for restructuring aid starting at €730 per tonne in year one, decreasing over the subsequent three years to €420 per tonne in year four. Sugar

beet growers who need to abandon production due to the closure of a factory which they have a contract with, will be eligible to receive a top-up aid payment.

- **Bioethanol production**

To encourage bioethanol production, sugar can be grown on set-aside land and will be eligible for the existing €45/ha energy crop premium.¹⁰⁴ The total amount grown is subject to a limit on the total eligible area.

- **Imports and exports**

The import and export mechanisms, other than the quota-based element, will continue to apply. These include the requirement for import and export licences, the prohibition of inward processing arrangements, the use of safeguard measures, the application of import duties as given in the Common Customs Tariff as well as the implementation of an additional import levy as required, and the use of tariff quotas and export refunds. The proposals maintain the existing preferential import commitment to ACP countries and India (see section 1.1.2 on the Cotonou agreement), the Least Developed Countries through the 'Everything But Arms' initiative, and the five Western Balkans countries (see section 1.1.3 on Trade Agreements).

- **ACP restructuring aid**

Approximately €40 million will be made available from the Commission's development budget in 2006 to assist ACP countries restructure their sugar industries and improve efficiency where production is viable or, where it is not viable, to restructure and diversify. Assistance is envisaged beyond 2006 but no financial commitments can yet be made until there is political agreement between Member States on the EU Budget for 2007-2013.

The European Union's Agriculture Council is hoping to reach political agreement on the reforms in November 2005 in order to give the EU a clear negotiating position going in to the WTO Ministerial Meeting to be held in Hong Kong in December 2005. The expected impacts of the proposed policy changes are discussed in section 2. These impacts are very controversial and the reform proposals have received criticism from farmers, industry bodies and national governments both in the EU and in developing countries.

¹⁰⁴ See Section 3.3 on Biofuels Policy

3.1.3 The CAP and Soy

Unlike sugar, there is no CMO for soy and the other oilseeds. However, there are a number of arrangements which influence the EU's production, exports and imports of soy.

- **Imports and Exports**

Soybeans can be imported duty-free into the EU¹⁰⁵. In comparison with sugar, the EU sets no internal price for soy, and the price of soy and other oilseeds fluctuates with the world market. There is also a commitment by the Community, agreed in the context of the Doha Round of trade talks, to the total elimination of export subsidies for oilseeds destined for developing countries¹⁰⁶. It should be noted that the EU is a large net-importer of oilseeds (mainly soy, but also sunflower seed), with imports expected to amount to 18.4m tons by 2012. In contrast, exports are expected to decline to 0.5m tons over the same period. On the other hand, tariffs apply to soy oil imports –a tariff of 8.8% in 2003, which will be gradually reduced to 6.4% to comply with WTO agreements.

- **Producer Support**

Following the 2003 CAP reform, European soybean producers now receive support through the Single Farm Payment. Prior to this reform, soybean farmers received support through the arable crops payment scheme. As part of the 2003 reform, Member States can either implement full or partial decoupling of this payment scheme. In the case of partial decoupling, Member States can keep up to 25% of the arable crops payment coupled to production. As such, there is less incentive for farmers to continue to produce soybeans. The contribution of the arable crops area payment scheme to the overall national budget for the SFP is based on the annual income payments made to farmers over the 2000-2002 reference period. The obligation for farmers to set-aside 10 % of agricultural land continues under the reformed CAP. Farmers can cultivate oilseeds for industrial use on set-aside land and Member States can pay up to 50 % of the costs associated with establishing the crop. Soybean oil, derived from soybeans, is an energy crop but may not be eligible for support.¹⁰⁷

Prior to the 2003 reform, the aid level for oilseeds was aligned to that for cereals, and payments made at a level of €63 per tonne. As a result of this alignment, the EU has argued that it is no longer bound by the Blair House agreement. The Blair House agreement originated in 1992 as part of the Uruguay Round Agreement on Agriculture and came into place due to an EU-US dispute on EU support for its oilseed market. The agreement limited the maximum EU oilseed area to those producers benefiting

¹⁰⁵ Commission Regulation (EC) No 1810/2004 of 7 September 2004 amending Annex I to Council Regulation (EEC) No 2658/87 on the tariff and statistical nomenclature and on the Common Customs Tariff OJ L 327 30.10.04

¹⁰⁶ DG Trade (no date) 'Oilseeds and oil', available from DG Trade website.

¹⁰⁷ See Section 3.3 on Biofuels Policy

from the oilseed payments to 4.9million ha. In the EU, there has historically been little incentive to grow soy, and when grouped together with other oilseeds such as rape and sunflower, has proved relatively unpopular to grow.

3.1.4 Brief summary of the CMOs for beef and pigmeat

- **The CMO for Pigmeat¹⁰⁸**

The CMO for pigmeat¹⁰⁹ covers live pigs (but not pure-bred breeding pigs) and derived products such as meat and processed products. In comparison to the sugar CMO, the pigmeat CMO is relatively light. The aim of the CMO, according to DG Agriculture, is to stabilise markets and guarantee a fair standard of living for farmers in the sector by setting up a price system and regulating trade with non-EU countries.

The following price support mechanisms, potentially affecting world trade and production patterns, are available under the CMO:

- Basic price - a basic price for a pig carcass of €1,509 per tonne.
- Intervention – when the Community price falls below 103% of the basic price, the Commission may issue grants to support the private storage of pigmeat products or the purchase of such products by public intervention agencies. Intervention can therefore be used to prevent or reduce the effect of a significant drop in prices. Although prices do fluctuate in the pigmeat sector, intervention has not been used for 20 years.

There is no support payment (i.e. the SFP) for pigmeat producers.

- **The CMO for Beef**

The following tools within the beef CMO may affect world trade and production patterns:

- Intervention payments for private storage can be made when the average price on the Community market falls below 103% of the basic price of €2,224 per tonne. Public intervention can also occur when the average market price of juvenile cattle or steers falls below €1,560 per tonne.

¹⁰⁸ Source of information is the DG Agri website:
http://www.europa.eu.int/comm/agriculture/markets/index_en.htm, accessed 22.08.05

- Export subsidies to assist exports of beef products and live animals.
- Decoupled income support – Following the 2003 reform, direct headage payments have been replaced by either fully decoupled or partially decoupled payments which are calculated according to each farm’s historic aid entitlement. There are a large number of payments available in the beef sector, including the special premium for male animals, the deseasonalisation premium, the suckler cow premium, the slaughter premium and the extensification payment. The effects of this are considered more in Chapter 4.

It should be noted that the CMO for dairy products is of importance to the beef sector. This is because two-thirds of the beef produced in the EU is derived from dairy herds.

¹⁰⁹ Council Regulation (EEC) No 2759/75 of 29 October 1975 on the common organisation of the market in pigmeat.

3.2. Trade Agreements

There are a number of bilateral, multilateral, regional and preferential trade agreements between the EU and many other countries. The various agreements have evolved over time and are highly complex in nature, with different policies for different groups of countries. The agreements include varying levels of import concessions. The agreements discussed here include the Generalised System of Preferences (GSP), which includes the Everything but Arms (EBA) initiative, the Cotonou agreement with the ACP (African, Caribbean and Pacific) group of countries, the trade arrangements with the Mercosur (Argentina, Brazil, Paraguay and Uruguay) bloc and the Stabilisation and Association Agreements with five countries in the western Balkans. These agreements are mainly guided by the WTO Agreement on Agriculture and will be influenced by the current Doha round of trade negotiations.

The first section describes the relevance of the current round of trade liberalisation talks to the production of and trade flows related to the commodities considered here.

3.2.1 WTO – Uruguay Agreement on Agriculture and Doha Round

The current round of trade negotiations builds on the principles for liberalisation established by the Uruguay Round Agreement on Agriculture (URAA) in 1994. The URAA established a set of rules for agriculture to reduce agricultural export subsidies, to support new rules for agricultural import policy by improving market access, to shift domestic support of agriculture away from those practices that affect production and trade flows and to agree on disciplines for sanitary and phytosanitary trade measures¹¹⁰. The URAA also established specific arrangements for LDCs.

The current Doha Round started in 2001 when at the Doha Ministerial meeting of WTO member countries, ministers agreed to make further progress with the reform and liberalisation of trade policies, and to reject the use of protectionism. One of the most important sectors in this round has been agriculture and talks have focused on export subsidies, market access and domestic support:

- Export subsidies – Member governments are obliged to work towards reducing and eventually phasing out all export subsidies. The EU has stated its willingness to eliminate

¹¹⁰ Huan-Niemi, E. & Niemi, J. (2003) The impact of preferential, regional and multilateral trade agreements. A case study of the EU sugar regime. ENARPI Working Paper No.1

all export subsidies within a given timeframe, so long as other countries, especially the USA, do the same, for example by removing export credits.

- Market access – WTO Member governments must increase market access. Market access to the EU market for agricultural goods from developing countries is a crucial point of debate. The EU has also proposed to reduce import tariffs, which are currently very high, by an overall average reduction of 36%.
- Domestic support – WTO Member governments must substantially reduce all forms of support that distort trade according to the rules agreed within the URAA.

The current negotiations over the reform of the EU sugar regime are central to the liberalisation agenda; a reform in line with the Commission's original 2005 proposals would be seen as an important step towards meeting the WTO's goals for liberalisation.

Political agreement on the various areas of negotiation will be sought at the WTO Ministerial meeting in Hong Kong in December 2005. Further negotiations on the details of any agreement will follow this. If agreement is reached, the trade reforms that stem from this agreement are likely to have a lasting impact on global patterns of agricultural production and trade.

3.2.2 The Cotonou Agreement with the African, Caribbean and Pacific countries

The Cotonou Agreement is a treaty that regulates trade flows between the European Union and 77 ACP (African, Caribbean and Pacific) countries. Figure X shows the location of these countries, which are listed in full in Annex 1. There are specific trade protocols between the EU and the relevant exporting ACP states for both the sugar and beef sectors.

Figure 3.1: ACP Countries



Source: Wikimedia, 2005

The Cotonou Agreement succeeds the Lomé Convention, the first version of which was signed in Lomé, Togo in 1975 following the accession of the UK to the EC. The UK had established a system of special trading preferences for sugar and bananas with its former colonies, and wanted to maintain this following accession. The other members of the EC also wished to guarantee supplies of raw materials and to help address development imbalances at least partly caused by colonialism. Under the Lomé Convention all ACP industrial exports, and most agricultural exports to the EC, including soy, were free of duty. Financial and technical aid was also provided to ACP countries through the European Development Fund. Trading protocols on sugar, beef and veal were also established and continue under the Cotonou Agreement.

The central objective of ACP-EC co-operation under the Cotonou Agreement¹¹¹, which entered into force in April 2003, are poverty reduction and eradication, sustainable development and the progressive integration of the ACP countries into the world economy. The agreement was signed in Cotonou, Benin in 2000 and has a duration of twenty years, with a clause allowing for revision every five years. Therefore the Community must decide whether to revise the current agreement in 2008. The Agreement reaffirms the importance of the beef and sugar commodity protocols, but allows for them to be reviewed in the context of new trading arrangements and in the context of their compatibility with WTO rules. The content of the two protocols is summarised below.

¹¹¹ Partnership Agreement Between the Members of the African, Caribbean and Pacific Group of States on the One Part, and the European Community And its Member States on the Other Part
http://europa.eu.int/comm/development/body/cotonou/pdf/agr01_en.pdf#zoom=100

3.2.2.1 Sugar Protocol

Under the Sugar Protocol, as set out in both the original Lomé Convention and in the Cotonou Agreement, the EU agrees to buy a fixed quantity of sugar from certain ACP countries each year at a guaranteed price in excess of the world market value of sugar, for an indefinite period. The price is aligned to the EU's internal sugar price. Sugar producers must abide by annual quotas (or production limits). These quotas, shown below in Table 3.2, continue to apply under the Cotonou Agreement. Under the Cotonou Agreement no changes to the Protocol can enter into force for five years from the date the Agreement itself entered into force i.e. before 2008. This system of preferences has helped the economic development of a number of ACP states including Mauritius, Fiji, Guyana and Barbados. The Sugar Protocol also applies to India.

Table 3.2: Agreed Quantities of Cane Sugar to be Exported to EU by Sugar-Exporting EU Countries in Each 12-Month Period¹¹².

ACP country	Agreed annual quantity of cane sugar (Mt of white sugar)
Barbados	49,300
Belize	39,400
Fiji	163,600
Guyana	157,700
India	10,000
Ivory Coast	2,000
Jamaica	118,300
Kenya	5,000
Madagascar	10,000
Malawi	20,000
Mauritius	487,200
St-Kitts-Nevis-Anguilla	14,800
Suriname	4,000
Swaziland	116,400
Tanzania	10,000
Trinidad and Tobago	69,000
Uganda	5,000
People's Republic of Congo	10,000
Zambia	0
Zimbabwe	25,000
TOTAL	1,316,700

3.2.2.2 Protocol on Beef and veal

There are special measures which allow ACP States which are 'traditional' exporters of beef and veal to maintain their position in the Community markets and provide a certain level of income for their producers. To do this, customs duties other than ad valorem duties applicable to beef and veal originating in the ACP states are reduced by 92%. Table 3.3 shows which ACP states are affected by this. The CMO in the beef and veal sector does not affect the obligations entered into by the EU under this Protocol. This protocol has particularly benefited Botswana.

Table 3.3: Agreed Quantities Of Beef And Veal Imports To Which Reduction Is Customs Duties Can Apply¹¹³

ACP State	Quantities (tons of boneless meat)
Botswana	18,916
Kenya	142
Madagascar	7,579
Swaziland	3,363
Zimbabwe	9,100
Namibia	13,000
TOTAL	52,100

3.2.2.3 Economic Partnership Agreements

Under the Cotonou Agreement EU and ACP countries are aiming to agree on new trading agreements called Economic Partnership Agreements (EPAs). Formal negotiations on the EPAs continue at present and are not expected to be concluded before 2007. The EPAs involve reciprocal obligations: the EU will provide free access to its markets for ACP exports in return for ACP countries providing free access to their own markets for EU exports. EPAs also aim to integrate the economies of ACP countries on a regional basis as well as tie them in to the EU economy. This is seen as a way to accelerate economic co-operation and development both within and between the regions of the ACP states and to accelerate the diversification of the economies of ACP states. The new agreement also distinguishes between ACP least-developed countries and those that are not least-developed. The least developed countries (39 of the total) will have free access to the EU market for essentially all their products.

According to the text of the Partnership Agreement, the system of trade preferences established by the Lomé Convention shall continue until the end of the preparatory period on 31 December 2007. The new trading arrangements (EPAs) are then meant to enter into force by 1 January 2008. However, the

¹¹² Source: EC, Annex V to the Partnership Agreement.

EPA negotiations are not expected to conclude before 2007¹¹⁴, and have been beset by slow progress, with negotiations on EPA with the 14 Pacific ACP States only starting in September 2004¹¹⁵. A delay to the original deadlines can therefore be expected. The preparatory period is intended to be used for capacity-building in the public and private sectors in the ACP countries. This will include measures to enhance competitiveness, to strengthen regional organisations, to support regional trade integration initiatives, budgetary adjustment, infrastructure upgrading and development and investment promotion.

In the text of the Partnership Agreement environmental issues are one of four cross-cutting themes that must intersect all areas of co-operation (the others being gender issues, institutional development and capacity building). One of the outlined approaches to achieving the central objective is by promoting environmental sustainability, regeneration and best practices, and the preservation of the natural resource base. The ACP-EU agreement aims to support specific measures and schemes to address critical sustainable management issues. These are stated as: tropical forests, water resources, coastal, marine and fisheries resources, wildlife, soils, biodiversity; protection of fragile ecosystems (e.g. coral reef); renewable energy resources; sustainable urban and rural development; desertification, drought and deforestation; and sustainable tourism. The Agreement further states that the development of international trade should be done in such a way as to ensure the sustainable and sound management of the environment.

3.2.3 The Generalised System of Preferences and the Everything but Arms Initiative

The Generalised System of Preferences (GSP) gives preferential EU market access to 180 developing countries, mainly for manufactured products. Agricultural products are only marginally covered by the GSP, but are fully included under the relatively recent Everything but Arms (EBA) initiative, which is one component of the GSP. A newly revised GSP commences in January 2006 and will be reviewed at the end of 2008¹¹⁶. Sugar is not included under the GSP but soy in the form of soya-bean oil is. Soya-bean oil is classified as a sensitive product and therefore the import duty is only reduced by 3.5 % (whereas tariffs are suspended for all non-sensitive products such as grapefruits and sweet potatoes).

¹¹³ Source: EC, Annex V to the Partnership Agreement

¹¹⁴ Agra Europe, 27.02.04

¹¹⁵ Agra Europe, 10.09.04

¹¹⁶ Council Regulation (EC) No 980/2005 of 27 June 2005 applying a scheme of generalised tariff preferences OJ L 169 30.06.05

The Everything but Arms (EBA) initiative was originally introduced by the EU in 2001. Through the initiative, duty-free access to the EU market for 48 Least Developed Countries (listed in Annex 1) is granted for all goods except arms and munitions. Six of the ACP Sugar Protocol signatories are included in the EBA initiative and nineteen of the EBA countries are known sugar producers (these countries are indicated in annex 1). However, duties will continue to be applied to sugar imports until July 2009. There will be a transition process whereby duty free tariff quotas will be increased by 15 % annually to reach 197,334 tonnes in 2008/09. After 2009, the EU will retain the option to implement safeguard measures if imports of sugar are seen to provoke a destabilising threat to the EU market.

3.2.4 The Balkans Stabilisation and Association Agreements¹¹⁷

The Stabilisation and Association Agreement process is seen as a stepping stone to the future integration of Albania, Bosnia and Herzegovina, Former Yugoslav Republic (FYR) of Macedonia, and Serbia and Montenegro into the European Union. Croatia has completed the process and applied to join the EU in 2005, whilst FYR Macedonia has concluded a Stabilisation and Association Agreement. The Stabilisation and Association process encourages the required domestic reform necessary for potential candidate countries to eventually be considered suitable candidates for joining the EU. The process involves forming formal contractual agreements and includes a system of trade preferences.

Since December 2000 the vast majority of products from all five countries have enjoyed duty-free and unlimited access to EU markets. For example, approximately 70% of all Croatia's trade is with the EU25. Duty-free access is given to the EU market for sugar and imports have risen from virtually zero in 1999 to over 270,000 tonnes in 2003¹¹⁸. In practice, under this arrangement, the countries benefit from high EU prices by exporting their total domestic production to the EU whilst supplying domestic needs by importing from third countries. In order to address this and encourage the more sustainable development of the Balkans economy the Commission proposed to introduce tariff rate quotas for each country in October 2004. There have been other problems with the arrangement. For example, in 2003/04 the EU imposed a 15-month ban on duty-free sugar imports from Serbia and Montenegro after it was found that much of the sugar entering the EU from the country did not originate from Serbia but had been imported¹¹⁹.

¹¹⁷ Information gathered from the DG External Relations website:
http://europa.eu.int/comm/external_relations/see/index.htm accessed 24.08.05

¹¹⁸ EC 2004c *Sugar import from Western Balkans: Commission proposes quotas to make trade more sustainable*, Press Release IP/04/1309, 26.10.04.

¹¹⁹ FAO (2004) *Sweetening agricultural development in the Western Balkans*, press release, 7.9.04

3.2.5 Free Trade Agreement between EU and the Mercosur¹²⁰

The EU currently has a framework agreement with the Mercosur (Southern Common Market) group of countries, which is comprised of Argentina, Brazil, Paraguay and Uruguay. Negotiations are currently taking place on developing this agreement into an 'Interregional Association Agreement', which would introduce free trade between the EU and Mercosur. However, negotiations have regularly stalled since starting in November 1999, most recently in April 2005. One critical point is that Mercosur would like greater access to EU agricultural markets for agricultural products. According to a report on an EU offer made in May 2004¹²¹, the EU was offering full liberalisation for a range of products within ten years (of the commodities of interest to this study, pig fat is included here) and a 50 % reduction in import tariffs over ten years for a number of other products, including sugar cane molasses. The EU proposed implementing tariff quotas for a range of sensitive products, which includes high-quality beef and also pigmeat. In return, the EU requires further concessions for industrial goods and services¹²².

As it currently stands, 16% of EU agricultural imports stem from Mercosur countries, and including principally soya and beef.

¹²⁰ Information gathered from Agra Europe, DG Trade and DG External Relations websites.

¹²¹ GAIN (2004) *EU-Mercosur Bilateral Trade Negotiations* – Update 2004

¹²² Agra Europe 1.04.05

3.3 Other EU Policy Tools Influencing Production and Trade Flows

There are a range of other EU policy tools that impinge on the EU's production, imports and exports of sugar, soy, beef and pork. These include:

- Biofuels policy: The EU is seeking to stimulate its biofuels sector and is offering an energy crop premium of €45 per hectare, although this payment is limited to a total area of 1.4m ha. This is available for all crops apart from sugar beet and only applies to short rotation coppice and miscanthus in the UK. Soy oil, created by crushing soy beans, can be used as a biofuel, but is not commercially attractive in the EU at present.
- Food safety standards: As far as they are relevant to the commodities under focus, the EU requires countries which import into the EU to set their food safety standards so they meet the EU's rather rigorous sanitary and phytosanitary standards. The EU has provided financial assistance for this, for example, by providing €19m to Mercosur and Chile for this purpose between 1994 and 1998. There are also rules governing the maximum residue levels of pesticides permitted in food. There are also certification requirements for animal and plant imports to show that they meet EU requirements.
- Product labelling: Relevant import rules for the commodities under focus include: beef labelling (origin of the animal), GMO labelling, and organic labelling (could be relevant for all four commodities). The import of soyoil in recent years has been dramatically affected by the GMO traceability and labelling requirements that came into force in 2003¹²³.

¹²³ GAIN (2005) EU-25 Oilseeds and Products Annual 2005

3.4 Summary

The tables on the following pages summarise the main element of the CAP and CMO and the effect that current CAP, trade agreements and other policies have on the EU's production of, and imports and exports of sugar, soy, beef and pork.

Box 3.1: Summary Proposed Reform EU Sugar Regime

The new sugar regime is scheduled to start in 2007 and last until 2014/15. The main elements of the reform proposal¹²⁴ are as follows:

Price cuts: In order to help improve EU competitiveness and reduce the gap between the current EU intervention price and the prevailing world price, an overall 39 % cut in the EU price for white sugar has been proposed. The intervention mechanism will be gradually phased out and replaced by a private storage scheme whereby aid will be granted to temporarily withdraw sugar from the market. This will be implemented if the market price falls below an agreed reference price. In practice, a 20 % reduction will apply in 2007/8, rising to 39 % by 2008/9. The new 'reference' sugar price will be €631.9 per tonne in 2006/07, declining to €385.5 per tonne in 2009/10. There will be an accompanying cut in the price of sugar beet starting at 24.7 % in 2006/7 rising to 42.6 % by 2007/8. This translates to a price of €32.86 per tonne in 2006/07, decreasing to €25.05 per tonne in 2008/09.

Revised sugar quotas: The current 'A' and 'B' quotas will be merged into a single production quota. However, there will be no compulsory quota reductions during the four-year restructuring period. If, after the end of the restructuring period there has not been sufficient voluntary quota reduction, the Commission will propose compulsory linear quota cuts across the board from 2010. An additional one million tonnes of non-quota 'C' sugar will be allocated to producers in relevant Member States. Sugar for the chemical and pharmaceutical industries will be excluded from production quotas.

Compensation for price cuts: Sugar beet producers will be compensated for price cuts through a new direct payment made to them which will be paid through an existing support mechanism, the Single Farm Payment. The total value of the contribution of sugar payments to the overall SFP budget for each Member State will be equivalent to 60 % of the estimated revenue loss that is expected to result from the 39 % price cut. This will be calculated according to each producer's output during the reference period 2000-2002. The overall amount calculated will feed into each Member State's overall national budget for the SFP and be redistributed to each farmer claiming the SFP according to the criteria adopted by each Member State. These direct aids will be subject to cross compliance rules as well as modulation. The ten new Member States will receive exactly the same aid rates as the EU15. This aid will be added to their overall envelopes for direct aids but will not be subject to modulation or

¹²⁴ COM (2005) 263 22.06.2005 Proposal for a Council Regulation on the common organisation of the markets in sugar

any reductions as the envelopes are not yet equivalent to those of the EU15. Sugar farmers will therefore be less well-off under the new regime and it will become less cost-effective for smaller scale farmers especially to produce sugar. This decrease in profitability is likely to mean that smaller, less-efficient producers, particularly in more peripheral areas of the EU could cease production.

Restructuring Scheme: A voluntary restructuring scheme is proposed to operate for four years until 2009/2010. The scheme would provide incentives to encourage less competitive producers to exit the industry, provide funding to manage the social and environmental impacts of factory closure, and provide funds to promote the diversification of the economy in the most affected regions. In order to promote early uptake of the scheme, any factory that opts to leave the sector will be eligible for restructuring aid starting at €730 per tonne in year one, decreasing over the subsequent three years to €420 per tonne in year four. Sugar beet growers who need to abandon production due to the closure of a factory which they have a contract with will be eligible to receive a top-up aid payment.

Bioethanol production: To encourage bioethanol production, sugar can be grown on set-aside land and like other crops will be eligible for the €45/ha energy crop premium which is subject to an area limit.

Imports and exports: The import and export mechanisms will continue to apply. These include the requirement for import and export licences, the prohibition of inward processing arrangements, the use of safeguard measures, the application of import duties as given in the Common Customs Tariff as well as the implementation of an additional import levy as required, and the use of tariff quotas and export refunds. The proposals maintain the existing import commitment to ACP countries and India (see section 1.1.2 on the Cotonou agreement), the Least Developed Countries through the 'Everything But Arms' initiative, and the five Western Balkans countries (see section 3.1.3 on Trade Agreements).

ACP restructuring aid: Approximately €40 million will be made available from the Commission's development budget in 2006 to assist ACP countries restructure their sugar industries and improve efficiency where production is viable or, where it is not viable, to restructure and diversify. Assistance is envisaged beyond 2006 but no financial commitments can yet be made until there is political agreement between Member States on the EU Budget for 2007-2013. The Agriculture Council is hoping to reach political agreement on the reforms in November 2005 in order to give the EU a clear negotiating position going in to the WTO Ministerial Meeting to be held in Hong Kong in December.

Box 3.2: Summary Of The Cap Reform On Soy, Beef And Pigrateat

As a result of the 2003 CAP reform all of or part of the existing premia paid to farmers under a major group of arable and livestock CMOs (including beef and oilseeds, but not sugar or pigmeat) are replaced with a consolidated Single Farm Payment (SFP). Member States had the option to introduce the SFP in either 2005 or 2006 and to fully or partially decouple the SFP from production. In the case of full decoupling, the farmer does not have to produce a specific commodity in order to receive a subsidy payment, thus increasing the freedom of the farmer to produce according to market demands. Indeed, it is not compulsory to produce anything, provided a minimal degree of land management takes place. In the case of partial decoupling, a certain proportion of the relevant payment remains dependent on production. Member States can keep up to 25% of the current per hectare payments in the arable sector linked to production. In the beef sector, Member States can retain up to 100% of the slaughter premium for calves and up to 100% of the headage payment schemes i.e. 100% of the suckler cow premium and up to 40% of the slaughter premium, or up to 100% of the slaughter premium or alternatively up to 75% of the special male premium. These policy choices will have an effect on the overall level and pattern of production of these commodities.

The SFP is calculated according to how much the farmer received in subsidies during the 2000-2002 reference period and is paid on an area basis. In order to avoid any penalty deductions to the total payment a farmer is entitled to, the farmer must comply with a range of EU Regulations and Directives (such as the birds and habitats Directives) as well as a set of additional standards relating to the environment, animal health and hygiene. This is called cross-compliance. Governments make a relatively small deduction from the SFP to increase funding for Pillar II (in the process called 'modulation'). Additional voluntary deductions can also be made by each Member State in order to increase the level of modulation, and therefore the level of Pillar II funding, or to create a 'national envelope'. The funds generated for a national envelope can be used either to target certain types of farming which are important for the environment or to improve the quality and marketing of certain agricultural products.

The SPF was introduced by ten of the EU-15 Member States in January 2005. France, Finland, Greece, the Netherlands and Spain will introduce the new payment scheme in January 2006. From the available evidence, it appears that each Member State has introduced the Single Farm Payment in a different way. This makes it more difficult to forecast the impact on production and trade patterns. There has been some research examining farmers' likely business decisions in the livestock sector in the UK following the introduction of the SFP in 2005¹²⁵. However, it seems that for the farmers studied at least, the more significant decisions have yet to be taken.

¹²⁵ ADAS UK Ltd (2005) The Economics of Extensive Livestock Grazing Post CAP Reform, prepared for English Nature.

Table 3.4: Impact of EU Policy Tools and Trade Agreements on the EU's Production, Imports and Exports of Sugar

Commodity	Policy Tool	Effect of Policy Tool on:		
		Production in EU	Imports of commodity into EU	Exports of commodity from EU
Sugar	Sugar CMO	Guaranteed prices inflate EU prices and sustain production where it might not otherwise occur. Quotas do restrict production, but 'C' sugar allows for production and export/dumping of non-quota sugar.	Application of common customs tariff, additional levies and safeguard measures restrict imports. There are exceptions for developing countries (see below).	Export refunds facilitate the export of subsidised sugar that would otherwise be uncompetitive on the world market. This can harm producers in developing countries.
	Cotonou Agreement - ACP Sugar Protocol	Modest impact on EU production because imported ACP sugar is limited by quota and sold at EU internal price and not world market price.	18 ACP countries benefit from guaranteed prices on the EU market for pre-agreed quantities of cane.	N/A.
	E.B.A.	May influence EU production following the reform of the sugar regime in 2007 and complete duty-free access to EBA sugar from 2009.	48 Least Developed Countries will benefit from duty-free access to EU, but not until 2009.	EU production expected to decline due to impact of EBA imports.
	Balkans Agreement	May influence EU production following the reform of the sugar regime in 2007.	Duty-free access dramatically increased imports, but tariff rate quotas may restrict this in the future as the Balkans countries align themselves for eventual accession to the EU.	N/A.
	Mercosur	May influence EU production if agreement is reached on a free trade agreement between EU and Mercosur.	Will not have an effect until agreement is reached on a free trade agreement between EU and Mercosur.	Unlikely to have an effect if agreement reached as EU is seeking to export industrial goods and services rather than sugar.
	Other EU Policy Tools	N/A.	Maximum pesticide residue limits may affect imports into EU. EU certification requirements may have an effect.	N/A.

(Note: this is based on the current sugar CMO and not the reformed CMO).

