

Corporate EU-actors in the Brazilian and Indonesian soybean and oil palm production chains

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Summary and conclusions

This paper aims to examine the extent and character of EU business involvement in the Indonesian oil palm production chain and the Brazilian soybean production chain. The overarching aim is to help determine whether EU consumers, investors, traders, et cetera, could provide leverage for improving sustainable cultivation of soybeans in Brazil and oil palms in Indonesia.

Indonesian palm oil production has increased with 48% in the past five years, faster than production in other countries. Behind Malaysia (52% of global palm oil production), Indonesia now is the second largest palm oil producing country in the world with a 31% market share. The Indonesian government however aims to overthrow Malaysia as the world's largest producer in the next ten years. This rapid growth might cause environmental problems, connected with forest conversion. To the present acreage of Indonesian oil palm plantations of 3 million hectare, another 6 million hectare of forest land might be added in the coming years.

Around half of all oil palm plantations in Indonesia is owned by private groups. One third are smallholder plantations, and the remainder are state-owned plantations. The largest private plantation groups are all Indonesian-owned. However, some European groups are operating medium-sized oil palm plantation groups in Indonesia: Bolloré from France, Sipef from Belgium, and Rowe Evans and Anglo-Eastern from the United Kingdom.

Also, many EU financial institutions play an important role in financing the large Indonesian oil palm plantation groups. Of these financial institutions, the most important are Rabobank and ING from the Netherlands, Crédit Lyonnais and Société Generale from France, Dresdner Bank, Deutsche Bank and Commerzbank from Germany, Crédit Suisse and UBS from Switzerland, and HSBC and CDC from the United Kingdom.

The fresh fruit bunches of the oil palm have to be processed within a day after harvesting. This is done in small-scale CPO mills, owned by the plantation groups. These CPO mills yield two products: crude palm oil (CPO) and palm kernels. CPO accounts for 81% of total oil palm products, palm kernels for 19%.

Most CPO and all palm kernels are treated further in crushing plants and refineries in Indonesia. No European companies are involved in this stage of the production chain.

Indonesian exports of oil palm products are growing stronger than Indonesian oil palm production. This is making the Indonesian oil palm production chain increasingly export-oriented and export-dependent.

A small part of the Indonesian CPO production (14%) is being exported directly. The remainder is refined in Indonesia, and 46% of this refined palm oil is also exported. The share of total Indonesian palm oil output (crude plus refined) which is exported increased from 44% to 53% in the past five years.

Indonesian palm oil exports decreased temporarily in 1998, because of an export ban during the first four months of the year which was followed by a high export tax during the rest of the year and the first half of 1999.

Exports of palm oil have recovered in 1999, but a much higher proportion of palm oil exports now is already refined in Indonesia (74%). This is induced by the remaining Indonesian export taxes, and forthcoming changes in EU import taxes on oil palm products might further enhance this trend.

The most important export markets for Indonesian palm oil are India (31%) and the European Union (30%). Within the EU, the Netherlands, Germany and the United Kingdom are the main importers. Indonesian palm oil exports to the EU are now split evenly between crude and refined palm oil.

All palm kernels harvested in Indonesia are crushed domestically. This yields two products: 45% palm kernel oil (PKO) and 55% palm kernel meal (PKM). Of the PKO output 91% is exported, as is the entire PKM output. The main export markets for Indonesian PKO are the European Union (61%) and the United States (11%). Within the EU, Germany and the Netherlands are the main importers.

The main export markets for PKM are the European Union (87%) and South Korea (9%). Within the EU, the Netherlands, Germany, and the United Kingdom are the main importers.

The European Union is the most important export market for PKO and PKM from Indonesia, and the second largest export market for palm oil. Likewise, Indonesia is the most important supplier of palm oil and PKO to the European market (market shares of 46% and 71% respectively), and the second largest supplier of PKM after Malaysia (market share of 32%). Indonesia still is the largest palm oil supplier to the EU market but it lost considerable market share because of the export ban and export taxes of 1998 and 1999.

Exports of Indonesian oil palm products are organized by international traders. Many EU corporate actors are involved in this stage, often belonging to European final processing industries. The same applies to the European palm oil refineries, which further process the EU imports of CPO from Indonesia (accounting for half of total palm oil imports from Indonesia) as well as PKO imports.

Oil palm products are used by the global food, cosmetics, detergents, chemical, and feed industries to manufacture a wide variety of products. But other edible oils and oilmeals can be used for many of the same products as well. This means that the EU imports of Indonesian oil palm products are competing on a very large edible oils market. Of the total amount of edible oils processed annually in the EU, only 8% consists of palm oil and palm kernel oil from Indonesia.

This small percentage of total supply makes it very difficult to identify EU companies in the mentioned sectors which are involved in manufacturing products with Indonesian oil palm-ingredients. A number of companies can be mentioned which probably are involved. But to assess the extent of the involvement of these and other final processing companies, more research is needed in the second phase of this research project.

The Brazilian soybean production has increased with 31% in the past five years. Clearly behind the United States (46% of global soybean production), Brazil is the second soybean producing country in the world with a market share of 20%. The rapid growth of Brazilian soybean production might cause environmental problems, connected with forest conversion. No evidence is found of direct EU involvement in soybean growing in Latin America. But two European companies - André from Switzerland and Louis Dreyfus from France - play a very important role in soybean trading, crushing and refining in Brazil.

Also, EU financial institutions play an important role in financing large Brazilian soybean farmers as well as the soybean trading and crushing industries in Brazil. Of these financial institutions, the most important are ING from the Netherlands, Crédit Lyonnais and Société Générale from France, Dresdner Bank, Deutsche Bank and Commerzbank from Germany, Crédit Suisse and UBS from Switzerland, and HSBC from the United Kingdom.

Brazilian soybean exports increased with 143% in the past five years, and now 28% of production is being exported. A larger part (67%) is crushed in Brazil, yielding soybean oil and soybean meal. An important part of the Brazilian production of soybean oil and soybean meal is exported as well (38% and 65%, respectively).

Brazilian exports of soybeans are growing much stronger than Brazilian soybean production. This is making the Brazilian soybean production chain increasingly export-oriented and export-dependent. But during the past five years, domestic crushing in Brazil stagnated and exports of soybean meal and soybean oil have decreased slightly. Relatively, an increasing proportion of the Brazilian soybean export therefore consists of not-crushed soybeans, at the expense of crushing products.

This tendency is explained partially by the abolishment at the end of 1996 of the Brazilian value added tax system on exports of soybeans, oils and meals. This made export of soybeans relatively more attractive than local crushing.

Another factor is the difference in average crushing costs between Brazil (which are 16% above world average) and its main export market, the European Union (7% below world average).

The most important export markets for Brazilian soybeans are the European Union (77%) and China (7%). Within the EU, the Netherlands, Germany and Spain are the main importers.

The European Union also is the most important export market for Brazilian soybean meal, with a market share of 74%. Other important export markets are South Korea (5%) and Japan (4%). Within the EU, France, the Netherlands and Spain are the main importers.

The most important export markets for Brazilian soybean oil are Iran (49%) and India (21%). Almost no Brazilian soybean oil is being exported to the EU, but this situation might change when the EU lowers its import tariff for soybean oil, in accordance with the WTO agreement. With a market share of 43% on the EU soybean market, Brazil is the second largest supplier behind the US (market share 46%). Behind Argentina (with a market share of 51%), Brazil is also the second largest supplier of soybean meal to the EU market with a market share of 42%.

When the crushing in the EU of Brazilian soybeans is taken into account, Brazil supplies around 40% of the soybean meal and 39% of the soybean oil which is supplied to the European market. But as the EU is an important exporter of soybean oil as well, not all of this Brazilian soybean oil will be processed by final processing industries in the EU.

The crushing of soybeans in the EU is dominated by three companies: ADM and Cargill from the US, and Eridania Béghin-Say from France. Together these have a 80% market share in the EU crushing industry. These companies also play a important role in refining soybean oil for the EU final processing industry, along with refineries owned by EU final processing companies.

Soybean oil and soybean meal, and derived intermediate products, are used by the food, cosmetics, detergents, chemical, and feed industries to manufacture a wide variety of products. But other edible oils and oilmeals can be used for many of the same products as well. This means that the EU imports of Brazilian soybean products are competing on a very large edible oils market. Of the total amount of edible oils processed annually in the EU, only 4% consists of soybean oil from Brazil.

This small percentage of total supply makes it very difficult to identify EU companies in the mentioned sectors which are involved in manufacturing products with Brazilian soybean-ingredients. A number of companies can be mentioned which probably are involved. But to assess the extent of the involvement of these and other final processing companies, more research is needed in the second phase of this research project.

• **Conclusions**

- Indonesian oil palm production is growing strongly, and exports of oil palm products are even growing faster. This makes the Indonesian oil palm production chain increasingly export-oriented and export-dependent. The European Union is the most important export market for PKO and PKM from Indonesia, and the second largest export market for palm oil. Likewise, Indonesia is the most important supplier of PKO to the European market, and the second largest supplier of palm oil and PKM after Malaysia.

- Brazilian soybean production is growing strongly, and exports of soybeans are even growing faster. This makes the Brazilian soybean production chain increasingly export-oriented and export-dependent. The European Union is the most important export market for soybeans and soybean meal from Brazil, but it does not import Brazilian soybean oil. Likewise, Brazil is the second largest supplier of soybeans and soybean meal to the European market, after the US and Argentina respectively.
- Various European companies in the food, cosmetics, detergents, chemical, and feed industries are involved in manufacturing products with Brazilian soybean-ingredients and Indonesian oil palm-ingredients. But since imports of Indonesian oil palm products account for only 8% of all edible oils processed in the EU, it is difficult to identify the European companies involved. The same applies for Brazilian soybean oil, which only accounts for 4% of the EU edible oil market. To assess the extent of the involvement of EU final processing companies in manufacturing these specific ingredients, more research is needed.
- This paper identifies 18 EU corporate actors which in other ways are strongly involved in the Indonesian oil palm production chain and/or the Brazilian soybean production chain:
 - **André et Cie.:** Involved in trading, crushing and refining Brazilian soybeans in Brazil.
 - **Anglo-Eastern:** Involved in operating Indonesian oil palm plantations.
 - **Bolloré:** Involved in operating Indonesian oil palm plantations.
 - **CDC:** Involved in financing Indonesian oil palm plantations.
 - **Commerzbank:** Involved in financing Indonesian oil palm plantations and in financing Brazilian soybean trade and crushing.
 - **Crédit Lyonnais:** Involved in financing Indonesian oil palm plantations and in financing Brazilian soybean trade and crushing.
 - **Crédit Suisse:** Involved in financing Indonesian oil palm plantations and in financing Brazilian soybean plantations, trade and crushing.
 - **Deutsche Bank:** Involved in financing Indonesian oil palm plantations and in financing Brazilian soybean plantations, trade and crushing.
 - **Dresdner Bank:** Involved in financing Indonesian oil palm plantations and in financing Brazilian soybean trade and crushing.
 - **Eridania Béghin-Say:** Involved in crushing and refining Brazilian soybeans on the EU market.
 - **HSBC:** Involved in financing Indonesian oil palm plantations and in financing Brazilian soybean plantations.
 - **ING Bank:** Involved in financing Indonesian oil palm plantations and in financing Brazilian soybean trade and crushing.
 - **Louis Dreyfus:** Involved in trading, crushing and refining Brazilian soybeans in Brazil.
 - **Rabobank:** Involved in financing Indonesian oil palm plantations.
 - **Rowe Evans:** Involved in operating Indonesian oil palm plantations.
 - **Sipef:** Involved in operating Indonesian oil palm plantations.
 - **Société Générale:** Involved in financing Indonesian oil palm plantations and in financing Brazilian soybean trade and crushing.
 - **UBS:** Involved in financing Indonesian oil palm plantations and in financing Brazilian soybean trade and crushing.

More research is needed to assess the exact nature and extent of the involvement of these 18 EU corporate actors in the Indonesian oil palm production chain and the Brazilian soybean production chain.

Chapter 1 Introduction

This paper aims to examine the extent and character of EU business involvement in the Indonesian oil palm production chain and the Brazilian soybean production chain. More specifically, it aims to identify the particular interests (investors, transporters, processors, brokers, financiers) in soybean and oil palm production and trade.

This information will serve as a foundation to understand the impact of the EU in global soybean production and to target leverage points to counteract harmful trade and investment practices. The overarching aim of this paper is to help determine whether EU consumers, investors, traders etc. could provide leverage for improving sustainable cultivation of soybeans in Brazil and oil palms in Indonesia.

This paper is prepared for World Wide Fund for Nature Switzerland, to serve as a basis for planning a campaign on edible oils. World Wide Fund for Nature Switzerland is organizing a workshop on “Engaging the Edible Oils Sector in Forest Conservation”. The workshop was held from 18 to 20 October 2000 in Zürich (Switzerland). This paper served to prepare the discussions.

This paper gives a broad overview of the relations between EU corporate actors and the Indonesian oil palm production chain and the Brazilian soybean production chain. A more specific analysis, looking in depth at the involvement of specific corporate actors originating from specific European countries, can be performed in further stages of the campaign.

The contents of this paper are as follows. Chapter 2 will present a general overview of the oil palm production chain, explaining all stages involved. The chapter includes figures on the main production and consumption countries in the world, the main uses of oil palm products, and the main competing edible oils and oilmeals.

Chapter 3 will elaborate on the connections between the Indonesian oil palm production chain and EU corporate actors. The main actors involved in the different stages of the production chain will be identified.

Chapter 4 will present a general overview of the soybean production chain, explaining all stages involved. The chapter includes figures on the main production and consumption countries in the world, the main uses of soybean products, and the main competing edible oils and oilmeals.

Chapter 5 will elaborate on the connections between the Brazilian soybean production chain and EU corporate actors. The main actors involved in the different stages of the production chain will be identified.