Table 3.5: Impact Of Current EU Policy Tools And Trade Agreements On The EU's Production, Imports And Exports Of Soy

Commodity	Policy Tool	Effect of Policy Tool on:		
		Production in EU	Imports of commodity into EU	Exports of commodity from EU
Soy	CAP – SFP producer support	Option to partially decouple arable crops payments means there is a small incentive to produce arable crops, but no effective incentive for soy production (although payments help to sustain arable production as a whole including other oilseeds, mainly rape and sunflower). 10% set-aside rule lowers overall potential production.	Soy can be imported duty-free into the EU, and vast quantities are at world prices.	Export of soy from EU is minimal.
	Cotonou Agreement	Level of imports from ACP countries may influence EU production of oilseeds.	Most agricultural exports are free of duty and therefore developing countries may export soy to EU.	May be pressure to reduce EU exports further as these are uncompetitive compared with ACP soy.
	E.B.A.	Level of imports from EBA beneficiary countries may influence EU production of oilseeds in the longer term. EBA countries are not, at present, soy producers.	Agricultural exports are free of duty and therefore developing countries may export soy to EU. EBA countries are not, at present, soy producers.	N/A.
	Balkans Agreement	Level of imports from Balkans countries may influence EU production.	Agricultural exports are free of duty and therefore Balkans countries may export soy to EU.	N/A.
	Mercosur	May influence EU production of oilseeds if agreement is reached on a free trade agreement between EU and Mercosur.	Will not have an effect until agreement is reached on a free trade agreement between EU and Mercosur. If agreement is reached may influence soy imports.	Unlikely to have an effect if agreement reached as EU is seeking to export industrial goods and services rather than soy.
	Other EU Policy Tools	New energy crop premium may increase incentive for farmers to produce industrial crops rather than soy.	Maximum pesticide residue limits may affect imports into EU. EU certification and GMO labelling requirements may have an affect.	N/A.

Table 3.6: Impact of Current EU Policy Tools and Trade Agreements on the EU's Production, Imports and Exports of Beef

Commodity	Policy Tool	Effect of Policy Tool on:		
		Production in EU	Imports of commodity into EU	Exports of commodity from EU
Beef	CAP – SFP producer support	Option to partially couple support payments means there is a small incentive to produce beef cattle. Variable impact for Member States that have opted for full decoupling. Dairy CMO influences beef production as well.	Application of common customs tariff, additional levies and safeguard measures restrict imports. There are exceptions for developing countries (see below).	Export refunds facilitate the export of subsidised beef that would otherwise be uncompetitive on the world market. Export refunds have been used recently in the beef sector.
	Cotonou Agreement - ACP Beef Protocol	Limited effect on EU because only a small quantity of beef is imported from ACP Beef Protocol countries;	Reduced import duties for six ACP beef exporters; attractiveness of EU market to ACP producers declining due to falling beef market price and rising supply costs associated with meeting health standards.	N/A.
	E.B.A.	Level of imports from EBA beneficiary countries may influence EU production in the longer term.	Agricultural exports are free of duty and therefore developing countries may export beef to EU. May be restricted by EU's health requirements.	N/A.
	Balkans Agreement	Level of imports from Balkans countries may influence EU production in the longer term.	Agricultural exports are free of duty and therefore Balkans may export beef to EU. May be restricted by EU's health & animal welfare requirements.	N/A.
	Mercosur	May influence EU production if agreement is reached on a free trade agreement between EU and Mercosur.	Will not have an effect until agreement is reached on a free trade agreement between EU and Mercosur. May be restricted by EU's health & animal welfare requirements.	Unlikely to have an effect if agreement reached as EU is seeking to export industrial goods and services rather than beef.
	Other EU Policy Tools	N/A.	EU certification, animal welfare, sanitary and beef labelling requirements may have an affect.	N/A.

Table 3.7: Impact of Current EU Policy Tools and Trade Agreements on the EU's Production, Imports and Exports of Pigeat

Commodity	Policy Tool	Effect of Policy Tool on:		
		Production in EU	Imports of commodity into EU	Exports of commodity from EU
Pigmeat	CAP –SFP producer support	There are no production subsidies for EU pigmeat producers so SFP should have no effect on production unless cross-subsidised from SFP receipts from other on-farm productive activities. No clear effect.	Application of common customs tariff, additional levies and safeguard measures restrict imports. There are exceptions for developing countries (see below).	Export refunds facilitate the export of subsidised pigmeat that would otherwise be uncompetitive on the world market. This can harm producers in developing countries. Export refunds, though in practice have not been used for over 20 years.
	Cotonou Agreement	Little effect on EU production.	Most agricultural exports are free of duty and therefore developing countries may export pigmeat to EU. May be restricted by EU's health and animal welfare requirements.	N/A.
	E.B.A.	Level of imports from EBA beneficiary countries may influence EU production in the longer term.	Agricultural exports are free of duty and therefore developing countries may export pigmeat to EU. May be restricted by EU's health and animal welfare requirements.	N/A.
	Balkans Agreement	Level of imports from Balkans countries may influence EU production in the longer term.	Agricultural exports are free of duty and therefore Balkans may export beef to EU. May be restricted by EU's health and animal welfare requirements.	N/A.
	Mercosur	May influence EU production if agreement is reached on a free trade agreement between EU and Mercosur.	Will not have an effect until agreement is reached on a free trade agreement between EU and Mercosur. May be restricted by EU's health and animal welfare requirements.	Unlikely to have an effect if agreement reached as EU is seeking to export industrial goods and services rather than pigmeat.
	Other EU Policy Tools	N/A.	EU certification, sanitary and animal welfare requirements may have an affect.	N/A.

4 Likely Impacts of EU Policy Changes on World Production And Trade

The most significant EU agricultural policy changes of relevance to this study are the 2003 CAP reform and the proposed reform of the EU sugar regime

The main features of each reform, and its possible impacts on production worldwide, are outlined in turn below. Some background information is also presented on the production trends and trade patterns that are predicted to occur, based on the current constellation of agricultural policy and global trade arrangements. Special emphasis is given on sugar.

4.1 Sugar

4.1.1 Likely changes in production and trade patterns worldwide for sugar resulting from the proposed reform of the CAP sugar regime

The proposed changes to the CAP sugar regime, if implemented, would not only affect production in EU Member States, but also in the countries associated with the EU through preferential, regional and bilateral trade agreements.

In its own impact assessment of the reform proposals¹²⁶, the European Commission has predicted that within the EU:

- Sugar production is likely to be drastically reduced or even phased out in Greece, Ireland, Italy and Portugal.
- Sugar production is likely to continue, but on a significantly lower scale, in the Czech Republic, Denmark, Finland, Hungary, Latvia, Lithuania, Slovakia, Slovenia and Spain.
- Sugar production will continue at broadly the current level in Austria, Belgium, France, Germany, the Netherlands, Poland, Sweden and the UK.
- EU subsidised sugar exports will be reduced to zero by 2013.

Regarding preferential access under the various trade agreements, the Commission's impact analysis of their proposals suggested that:

¹²⁶ COM (2005) 263 22.06.05 *Reforming the European Union's Sugar Policy: Update of impact assessment* and COM (2003) 554 23.09.03 *Reforming the European Union's Sugar Policy: Summary of impact assessment work*

- EU imports from Balkans countries will remain steady at 0.3 million tonnes per annum.
- Annual imports from ACP/India will remain steady at 1.3 million tonnes, but this masks gains in productions for some, and reductions in production for others. Some ACP countries may face a shortfall in meeting their agreed production quantities, but this will be replaced by low cost producers benefiting from the EBA initiative such as Senegal, Swaziland, Zimbabwe, Zambia, Ethiopia, Sudan, Malawi and Mozambique. As the EU market price for sugar gradually reduces to 39% of current levels, Bangladesh, Congo (DR), Burkina Faso and Tanzania are likely to cease exports to the EU. The following ACP countries are likely to face the possibility of abandoning production: Barbados, Ivory Coast, Jamaica, Madagascar, St. Kitts and Nevis¹²⁷.
- Imports from sugar-exporting EBA countries will increase from 0.2 million tonnes to 2.2 million tonnes by 2013.

The ACP countries that benefit from the current preferential trading agreements are concerned about the effects of the proposed reforms. The EU has stated that the post-reform EU price will still be above that of the world market and therefore export to the EU will continue to remain attractive¹²⁸. However, the reduction in prices could adversely effect the livelihoods of sugar farmers in developing countries. The ACP-Sugar Protocol countries called for a phase-in period for the price cuts¹²⁹, but the Commission rejected this on the grounds that it did not want a dual price structure in the EU, a low internal price and a higher guaranteed price for certain overseas suppliers. Negotiations over the proposed reform will continue in the short-term.

The proposed new sugar regime will affect the countries that currently benefit from the various preferential trading agreements with the EU (i.e. ACP Sugar Protocol, EBA Initiative and Balkans Agreement). For these countries, a SWOT analysis has been prepared to summarise the various strengths and weaknesses of the proposed new EU sugar regime as set out in the June 2005 proposal, and the opportunities and threats it offers. Some of the comments refer to the medium-term. This means the duration of the CAP next sugar regime, assuming it is introduced i.e. up until 2015. The table assumes that sugar exports are an economic benefit for a country.

¹²⁷ This information on ACP countries is not from the Commission's impact analysis but the following report: IEEP and GHK Consulting (2005) *The environmental impacts of trade liberalisation and potential flanking measures*. A report for DEFRA, in press.

¹²⁸ EC 2005 *The European Sugar Sector: Its importance and its future*

¹²⁹ ACP 2005 *The ACP Countries and the Reform of the EU Sugar Regime*. Press release.

Table 4.1: Swot Analysis of June 2005 Proposal for a Revised EU Sugar CMO – for ACP, EBA / LDC

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> • EU imports from sugar-exporting EBA beneficiary countries are expected to increase dramatically. • More efficient ACP countries will benefit and continue to meet their agreed quota with the EU over the medium-term. • Imports from the five Balkans countries are likely to remain steady over the medium term. 	<ul style="list-style-type: none"> • Less-efficient ACP sugar producing countries will not be able to continue production following the full price cut and will stop exporting to the EU or cut and even cease production. • This may be partly due to an insufficient amount of restructuring aid from the EU.
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> • Certain sugar-exporting EBA countries will be able to increase exports to the EU. • Certain ACP countries will be able to respond to the reform, improve production methods and maintain output, although profitability may decline. • If Mercosur agreement is concluded between EU and South America, exports could increase rapidly from Brazil in particular. 	<ul style="list-style-type: none"> • Large increase in cane, as opposed to beet production in developing countries with probable negative environmental consequences. • If the Sugar Protocol is not renewed after 2008, when the current agreement ends, production might decline or be reduced in the ACP beneficiary countries.

4.1.2 Sugar Production and Trade Forecasts under a Scenario of Further Trade Liberalisation

A number of studies have examined the consequences of further trade liberalisation on the patterns of production and trade in sugar.

Further trade liberalisation, under the auspices of the Doha Round, would be instigated not only by reform of the EU sugar CMO, but also by further liberalisation in other countries with highly protected sectors, such as the US. A recent report¹³⁰ summarised the results of a number of studies that have examined the consequences of further trade liberalisation on the patterns of production and trade in sugar. The conclusions of these studies are based on the results of various modelling exercises which assume different policy scenarios. They indicated that further liberalisation could have the following effects:

- reduced production in the EU, US and Japan;
- expansion of production in the most efficient sugar producing countries, with the largest increases in Brazil, followed by Thailand, Australia and India with smaller increases in the

¹³⁰ IEEP and GHK Consulting (2005) The environmental impacts of trade liberalisation and potential flanking measures. A report for DEFRA, in press.

Middle East, parts of the Americas and Asia, China, Eastern Europe, North Africa and the former Soviet Union;

- a major shift in production away from sugar beet and towards sugarcane production, and away from the developed world to the developing world.

Another study by the Overseas Development Institute¹³¹ has suggested the following implications of trade liberalisation:

- The largest positive impacts would be for producers in large sugar exporting countries: Australia, Brazil.
- The greatest losses would be for EU beet producers.
- The impact on beneficiaries of the ACP-EU Sugar Protocol is mixed:
 - Complete liberalisation of the sugar market would lead to a loss in income transfers of \$US 400m per annum.
 - The greatest losses would be for those countries which export sugar only or predominantly to the EU and have the biggest quotas: Mauritius, Guyana, Fiji and Barbados.
 - Following a rise in the world market price, the following would benefit from a rise in non-EU exports: Congo, Ivory Coast, St. Kitts, Swaziland, Zambia and Zimbabwe. It should be noted that the Commission's own impact assessment states that Congo, Ivory Coast and St Kitts and Nevis could cease exports as a result of the price cut.
 - Non-Protocol net-sugar exporting countries will gain from liberalisation: the Dominican Republic, Ethiopia, South Africa and Papua New Guinea.
 - Non-Protocol net-sugar importing countries ACP countries will suffer from higher world prices.

However, the precise implications of the Doha round for liberalisation of trade in sugar are difficult to predict.

4.1.3 Status Quo - Current Trends and Production Forecasts in Sugar

Based on the continuation of the existing arrangement of agricultural and trade policies, the OECD¹³² has suggested that the following changes to production and trade could occur. Remarkably, these

¹³¹ ODI/IIED (2005) Sustainability Impact Assessment of Proposed WTO Negotiations – Mid-term report for the agriculture sector study

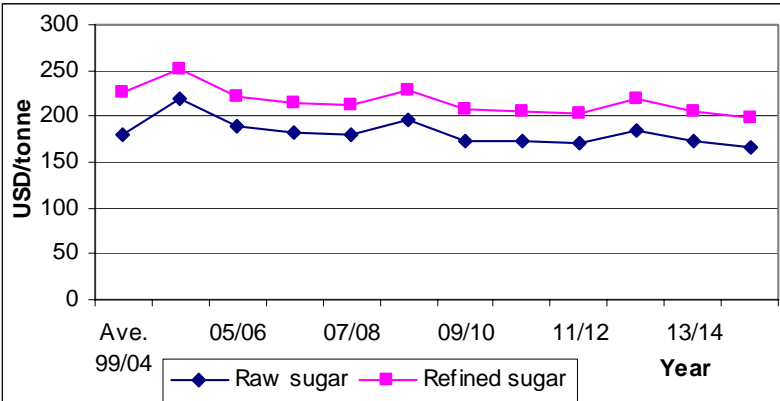
¹³² OECD/FAO (2005) Agricultural Outlook 2004-2014

patterns mirror those predictions based on a scenario of further liberalisation, which thus appears most likely to accentuate existing trends.

- **World Prices:**

International prices for sugar have been on a downward trend since 1995, reflecting an overall excess of production over consumption.¹³³ Several analysts forecast that prices will remain under pressure in the long run. OECD-FAO 2005 forecast nominal world market prices for raw sugar to remain within a band of USD 7-10 cents/lb. (USD 165-195/t) over the period to 2014, with the long run pattern of falling prices in real terms set to continue. And white sugar prices remain within a band USD 9-10.5 cents/lb. (USD 198-229/t) over the period (see Graph 4.1). Similarly, FAPRI (2005) forecast white sugar prices at 233/t by 2014. This will be a result of a world production expected to expand faster than global consumption, resulting a mismatch that will leads to some further accumulation of global sugar stocks. Compared to the average price for the reference period (1999-2003), the price at the end of the period will be a 7.7% and 12% lower for raw and refined sugar, respectively.

Graph 4.1: Forecasts Of Sugar World Prices 2005-2014



Source: OECD-FAO, 2005

- **Global Production:**

World sugar production is projected to increase in 2005/06 due to expected recovery in production in India, Thailand, Cuba, China and Brazil. World production forecast for year 2005/06 range between 146 million Mt¹³⁴ and 151 million Mt¹³⁵. By 2014, forecasts for world sugar production point to expand between 171 - 178 million Mt (FAPRI and OECD-FAO, respectively). This is about 21 and 27% above the average for the baseline (2004 and 1999-2003, respectively). Most of the growth in sugar production is accounted for by a larger area harvested and higher yields of sugar cane, which

¹³³ EC, 2004
¹³⁴ USDA (2005)
¹³⁵ OECD-FAO (2005)

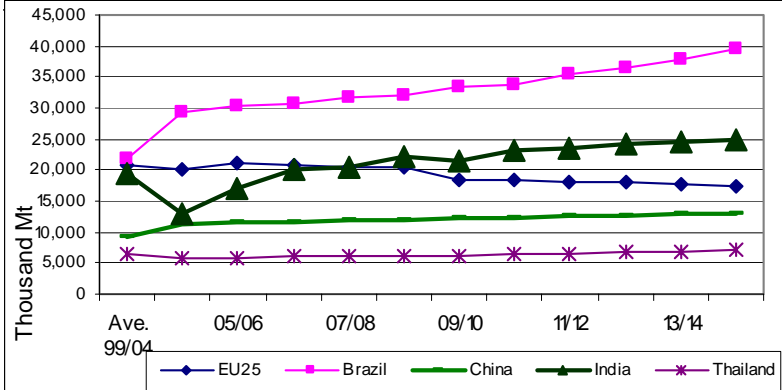
continues to be the dominant source of sugar. While world sugar beet yields are expected to increase the area harvested is projected to decline slightly over the period to 2014.

Production shares are expected to increase for developing countries and particularly for Brazil. Sugar production in the developing countries and transition economies is projected to expand to 137 million Mt in 2014, some 39 million Mt or 40% above the 1999-2003 average. OECD area production, which represents a minority share of global sugar output, is projected to total 40 million tons in 2014, which is slightly below the average of the 1999-2003 period, suggesting its market share will continue to shrink over the period.¹³⁶

OECD-FAP forecast Brazil to increase production at 3% per year, on average, during the period, which is somewhat lower than the rapid rate of growth over the last decade from 1995 to 2004.¹³⁷ By 2014 it is expected that Brazil will produce 39 million tons of sugar – 79% above the 1999-2003 average – and sharing 22% of world production¹³⁸. About half of Brazil’s sugarcane crop is used for ethanol production. FAPRI forecast a somewhat lower expansion for Brazil -39 million tons by 2014 or 2% annual increase-, however, a similar share to world production by 2014 (21%). Other important producers are expected to be India with a share of 11-14% of global production, EU25 (9.7-11.3%), China (7.3%), the US (4.6-4.7%), Thailand (4-4.8%) and Mexico (3.5-4%). Sugar production in the ACP countries that hold quotas under the Sugar Protocol would not change significantly over the next ten years.

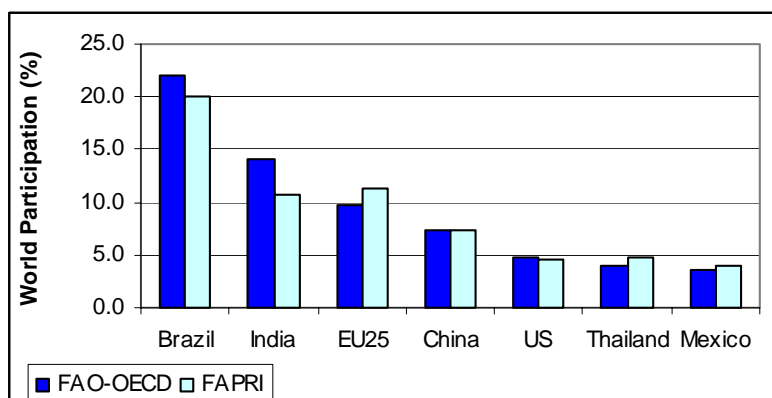
Developing countries, especially those in Asia (and in particular India and China), are expected to be the main source of growth in global sugar consumption.

Graph 4.2: Forecast For Main Sugar Producing Countries 2005-2014



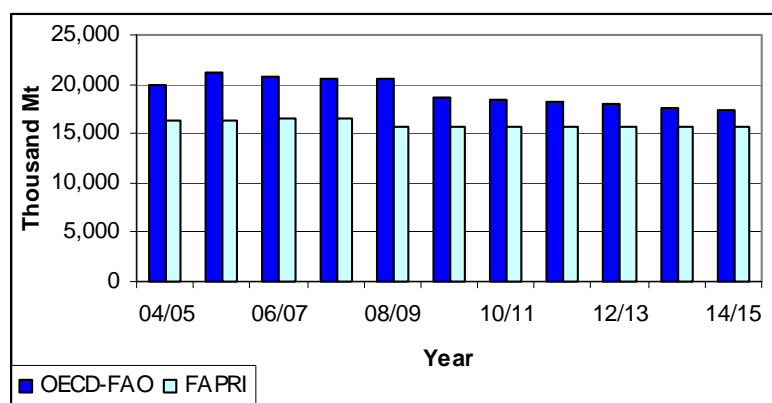
Source: OECD-FAO, 2005

Graph 4.3: Main Sugar Producing Countries By 2014



Source: OECD-FAO, 2005 FAPRI, 2005

Graph 4.4: EU Sugar Production Forecast 2004-2014



Source: OECD-FAO, 2005; FAPRI, 2005

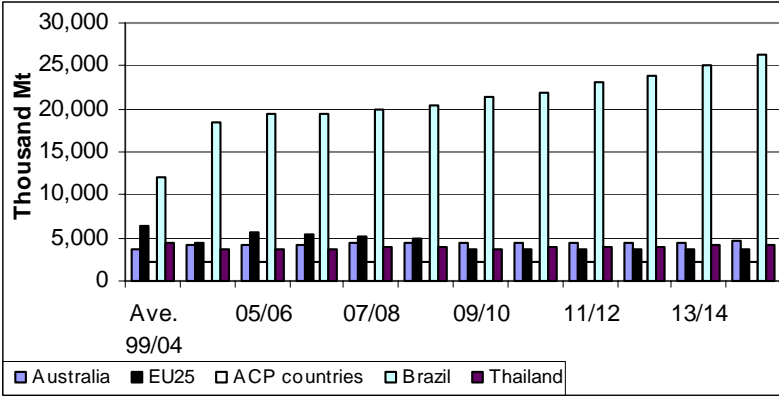
- **Global Trade:**

Brazil will continue leading global exports in the long term. By 2014, Brazilian sugar exports will reach 26 million Mt, a 119% above the average 1999-2004. Australia will surpass the EU as the second largest exporter by 2014, expanding its sugar exports by 11.2% reaching a total of 4.5 million Mt. Thailand will be the third leading exporter by 2014 (4.2 million Mt), despite its exports are expected to drop by 4.8% during the period. The EU25, on the other hand, is expected to reduce its sugar exports by 43% by 2014, exporting a total of 3.5 million Mt. Exports from the EU are expected to decline 43% by 2014 (due to the URAA provisions). Thailand, Australia and South Africa are expected to show moderate increases in exports.

On the import side, Russia is expected to maintain its leading importing country status. However, is China the country it is forecasted to show the largest expansion in its sugar imports – increasing them by 459% by 2014 (a total of 5.5 million Mt), displacing the EU as the second largest sugar importer by 2014. The EU, on the other hand, is expected to increase its sugar exports by 57% by 2014, buying a

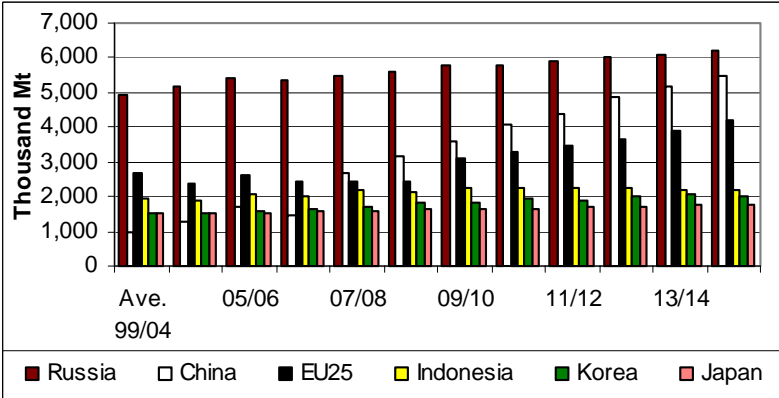
total of 4.2 million Mt. Indonesia, Korean Japan and the US are expected to keep among main importers –with imports increases by 2014 of 13.6% 32.4%, 17.9% and 15.9%, respectively. Imports of sugar from EBA-beneficiary countries to the EU are expected to increase to over 2 million tonnes between 2009 and 2014.

Graph 4.5: Forecast Main Sugar Exporting Countries 2005-2014



Source: OECD-FAO, 2005

Graph 4.6: Forecast Main Sugar Importing Countries 2005-2014



Source: OECD-FAO, 2005

4.2 Soy¹³⁹

4.2.1 Impact of 2003 CAP reform

¹³⁹ The evidence presented here is therefore more hypothetical in nature, and is based on modelling exercises that took place either following the publication of the Commission’s reform proposals or following agreement on the reform itself. This is far from ideal and may not be a good guide to the eventual outcome, but the models provide a systematic and transparent basis for analysis. The data presented below is rather general in nature and should be treated with some caution. For example, the models that were run before the introduction of the SFP make different assumptions (e.g. full or partial decoupling) and track changes over different time periods. Some of the data is based on forecasting exercises which predict production, consumption and trade patterns up until 2015. Any policy changes implemented before then will of course influence the patterns predicted. The impacts of the reform on soy, beef and pigmeat are considered here. Sugar was not subject to the 2003 reform.

Analysis of the specific impact on soy production is difficult because most research includes soy under the generic heading of oilseeds, which also include rapeseed and sunflower seed. The following modelling exercises have been undertaken, and make predictions about both levels of production and trade.

- **European Production**

- According to the Commission's own impact assessment¹⁴⁰, the food oilseed area is projected to fall by 2.9%.
- FAPRI modelling¹⁴¹ shows that the reforms are expected to have a minor effect on the production of all oilseeds, including soy. With maximum decoupling, there is only expected to be a 0.6% decrease in the total oilseeds area.
- An OECD analysis¹⁴² assuming maximum decoupling shows that the total oilseed area will decrease by 2.8% and production by 0.7%.
- The European Commission, in its analysis of prospects for the agricultural markets for 2005-2012¹⁴³, expects there to be a relative stagnation in the total area given to soybeans, whilst there will be a moderate increase in overall oilseed production, mainly due to expanded rapeseed production¹⁴⁴.

- **European Trade**

- FAPRI modelling¹⁴⁵ shows EU net imports of soy are expected to rise by 0.2% by 2012 and world prices increase by 0.3% over the same period.
- The EU is expected to remain a net-importer of oilseeds (notably of soybeans, but also sunflower seed) with total imports increasing to 18.4m tonnes in 2012, and exports declining to 0.5 m tonnes in 2012.

4.2.2 Current Trends and Forecasts

The European Commission¹⁴⁶ and the OECD/FAO¹⁴⁷ have predicted changes to production and trade that are expected to occur if the current systems of agricultural support and trade remain in place.

¹⁴⁰ EC (2003) *Reform of the Common Agricultural Policy – A Long Term Perspective for Sustainable Development: Impact Analysis*, COM (2003) 23 final, January, Brussels.

¹⁴¹ FAPRI (2003) *Analysis of the 2003 CAP Reform Agreement*

¹⁴² OECD (2003) *Analysis of the 2003 CAP reform*

¹⁴³ EC (2005) *Prospects for Agricultural Markets and Income 2005-2012*

¹⁴⁴ According to FAOSTAT (2005) data 781,492 tonnes of soybeans was produced in the EU25 in 2004. This compares with 14.9 million tonnes of rapeseed and 4 million tonnes of sunflower seed in the same year.

¹⁴⁵ FAPRI (2003) *Analysis of the 2003 CAP Reform Agreement*

¹⁴⁶ EC (2005) *ibid*

¹⁴⁷ OECD/FAO (2005) *Agricultural Outlook 2004-2014*

There is a clear trend towards the continual expansion of production, particularly in some South American countries. The level of trade is also expected to expand, with China, Japan and the EU expected to account for the majority of soybean imports. It could be hypothesised that these trends would be accentuated further if the Member States of the EU, the US and other developed countries agreed on further trade liberalisation. The Doha Round is of course working towards this goal, but the extent of any steps towards liberalisation and the timetable for implementation remain unclear.

- **Global Production**

The following global trends, assuming the status-quo with regard to agricultural support and trade agreements, are expected over the period 2005-2014:

- Global demand for oilseeds, notably in developing countries, will increase over the medium term (until 2012) as income and population grow and changing consumer preferences increase demand for livestock products, including pigmeat.
- Oilseed production is forecast to increase at an annual rate of 4%, or 79m tonnes a year, until 2013. Most of this growth is expected to come from increased soybean production and would take place in the US, Brazil and Argentina.
- Brazil is expected to increase its soybean production area by one-third by 2013. Yields are expected to rise by 6%. Much of this expansion is expected to take place on the cerrado region.
- In Argentina, production is expected to increase at 3-4% each year, and a sizeable pasture area is expected to be converted into arable land for oilseeds. Production is also expected to expand in India and Paraguay.

- **Global Trade**

The following trends are expected for the period 2005-2014, based on the current arrangement of agricultural and trade agreements:

- Soybean trade is expected to rise at an annual rate of 4.3% until 2012.
- The EU, China and Japan are expected to account for the majority of oilseed import demand. Soybean imports, globally, would grow by 3% a year until 2012.
- Over the next seven years, China will account for three-quarters of the world's growth in soybean imports (rising to about 40m tonnes by 2012). Forecasts for EU imports vary, some suggesting a modest fall or slight increase, but no major departure from current levels of about 16m tonnes annually. Turkey's demand for oilseed imports is expected to increase.

Any major policy changes arising from the current round of WTO negotiations would influence the above patterns. If direct payments to producers were to decline, export subsidies removed and import duties decreased, the trade and production patterns could be more pronounced than those identified above. Research¹⁴⁸ has shown that developing country exporters such as Brazil will be economic beneficiaries of further liberalisation. In contrast, soybean production is expected to decrease in developed countries such as the US. The oilseed sector in developing countries with a relatively protected agricultural sector such as India could suffer. Least Developed Countries are unlikely to be beneficiaries of further liberalisation as, firstly, these countries are generally not soy producers, and secondly, liberalisation implies that LDC crops have to compete on a more competitive world market.

¹⁴⁸ ODI/IIED (2005) Sustainability Impact Assessment of Proposed WTO Negotiations – Mid-term report for the agriculture sector study

4.3 Beef

4.3.1 Impact of 2003 CAP reform

A number of reports based on modelling exercises have speculated that cattle numbers in the EU will fall as a result of decoupling. These models are based on the scenario of full decoupling in the beef sector. Forecasts from selected reports suggest the following:

- **European Production**
 - The European Commission's own impact analysis¹⁴⁹ shows beef production could fall by 2.7 % in the EU15 by 2009. Beef production is expected to decrease to around 7.6 million tonnes by 2012, a reduction of around 420,000 tonnes from 2004. The suckler cow sector is expected to be most affected, with a projected fall in herd size of around 14%. The total cow herd could decline by 3.5% by 2009.
 - Modelling by FAPRI¹⁵⁰ shows that beef cow numbers could fall by nearly 11%, resulting in a reduction of beef production of 2.6 %, if full decoupling was implemented.
 - An OECD analysis¹⁵¹ assuming maximum decoupling shows that the number of beef cows could fall by 3.2% by 2008 and total production by 0.6%.
 - In Ireland, the suckler cow herd, accounting for most quality Irish beef, could fall 30% by 2010, according to the Irish Department of Agriculture¹⁵².
- **European Trade**
 - The European Commission's own impact analysis¹⁵³ suggests net EU15 beef exports could show a 26% decline by 2009.
 - FAPRI modelling¹⁵⁴ shows that net-imports of beef could increase by 241% under a scenario of full decoupling and by 22% under a scenario of minimum decoupling.
 - An OECD analysis¹⁵⁵ shows that exports are expected to remain stable and imports increase marginally by 1.7%.

¹⁴⁹ EC (2003) *Reform of the Common Agricultural Policy – A Long Term Perspective for Sustainable Development: Impact Analysis*, COM (2003) 23 final, January, Brussels.

¹⁵⁰ FAPRI (2003) *Analysis of the 2003 CAP Reform Agreement*

¹⁵¹ OECD (2003) *Analysis of the 2003 CAP reform*

¹⁵² Agra Europe 24.01.03

¹⁵³ EC (2003) *Reform of the Common Agricultural Policy – A Long Term Perspective for Sustainable Development: Impact Analysis*, COM (2003) 23 final, January, Brussels.

¹⁵⁴ FAPRI (2003) *Analysis of the 2003 CAP Reform Agreement*

¹⁵⁵ OECD (2003) *Analysis of the 2003 CAP reform*

The studies referenced above were conducted before the implementation of the 2003 reform. In practice, changes in levels of production and trade may follow a pattern different from any of the rather diverse outcomes identified above. The models quoted are mostly based on a scenario of full decoupling. However, an examination of the ways in which many Member States have chosen to implement the 2003 reforms shows that partial decoupling has been introduced by more than half of Member States in the EU15 and suggests that maintaining production in the beef sector is a key concern¹⁵⁶. Actual changes to EU beef production may therefore not be as dramatic as those identified in the various assessments summarised above. Furthermore, the patterns of production within the EU are likely to show some marked internal variability.

4.3.2 Current Trends and Forecasts

The European Commission¹⁵⁷ and the OECD-FAO¹⁵⁸ have predicted changes to production and trade that are expected to occur if the current systems of agricultural support and trade remain in place. There is a clear trend towards the continual expansion of production, particularly in North and South America, and in Australia and New Zealand. The level of import demand is also expected to grow, with a number of Asian countries, as well as the EU, expected to show an increase in demand. As with the soy sector, it could be hypothesised that these trends would be accentuated further if the Member States of the EU, the US and other developed countries agreed on further trade liberalisation.

- **Global Production**

The following global trends assume the *status-quo* with regard to agricultural support and trade agreements and are expected over the period 2005-2014:

- World beef production is expected to increase between 2005 and 2012, including rises in US and Canadian production.
- A steady increase in beef production is forecast in Brazil (by up to 2.4% a year on average over the next seven years) and Argentina (by up to 1.8% a year on average).
- There are mixed predictions for Russia with different models pointing to both substantial increases and decreases in production.

¹⁵⁶ The following Member States have implemented any of the various partial decoupling options available for the various beef premia: Austria, Belgium, Denmark, Finland, France, the Netherlands, Portugal, Spain and Sweden.

¹⁵⁷ EC (2005) *ibid*

¹⁵⁸ OECD-FAO (2005) *Agricultural Outlook 2004-2014*

- **Global Trade**

Assuming the *status-quo* the following global trends are expected over the period 2005-2014:

- More beef imports are expected to enter the EU at full duty, especially high quality beef cuts from South America. Total beef imports are expected to reach 0.6m tonnes by 2012.
- Brazil, Argentina, Australia and New Zealand are expected to increase exports over the period 2004-2012.
- Demand for beef is expected to increase in Asia (mainly China, India, Indonesia, Japan and Thailand) and to a lesser extent in Latin America (Brazil, Argentina and Mexico). Imports into Asia are expected to grow due to limitations in domestic feed production capacity.
- Total trade in beef may increase by 1.7m tonnes (i.e. by 50%) over the 2004-2012 period. Growth in imports is expected to come from Asia (mainly Japan, South Korea, Taiwan and the Philippines), Mexico, Egypt and Russia. Indian producers will benefit from growing demand in the Asian market.

New policies stemming from the WTO negotiations would influence the above patterns. If direct payments to producers were to decline, export subsidies removed and import duties decreased, the trade and production patterns could be more pronounced than those identified above. Also, further food safety and sanitary crises could influence global patterns of production and trade. The successful creation of a free-trade area between the EU and Mercosur could also affect these patterns, further accentuating the level of South American beef exports entering the EU.

A study by the Overseas Development Institute¹⁵⁹ has suggested the following implications of complete trade liberalisation:

- An increase in the world beef price of about 20%.
- Dramatic declines in production in the EU, Japan and South Korea.
- Increases in production and exports in the US, Australia, Brazil, Argentina, Uruguay, Paraguay, Canada, New Zealand and Mexico

This research shows that developing country exporters such as Brazil will be economic beneficiaries of further liberalisation. The cattle and beef sector is expected to decline in the EU while beef production could increase in some areas of the US, and decline in others. Most developing countries are unlikely to benefit from further liberalisation of the beef sector as the main focus of LDC production is on cash crops.

¹⁵⁹ ODI-IIED (2005) *Sustainability Impact Assessment of Proposed WTO Negotiations* – Mid-term report for the agriculture sector study

4.4 Pigmeat

4.4.1 Impact of 2003 CAP reform

In contrast with the beef and soy sectors, less analysis has been conducted with regard to changes to pigmeat production since it was not directly affected by the 2003 CAP reform. Pig farmers are ineligible for the SFP, and can only claim the SFP on the basis of other past eligible farming activities or through buying rights to the SFP in some countries. Pig producers gain if cereal prices fall, as this is a major source of feed.

The EU pig sector is much more market orientated than the other commodity sectors under consideration. Because of this, both the OECD and European Commission have forecast increases in EU production. The OECD analysis¹⁶⁰ shows that total EU production will increase by 0.1% by 2008 and exports will decrease by 0.3%. The Commission has forecast that EU pigmeat production will reach 22 million tonnes by 2012, with a small increase in per capita pork consumption, partly due to changing consumer preferences. Imports of pigmeat into the EU are expected to remain minimal¹⁶¹.

4.4.2 Current Trends and Forecasts

The European Commission¹⁶² and the OECD-FAO¹⁶³ have predicted the changes to production and trade that are expected to occur if the current systems of agricultural support and trade policy remain in place. There is a clear trend towards the continual expansion of production, particularly in China, Brazil, Mexico, Canada and Russia. The level of import demand is also expected to grow, with a number of Asian countries expected to show an increase in demand. As with the other sectors, further trade liberalisation would affect the outcome.

- **Global Production**

The *status-quo* forecasts for the period 2005-2014 suggest that:

- World pigmeat production is expected to increase moderately (by about 10m tonnes) until 2014.

¹⁶⁰ OECD (2003) *Analysis of the 2003 CAP reform*

¹⁶¹ EC (2005) *ibid*

¹⁶² EC (2005) *ibid*

¹⁶³ OECD/FAO (2005) *Agricultural Outlook 2004-2014*

- The pigmeat sector has shown increased productivity and capacity recently and this trend is expected to continue for certain exporting countries, although environmental and animal welfare standards may constrain production in some cases, as might competition from poultry meat.
- Up to 60% of total world production growth will occur in China. Other significant production increases will take place in Brazil, Mexico, Canada and Russia.
- Pigmeat production is expected to decline in Japan.

- **Global Trade**

The status-quo forecasts for the period 2005-2014 suggest that:

- Global trade growth in the pigmeat sector will come from income fuelled-demand from Mexico, and to a lesser extent Asian markets.
- Global trade in pigmeat is forecast to increase by up to 3.9% by 2014 (an additional one million tonnes in imports). The strongest importers are likely to be Japan, China, Hong Kong and Mexico. Russia may experience a slight increase in import demand.
- With the exception of Japan and China, most developing countries are net importers of pigmeat. China produces 40% of global pigmeat and is expected to retain a net-export position.
- Industrialised countries will maintain its position as a significant net exporter. Brazil, Canada and the EU (currently the world's largest pigmeat exporter) are expected to fulfil the import demands of these countries.
- In the EU25, low costs of production as a result of growing industry concentration and cross-border investment in accession countries will allow the UE to increase its exports and maintain its position as the largest exporting region. The EU's exports have been forecast to grow by up to 12%.
- Brazil's share of global markets is expected to continue to increase, supported by steady feed prices and an expanding and competitive industry.

The outcome of WTO negotiations could influence the above patterns, although probably less so than for many other sectors. Further food safety and sanitary crises could influence global patterns of production and trade (Avian Influence may underpin growing exports to Asian markets). Improvement in product quality and the signing of bilateral trade agreements will support gains made by selected non-traditional developing country exporters, such as Chile and Mexico. A free-trade area between the EU and Mercosur could also result in greater pigmeat imports from South America. All of these

assuming these imports meet the EU's strict sanitary and animal welfare criteria. Research¹⁶⁴ has shown that developing country exporters such as Brazil will be economic beneficiaries of further liberalisation. Developing countries are not major pigmeat exporters at present and are therefore unlikely to benefit from further liberalisation at present.

¹⁶⁴ ODI/IIED (2005) Sustainability Impact Assessment of Proposed WTO Negotiations – Mid-term report for the agriculture sector study

4.5 Summary

Table 4.2 summarises the findings of this Chapter. The first column shows the EU policy change under consideration. The likely trends that would occur without further EU policy reform are also outlined. These trends would most likely be more pronounced if the WTO Doha Round concluded by introducing more liberalised trade of agricultural products.

Table 4.2: Sugar: Likely Winners and Losers of EU Policy Changes

SUGAR		
EU POLICY CHANGE	WINNERS	LOSERS
Reform of the sugar CMO and further global trade liberalisation, depending on outcome of Doha Round.	<p>▲ Large sugar exporting countries: Australia and Brazil.</p> <p>▲ Producers in EBA beneficiary countries:</p> <p>Total level of exports to EU to increase.</p> <p>▲ Low-cost ACP-Protocol producers:</p> <p>Will meet quota production, or increase it to meet shortfalls among other ACP countries – Malawi, Swaziland, Zambia, Zimbabwe.</p> <p>▲ Sugar-exporting ACP countries:</p> <p>Producers in Dominican Republic, Ethiopia, Mozambique, Senegal, South Africa, Papua New Guinea & Sudan.</p> <p>= Producers in Western Balkans:</p> <p>Total level of exports to EU to remain steady due to tariff quota levels.</p> <p>= Beet producers in EU:</p> <p>Production to continue at current base level in Austria, Belgium, France, Germany, Netherlands, Poland, Sweden and UK.</p>	<p>▼ Beet producers in the EU:</p> <p>Massive reduction or elimination of production in Greece, Ireland, Italy, Portugal.</p> <p>Lower scale production in Czech Republic, Denmark, Finland, Hungary, Latvia, Lithuania, Slovakia, Slovenia and Spain.</p> <p>▼ ACP-Protocol cane producers:</p> <p>Exports to EU could cease from Barbados, Belize, Fiji, Guyana, India, Jamaica, Madagascar, Mauritius, Tanzania, St Kitts & Nevis and Ivory Coast.</p> <p>▼ Sugar-exporting ACP countries:</p> <p>Production could cease in Bangladesh, Congo (DR), Burkina Faso.</p> <p>▼ Net-sugar importing ACP countries.</p>
No renewal of ACP sugar protocol in 2008		<p>▼ ACP cane producers:</p> <p>Production could decline if sector does not restructure. Will depend partly on influence of Economic Partnership Agreements, if introduced at same time.</p>
Introduction of duty-free access to EBA Least Developed Countries.	<p>▲ Sugar producing EBA beneficiary countries:</p> <p>Could potentially export 2m tonnes to the EU from 2009.</p>	
Free trade agreement reached with Mercosur	<p>▲ Possible increase in sugar exports from: Brazil, Paraguay, Argentina and Uruguay.</p>	
Status – quo: continuation of existing policies (likely to be more pronounced by further trade liberalisation).	<p>▲ Brazil: output to increase by 3% a year.</p> <p>▲ Australia, Thailand and South Africa to increase exports.</p>	

SOY		
POLICY CHANGE	WINNERS	LOSERS
2003 CAP Reform		▼ EU producers: Minor decrease in total EU oilseeds area.
Introduction of duty-free access to EBA Least Developed Countries	= EBA countries are mainly not soy producers, no significant effects expected unless these countries diversify.	
Free trade agreement reached with Mercosur	▲ Increase in soy exports from South America: Brazil, Paraguay, Argentina and Uruguay.	
Status – quo: continuation of existing policies (likely to be more pronounced by further trade liberalisation).	▲ Expansion in the Americas: Soybean production to increase in US, Brazil, Paraguay and Argentina.	
BEEF		
POLICY CHANGE	WINNERS	LOSERS
2003 CAP Reform		▼ EU Producers: Declines in production of between 0.6% and 2.6% by 2009.
No renewal of ACP beef and veal protocol in 2008		▼ ACP beef producers: Production could decline if sector does not restructure. Will depend partly on influence of Economic Partnership Agreements, if introduced at same time.
Introduction of duty-free access to EBA Least Developed Countries	= EBA countries are not beef producers and may face difficulties meeting EU health standards; there is no effect unless these countries diversify economy.	
Further trade liberalisation, dependant on conclusion of Doha Round	▲ Increases in production and exports in US, Australia, Brazil, Argentina, Uruguay, Paraguay, Canada, New Zealand and Mexico.	▼ Possible dramatic declines in production in EU, Japan and South Korea.
Free trade agreement reached with Mercosur	▲ Possible increase in beef exports from South America: Brazil, Paraguay, Argentina and Uruguay.	
Status – quo: continuation of existing policies (likely to be more pronounced by further trade liberalisation).	▲ Global increases in production: Increases in production in and exports from Brazil, Argentina, Canada, India, New Zealand, US and maybe Russia.	
PIGMEAT		
POLICY CHANGE	WINNERS	LOSERS
2003 CAP Reform	▲ Increase in EU production: Slight increase in EU production; probably in efficient countries such as Denmark.	
Introduction of duty-free access to EBA Least Developed Countries	= EBA countries are not pigmeat producers and may face difficulties meeting EU health standards; there is no effect unless these countries diversify economy.	

Free trade agreement reached with Mercosur	▲ Possible increase in pigmeat exports from S. America: Brazil, Paraguay, Argentina and Uruguay.	
Status – quo: continuation of existing policies (likely to be more pronounced by further trade liberalisation).	▲ Moderate increase in world pigmeat production: In Brazil, Canada, Mexico and Russia, and most significantly in China.	▼ Decline in production in Japan.

The following symbols have been used:

▲ positive economic benefit

= no change to economic benefits

▼ negative economic outcome

5 Priority River Basin Countries and Forest Ecoregions Likely to be Affected by Changes in Key EU Policies

This chapter identifies WWF main priority river basins and ecoregions and the likely impacts of EU sugar and soy production and trade policies on these.

5.1 Main priority river basins

WWF (2003) identifies 50 priority river basin around the world.¹⁶⁵ Table 5.1 cross-references the priority river basins with the information on the likely impacts of the EU policy changes discussed in Chapter 4.¹⁶⁶ The first column enumerates the river basins. The second and third columns identify the ecoregion and countries involved in each river basin. The fourth column describes the current situation on each of the river basins and their main threats. The last column identifies the river basins likely to be affected by the EU policy change. The basis of this result is basically the cross-reference between the countries involved in each river basin; their status as producing/exporting or importing country of the products under analysis; and the likely effects of the EU policy change in terms of world production and trade displacement described in Chapter 4.

According to this analysis, areas of main concern due to changes in EU sugar policies are river basins located in South and North America (in particular the Everglades, Mesoamerican Reef Catchments, Orinoco, Guianan Freshwater, Amazon, Paraguay and Paraná); in Oceania (Great Barrier Reef Catchments, Southwest Australia Rivers & Streams and Murray-Darling Basin); the Cape Rivers & Streams in South Africa; and Sepik River, Kikori River and Lakes Kutubu and Sentani in Asia. River basins where mixed results are likely to take place are mainly located in Africa, in particular the Niger River, Upper Guinea Rivers and Streams, Congo River, Mara River, Kagera River, Lake Malawi, Ruaga River, Zambezi River and Madagascar River and Streams. River basins where decreased pressure is likely to occur due to the EU sugar policy change basically include river basins in Europe, North Africa and Asia, in particular the Danube, Baltic, South Iberia Catchments, Anatolian Catchments, Lake Prespa and Balkans, Indus River, Ganges River, Western Ghats, Godavari and the Mekong River.

¹⁶⁵WWF (2003) Agricultural Water Use and River Basin Conservation,

¹⁶⁶ For a detailed description of the priority river basin please see:

http://www.panda.org/about_wwf/what_we_do/freshwater/our_solutions/rivers/50_rivers.cfm

Regarding EU soy policy changes, the areas of main concern are concentrated on river basins in South America, in particular the Amazon, Paraguay and Parana. There might also be impacts on river basins located in Oceania

Table 5.1: Priority River Basins

RIVER BASIN	ECOREGION	COUNTRY/ IES	CURRENT SITUATION	IMPACT OF EU POLICY CHANGE
North and South America				
Mackenzie	Muskwa/Slave Lake Boreal Forests (81), Canadian Low Arctic Tundra (114)	Canada	Description: Forests dominated by spruce and fir trees support one of North America's most diverse and intact large mammal systems. Threats: most of the ecoregion is intact but logging has heavily impacted some local watersheds, especially in the riparian habitats	Not likely to be affected
Northern High Plains Rivers & Streams	Northern Prairie (94)	Canada, USA	Description: Prairie. Threats: grazed by livestock or converted to dryland farming. Others include oil-gas development and roads construction.	Not likely to be affected
Pacific Coast Rivers & Streams	Southeastern R&S (175)	USA	Description: It harbours one of the three richest temperate coniferous forests in the world. Threats: logging, road building and other disturbances	Not likely to be affected
Southeastern Rivers & Streams	Southeastern R&S (175)	USA	Description: Freshwater ecoregion, covers ~10% of US. Threats: Interbasin water transfers and dams are prevalent, and new projects being planned.	Not likely to be affected
Everglades	Everglades Flooded Grasslands (100)	USA	Description: The world's only rain-fed flooded grasslands on limestone and North America's most extensive flooded grassland. Threats: much of this water has been diverted, though, to convert wetlands to agriculture, such as sugar cane, and to provide flood control for coastal cities; pollution from farms and cities has also increased.	<u>Sugar</u> : May increase sugar production (if CAP reform led to a major international sugar price). However US Farm Support is more important factor than EU sugar regime.
Rio Grande/Bravo	Chihuahuan-Tehuacán Deserts (131)	USA	Threats: Grazing, extraction of salt, gypsum, and lime, clearing of riparian vegetation, and exploitation of water resources are threats to the area.	Not likely to be directly affected

Chihuahuan Desert Lakes	Chihuahuan-Tehuacán Deserts (131)	Mexico, USA		Not likely to be directly affected
San Pedro Mezquital	Gulf of California (214)	Mexico, USA	Sedimentation from and diversion of the Colorado River for irrigation has seriously altered the ecology of the gulf. Pollution and mining pose important threats to biodiversity in this region.	Not likely to be directly affected
Mesoamerican Reef Catchments	Mesoamerican Reef (235)	Belize, Guatemala, Honduras, Mexico	Threats: Hurricanes, rapidly growing pressure from coastal development, tourism, deforestation for agriculture and pollution from agrochemicals	<u>Sugar:</u> Guatemala is low cost sugarcane producer: with EU reform sugar production is expected to increase
Orinoco	Llanos Savannas (92)	Colombia, Venezuela, Brazil	Description: One of the world's largest wetland complexes. Threats: Grazing, burning, draining, conversion to agriculture, and over hunting	<u>Sugar:</u> CAP reform production is expected to lead to increases sugar production in Brazil. Same potential FTA EU-Mercosur.
Guianan Freshwater	Guianan Moist Forests (42)	Brazil, French Guiana (France), Guyana, Suriname, Venezuela	Description: Relatively undisturbed montane forests stretching from Venezuela to Brazil. Threats: Logging and mining activities	<u>Sugar:</u> Mixed results. While Brazil is expected to increase sugar production, Guyana is expected to reduce its input.
Amazon -	Amazon River and Flooded Rivers (147)	Brazil, Colombia, Peru	Description: Second longest river in the world, 20% of the Earth's fresh water. Threats: In the flooded forests, selective logging of the kapok tree and virola is accelerating deforestation. Open floodplains are being converted for cattle ranching, and agricultural expansion in the headwaters of Amazon is already significant.	<u>Sugar:</u> CAP reform is expected to lead to increased sugar production and exports in Brazil. However, little impact on Amazon river <u>Soy:</u> CAP

				<p>reform little impact on soy. However, predicted slight increases on EU imports from Brazil that may take part in the Amazon basin.</p> <p>These effects are likely to be reinforced by a potential FTA EU-Mercosur</p>
Paraguay -	Pantanal Flooded Savanna (101)	Bolivia, Brazil, Paraguay	<p>Description: one of the largest wetland complexes and best examples of flooded savannas in southern South America, comprising flooded grasslands and savannas, gallery forests, and dry forests. Threats: Agricultural expansion, charcoal production, water projects, pollution, gold mining, mercury pollution, over fishing, uncontrolled nature tourism, and road construction. Upstream agricultural developments are already starting to affect the Pantanal.</p>	<p><u>Sugar</u>: CAP reform is expected to lead to increased sugar production and exports in Brazil. However little impact on Pantanal Savannah</p> <p><u>Soy</u>: CAP reform little impact on soy. However, predicted slight increases on EU imports, especially from Brazil, Argentina and Paraguay that may affect the Pantanal</p> <p>These effects likely to be reinforced by a potential FTA EU-Mercosur</p>
Paraná -	Atlantic Forests (48)	Argentina, Brazil, Paraguay	<p>Description: Araucaria moist forests, mangroves; Bahia mangroves; coastal forests; interior forests; montane savanna. Threats: Urbanisation, industrialisation, logging, agricultural expansion, and associated road building</p>	<p><u>Sugar</u>: EU CAP reform sugar will lead to increase in sugar production in Brazil.</p> <p><u>Soy</u>: CAP reform little</p>

				<p>impact on soy. However, predicted slight increases on EU imports, especially from Brazil, Argentina and Paraguay that are likely to affect the Atlantic Forests</p> <p>These effects likely to be reinforced by a potential FTA EU-Mercosur</p>
Europe, North Africa and Central Asia				
Danube -	European-Mediterranean Montane Mixed Forests (77), Danube River Delta (159)	Austria, Bosnia-Herzegovina, Bulgaria, Czech Republic, Croatia, Germany, Hungary, FYR Macedonia, Moldova, Romania, Serbia and Montenegro, Slovakia, Slovenia, Switzerland, Ukraine	<p>(77) Description: Covers parts of more than two-dozen different nations. Threats: Logging, overgrazing, air pollution, acid rain, poaching, predator control, and industrial development</p> <p>(159) Description: one of the largest wetlands in Europe. Threats: the loss of two migratory fish species and the imperilment of several more</p>	<u>Sugar</u> : CAP reform expected to reduce beet sugar production in some of these countries
Baltic Catchments -	North Atlantic Shelf Marine (200)	Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Russia, Sweden	Description: One of the most diverse and productive upwelling areas in the North Atlantic. Threats: Over fishing and pollution pose the greatest threats to this region	<u>Sugar</u> : CAP reform expected to reduce beet sugar production in some of these countries
South Iberia Catchments (incl. Doñana) -	Mediterranean Forests, Woodlands and Scrub (123)	Spain	Description: One of only five scrublands of its kind, which together support 20% of the plant species on Earth. Threats: continuing conversion to agriculture, pasture, and urban areas. Frequent fires, logging of remaining native woodlands, exotic species, and intensive grazing are also threats.	<u>Sugar</u> : CAP reform expected to reduce beet sugar production in Spain.

Anatolian Catchments -	Mediterranean Forests, Woodlands and Scrub (123)	Turkey		<u>Sugar</u> : Turkey, as beet sugar producer, is likely to loose from CAP reform.
Lake Prespa and Balkans -	Mediterranean Forests, Woodlands and Scrub (123)	Albania, Greece, FYR Macedonia		<u>Sugar</u> : CAP reform expected to reduce beet sugar production in Greece
Altai Sayan Forest Rivers & Streams -	Altai-Sayan Montane Forests (79)	China, Kazakhstan, Mongolia, Russia	Description: Is a mosaic of coniferous forests, intermontane steppe, and alpine meadows. Threats: Forest clearance, plant over collection and hunting occur along the banks of larger rivers and in heavily populated areas such as the Kusnetsk Basin, Salair, Alatau Kuznetsk and south-western Altai.	Not likely to be directly affected
Amur River -	Russian Far East Temperate Forests (71)	China, Mongolia, Russia	Description: One of the most distinctive temperate forests in the world. Threats: Conversion to agriculture, deforestation, poaching, urban expansion, mining, and pollution.	Not likely to be directly affected
Africa				
North-African Catchments -	European-Mediterranean Montane Mixed Forests (77)	Algeria, Morocco, Tunisia	Description: Cover parts of more than two-dozen different nations, encompassing a wide-ranging collection of conifer and mixed forest blocks. The major mountain areas of this ecoregion are the Alps, Pyrenees, Balkan, Rhodope Massifs, and Carpathian Mountains. Threats: Logging, overgrazing, air pollution, acid rain, poaching, predator control, and industrial development	Not likely to be directly affected
Niger River -	Sudd-Sahelian Flooded Grasslands and Savannas (97)	Benin, Burkina Faso, Cameroon, Chad, Côte d'Ivoire, Guinea, Mali, Niger, Nigeria	Description: Contains one of the largest floodplains in Africa. Threats: hunting, seasonal farming pressures, temporary gardens and pastures. Looking ahead, a planned canal through Sudd to divert water for agricultural and industrial uses.	<u>Sugar</u> : Mixed results. CAP reform likely to reduce sugar output in sugar producing countries (Burkina Faso), but EBA in 2009 may boost exports

Lake Chad	Sudd-Sahelian Flooded Grasslands and Savannas (97)	Cameroon, Central African Republic, Chad, Niger, Nigeria		Not likely to be directly affected
Upper Guinea Rivers & Streams -	Guinean Moist Forests (1), Upper Guinean Rivers & Streams (161)	Benin, Côte d'Ivoire, Ghana, Guinea, Liberia, Sierra Leone, Togo	(1) Description: Rainfall forests. Threats: forests severely reduced by logging, clearing for agriculture, and mining activities. (161) Description: Serious problems from deforestation due to agriculture, mining of iron ore and diamonds	<u>Sugar</u> : Mixed results. CAP reform likely to reduce sugar output in sugar producing countries (Ghana), but EBA in 2009 may boost exports
Congo River -	Central Congo Basin Moist Forests (5), Western Congo Basin Moist Forests (6), Congo Basin Piedmont Rivers & Streams (150)	Angola, Cameroon, Central African Republic, Democratic Republic of Congo, Gabon, Republic of Congo, Sudan	(5) Description: Together with the North-western Congolese lowland forests, they comprise the Earth's second largest contiguous rain forest after the Amazon. Threats: no protected areas and whatever little area, that has been converted generally occurs along rivers that serve to be the only means of access. (6) Description: among the richest and most intact tropical forest regions in the world. Threats: increasing logging activity and clearing for agriculture. (150) Description: Contains pockets of endemism along its path from the centre of the continent to the coast. Threats: Growing urban centres and the resultant untreated sewage disposal, logging operations, industrial-scale mining operations, and other sources of pollution	<u>Sugar</u> : CAP reform likely to positively affect sugar exports from Sudan while reduce those from Congo, but EBA in 2009 may boost exports
Mara River -	Rift Valley Lakes (182)]	Kenya, Tanzania	Is home to many lakes that harbour extraordinary endemic species. Threats: Deforestation as a result of commercial agriculture and industrial logging, which leads to increased erosion and altered hydrologic regimes.	<u>Sugar</u> : CAP reform likely to decrease sugar exports from Tanzania, but EBA in 2009 may boost exports

Kagera River -	Rift Valley Lakes (182)	Burundi, Rwanda, Tanzania, Uganda		CAP reform likely to decrease sugar exports from Tanzania, but EBA in 2009 may boost exports
Lake Malawi -	Rift Valley Lakes (182)	Malawi, Mozambique, Tanzania		<u>Sugar</u> : Mixed results. Malawi and Mozambique likely to be winners from CAP sugar reform while Tanzania a loser. But EBA in 2009 may boost exports
Tana River -	East African Marine (233)	Kenya	Description: One of the most important coastal wetlands in East Africa. Threats: Agriculture and deforestation; Domestic, agricultural, and industrial pollution, among others.	Not likely to be directly affected
Ruaha River -	Central and Eastern Miombo Woodlands (88), East African Marine (233)	Tanzania	(88) Description: Covering much of central and southern Africa. Dominated by the Central African Plateau with some portions characterised by flat or rolling hills with local areas of higher relief. Relatively intact. (233): See Tana River (above)	<u>Sugar</u> : Tanzania likely to be loser from CAP sugar reform, but EBA in 2009 may boost exports
Zambezi River (incl. Kafue Flats) -	Central and Eastern Miombo Woodlands (88)	Angola, Botswana, Malawi, Mozambique, Tanzania, Zambia, Zimbabwe	See Ruaha river (above)	<u>Sugar</u> : Malawi, Zambia & Zimbabwe are expected to gain from EU sugar reform, while Tanzania is likely to be a loser. But EBA in 2009 may boost exports
Madagascar River & Streams	Madagascar Forests and Shrublands (10), Madagascar Spiny Thicket (125)	Madagascar	Description: Subhumid and lowland forests. Threats: small-scale but widespread clearing of forests associated with slash-and-burn agriculture and secondarily for firewood collection	<u>Sugar</u> : Madagascar likely to be loser from CAP sugar reform, but EBA in 2009 may boost exports

Cape Rivers & Streams -	Cape Rivers & Streams (164)	South Africa	Description: The many rivers and streams in the ecoregion flow down toward the Indian and Atlantic Oceans, nourishing valleys along the way. Threats: Water is in great demand in this dry ecoregion, with both urban and agricultural uses competing with the needs of the unique aquatic fauna, also causing pollution. The construction of dams and interbasin water transfers alter the natural flow regime and block species movements	<u>Sugar</u> : South Africa likely to gain from CAP sugar reform. However, main sugar production is in other regions of South Africa.
Asia				
Indus River -	Indus River Delta (156)	Afghanistan, China, India, Pakistan	Description: Originating at Lake Ngangla Ringco high on the Tibetan Plateau, the Indus flows more than 3,000 km, creating a wide delta of swamps, streams, and extensive mangroves just before pouring into the Arabian Sea. Threats: Dams on the river reduce flows in lower portions of the system and limit the transport of fertile sediments downstream into the delta	<u>Sugar</u> : Pakistan may be loser from CAP sugar reform. However, the vast majority of Pakistan's production is consumed domestically, so impact of EU regime change will be negligible.
Ganges River -	Sundarbans Mangroves (139)	Bangladesh, India	Description: Vast complex of intertidal and estuarine areas situated on the border of India and Bangladesh where the Ganges, Brahmaputra, and Mehgna rivers converge in the Bengal Basin. Threats: harmful effects of sewage and industrial pollution plus continuing deforestation	<u>Sugar</u> : India and Bangladesh likely to be losers from CAP sugar reform, but Bangladesh may benefits from EBA 's improved market access in 2009. However, the vast majority of Indian production is consumed domestically, so impact of EU regime change will be negligible.
Western Ghats -	Western Ghats Rivers and Streams (171)	India	Description: The Western Ghats run north to south for about 1,600 km and have peaks of many different heights.	<u>Sugar</u> : India likely to be loser from CAP