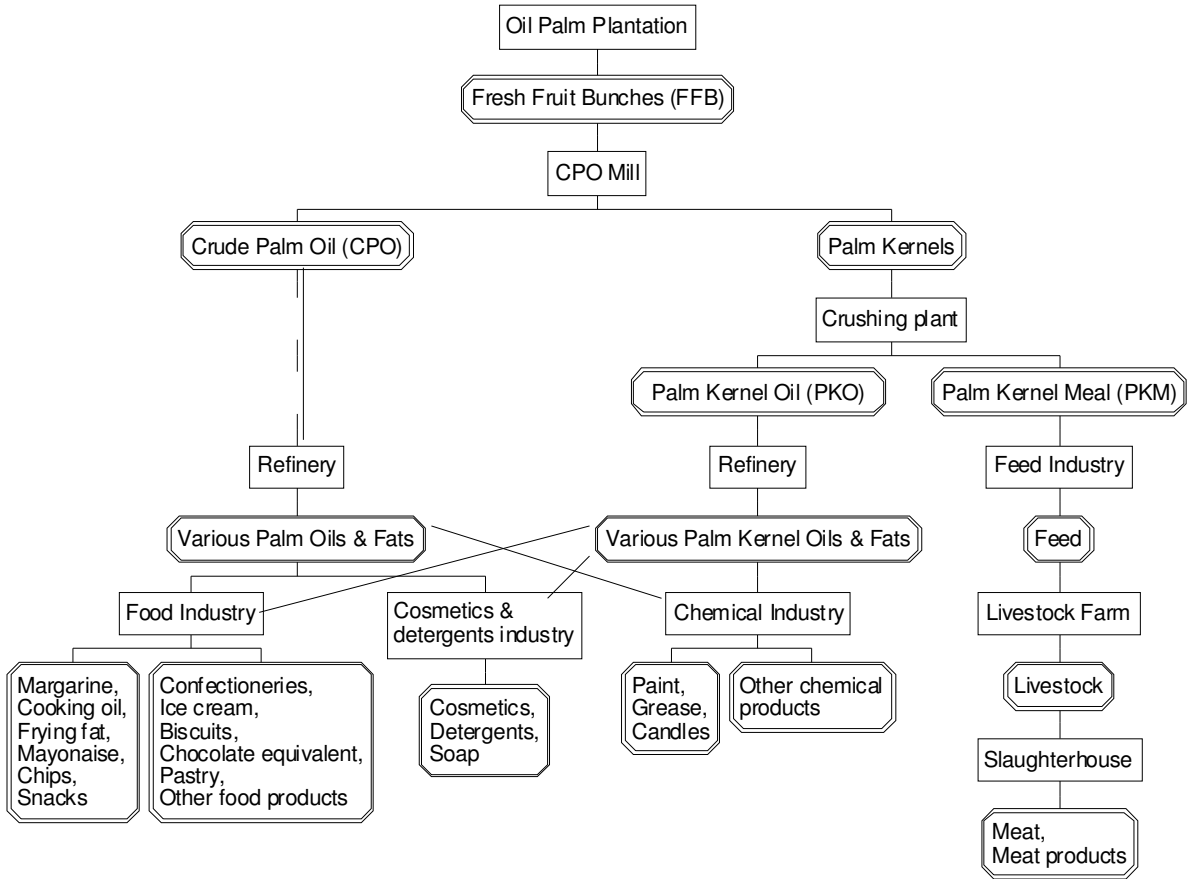
Chapter 6 profiles some EU trading, financing, and processing companies which probably are strongly involved in the Brazilian soybean production chain and/or the Indonesian oil palm production chain. This paper by no means aims to identify all EU corporate actors involved in the Brazilian soybean production chain and/or the Indonesian oil palm production chain. The aim is to determine which EU corporate actors might provide leverage for improving sustainable cultivation of soybeans in Brazil and oil palms in Indonesia.

In later research projects, the ties between the mentioned EU corporate actors and the Brazilian soybean production chain and/or the Indonesian oil palm production chain will be assessed further.

Chapter 2 The oil palm production chain

2.1 Overview of the oil palm production chain

In this chapter the oil palm production chain, from palm to end-consumer, will be described systematically.¹ The following diagram gives a schematic overview of this oil palm production chain.



The following paragraphs will describe the principal stages in the oil palm production chain, as shown in the figure above.

2.2 Oil palm plantations

The oil palm (*Elaeis guineensis*) grows in a sub-tropical climate. The main producing countries are Malaysia and Indonesia, followed by Nigeria, Colombia, Thailand, Ivory Coast and Papua New Guinea. Oil palms are mainly planted on large-scale plantations, but in Indonesia and some other countries also increasingly by smallholders.

The palm tree reaches maturity in three years, and peak production is reached after eight years. The tree can be harvested for up to 20 to 30 years, after which it normally is replaced. When the palm tree is mature, each year large bunches of palm fruits (with the size of small plums) grow in the armpits of the palm leaves. A so-called Fresh Fruit Bunch (FFB) can contain up to 2,000 individual fruits, together weighing 10 to 20 kilograms. Every oil palm tree produces several bunches per year. The yield per hectare therefore is enormous: 10 to 35 tonnes per hectare.

2.3 CPO mills

After harvesting, the Fresh Fruit Bunches (FFB) have to be processed within 24 hours. This is necessary to avoid the rapid build-up of free fatty acids in the harvested fruit. This implies that the processing mills have to be located close to the production sites. Usually this means they are relatively small-scale.

In the CPO mill, the flesh of the palm fruit is sterilised and mechanically separated from the kernel. The kernel is shipped to a crushing plant, and the fruit is mechanically pressed to extract the Crude Palm Oil (CPO). The CPO then is clarified and purified.

The average recoverable palm oil content of FFB is about 20 percent, so the CPO yield per hectare is about 2 to 7 tonnes. In Indonesia the average CPO yield in 1999 was 3.4 tonnes per hectare.² This is much higher than any other oil crop in the world.

The residues of the FFB (70% of the gross yield) are used as fuel and for mulching.

The CPO production of the main production countries is listed in table 2.1.

Country	1995	1996	1997	1998	1999	Growth	Share
Malaysia	7,811	8,386	9,057	8,315	10,553	35%	52%
Indonesia	4,220	4,540	5,380	5,006	6,250	48%	31%
Nigeria	660	670	680	690	720	9%	4%
Colombia	388	410	441	424	500	29%	2%
Thailand	354	375	390	355	410	16%	2%
Ivory Coast	285	280	259	275	282	-1%	1%
Papua New Guinea	223	272	275	215	270	21%	1%
Ecuador	180	188	203	200	230	28%	1%
Others	1,089	1,161	1,206	1,226	1,261	16%	6%
World total	15,210	16,282	17,891	16,706	20,476	35%	100%

Source: Oil World Annual 2000, ISTA Mielke, Hamburg, May 2000.

Table 2.1 shows that the world CPO production increased with 35% in the past five years. Because the growth rate of marketleader Malaysia also was 35%, its market share remained stable at 52%. Indonesia increased its market share to 31%, as its growth rate (+ 48%) was higher than in all other producing countries.

2.4 Crushing plants

The palm kernels are being crushed in crushing plants. These can be dedicated palm kernel crushing plants, but palm kernels can also be crushed in general oilseed crushing plants which also process soybeans and other oilseeds. The crushing plant can be located in the production country, but also in other countries as palm kernels can be stored and transported.

The crushing process yields two products: 45% Palm Kernel Oil (PKO) and 55% Palm Kernel Meal (PKM). One hectare of oil palms therefore yields three different basic products: CPO (3.4 tonnes per hectare), PKO (0.35 tonnes per hectare), and PKM (0.45 tonnes per hectare). The figures given are recent yield-figures for the Indonesian palm oil sector.³ The chemical composition of PKO is very different from CPO. Palm oil contains mainly palmitic and oleic acids and is about 50% saturated, while palm kernel oil contains mainly lauric acids and is more than 80% saturated.

2.5 Refineries

Most of the CPO as well as most of the PKO is processed further in refineries. These refineries can be located in the production country, but also in other countries. Both CPO and PKO can be stored and shipped without problems.

The processing of CPO and PKO in refineries can include refining, bleaching, deodorizing, splitting, fractioning and hydrogenating. These processes result in numerous forms of oils and fats, each with their own chemical and physical properties. One important process is fractioning, which splits CPO or PKO in two fractions. At normal temperatures, the olein fraction is liquid and the stearin fraction is solid. Both fractions are of course used for different end-products.

2.6 International palm oil traders

Various oil palm products are traded internationally, as palm kernel crushers and palm oil / palm kernel oil refineries can be located as well in the oil palm production country as in the consuming country. Therefore the following products are traded internationally:

- Crude palm oil
- Palm kernels
- Crude palm kernel oil
- Refined palm oil and derived intermediate products
- Refined palm kernel oil and derived intermediate products
- Palm kernel meal

These exports are organized by a large number of international traders. Most of these traders belong to refineries and final processing industries in the consuming countries, securing their own supply. But some traders are independent, buying products in Indonesia and delivering them to refineries and final processing industries in the consuming countries.

2.7 Final processing industries

The different forms of oils and fats coming out of the CPO- and PKO-refineries, as well as the palm kernel meal, are being used to process a broad range of final products in four industrial sectors:

- **Food industry:** Oils and fats derived from CPO and PKO are used in the food industry for a large variety of products, including margarine, cooking oil, frying fat, mayonnaise, chips, snacks, peanut butter, fried nuts, instant soup, confectioneries, biscuits, bakery, pastry, ice cream, coffee whitener, chocolate equivalent, and many others. Of all edible oils, around 80% is processed into food products.
- **Cosmetics industry:** Oils and fats derived from CPO and PKO are used in the cosmetics & detergents industry for a large variety of products, including soap, cosmetics, detergents, and many others.
- **Chemical industry:** Oils and fats derived from CPO and PKO are used in the chemical industry for a large variety of products, including lubricants, grease, candles, paint, and many others.
- **Compound feed industry:** All palm kernel meal is processed and blended into compound feed for the livestock industry. Also, some of the oils and fats derived from CPO and PKO are used for compound feed, to increase its energy content.

Globally, these industries increasingly use palm oil, PKO and PKM. The global consumption of palm oil and PKO is growing faster than that of any other edible oil, as is shown in table 2.2. In the last five years palm oil enforced its position as the second most consumed edible oil in the world, behind soybean oil.

Oil type	1995	1996	1997	1998	1999	Growth	Share
Soybean oil	19,436	20,442	21,523	23,721	24,589	27%	23%
Palm oil	14,710	16,028	17,619	17,553	19,276	31%	18%
Rapeseed oil	10,650	11,618	11,704	12,191	12,990	22%	12%
Sunflower oil	8,462	8,800	9,402	8,641	9,222	9%	9%
Tallow & Grease	7,466	7,561	7,429	7,727	8,194	10%	8%
Lard	5,637	5,908	6,099	6,473	6,635	18%	6%
Butter, as fat	5,727	5,663	5,724	5,755	5,816	2%	5%
Groundnut oil	4,303	4,501	4,535	4,544	4,734	10%	4%
Cotton oil	3,862	4,133	4,023	4,078	3,832	-1%	4%
Coconut oil	3,247	2,923	3,089	3,196	2,805	-14%	3%
Palm kernel oil	1,932	2,039	2,207	2,160	2,530	31%	2%
Olive oil	2,037	1,946	2,297	2,420	2,375	17%	2%
Corn oil	1,830	1,868	1,865	1,924	1,987	9%	2%
Fish oil	1,391	1,381	1,240	888	1,172	-16%	1%
Linseed oil	694	653	702	678	711	2%	1%
Sesame oil	588	670	722	723	691	18%	1%
Castor oil	466	471	474	442	427	-8%	0%
Total	92,438	96,605	100,654	103,114	107,986	17%	100%

Source: Oil World Annual 2000, ISTA Mielke, Hamburg, May 2000.

The main palm oil consuming countries and regions are listed in table 2.3, and the main PKO consuming countries and regions in table 2.4. It is important to note that the consumption figures in these tables refer to the countries and regions in which the final processing industries are located. The products of these final processing industries can of course be exported to end-users in other countries and regions. The EU margarine industry for instance exports relatively much margarine to countries outside the European Union.

Table 2.3: World consumption of palm oil (in 1,000 MT)							
Country/region	1995	1996	1997	1998	1999	Growth	Share
India	757	1,193	1,388	1,817	2,969	292%	15%
Indonesia	2,160	2,528	2,841	2,832	2,895	34%	15%
EU	1,689	1,830	1,925	2,009	2,120	26%	11%
China	1,294	1,095	1,701	1,549	1,406	9%	7%
Malaysia	1,098	1,236	1,191	985	1,231	12%	6%
Pakistan	1,157	1,149	1,104	1,124	1,065	-8%	6%
Nigeria	725	757	792	776	776	7%	4%
Others	5,830	6,240	6,677	6,461	6,814	17%	35%
Total	14,710	16,028	17,619	17,553	19,276	31%	100%

Source: Oil World Annual 2000, ISTA Mielke, Hamburg, May 2000.

Table 2.4: World consumption of PKO (in 1,000 MT)							
Country/region	1995	1996	1997	1998	1999	Growth	Share
Malaysia	600	605	705	661	786	31%	31%
EU	317	378	397	394	497	57%	20%
United States	125	146	157	149	202	62%	8%
Nigeria	176	146	150	178	187	6%	7%
Indonesia	110	124	78	84	74	-33%	3%
Japan	53	54	53	52	53	0%	2%
Brazil	47	55	64	44	39	-17%	2%
Others	504	531	603	598	692	37%	27%
Total	1,932	2,039	2,207	2,160	2,530	31%	100%

Source: Oil World Annual 2000, ISTA Mielke, Hamburg, May 2000.

The tables 2.3 and 2.4 show some remarkable differences concerning the most important consumption countries for palm oil and PKO. Malaysia is a moderately important palm oil consumer, but this country alone accounts for one-third of global PKO consumption. However, a lot of the products made of PKO by Malaysian food and chemical industries, are being exported to other countries.

Palm oil consumption in India trebled in the past five years, and India now accounts for 15% of global consumption. But India is only a very moderate consumer of PKO. The opposite is the case for the United States, which don't consume much palm oil but are the third-largest consumer of PKO. For both products, the EU is one of the most important consuming regions.

While palm oil and PKO have an important market share on the global market for edible oils, the situation for PKM is somewhat different. Although the global consumption of PKM is growing faster than that of any other oilmeal in the world, it still has only a very moderate market share on the world market.

Table 2.5: World consumption of oilmeals (in 1,000 MT)							
Oil type	1995	1996	1997	1998	1999	Growth	Share
Soybean meal	88,022	89,740	92,585	102,266	107,452	22%	56%
Rapeseed meal	17,017	17,769	18,480	19,059	20,298	19%	11%
Cotton meal	15,037	16,011	15,862	15,747	15,389	2%	8%
Corngluten feed	13,231	12,960	13,310	13,787	14,079	6%	7%
Sunflower meal	10,205	10,589	10,915	10,281	10,959	7%	6%
Groundnut meal	6,343	6,394	6,416	6,447	6,825	8%	4%
Fish meal	6,787	6,403	6,295	4,987	5,521	-19%	3%
Corngerm meal	3,027	3,014	3,132	3,101	3,238	7%	2%
Palm kernel meal	2,375	2,526	2,762	2,747	2,970	25%	2%
Linseed meal	1,330	1,294	1,312	1,355	1,399	5%	1%
Copra meal	1,939	1,628	1,860	1,836	1,377	-29%	1%
Sesame meal	739	834	909	921	873	18%	0%
Total	166,052	169,162	173,838	182,534	190,380	15%	100%

Source: Oil World Annual 2000, ISTA Mielke, Hamburg, May 2000.

Table 2.6 lists the main consuming countries and regions for PKM.

Table 2.6: World consumption of PKM (in 1,000 MT)							
Country/region	1995	1996	1997	1998	1999	Growth	Share
EU	1,936	1,946	2,061	1,988	2,222	15%	75%
South Korea	17	137	221	264	205	1106%	7%
Colombia	36	39	43	43	50	39%	2%
Japan	32	38	47	43	50	56%	2%
Malaysia	9	22	21	23	39	333%	1%
Ecuador	22	23	25	26	33	50%	1%
Nigeria	44	26	39	34	29	-34%	1%
Others	279	295	305	326	342	23%	12%
Total	2,375	2,526	2,762	2,747	2,970	25%	100%

Source: Oil World Annual 2000, ISTA Mielke, Hamburg, May 2000.

Table 2.6 shows that the EU is by far the largest PKM consuming region in the world (market share 75%), using PKM to feed its intensive livestock industry. Other countries, especially South Korea, have recently started to follow this example.

2.8 Retail chains

The products mentioned in the preceding paragraph which are manufactured by the food, detergents and cosmetics industries, reach individual consumers through wholesalers and retail chains. This is also true for compound feed, after it is used to raise livestock which consequently is processed into meat and meat products by slaughterhouses.