			Threats: Urbanisation, construction of dams, water diversion projects, fish harvesting, conversion to agriculture (e.g., rubber plantations), deforestation	sugar reform. However, the vast majority of Indian production is consumed domestically, so impact of EU regime change will be negligible.
Godavari		India		<u>Sugar</u> : India likely to be loser from CAP sugar reform. However, the vast majority of Indian production is consumed domestically, so impact of EU regime change will be negligible.
Sundaland River & Swamps -	Sundaland Rivers & Swamps (174)	Brunei, Indonesia, Malaysia, Singapore	Description: One of the richest freshwater faunas in Asia. Threats: Deforestation, conversion to agriculture, overfishing, exotics, the aquaculture industry, and mining pollution	Not likely to be directly affected
Kinabatangan	Borneo Lowland and Montane Forests (31)	Malaysia	Description: Lowland and mountain rainforests. Threats: Damaging human activities such as commercial and illegal logging, large-scale agriculture for oil palm or tea, mining, dam construction, shifting cultivation, illegal collection of species, and infrastructure development	Not likely to be directly affected
Yangtze River	Southwest China Temperate Forests (70), Yangtze River and Lakes (149)	China	(70) Description: Mountain and evergreen forests. Threats: expanding agriculture and increasing demand for timber, both associated with a growing human population (149) Description: third longest river in the world and one of the richest temperate rivers. Threats: The most pressing and severe threat is construction of dams and dykes on the Yangtze and its tributaries. Others include Fish farming, deforestation, cultivation of surrounding land for farming and grazing, pollution, oil drilling, industrialisation, urbanisation	Not likely to be directly affected

Mekong River	Annamite Range Moist Forests (25), Mekong River (144)	Cambodia, China, Laos, Myanmar, Thailand, Vietnam	(25) Description: Mountain rain forest. Threats: Increased commercial logging, large hydropower projects, unsustainable levels of shifting cultivation, and intensive illegal hunting (144) Description: Most diverse and distinctive large river fauna of tropical Asia. Threats: Deforestation; Modification of the hydrologic regime by flood control schemes, water diversions, and hydropower projects; Over fishing, particularly with the increased use of poisons; Urban, industrial, and agricultural pollution that are largely untreated	<u>Sugar:</u> Thailand likely to gain from CAP sugar reform
Sepik River -	Southern New Guinea Lowland Forests (14), New Guinea Montane Forests (15), Solomons-Vanuatu-Bismarck Moist Forests (16)	Papua New Guinea, Indonesia	(14) Description: lowland rain forests. Threats: Logging, especially in coastal areas. Road construction, shifting cultivation, agricultural expansion, and plantation development. (15) Description: montane rain forests. Threats: Logging, road construction, shifting cultivation, agricultural expansion, and related livestock activities	<u>Sugar:</u> Papua New Guinea likely to gain from CAP sugar reform
Kikori -	Southern Papua New Guinea Lowland Forests (14), New Guinea Montane Forests (15), Solomons-Vanuatu-Bismarck Moist Forests (16)	Papua New Guinea	(16) Description: lowland rain forests; rain forests; and montane rain forests. Threats: Intensive logging on the part of multinational timber companies is devastating both lowland and montane forest habitats. Potential threats include conversion of forests to oil palm plantations and increasing population growth pressures	<u>Sugar:</u> Papua New Guinea likely to gain from CAP sugar reform
Lakes Kutubu and Sentani -	Lakes Kutubu and Sentani (187)	Indonesia, Papua New Guinea	Description: Wetland. Threats: over fishing and oil developments nearby	<u>Sugar:</u> Papua New Guinea likely to gain from CAP sugar reform
Oceania				
Fly River -	Northern Australia and Trans-Fly Savannas (90)	Australia	Description: Tropical savannah. Threats: lack of fire management, feral animals and weeds, and grazing	<u>Sugar:</u> Australia likely to gain from CAP sugar reform
Great Barrier Reef	Great Barrier Reef (222)	Australia	Description: Is the largest barrier reef system in the world. Threats:	<u>Sugar:</u> Australia likely

Catchments -			Eutrophication, especially related to runoff from agricultural development (e.g., sugar cane), reduces coral reef diversity and spatial cover	to gain from CAP sugar reform <u>Soy</u> : also from slightly largest EU soy imports
Southwest Australia Rivers & Streams -	Southwestern Australia Forests and Scrub (119)	Australia	Description: Forest and shrublands; woodlands; savanna; heathlands. Threats: Unsustainable logging, expansion of agricultural clearing, overgrazing, weeds and feral animals, burning and altered fire regimes, urban development	<u>Sugar</u> : Australia likely to gain from CAP sugar reform <u>Soy</u> : also from slightly largest EU soy imports
Murray-Darling Basin		Australia	Description: Wetlands. Threats: water extraction for irrigation, most notably for cotton growing	<u>Sugar</u> : Australia likely to gain from CAP sugar reform <u>Soy</u> : also from slightly largest EU soy imports
New Caledonia Rivers & Streams -	New Caledonia Dry Forests (53)	New Caledonia (France)	Description: Dry forest cover. Threats: Major threats to the last patches of remaining habitat include clearing for expansion of pastures, uncontrolled burning, herbivory, and predation by introduced species	Not likely to be directly affected

5.2 Priority Forest Ecoregions

According to WWF the following are the Priority Forest Ecoregions:^{167 168}

- The Sumatran Islands Lowland and Montane Forests, Southern New Guinea Lowland Forests, and the Atlantic Forests (until end of 2005).
- And the Borneo Ecoregion Complex, Cerrado Woodlands and Savannas, and Chocó Darién Moist Forests/Llanos, Orinoco (until end of 2007).

Table 5.2 cross-references the priority forest ecoregions with the information on likely impacts of the EU policy changes discussed in Chapter 4.¹⁶⁹ First column identifies the priority forests. The second and third columns list the ecoregion and countries involved in each forest, respectively. The fourth column describes the current situation on each forest and their main threats. The last column identifies the forest ecoregions likely to be affected by the EU policy change. The basis of this result is a cross-reference between the countries involved in each forest ecoregion, their status as producing/exporting or importing country of the products under analysis and the likely effects of the EU policy change in terms of the world production and trade displacement described in Chapter 4.

EU sugar reforms are likely to affect the Sumatran Islands Lowland and Montane Forests, Southern New Guinea Lowland Forests in Asia and the Atlantic Forests and the Cerrado Woodlands and Savannas in South America. Likely impacts of EU soy reform will concentrate on the Atlantic Forests and the Cerrado Woodlands and Savannas in South America.

Table 5.2: Priority Forest Ecoregions

FOREST	ECOREGIONS	COUNTRY/IES	CURRENT SITUATION	IMPACT OF EU POLICY CHANGE
Sumatran Islands Lowland and Montane Forests (26)	Sumatran tropical pine forests; Sumatran lowland rain forests; Sumatran montane rain forests	Indonesia	<p><u>Description:</u> extraordinarily diverse forests with extensive areas of limestone, supporting high levels of regional and local endemism, and provide one of the last opportunities to conserve populations of Sumatran fauna.</p> <p><u>Threats:</u> 65-80% of these forests have already been lost to agriculture (mainly oil</p>	Not likely to be directly affected

¹⁶⁷ Bella Roscher, WWF, Personal Communication, September 2005

¹⁶⁸ For a complete list of the 200 ecoregions please see

http://www.panda.org/about_wwf/where_we_work/ecoregions/ecoregions.cfm

¹⁶⁹ For a detailed description of the priority river basin please see:

http://www.panda.org/about_wwf/what_we_do/freshwater/our_solutions/rivers/50_rivers.cfm

			palm plantations) and logging. The flat lowlands of southern Sumatra, have been almost entirely destroyed. Sumatra is probably losing its natural vegetation faster than any other part of Indonesia.	
Southern New Guinea Lowland Forests (14)	Southern New Guinea lowland rain forests; Vogelkop-Aru lowland rain forests.	Indonesia, Papua New Guinea	<p><u>Description:</u> lowland forests generally richer than the montane forests of this tropical island. They are filled with an amazing assortment of plants and animals, many of them found only on this island.</p> <p><u>Threats:</u> Logging is putting increased pressure on these forests, especially in coastal areas. Road construction, shifting cultivation, agricultural expansion, and plantation development all constitute additional threats</p>	<u>Sugar:</u> Papua New Guinea likely to gain from sugar CAP reform
Atlantic Forests (48)	Ilha Grande mangroves; Rio São Francisco mangroves; Araucaria moist forests; Rio Piranhas mangroves; Bahia mangroves; Pernambuco coastal forests; Bahia coastal forests; Bahia interior forests; Caatinga Enclaves moist forests; Parañá-Paraíba interior forests; Pernambuco interior forests; Campos Rupestres montane savanna; Serra do Mar coastal forests; Atlantic Coast restingas.	Argentina, Brazil, Paraguay	<p><u>Description:</u> Long isolated from the Amazon Basin by the drier Cerrado region to its west, the Atlantic Forest ecoregion fostered the evolution of many distinctive plant and animal communities.</p> <p><u>Threats:</u> Two of the world's largest cities - Rio de Janeiro and Sao Paulo, lie within the Atlantic Forests ecoregion. Urbanisation, industrialisation, logging, agricultural expansion (including sugarcane in Pernambuco), and associated road building threaten this globally important region of biological diversity. Habitat loss, hunting, and the wildlife trade threaten many species.</p>	<p><u>Sugar:</u> EU CAP reform sugar will lead to increase in sugar production in Brazil.</p> <p><u>Soy:</u> CAP reform little impact on soy. However, predicted slight increases on EU imports from Brazil and Argentina pose a several threat to these forests</p>
Borneo Ecoregion Complex (31)	Borneo lowland rain forests; Borneo montane rain forests.	Brunei, Indonesia, Malaysia	<p><u>Description:</u> It comprises of a great variety of habitats including large areas of karst (barren limestone plateaus with caves, sinkholes, and gullies), and a high-altitude swamp forest, nesting many unique species of plants and animals.</p> <p><u>Threats:</u> Damaging human activities such as commercial and illegal logging, large-</p>	Not likely to be directly affected

			scale agriculture for oil palm or tea, mining, dam construction, shifting cultivation, illegal collection of species, and infrastructure development have meant that well over half of the lowland forests are now gone, with large fires burning away the remaining tracts.	
Cerrado Woodlands and Savannas (93)		Bolivia, Brazil, Paraguay Temperate Grasslands, Savannas and Shrublands	<p><u>Description:</u> The Cerrado constitutes one of the largest savanna-forest complexes in the world and contains a diverse mosaic of habitat types and natural communities, including open savannas with sparse trees and closed woodlands with little grass.</p> <p><u>Threats:</u> Agricultural expansion (including frequent burning and charcoal production), degradation as a result of development, and water projects pose major threats to the Cerrado. Grazing of cattle, which destroys native grassland habitats, is also problematic.</p>	<p><u>Sugar:</u> EU sugar CAP reform will lead to increase in sugar production in Brazil, and may affect the Cerrados.</p> <p><u>Soy:</u> CAP reform likely to have little impact on soy production in EU. However, slight increases on EU soy imports, especially from Brazil, Argentina and Paraguay are predicted. It is very likely these increases will affect the Cerrados</p> <p>These effects are likely to be reinforced by a potential FTA EU-Mercosur</p>
Chocó Darién Moist Forests (39)	Chocó-Darién moist forests; Eastern Panamanian montane forests; Magdalena-Urabá moist forests; Western Ecuador moist forests.	Colombia, Ecuador, Panama	<p><u>Description:</u> Featuring some of the highest rainfall on the planet, this ecoregion has one of the world's most diverse assemblages of lowland plants and animals, with exceptional richness, uniqueness and endemism in plants, birds, reptiles and amphibians, and butterflies.</p> <p><u>Threats:</u> Damaging human activities such as shifting cultivation, settlements, over-exploitation of certain forest species and unsustainable logging practices threaten to increase deforestation in certain parts of this ecoregion.</p>	Not likely to be directly affected
Llanos, Orinoco (38)		Colombia, Venezuela	<p><u>Description:</u> best example of tropical savannas in South America with high floristic and habitat diversity.</p> <p><u>Threats:</u> Grazing, burning, draining,</p>	Not likely to be directly affected

			conversion to agriculture, and over hunting are all threats to the biodiversity found in this ecoregion. Animal species endangered by pesticides	
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6 Issues Of Concern Relating to Fresh Water and Forest Conservation in the Priority Ecoregions

This section cross-references the production and trade displacement with issues of concerns relating to fresh water and forest conservation in the priority river basins and forest ecoregions.

6.1 Sugar

- **Natural habitat conversion and species loss:**

Sugarcane is probably the most important cash crop, in terms of area planted, for developing countries, especially many small island economies. Arguably, the major adverse environmental impact happened decades ago, when natural habitat was converted into plantations.¹⁷⁰ About a dozen countries in the world devote at least 25% of their agricultural land to sugarcane production. Sugarcane production has led to clearing of the most unique and biodiverse regions on the planet, including the entire natural habitat of thousands of islands, and hectares of fragile coastal wetlands. For example, on account of sugarcane production the Caribbean is not considered biologically significant, nor are any of the islands (except New Guinea) in greater South East Asia.¹⁷¹ Natural habitat conversion and species loss is not limited to sugarcane. Sugar beet has also been linked to wetland damage in Andalusia and population decline of some bird species.¹⁷²

- **Water consumption and reduced water flow:**

This is associated particularly with the growing of sugarcane, but also cane and beet processing.¹⁷³ Sugarcane is a deep-rooted crop and uses a lot of water; it is extremely sensitive to soil water deficits. In many areas, it is usual for 100% of water demand to be provided by irrigation, although in other areas (e.g. KwaZulu-Natal in South Africa) it is rain-fed. Even in areas where sugarcane is not irrigated, the crop can have a great impact on river flow as it reduces run-off from the catchment area into rivers and draws heavily on ground water resources.¹⁷⁴ Furthermore, sugar processing involves

¹⁷⁰ Clay, 2004a *The Main Public Policy Concerns Associated with Commodity Production and Trade, document prepared for the Strategic Dialogue "Agriculture, Trade Negotiations, Poverty and Sustainability* convened by ICTSD and IIED 14th-16th July 2004, Windsor, UK. Available at <http://www.ictsd.org/dlogue/2004-07-14/2004-07-14-docu.htm>

¹⁷¹ Clay, 2004b *World Agriculture and the Environment*. Washington, DC: Island Press. 570 pp.

¹⁷² WWF, 2004 *WWF's position on reform of the EU sugar regime*, available at http://www.panda.org/about_wwf/what_we_do/freshwater/publications/index.cfm

¹⁷³ IIED et al, 2004

¹⁷⁴ IIED et al, 2004

many stages that require water. Beet processing can also consume significant amounts of water given the quantity of soil that remains attached to the roots at harvest.

A study of irrigated agriculture in selected high priority river basins for biodiversity ranks sugar as the third 'thirstiest' commodity crop (requiring about 1,500-3,000 l/kg of crop). Priority river basins impacted by reduced water flow caused by sugarcane include the Indus Delta in Pakistan and the Godavari River Basin in India.¹⁷⁵ In the Zambezi river basin in southern Africa, 95,000 ha (25%) of irrigated land is under sugar production. Zambia, Zimbabwe, Mozambique and Malawi alone account for 93,000 ha of irrigated cane and by 2025 the region is forecast to be using over 60% of its total water supply for irrigation.^{176 177} In Australia, the sugar industry has been a significant player in major infrastructure projects, including damming of the Burdekin, Tully and Barron Rivers, which has altered the pattern of freshwater flow into the Great Barrier Reef.¹⁷⁸ In Pakistan, sugarcane cultivation is consuming significantly more water per unit area than any other crop grown in the Indus Basin.¹⁷⁹

Regarding sugar beet, in the Konya river Basin in Turkey 334,000 ha (10%) of irrigated land is under sugar beet. Between 50% and 88% of the useable water in the basin is diverted for irrigation and other demands have led to water being imported from other countries. Sugar beet is widely irrigated to ensure consistent productivity and quality. Irrigation occurs across a number of river basins in Europe, from the Duero in northern Spain, the Guadalquivir in southern Spain, the Tagus in Portugal to the Danube in both Austria and Hungary. In Spain and Portugal and even Hungary, 100% of the beet crop is irrigated. Beet is one of the crops driving irrigation in Andalusia; irrigation is contributing to falling water levels in the Guadalquivir, which are restricting water from reaching wetlands, such as Doñana, during the summer.¹⁸⁰

- **Water pollution:**

The impact of water consumption on ecosystems is generally coupled with water quality and effluent run-off problems, regardless of whether the crop is irrigated or rain-fed. Watercourses can be polluted by agrochemicals and sediments; in some cases these impacts can extend to downstream ecosystems.¹⁸¹ These issues are prominent in Florida in the US where nutrient-rich runoff from sugarcane fields is held largely responsible for the decline of the Everglades. Examples of priority river basins have been cited elsewhere. In Australia, sugarcane production is located on a narrow

¹⁷⁵ WWF (2003)

¹⁷⁶ WWF (2003)

¹⁷⁷ WWF, 2005

¹⁷⁸ WWF, 2005 *Sugar and the Environment- Encouraging Better Management Practices in sugar production*, available at: <http://www.panda.org/downloads/europe/sugarandtheenvironmentnovember2004.pdf>

¹⁷⁹ WWF, 2005

¹⁸⁰ WWF, 2004 *WWF's position on reform of the EU sugar regime*, available at http://www.panda.org/about_wwf/what_we_do/freshwater/publications/index.cfm

coastal strip in close proximity to the Great Barrier Reef. In KwaZulu Natal, South Africa, the lack of adequate integrated soil conservation practices in cane-producing farms has been linked to soil erosion, leading to degradation of the major rivers of the Natal seaboard, including the St Lucia World Heritage Site.¹⁸² The Zambian sugar industry in the Kafue Flats has also been linked to the degradation of the natural environment of the Kafue River.¹⁸³

Water pollution is also a noted impact of cane and beet processing. Here the main pollutants are water-borne organic matter and solids, which can affect groundwater, rivers and wetlands. Sugar mills generate about 1,000 litres of wastewater per tonne of cane crushed. Sugar mill effluent from both cane and beet has a high BOD (Biological Oxygen Demand); effluents are also high in suspended solids and ammonium¹⁸⁴. Some examples of this issue include the 1995 annual cleaning of sugar mills in the Santa Cruz region of Bolivia that resulted in the death of millions of fish in local rivers. In Cuba the oxygen deficiency from sugar factory waste water discharge (amongst other activities) led to dominance of aquatic macrophytes, resulting in thick mats of weeds that impeded the water delivery capacity of canals and affected sport fishing and tourism.¹⁸⁵ Three sugar factories next to River Nyando in Kenya led to a decline in the quality of drinking water sources for many families on the river's way to Lake Victoria, and nutrient over-enrichment of the lake. Moreover, the pollution of Danish coastal waters by sugar factory effluent has been linked to the occurrence of bacterial pathogens and an ulcer syndrome in the cod *Gadus morhua*.¹⁸⁶

¹⁸¹ IIED et al, 2004

¹⁸² WWF, 2005

¹⁸³ Mwasile C and Nsongela S, 2005 *Impacts of the European Union Sugar Reforms on the Zambian Sugar Industry*, WWF Zambia Partners for Wetlands

¹⁸⁴ IIED et al, 2004

¹⁸⁵ WWF, 2005

¹⁸⁶ WWF, 2005

6.2 Soy

- **Forest and savanna conversion:**

The growth of agricultural area in the Amazon region was about twice as high as for the rest of Brazil, and 70% of the 1.1 million hectares deforested in the year 2002 was cleared for soybean cultivation.

¹⁸⁷ Expansion of cultivation into forest areas is regarded as a major threat to biodiversity, especially in the drier savanna areas of north-central Brazil (the *cerrado* ecoregion) in the states of Piauí and Mato Grosso and also forests in the Amazon. The *cerrados* of Piauí occupy 46% of the state's total area¹⁸⁸ and 6% of the Brazilian *cerrado* biome and is considered to be the savannah type with the highest biodiversity in the world. 46% of Mato Grosso's territory belongs to the Amazon basin, one of the world's most biologically diverse regions, home to 55,000 recorded plant species, 428 mammal species, and 1,600 bird species.¹⁸⁹ The *cerrado* is home to around 10,000 plant species of which 4,400 are endemic to central Brazil, as well as endangered animals such as the maned wolf, the giant armadillo and the giant anteater. The *cerrado* is one of the least protected ecosystems in Brazil. Indeed, the legal reserve requirement for the *cerrado* is 35% while for forests is 80%¹⁹⁰; only seven of the thirty-seven nature reserves in Mato Grosso are demarcated and policed by the state environment agency (FEMA)¹⁹¹.

The southern margins of the Amazon rainforest are also threatened by the expansion of soybean agriculture.¹⁹² Greenpeace claims Amazonian forest clearance increased 40% between August 2001 and August 2002 as a direct result of soybean farming. A WWF case study showed soybean farming to be a major cause of clearance of 795,000 hectares of forest in Mato Grosso in 2002, helping the soybean area grow by 18% to 4,500,000 ha. The low cost of real estate has stimulated rush to acquire land. Irregular land transfers are reportedly common in the Brazilian states of Piauí, Mato Grosso and Amazonas but especially so in Piauí. According to the study, deforestation linked to soy expansion in Piauí is rapidly increasing. More important than the granting of licenses to deforest, is the extensive illegal clearcutting of native *cerrado* vegetation the main cause of deforestation. IBAMA- the public environmental agency- on the other hand, lacking law enforcement resources, is unable to take effective action.¹⁹³ ¹⁹⁴ There are also negative indirect impacts on biodiversity associated to soy

¹⁸⁷ Bickel and Dros 2002

¹⁸⁸ The rest of Piauí's total area comprises *caatinga* and a small area of transition forest

¹⁸⁹ Bickel and Dros 2002

¹⁹⁰ Viana V, May P, Lago L, Dubois O and Grieg-Gran M 2002 *Instrumentos para o manejo sustentável do setor florestal privado no Brasil. Uma análise das necessidades, desafios e oportunidades para o manejo de florestas naturais e plantações florestais a pequena escala.* Instruments for sustainable Private Sector Forestry, International Institute for Environment and Development, Londres

¹⁹¹ Bickel and Dros 2002

¹⁹² Bickel and Dros 2002

¹⁹³ Bickel and Dros (2002)

expansion as it justifies massive transportation infrastructure projects that unleash a chain of events leading to destruction of natural habitats over wide areas in addition to what is directly cultivated for soybeans.¹⁹⁵

In Argentina, the majority of recent expansion in soybean agriculture has come about through the use of readily available agricultural land. However, the Argentinean government has set aggressive targets to further expand the agricultural area in order to bring about another dramatic increase in soybean production for export. It is thought this will come at the expense of areas of the forested Chaco biome (in the north) and the remaining Atlantic forest in Misiones. These biomes, together with the remaining Atlantic forest of Paraguay are now highly threatened. Indeed, several studies suggest that soy expansion is a major threat to biodiversity in the Chaco and Atlantic rainforest ecosystems. One estimate predicts that they may have disappeared completely by 2010.¹⁹⁶

Future prospects are no better. The development of soybean varieties that will perform well in higher rainfall tropical areas of the Brazilian north west will make the cultivation of these areas more economically attractive and may well lead to increased deforestation. In Mato Grosso, yields of soybean have increased from 2.4 tonnes/ha in 1995 to 3.1 tonnes/ha in 2003 thanks to research by the Brazilian government agricultural research corporation EMBRAPA. According to a WWF report, even with increasing yields per hectare (from current 2.5 tonnes/ha in the USA and 2.8 tons/ha in South America to an estimated 2.8 and 3 tonnes/ha respectively in 2020), the current area under soy cultivation will not be sufficient to meet the expected global demand. Thus, additional crop planting will be required to accommodate soy production. Globally, areas for significant expansion of crop planting are only available in Sub-Saharan Africa and South America, most notably in Angola, Argentina, Bolivia, Brazil, Colombia, Congo and Sudan. Thirty percent of this 'reserve' is covered with forests. As land is getting scarce in Asia and Europe, soy planted areas are expected to decline or remain stable in these regions. The availability of cheap land, the favourable climate and presence of transport and financing infrastructure will encourage the expansion of soy in South America at the expense of natural areas.¹⁹⁷

¹⁹⁴ See also ISA (200?) *Relação entre cultivo de soja e desmatamento. Compreendendo a Dinamica*, Grupo de Trabalho sobre Florestas do Fórum Brasileiro de ONGs e Movimentos Sociais para Meio Ambiente e Desenvolvimento (FBOMS).

¹⁹⁵ Fearnside F, 2001, *O Cultivo da Soja como ameaça para o meio ambiente na Amazônia brasileira*. In: L. Forline and R. Murrieta (eds.) *Amazônia 500 Anos; O V Centenário e o Novo Milênio: Lições de História e Reflexões para uma Nova Era*. Museu Paraense Emílio Goeldi, Belém, Pará

¹⁹⁶ See Dros, 2004

¹⁹⁷ Bickel and Dros (2002)

- **Water use and pollution:**

Poor soybean cultivation practice and inadequate provision of riparian buffer zones may result in soil erosion reducing fertility of the soil and polluting water courses with sediment. Conventional soybean cultivation also requires heavy pesticide use, and with inadequate attention paid to erosion and runoff, pesticide contamination of watercourses is reportedly commonplace. For instance, the use of pesticides is highlighted as endangering the water supply of the northeastern cerrado region, where the watersheds of the Parnaíba, Gurguia and Balsas Rivers are located.¹⁹⁸ The *Movimento pela preservação dos rios Tocantins e Araguaia*¹⁹⁹, a movement to preserve the Araguaia and Tocantins rivers in one of the current soy expansion areas, estimates that around 220,000 people in Brazil die each year due to pesticides.

¹⁹⁸ Bickel and Dros 2002

¹⁹⁹ Cited in Bickel and Dros 2002

6.3 Beef and Pigmeat

- **Production of Feed Grains:**

This is the most important issue associated to beef production in this study as cattle in the EU are fed on grain, especially imported soy mostly from South America. Production of feed grains generates significant habitat conversion, soil degradation and water pollution among other impacts. Competition for food resources between cattle and humans is a concern regarding beef production. A third of the world's cereal harvest is fed to farm animals, a significant share of which is used to feed cattle. In the US, for example, nearly 95% of soybean meal is currently used as livestock feed and in 1992 the US beef industry used about 11% of the national corn supply.²⁰⁰

- **Habitat conversion and deforestation:**

About two thirds of world's agriculture and land is currently used for maintaining livestock and one third of the world's land suffers desertification due in large part to deforestation, overgrazing and poor agricultural practices.²⁰¹ Deforestation constitutes one of the main threats to biodiversity, natural resource conservation and greenhouse emissions (climate change). Impacts tend to differ from one country to the next and also depend on the production process under consideration. In Argentina, for instance, cattle are feed naturally on pampas grass and the beef industry protects the pampas from encroachment by crop cultivation. In contrast, in the Brazilian Amazon forests have been cleared to make way for livestock, having a tremendous impact on biodiversity and ecosystem functions.²⁰²

- **Water Use and Quality:**

Including indirect consumption, irrigation of pastures and carcass processing, the production of 1 kg of boneless beef in the US can take as much as 3,682 litres of water.²⁰³ Regarding water quality, there is increasing concern about water pollution caused by pesticides used to maintain or improve pasture areas or to increase feed grain production. Slaughterhouse run-off can also damage freshwater sources if not treated. The waste from both slaughterhouses and tanneries is rich in organic matter and hence poses serious public health concerns if discharged into the environment without proper treatment. Eutrophication of water systems can cause large-scale algal blooms that kill aquatic life. Some examples include northwest Europe and the East coast of the US.²⁰⁴

²⁰⁰ Clay, 2004b

²⁰¹ Clay, 2004b

²⁰² Clay, 2004b

²⁰³ Clay 2004b

²⁰⁴ Clay, 2004b

Table 6.1: Main Impacts On Freshwater and Forest Conservation Associated to Sugar, Soy, Beef and Pigmeat Production

Commodity	Impacts
Sugar	Natural habitat conversion and species loss Water take and reduced water flow Soil erosion and loss of fertility Water pollution Local air pollution from (from cane burning) Solid waste generation
Soy	Natural habitat conversion and species loss Loss of ecosystem functions Local air pollution (from the burning for clearance) Soil erosion and loss of fertility Effluents Water pollution
Beef and Pigmeat	Habitat conversion and Deforestation Overgrazing Water take Effluents Air pollution (from periodic burning to suppress weeds) Several indirect environmental impacts linked to their use of feed grains e.g. soy products.

7 Potential Mechanisms and Opportunities to Influence the Displaced Production to Reduce its Environmental Impacts

7.1 Identification of mechanisms and opportunities

As the previous chapter has shown, there are a number of undesirable environmental impacts that may result from increased production in new locations stemming from further trade liberalisation and related policy changes. A number of mechanisms that may reduce or eliminate these environmental impacts can potentially be put in place by a range of actors extending from local farmers and NGOs to trade partners and international bodies.

Local conditions vary greatly and there is no simple, universally applicable formula to prevent or restrain environmental damage. Some of the principal options at the local/regional level include:

7.1.1 Measures to be carried out in the country

- **Land use measures**

E.g. measures to prevent inappropriate new land uses, such as the exploitation of valuable habitats. Land use planning may need to be strengthened to avoid the expansion of crop growing or the conversion of forest to pasture in areas where it would be damaging. Planning and development consent procedures are especially needed in protected areas and buffer zones. Protected areas may need enlarged boundaries or more effective controls over land use.

- **Livelihood support measures**

E.g. support for sustainable rural development schemes offering alternative employment and income in place of inappropriate commodity production. Such initiatives may need to be prioritised by national authorities and international donors.

- **Capacity building measures**

E.g. help for local farming, environmental and related organisations in acquiring the skills, appreciation of problems and solutions, communication ability, and political reach to support sustainable development in an effective way. Advice, education and training for farmers, whether

delivered by independent bodies or government institutions (such as extension services) can be a crucial part of capacity building. External funding and support may be needed in some cases.

- **Voluntary codes of practice**

e.g. codes setting out where and how certain commodities should be produced, taking account of environmental, social, animal welfare and other considerations. Such codes can be developed by farming organisations, buyers of marketed crops or independent organisations.

- **Setting environmental standards for products**

e.g. regulatory standards relating to acceptable levels of pesticide residues in crops, the use of genetically modified crops, hormones in beef production and similar issues where the character of the final product is affected.

- **Environmental policies and regulations**

e.g. measures to protect fauna and flora, regulate the production, marketing and use of pesticides, controls on water and air pollution (including from intensive livestock farms), controls on waste generation and disposal, environmental impact assessment procedures, protection of landscape features etc.

- **Appropriate resource pricing**

e.g. resources used in agricultural production should not be made available below their true cost, including some accounting for externalities where possible. Appropriate pricing for water supply, especially irrigation water, and for energy supply is a key issue in some countries. Inputs such as mineral fertilisers should not be subsidised.

- **Marketing and labelling initiatives**

e.g. ecolabelling schemes and consumer information programmes, helping to build awareness and the market for sustainably produced food. Can operate at local, national and international level.

- **Incentive schemes**

e.g. agri-environment measures designed to encourage use of sustainable production methods including organic farming in return for an incentive or compensatory payment.