2.9 Financial institutions

Financial institutions - banks, credit agencies, insurance companies, pension funds, and mutual funds - will play a role in all stages of the oil palm production chain, as almost all companies in the world use capital provided by financial institutions. This capital can be provided in two ways:

- **Equity:** Equity is sold in the form of shares. Financial institutions and individuals buying shares, become co-owners of the company. A shareholding gives right to an annual dividend, but can also increase in value when the company performs well. Equity is generally provided by insurance companies, pension funds, mutual funds, and private investors, but not by banks. (Investment) Banks however play an essential role in finding investors willing to buy the shares of a certain company.
- **Debt:** Debt is capital which is borrowed by the company. The creditor (provider of debt) does not become co-owner of the company, but is entitled to a fixed interest and to repayment of the debt. Debt is often provided by banks and credit agencies, in the form of trade credits and (syndicated) loans.
But debt can also be provided by insurance companies, pension funds, mutual funds, and private investors, in the form of bonds or notes. Bonds and notes are tradable pieces of debt. Banks usually don't buy bonds, but to issue bonds a company does need the help of an (investment) bank.

Financial institutions will play a more important role in the oil palm production chain than in other agricultural production chains. Oil palms only yield their first crop after three years, which means that none of the costs made by a new plantation company in the first three years can be financed from its own cash-flow. A new plantation therefore needs relatively much capital, which can be paid off only after some years.

Plantation companies in Indonesia borrow on average 77% of the total establishment costs of a new plantation.⁴

Chapter 3 The EU and the Indonesian oil palm production chain

3.1 Introduction

In this paragraph we will describe the Indonesian palm oil production chain and its relations with the European Union into more detail. The aim of this description is to identify the actors in the European Union (EU) which could influence developments in the Indonesian oil palm sector in an environmentally sensible way. We will look subsequently at the different stages of the production chain, as defined in the preceding chapter.

3.2 Oil palm plantations

Of old, Malaysia dominated the world market for palm oil. But although the oil palm plantation sector in Malaysia continues to expand, expansion opportunities are limited. The areas suitable for plantations are limited, and labour costs are relatively high. As the world market continued to grow in a rapid pace, Indonesia in the beginning of the 1990's formulated the goal to overthrow Malaysia as the world's largest palm oil producer. With much lower labour costs and abundant forest land available, the Suharto regime reckoned it could outperform its neighbours. The average cost of producing one tonne of crude palm oil in Malaysia is roughly US\$ 250 in Malaysia, compared to US\$ 150 in Indonesia.⁵

To reach this goal, Indonesia will need huge investments. The Indonesian Business Intelligence Report (BIRO) in November 1999 calculated that Indonesia would need Rp 20 trillion (US\$ 2.8 billion) in new investments to fulfill its 10-year undertaking to become the world's largest crude palm oil (CPO) producer with a total annual output of 15 million tons. With this projected total output, Indonesia would account for 40 percent of the world's CPO output in 2010, well above projections for Malaysia's output of 14 million tons.⁶

To achieve the set goal, the Indonesian acreage planted with oil palm has increased considerably during the past fifteen years. Starting from about 600,000 hectares (ha) in 1985, the planted area reached approximately 3 million ha in 1999. Around 1995, plantation companies had applied for the conversion of around 20 million ha of forest land into oil palm plantations. Applications for the conversion of around 6 million ha of forest land into oil palm plantations have been granted during the last years of the Suharto regime.⁷

The total acreage of mature oil palm plantations reached 1.8 million ha in 1999, and is forecast to rise to 2.2 million ha in 2001. This compares with a total acreage of mature oil palm plantations in Malaysia of 2.7 million ha in 1999.⁸

Originally, most oil palm plantations in Indonesia were state-owned. During the last ten years of the Suharto regime however, concessions were granted on a large scale to private plantation groups. Also, planting of oil palms by smallholders was encouraged by a special credit scheme. Smallholders often have close ties with the large plantation groups, which provide them seeds, other inputs, and credits, and process their FFB for a guaranteed minimum price.

In 1998, around half of all oil palm plantations in Indonesia was owned by private groups. One third were smallholder plantations, and the remainder state-owned plantations.⁹

In 1999 it was estimated that 27 private companies control 45 percent of the Indonesian oil palm plantations.¹⁰ The private plantation groups which own the largest concessions at present, are listed in table 3.1. The acreage figures in this table are rough estimates, as the total amount of concessions owned by a group and all of its subsidiaries is not always known. Also, not all groups have yet planted their total acreage with oil palms. And of the acreages planted, a part is not yet mature.

Group	Country of origin	Total acreage (ha)
Sinar Mas	Indonesia	582,000
Bakrie	Indonesia	376,000
Astra	Indonesia	280,000
Salim	Indonesia	275,000
London Sumatra	Indonesia	246,000
Raja Garuda Mas	Indonesia	200,000

Sources: Profile and Directory of Indonesian Plantations 1997/1998, PT Capricorn Indonesia Consult (CIC), Jakarta, 1998; The Hesitant Boom: Indonesia's Oil Palm Sub-sector in an Era of Economic Crisis and Political Change, Anne Casson, CIFOR, Jakarta, November 1999.

Table 3.2 lists a selection of smaller Indonesian plantation groups, which have financial or investment links with companies and financial institutions from the European Union. The investment links are obvious from the table, the financial links will be treated later in this chapter.

Group	Country of origin	Total acreage (ha)
Lyman	Indonesia	91,000
Sipef	Belgium	53,000
Bolloré	France	48,000
Johor	Malaysia	37,510
Harapan	Indonesia	25,400
Rowe Evans	United Kingdom	22,500
Oriental	Malaysia	22,000
Anglo-Eastern Plantations	United Kingdom	18,200
Carson Cumberbatch	Sri Lanka	17,500
Sungai Budi	Indonesia	12,000

Sources: Profile and Directory of Indonesian Plantations 1997/1998, PT Capricorn Indonesia Consult (CIC), Jakarta, 1998; The Hesitant Boom: Indonesia's Oil Palm Sub-sector in an Era of Economic Crisis and Political Change, Anne Casson, CIFOR, Jakarta, November 1999; Company reports.

3.3 CPO mills

Most CPO mills in Indonesia are relatively small, and located near a plantation. Most mills are owned by the plantation groups, and therefore no data on CPO mill ownership will be presented here.

Figures on total CPO production, CPO processed domestically, and CPO exports are summarized in table 3.3.

Category	1995	1996	1997	1998	1999	95/99
CPO production	4,220	4,540	5,380	5,006	6,250	48%
CPO processed domestically	3,180	3,530	3,932	4,211	5,385	69%
CPO export	1,040	1,010	1,448	795	865	-17%
CPO export as % of production	25%	22%	27%	16%	14%	
CPO export to EU	777	755	1,032	503	540	-31%
Export to EU as % of total export	75%	75%	71%	63%	62%	

Source: Oil World Annual 2000, ISTA Mielke, Hamburg, May 2000.

Indonesian CPO production has increased with almost 50 percent over the past five years. Exports did grow at the same speed until 1997, keeping the percentage of CPO exported stable at around 25%.

But CPO exports declined markedly in 1998, and recovered only modestly in 1999. The main reason for this trend break is that Indonesian policy on the export of palm oil has changed several times during 1998 and 1999. The Indonesian government introduced an export ban on palm oil exports in January 1998, in order to stabilise the price of local cooking oil. The export ban was subsequently lifted in April 1998, and replaced with an export tax of 40% on CPO. Export taxes for other palm oil products ranged from 30% to 40%.

The CPO export tax was raised to 60% in July 1998, and reduced again to 40% in February 1999. In June 1999 the CPO tax was reduced to 30%, in November 1999 to 10%, and in September 2000 to 5%. Clearly, the export ban and subsequent export tax hampered Indonesian CPO-export in 1998 and 1999.¹¹

Exports were also hampered by the discovery in October 1999 in the Rotterdam port of CPO polluted with diesel oil, coming from Indonesia. This affair caused a temporary suspension of CPO exports through the North Sumatra port of Belawan, and made traders turn away from Indonesian CPO for some time.¹²

It is important to note that both developments hampered CPO-exports from Indonesia in 1998 and 1999, and probably in 2000 as well. This was especially the case for exports to Europe, which decreased stronger than other exports. Consequently, the EU share in Indonesian CPO exports reduced from 75% to 62% in the past two years.

But at the other hand the export taxes (in force since April 1998) seem to have stimulated Indonesian exports of processed palm oil. Taxes were lower for processed palm oil than for CPO.

This shift to processed palm oil exports was induced also by a change in EU import tariffs. EU import tariffs used to favour CPO imports over imports of processed palm oil. But as part of the WTO agreement, the EU has started to gradually reduce these import tariffs.

As a consequence, the domestic processing of palm oil in Indonesia has increased considerably (69% in the past five years). And the export of processed palm oil products has increased threefold in five years (see table 2.5 underneath).

Probably, the polluted CPO-affair will also stimulate this development, as it will stimulate demand for quality-controlled products.

3.4 Crushing plants

The Indonesian export of uncrushed palm kernels is negligible (7,800 tonnes in 1999). This means that virtually all palm kernels harvested in Indonesia, are crushed domestically. Palm kernel crushing plants are mostly integrated with refineries for palm oil and palm kernel oil. The companies involved will therefore not be listed here, but in table 3.7.

Figures on the volume of palm kernels crushed annually in Indonesia, and figures on the production and export of palm kernel oil (PKO), are presented in table 3.4.

Category	1995	1996	1997	1998	1999	95/99
Crushing of palm kernels	969	1,099	1,243	1,185	1,473	52%
Production of PKO	426	484	551	527	656	54%
Domestic consumption of PKO	110	124	78	84	74	-33%
Export of PKO	311	341	503	413	598	92%
PKO export as % of production	73%	70%	91%	78%	91%	
PKO export to EU	222	236	334	303	362	63%
Export to EU as % of total export	71%	69%	66%	73%	61%	

Source: Oil World Annual 2000, ISTA Mielke, Hamburg, May 2000.

Crushing of palm kernels and PKO production increased with around 50 percent in the past five years, while domestic consumption decreased. A very high, and still increasing, part of production is exported.

Like CPO-exports, PKO-exports also suffered from the export ban and export taxes in 1998. But already in 1999 a new export record was recorded, almost double the amount exported in 1995. The main export markets for Indonesian PKO are the European Union (61%) and the United States (11%).

The other product produced by palm kernel crushing plants, is palm kernel meal. Figures on the Indonesian production and export of palm kernel meal (PKM), are presented in table 3.5.

Category	1995	1996	1997	1998	1999	95/99
Production of PKM	533	605	684	655	813	53%
Domestic consumption of PKM	16	11	11	10	11	-31%
Export of PKM	483	606	668	683	825	71%
PKM export as % of production	91%	100%	98%	104%	101%	
PKM export to EU	455	539	555	572	716	57%
Export to EU as % of total export	94%	89%	83%	84%	87%	

Source: Oil World Annual 2000, ISTA Mielke, Hamburg, May 2000.

Like CPO- and PKO-production, PKM-production increased with around 50 percent in the past five years. Almost all output is exported, as domestic consumption is negligible. The main export markets for Indonesian PKM are the European Union (87%) and South Korea (9%).

3.5 Refineries

Crude palm oil (CPO) and palm kernel oil (PKO) are further processed in refineries. Different from Malaysia, most refineries in Indonesia used to produce mainly for the domestic market. Export of processed palm oil products was lower than the export of CPO (841,000 vs. 1,010,000 tonnes in 1996).

Figures on the processing of PKO are not available. But for CPO, processing has increased considerably, as table 3.6 shows. Stimulated by export taxes in 1998 and 1999 - which favoured export of processed products over export of CPO - the export of processed palm oil increased especially in 1999. Export of processed palm oil in 1999 was three times higher than in 1996. Of all palm oil exports, 74% now consists of processed palm oil.

The growing export of processed palm oil more than compensated the decline of CPO exports. The share of total Indonesian palm oil output (crude and refined) which is exported increased from 44% to 53% in the past five years. The most important export markets for Indonesian palm oil (crude and refined) are India (31%) and the European Union (30%).

Category	1995	1996	1997	1998	1999	95/99
CPO processed domestically	3,180	3,530	3,932	4,211	5,385	69%
Export of processed palm oil	815	841	1,534	1,207	2,454	201%
Export as % of total processing	26%	24%	39%	29%	46%	
Export of processed palm oil to EU	158	188	209	299	462	192%
Export to EU as % of total export	19%	22%	14%	25%	19%	

Source: Oil World Annual 2000, ISTA Mielke, Hamburg, May 2000.

It is important to note, however, that the trend towards the export of processed palm oil was much weaker for exports to the EU. Although export of processed palm oil to the EU increased three times between 1995 and 1999, it still is lower than the export of Indonesian CPO to the EU (462,000 vs. 540,000 tonnes).

This is probably caused by the fact that the EU imposes a higher import tariff on refined palm oil (14%) than on CPO (6%). Under the WTO agreement these tariffs will be gradually reduced, possibly making it more attractive for EU companies to import refined palm oil instead of CPO.¹³

Nevertheless, trade patterns have already changed remarkably during the last five years. This has the following consequences:

- Indonesian refineries have increased their output remarkably between 1995 and 1999, from 3.2 million tonnes to 5.4 million tonnes.
- Almost half of all Indonesian palm oil exports to the EU now is processed by Indonesian refineries, leaving the other half to be processed by European refineries.

So, to identify the actors involved in refining Indonesian palm oil for the EU market, we will have to look as well to Indonesian refineries as to European refineries. First we will turn our attention to the Indonesian palm oil and PKO refineries. The data available are presented in table 3.7. Usually, these refineries are integrated with palm kernel crushing plants.

Group	Country of origin	Capacity (in 1.000 MT/year)
Hasil Karsa	Indonesia	962
Musim Mas	Indonesia	877
Sinar Mas	Indonesia	632
Salim	Indonesia	465
Raja Garuda Mas	Indonesia	290
Bukit Kapur	Indonesia	250
Cahaya Kalbar	Indonesia	110

Sources: 2000 Soya & Oilseed Bluebook, Soyatech Inc., Bar Harbor, June 2000; Indonesia's Palm Oil Subsector, D. F. Larson, International Economics Department Commodity Policy and Analysis Unit, World Bank, Washington, 1996; Jakarta Post, Jakarta, 9 February 1998.

The data available on European palm oil and PKO refineries, are presented in table 3.8.

Company	Country of origin	Refinery	Location	Capacity (MT/day)
ADM	United States	Noblee & Thoerl	Germany	
Cargill	United States	Cargill	Italy	
Eulip	Italy	Eulip	Italy	250
Florin	Switzerland	Florin	Switzerland	
Karlshamns	Sweden	Karlshamns	United Kingdom	100
Matthews Foods	United Kingdom	Matthews Foods	United Kingdom	
Mosselman	Belgium	Mosselman	Belgium	
Pavlos Pettas	Greece	Pavlos Pettas	Greece	
Rockmor	United Kingdom	Rockmor	United Kingdom	150
Smilde	Netherlands	Romi	Netherlands	
Unigrà	Italy	Unigrà	Italy	600
Unilever	UK/Netherlands	Unimills	Netherlands	

Source: 2000 Soya & Oilseed Bluebook, Soyatech Inc., Bar Harbor, June 2000.

Refined palm oil and PKO can be processed further by final processing industries, which are described in paragraph 3.7. But some part is processed further by another intermediate sector, the speciality fats producers. These companies use refined edible oils like palm oil and soybean oil to produce speciality fats, which are used in several final processing industries (confectionery, cosmetics, and others). One type of speciality fat is Cocoa Butter Equivalent (CBE), which can be used as a cheap replacement for cocoa butter in chocolate products. In Asian countries, CBE is already used to a large extent in chocolate products. Most other countries didn't permit the use of CBE, however. But after more than ten years of discussion, the European union in the summer of 2000 agreed to the replacement of cocoa butter by CBE to a maximum content of 5%. This opens a large new market for CBE-producers, also because the Latin American countries, the Central and east European countries, Australia and New Zealand are expected to follow this European regulation.¹⁴

The global CBE-market is dominated by only four companies, of which three are European (see table 3.9). The fourth is Fuji Oils from Japan.

Table 3.9: European speciality fat producers				
Company	Country of origin	Production plant	Location	Capacity (MT/day)
Aarhus Olie	Denmark	Aarhus Olie	Denmark	
Karlshamns	Sweden	Karlshamns	Netherlands	
Unilever	UK/Netherlands	Loders Croklaan	Netherlands	

Source: Fat Supplier Expects Growth from New EU Regulations, Scott Hegenbart, Food Ingredients Online, 29 June 2000.

3.6 International palm oil traders

As described in the preceding paragraphs, oil palm products are exported from Indonesia to the EU in the following forms:

- Crude palm oil
- Refined palm oil and derived intermediate products
- Crude and refined palm kernel oil and derived intermediate products
- Palm kernel meal

These exports are organized by a large number of international traders. Most of these traders belong to refineries and final processing industries, securing their own supply. But some traders are independent, buying products in Indonesia and delivering them to refineries and final processing industries in the EU. Some important independent companies trading oil palm products between Indonesia and the EU, are listed in table 3.10.

Table 3.10: Independent palm oil traders between Indonesia and the EU	
Company	Country of origin
Alfred C. Toepfer	Germany
Algemene Oliehandel	Netherlands
André et Cie.	Switzerland
Hampshire Commodities	United Kingdom
International Food Science	Denmark
Otterboer	Netherlands
Ruata	Italy
Simsa	Spain

Source: 2000 Soya & Oilseed Bluebook, Soyatech Inc., Bar Harbor, June 2000.

3.7 Final processing industries

As described in the preceding chapter, the output of palm kernel crushing plants and CPO/PKO refineries consists of three categories of intermediate products:

- refined palm oil
- refined palm kernel oil
- palm kernel meal

These products are further used by final processing industries in the EU, in the food industry, chemical industry, and compound feed industry. But these industries don't source these intermediate products only from Indonesia. Indonesia however is a very important source for the final processing industries in the EU, as is shown by the following three tables.

Category	1995	1996	1997	1998	1999	95/99
Import of Indonesian palm oil	935	943	1,241	802	1,002	7%
Import of other palm oil	803	924	804	1,298	1,194	49%
Total EU import of palm oil	1,738	1,867	2,045	2,100	2,196	26%
% of imports from Indonesia	54%	51%	61%	38%	46%	
EU usage of palm oil	1,689	1,830	1,925	2,009	2,120	26%

Source: Oil World Annual 2000, ISTA Mielke, Hamburg, May 2000.

EU usage of palm oil almost equals EU imports, as exports are very small. The imports of Indonesian palm oil were 7% higher in 1999 than in 1995, but in the mean time palm oil usage in the EU increased with 26%. Indonesian palm oil therefore lost market share to its main competitors on the European market: Malaysia and Papua New Guinea.

As mentioned earlier, this loss of market share is caused by the Indonesian export ban and export taxes in 1998 and 1999, and by the polluted CPO-affair in 1999. It therefore remains to be seen if Indonesian palm oil exports to the EU will regain lost market share in 2000 and coming years, now the Indonesian export taxes are abolished and the CPO-affair is probably forgotten.

Category	1995	1996	1997	1998	1999	95/99
Import of Indonesian PKO	222	236	334	303	362	63%
Import of other PKO	92	150	82	112	150	63%
Total EU import of PKO	314	386	416	415	512	63%
% of imports from Indonesia	71%	61%	80%	73%	71%	
EU usage of PKO	317	378	397	394	497	57%

Source: Oil World Annual 2000, ISTA Mielke, Hamburg, May 2000.

EU usage of PKO almost equals EU imports, as exports are negligible. Imports of Indonesian PKO into the EU were less touched by the problems with hampered palm oil exports to the EU. Imports rose with more than 60% in the past five years, and Indonesia remained the largest supplier of the EU-market (with a market share of around 70%).

EU usage of PKO is rising stronger (+57% in the past five years) than EU usage of palm oil (+26%). EU usage of PKO now equals 23% of EU usage of palm oil. But EU imports of Indonesian PKO are already 48% of EU imports of Indonesian palm oil. This means that the relative importance of PKO exports to Europe is increasing for the Indonesian palm oil sector.

Category	1995	1996	1997	1998	1999	95/99
Import of Indonesian PKM	455	539	555	572	716	57%
Import of other PKM	1,480	1,403	1,504	1,416	1,506	2%
Total EU import of PKM	1,935	1,942	2,059	1,988	2,222	15%
% of imports from Indonesia	24%	28%	27%	29%	32%	
EU usage of PKM	1,935	1,942	2,059	1,988	2,222	15%

Source: Oil World Annual 2000, ISTA Mielke, Hamburg, May 2000.

EU usage of PKM almost equals EU imports, as exports are negligible. EU usage of PKM is growing much slower (+15% in the past five years) than the EU usage of palm oil (+26%) and PKO (+57%). The Indonesian market share for PKM on the European market is lower than for palm oil and PKO. Indonesia is the second largest supplier of PKM to the European market, after Malaysia.

But its PKM exports to Europe are growing strongly (+57% in the past five years), while PKM exports from other suppliers are stagnating. To put it in another way: Indonesia is the only supplier profiting from the growth of the European market, resulting in an increasing market share (now 32%).

As described in the preceding chapter, these three intermediate products (palm oil, PKO and PKM) are manufactured into final products in the food industry, cosmetics/detergents industry, chemical industry and compound feed industry. In this research paper we will concentrate on the food and cosmetics/detergents industries, which by far are the largest users of palm oil and PKO.

Palm oil and PKO are used to manufacture a great number of products in the food industry. In most of these products, oils and fats derived from palm oil or PKO are mixed with other edible oils and fats. And in many production processes, one edible oil can be replaced by another without problem - when availability and price differences stimulate this. Table 3.14 provides an overview of the market shares and growth rates of the different edible oils used by the EU food and chemical industries.

Table 3.14: EU usage of various edible oils (in 1,000 MT)							
Oil type	1995	1996	1997	1998	1999	Growth	Share
Rapeseed oil	2,160	2,355	2,455	2,620	3,009	39%	18%
Sunflower oil	1,957	2,078	2,139	2,092	2,155	10%	13%
Palm oil	1,689	1,830	1,925	2,009	2,120	26%	12%
Soybean oil	2,029	2,026	1,878	1,880	1,835	-10%	11%
Olive oil	1,484	1,404	1,581	1,701	1,668	12%	10%
Butter, as fat	1,425	1,522	1,475	1,509	1,534	8%	9%
Lard	1,295	1,330	1,302	1,391	1,462	13%	9%
Tallow & Grease	1,424	1,405	1,382	1,370	1,304	-8%	8%
Coconut oil	637	615	690	802	559	-12%	3%
Palm kernel oil	317	377	397	394	497	57%	3%
Fish oil	546	441	360	215	272	-50%	2%
Corn oil	206	233	243	250	239	16%	1%
Groundnut oil	174	169	173	153	151	-13%	1%
Linseed oil	99	122	145	156	147	48%	1%
Cotton oil	101	123	136	131	115	14%	1%
Castor oil	104	108	120	118	96	-8%	1%
Sesame oil	2	1	1	1	2	0%	0%
Total	15,650	16,138	16,403	16,793	17,164	10%	100%
of which:							
Indonesian palm oil	935	943	1,241	802	1,002	7%	6%
Indonesian PKO	222	236	334	303	362	63%	2%

Source: Oil World Annual 2000, ISTA Mielke, Hamburg, May 2000.

Palm oil and palm kernel oil are the fastest growing edible oils on the European market. Palm oil has replaced soybean oil as the third largest oil, and now has a 12% market share. Palm kernel oil has an additional 3% market share.

Most of these edible oils are used to manufacture the same products as palm oil and PKO are used for. The different oils and fats are to a large extent interchangeable. Unilever, Europe's largest margarine manufacturer, for instance combines palm oil, coconut oil, soybean oil and rapeseed oil in its famous Blue Band margarine. The proportions can be changed, based on price differentials.¹⁵

And to make it even more complicated: not all palm oil and PKO used in the European food industry is originating from Indonesia. Indonesian palm oil and PKO together account for only 8% of all edible oils used by the EU final processing industries. Probably, the final processing industries will often not know the producing country of the palm oil they are using. In the trading and refining stages, different cargoes from different countries will get mixed and blended.

For these reasons it is very difficult to identify the amounts of Indonesian palm oil and PKO used by a certain food company.

Table 3.15 presents some large European producers of margarine, mayonnaise, cooking oil, frying fat, chips, confectionery, snacks, baby food, biscuits and coffee-whitener, which use palm oil and PKO for these products. Which part of their palm oil and PKO usage originates from Indonesia, however is uncertain.

Table 3.15: European food companies		
Company	Country of origin	Products
Cadbury	United Kingdom	Confectionery
Danone	France	Margarine, biscuits
Eridania Béghin-Say	France	Cooking oil
Eulip	Italy	Margarine
Kinder	Italy	Confectionery
Matthews	United Kingdom	Margarine
Milka	Germany	Confectionery
Nestlé	Switzerland	Confectionery, ice cream, baby food
Oetker	Germany	Pastry
Smilde	Netherlands	Margarine, frying fat
Star	Italy	Cooking oil
Unigrá	Italy	Margarine
Unilever	UK/Netherlands	Margarine, cooking oil, spreads, snacks, ice cream
United Biscuits	United Kingdom	Biscuits
Van Dijk	Netherlands	Margarine, frying fat, cooking oil
Vandemoortele	Belgium	Cooking oil, margarine

Source: Company reports.

Table 3.16 presents some large European cosmetics & detergents producers, which use oil palm-derived ingredients in their products. If some of these oil palm-derived ingredients are originating from Indonesia, is however not certain.

Table 3.16: European cosmetics & detergents producers		
Company	Country of origin	Products
Beiersdorf	Germany	Cosmetics
Henkel	Germany	Detergents
L'Oreal	France	Cosmetics
Unilever	UK/Netherlands	Cosmetics, detergents

Source: Company reports.

To assess the extent of the involvement in the Indonesian oil palm production chain of the EU final processing companies listed in the tables 3.15 and 3.16, more research is needed in the second phase of this research project.

Some indications on which final EU final processing industries could be involved, are provided by the figures on the imports of Indonesian oil palm-products by the various European countries. These figures are presented in the next three tables.

Table 3.17: Imports of Indonesian palm oil by EU-countries (in 1,000 MT)						
Country	1995	1996	1997	1998	1999	Share
Netherlands	258	244	376	282	269	36%
Germany	189	218	288	183	155	21%
United Kingdom	150	131	130	126	125	17%
Spain	60	66	100	71	80	11%
Italy	?	113	99	45	64	8%
Belgium/Luxemburg	77	73	54	50	33	4%
France	3	5	5	6	13	2%
Greece	4	19	14	13	8	1%
Portugal	9	12	9	10	5	1%
Sweden	2	2	6	1	1	0%
Austria	0	0	0	0	1	0%
Denmark	16	16	16	16	0	0%
Ireland	2	0	0	0	0	0%
Total EU imports from Indonesia	770	899	1.097	803	754	100%
Total Indonesian exports to EU	935	943	1,241	802	1,002	
Difference	165	44	144	-1	248	
Non-EU country:						
Switzerland	4	3	2	1	2	

Source: Oil World Annual 2000, ISTA Mielke, Hamburg, May 2000.

Table 3.17 shows the import figures for Indonesian palm oil (crude and refined) by the different EU-countries. The total EU import figure is compared with the total palm oil export by Indonesia to the EU, as reported in the tables 3.3 and 3.6. There seems to be a structural gap between the two figures, except for the year 1998. EU imports of palm oil from Indonesia seem to be structurally lower than Indonesian palm oil exports to the EU.

This difference can be explained partially by re-exports of Indonesian palm oil to countries outside the EU. The other explanation is that Germany and especially the Netherlands import much more palm oil from Indonesia than is reported in table 3.17. A large part of these imports is transported to other countries, which sometimes qualify these imports as "German" or "Dutch" palm oil.

So the figures of table 3.17 should be seen as indicative, usage of Indonesian palm oil in a specific country could be higher. Nevertheless, the figures clearly indicate that the Netherlands, Germany, the United Kingdom and Spain are the largest users of Indonesian palm oil in the EU. As the figures in table 3.17 include crude palm oil as well as refined palm oil, this means we should look for refineries as well as for final processing industries in these countries.

It is important to note however that the figures in table 3.17 do not refer to final consumption of Indonesian palm oil by end-users. European refineries processing crude palm oil from Indonesia, can export the refined palm oil tot final processing industries inside and outside the EU. And final processing industries using refined Indonesian palm oil, can also exports their products inside and outside the EU. The final consumption of Indonesian palm oil by end-users is therefore probably much more dispersed in the EU then the figures of table 3.17 suggest.

Table 3.18: Imports of Indonesian PKO by EU-countries (in 1,000 MT)						
Country	1995	1996	1997	1998	1999	Share
Germany	86	101	116	93	148	46%
Netherlands	40	52	62	81	99	31%
Spain	24	19	22	22	19	6%
United Kingdom	15	15	20	19	17	5%
Italy	?	16	16	9	12	4%
France	7	14	10	7	10	3%
Belgium/Luxemburg	13	18	11	13	8	3%
Denmark	6	6	9	7	5	2%
Greece	0	1	3	2	1	0%
Sweden	2	0	0	0	0	0%
Total EU imports from Indonesia	193	242	269	253	319	100%
Total Indonesian exports to EU	222	236	334	303	362	
Difference	29	-6	65	50	43	
Non-EU country:						
Switzerland	2	1	2	1	1	

Source: Oil World Annual 2000, ISTA Mielke, Hamburg, May 2000.

As is the case with Indonesian palm oil, the EU imports of Indonesian PKO seem to be structurally lower then the Indonesian exports of PKO to the EU (see table 3.4). Again, this difference is explained by re-exports for the EU, and by wrongly labelled intra-EU trade. So the figures of table 3.18 should be seen as indicative, usage of Indonesian PKO in a specific country could be higher.

The figures in table 3.18 do however indicate clearly that the usage of Indonesian PKO in the EU is mainly concentrated in Germany and the Netherlands. As the figures in table 3.18 include crude PKO as well as refined PKO, this means we should look for refineries as well as for final processing industries in these countries.

Table 3.19: Imports of Indonesian PKM by EU-countries (in 1,000 MT)						
Country	1995	1996	1997	1998	1999	Share
Netherlands	159	159	196	245	315	44%
Germany	100	111	198	125	236	33%
United Kingdom	34	58	86	78	78	11%
Ireland	34	15	11	30	45	6%
Spain	11	3	8	4	23	3%
Sweden	2	2	1	4	7	1%
Belgium/Luxemburg	4	14	2	10	6	1%
France	0	1	11	6	5	1%
Italy	6	6	1	3	2	0%
Total EU imports from Indonesia	350	369	514	505	717	100%
Total Indonesian exports to EU	455	539	555	572	716	
Difference	105	170	41	67	-1	
Non-EU country:						
Switzerland	0	0	0	0	0	

Source: Oil World Annual 2000, ISTA Mielke, Hamburg, May 2000.