7.1.2 Measures at international level

At an international level, further measures can be considered:

- **Technical assistance measures**

- e.g. advisory, training, education institutional capacity and business support programmes designed to help countries to reduce the environmental impacts of production and trade or respond to positive opportunities.
- Direct aid measures e.g. support for specific projects, for capacity building, for sustainable agriculture and for conservation programmes etc

- **Trade related measures**

e.g. producer countries can encourage unsustainable production levels by an undue level of support for exports; such support should be avoided. Importing countries can try to influence production methods in regions where their supplies come from and protect their own farmers by banning imports of products deemed unsafe or unacceptable (e.g. hormone treated beef) and consider using tariffs and other trade mechanisms to give preference to sustainable production.

- **Promoting sustainability through multilateral agreements**

e.g. multilateral agreements such as the Convention on Biodiversity and the Cartagena Protocol can take a long time to negotiate and often implementation is less than rigorous. Nonetheless, there are opportunities to try to strengthen implementation, extend the number of countries ratifying and to consider the negotiation of new agreements where this would be the best way of raising global standards.

This catalogue of some potential measures available to different actors falls into two groups – those that are applicable at the local or national level in the country where production is taking place and those that potentially involve other countries or broader international co-operation. Purely private sector initiatives, such as the purchasing policy of processors and retailers as well as consumers are also potentially important; since they lie outside the mainly public sector focus of this chapter they are not considered further here.

Measures of the kind listed here are not mutually exclusive and can be used in combination; many are unlikely to be effective unless they form part of a strategy backed by political commitment, general sufficient institutional support and an appropriate mix of policy and private initiatives to tackle different aspects of the problem.

7.2 Likely effectiveness and political support

When making a general assessment of the likely effectiveness of measure of this kind there are a number of considerations which need to be kept in mind. These include:

- How applicable is the measure to the environmental impacts(s) in question; how effective could it be?
- How cost-effective might it be, taking account of time requirements as well as other costs?
- How practical it is for the relevant actors to introduce the mechanism?
- Political acceptability, both within the affected country and externally where other countries are involved.
- If introduced, how easy it is to apply and enforce the measure in practice?
- How consistent the measure is with existing trade and environmental policies both naturally and within the WTO?

The following brief assessment tries to take some account of these factors. The focus is on reducing the environmental impact of production in countries outside the EU. For example, measures to mitigate the environmental impacts that may result from the elimination of sugar beet production in some areas of the EU as a result of the reform of the sugar CMO are not discussed here.

The following tables offer a rapid appraisal of the selected measures for reducing the environmental impacts identified in Chapter 6. Because there is an almost limitless possible combination of mechanisms to tackle specific environmental impacts, examples of the use of each measure have been given. Sugar and soy, and beef and pigmeat are grouped together as the environmental impacts have many similarities for both groups of commodities. The potential effectiveness and political acceptability of each measure is then considered in the final two columns. For these two criteria there is a low/medium/high rating.

Table 7.1. Likely Effectiveness & Political Acceptability Of Measures Would Reduce Environmental Impact Of Displaced Production.

Measures to be carried out in country	Examples of use		Likely effectiveness	Political acceptability
Land use measures	Sugar & Soy	Requirements not to plough vulnerable soils or valuable habitats	Potentially effective in avoiding most inappropriate land uses but enforcement and institutional support vital. ➔MEDIUM	Will vary greatly according to local circumstances. Constraints on land owners rights sensitive in many countries. ➔MEDIUM/LOW
	Beef & Pigmeat	System of public consents for new intensive pig units, covering siting etc		
Livelihood support measures	Sugar & Soy	Support for improving the viability of farming on the existing land area, reduce the incentive to plant new area	Depending on local circumstances, land ownership, economic conditions, institutional structures etc. Requires well-focussed local effort. Potentially effective where focus possible. ➔MEDIUM	Generally acceptable if cast in a positive rather than heavily restrictive way. ➔HIGH
	Beef & Pigmeat	Improvements in animal health and stock farming in existing areas and appropriate locations, reduce pressure for deforestation.		
Capacity building measures	Sugar & Soy	Investing in training for agricultural extension services, increasing the capacity of local commercial NGOs and conservation agencies.	Needs to be clearly targeted to specific circumstances and delivered by competent agencies responsive to local needs and commanding trust. Administratively demanding to organise relative to some other measures. ➔MEDIUM	Generally acceptable if local patrons are keen to change and agencies providing assistance in training etc are sensitive and experienced. ➔MEDIUM/HIGH
	Beef & Pigmeat	Investing in training for agricultural extension services, increasing the capacity of local commercial NGOs and conservation agencies.		

Voluntary codes of practice	Sugar & Soy	An industry code with minimum standards for sugar plantation or soy field management. Chain of custody certificates that analyse standards met at various stages of production cycle.	Requires industry commitment and engagement locally and in the trade, but may promote delivery of more sustainable solutions e.g. with regard to irrigation practices. However, standards may not be as high as through a labelling scheme or incentive scheme, and may fluctuate between countries. Possible low uptake. Low cost to government. →MEDIUM	Acceptability will depend partly on whether seen as advantageous to farmers in the market. Likely to gain support in importing countries with high standards and from consumers. Industry-led means questions over compatibility with any government schemes. →MEDIUM
	Beef & Pigmeat	An industry code with minimum standards for beef/pig farm management.		
Environmental Product Standards	Sugar & Soy	Limit pesticide residues in sugar and soy.	May target some, but not all environmental problems, since not comprehensive coverage. Requires institutional buy-in and administrative input to implement & enforce regulations and this might not be easy. →LOW/MEDIUM	May be little incentive domestically. Problems may arise as different countries set different minimum standards. High standards proposed externally may be perceived as a trade barrier at the WTO. →LOW
	Beef & Pigmeat	Impose regulations to present use of specified hormones in beef rearing.		
Policies and regulations related to production methods	Sugar & Soy	Rules on frequency and intensity of pesticide applications, concentrations of pollutants in water.	Can directly target certain environmental problems and work at national scale. Requires institutional buy-in and administrative input to implement & enforce regulations and this might not be easy. →MEDIUM	Even affluent developed countries have tended to avoid adopting measures which are demanding for farmers until recently. →LOW
	Beef & Pigmeat	Rules relating to environmental impact assessment, air pollution, protection of forests.		

Appropriate resource pricing	Sugar & Soy	Tax water usage for irrigation or for pesticide application, following the 'polluter pays principle'.	Water pricing helpful but some measures fail to tackle environmental problem at source, and allows the problem to continue, although may act as an incentive to devise innovative solutions to currently unsustainable practices. Requires institutional buy-in and administrative input to implement & enforce rules and this might not be easy. →LOW	May be unacceptable to producer groups and costs may be passed on to consumer. Potential appeal of imposing costs generally low. →LOW
	Beef & Pigmeat	Tax discharge of effluents		
Marketing and labelling initiatives	Sugar & Soy	Organic label certifying product has been grown to acceptable standards.	Can be used to directly target a range of environmental problems and generate a potential premium for farmers. Could be driven by industry groups or government. Cost of certification is an entry-barrier that may put off some producers in developing countries. Requires high level of administrative input, especially where traceability is a condition of certification. →HIGH	This mechanism is voluntary and therefore likely to be politically acceptable. Could receive high level of public support, especially if used in tandem with a consumer awareness raising programme that informs the public of the environmental problems associated with normal production methods. →HIGH
	Beef & Pigmeat	Eco-label certifying product has been produced to acceptable environmental standards e.g. no deforestation involved, low grazing density.		

Incentive schemes	Sugar & Soy	Incentive payments given to farmers who produce sugar or soy in a way that reduces the associated environmental impact e.g. maintenance of key habitats, wildlife corridors, no burning.	Incentive payments may not provide sufficient compensation e.g. a payment for grazing beef cattle at a low intensity may not make-up the money that may be made by producing more cattle and selling at market price (although a more sustainably produced commodity could command a higher market price if marketed correctly). Can target a range of environmental problems and ensure sustainable management, but may be costly to implement and administer. Risk of low take-up. →MEDIUM	Governments, especially in developing countries, are unlikely to support such schemes due to their cost and administrative burden. May require financial support from elsewhere. Unlikely to be incompatible with WTO rules. →MEDIUM
	Beef & Pigmeat	Incentive payments given to farmers who produce beef or pigmeat in a way that reduces the associated environmental impact e.g. low grazing intensity.		
Technical assistance measures	Sugar & Soy	Training programmes for farmers e.g. to demonstrate applicability of integrated pest management and better irrigation management.	If skills are not present, could improve the environmental quality of production. Farmers may find this less desirable as may impact on possible financial gains. Successful outcome not guaranteed as techniques may not be adopted. May be more appropriate for community groups working with international organisations such as FAO. May be costly to implement on a large-scale. Risk of low take-up. →MEDIUM	Likely to gain support in exporting and importing country and among consumers. May be tempered by perceived difficulties of implementing schemes in developing countries via an international aid organisation. →HIGH
	Beef & Pigmeat	Training programmes for farmers e.g. to increase soil management skills to reduce soil erosion.		

Direct aid measures	Sugar & Soy	Support for establishment of an organic sugar cane supply chain, coming from areas with adequate water supply.	Depends on the value and delivery of the projects supported and their relevance to the problems being targeted. Can be effective in right circumstances, but may be confined to a severely limited area.	Schemes can only be delivered if there is some political support; essential that this is at grass roots as well as within the establishment.
	Beef & Pigmeat	Support for schemes to compare the livelihood of cattle ranchers, through infrastructure, health, hygiene, marketing etc, coupled with forest protection measure.	→MEDIUM	→MEDIUM/HIGH
International trade related measures	Sugar & Soy	Preferential import access (e.g. reduced tariffs) for sugar and soy that has been produced in a sustainable manner. Rules for sustainability may depend on abiding by a code of practice.	Can target a range of environmental problems but would depend on success of agreeing an acceptable code of practice. This may incur financial costs and prove administratively complex to implement.	Developing countries may perceive this mechanism as discriminatory. Unlikely to be politically acceptable and compatible with WTO trade rules.
	Beef & Pigmeat	Preferential import access (e.g. reduced tariffs) for beef products that have been produced in a sustainable manner, including chain of custody rules on sourcing of feedgrains. Rules for sustainability may depend on abiding by a code of practice.	→MEDIUM	Outright bans on “unacceptable” products likely to be discriminatory, hard to justify. →LOW
Multilateral environmental agreements	Sugar & Soy	Cross-sectoral agreement to deal with habitat destruction and forest conversion.	Potentially very effective at tackling large-scale, geographically widespread issues such as forest destruction. Terms of any agreement may take long time to resolve. Subsequent enforcement and monitoring of compliance may be financially costly and administratively complex.	Developing countries may perceive as discriminatory and not affordable in the shorter term. Likely to receive political support in importing countries and their consumers. →LOW/MEDIUM
	Beef & Pigmeat	Cross-sectoral agreement to deal with habitat destruction and forest conversion.		

The following mechanisms are likely to prove reasonably or highly effective in reducing the environmental impacts of displaced production of sugar, soy, beef and pigmeat, and be politically acceptable to a range of bodies (governments of importing and exporting countries, industry bodies, consumers). Measures that can be applied within affected countries are perhaps more suitable than those that have an international dimension.

Measures to be carried out in-country:

- Land use measures
- Livelihood support measures
- Capacity building measures
- Voluntary codes of practice
- Marketing and labelling initiatives
- Incentive schemes

Measures with an international dimension:

- Technical assistance measures
- Direct aid measures

It is evident that the softer mechanisms are those that appear to have the greatest potential. The main economic and regulatory mechanisms may not be politically acceptable in trade terms to the WTO, and could be financially and administratively burdensome for developing countries especially to implement. Of the short-listed mechanisms, most could be developed as community-focussed bottom-up style initiatives, if adequate financial and technical support is given by supranational bodies, such as the FAO, or international non-governmental organisations. The final option, multi-lateral environmental agreements, may be the only solution to reducing or eliminating the environmental impact of large-scale problems such as forest conversion. In practice, a combination of initiatives from a range of actors may provide the most enduring solution to reducing the identified environmental impacts of the production and trade of sugar, soy, beef and pigmeat.

One final consideration is the impact that displaced production will have on air transportation or sea transportation, and therefore greenhouse gas emissions. This is inevitably difficult to determine given that details on future trade exchanges are inexact. However, taxes on aircraft fuel and tradable permits on greenhouse gases could be considered as viable options to reduce any foreseen environmental impacts.

8 The Case of Brazil

This chapter focuses on the case of Brazil. In particular, it analyses production and trade patterns for sugar and soy in Brazil, including main production and trade patterns, major market determinants, key policies governing these markets and EU links with them.

8.1 Sugar²⁰⁵

8.1.1 Production

Brazil produces sugar from sugarcane, which is ground to produce sugar and alcohol. Sugarcane occupies 2.4% of cultivatable land in Brazil or nearly 5.6 million hectares.²⁰⁶ Brazil's sugar exports shared 10% of total agricultural exports and nearly 3% of total Brazilian exports in 2003.²⁰⁷ By producing sugar and alcohol, Brazil saves around US\$ 4.2 billion per year, US\$ 2 billion of which come from sugar exports and US\$ 2.2 billion from not importing the oil equivalent to the gasoline production.²⁰⁸ In terms of employment, Brazil's sugar and ethanol agribusiness creates 1 million direct jobs and shelters 60,000 growers who supply sugar cane. This activity has a strong presence in the economies of over 960 municipalities (around 17% of municipalities in the country) in a permanent, decentralised job creation and income generation process.²⁰⁹

Sugarcane production in Brazil has expanded by more than 120% since 1982, reaching its peak in 2004 with 411 billion Mt. Sugar production is a residual process from ethanol production, and, in most cases, sugar and ethanol are produced in the same mills.²¹⁰ Almost 45% of Brazil's sugarcane is ground for sugar and 55% is used for ethanol production.

²⁰⁵ Unless otherwise specified, all figures correspond to FAOSTAT "Sugar total (Raw equivalent)" which includes Code 0162 "Centrifugal raw sugar" (Cane Sugar + Beet Sugar) plus Code 0164 "Refined sugar" but in raw equivalent

²⁰⁶ UNICA (2004) *Brazil's Sugar and Ethanol - Energy and Environment* *Energy and Environment Commodities Brazil's Sugar and Ethanol*, União da Agroindústria Canavieira de São Paulo, available at: http://www.unica.com.br/i_pages/palestras.asp

²⁰⁷ Estimated from FAOSTAT and Ministerio do Desenvolvimento, Industria e Comercio Exterior

²⁰⁸ UNICA 2004

²⁰⁹ UNICA 2004

²¹⁰ Bolling C. and Suarez N. (2001) *the Brazilian sugar industry: recent developments*, in *Sugar and Sweetener Situation & Outlook/SSS-232/September*

Brazil is the largest sugar producing and exporting country. In 2003, Brazil produced 26.4 billion Mt and exported 13.3 billion Mt of sugar, corresponding to 19% and 32% of global sugar production and exports, respectively.

Brazil is also the largest ethanol producer, contributing about 37% of world ethanol production in 2004. The production of both sugar and ethanol gives Brazilian industry flexibility in responding to the changing profitability of sugar and ethanol production.

Expansion in the sugar sector lies not only in an increase in cultivated land area – which increased from 2.6 million ha in the early 1980s to 5.6 million hectares in 2003 - but also in improved yields, which rose from 57,000 kg/ha to 74,000 kg/ha over the same period.²¹¹

PROALCOOL, the powerful ethanol intervention programme, implemented in 1975 and then liberalised by the end of 1990s, has been a key factor behind the development of the sugar sector in Brazil. The Alcohol Programme regulated sugar and ethanol production and exports basically by implementing a production quota and fixed purchasing price for ethanol. In addition, it created huge domestic demand for its sugar market.²¹²

As seen in Graph 8.1, after years of relatively poor growth during the 1980s, sugar production has soared since the nineties, expanding by over 200% since 1982 and reaching a total of 28.4 billion Mt in 2004. Ethanol production, on the other hand, showed a positive trend during the 1980s and mid-1990s and then started to decline, expanding by 80% overall between 1982 and 2002. In 2002 ethanol production in Brazil reached 10.6 billion Mt, a similar level to that of 1986. This behaviour is mainly due to liberalisation of the ethanol sector. As guaranteed prices and direct subsidies were phased out in the late 1990s, there was a significant shift from ethanol to sugar production and exports. However, more recent data for ethanol would suggest that ethanol production is soaring, especially due to renewed domestic demand after the introduction of flex cars in Brazil as well as an expanding external market.

Brazil has two distinct sugar producing regions: the North-northeast, the traditional sugar producer, and the Centre-south, which has been gaining a prominent position since the launch of the PROALCOOL Programme in 1975. (see Figure 8.1). Indeed, the Centre-south region is dominated by the State of São Paulo, which now accounts for 60% of Brazil's sugarcane production.²¹³ This region

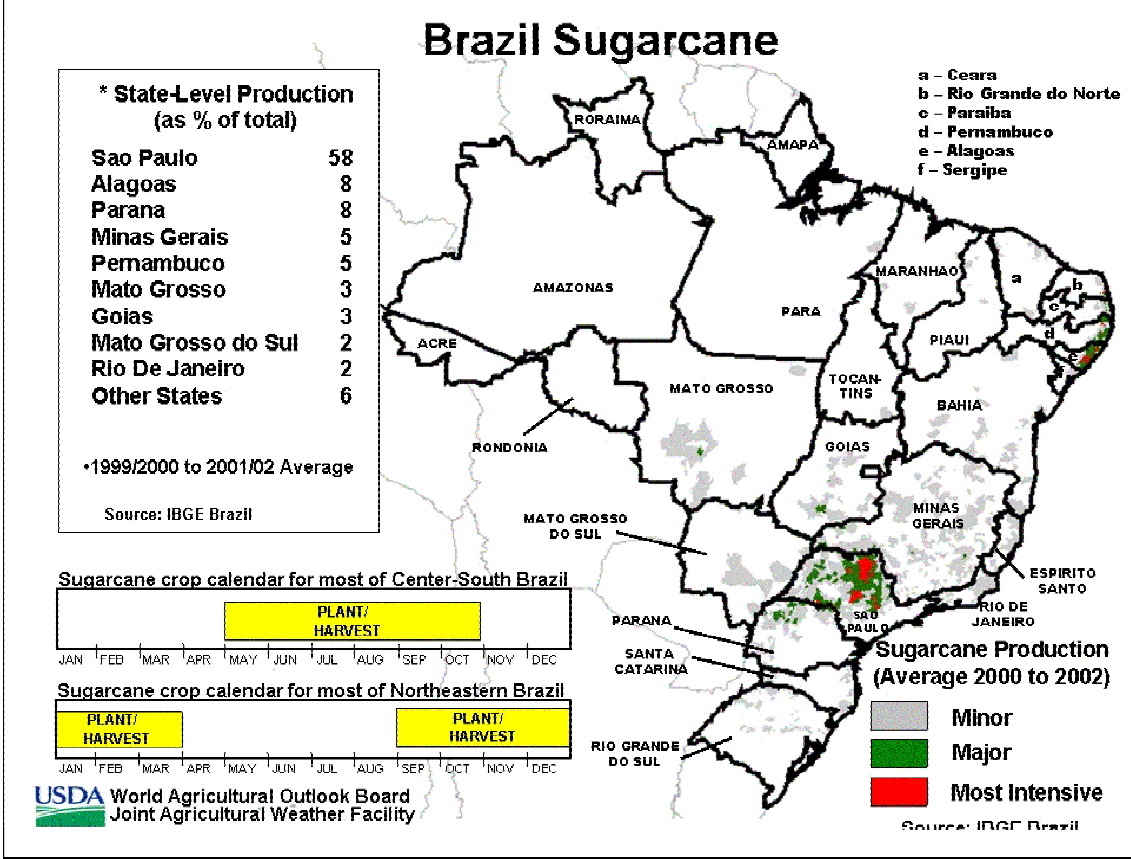
²¹¹ FAOSTAT statistics

²¹² See section 8.1.4 for details on the Ethanol Programme

²¹³ Bolling C. and Suarez N. (2001) *the Brazilian sugar industry: recent developments*, in Sugar and Sweetener Situation & Outlook/SSS-232/September

supplies about three quarters of the country's cane, 70% of its sugar output, and 90% of its ethanol.²¹⁴ The North-northeast region accounts for less than 20% of sugarcane production, between 25-30% of the sugar output, and about 10% of the ethanol. The states of Pernambuco and Alagoas dominate production, accounting for 80% of regional sugar and ethanol production. Production in this region is less mechanised than in the Centre-south. Both the field and factory costs are higher than in the Centre-south, although the cost differential between both regions has been narrowing considerably. Production costs in the Centre-south region are also low in comparison to other countries, reflecting efforts to improve efficiency in all phases of the production process.²¹⁵

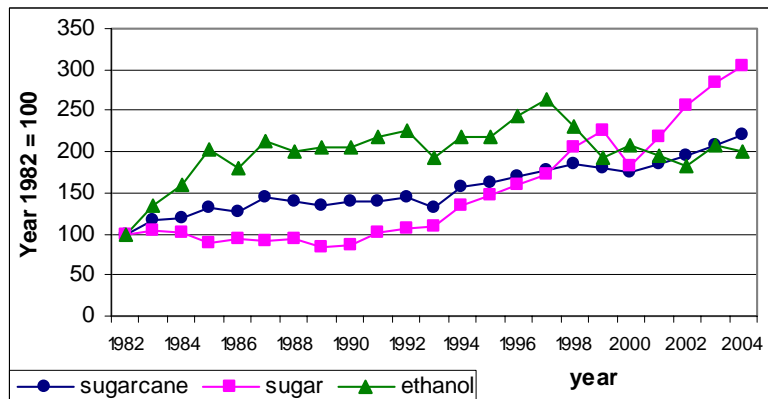
Figure 8.1: Location of Sugarcane Production in Brazil



<http://www.usda.gov/oce/waob/jawf/profiles/graphs/Brazil/BrazilSugarcane.gif>

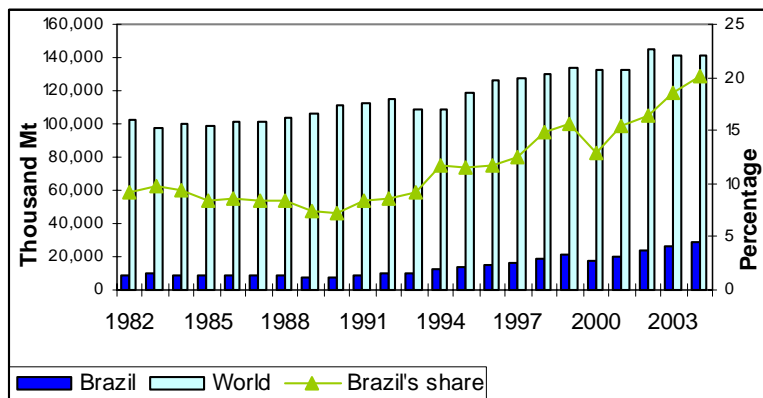
²¹⁴ Bolling C. and Suarez N. (2001)
²¹⁵ Bolling C. and Suarez N. (2001)

Graph 8.1: Production Of Sugarcane, Sugar And Ethanol



Source: FAOSTAT; Sugar estimations 2003-2004: FAPRI; Ethanol estimation 2003-2004: UNICA

Graph 8.2: Sugar Production & Share on Global Production



Source: 1982-2002 FAOSTAT; 2003-2004 FAPRI

8.1.2 Trade²¹⁶

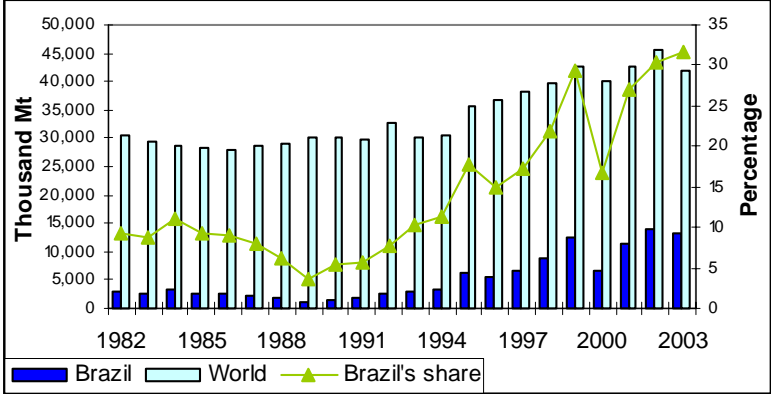
Traditionally, Brazil has been a significant sugar exporter accounting for 32% of global exports in 2003. About 55% of the sugar production in Brazil was exported in 2003²¹⁷ mainly in the form of refined sugar. As shown in Graph 8.3, sugar exports in Brazil have soared, particularly during the nineties, in line with production increases. Sugar exports present almost a four-fold increase during last twenty years (375% between 1982-2003) reaching unprecedented levels in 2003 (13 billion Mt). This export increase is basically explained by the liberalisation of the ethanol sector, which encouraged a shift from ethanol to sugar production and exports.

²¹⁶ Figures for global sugar trade includes EU intra-trade

²¹⁷ UNICA (2003) UNICA (2003) *Açúcar e álcool do Brasil* Uniao da Agroindustria Canavieira de Sao Paulo, May

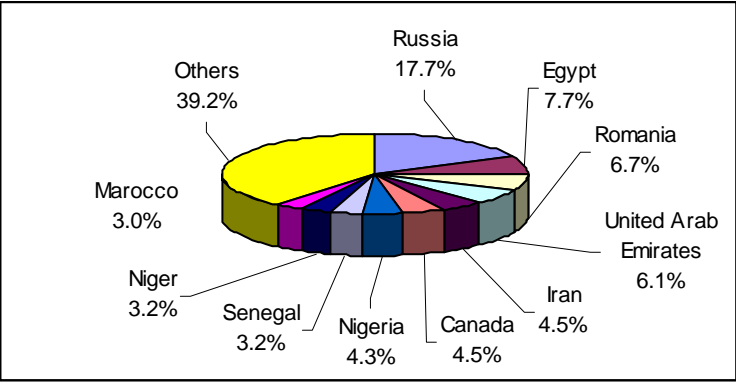
Brazilian sugar exports are well diversified. In 2002 they were sent to almost 100 different countries. As shown in Graph 8.4, the main market for Brazilian sugar exports is Russia, absorbing 17.7% of total sugar exports in 2002, followed by Egypt (7.7%), Romania (6.7%), the United Arab Emirates (6.1%), Iran (4.5%), Canada (4.5%) and Nigeria (4.3%). The EU25 receives less than 3% of Brazil’s sugar exports.

Graph 8.3: Brazil’s Exports & Share on Global Sugar Exports



Source: FAOSTAT

Graph 8.4: Top 10 Destination Of Brazilian Sugar Exports, 2002

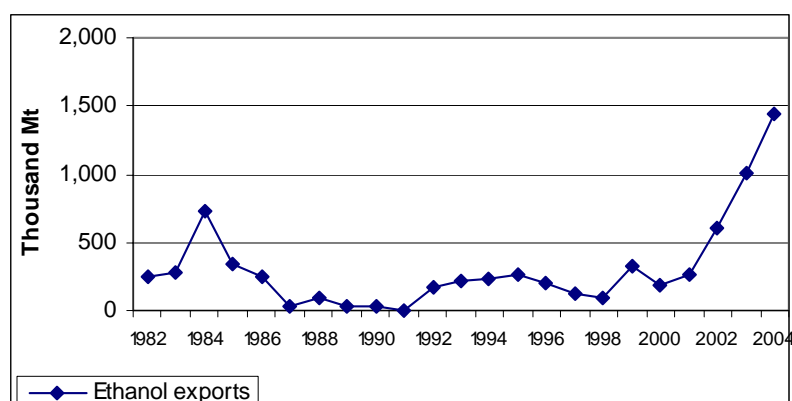


Source: UNICA (Uniao da Agroindustria Canavieira de Sao Paulo)

Regarding ethanol, though limited amounts of domestic production is channelled into international trade – only 5% of Brazil’s ethanol production was exported in 2003²¹⁸ - Brazil is also the leading ethanol exporter – accounting for 25% of global exports in 2002. As shown in Graph 8.5, ethanol exports were insignificant until the second half of the nineties. However, since the late 1990s they have shown a rapid expansion. Indeed, since 2000, ethanol exports have expanded by almost 700%. The high oil prices, the ratification of the Kyoto Protocol and the increasing number of countries introducing biofuels into the blend of transportation fuels are among the main reasons for higher international demand.

²¹⁸ UNICA

Graph 8.5: Brazil's Exports of Ethanol



Source: 1982-2002 FAOSTAT; 2003 and 2004 estimated from UNICA

8.1.3 Relevant policies and legislative frameworks affecting the Brazilian sugar sector

Prior to 1998, the Brazilian sugar industry was a sector with a high level of intervention. In 1933, after the 1929 crisis, the Institute of Sugar and Alcohol (IAA) was created in order to solve serious production problems. The IAA acted as a State Trading Enterprise, ensuring a balance in the market, such as by making stocks, setting up sugar production quotas, and establishing a broad control over sugar trade.²¹⁹ Brazil also imposed import tariffs and export taxes on sugar in order to protect the sector.²²⁰ However, the implementation of the Brazilian National Alcohol Programme (PROALCOOL) in 1975 by the government of Brazil has been the most powerful intervention programme and the key factor behind the development of the sugar sector in Brazil.

- **The Brazilian Ethanol Programme**

The Brazilian government inaugurated the National Alcohol Programme (PROALCOOL) in 1975 as a response to the oil crises of 1973. The major target of the programme was to reduce the country's oil import bill because of a high level of dependence on imported oil. Under the programme, the IAA controlled sugar and ethanol production and exports by implementing a production quota and fixed purchasing price for ethanol.²²¹ Credit guarantees and low fixed interest rate subsidies were also

²¹⁹ UNICA (2004)

²²⁰ Troy G., Seale J. and Buzzanell P. (2002) *Brazil's domination of the world sugar market*, available at http://www.east.asu.edu/msabr/research/workingpapers/msabr0207_brazilsugar.pdf

²²¹ Koizumi T. (2003) *The Brazilian ethanol Programme*, FAO Commodity and Trade Policy research Working Paper No1, June

provided for the construction of distilleries adjacent to sugar mills as well autonomous plants.²²² The other key institution involved was Petrobras, the monopolistic state oil company, who controlled domestic ethanol sales and distribution. In addition, the government set the sugarcane price to independent growers and a wide range of governmental investment support programmes were implemented in the 1980s. The national ethanol production capacity expanded to produce over 16 billion litres of ethanol per year.²²³

An important direct effect of the programme was the creation of a huge domestic demand for its sugarcane market. PROALCOOL also provided the needed support to sugar producers who frequently faced problems due to excess sugar production and huge fluctuations in its price.²²⁴ Despite this achievement, the programme has faced criticism since the mid-1980s. Changes in the macro economic conditions were the first source of criticism. The 1982 Brazilian debt crisis dried up sources of finance, followed by declining international oil prices from 1986. Inadequate ethanol supply and demand management raised serious market disruptions in the early 1990s and resulted in a loss of consumer credibility for ethanol fuel. The production of ethanol-powered cars has declined since then – with only 1% of cars now ethanol-powered. To prevent this trend, the government fixed the anhydrous ethanol blend with gasoline at 20-26% of the product, with a variation of 1% as a means of balancing the relationship between supply and demand of sugar and ethanol.²²⁵

The government took radical programme reforms over the 1997-1999 period. In 1997, the price of hydrated ethanol was liberalised, followed by the 1999 price liberalisation decision of anhydrous ethanol and the abolition of the distribution monopoly given to Petrobras, and the reduction in the subsidies to ethanol blend gasoline producers.

Currently, there are no restrictions on ethanol production, and the only tool that is left to the government is that of fixing the anhydrous blend ratio with gasoline. The actual percentage of the blend ratio is determined by the Ministry of Agriculture, as a means of balancing the relationship between supply and demand of sugar and ethanol, and is currently set at 25%.

Liberalisation of the ethanol sector created a shift towards sugar production, which further strengthened the increasing trend observed since the early nineties in sugar production and exports²²⁶

²²² Troy G., Seale J. and Buzzanell P. (2002) *Brazil's domination of the world sugar market*, available at http://www.east.asu.edu/msabr/research/workingpapers/msabr0207_brazilsugar.pdf

²²³ Koizumi T. (2003) *ibid*

²²⁴ Koizumi T. (2003) *The Brazilian ethanol Programme*, FAO Commodity and Trade Policy research Working Paper No1, June

²²⁵ Koizumi T. (2003) *ibid*

Table 8.1: Key Developments in the Brazilian Ethanol and Sugar Programmes

Period	Ethanol	Sugar
1975-1997	<p>Creation of the Brazilian National Alcohol Programme (PROALCOOL)</p> <p>IAA: responsible for sugar and ethanol production and exports, through production quotas and fixed purchasing price of ethanol</p> <p>Petrobras: controls domestic ethanol sales and distribution as a monopolistic agent</p> <p>Subsidies to ethanol blend gasoline producers</p> <p>Tax incentives to ethanol blend gasoline car owners</p>	<p>Credit, low interest rates and subsidies for construction of distilleries</p> <p>Set sugarcane price to independent growers</p>
1998-99	<p>Abolition of the monopolistic distribution arrangement given to Petrobras</p> <p>Liberalisation of ethanol prices</p> <p>Reduced subsidies on ethanol blend gasoline producers</p>	<p>Removal of government set sugarcane producer price</p>
1999-Present	<p>Government still fixes minimum rate of blending with oil (currently at 25%)</p>	

Source: adapted from Koizumi T. (2003) *The Brazilian ethanol Programme*, FAO Commodity and Trade Policy Research Working Paper No 1, June

- **Other domestic policies affecting the sector:**

Although domestic support has been decreasing over time (the Product-Specific Aggregate Measurement of Support for sugar fell from US\$ 77 million in 1986, to US\$ 19 million and US\$ 16 million in 1995 and 1996, respectively²²⁷) there are still some prevailing selected incentives. For instance, there is a support mechanism targeted at higher cost growers in the North East region. The subsidy seeks to compensate for sugarcane cost differentials across regions and is under the “de minimis” clause of the WTO agricultural agreement.²²⁸

Regarding trade policies affecting the Brazilian sugar sector, there is a common external tariff of 20% on sugar imports established in 2001. The ethanol imports have a tax of 30%. This tax is not applied to Brazil’s MERCOSUR partners.

²²⁶ EC, 2003

²²⁷ Cassel A and Patel R (2003) *Agricultural Trade Liberalization and Brazil’s Rural Poor: Consolidating Inequality*, Policy Brief No 8, Food First/Institute For Food and Development Policy, August

²²⁸ Bolling C. and Suarez N. (2001) According to the authors, Brazil receives the largest allotment of the US quota. However this represents a very small part of total Brazilian exports.

Finally, because of the economic importance of the sugar industry for the north-eastern region, central government allocates Brazil's total annual premium priced US sugar imports quota allocation to this region.²²⁹

8.1.4 Links to the EU market and policies

Though at present the EU is not one of the main drivers of production and export expansion in the sugar market in Brazil as very few exports are destined to the EU, the CAP reform will act as an important driver of expansion. Indeed, as highlighted in Chapter 4, Brazil has been identified as one of the major beneficiaries of the CAP sugar reform.

Near 70% of sugar and alcohol production in Brazil is controlled by multinationals²³⁰, and the presence of European investors has been gaining some relevance. In 2005, for instance, Luis Dreyfus (France) purchased a sugar-producing plant in the interior of São Paulo state. A German company, Südzucker, appears set to invest in this profitable business soon as well.²³¹

On the financial side, though local banks are the biggest players in financing production, there is a minor presence of European financial institutions such as ABN Amro and Rabobank.²³²

²²⁹ Bolling C. and Suarez N. (2001). *ibid*

²³⁰ UITA, 2005 *Azucarera Corona adquirida por multinacionales - El sector azucarero, cada vez más concentrado y extranjerizado*, Secretaría Regional Latinoamericana, June, available at: http://www.rel-uita.org/companias/brasil_azucar.htm

²³¹ The Economist (2005) *Brazil company: European FDI overtakes US investment*, The Economist Intelligence Unit, 11 August, available at http://www.viewswire.com/index.asp?layout=display_print&doc_id=1709325356

²³² IIED, 2004 *ibid*

8.2 Soy

8.2.1 Production

The birth and expansion of the soybean industry is considered one of the most important developments in the agricultural sector over the last quarter century in Brazil.²³³ Farmers began experimenting with soybeans in the 1960s, and by the 1980s, Brazil was one of the world's leading producers of soybeans and soy derivatives.²³⁴ The rapid expansion of soy cultivation in Brazil started in the early 1970s, with some 1,000 ha and reached a record harvest of 64.5 million tons on 21.5 million hectares in 2004, an increase of over 400% since 1982 (See Graph 8.6). Soy products currently provide 6% of the Brazilian GDP and are an important source of foreign exchange (12% of total exports).

The soaring soy production in Brazil has been reflected in an increasing global participation. Brazilian soybeans accounted for 13.9% of world markets in 1982 to 28% in 2004, and Brazil is currently the second largest soy producer after the US. Soy cakes' share of global markets is 17.9% and 18.5%, respectively (See Graph 8.7).

Approximately 30% of Brazilian soy is grown from GMO seeds, whose production is mostly concentrated in the Southern state of Rio Grande do Sul, where up to 88% of soy production is GMO. This is a result of illegal plantings, a phenomenon that had been accommodated through a series of provisional decrees authorising the planting of GM soy.^{235 236}

Soybeans were originally grown mainly on small farms in southern Brazil, but large farms soon extended production into the Centre-West and North-East regions of Brazil, known as the *cerrado* region, (see figure 8.2 for a map of the geographical location of soy production in Brazil). The *cerrado* farms have gained an increasing share in the market and now provide half domestic soy production.²³⁷
²³⁸ In the Mato Grosso, the single largest producer region, it took only seven years (1987-1994) for

²³³ Cassel A and Patel R (2003) *Agricultural Trade Liberalization and Brazil's Rural Poor: Consolidating Inequality*, Policy Brief No 8, Food First/Institute For Food and Development Policy, August

²³⁴ Cassel A and Patel R (2003) *Agricultural Trade Liberalization and Brazil's Rural Poor: Consolidating Inequality*, Policy Brief No 8, Food First/Institute For Food and Development Policy, August

²³⁵ Resse E 2005 *End of Brazil GMO ban to curb rampant black market*, GRAIN, March available at: <http://www.grain.org/research/contamination.cfm?id=286>

²³⁶ On 2 March the lower house of the Brazilian Congress passed a controversial legislation that establishes a regulatory framework to legalise the sale and use of GM crops. The Bill strengthens the power of the National Technical Committee on Biotechnology (CTNBio) to approve applications for biotech crops.

²³⁷ WWF, 2003 *Sustainability Assessment of Export-led Growth in Soy Production in Brazil*, WWF, November

²³⁸ Bickel and Dros, 2003

production to double.²³⁹ Between 1995 and 2004, soy area increased 77% in the entire Centre-West region, and 89% in Mato Grosso state. Growth in the Southeast and South was 31% and 38% respectively over the same period. In the Northeast, soy plantations increased by 117% to 1.43 million ha. In the North, soy expanded 767% to 317,000 ha.²⁴⁰ Overall, Brazil's soybean producers, scientists, agricultural politicians and traders consider a total area of 100 million hectares to be suitable for planting soybeans.²⁴¹

Soy has provided some products for the domestic market, but it has primarily flourished as an export crop.²⁴² In 2004, nearly 35%, 68% and 50% of the production of soybeans, soybean cakes and soybean oil, respectively, was exported.²⁴³

Expansion of soy cultivation is characterised by large production units to take advantage of economies of scale.²⁴⁴ Just to give some examples: almost 60% of the cultivated land in the *cerrados* is on farms larger than 1,000 hectares and only 35 exporters are responsible for 95% of Brazil's soy exports.^{245 246} These large farms are typically established by buying smaller parcels of land from smallholders, but also by expansion onto significant areas of new land that need to be cleared and prepared for soy production.²⁴⁷ Due to the mechanised character of cultivation, soy is planted almost exclusively on plains offering easy access for farm machinery.²⁴⁸ Besides the impacts on biodiversity and deforestation associated with soy production (see section 8.2 for examples) it also has important social side effects as soy production is not labour intensive.

It should be noted that soy production expansion has not only come about as a result of expansion of plantation areas (yield rose from 1,732 kg/ha in 1990 to 2,291 kg/ha in 2004)²⁴⁹. Yields have also risen rapidly thanks to the introduction of more efficient technology including seeds, agrochemicals and other cultivation materials.²⁵⁰

²³⁹ Bickel and Dros, 2003

²⁴⁰ Dros, 2004 "Managing the soy boom: two scenarios of soy production expansion in South America", commissioned by WWF Forest Conversion Initiative, available at: http://www.panda.org/downloads/forests/managingthesoyboomenglish_nbvt.pdf

²⁴¹ Bickel and Dros, 2003

²⁴² Cassel A and Patel R (2003) *Agricultural Trade Liberalization and Brazil's Rural Poor: Consolidating Inequality*, Policy Brief No 8, Food First/Institute For Food and Development Policy, August

²⁴³ FAOSTAT statistics

²⁴⁴ WWF, 2004

²⁴⁵ Cassel A and Patel R (2003) *ibid*

²⁴⁶ Cassel A and Patel R (2003)

²⁴⁷ WWF, 2004

²⁴⁸ Bickel and Dros (2002)

²⁴⁹ FAOSTAT statistics

²⁵⁰ WWF, 2004;

Major drivers for expansion are domestic incentives together with external demand behaviour. Multiple public subsidies for soybean production and processing facilities encourage the substitution of native vegetation with vast monocultures; in the case of the Piauí region, cheap land (\$20-50 per hectare compared to prices of up to \$7,000 per hectare in southern Brazil) and *chapidões* (flat upland areas) suited for large-scale mechanisation. Furthermore, public subsidies like cheap credit, tax exemptions on exports (the Kandir law) and on the new Bunge soy mill in Uruçuí (tax exempt for 15 years) are incentives that attract soy farmers and processing industries.²⁵¹ Another important factor in the advance of soybeans into the *cerrado* was development of soybean-bacteria combinations with pseudosymbiotic relationships that with no application of nitrogen fertiliser.²⁵²

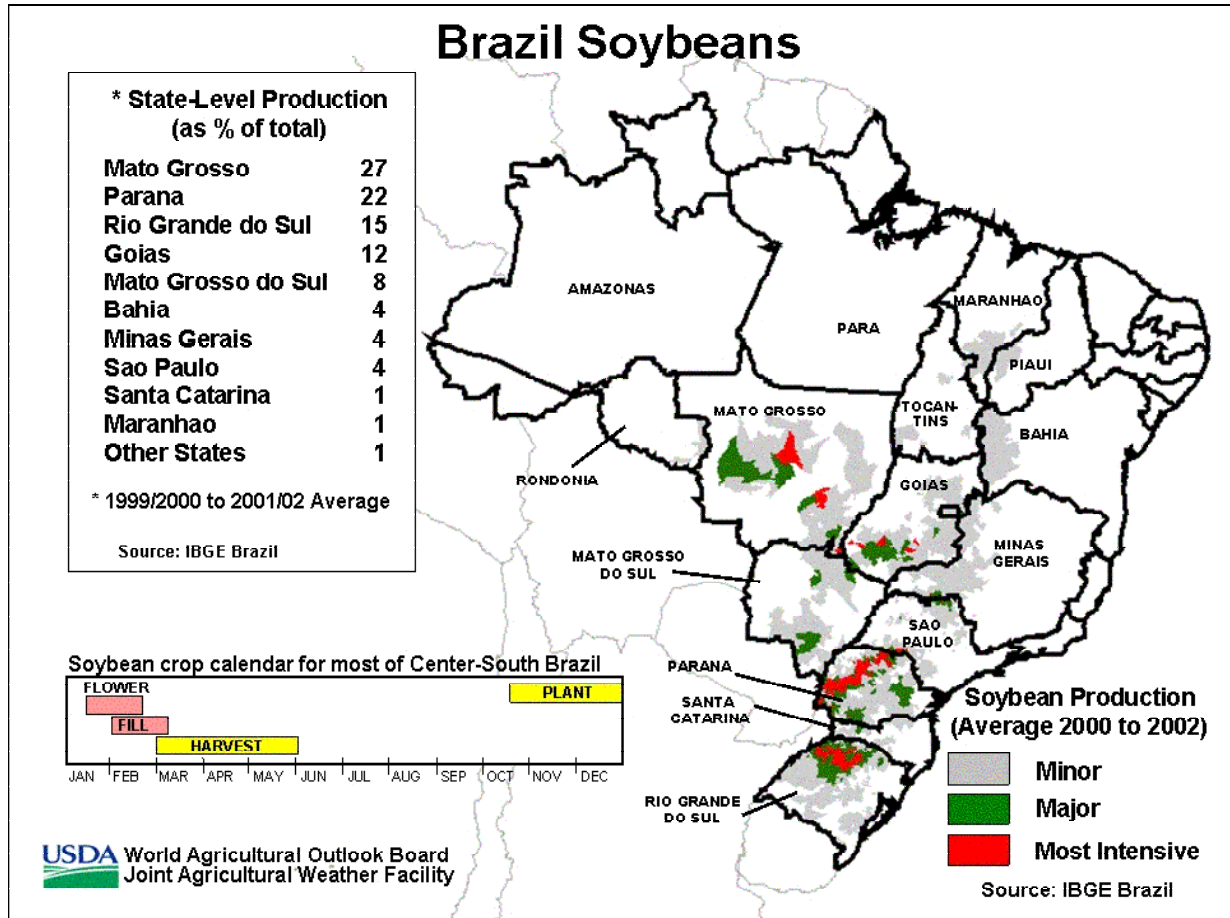
Factors limiting expansion are poor acid soils requiring imported mineral fertilisers and lime and a markedly dry climate bearing the risk of harvest losses. For example, the 2001-2002 harvest failed, yielding only 1.05 tonnes/hectare (Table 2.1). The rudimentary infrastructure (roads, energy, communications) is another severe limitation, but the government is addressing this as a priority. The state governor recently designated \$1.7 million for the road improvements, such as the TransCerrados highway. Another \$33 million are earmarked within the upcoming budget plan.²⁵³

²⁵¹ Bickel and Dros, 2003

²⁵² Fearnside F, 2001, *O Cultivo da Soja como ameaça para o meio ambiente na Amazônia brasileira*. In: L. Forline and R. Murrieta (eds.) *Amazônia 500 Anos; O V Centenário e o Novo Milênio: Lições de História e Reflexões para uma Nova Era*. Museu Paraense Emílio Goeldi, Belém, Pará

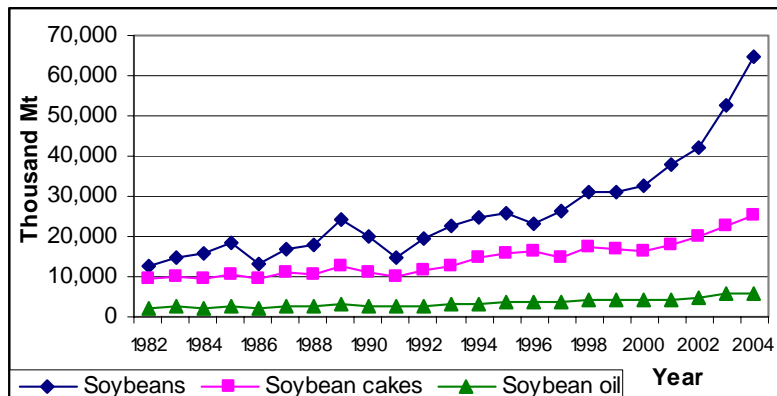
²⁵³ Bickel and Dros, 2003

Figure 8.2: Location of Soybean Production in Brazil



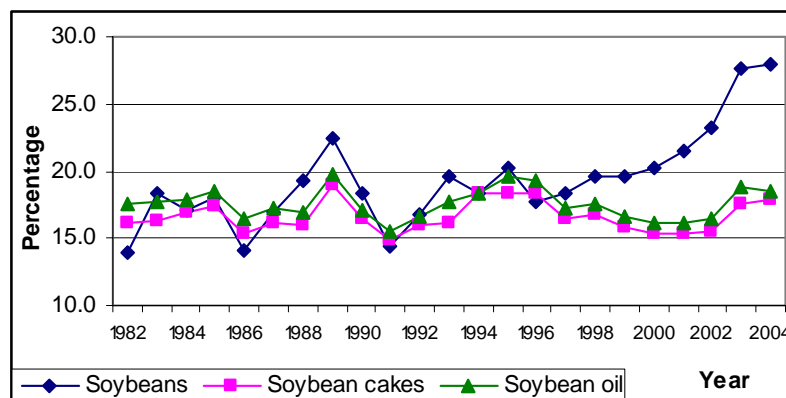
Source: <http://www.usda.gov/oce/waob/jawf/profiles/graphs/Brazil/BrazilSoy.gif>

Graph 8.6: Production Of Soybeans, Soycakes And Soybean Oil



Source: FAOSTAT; 2003-2004: FAPRI;

Graph 8.7: Share of Global Production of Soybean Products



Source: FAOSTAT; 2003-2004: FAPRI;

Plans for continuing with the expansion of soybean cultivation in Brazil are very optimistic. Brazilian authorities forecast that Brazil will surpass the US as the soybean world leader producer in the next decades.²⁵⁴ Many state governments in Brazil are aiming to convert their sparsely populated subtropical and tropical plains to soy production areas to boost their economies. As there is little room for agricultural expansion in the south and southeast of Brazil, future soybean expansion will take place in central and North-eastern Brazil and the southern Amazon region, where cheap land is abundant.²⁵⁵

8.2.2 Trade

Soy exports have also soared in line with soy production in Brazil. In the case of soybeans they increased from less than a thousand Mt in the early 1980s to more than 22 billion Mt in 2004. Soy cakes increased from 7.8 billion to 17.1 billion Mt; and soybean oil exports grew from 0.8 billion to 2.9 billion Mt over the same period (see Graph 8.8). This means that of the total soy products exported in 2004, soybeans accounted for 53%, soy cakes 40% and soybean oil for less than 7%.

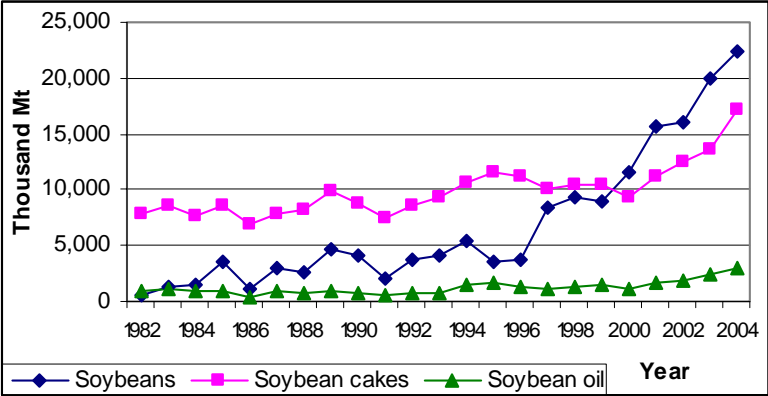
Brazil is the second largest exporter of soy products after the US, accounting for 35% of total soy products in 2004. In more detail, Brazil's global shares were 35.5% for soybeans, 36.5% for soybean cakes and 30.4% of soybean oil. As shown in Graph 8.9, the export expansion has been far more pronounced for soybeans than for cakes or oil. Indeed, there are several factors favouring the production and export of soy grains rather than more value-added products. WWF (2003) summarises these factors as follows: Firstly, Brazil's processing industry is not as competitive as the industry of its main competitor, Argentina, which benefits from a favourable tax climate for processors and where

²⁵⁴ Tengass B and Rosen Nilsson B. (2002) *Soybean: where is it from and what are its uses?*, WWF Sweden

²⁵⁵ Bickel and Dros (2002)

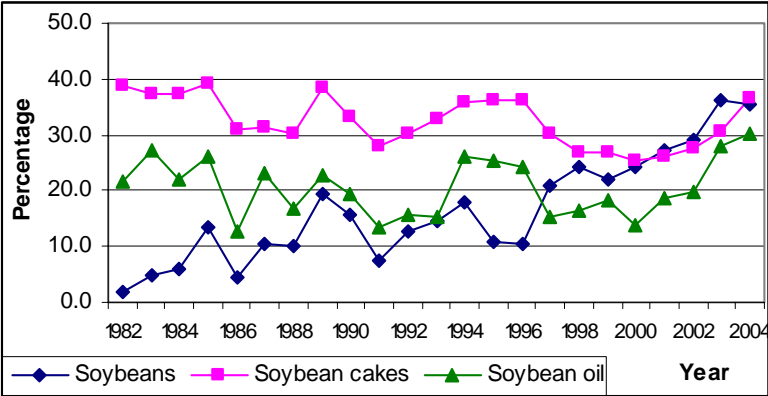
the industry employs state-of-the-art technology; secondly, grain destined for the processing industry is taxed, while there is no tax on grains. This reduces the profits of the Brazilian soy-crushing industry and encourages production of soybeans, which are exported. Thirdly, tariff escalation imposed by main importing countries also encourages export of soybeans instead of more value-added products.

Graph 8.8: Brazil's Exports of Soybean Products



Source: FAOSTAT; 2004: FAPRI

Graph 8.9: Brazil's Share of Global Exports of Soybean Products



Source: FAOSTAT; 2003-2004: FAPRI

The EU is the main destination of Brazilian soy exports: 59% of soybeans and 76% of soybean cakes were exported to the EU in 2001. Though exports to the EU have expanded rapidly over the last decade, its participation has shrunk (from 83% in 1995 for soybeans) due to the expansion of other external markets,²⁵⁶ particularly China. It is important to note that the EU is not only the most important destination for Brazil's soy exports; Brazil is currently also the most important external soy supplier to the EU market. Brazil has benefited from EU restrictions on GMO soy imports (especially from US and Argentina), further expanding its market share, supplying 63% of the EU soybean imports in 2003.

²⁵⁶ van Gelder J and Dros J (2003) *Corporate actors in the South American soy production chain*, a research paper prepared for World Wide Fund for Nature Switzerland, Final draft 4 June

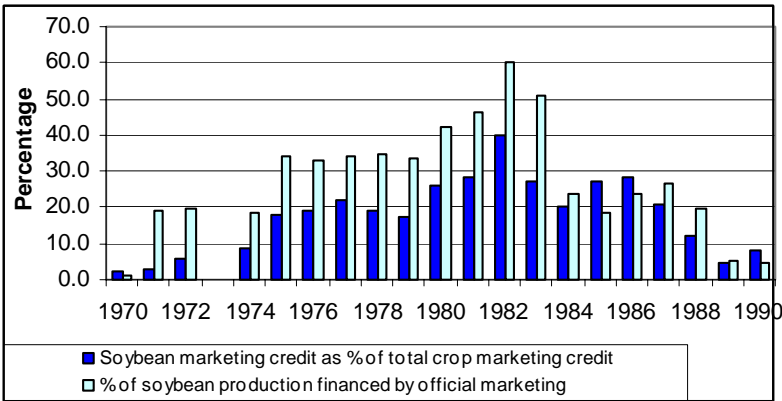
8.2.3 Relevant policies and legislative frameworks

- Domestic Support Policies**

Starting in the 1970s, the Brazilian government set up a complex incentive structure to encourage large-scale production of soybeans in an effort to rapidly increase export earnings, and to improve food security.²⁵⁷ These incentives included devoting substantial resources to research on soybean production, providing highly subsidised loans and setting low tax rates on soybean production, processing, and export.

Graph 8.10 shows the privileged place held by soybean producers as recipients of up to 40% of total crop marketing credit during the 1970s and 1980s. The same graph also tracks the percentage of soybean production financed by official marketing credit, demonstrating the high dependency of soybean production on state support during the industry’s early years.²⁵⁸

Graph 8.10: Official Marketing Support To Soybean In Brazil, 1970-1990



Source: Cassel A and Patel R (2003)

Notwithstanding the fact that domestic support has been decreasing over time (e.g. the Product-Specific Aggregate Measurement of Support fell from US\$ 130 million in 1986 to US\$ 59 million in 1995 and to US\$ 45 million in 1996)²⁵⁹, there are still several instruments and incentives attracting soy farmers and processing industries in Brazil.

Cheap credit, for example, is one the most frequently cited forms of support. From 1990 to 1999, the state-owned development bank Banco Nacional de Desenvolvimento Econômico e Social (BNDES) provided credit totalling US\$ 10.5 billion to the Brazilian agribusiness sector. Most BNDES agribusiness credits were allocated after 1995, seeking to boost the sector’s productivity, an important

²⁵⁷ Cassel A and Patel R (2003)

²⁵⁸ Cassel A and Patel R (2003) *Agricultural Trade Liberalization and Brazil’s Rural Poor: Consolidating Inequality*, Policy Brief No 8, Food First/Institute For Food and Development Policy, August

element in the government's anti-inflation plan ("Real Plan"). Programmes such as the BNDES Programme for Modernizing the Agricultural Vehicle Fleet (Moderfrota), boosted the sector's performance and opened up new agricultural frontiers. Soybean farmers can receive BNDES credits up to a maximum of R\$ 200,000 (around US\$ 85,100) per farmer. These credits are provided through commercial banks and carry official interest rates (8.75 %/year). BNDES is also providing cheap credit to soybean crushing companies. In August 2001 BNDES approved R\$ 9 million in credit to crushing company ABC-Inco to increase capacity from 1,500 to 1,800 tons per day.²⁶⁰ Cheap credit has also been cited as one of the main factor behind the development of soybean cultivation in the southern Amazonas Humaitá region. The production began in 1994, financed by the Banco da Amazônia, a public development bank for the region, and facilitated by the state government. These public incentives attracted farmers with experience in cultivating cereals in Mato Grosso and in southern Brazil, in Rio Grande do Sul, Paraná for example, where land was becoming scarce and expensive.²⁶¹

Tax exemptions to exports - the so-called "Kandir law" introduced in 1996 - which exempts raw material from the 13% interstate transit tax, is another form of public support. Also there are some tax exemptions to soy mills in Uruçuí (tax exempt for 15 years).²⁶²

In addition, other public subsidies for soybean production and processing facilities have been cited as encouraging the substitution of native vegetation with vast monocultures. In the case of the Piauí region, cheap land (\$20-50 per hectare compared to prices of up to \$7,000 per hectare in southern Brazil) and *chapadões* (flat upland areas) suited for large-scale mechanisation.²⁶³

Finally, the Brazilian government is also playing an important role in providing infrastructure (roads, energy, communications). Lack of infrastructure is currently considered a severe limitation for the industry to further expand in the *cerrados* and the government recently designated \$1.7 million for the improvement of roads like the TransCerrados highway. Another \$33 million are earmarked within the upcoming budget plan.²⁶⁴ There are also plans to improve the road Cuiaba-Santarem in order to be used as a corridor for soy exports through the Amazona river.²⁶⁵

²⁵⁹ Cassel A and Patel R (2003) *Agricultural Trade Liberalization and Brazil's Rural Poor: Consolidating Inequality*, Policy Brief No 8, Food First/Institute For Food and Development Policy, August

²⁶⁰ van Gelder J and Dros J (2003) *Corporate actors in the South American soy production chain*, a research paper prepared for World Wide Fund for Nature Switzerland, Final draft 4 June

²⁶¹ Bickel and Dros 2002

²⁶² Bickel and Dros, 2003

²⁶³ Bickel and Dros, 2003

²⁶⁴ Bickel and Dros, 2003

²⁶⁵ Fearnside, P.M. 2005. *Carga pesada: O custo ambiental de asfaltar um corredor de soja na Amazônia*. In: M. Torres (ed.) *Amazônia revelada: os descaminhos ao longo da BR-163*. Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq), Brasília, DF

- **The Forest Law**

The *Código Florestal* (Forest Law) permits different "legal deforestation rates" in the Amazon region, depending on the type of vegetation. In the case of primary forests, 80% of the original vegetation cover has to be maintained in legal reserves, whereas in the case of *cerrado* and transitional vegetation zones between forest and *cerrado*, only 35% should be protected in their natural state.²⁶⁶ Soybean plantations are penetrating primary forest regions; for example, between Canarana and São José do Xingu. The Forest Law requires that 20% of all landholdings in the Piauí *cerrados* should be protected and that permanent reserves should be established for precious woodlands and along watercourses. The additional obligation to preserve precious woodlands, difficult to meet in large-scale clearcutting, was converted into a blanket requirement to protect an additional 10% "for environmental compensation", which does not necessarily correspond to the most valuable areas of a farm in terms of biodiversity.

However, poor law enforcement is frequently cited as facilitating illegal or irregular acquisition of (public) land and illegal deforestation as many producers do not comply with the forest law, deforesting large areas.²⁶⁷ Moreover, there is also an apparent lack of land use planning and agro-environmental zoning in this area. Environmental impact assessments are required for clearances over 1000 ha, but it has been reported that some producers sub-divide the legal holding of farms to avoid this regulation. Forest Law, therefore, is poorly enforced, due to a combination of Environment Agency (IBAMA) personnel limitations and the rapid pace of land ownership change and agricultural expansion.²⁶⁸

- **Biodiesel Policy**

In 2004 the Brazilian government launched the National Programme for the Production. Early this year the Brazilian government passed a bill making the production of a 2% bio-diesel fuel blend made from castor oil and soy oil compulsory by 2007. This obligation will be increased to a 5% and 20% by 2013 and 2020, respectively.²⁶⁹ Acknowledging important environmental benefits -in terms of reduced GHG emissions- associated to the use of biodiesel, if this bill were fully implemented it may have important consequences on soybeans production and then on the environment. At present soybeans are the most abundant material for biodiesel production in Brazil (95% of vegetable oil production)²⁷⁰ but current levels of production would hardly meet this future demand²⁷¹. According to

²⁶⁶ Bickel and Dros (2002); IIED 2004

²⁶⁷ Bickel and Dros, 2002

²⁶⁸ IIED at al, 2004

²⁶⁹ Volpi G. 2005 *Sustainability and biofuels: lessons from Brazil* WWF Latin American Energy and Climate Programme, Conference of the German Network on Renewable Energies, North - South, Bonn, 20 June 2005

²⁷⁰ Szwarc A. 2004 *Use of Biofuels in Brazil*, Ministry of Science and Technology, Presentation at the Session Workshop on Mitigation SBSTA 21 / COP 10 December 9, 2004 Buenos Aires available at

the analysis provided in Section 6.2 and given the status quo in Brazil, it is sensible to argue that the increased soybeans production to meet this future demand may imply further environmental pressure especially on the sensitive areas of the *Cerrados* and the Amazon.