As is the case with Indonesian palm oil and PKO, the EU imports of Indonesian PKM seem to be structurally lower than the Indonesian exports of PKM to the EU (see table 3.5). Again, this difference is explained by re-exports for the EU, and by wrongly labelled intra-EU trade. So the figures of table 3.19 should be seen as indicative, usage of Indonesian PKO in a specific country could be higher.

The figures in table 3.19 do however indicate clearly that the usage of Indonesian PKO in the EU is mainly concentrated in the Netherlands, Germany and the United Kingdom. We should therefore look for feed producers in these countries.

3.8 Retail chains

Food products, cosmetics & detergents containing Indonesian palm oil or PKO, will reach the consumer through the retail sector. Most of these products will be sold in supermarkets. The largest supermarket chains in Europe are listed in the following table.

Table 3.20: European supermarket chains		
Company	Country of origin	Sales in 1999 (€ billion)
Carrefour	France	51.9
Metro	Germany	43.8
Ahold	Netherlands	33.6
Tesco	United Kingdom	18.8
J. Sainsbury	United Kingdom	16.3
Casino	France	15.6
Tegut	Germany	
Aldi	Germany	
Lidl	Germany	
Safeway	United Kingdom	
Delhaize	Belgium	
Migros	Switzerland	
Laurus	Netherlands	

Source: Europe Retail: Industry Overview, F. Caron, Dresdner Kleinwort Benson, London, 11 August 2000.

3.9 Financial institutions

As already explained in chapter 2, financial institutions will play a more important role in the oil palm production chain than in other agricultural production chains. Oil palms only yield their first crop after three years, which means that none of the costs made by a new plantation company in the first three years can be financed from its own cash-flow.

A new plantation therefore needs relatively much capital, which can be paid off only after some years. Plantation companies in Indonesia borrow on average 77% of the total establishment costs of a new plantation.¹⁶ Financial institutions providing this capital, will consequently have a fairly strong influence on the (environmental) policies of the plantation company.

For this reason we will focus in this paragraph on the role played by financial institutions from the EU in financing Indonesian oil palm plantations. Financial institutions also play a role in financing other stages of the oil palm production chain, but in these stages their influence on the environmental performance of oil palm plantations will be much smaller.

Table 3.21 provides an overview of the European financial institutions which have been substantially involved in financing Indonesian oil palm plantations.

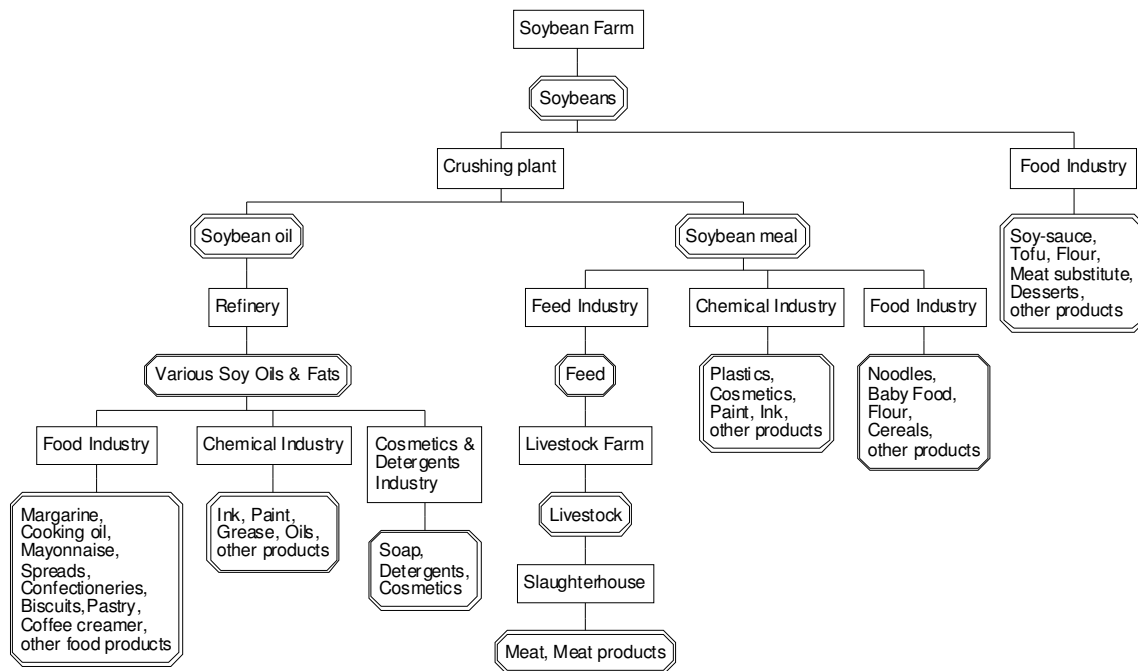
Table 3.21: European financial institutions and Indonesian plantations		
Financial group	Country of origin	Indonesian oil palm plantation customers
ABN AMRO Bank	Netherlands	Sinar Mas, Astra, London Sumatra
ING	Netherlands	Sinar Mas, Johor, Lyman, Raja Garuda Mas, Salim, London Sumatra
Rabobank	Netherlands	London Sumatra, Bakrie, Sinar Mas, Johor, Raja Garuda Mas, Oriental, Carson Cumberbatch
Fortis	Netherlands	Sipef
FMO	Netherlands	Sinar Mas
ABP / PGGM	Netherlands	Sinar Mas
Banque Paribas	France	Astra
Crédit Lyonnais	France	Sinar Mas, Bakrie
BNP	France	Oriental, Sinar Mas, Sungai Budi
Crédit Agricole	France	London Sumatra
Lazard Frères	France	London Sumatra
Société Generale	France	Johor, Bakrie, Sinar Mas, Astra
Union Europeenne	France	Sinar Mas, Raja Garuda Mas
Indosuez Bank	France	London Sumatra
DKB	Germany	Astra, Sinar Mas
Deutsche Bank	Germany	Bakrie
DEG	Germany	Lyman, Rowe Evans
Dresdner Bank	Germany	Bakrie, Johor
Commerzbank	Germany	London Sumatra, Johor, Bakrie, Sinar Mas
Bayerische Landesbank Girozentrale	Germany	Oriental, Johor
UBS	Switzerland	London Sumatra, Raja Garuda Mas
Crédit Suisse	Switzerland	Salim, Bakrie, London Sumatra, Johor, Sinar Mas
HSBC	United Kingdom	Sinar Mas, London Sumatra, Bakrie, Anglo-Eastern
CDC	United Kingdom	Carson Cumberbatch
Royal Bank of Scotland	United Kingdom	Raja Garuda Mas
NatWest	United Kingdom	Sinar Mas
Union Bank of Finland	Finland	Raja Garuda Mas
Banco di Napoli	Italy	Sinar Mas

Source: Funding Forest Destruction - The Involvement of Dutch Banks in the Financing of Oil Palm Plantations in Indonesia, Research commissioned by Greenpeace Netherlands, Eric Wakker, Jan Willem van Gelder and Telapak Sawit Research Team, AIDEnvironment, Amsterdam, March 2000; Press reports.

Chapter 4 The soybean production chain

4.1 Overview of the soybean production chain

In this chapter the soybean production chain, from soybean to end-consumer, will be described systematically.¹⁷ The following diagram gives a schematic overview of this soybean production chain.



Source: 2000 Soya & Oilseed Bluebook, Soyatech Inc., Bar Harbor, June 2000, p. 394.

The following paragraphs will describe the principal stages in the soybean production chain, as shown in the figure above.

4.2 Soybean farms

The soybean can be grown in moderate, sub-tropical and tropical climates. The soybean is an annual crop, and is grown on family farms as well as on plantations. It is important to note that these farms and plantations generally grow other crops as well, in a crop rotation scheme intended to prevent plant diseases and soil exhaustion. A very attractive aspect of growing soybeans from an agricultural point of view, is that the crop ties up nitrogen in the soil. As most crops need extra nitrogen to perform well, growing soybeans means that the consequent crop needs less fertilizer input.

When prices are high, farmers will grow soybean more often in their rotation scheme. But when prices are low, they will shift to another crop. This means that the global output of soybeans will react more strongly and more quickly to changes in world market prices than is possible for oil palm.

The global average yield per hectare of soybeans is 2.2 tonnes. But there are important differences between countries. Italian farmers on average record the highest yield: 3.4 tonnes per hectare. The largest producing countries in the world are summarized in table 4.1.

Country	1995/96	1996/97	1997/98	1998/99	1999/00	Growth	Share
United States	59,175	64,781	73,177	74,599	71,929	22%	46%
Brazil	23,872	27,327	32,665	31,377	31,200	31%	20%
Argentina	12,448	11,000	19,900	20,400	20,700	66%	13%
China	13,300	13,220	14,728	15,000	14,300	8%	9%
India	4,350	4,028	5,150	5,300	4,900	13%	3%
Canada	2,293	2,170	2,738	2,737	2,766	21%	2%
Paraguay	2,395	2,670	2,856	3,000	2,750	15%	2%
Indonesia	1,689	1,517	1,357	1,306	1,350	-20%	1%
Bolivia	887	862	1,038	950	970	9%	1%
Italy	638	770	1,124	1,192	820	29%	1%
Others	3,546	3,705	3,830	4,062	4,239	20%	3%
World total	124,593	132,050	158,563	159,923	155,924	25%	100%

Source: Oil World Annual 2000, ISTA Mielke, Hamburg, May 2000.

Table 4.1 shows that the soybean production in the world has risen with 25% in the past five years, with the strongest growth recorded in Argentina, Brazil and Italy. But the last three years, the global soybean production shows signs of stagnation.

The United States is the largest producer in the world, with a fairly stable market share of 46%. However, the production growth of its main competitors - Brazil (20%) and Argentina (13%) - is stronger.

4.3 Soybean traders

After the harvest, the soybeans are bought, collected and transported to crushing plants or food industries. These stages in the production chain are the domain of the soybean traders, which can vary from small, local companies to large, international conglomerates. The small, local traders usually will sell the soybeans to a crushing plant or food industry in their own region, or to a large, international trader. The large, international traders sell the soybeans to crushing plants all over the world, in production and consumption countries. Often these crushing plants are owned by the same international trading group.

Of the total world soybean production, around 88% is crushed. The other 12% is used as seed, or processed as a whole bean by some specific food industries. Products derived from the whole soybean are soy-sauce, tofu, and other meat and dairy substitutes.

4.4 Crushing plants

In the crushing plant, the soybeans are crushed. Crushing yields two products: soybean oil and soybean meal. As the oil content of the soybean is not very high, mechanical crushing - as is used for rapeseed, sunflowerseed and palm kernels - does not yield enough oil.

Therefore a solvent extraction process is used, during which the oil is leached or washed from flaked oilseeds by the use of hexane. This process reduces the residual oil in the soybean meal to as little as 1%. As hexane is very explosive, this process needs extensive safety measures.

By crushing around 79% of the soybean is processed into meal. This meal is often toasted, dried and grinded. The end-product is a very protein-rich (over 50%) meal, which is a favoured ingredient for livestock compound feed. As it has a low cellulose percentage, it is also suited for single stomached animals such as pigs and poultry.

Around 18% of the soybean is processed into oil, which is used by the food industry and other final processing industries. (After the crushing process, 3% of the soybean input is left as waste).

Although the price of soybean oil per tonne is higher than that of soybean meal, the large meal-content of the soybean means that around 70% of soybean crushing revenues is derived from soybean meal. This means that the world demand for soybeans is mainly driven by the compound feed industry (and ultimately: the meat processing industry). This contrasts with the world demand for palm oil, which is mainly driven by the food industry.

Crushing plants can be dedicated solely to crushing soybeans, but often they also crush other oilseeds. A crushing plant can be located near a soybean growing area, near a harbour in a soybean producing country, or within a soybean consuming market. The location choice depends mainly of:

- **Logistic costs:** crushing near the growing area reduces transport costs, as you don't have to transport worthless residues and you can transport soybean meal and soybean oil directly to different end user region;
- **Crushing costs:** which depend mainly on the scale of the plant, the technology applied and the capacity utilisation;
- **Taxes:** by specific import and export taxes some countries try to stimulate their own crushing industry.

Table 4.2 gives an overview of the largest soybean crushing countries in the world, and the relationship with their domestic soybean production. In all important production countries the amount crushed is lower than the domestic production. But there are important differences. Especially in the United States and Brazil the amount crushed is much lower than domestic production, which indicates that these countries are the main suppliers for crushing plants in other countries without an important domestic production. Among these, the European Union, Japan, and Mexico are the most important.

Country	Production	Crushing	Share	Production/crushing
United States	71,929	43,280	31%	166%
Brazil	31,200	22,250	16%	140%
Argentina	20,700	17,200	12%	120%
European Union	1,162	15,670	11%	7%
China	14,300	13,350	10%	107%
India	4,900	4,260	3%	115%
Japan	169	3,720	3%	5%
Mexico	125	3,700	3%	3%
Others	11,439	14,490	11%	79%
World total	155,924	137,920		113%

Source: Oil World Annual 2000, ISTA Mielke, Hamburg, May 2000.

4.5 Refineries

The soybean oil produced by a crushing plant, is further processed in a refinery. The processing of soybean oil in refineries can include refining, bleaching, deodorizing, splitting, fractioning and hydrogenating. These processes result in numerous forms of oils and fats, each with their own chemical and physical properties and each with their own applications in the food and chemical industries.

Compared to palm oil, soy bean oil in pure form is less saturated (20 vs. 50%). For use in food, soybean oil needs more often hydrogenation than palm oil. This increases the processing costs of soybean oil.

4.6 Final processing industries

The soybean production chain yields three intermediate products:

- Whole soybeans 12% of total world crop
- Soybean oil 16% of total world crop
- Soybean meal 70% of total world crop

Some whole soybeans are used as seed for the next year, but essentially these three intermediate products are processed in four different final processing industries:

- **Food industry:** The food industry uses whole soybeans to produce soy-sauce, tofu, and other meat substitutes. Soybean oil is mainly used for table oil, but also for products like mayonnaise, margarine, and other oil and fat containing food products, like confectioneries, pastry, snacks and coffee whitener. Soybean meal is used for noodles, baby food, flour, cereals, and other products.
- **Compound feed industry:** The compound feed industry blends soybean meal with other meals and other components, to produce for the livestock industry. As soybean meal is very rich of proteins and a low percentage of raw cellulose, it is especially suited for compound feed for single stomached animals such as pigs and poultry.
- **Cosmetics industry:** Soybean oil is used by the cosmetics and detergents industry in the preparation of products like cosmetics, detergents, and soap. Soybean meal is used for cosmetics, and other products.
- **Chemical industry:** Soybean oil is used by the chemical industry in the preparation of products like paint, lacquer, soy diesel, and soy ink. Soybean meal is used for paint, ink, plastics, pharmaceuticals, and other products.

Globally, these industries increasingly use soybean oil and soybean meal. Soybean oil is the most consumed edible oil in the world, as is shown in table 4.3. It is still increasing its market share (now 23%), because its consumption is growing faster than that of all other edible oils (except for palm oil and palm kernel oil).