8.2.4 Links to the EU market and policies

Soy production in Brazil is mainly destined for export markets. The EU is the main market for Brazilian soy, and in this sense, there are clear links between increase in EU demand and the soy market in Brazil. As soy is not a heavy protected crop in the EU, the CAP reform is not expected to have a strong impact on the market (in terms of improved market access). However, there are other sources of links with the EU market:

- Tariff escalation that favours production of soybeans instead of more value-added products (tariff of 8.8% on soy oil in 2003, that should be gradually reduced to 6.4% to comply with WTO agreements).²⁷² A potential FTA between the EU and the MERCOSUR may affect this condition.
- As EU soy imports are used for domestic animal feed, changes in the EU cattle market are relevant. CAP reform will depress the cattle market (beef and pigmeat). However, given the pigmeat market is much more market oriented, it is expected the EU will increase production and exports on pigmeat in the future and then its soy demand.
- Though foreign involvement in Brazil's soy industry is relatively low²⁷³, there are some links between soy production in Brazil and European FDI and financial institutions. Indeed, Coinbra, one of the largest soy crushing plants in Brazil (7% of Brazil's soybean crushing capacity), is owned by the French group Louis Dreyfus.²⁷⁴ Moreover other large soy crushing companies and traders (Archer Daniels Midland, Cargill, Bunge and Louis Dreyfus, among others) have been partly financed by loans from private European banks.²⁷⁵ German environmental organisations have heavily criticised the Deutsche Investitions- und Entwicklungsgesellschaft, the Dutch Rabobank and IFC that provided a \$12 million loan at

http://unfccc.int/files/meetings/cop_10/in_session_workshops/mitigation/application/pdf/041209szwarc-usebiofuels_in_brazil.pdf.

²⁷¹ Volpi G. 2005 *Sustainability and biofuels: lessons from Brazil* WWF Latin American Energy and Climate Programme, Conference of the German Network on Renewable Energies, North - South, Bonn, 20 June 2005

²⁷² van Gelder J and Dros J (2003) *Corporate actors in the South American soy production chain*, a research paper prepared for World Wide Fund for Nature Switzerland, Final draft 4 June

²⁷³ IIED et al, 2004

²⁷⁴ van Gelder J and Dros J (2003) *Corporate actors in the South American soy production chain*, a research paper prepared for World Wide Fund for Nature Switzerland, Final draft 4 June

²⁷⁵ See Bickel and Dros (2002) *ibid* for details

low interest rates to the Maggi corporate group in 2001, the biggest soy producer in Brazil.²⁷⁶
In this sense, it is important to mention that Blairo Maggi, Governor of Mato Grosso since 2002, is also the head of the Maggi Group. Under the previous governor there was more effective enforcement of the legal reserve.²⁷⁷

²⁷⁶ Bickel and Dros (2002) *ibid*

²⁷⁷ Fearnside, P.M. 2005. *Carga pesada: O custo ambiental de asfaltar um corredor de soja na Amazônia*. In: M. Torres (ed.) *Amazônia revelada: os descaminhos ao longo da BR-163*. Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq), Brasília, DF

9 Conclusions

The EU is one of the major players in world production and trade of sugar and soy. The EU15 contributes 12.7% of world sugar production, 12% of world sugar consumption, 12.8% of world sugar exports and 5.4% of world sugar imports. The recent EU enlargement only enhances this overall picture. The EU's favourable trade position in the global sugar market is to a large extent a result of the policies implemented at the end of the 1960's to protect its internal industry from external competition. Currently, about 60% of global sugar trade takes place at protected prices and the EU is considered one of the most distorted markets in the world. The sugar CMO depresses international sugar prices by some 17% and is also responsible for the fact that 75% of sugar exports from ACP countries go to the EU.

Regarding soy, the EU has traditionally been the largest importer of soy products, accounting for 32% of global soy imports. The net importer status of the EU reflects several policy measures introduced in the past, in particular the "Blair House Memorandum of Understanding" that limited protection to soy production, discouraging internal production and favouring imports. In spite of increased EU external demand resulting from reduced domestic support, the EU global share of the soy market has fallen, partly due to the emergence of other important international buyers such as China. EU soy imports are supplied by main soy producers such as the US and South America. EU restrictions on GMO soy have led to an increase in South American (and particularly Brazilian) participation in the EU market.

It is important to note that EU demand for soy is mostly driven by the feed industry, in particular, beef and pigmeat. The EU beef market has been strongly disrupted during the last decade due to BSE and FMD and this situation has been further reinforced by the 2000 CAP reform. As a result, the EU contribution to the global beef market has shrunk to 13% for production, 6.3% for exports and 6.3% for imports. EU pigmeat trade, on the other hand, is increasingly favourable for the EU. Currently the EU contributes 20% of global pigmeat production and 37% of global pigmeat exports.

Given the global importance of the EU in the sugar, soy, beef and pigmeat markets, changes in EU policies may have a significant effect on production and trade patterns not only within the EU but also in other parts of the world. This is especially true for sugar. As a result of changes in the CMO on sugar and trade agreements such as the EBA, the EU is expected to decrease its sugar production and increase its external demand. Low-cost sugar-producing countries, notably Brazil and Australia, will be the main beneficiaries of these policy reforms. Importantly, the increased external EU demand for sugar will not be satisfied by its traditional ACP partners but by those EBA beneficiaries that are also low-cost sugar-producing countries, such as Malawi, Swaziland, Zambia and Zimbabwe. ACP sugar-

producing countries will see preferences set by the Cotonou Agreement eroded and so only the most efficient producing countries will continue exporting to the EU.

On the other hand, as the EU soy market is relatively unprotected, further reductions in EU price support are likely to have little effect on global production and trade. The bulk of future EU impacts on this market are likely to come from changes in its internal demand (by the beef and pigmeat industry) and other policies such as trade agreements (i.e. MERCOSUR), food and safety policies (i.e. biosafety and product labelling) and energy policies. Future EU demand for soy will be affected by the CAP reform on beef and pigmeat, whose results are likely to differ. On the one hand, beef is a highly protected market and thus the CAP reform is likely to heavily reduce internal production. On the other hand, the EU pigmeat industry is much more market-oriented, and the EU is expected to increase its future pigmeat production and exports. Main beneficiaries of increased EU soy demand are likely to be South American producing countries, of which Brazil is likely to be the main winner.

Brazil is the most important and most efficient sugar producing and exporting country. The PROALCOOL programme implemented in 1975 and liberalised by the end of 1990s has been a key factor behind the development of the sugar sector in Brazil. Sugar production in Brazil is a residual process from ethanol production, which is mostly consumed internally. About 55% of sugar production is destined for export markets. Therefore, as very few exports are destined to the EU it is not at present one of the main drivers of production and export expansion in the sugar market in Brazil. However, the CAP reform may act as an important driver of expansion as Brazil has been identified as one of the major beneficiaries of the CAP sugar reform.

On the other hand, it should be acknowledged that EU influence on the Brazilian sugar market is not restricted to sugar exports. Currently, near 70% of sugar and alcohol production in Brazil is controlled by multinationals, and the presence of European investors has been gaining some relevance. On the financial side, although local banks are the biggest players in financing production, European financial institutions also have some presence.

Regarding soy, Brazil is the second largest soy producer and exporter. Brazilian production is mostly oriented at export markets and the main drivers of expansion are domestic incentives together with external demand behaviour. The EU is the main market for Brazilian soy, and in this sense, there are clear links between an increase in EU demand for soy and expansion in soy production in Brazil. As soy is not a heavy protected crop in the EU, the CAP reform is not expected to have a strong impact on the market (in terms of improved market access). However, there are other sources of links with the EU market, including tariff escalation, that favour soybean production over more value-added products. A potential FTA between the EU and the Mercosur may affect this condition. As EU soy

imports are used for domestic animal feed, changes in the EU cattle market are also relevant. Though foreign involvement in Brazil's soy industry is relatively low, there are some links between soy production in Brazil and European FDI and financial institutions.

The priority river basins likely to be affected by the prospective changes in EU sugar policies are the river basins located in North and South America (in particular the Everglades, Mesoamerican Reef Catchments, Orinoco, Guianan Freshwater, Amazon, Paraguay and Paraná); in Oceania (Great Barrier Reef Catchments, Southwest Australia Rivers & Streams and Murray-Darling Basin); the Cape Rivers and Streams in South Africa; and Sepik River, Kikori River and Lakes Kutubu and Sentani in Asia. River basins where mixed results are likely to take place are mainly located in Africa, in particular the Niger River, Upper Guinea Rivers and Streams, Congo River, Mara River, Kagera River, Lake Malawi, Ruaga River, Zambezi River and Madagascar River and Streams. River basins where decreased pressure is likely to occur due to changes in EU sugar policies include river basins in Europe, North Africa and Asia, in particular the Danube, Baltic, South Iberia Catchments, Anatolian Catchments, Lake Prespa and Balkans, Indus River, Ganges River, Western Ghats, Godavari and the Mekong River.

Regarding EU soy policy changes, the main areas of concern are concentrated on river basins in South America, in particular the Amazon, Paraguay and Parana. There might also be impacts on river basins located in Oceania.

Priority forest ecoregions of concern due to EU sugar reforms are the Sumatran Islands Lowland and Montane Forests, Southern New Guinea Lowland Forests in Asia and the Atlantic Forests and the Cerrado Woodlands and Savannas in South America. Likely impacts of EU soy reform will concentrate on the Atlantic Forests and the Cerrado Woodlands and Savannas in South America.

There are several issues of concern that arise relating to fresh water and forest conservation from cross-referencing the prospected EU sugar and soy production and trade displacement in the priority river basins and forest ecoregions. For sugar, these issues include natural habitat conversion and species loss; water take and reduced water flow; soil erosion and loss of fertility; water pollution; pollution from burning cane fields; and air pollution and solid waste from processing cane. In the case of soy, issues include natural habitat conversion and species loss; loss of ecosystem functions; burning during clearing; soil erosion and loss of fertility; effluents; and use of agrochemicals. For beef and pigmeat, the main concerns are production of feed grains (e.g. soy products); habitat conversion and deforestation; overgrazing; water take; effluents; and periodic burning to suppress weeds.

However, these impacts will vary greatly according to the magnitude of the production/trade changes and each country/ecoregion's particular baseline conditions. Therefore, more detailed studies on the identified ecoregions are required in order to further investigate these initial findings.

There are a number of mechanisms that may reduce or eliminate these environmental impacts that could potentially be put in place. These include measures that can be carried out in the country and measures at an international level. These measures are not mutually exclusive and are better used in combination; many are unlikely to be effective unless they form part of a strategy backed by political commitment, adequate general institutional support and an appropriate mix of policy and private initiatives to tackle different aspects of the problem. From the mechanisms identified in this study, measures that could be applied within affected countries, such as land use measures, livelihood support measures, capacity building measures, voluntary codes of practice, marketing and labelling initiatives and incentive schemes, are perhaps more suitable than those that have an international dimension. Of the latter, technical assistance and direct aid measures are the most feasible. The main economic and regulatory mechanisms might not be politically acceptable to the WTO in trade terms, and could be financially and administratively burdensome for developing countries to implement in particular. Multilateral environmental agreements may be the only solution to reducing or eliminating the environmental impact of large-scale problems such as forest conversion. In practice, a combination of initiatives from a range of players may provide the most enduring solution to reducing the identified environmental impacts of the production and trade of sugar, soy, beef and pigmeat.

Key points for their success are the adoption of bottom-up approaches to their development and the provision of adequate financial and technical support.

The initial step in order to identify the most suitable policy mix is to carry out more detailed studies in the priority ecoregions identified as likely to be affected. This would provide a better understanding of prospective production and trade impacts, specific local baseline conditions, the nature of the trade-environment relationship and the country's institutional and technical capacities to implement the policy measures involved.

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11 Annexes

- A. Data on Sugar Production and Trade
- B. Data on Soy Production and Trade
- C. Data on Beef Production and Trade
- D. Data on Pigmear Production and Trade
- E. List of ACP (African, Caribbean and Pacific) countries
- F. Beneficiary Countries of the EBA Initiative

A. Data on Sugar Production and Trade

World Sugar Production

(Thousand Mt Raw Equivalent)

Year	World	EU15
1980	84,157	15,513
1981	92,681	18,820
1982	102,253	17,994
1983	97,248	14,542
1984	99,392	16,192
1985	98,146	16,198
1986	100,959	16,606
1987	101,424	15,544
1988	103,682	16,247
1989	105,683	16,881
1990	110,631	17,982
1991	112,537	16,686
1992	115,267	17,926

Year	World	EU15
1993	109,147	17,791
1994	108,215	16,506
1995	118,597	16,863
1996	126,009	17,809
1997	126,881	18,830
1998	129,482	17,533
1999	134,247	19,048
2000	132,463	18,247
2001	132,370	15,911
2002	145,208	18,439
2003	142,294	17,132
2004	142,066	21,611

Sugar Trade(*)

(Thousand US\$, Raw Equivalent)

	EU 15			WORLD		
	Exports	Imports	Trade Balance	Exports	Imports	Trade Balance
1986	4,618	1,998	2,620	26,562	25,595	966
1987	5,302	1,944	3,358	27,353	26,883	470
1988	4,972	1,972	3,000	26,958	25,765	1,194
1989	4,921	2,095	2,826	27,430	26,987	443
1990	5,458	1,982	3,476	28,287	27,432	855
1991	4,968	1,929	3,040	28,029	26,678	1,351
1992	5,097	2,024	3,073	30,698	29,853	845
1993	5,768	1,961	3,807	28,359	27,259	1,100
1994	5,665	2,033	3,632	28,694	28,282	412
1995	5,573	1,983	3,590	33,341	31,054	2,287
1996	4,481	2,072	2,409	34,654	33,591	1,063
1997	5,329	1,856	3,472	35,725	33,483	2,243
1998	6,524	1,883	4,640	37,311	33,778	3,533
1999	5,262	1,964	3,298	39,966	37,462	2,503
2000	6,312	1,833	4,479	37,533	34,634	2,899
2001	6,393	1,914	4,479	40,606	37,283	3,324
2002	4,723	2,146	2,578	42,899	37,261	5,637
2003	5,066	2,037	3,029	39,632	37,873	1,759

Source: FAOSTAT

(*): Excluding EU intra-trade

Sugar Exports(*)

(Thousand Mt Raw Equivalent)

	Year									
	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Russia	2,272	3,221	3,289	3,559	4,094	5,913	4,842	5,566	4,619	4,277
EU 15	2,033	1,983	2,072	1,856	1,883	1,964	1,833	1,914	2,146	2,037
Korea	1,274	1,306	1,400	1,437	1,378	1,376	1,463	1,516	1,527	1,561
Indonesia	120	574	1,144	1,240	1,048	2,324	1,654	1,376	1,029	1,540
US	1,615	1,664	2,804	2,953	2,034	1,705	1,413	1,344	1,419	1,529
Ukraine	8	332	607	5	139	320	324	461	442	1,488
Japan	1,657	1,746	1,665	1,714	1,565	1,523	1,566	1,534	1,478	1,479
Canada	1,156	1,021	1,260	1,067	1,009	845	1,175	1,183	1,189	1,445
Malaysia	960	1,033	1,252	1,166	1,039	1,158	1,187	1,275	1,337	1,371
China	1,618	3,081	1,383	998	736	681	1,020	1,608	1,567	1,240
Others	15,530	15,055	16,693	17,465	18,832	19,633	17,484	18,710	19,497	19,199
World	28,242	31,015	33,569	33,461	33,756	37,440	33,960	36,487	36,249	37,167

Source: FAOSTAT

(*): Excluding EU intra-trade

Sugar Imports (*)

(Thousand Mt Raw Equivalent)

	Year									
	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Russia	2,272	3,221	3,289	3,559	4,094	5,913	4,842	5,566	4,619	4,277
EU 15	2,033	1,983	2,072	1,856	1,883	1,964	1,833	1,914	2,146	2,037
Korea	1,274	1,306	1,400	1,437	1,378	1,376	1,463	1,516	1,527	1,561
Indonesia	120	574	1,144	1,240	1,048	2,324	1,654	1,376	1,029	1,540
US	1,615	1,664	2,804	2,953	2,034	1,705	1,413	1,344	1,419	1,529
Ukraine	8	332	607	5	139	320	324	461	442	1,488
Japan	1,657	1,746	1,665	1,714	1,565	1,523	1,566	1,534	1,478	1,479
Canada	1,156	1,021	1,260	1,067	1,009	845	1,175	1,183	1,189	1,445
Malaysia	960	1,033	1,252	1,166	1,039	1,158	1,187	1,275	1,337	1,371
China	1,618	3,081	1,383	998	736	681	1,020	1,608	1,567	1,240
Others	15,530	15,055	16,693	17,465	18,832	19,633	17,484	18,710	19,497	19,199
World	28,242	31,015	33,569	33,461	33,756	37,440	33,960	36,487	36,249	37,167

Source: FAOSTAT

(*): Excluding EU intra-trade

World Sugar Projections – FAPRI

(Thousand Mt)

Year	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15
Net Exporters												
Argentina	205	280	210	258	284	325	347	368	388	408	428	449
Australia	3,945	4,154	4,722	4,492	4,544	4,658	4,771	4,875	4,979	5,084	5,192	5,301
Brazil	15,240	18,100	20,167	20,426	20,849	21,171	21,394	21,524	21,623	21,708	21,786	21,863
Colombia	1,255	1,215	1,216	1,239	1,252	1,287	1,306	1,320	1,334	1,347	1,360	1,373
Cuba	1,650	1,250	1,320	1,391	1,459	1,550	1,631	1,714	1,800	1,889	1,981	2,076
European Union-15	2,551	1,804	1,701	1,719	1,672	753	692	614	544	477	412	328
EU New Member												
States	124	200	191	165	139	111	85	54	23	-8	-41	-75
India	-200	-1,780	-4,692	-5,166	-5,375	-5,178	-5,284	-5,327	-5,355	-5,377	-5,404	-5,428
Mexico	-248	-9	14	23	146	147	168	184	203	221	239	257
Pakistan	214	214	9	-85	-171	-193	-256	-313	-369	-423	-481	-539
South Africa	773	994	805	797	851	926	993	1,060	1,124	1,183	1,237	1,287
Thailand	5,160	4,800	4,571	4,569	4,639	4,783	4,922	5,061	5,202	5,347	5,497	5,650
Total Net Exports ²⁷⁸ *	31,498	33,211	35,167	35,338	36,084	35,991	36,572	37,013	37,430	37,844	38,278	38,697
Net Importers												
Algeria	1,170	1,155	1,189	1,214	1,247	1,266	1,299	1,328	1,356	1,385	1,413	1,443
Canada	1,207	1,350	1,363	1,371	1,387	1,391	1,411	1,428	1,444	1,459	1,475	1,490
China	1,160	1,150	1,052	1,062	1,130	1,105	1,150	1,189	1,226	1,262	1,298	1,336
Egypt	950	940	947	963	1,010	1,018	1,066	1,112	1,157	1,203	1,248	1,294
Indonesia	1,500	1,350	1,548	1,598	1,621	1,623	1,637	1,650	1,664	1,677	1,691	1,703
Iran	600	500	522	532	556	540	558	572	585	600	613	627
Japan	1,432	1,452	1,448	1,442	1,432	1,420	1,410	1,399	1,389	1,379	1,368	1,357
Malaysia	1,050	1,095	1,120	1,146	1,178	1,201	1,234	1,265	1,296	1,328	1,361	1,394
Morocco	500	520	555	575	598	608	631	652	674	696	719	743
Peru	-29	10	18	14	12	-4	-8	-10	-12	-13	-13	-14
Philippines	-202	-200	-140	-120	-101	-104	-89	-75	-60	-44	-27	-10
Russia and Ukraine	3,825	4,490	4,251	4,093	4,015	3,916	3,861	3,794	3,721	3,645	3,564	3,479
South Korea	1,265	1,275	1,286	1,296	1,312	1,317	1,333	1,346	1,357	1,368	1,378	1,387
Turkey	-150	0	-101	-140	-148	-172	-165	-154	-139	-123	-106	-89
United States	1,326	1,305	1,302	1,306	1,503	1,506	1,526	1,543	1,560	1,578	1,595	1,613
Venezuela	250	215	288	309	318	316	327	338	352	367	381	395
Rest of World	8,648	8,576	7,548	7,125	7,181	7,354	7,549	7,720	7,887	8,052	8,209	8,355
Total Net Imports	31,498	33,211	35,167	35,338	36,084	35,991	36,572	37,013	37,430	37,844	38,278	38,697
Prices (U.S. Dollars per Metric Ton)												
FOB Caribbean Price	170	178	187	196	196	215	213	216	220	224	228	233
New York Spot	453	463	453	468	433	453	447	449	450	451	452	452

²⁷⁸ Total net exports are the sum of all positive net exports and negative net imports.

World Sugar Supply and Utilisation												
Year	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15
Sugar												
Production	142	142	147	150	154	156	158	161	163	166	168	171
Beginning Stocks	40	37	32	30	30	30	30	30	30	30	30	30
Domestic Supply	182	178	179	180	183	185	188	191	193	196	199	201
Consumption	139	140	149	151	153	156	158	161	163	166	168	171
Ending Stocks	37	32	30	30	30	30	30	30	30	30	30	31
Domestic Use	176	172	179	180	183	185	188	191	193	196	199	201
Net Trade	31	33	35	35	36	36	37	37	37	38	38	39
U.S. Sugar Supply and Utilization												
Year	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15
Sugar												
Production	7,846	7,387	7,899	7,742	7,897	7,683	7,770	7,740	7,757	7,774	7,822	7,872
Beginning Stocks	1,515	1,721	1,428	1,604	1,566	1,776	1,807	1,865	1,911	1,951	1,988	2,018
Domestic Supply	9,361	9,108	9,327	9,347	9,464	9,459	9,577	9,606	9,668	9,725	9,810	9,890
Consumption	8,929	8,986	9,024	9,086	9,190	9,158	9,238	9,238	9,278	9,315	9,387	9,452
Ending Stocks	1,721	1,428	1,604	1,566	1,776	1,807	1,865	1,911	1,951	1,988	2,018	2,051
Domestic Use	10,650	10,414	10,629	10,652	10,966	10,965	11,104	11,149	11,228	11,303	11,405	11,503
Net Trade	-1,326	-1,305	-1,302	-1,306	-1,503	-1,506	-1,526	-1,543	-1,560	-1,578	-1,595	-1,613
Australian Sugar Supply and Utilization												
Year	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15
Sugar												
Production	4,994	5,500	5,577	5,677	5,784	5,910	6,045	6,165	6,282	6,401	6,522	6,646
Beginning Stocks	662	511	657	295	251	246	248	254	262	270	277	285
Domestic Supply	5,656	6,011	6,234	5,971	6,035	6,156	6,293	6,419	6,544	6,671	6,799	6,930
Consumption	1,200	1,200	1,217	1,229	1,245	1,250	1,267	1,282	1,296	1,309	1,323	1,337
Ending Stocks	511	657	295	251	246	248	254	262	270	277	285	292
Domestic Use	1,711	1,857	1,512	1,480	1,491	1,498	1,522	1,544	1,565	1,587	1,608	1,629
Net Trade	3,945	4,154	4,722	4,492	4,544	4,658	4,771	4,875	4,979	5,084	5,192	5,301

Brazilian Sugar Supply and Utilisation												
Year	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15
Sugar												
Production	26,400	28,370	29,946	31,053	31,750	32,276	32,737	33,093	33,416	33,726	34,032	34,340
Beginning Stocks	270	1,290	1,260	548	494	486	491	504	520	536	552	569
Domestic Supply	26,670	29,660	31,206	31,602	32,244	32,762	33,228	33,597	33,936	34,262	34,584	34,908
Consumption	10,140	10,300	10,491	10,682	10,908	11,100	11,330	11,553	11,777	12,002	12,230	12,460
Ending Stocks	1,290	1,260	548	494	486	491	504	520	536	552	569	585
Domestic Use	11,430	11,560	11,039	11,175	11,394	11,591	11,834	12,073	12,313	12,554	12,798	13,045
Net Trade	15,240	18,100	20,167	20,426	20,849	21,171	21,394	21,524	21,623	21,708	21,786	21,863
European Union Sugar Supply and Utilisation												
Year	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15
Sugar												
Production	19,811	19,684	19,768	19,855	19,919	19,112	19,167	19,196	19,232	19,270	19,309	19,329
Beginning Stocks	5,233	4,699	4,717	4,782	4,792	4,795	4,799	4,801	4,803	4,804	4,805	4,805
Domestic Supply	25,044	24,383	24,485	24,637	24,711	23,908	23,965	23,997	24,035	24,074	24,114	24,134
Consumption	17,670	17,662	17,810	17,961	18,105	18,246	18,387	18,527	18,663	18,800	18,938	19,075
Ending Stocks	4,699	4,717	4,782	4,792	4,795	4,799	4,801	4,803	4,804	4,805	4,805	4,805
Domestic Use	22,369	22,379	22,592	22,753	22,900	23,045	23,188	23,329	23,467	23,605	23,743	23,881
Net Trade	2,675	2,004	1,892	1,884	1,811	863	777	668	567	469	371	253
Indian Sugar Supply and Utilisation												
Year	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15
Sugar												
Production	15,450	13,590	14,130	14,621	15,056	15,517	15,996	16,417	16,851	17,306	17,775	18,254
Beginning Stocks	12,430	8,500	4,700	3,963	3,812	3,827	3,780	3,818	3,852	3,879	3,903	3,928
Domestic Supply	27,880	22,090	18,830	18,584	18,868	19,344	19,775	20,235	20,703	21,184	21,678	22,182
Consumption	19,580	19,170	19,559	19,938	20,416	20,742	21,241	21,710	22,179	22,658	23,153	23,658
Ending Stocks	8,500	4,700	3,963	3,812	3,827	3,780	3,818	3,852	3,879	3,903	3,928	3,952
Domestic Use	28,080	23,870	23,522	23,750	24,243	24,521	25,060	25,562	26,057	26,561	27,081	27,610
Net Trade	-200	-1,780	-4,692	-5,166	-5,375	-5,178	-5,284	-5,327	-5,355	-5,377	-5,404	-5,428

Indonesian Sugar Supply and Utilization												
Year	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15
Sugar												
Production	1,730	1,950	1,993	2,040	2,089	2,145	2,200	2,256	2,312	2,370	2,429	2,490
Beginning Stocks	1,340	1,170	970	944	951	964	976	990	1,004	1,018	1,031	1,045
Domestic Supply	3,070	3,120	2,963	2,984	3,040	3,109	3,177	3,246	3,316	3,387	3,461	3,536
Consumption	3,400	3,500	3,567	3,631	3,697	3,755	3,823	3,892	3,962	4,033	4,106	4,180
Ending Stocks	1,170	970	944	951	964	976	990	1,004	1,018	1,031	1,045	1,059
Domestic Use	4,570	4,470	4,511	4,582	4,661	4,731	4,813	4,896	4,980	5,065	5,151	5,239
Net Trade	-1,500	-1,350	-1,548	-1,598	-1,621	-1,623	-1,637	-1,650	-1,664	-1,677	-1,691	-1,703
Russian and Ukrainian Sugar Supply and Utilization												
Year	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15
Sugar												
Production	3,510	3,700	3,990	4,186	4,317	4,421	4,517	4,607	4,700	4,796	4,894	4,995
Beginning Stocks	1,546	631	621	639	664	696	716	743	767	790	811	833
Domestic Supply	5,056	4,331	4,611	4,825	4,980	5,116	5,233	5,350	5,467	5,585	5,705	5,827
Consumption	8,250	8,200	8,224	8,254	8,300	8,316	8,351	8,377	8,399	8,419	8,437	8,453
Ending Stocks	631	621	639	664	696	716	743	767	790	811	833	853
Domestic Use	8,881	8,821	8,862	8,918	8,996	9,032	9,094	9,144	9,188	9,231	9,270	9,306
Net Trade	-3,825	-4,490	-4,251	-4,093	-4,015	-3,916	-3,861	-3,794	-3,721	-3,645	-3,564	-3,479
South African Sugar Supply and Utilization												
Year	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15
Sugar												
Production	2,560	2,371	2,391	2,437	2,495	2,562	2,635	2,704	2,772	2,838	2,900	2,958
Beginning Stocks	586	906	638	580	577	575	572	570	567	565	562	560
Domestic Supply	3,146	3,277	3,029	3,017	3,072	3,137	3,207	3,274	3,340	3,403	3,462	3,518
Consumption	1,467	1,645	1,644	1,643	1,647	1,639	1,644	1,647	1,651	1,657	1,666	1,674
Ending Stocks	906	638	580	577	575	572	570	567	565	562	560	557
Domestic Use	2,373	2,283	2,224	2,220	2,222	2,211	2,214	2,214	2,216	2,220	2,225	2,231
Net Trade	773	994	805	797	851	926	993	1,060	1,124	1,183	1,237	1,287

Thai Sugar Supply and Utilisation												
Year	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15
Sugar												
Production	7,010	6,520	6,548	6,654	6,796	6,972	7,167	7,352	7,539	7,730	7,926	8,126
Beginning Stocks	1,045	915	585	475	438	431	425	428	433	437	442	446
Domestic Supply	8,055	7,435	7,133	7,129	7,234	7,403	7,592	7,780	7,972	8,167	8,368	8,572
Consumption												
Ending Stocks	1,980	2,050	2,087	2,122	2,165	2,195	2,242	2,286	2,332	2,378	2,425	2,472
Domestic Use	915	585	475	438	431	425	428	433	437	442	446	450
Net Trade	2,895	2,635	2,563	2,560	2,595	2,620	2,670	2,719	2,770	2,820	2,870	2,921
Net Trade	5,160	4,800	4,571	4,569	4,639	4,783	4,922	5,061	5,202	5,347	5,497	5,650

Source: FAPRI

World Sugar Projections - OECD

Crop year ^a		Average	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15
		99/00-03/04	est.										
OECD													
Production	kt ^b	42 232	41 499	43 092	42 829	42 606	42 685	41 118	41 187	41 225	41 299	41 304	41 069
Consumption	kt ^b	40 071	41 796	41 635	41 734	41 982	42 272	42 496	42 738	42 989	43 212	43 436	43 579
Closing stocks	kt ^b	12 716	11 691	11 789	11 669	11 293	11 042	11 001	10 852	10 771	10 656	10 629	10 592
NON-OECD													
Production	kt ^b	97 317	106 632	107 825	112 062	113 646	116 276	123 066	126 646	127 645	129 274	136 394	137 000
Consumption	kt ^b	97 361	106 636	109 344	111 699	114 671	117 683	119 790	122 189	124 990	127 308	131 346	134 316
Net trade ^d	kt ^b	-2 291	-302	-1 467	-1 224	-990	-667	1 337	1 402	1 690	1 834	2 074	2 472
Closing stocks	kt ^b	62 435	66 142	66 081	67 769	67 734	67 095	69 033	61 086	62 064	62 196	64 171	64 382
WORLD													
Production	kt ^b	139 549	148 032	150 918	154 891	156 152	158 964	164 183	166 832	168 876	170 567	176 698	178 069
Consumption	kt ^b	137 422	148 431	150 882	153 332	156 653	159 855	162 286	164 928	167 979	170 521	174 780	177 895
Closing stocks	kt ^b	66 149	67 834	67 869	69 428	69 027	68 137	70 034	71 938	72 835	72 852	74 800	74 974
Price, raw sugar ^c	USD/t	179.0	219.1	188.6	182.3	179.3	196.7	174.2	172.0	169.8	185.2	172.0	165.3
Price, white sugar ^d	USD/t	226.4	261.9	222.2	215.6	212.5	229.3	207.2	206.0	202.8	218.3	206.0	198.4

a) Beginning crop marketing year – see the Glossary of Terms for definitions.

b) Non-OECD net exports (imports) equal OECD net imports (exports).

c) Raw sugar world price, New York No. 11, f.o.b. stowed Caribbean port (including Brazil), bulk spot price, September/August.

d) Refined sugar price, London No. 5, f.o.b. Europe, spot, September/August.

est.: Estimate.

Source: OECD and FAO Secretariats.

Statlink: <http://dx.doi.org/10.1787/002612862357>

World Sugar Projections – OECD (continued)

Crop year ^a		Average 99/00- 03/04	04/05 est.	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15
AUSTRALIA													
Production	kt use	5 120	5 456	5 443	5 437	5 432	5 529	5 645	5 590	5 627	5 642	5 746	5 702
Consumption	kt use	1 084	1 190	1 201	1 207	1 217	1 225	1 235	1 245	1 254	1 259	1 268	1 275
Exports, raw sugar	kt use	3 592	4 079	4 116	4 153	4 179	4 204	4 224	4 256	4 282	4 309	4 336	4 363
Exports, white sugar	kt use	123	126	133	140	148	157	166	175	185	196	207	218
Closing stocks	kt use	2 385	3 037	3 035	2 976	2 869	2 816	2 841	2 721	2 632	2 516	2 457	2 310
Price, raw sugar ^b	AUD/t	315.7	303.5	285.7	247.6	243.7	265.1	236.7	234.1	231.0	251.3	233.9	225.2
CANADA													
Production	kt use	95	109	108	102	109	106	105	105	104	104	103	103
Imports, raw sugar	kt use	1 214	1 323	1 325	1 360	1 353	1 383	1 381	1 388	1 390	1 404	1 396	1 402
Imports, white sugar	kt use	42	30	36	29	33	26	28	29	31	32	34	35
Consumption	kt use	1 311	1 446	1 460	1 471	1 481	1 490	1 498	1 506	1 513	1 519	1 526	1 532
Closing stocks	kt use	200	290	286	292	291	302	313	315	313	319	312	305
EU-25													
Production		20 920	19 957	21 142	20 796	20 603	20 457	18 561	18 371	18 162	17 942	17 670	17 350
EU-15	kt use	17 557	16 498	17 763	17 522	17 378	17 291	15 470	15 342	15 197	15 041	14 833	14 578
EU-10	kt use	3 362	3 459	3 378	3 275	3 225	3 166	3 091	3 028	2 965	2 901	2 837	2 772
Imports, sugar ^c	kt use	2 671	2 386	2 631	2 431	2 430	2 429	3 125	3 278	3 457	3 667	3 912	4 199
Consumption		17 792	18 380	17 995	17 932	17 948	17 975	17 985	17 948	17 948	17 950	17 952	17 940
EU-15	kt use	14 546	15 074	14 746	14 762	14 778	14 791	14 803	14 820	14 843	14 867	14 891	14 916
EU-10	kt use	3 246	3 306	3 250	3 170	3 170	3 184	3 181	3 128	3 106	3 083	3 060	3 024
Exports, white sugar ^c	kt use	6 275	4 491	5 740	5 337	5 086	4 898	3 715	3 685	3 649	3 632	3 600	3 574
Closing stocks	kt use	4 220	2 268	2 302	2 253	2 241	2 241	2 240	2 233	2 228	2 224	2 220	2 216
JAPAN													
Production	kt use	877	933	947	949	940	936	941	941	941	941	941	941
Imports, raw sugar	kt use	1 510	1 512	1 529	1 555	1 591	1 622	1 644	1 672	1 700	1 727	1 753	1 780
Consumption	kt use	2 381	2 437	2 469	2 498	2 526	2 552	2 580	2 607	2 635	2 662	2 689	2 716
Price, white ^d	100 JPY/t	121.3	113.2	111.8	111.5	112.2	113.3	114.7	116.3	117.7	119.1	120.6	122.1
KOREA													
Imports, raw sugar	kt use	1 530	1 628	1 607	1 650	1 702	1 847	1 812	1 951	1 898	2 021	2 043	2 025
Consumption	kt use	1 135	1 292	1 325	1 366	1 408	1 457	1 504	1 541	1 581	1 598	1 612	1 625
Exports, white sugar	kt use	333	335	344	348	355	362	368	374	381	387	394	400
Closing stocks	kt use	591	743	683	622	564	594	536	574	512	550	589	591
MEXICO													
Production	kt use	5 237	5 640	5 408	5 583	5 686	5 770	5 857	5 944	6 032	6 119	6 205	6 239
Consumption	kt use	5 008	5 717	5 678	5 766	5 833	5 900	5 966	6 033	6 099	6 166	6 231	6 233
Exports, raw sugar	kt use	70	7	7	7	7	7	7	7	7	7	7	7
Closing stocks	kt use	1 739	1 941	1 863	1 873	1 883	1 893	1 903	1 913	1 923	1 933	1 943	1 953
UNITED STATES													
Production	kt use	7 785	7 402	7 988	7 889	7 704	7 721	7 783	8 018	8 062	8 202	8 253	8 316
Imports, raw sugar	kt use	1 373	1 492	1 469	1 442	1 442	1 442	1 645	1 442	1 603	1 442	1 442	1 591
Consumption	kt use	9 038	8 958	8 996	9 048	9 107	9 173	9 246	9 319	9 383	9 467	9 541	9 615
Exports, white sugar	kt use	101	231	231	231	231	231	231	231	231	231	231	231
Closing stocks	kt use	2 086	2 097	2 364	2 455	2 301	2 099	2 088	2 046	2 125	2 110	2 072	2 171
Price, raw ^e	USD/t	451.6	454.8	465.2	467.6	467.5	467.4	465.4	473.5	465.4	472.1	474.7	465.0
Price, white ^f	USD/t	529.7	537.4	547.8	550.1	550.1	549.9	548.0	556.1	548.0	554.7	557.3	547.6

For notes, see end of the table.

Source: OECD and FAO Secretariats.

World Sugar Projections – OECD (continued)

Crop year ^a		Average 99/00- 03/04	04/05 est.	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15
OTHER OECD^d													
Production	kt use	2 459	2 245	2 289	2 307	2 367	2 404	2 441	2 481	2 520	2 560	2 599	2 639
Consumption	kt use	2 705	2 802	2 829	2 860	2 877	2 912	2 924	2 950	2 975	3 000	3 026	3 051
Net trade, raw sugar	kt use	-233	-252	-256	-274	-268	-276	-284	-290	-296	-302	-308	-314
Net trade, white sugar	kt use	51	-233	-221	-208	-195	-182	-169	-157	-144	-131	-118	-105
ACP COUNTRIES^b													
Production	kt use	3 526	3 656	3 662	3 688	3 691	3 707	3 708	3 724	3 730	3 739	3 747	3 756
Consumption	kt use	1 655	1 709	1 749	1 790	1 831	1 873	1 915	1 955	2 001	2 045	2 076	2 106
Exports, raw sugar	kt use	2 192	2 201	2 242	2 226	2 233	2 213	2 187	2 151	2 168	2 135	2 129	2 123
Closing stocks	kt use	1 134	1 263	1 263	1 258	1 230	1 194	1 175	1 181	1 145	1 125	1 105	1 084
ARGENTINA													
Production	kt use	1 712	1 770	1 845	1 904	1 951	1 997	2 041	2 080	2 117	2 155	2 194	2 233
Consumption	kt use	1 531	1 608	1 631	1 662	1 673	1 695	1 717	1 740	1 762	1 785	1 809	1 832
Exports, raw sugar	kt use	65	65	66	71	71	88	95	101	113	121	129	137
Exports, white sugar	kt use	132	186	186	181	183	195	196	213	225	237	258	273
Closing stocks	kt use	1 186	1 166	1 131	1 136	1 162	1 184	1 219	1 247	1 266	1 279	1 279	1 270
BRAZIL													
Production													
Sugar	kt use	21 895	29 426	30 186	30 821	31 560	32 002	33 241	33 683	35 321	36 331	37 990	39 376
Alcohol	100 L	12 259	14 826	15 211	15 845	16 540	17 329	18 180	19 628	21 179	22 416	24 118	25 723
Consumption	kt use	9 712	10 396	10 689	10 926	11 196	11 469	11 743	12 021	12 300	12 581	12 956	13 268
Exports, raw sugar	kt use	7 270	10 879	11 245	11 193	11 537	11 664	12 494	12 430	13 590	14 151	14 772	15 517
Exports, white sugar	kt use	4 783	7 488	8 066	8 258	8 427	8 675	8 903	9 163	9 462	9 779	10 396	10 843
Closing stocks	kt use	5 293	6 414	6 630	7 074	7 473	7 668	7 789	7 838	7 807	7 627	7 493	7 241
Price, raw sugar ^c	BRL/t	426.5	655.3	589.7	585.3	606.8	683.2	625.8	640.2	652.3	734.6	704.1	698.8
Price, white sugar ^c	BRL/t	541.4	753.4	685.0	704.2	719.4	800.3	744.6	763.3	779.4	865.7	838.5	838.6
CHINA													
Production	kt use	9 185	11 260	11 429	11 600	11 774	11 951	12 130	12 312	12 497	12 684	12 875	13 068
Imports, raw sugar	kt use	842	1 081	1 503	1 883	2 391	2 872	3 292	3 789	4 098	4 587	4 889	5 197
Imports, white sugar	kt use	143	219	229	253	271	306	306	307	308	308	309	309
Consumption	kt use	9 927	12 500	13 316	13 795	14 396	14 955	15 537	16 161	16 742	17 362	17 819	18 328
Exports, white sugar	kt use	224	37	22	138	69	159	143	154	165	175	185	195
Closing stocks	kt use	2 164	3 238	3 058	2 859	2 827	2 840	2 885	2 975	2 967	3 007	3 071	3 119
CUBA													
Production	kt use	3 240	1 700	1 746	1 777	1 802	1 823	1 842	1 860	1 877	1 894	1 911	1 902
Consumption	kt use	695	689	709	729	742	756	781	794	815	835	850	868
Exports, raw sugar	kt use	2 611	1 082	1 155	1 120	1 140	1 135	1 139	1 142	1 138	1 136	1 138	1 109
Exports, white sugar	kt use	29	69	69	67	65	64	62	61	59	58	57	57
Closing stocks	kt use	384	406	356	356	347	349	343	339	336	332	328	324
INDIA													
Production	kt use	19 353	12 968	17 195	20 012	20 356	22 106	21 611	23 295	23 675	24 187	24 475	24 883
Consumption	kt use	18 239	19 250	19 989	20 729	21 468	21 774	22 299	22 824	23 250	23 876	24 402	24 927
Imports, raw sugar	kt use	132	3 620	2 103	525	0	0	0	0	0	0	0	0
Closing stocks	kt use	13 204	8 075	7 276	6 970	5 738	5 945	5 127	5 403	5 687	5 851	5 773	5 572

For notes, see end of the table.

Source: OECD and FAO Secretariats.

World Sugar Projections – OECD (continued)

Crop year ^a		Average 99/00- 03/04	04/05 est.	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15
INDONESIA													
Production	kt.ase	1 814	2 130	2 065	2 089	2 098	2 110	2 147	2 197	2 256	2 301	2 358	2 346
Imports, raw sugar	kt.ase	533	569	676	522	544	581	596	611	636	674	694	719
Imports, white sugar	kt.ase	1 398	1 327	1 405	1 490	1 650	1 569	1 662	1 648	1 598	1 556	1 510	1 474
Consumption	kt.ase	3 693	3 853	3 959	4 042	4 155	4 252	4 381	4 509	4 630	4 762	4 880	5 007
Closing stocks	kt.ase	2 158	2 756	2 931	2 989	3 121	3 125	3 142	3 088	2 947	2 715	2 396	1 926
OIS													
Production	kt.ase	1 704	1 630	1 696	1 745	1 763	1 769	1 789	1 814	1 838	1 860	1 884	1 911
Consumption	kt.ase	2 233	2 300	2 351	2 251	2 344	2 195	2 242	2 260	2 291	2 323	2 352	2 387
Net trade	kt.ase	-906	-1 040	-1 309	-1 012	-1 164	-855	-907	-892	-907	-926	-936	-952
RUSSIA													
Production	kt.ase	1 793	2 065	2 149	2 211	2 233	2 242	2 266	2 298	2 328	2 357	2 387	2 421
Imports, raw sugar	kt.ase	4 794	5 044	5 244	5 181	5 331	5 425	5 606	5 630	5 724	5 832	5 913	6 012
Imports, white sugar	kt.ase	148	166	162	160	165	165	173	174	177	180	183	186
Consumption	kt.ase	6 577	6 860	7 419	7 372	7 563	7 616	7 820	7 872	7 996	8 131	8 242	8 373
Closing stocks	kt.ase	2 412	2 272	2 274	2 277	2 279	2 281	2 282	2 283	2 284	2 286	2 287	2 288
SOUTH AFRICA													
Production	kt.ase	2 497	2 377	2 359	2 482	2 420	2 544	2 495	2 475	2 554	2 632	2 684	2 736
Consumption	kt.ase	1 602	1 638	1 671	1 704	1 735	1 770	1 804	1 838	1 874	1 909	1 946	1 983
Exports, raw sugar	kt.ase	961	781	804	841	859	870	871	757	756	842	885	899
Exports, white sugar	kt.ase	269	247	215	201	192	183	180	172	164	156	148	152
Closing stocks	kt.ase	1 037	960	905	915	819	809	716	688	710	694	656	613
Price, raw sugar ^b	\$/t	1 420.9	1 487.7	1 442.6	1 478.1	1 461.0	1 613.1	1 450.0	1 466.9	1 469.0	1 626.8	1 533.5	1 496.8
Price, white sugar ^b	\$/t	1 797.3	1 710.5	1 700.0	1 748.6	1 731.9	1 889.4	1 725.3	1 747.9	1 755.2	1 917.4	1 828.4	1 796.2
THAILAND													
Production	kt.ase	6 543	5 650	5 800	6 021	6 215	6 295	6 190	6 340	6 461	6 723	6 872	7 037
Consumption	kt.ase	2 009	2 278	2 321	2 361	2 401	2 441	2 480	2 520	2 559	2 599	2 638	2 678
Exports, raw sugar	kt.ase	2 309	1 690	1 722	1 997	2 135	2 260	2 197	2 130	2 336	2 415	2 474	2 505
Exports, white sugar	kt.ase	2 090	2 114	1 973	1 807	1 690	1 592	1 607	1 715	1 628	1 614	1 673	1 653
Closing stocks	kt.ase	1 636	1 613	1 397	1 253	1 240	1 203	1 109	1 084	1 022	1 118	1 205	1 375
Price, raw sugar ^b	\$/t	7 398	8 827	7 554	7 305	7 184	7 822	6 946	6 868	6 773	7 390	6 845	6 575
Price, white sugar ^b	\$/t	9 342	10 149	8 903	8 642	8 517	9 162	8 265	8 189	8 092	8 698	8 162	7 890
REST OF WORLD													
Production	kt.ase	23 794	31 689	27 471	27 476	27 449	27 536	33 379	33 404	32 774	32 194	35 804	35 124
Consumption	kt.ase	39 095	43 129	43 155	43 834	44 645	46 371	46 689	47 281	48 359	48 690	50 957	52 150
Net trade, raw sugar	kt.ase	-4 352	-1 906	-3 072	-4 847	-5 199	-4 667	-3 994	-3 033	-3 710	-3 589	-3 656	-3 565
Net trade, white sugar	kt.ase	-12 573	-12 087	-13 490	-13 336	-12 814	-13 167	-12 114	-12 539	-12 807	-13 178	-13 924	-14 453
Closing stocks	kt.ase	21 086	27 495	28 374	30 198	31 012	30 010	32 778	34 473	35 406	35 676	38 093	39 084

a) Beginning crop marketing year – see the Glossary of Terms for definitions.

b) Export price, f.o.b.

c) Excludes intra-EU trade.

d) White sugar, refined, lower price, Tokyo market.

e) Raw sugar price, September-August New York No. 14.

f) Refined beet sugar price (Midwest), September-August.

g) Includes New Zealand, Norway, Switzerland and Turkey.

h) The subset of African, Caribbean and Pacific countries that export sugar to both the European Union and the United States.

est.: Estimate.

Source: OECD and FAO Secretariats.

Statlink: <http://dx.doi.org/10.1787/555102043867>

B. Data on Soy Production and Trade

World Soy Production

(Thousand Mt)

Year	Soyabean Cake	Soyabean Oil	Soyabeans	Year	Soyabean Cake	Soyabean Oil	Soyabeans
1980	58,291	13,107	81,039	1992	73,740	17,028	114,449
1981	56,579	12,881	88,523	1993	76,898	17,385	115,152
1982	58,638	13,070	92,120	1994	80,180	17,824	136,462
1983	61,367	13,784	79,464	1995	86,327	19,751	126,980
1984	56,771	13,078	90,749	1996	87,816	20,075	130,212
1985	60,829	13,909	101,154	1997	89,732	20,500	144,415
1986	61,658	13,970	94,444	1998	102,716	23,776	160,100
1987	67,523	15,289	100,100	1999	105,968	24,752	157,801
1988	67,481	15,283	93,519	2000	107,608	25,051	161,410
1989	65,121	14,846	107,252	2001	117,813	27,375	176,822
1990	68,779	15,656	108,452	2002	129,645	30,059	181,120
1991	68,495	15,668	103,309				

Source: FAOSTAT

Soy Trade (*)

(Thousand Mt, include beans, cakes and oil)

	EU			WORLD	
	Exports	Imports	Trade Balance	Exports	Imports
1986	468	24,201	-23,733	49,022	48,219
1987	1,028	25,119	-24,091	53,602	54,066
1988	378	21,992	-21,614	52,722	52,040
1989	327	20,304	-19,977	49,141	48,614
1990	412	23,656	-23,244	51,324	51,007
1991	346	23,232	-22,886	53,040	51,645
1992	629	25,287	-24,658	57,249	56,054
1993	622	24,263	-23,641	57,348	54,436
1994	613	26,245	-25,631	60,032	58,645
1995	864	28,950	-28,085	65,922	64,418
1996	509	24,383	-23,874	66,426	64,057
1997	1,015	23,508	-22,493	74,353	70,976
1998	1,408	27,880	-26,472	78,589	75,767
1999	1,518	29,873	-28,355	81,285	80,829
2000	1,546	29,314	-27,768	86,610	87,249
2001	2,056	35,152	-33,096	102,712	102,286
2002	2,366	36,572	-34,206	102,045	105,368
2003	1,983	36,640	-34,657	117,911	115,916

Source: FAOSTAT

(*): Excluding EU intra-trade

Soy Exports(*)

(Thousand Mt, include beans, cakes and oil)

	Year									
	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
US	23,207	28,829	31,767	33,822	29,453	30,150	33,716	36,547	33,865	37,268
Brazil	17,575	16,856	16,241	19,479	21,082	20,900	21,979	28,598	30,422	35,979
Argentina	11,083	10,984	9,738	10,593	16,423	19,168	20,033	25,328	25,762	31,430
India	1,930	2,593	2,983	2,889	2,832	2,410	2,350	2,393	1,456	2,994
EU 15	1,059	1,567	1,019	1,842	2,484	2,598	2,584	3,154	3,436	2,874
Paraguay	1,457	1,617	2,042	2,425	2,614	2,508	2,305	2,884	2,657	2,659
Bolivia	350	458	664	744	784	832	1,000	1,017	1,251	1,393
China	2,060	1,348	417	764	375	273	276	625	1,337	1,051
Canada	509	689	587	596	1,002	986	859	727	675	966
Uruguay	4	3	6	8	0	0	0	11	62	179
Others	811	994	970	1,205	1,551	1,477	1,524	1,446	1,143	1,139
World	60,043	65,938	66,433	74,367	78,600	81,302	86,627	102,730	102,067	117,933

Source: FAOSTAT

(*): Excluding EU intra-trade

Soy Imports (*)

(Thousand Mt, include beans, cakes and oil)

	Year									
	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
EU 15	26,253	28,953	24,389	23,529	27,955	29,889	29,385	35,171	36,605	36,682
China	3,632	4,418	6,998	10,380	9,787	8,161	13,614	16,570	14,774	25,164
Japan	5,536	5,679	5,610	5,863	5,627	5,761	5,582	5,687	6,017	6,244
Mexico	2,950	2,538	3,320	3,557	3,702	4,396	4,226	4,877	5,071	4,989
Thailand	1,001	893	1,210	2,372	1,645	2,341	2,620	2,923	3,284	3,608
Korea	1,891	2,527	2,647	2,358	2,406	2,724	2,769	2,963	3,135	3,127
Indonesia	1,300	1,292	1,700	1,523	1,030	2,218	2,556	2,721	2,733	2,765
Iran	894	1,070	1,209	783	1,083	1,660	1,736	2,145	1,932	2,523
Canada	756	907	851	1,025	907	1,240	1,253	1,814	1,972	1,827
Philippines	808	1,000	591	950	1,240	1,058	1,134	1,385	1,565	1,552
Others	13,592	15,096	15,531	18,638	20,386	21,382	22,121	25,734	28,076	27,320
World	58,612	64,374	64,057	70,976	75,767	80,829	86,996	101,990	105,163	115,800

Source: FAOSTAT

(*): Excluding EU intra-trade

C. Data on Beef and Veal Production and Trade

World Beef and Veal Production

(Thousand Mt)

Year	World	EU15	Year	World	EU15
1980	45,551	8,513	1992	53,068	8,865
1981	45,937	8,342	1993	52,616	8,212
1982	45,894	8,072	1994	53,360	7,869
1983	47,141	8,335	1995	54,180	7,989
1984	48,456	8,882	1996	54,717	7,953
1985	49,285	8,881	1997	55,412	7,890
1986	50,970	9,014	1998	55,269	7,656
1987	50,928	9,069	1999	56,312	7,679
1988	51,403	8,536	2000	56,904	7,441
1989	51,711	8,314	2001	56,086	7,361
1990	53,345	8,948	2002	57,801	7,481
1991	53,856	9,389	2003	58,434	7,362

Source: FAOSTAT

Beef and Veal Trade(*)

(Thousand Mt)

	EU			World	
	Exports	Imports	Trade Balance	Exports	Imports
1986	1,170	166	1,004	2,885	2,737
1987	701	183	518	2,471	2,368
1988	561	154	407	2,547	2,447
1989	829	155	674	2,959	2,755
1990	654	168	487	2,863	3,058
1991	1,028	179	850	3,287	3,175
1992	960	191	769	3,463	3,486
1993	810	164	646	3,274	3,350
1994	760	190	570	3,460	3,609
1995	712	177	535	3,513	3,518
1996	708	198	510	3,507	3,687
1997	738	201	536	3,834	4,050
1998	518	185	334	3,618	3,760
1999	693	203	489	3,910	3,954
2000	441	202	239	3,957	3,991
2001	411	186	226	3,843	3,955
2002	348	254	94	4,071	4,258
2003	262	270	-8	4,152	4,137

Source: FAOSTAT

(*): Excluding EU intra-trade

Beef and Veal Exports (*)

(Thousand Mt)

	Year									
	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Argentina	140	218	171	200	116	160	160	43	161	184
Australia	819	810	738	852	914	914	931	971	951	872
Brazil	79	38	47	53	82	152	190	370	433	624
Canada	184	186	242	290	323	371	395	435	463	293
New Zealand	325	318	348	347	364	295	335	329	328	386
Paraguay	27	22	23	23	34	19	42	45	14	56
Ukraine	153	207	189	165	96	131	136	110	131	146
US	521	585	600	680	700	768	901	782	824	836
Uruguay	90	86	132	177	168	150	171	104	149	188
EU 15	760	712	708	738	518	693	441	411	348	262
Others	363	332	308	311	303	259	256	243	270	306
World	3,460	3,513	3,507	3,835	3,619	3,911	3,958	3,844	4,071	4,153

Source: FAOSTAT

(*): Excluding EU intra-trade

Beef and Veal Imports (*)

(Thousand Mt)

	Year									
	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
US	698	556	641	733	824	882	954	988	989	893
Japan	589	649	630	647	666	677	719	675	487	576
Russia	371	375	454	637	478	548	282	459	505	508
Korea	142	168	163	166	92	177	238	181	316	326
EU 15	190	177	198	201	185	203	202	186	254	270
Mexico	119	41	76	148	230	262	307	310	356	269
Canada	201	178	164	174	163	178	184	213	216	188
Chile	41	50	62	80	71	80	86	71	102	123
Malaysia	54	62	71	71	63	73	92	91	95	97
Egypt	129	113	91	102	103	137	151	73	107	93
Others	1,063	1,138	1,136	1,091	885	736	776	708	830	794
World	3,598	3,508	3,687	4,050	3,760	3,955	3,992	3,955	4,258	4,137

Source: FAOSTAT

(*): Excluding EU intra-trade

D. Data on Pigmeat Production and Trade

World Pigmeat Production

(Thousand Mt)

Year	World	EU	Year	World	EU
1982	53,202	13,697	1993	76,469	16,068
1983	55,484	14,041	1994	79,188	16,231
1984	57,493	14,285	1995	80,085	16,139
1985	59,973	14,476	1996	79,315	16,509
1986	61,523	14,665	1997	83,095	16,378
1987	63,631	15,068	1998	88,425	17,777
1988	67,107	15,601	1999	89,270	18,144
1989	68,200	15,357	2000	90,083	17,649
1990	69,871	15,476	2001	92,057	17,645
1991	71,913	15,096	2002	95,319	17,845
1992	74,072	15,247	2003	98,421	17,921

Source: FAOSTAT

Pigmeat Trade (*)

(Thousand Mt)

	EU			World	
	Exports	Imports	Trade Balance	Exports	Imports
1986	182	50	132	838	668
1987	224	52	172	960	788
1988	309	52	257	1,045	828
1989	261	55	207	750	846
1990	309	40	269	842	834
1991	368	40	328	949	854
1992	250	47	203	710	980
1993	147	15	133	601	962
1994	149	9	140	595	1,221
1995	76	8	69	529	711
1996	286	24	262	858	597
1997	335	24	310	1,022	647
1998	423	21	402	1,108	921
1999	966	31	936	1,688	1,016
2000	787	17	770	1,684	1,134
2001	645	24	622	1,622	1,288
2002	719	17	703	1,811	1,657
2003	703	25	677	1,917	1,732

Source: FAOSTAT

(*): Excluding EU intra-trade

Pigmeat Exports (*)

(Thousand Mt)

	Year									
	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
EU 15	149	76	286	335	423	966	787	645	719	703
US	150	230	272	294	357	349	462	487	475	511
Poland	0	28	41	39	16	40	56	38	33	186
Brazil	34	1	3	3	1	2	18	103	220	146
Canada	85	72	68	69	73	92	108	110	112	132
Australia	6	6	6	9	14	31	39	53	62	58
Hong Kong	3	2	3	7	27	27	34	36	34	44
Hungary	19	7	40	40	36	45	49	37	29	30
Chile	4	2	0	5	6	1	1	7	46	29
China	20	38	56	30	30	10	6	7	20	21
<i>Others</i>	126	67	82	191	124	124	123	97	61	57
World	595	529	858	1,022	1,108	1,688	1,684	1,622	1,811	1,917

Source: FAOSTAT

(*): Excluding EU intra-trade

Pigmeat Exports (*)

(Thousand Mt)

	Year									
	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Russia	212	309	180	189	282	278	213	370	602	535
Hong Kong	74	70	60	84	128	133	161	171	179	200
Mauritius	48	11	16	30	66	91	139	144	172	195
United Arab Emirates	32	38	51	46	52	86	86	77	87	143
Romania	1	1	1	0	29	18	21	43	71	83
Nepal	13	8	11	13	5	50	38	40	46	81
Australia	2	4	6	9	5	22	34	30	44	53
Poland	25	27	34	33	39	39	48	60	53	53
Belarus	0	0	0	6	1	5	5	4	5	31
Seychelles	5	2	2	4	1	17	26	28	30	27
<i>Others</i>	1,151	573	697	693	853	381	444	438	380	388
World	1,563	1,043	1,059	1,106	1,461	1,121	1,213	1,405	1,667	1,788

Source: FAOSTAT

(*): Excluding EU intra-trade

E. List of ACP (African, Caribbean and Pacific) countries

Africa	Caribbean	Pacific
Angola*	Antigua and Barbuda	Cook Islands
Benin*	Bahamas	East Timor
Botswana	Barbados	Federated States of
Burkina Faso*	Belize	Micronesia
Burundi*	Cuba	Fiji
Cameroon	Dominica	Kiribati*
Cape Verde*	Dominican Republic	Marshall Islands
Central African Republic*	Grenada	Nauru
Chad*	Guyana	Niue
Comoros*	Haiti*	Palau
Congo (Brazzaville)	Jamaica	Papua New Guinea
Congo (Kinshasa)*	St.-Kitts & Nevis	Samoa*
Djibouti*	St.-Lucia	Solomon Islands*
Equatorial Guinea*	St.-Vincent	Tonga
Eritrea*	Suriname	Tuvalu*
Ethiopia	Trinidad & Tobago	Vanuatu*
Gabon		
Gambia*		
Ghana		
Guinea*		
Guinea Bissau*		
Ivory Coast		
Kenya		
Lesotho*		
Liberia*		
Madagascar*		
Malawi*		
Mali*		
Mauritania*		
Mauritius		
Mozambique*		
Namibia		
Niger*		
Nigeria		
Rwanda*		
Sao Tome & Principe*		
Senegal		
Seychelles		
Sierra Leone*		
Somalia*		
South Africa		
Sudan*		
Swaziland		
Tanzania*		
Togo		
Uganda		
Zambia*		
Zimbabwe		

* = Least developed countries (for which special trade agreements apply).

F. Beneficiary Countries of the EBA Initiative

Afghanistan	Ethiopia*	Niger
Angola*	Gambia	Rwanda
Bangladesh*	Guinea	Sao Tome e Principe
Benin	Guinea Bissau	Samoa
Bhutan	Haiti*	Senegal
Burkina Faso	Kiribati	Sierra Leone
Burundi	Lao PDR*	Solomon Is
Cambodia	Lesotho	Somalia*
Cape Verde*	Liberia*	Sudan*
Central African Republic	Madagascar*	Tanzania*
Chad	Malawi*	Togo
Comoros	Maldives	Tuvalu
Congo (Dem. Rep.)*	Mali	Uganda*
Djibouti	Mauritania	Vanuatu*
Equatorial Guinea	Mozambique*	Yemen*
Eritrea	Nepal*	Zambia*

* = sugar producer

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