Oil type	1995	1996	1997	1998	1999	Growth	Share
Soybean oil	19,436	20,442	21,523	23,721	24,589	27%	23%
Palm oil	14,710	16,028	17,619	17,553	19,276	31%	18%
Rapeseed oil	10,650	11,618	11,704	12,191	12,990	22%	12%
Sunflower oil	8,462	8,800	9,402	8,641	9,222	9%	9%
Tallow & Grease	7,466	7,561	7,429	7,727	8,194	10%	8%
Lard	5,637	5,908	6,099	6,473	6,635	18%	6%
Butter, as fat	5,727	5,663	5,724	5,755	5,816	2%	5%
Groundnut oil	4,303	4,501	4,535	4,544	4,734	10%	4%
Cotton oil	3,862	4,133	4,023	4,078	3,832	-1%	4%
Coconut oil	3,247	2,923	3,089	3,196	2,805	-14%	3%
Palm kernel oil	1,932	2,039	2,207	2,160	2,530	31%	2%
Olive oil	2,037	1,946	2,297	2,420	2,375	17%	2%
Corn oil	1,830	1,868	1,865	1,924	1,987	9%	2%
Fish oil	1,391	1,381	1,240	888	1,172	-16%	1%
Linseed oil	694	653	702	678	711	2%	1%
Sesame oil	588	670	722	723	691	18%	1%
Castor oil	466	471	474	442	427	-8%	0%
Total	92,438	96,605	100,654	103,114	107,986	17%	100%

Source: Oil World Annual 2000, ISTA Mielke, Hamburg, May 2000.

The main soybean oil consuming countries and regions are listed in table 4.4. It is important to note that the consumption figures in these tables refer to the countries and regions in which the final processing industries are located. The products of these final processing industries can of course be exported to end-users in other countries and regions. The EU margarine industry for instance exports relatively much margarine to Eastern Europe and the Former Soviet Union.

Country/region	1995	1996	1997	1998	1999	Growth	Share
United States	5,909	6,199	6,564	6,937	7,186	22%	29%
China	2,348	2,723	3,029	3,209	2,789	19%	11%
Brazil	2,482	2,677	2,640	2,814	2,776	12%	11%
EU	2,029	2,026	1,878	1,880	1,835	-10%	7%
India	688	694	719	1,183	1,606	133%	7%
Mexico	435	487	586	650	683	57%	3%
Taiwan	505	488	491	486	462	-9%	2%
Bangladesh	314	272	258	332	456	45%	2%
Former S.U.	120	119	184	256	419	249%	2%
Others	4,606	4,757	5,174	5,974	6,377	38%	26%
Total	19,436	20,442	21,523	23,721	24,589	27%	100%

Source: Oil World Annual 2000, ISTA Mielke, Hamburg, May 2000.

Table 4.4 shows that the United States are the most important soybean oil consuming country in the world, with a market share of 29%. Consumption in the EU and Taiwan is declining, but strong growth is occurring in India, Mexico, and the Former Soviet Union.

With a market share of 56%, soybean meal is the most consumed oilmeal in the world by far, as is shown in table 4.5. It is still increasing its market share, because its consumption is growing faster than that of all other edible oils (except for palm kernel meal).

Oil type	1995	1996	1997	1998	1999	Growth	Share
Soybean meal	88,022	89,740	92,585	102,266	107,452	22%	56%
Rapeseed meal	17,017	17,769	18,480	19,059	20,298	19%	11%
Cotton meal	15,037	16,011	15,862	15,747	15,389	2%	8%
Corngluten feed	13,231	12,960	13,310	13,787	14,079	6%	7%
Sunflower meal	10,205	10,589	10,915	10,281	10,959	7%	6%
Groundnut meal	6,343	6,394	6,416	6,447	6,825	8%	4%
Fish meal	6,787	6,403	6,295	4,987	5,521	-19%	3%
Corngerm meal	3,027	3,014	3,132	3,101	3,238	7%	2%
Palm kernel meal	2,375	2,526	2,762	2,747	2,970	25%	2%
Linseed meal	1,330	1,294	1,312	1,355	1,399	5%	1%
Copra meal	1,939	1,628	1,860	1,836	1,377	-29%	1%
Sesame meal	739	834	909	921	873	18%	0%
Total	166,052	169,162	173,838	182,534	190,380	15%	100%

Source: Oil World Annual 2000, ISTA Mielke, Hamburg, May 2000.

The main soybean meal consuming countries and regions are listed in table 4.6.

Country/region	1995	1996	1997	1998	1999	Growth	Share
United States	24,275	24,393	24,957	26,409	27,840	15%	26%
EU	25,614	23,282	21,968	26,216	27,788	8%	26%
China	5,403	8,063	10,529	11,787	11,099	105%	10%
Brazil	4,933	5,092	5,084	5,924	6,431	30%	6%
Japan	3,672	3,590	3,667	3,685	3,736	2%	3%
Mexico	2,194	2,372	2,479	2,766	3,012	37%	3%
Eastern Europe	2,568	2,735	2,461	3,060	2,769	8%	3%
Canada	1,646	1,627	1,760	1,899	2,010	22%	2%
Thailand	1,220	1,259	1,632	1,733	1,997	64%	2%
Others	16,497	17,327	18,048	18,787	20,770	26%	19%
Total	88,022	89,740	92,585	102,266	107,452	22%	100%

Source: Oil World Annual 2000, ISTA Mielke, Hamburg, May 2000.

Table 4.6 shows that the United States and the European Union are the largest consumers of soybean meal, with a market share of 26% each. But especially in the EU, growth is slowing down. The strongest growth is taking place in China and Thailand.

4.7 Retail chains

The products mentioned above which are manufactured by the food and chemical industries, reach individual consumers through the retail industry. This is also true for compound feed, after it is used to raise livestock which consequently is processed into meat and meat products by slaughterhouses.

4.8 Financial institutions

Financial institutions - banks, credit agencies, insurance companies, pension funds, and mutual funds - will play a role in all stages of the soybean production chain, as almost all companies in the world use capital provided by financial institutions. This capital can be provided in two ways:

- **Equity:** Equity is sold in the form of shares. Financial institutions and individuals buying shares, become co-owners of the company. A shareholding gives right to an annual dividend, but can also increase in value when the company performs well. Equity is generally provided by insurance companies, pension funds, mutual funds, and private investors, but not by banks. (Investment) Banks however play an essential role in finding investors willing to buy the shares of a certain company.
- **Debt:** Debt is capital which is borrowed by the company. The creditor (provider of debt) does not become co-owner of the company, but is entitled to a fixed interest and to repayment of the debt. Debt is often provided by banks and credit agencies, in the form of trade credits and (syndicated) loans. But debt can also be provided by insurance companies, pension funds, mutual funds, and private investors, in the form of bonds or notes. Bonds and notes are tradable pieces of debt. Banks usually don't buy bonds, but to issue bonds a company does need the help of an (investment) bank.

Financial institutions will play a less important role in the first, agricultural stage of the soybean production chain than is the case in the oil palm agricultural production chain. The growing of soybeans needs less capital input than the growing of oil palms, as soybean are an annual crop.

Chapter 5 The EU and the Brazilian soybean production chain

5.1 Introduction

In this paragraph we will describe the Brazilian soybean production chain and its relations with the European Union into more detail. The aim of this description is to identify the actors in the European Union (EU) which could influence developments in the Brazilian soybean sector in an environmentally sensible way. We will look subsequently at the different stages of the production chain, as defined in the preceding chapter.

5.2 Soybean farms

Soybean farmers in Brazil vary considerable in size. There are many family farms growing soybeans, sometimes cooperating in cooperatives. But there are also some very large plantations. Information on some of the largest producers is presented in table 5.1.

Group	Acreage (1.000 ha)	Annual Production (MT)
Itamarati		
Andre Maggi	150,000	1,000,000
Camilas cooperative		40,000

Sources: International Financing Review, London, 3 August 1996; Coopersul to Take Out R\$20mil-worth Loan, Gazeta Mercantil, São Paulo, 9 July 1998; Brazil Takes Aim at World's Soybean Markets, Journal Star, Peoria - Illinois, 1 February 2000.

Table 5.2 does provide an overview of the total harvested acreage and of the total production volume in Brazil during the last five years.

	1995/96	1996/97	1997/98	1998/99	1999/00	Growth
Acreage (1,000 ha)	10,700	11,600	13,260	13,008	13,327	25%
Production (1,000 MT)	23,872	27,327	32,665	31,377	31,200	31%

Source: Oil World Annual 2000, ISTA Mielke, Hamburg, May 2000.

As table 5.2 shows, the harvested soybean acreage in Brazil increased with 25% in the past five years. Total production even increased more, indicating a growth in productivity.

5.3 Soybean traders

Soybean trading in Brazil is dominated by a few large, international traders: Cargill, Bunge and ADM of the United States, André of Switzerland and Louis Dreyfus of France. Part of the soybean farmers deliver their harvest directly to these large international traders: Others deal with intermediate traders, who deliver eventually to the large international trading houses. The large, international traders have the possibility to crush the soybeans in their Brazilian crushing plants, or to ship them to crushing plants overseas. Apart from the Brazilian harvest, Brazil also imports some soybeans from other countries (mainly Paraguay).

Table 5.3 gives an overview of the availability of soybeans on the Brazilian market during the last five years. As the table shows, imports form only a limited part of the total supply (1 to 5%).

Table 5.3: Soybean supply on the Brazilian market (in 1.000 MT)						
	1995	1996	1997	1998	1999	Growth
Production	26,068	23,872	27,327	32,665	31,377	20%
Total imports	878	937	1.446	406	582	-34%
Total supply	26.946	24.809	28.773	33.071	31.959	19%
Import as % of supply	3%	4%	5%	1%	2%	

Source: Oil World Annual 2000, ISTA Mielke, Hamburg, May 2000.

The trading houses split the total supply into three directions:

- domestic crushing
- exports
- processing of whole soybeans, into seeds or food products

Table 5.4 gives an overview of the amounts traded in the three directions mentioned.

Table 5.4: Brazilian soybean crushing, processing and exports (in 1.000 MT)						
	1995	1996	1997	1998	1999	Growth
Supply	26,946	24,809	28,773	33,071	31,959	19%
Domestic crushing	21,309	20,440	18,885	21,873	21,476	1%
Processing of whole soybeans	1,500	1,528	1,576	1,591	1,601	7%
Export	3,673	3,647	8,340	9,287	8,917	143%
Export as % of supply	14%	15%	29%	28%	28%	105%
Export to EU	3,058	2,991	5,609	6,348	6,908	126%
Export to EU as % of total export	83%	82%	67%	68%	77%	

Source: Oil World Annual 2000, ISTA Mielke, Hamburg, May 2000.

As table 5.4 shows, the amount of soybeans crushed domestically and the amount of whole soybeans processed domestically, stayed roughly equal during the last five years. The growth of supply (+19%) was completely absorbed by strongly increased exports (+143%). The export percentage of the total supply, doubled from around 15% to almost 30%. Exports to the EU more than doubled in the past five years and the EU still is the largest exportmarket by far, although it lost some market share in the last five years (from around 83% to 77%). The next important export market is China (7%).

The remarkable growth in soybean exports from Brazil was caused by the abolishment at the end of 1996 of the Brazilian value added tax system on exports of soybeans, oils and meals. This made export of soybeans relatively more attractive than local crushing. As production costs for soybeans in Brazil are 11% under the world average, Brazilian soybeans have a competitive advantage over US soybeans (which production costs are 7% above world average). After the abolishment of Brazilian taxes, Brazilian soybeans therefore became relatively more attractive to overseas markets. It depends on the difference in transport costs however, how large this competitive advantage for export to a given export market will be.¹⁸

5.4 Crushing plants

Most Brazilian soybeans exported to the EU, are being crushed in the EU. We will look at EU crushing plants in the second part of this paragraph.

First, we will look at the Brazilian crushing industry, as part of their output is also exported to the EU. There are more than hundred soybean crushing plants in Brazil, with a total capacity of 44 million tonnes per year. With annual crushing of 21.5 million tonnes in 1999, capacity utilisation is low.¹⁹

The largest crushing plants are owned by the large trading groups mentioned in the preceding paragraph. Details are provided in table 5.5.

Company	Parent company	Country of origin	Capacity (MT/day)
Ceval Alimentos	Bunge	United States	23,100
Coinbra	Louis Dreyfus	France	8,000
ADM	ADM	United States	
Cargill	Cargill	United States	5,600
Refinadora de Oleos Brasil	André	Switzerland	
Braswey			2,700
Sadia Concórdia			2,560
COAMO			2,000
Total for Brazil			120,910

Sources: The World of Edible Oils, H.D. Glaudemans, M.M.J. Timmermans and H. Rijkse, Rabobank Food and Agriculture Research department, Utrecht, August 1998; 2000 Soya & Oilseed Bluebook, Soyatech Inc., Bar Harbor, June 2000; Company reports.

Ceval Alimentos S.A. is the largest soybean crusher in Brazil, with a market share of 31%.²⁰ The first five companies mentioned in table 5.5, together have a 51% market share on the Brazilian crushing market. Their dominant market share has been quickly built during the 1990s through the acquisition of local companies.²¹

In the early 1990s, crushing costs in Brazil were 16% above world average, while crushing costs in the EU were 7% below world average. The difference is mainly caused by a higher volume throughput, high capacity utilisation, and low cost logistics. Since Brazilian taxes on soybeans were abolished at the end of 1996, this cost differential favours crushing in Europe over crushing in Brazil.

However, during the 1990s international soybean traders have invested heavily in the Brazilian crushing industry and its logistics. Over time, this can make crushing in Brazil more favourable again.

Another important factor which favours EU crushing over Brazilian crushing, is the import tariff of 8.8% applied by the EU on soybean oil. Under the WTO agreement, this import tariff will be gradually reduced to 6.4%, making Brazilian crushing more attractive again.²²

The Brazilian crushing plants yield soybean meal and soybean oil, but only soybean meal is exported to the EU. Figures are provided in tables 5.6 and 5.7.

Table 5.6: Export of Brazilian soybean meal (in 1.000 MT)						
	1995	1996	1997	1998	1999	Growth
Domestic crushing	21,309	20,440	18,885	21,873	21,476	1%
Production of soybean meal	16,710	16,077	14,741	17,167	16,742	0%
Export of soybean meal	11,563	11,226	10,013	10,780	10,911	-6%
Export as % of production	69%	70%	68%	63%	65%	
Export to EU	8,848	6,698	6,702	7,715	8,097	-8%
Export to EU as % of total export	77%	60%	67%	72%	74%	

Source: Oil World Annual 2000, ISTA Mielke, Hamburg, May 2000.

As domestic crushing is stagnating, the production of soybean meal also is constant. Export of soybean meal is declining slowly, as domestic consumption increases. But still 65% of Brazilian soybean meal production is exported.

Although exports to the EU have declined with 8% in the past five years, the EU still is the largest export market (market share 74%). Other important export markets are South Korea (5%) and Japan (4%).

The declining export of Brazilian soybean meal to the EU corresponds with the increasing export of Brazilian soybeans to the EU (see table 5.4): market circumstances have been more favourable for exporting soybeans to the EU and crushing there, instead of crushing in Brazil and exporting soybean meal to the EU. As pointed out, this situation can change when the EU import tariff on soybean oil is reduced, and the Brazilian crushing industry becomes more mature and more cost efficient.

Table 5.7: Export of Brazilian soybean oil (in 1.000 MT)						
	1995	1996	1997	1998	1999	Growth
Domestic crushing	21,309	20,440	18,885	21,873	21,476	1%
Production of soybean oil	4,015	3,861	3,544	4,163	4,106	2%
Export of soybean oil	1,764	1,332	1,126	1,411	1,580	-10%
Export as % of production	44%	34%	32%	34%	38%	
Export to EU	0	0	0	14	30	
Export to EU as % of total export	0%	0%	0%	1%	2%	

Source: Oil World Annual 2000, ISTA Mielke, Hamburg, May 2000.

As domestic crushing is stagnating, the production of soybean oil also is fairly constant. Export of soybean oil is declining slowly, as domestic consumption increases. Compared with the export of Brazilian soybean meal, a smaller part of Brazilian soybean oil production is exported (38% vs. 65%).

The most important export markets for Brazilian soybean oil are Iran (49%) and India (21%). Almost no soybean oil is being exported to the EU (a market share of 2%, but according to EU trade figures most import of Brazilian soybean oil is re-exported to countries outside the EU). This contrasts heavily with the situation for soybean meal (63% of total export to the EU). This leads to two conclusions:

- Brazilian crushing plants only play a role in supplying soybean meal to the European market. They almost don't supply soybean oil to the European food industry.
- Almost all Brazilian soybean oil used in the European food and chemical industries, is supplied by European crushing plants.

The European crushing industry has a total crushing capacity of approximately 30 million tonnes. Roughly 15 million tonnes of this soybean crushing, 13 million tonnes is soft seed (sunflowerseed and rapeseed) crushing, and the remainder is suitable for both types of seeds. The main European crushing companies are listed in table 5.8.

Table 5.8: European soybean crushing companies				
Parent company	Country of origin	Company	Plant location	Capacity (MT/day)
Cargill	United States	Cargill	Netherlands	3,300
		Cargill	United Kingdom	2,400
		Cargill	France	1,800
		Cargill	Italy	
		Cargill	Belgium	3,250
		Vamo Mills	France	1,500
ADM	United States	ADM	Netherlands	
		ADM	Germany	
Eridania Béghin-Say	France	Cereol	Netherlands	
		Cereol	Germany	
		Cereol	France	
		Eridania	Italy	7,200
		Moyresa	Spain (5)	3,800
Lucas Meyer	Germany	Edelsoja	Germany	
		Lucas Meyer	Spain	
Soya Mainz	Germany	Soya Mainz	Germany	2,500
Tagol	Portugal	Tagol	Portugal	2,500
O. & L. Sels	Germany	O. & L. Sels	Germany	2,100
Sojinal	France	Sojinal	France	2,000
Simsa	Spain	Simsa	Spain	2,000
Copaz	Portugal	Copaz	Portugal	900
Soya Hellas	Greece	Soya Hellas	Greece	750
Seed Crushers (Scotland)	United Kingdom	Seed Crushers (Scotland)	United Kingdom	650
Soya Mills	Greece	Soya Mills	Greece	540
Mildola	Finland	Mildola	Finland	500
EU Total				45,000

Sources: The World of Edible Oils, H.D. Glaudemans, M.M.J. Timmermans and H. Rijkse, Rabobank Food and Agriculture Research department, Utrecht, August 1998; 2000 Soya & Oilseed Bluebook, Soyatech Inc., Bar Harbor, June 2000.

Cargill and ADM together control almost 60% of the European crushing industry. Eridania Béghin-Say controls an additional 20%. These three players are in a process of rationalising their crushing capacity, closing down some factories, and increasing the utilisation rate of others. These percentages refer to all oilseed crushing in the EU (including soft seed crushing), but probably the domination of these three companies in the sub-sector of soybean crushing is just as strong.²³

Figures on the import of Brazilian soybeans by the various European countries (table 5.9), do provide an indication of the countries where most Brazilian soybeans are being crushed.

Table 5.9: EU import of Brazilian soybeans per country (in 1.000 MT)						
Country	1995	1996	1997	1998	1999	Share
Netherlands	961	1,076	1,466	1,611	1,758	27%
Germany	502	620	1,279	1,423	1,357	21%
Spain	667	502	922	984	1,342	21%
Belgium/Luxemburg	171	209	449	669	600	9%
United Kingdom	58	216	349	436	530	8%
Italy	171	277	428	424	347	5%
France	225	155	164	211	261	4%
Portugal	278	266	366	311	190	3%
Greece	0	0	29	76	64	1%
Finland	0	0	16	25	15	0%
Denmark	0	0	3	2	1	0%
Austria	0	5	4	0	0	0%
EU imports from Brazil	3,033	3,326	5,475	6,172	6,465	100%
Brazilian exports to EU	3,058	2,991	5,609	6,348	6,908	
Difference	25	-335	134	176	443	
Non-EU countries:						
Switzerland	43	34	61	50	57	

Source: Oil World Annual 2000, ISTA Mielke, Hamburg, May 2000.

Table 5.9 shows the import figures for Brazilian soybeans by the different EU-countries. The total EU import figure is compared with the total soybean export by Brazil to the EU, as reported in table 5.4. There seems to be a structural gap between the two figures, except for the year 1996. EU imports of soybeans from Brazil seem to be structurally lower than Brazilian soybean exports to the EU.

This difference can only be explained partially by re-exports of Brazilian soybeans to countries outside the EU. The other explanation is that some EU countries import much more soybeans from Brazil than is reported in table 5.9. A large part of these imports is transported to other countries, which sometimes qualify these imports as "German" or "Dutch" soybeans. So the figures of table 5.9 should be seen as indicative, usage of Indonesian palm oil in a specific country could be higher. Nevertheless, the figures clearly indicate that the largest importers of Brazilian soybeans in the European Union are the Netherlands, Germany, and Spain, followed by Belgium, the United Kingdom and Italy. Probably these countries are also the largest EU-crushers of Brazilian soybeans.

However, the EU soybean crushing industry does not only process Brazilian soybeans. Figures on total amounts crushed by the EU soybean crushing industry, are presented in table 5.10.

Table 5.10: EU crushing of soybeans (in 1.000 MT)						
	1995	1996	1997	1998	1999	Growth
EU soybean harvest	1,009	940	1,046	1,446	1,550	54%
EU soybean import	15,947	14,518	15,459	16,630	16,040	1%
% of import from Brazil	19%	21%	36%	38%	43%	
EU soybean export	43	30	57	73	55	28%
EU processing of whole soybeans	1,823	1,225	1,373	1,631	1,742	-4%
EU crushing	15,090	14,203	15,075	16,372	15,793	5%
Crushing as % of total supply	89%	92%	91%	91%	90%	

Source: Oil World Annual 2000, ISTA Mielke, Hamburg, May 2000.

As table 5.10 shows, total EU soybean imports are fairly stable. Domestic production of soybeans is strongly increasing, which accounts for the small growth in crushing (+5% in the last five years).

Around 90% of the total supply of soybeans to the EU market is crushed. Exports are minimal, and processing of whole soybeans takes up the remaining 10%.

Brazilian soybeans have doubled their market share on the EU market in the last five years, to 43% of total imports and 39% of total supply (including the EU's own soybean harvest). The growing import share of Brazilian soybeans reduced other soybean imports, mainly from the United States (which still have a market share of 46%).

Nevertheless: the major part of the soybean supply on the EU market comes from other sources. Within the crushing stage, statistics of trade flows of Brazilian soybeans therefore get mixed with statistics of trade flows of soybeans from other countries. This makes it impossible to trace the destination of soybean meal and soybean oil made from Brazilian soybeans in European crushing plants. Some of it is processed by the European compound feed industry (soybean meal) and the European food and chemical industry (soybean meal and oil), and some is exported. Tables 5.11 and 5.12 give an overview of the destination of all soybean meal and soybean oil which is supplied to the European market.

Table 5.11: EU trade balance for soybean meal (in 1.000 MT)						
	1995	1996	1997	1998	1999	Growth
EU soybean meal production	12,027	11,282	11,921	12,937	12,499	4%
EU soybean meal import	14,410	12,485	11,015	14,678	16,758	16%
EU soybean meal supply	26,437	23,767	22,936	27,615	29,257	11%
of which from Brazilian origin ²⁴	11,013	9,201	9,758	11,397	11,772	7%
as % of total supply	42%	39%	43%	41%	40%	
EU soybean meal export	829	481	967	1,388	1,487	79%
EU soybean meal processing	25,614	23,282	21,968	26,216	27,788	8%
EU processing as % of supply	97%	98%	96%	95%	95%	

Source: Oil World Annual 2000, ISTA Mielke, Hamburg, May 2000.

Table 5.11 shows that soybean meal supply to the European market, as well as soybean meal processing by the European compound feed industry, has been growing at a moderate pace during the past five years. Export is growing strongly, but still more than 95% of the supply to the European market is processed by the European compound feed and food industries.

The main exporters of soybean meal to the EU are Argentina (market share 51%) and Brazil (42%). But the EU is also a major producer of soybean meal from imported soybeans, from the US (46%), Brazil (43%) and Argentina (7%).

The estimated total market share of Brazilian soybean meal on the European market (coming from Brazilian soybeans crushed in the EU and from imports of Brazilian soybean meal) is fairly constant, around 40%.

As almost no soybean meal is exported from the EU (around 5% of total supply), one can assume that around 40% of all soybean meal processed by the European compound feed and food industries comes from Brazil.

Table 5.12: European trade balance for soybean oil (in 1.000 MT)						
	1995	1996	1997	1998	1999	Growth
EU soybean oil production	2,718	2,563	2,713	2,968	2,907	7%
EU soybean oil import	4	4	2	6	7	75%
EU soybean oil supply	2,722	2,567	2,715	2,974	2,914	7%
of which from Brazilian origin ²⁵	489	495	922	1,042	1,142	134%
as % of total supply	18%	19%	34%	35%	39%	
EU soybean oil export	690	535	874	1,084	1,096	59%
EU soybean oil processing	2,029	2,026	1,878	1,880	1,835	-10%
processing as % of supply	75%	79%	69%	63%	63%	

Source: Oil World Annual 2000, ISTA Mielke, Hamburg, May 2000.

Table 5.12 shows that the supply of soybean oil to the EU market has been growing at a moderate pace during the past five years (+7%), but that the processing of soybean oil by the EU food and chemical industries has declined with 10%. EU exports of soybean oil have been increasing rapidly, and now make up 37% of total supply to the EU market.

The estimated market share of Brazilian soybean oil on the European market has doubled during the past five years, from 18% to 39%. But as a large part of the total supply to the EU market is exported again, it is hard to say if this indeed means that 39% of the soybean oil processed by the European food and chemical industries is originating from Brazil.

5.5 Refineries

From the crushing plant, soybean oil goes to a refinery for all kinds of treatments. These processes yield a large variety of fats and oils, which can be applied in the food and chemical industries. Refineries can be integrated with, and owned by, crushing companies. They can also be integrated with, and owned by, final processing companies in the food or chemical sector. But there also some independent refineries, buying crude soybean oil from crushing plants and supplying processed soybean oil to food and chemical companies. The major European soybean oil refineries are listed in table 5.13.

Table 5.13: European soybean oil refineries				
Company	Country of origin	Refinery	Location	Capacity/ day (MT)
Cargill	United States	Cargill	United Kingdom	1,060
		Cargill	Netherlands	500
		Cargill	Italy	
Eridania	France	Central Soya	Denmark	
		Eridania	Italy	1,200
		Moyresa	Spain	390
Lucas Meyer	Germany	Lucas Meyer	Belgium	
		Lucas Meyer	United Kingdom	
		Lucas Meyer	Netherlands	
		Lucas Meyer	Spain	
		Lucas Meyer	France	
		Edelsoja	Germany	
		Lucas Meyer	Italy	
Unilever	UK/Netherlands	Van den Berghs Oils	United Kingdom	
		Loders Croklaan	Netherlands	
		Unimills	Netherlands	
ADM	United States	ADM	Germany	
		Noble & Thoerl	Germany	
		ADM	Netherlands	
Walter Rau	Germany	Walter Rau	Germany	1,000
Karlshamns	Sweden	Karlshamns	United Kingdom	100
		Karlshamns	Netherlands	
		Karlshamns	Sweden	200
Unigra	Italy	Unigra	Italy	600
Smilde	Netherlands	Romi	Netherlands	
Soya Mainz	Germany	Soya Mainz	Germany	300
Eulip	Italy	Eulip	Italy	250
C. Thywissen	Germany	C. Thywissen	Germany	200
Florin	Switzerland	Florin	Switzerland	

Source: 2000 Soya & Oilseed Bluebook, Soyatech Inc., Bar Harbor, June 2000.

Refined soybean oil can be processed further by final processing industries, which are described in paragraph 5.6. But some part is processed further by another intermediate sector, the speciality fats producers. These companies use refined edible oils like palm oil and soybean oil to produce speciality fats, which are used in several final processing industries (confectionery, cosmetics, and others). One type of speciality fat is Cocoa Butter Equivalent (CBE), which can be used as a cheap replacement for cocoa butter in chocolate products. In Asian countries, CBE is already used to a large extent in chocolate products. Most other countries didn't permit the use of CBE, however. But after more than ten years of discussion, the European union in the summer of 2000 agreed to the replacement of cocoa butter by CBE to a maximum content of 5%. This opens a large new market for CBE-producers, also because the Latin American countries, the Central and east European countries, Australia and New Zealand are expected to follow this European regulation.²⁶ The global CBE-market is dominated by only four companies, of which three are European (see table 5.14). The fourth is Fuji Oils from Japan.

Table 5.14: European speciality fat producers				
Company	Country of origin	Production plant	Location	Capacity (MT/day)
Aahus Olie	Denmark	Aarhus Olie	Denmark	
Karlshamns	Sweden	Karlshamns	Netherlands	
Unilever	UK/Netherlands	Loders Croklaan	Netherlands	

Source: Fat Supplier Expects Growth from New EU Regulations, Scott Hegenbart, Food Ingredients Online, 29 June 2000.

5.6 Final processing industries

The refineries supply a broad range of soybean oil-based oils and fats to the EU food and chemical industries. For many applications, these oils and fats have to compete with oils and fats derived from other edible oils. Often, oils and fats derived from different edible oils and fats are being mixed. And in many production processes, one edible oil can be replaced by another without problem - when availability and price differences stimulate this. Table 5.15 provides an overview of the market shares and growth rates of the different edible oils used by the EU food and chemical industries.

Table 5.15: EU usage of various edible oils (in 1,000 MT)							
Oil type	1995	1996	1997	1998	1999	Growth	Share
Rapeseed oil	2,160	2,355	2,455	2,620	3,009	39%	18%
Sunflower oil	1,957	2,078	2,139	2,092	2,155	10%	13%
Palm oil	1,689	1,830	1,925	2,009	2,120	26%	12%
Soybean oil	2,029	2,026	1,878	1,880	1,835	-10%	11%
Olive oil	1,484	1,404	1,581	1,701	1,668	12%	10%
Butter, as fat	1,425	1,522	1,475	1,509	1,534	8%	9%
Lard	1,295	1,330	1,302	1,391	1,462	13%	9%
Tallow & Grease	1,424	1,405	1,382	1,370	1,304	-8%	8%
Coconut oil	637	615	690	802	559	-12%	3%
Palm kernel oil	317	377	397	394	497	57%	3%
Fish oil	546	441	360	215	272	-50%	2%
Corn oil	206	233	243	250	239	16%	1%
Groundnut oil	174	169	173	153	151	-13%	1%
Linseed oil	99	122	145	156	147	48%	1%
Cotton oil	101	123	136	131	115	14%	1%
Castor oil	104	108	120	118	96	-8%	1%
Sesame oil	2	1	1	1	2	0%	0%
Total	15,650	16,138	16,403	16,793	17,164	10%	100%
of which:							
Brazilian soybean oil ²⁷	364	391	638	659	719	97%	4%

Source: Oil World Annual 2000, ISTA Mielke, Hamburg, May 2000.

Table 5.15 shows that the total processing of edible oils in the European food and chemical industries is increasing (+10% in five years), while the processing of soybean oil is decreasing (-10% in five years). This means that soybean oil is rapidly losing market share (now 11%). The market share of Brazilian soybean oil is 4%.

Most of the edible oils listed in table 5.15 are used to manufacture the same products as soybean oil is used for. The different oils and fats are to a large extent interchangeable. And to make it even more complicated: the major part of all soybean oil used in the European food and cosmetics/detergents industries is not originating from Brazil. Probably, the final processing industries will often not know the producing country of the palm oil they are using. In the trading and refining stages, different cargoes from different countries will get mixed and blended. For these reasons it is very difficult to identify the amounts of Brazilian soybean oil used by a certain food company.

Some large European food companies which probably use soybean-derived ingredients in their products, were listed in table 3.15. Some large European cosmetics & detergents producers which probably use soybean-derived ingredients in their products, were listed in table 3.16. To assess the extent of the involvement in the Brazilian soybean production chain of the EU final processing companies listed in the tables 3.15 and 3.16, more research is needed in the second phase of this research project.

Some indications on which final EU final processing industries could be involved, are provided by the figures on the imports of Brazilian soybean meal by the various European countries. These figures are presented in table 5.16.

To present a similar table for the import of soybean oil is rather useless, as the EU import of Brazilian soybean oil is minimal. Table 5.9 gives an overview of the import of Brazilian soybeans per EU country, but this figures give only an indication of the location of the main European soybean crushers. These crushers sell their products (soybean oil and soybean meal) to various final processing industries inside and outside the EU.

Table 5.16: EU import of Brazilian soybean meal per country (in 1.000 MT)						
Country	1995	1996	1997	1998	1999	Share
France	3,286	2,637	2,224	2,869	2,905	41%
Netherlands	600	646	621	699	1,000	14%
Spain	1,262	1,242	639	628	843	12%
United Kingdom	498	247	129	455	655	9%
Germany	949	903	739	679	572	8%
Italy	631	631	346	295	345	5%
Belgium/Luxemburg	324	185	210	366	326	5%
Denmark	680	449	445	563	203	3%
Austria	36	11	85	167	124	2%
Ireland	101	52	58	0	64	1%
Portugal	233	150	153	143	54	1%
Sweden	96	109	81	12	49	1%
Greece	5	46	20	40	1	0%
Finland	1	3	6	9	0	0%
EU imports from Brazil	8,702	7,311	5,756	6,925	7,141	100%
Brazilian exports to EU	8,848	6,698	6,702	7,715	8,097	
Difference	146	-613	946	790	956	
Non-EU country:						
Switzerland	0	0	0	1	7	

Source: Oil World Annual 2000, ISTA Mielke, Hamburg, May 2000.

As is the case with Brazilian soybeans, the EU imports of Brazilian soybean meal seem to be structurally lower than the Brazilian exports of soybean meal to the EU (see table 5.6). Again, this difference is explained by re-exports for the EU, and by wrongly labelled intra-EU trade. So the figures of table 5.16 should be seen as indicative, usage of Indonesian PKO in a specific country could be higher.

The figures in table 5.16 do however indicate clearly that France is the most important importer of Brazilian soybean meal, followed by the Netherlands, Spain and the United Kingdom. Probably, the feed industries in these countries will account for these imports. One should remember however that crushing within the EU of Brazilian soybeans also supplies a considerable amount of Brazilian soybean meal to the EU market.

5.7 Retail chains

Food products, cosmetics and detergents containing Brazilian soybean-ingredients, will reach the consumer through the retail sector. Most of these products will be sold in supermarkets. The largest supermarket chains in Europe were listed in table 3.20.

5.8 Financial institutions

As already explained in the preceding chapter, financial institutions will play a less important role in the first, agricultural stage of the soybean production chain than in the oil palm production chain. The growing of soybeans needs less capital input than the growing of oil palms, as the soybean is an annual crop.

But some Brazilian soybean plantations do get financial input from EU financial institutions. And EU financial institutions also do provide capital to Brazilian soybean traders and crushers. Especially small soybean farmers will be very sensitive for the demands of these traders and crushers, as they are often very dependent on them for seed, credit, other inputs and offtake. This means that financial institutions providing capital to Brazilian traders and crushers, will have an indirect, but fairly strong, influence on the (environmental) policies of the soybean farmers. For this reason we will focus in this paragraph on the role played by financial institutions from the EU in financing Brazilian soybean traders, crushers, and plantations.

Financial institutions also play a role in financing other stages of the soybean production chain, but in these stages their influence on the environmental performance of soybean farmers will be much smaller. Table 5.17 provides an overview of the European financial institutions which have been substantially involved in financing Brazilian soybean plantations, traders and crushers.

Table 5.17: European financial institutions and Brazilian soybeans		
Financial group	Country of origin	Brazilian soybean customers
ABN AMRO Bank	Netherlands	Ceval
ING Bank	Netherlands	Ceval
Banque Paribas	France	Itamarati
Crédit Lyonnais	France	Ceval
BNP	France	Ceval
Société Générale	France	Ceval
Deutsche Bank	Germany	Ceval, Itamarati
Dresdner Bank	Germany	Ceval
Bayerische Vereinsbank	Germany	Ceval
HypoVereinsbank	Germany	Ceval
Commerzbank	Germany	Ceval
Landesbank Schleswig-Holstein	Germany	Ceval
UBS	Switzerland	Ceval
Crédit Suisse	Switzerland	Ceval, Itamarati
National Westminster	United Kingdom	Ceval
Lloyds	United Kingdom	Ceval
Standard Chartered	United Kingdom	Ceval
HSBC	United Kingdom	Itamarati
WestLB	United Kingdom	Ceval
Lehman Brothers	United Kingdom	Itamarati
Samuel Montagu	United Kingdom	Itamarati
Kredietbank	Belgium	Ceval
Banco Santander	Spain	Itamarati

Source: Various press reports.

Chapter 6 Key EU corporate actors

6.1 André et Cie.

- **Country of origin:** Switzerland
- **Important subsidiaries:** Refinadora de Oleos Brasil
- **Business areas:** Commodity trading
Oilseed crushing and refining
- **Sales:** ?
- **Business ties with the Indonesian oil palm production chain:**
 - Is an important international trader of Indonesian oil palm products.
- **Business ties with the Brazilian soybean production chain:**
 - Is an important international trader of Brazilian soybeans and soybean products.
 - Owns **Refinadora de Oleos Brasil**, one of the most important soybean crushing companies in Brazil.

6.2 Anglo-Eastern Plantations

- **Country of origin:** United Kingdom
- **Business areas:** Oil palm
Rubber
Cocoa
- **Sales:** US\$ 19.6 million (1999)
- **Business ties with the Indonesian oil palm production chain:**
 - Operates oil palm plantations with a total acreage of 18,200 hectares in Indonesia.²⁸

6.3 Bolloré

- **Country of origin:** France
- **Important subsidiaries:** Socfindo
Société Financière des Caoutchoucs (Socfin)
Plantations Nord-Sumatra
- **Business areas:** Oil palm
Rubber
Shipping and transport services
Real estate
Finance
Tobacco
Plastics
- **Sales:** US\$ 3.8 billion (1999)
- **Business ties with the Indonesian oil palm production chain:**
 - Owns - through the Belgian holding company Société Financière des Caoutchoucs (Socfin) - the Indonesian oil palm plantation group Socfindo, which operates plantations with a total acreage of 48,000 hectares in Indonesia.²⁹

6.4 Commonwealth Development Corporation (CDC)

- **Country of origin:** United Kingdom
- **Business areas:** Corporate banking
Investment fund
- **Total assets:** ?
- **Business ties with the Indonesian oil palm production chain:**
 - Issued a US\$ 14.4 million loan to PT Agro Indomas, the Indonesian oil palm holding of the **Carson Cumberbatch Group**, in December 1998.
 - Invested US\$ 160 million in the **Harapan Group** in August 1999.³⁰

6.5 Commerzbank

- **Country of origin:** Germany
- **Business areas:** Retail banking
Commercial banking
Investment banking
- **Total assets:** US\$ 373 billion
- **Business ties with the Indonesian oil palm production chain:**
 - Co-arranged a US\$ 183.5 million syndicated loan for the **London Sumatra Group** in November 1994.
 - Lead managed a US\$ 150 million syndicated loan for PT SMART Corporation Tbk., the oil palm holding company of the **Sinar Mas Group**, in April 1995.³¹
 - Lead managed a US\$ 100 million bond issue for PT Bakrie & Brothers, the holding company of the **Bakrie Group**, in March 1996.³²
 - Participated in a US\$ 197 million syndicated loan for the **London Sumatra Group** in May 1996.
 - Participated in a US\$ 100 million syndicated loan for Kulim (Malaysia) Bhd., the oil palm plantation arm of the **Johor Group**, in October 1996.³³
 - Became a 5.83% shareholder of the **London Sumatra Group** in 1999.
- **Business ties with the Brazilian soybean production chain:**
 - Was co-agent for a US\$ 500 million syndicated trade finance facility for **Ceval Alimentos SA** in August 1998.³⁴
 - Co-arranged a US\$ 150 million syndicated trade finance facility for **Ceval Alimentos SA** in June 1999.³⁵

6.6 Crédit Lyonnais

- **Country of origin:** France
- **Business areas:** Retail banking
Commercial banking
Investment banking
- **Total assets:** US\$ 173 billion
- **Business ties with the Indonesian oil palm production chain:**
 - Co-arranged a US\$ 75 million syndicated loan for PT Bakrie Sumatera Plantations, the holding company for the oil palm interests of the **Bakrie Group**, in August 1996.³⁶
 - Granted US\$ 10 million short-term credit facilities to Golden Agri-Resources Ltd., the ultimate oil palm holding company of the **Sinar Mas Group**, in 1998.³⁷
 - Co-managed the international placement part of the IPO of Golden Agri-Resources Ltd., the ultimate oil palm holding company of the **Sinar Mas Group**, on the Stock Exchange of Singapore in July 1999.³⁸
- **Business ties with the Brazilian soybean production chain:**
 - Co-arranged a US\$ 500 million syndicated trade finance facility for **Ceval Alimentos SA** in August 1998.³⁹
 - Co-managed a US\$ 150 million syndicated trade finance facility for **Ceval Alimentos SA** in June 1999.⁴⁰

6.7 Crédit Suisse

- **Country of origin:** Switzerland
- **Important subsidiaries:** Crédit Suisse First Boston (CSFB)
- **Business areas:** Retail banking
Commercial banking
Investment banking
- **Total assets:** US\$ 294 billion
- **Business ties with the Indonesian oil palm production chain:**
 - Managed a US\$ 150 million syndicated loan for PT SMART Corporation Tbk., the oil palm holding company of the **Sinar Mas Group**, in April 1995.⁴¹
 - Co-arranged a US\$ 75 million syndicated loan for PT Bakrie Sumatera Plantations, the holding company for the oil palm interests of the **Bakrie Group**, in August 1996.⁴²
 - Participated in a US\$ 100 million syndicated loan for Kulim (Malaysia) Bhd., the oil palm plantation arm of the **Johor Group**, in October 1996.⁴³
 - Coordinated the debt restructuring of the **London Sumatra Group** in June 1999.
 - Arranged the sale of part of the shares held by the **Salim Group** in PT Indofood Sukses Makmur, its oil palm holding company, in July 1999.⁴⁴
 - Advised the **Salim Group** in its attempts to buy back extensive shareholdings in many Salim-companies, which were taken by the Indonesian government as compensation for bad debts, in August 2000.⁴⁵
- **Business ties with the Brazilian soybean production chain:**
 - Co-managed a US\$ 75 million Eurobond for Banco Itamarati SA, the banking arm of the **Itamarati Group**, in November 1994.⁴⁶
 - Arranged a US\$ 500 million syndicated trade finance facility for **Ceval Alimentos SA** in August 1998.⁴⁷

6.8 Deutsche Bank

- **Country of origin:** Germany
- **Important subsidiaries:** Deutsche Morgan Grenfell
- **Business areas:** Retail banking
Commercial banking
Investment banking
- **Total assets:** US\$ 842 billion
- **Business ties with the Indonesian oil palm production chain:**
 - Participated in a US\$ 27 million syndicated credit facility for PT Bakrie Sumatera Plantations, the holding company for the oil palm interests of the **Bakrie Group**, in April 1995.⁴⁸
 - Participated in the steering committee for the debt restructuring of PT Bakrie & Brothers, the holding company for the **Bakrie Group**, in December 1999.⁴⁹
- **Business ties with the Brazilian soybean production chain:**
 - Co-managed a US\$ 75 million Eurobond for Banco Itamarati SA, the banking arm of the **Itamarati Group**, in November 1994.⁵⁰
 - Co-managed the issue of a US\$ 100 million Eurobond for **Ceval Alimentos SA** in February 1997.⁵¹
 - Was co-agent for a US\$ 500 million syndicated trade finance facility for **Ceval Alimentos SA** in August 1998.⁵²
 - Co-arranged a US\$ 150 million syndicated trade finance facility for **Ceval Alimentos SA** in June 1999.⁵³

6.9 Dresdner Bank

- **Country of origin:** Germany
- **Important subsidiaries:** Dresdner Kleinwort Benson
Wasserstein Perella
- **Business areas:** Retail banking
Commercial banking
Investment banking
- **Total assets:** US\$ 398 billion
- **Business ties with the Indonesian oil palm production chain:**
 - Participated in a US\$ 100 million syndicated loan for Kulim (Malaysia) Bhd., the oil palm plantation arm of the **Johor Group**, in October 1996.⁵⁴
 - Participated in the steering committee for the debt restructuring of PT Bakrie & Brothers, the holding company for the **Bakrie Group**, in December 1999.⁵⁵
- **Business ties with the Brazilian soybean production chain:**
 - Co-arranged a US\$ 500 million syndicated trade finance facility for **Ceval Alimentos SA** in August 1998.⁵⁶
 - Was co-agent for a US\$ 150 million syndicated trade finance facility for **Ceval Alimentos SA** in June 1999.⁵⁷

6.10 Eridania Béghin-Say

- **Country of origin:** France (but the majority shareholder is the Italian Montedison Group)
- **Important subsidiaries:**
 - Cereol
 - Central Soya
- **Business areas:**
 - Oilseed crushing and refining
 - Cooking oil
 - Sugar
 - Starch
 - Animal feed
- **Sales:** US\$ 7.9 billion (1999)
- **Business ties with the Indonesian oil palm production chain:**
 - Is an important supplier of cooking oil to the European market, in which product Indonesian oil palm-ingredients might be used.
- **Business ties with the Brazilian soybean production chain:**
 - Has a 20% market share of the European oilseed crushing industry, which is increasingly involved in crushing Brazilian soybeans.
 - Is an important player on the European soybean oil refining market.
 - Is an important supplier of cooking oil to the European market, in which product Brazilian soybean-ingredients might be used.

6.11 HSBC

- **Country of origin:** United Kingdom
- **Business areas:** Retail banking
Commercial banking
Investment banking
- **Total assets:** US\$ 172 billion
- **Business ties with the Indonesian oil palm production chain:**
 - Arranged a US\$ 27 million syndicated credit facility for PT Bakrie Sumatera Plantations, the holding company for the oil palm interests of the **Bakrie Group**, in April 1995.⁵⁸
 - Arranged a US\$ 197 million syndicated loan for the **London Sumatra Group** in May 1996.
 - Co-managed the IPO of **London Sumatra** on the Jakarta and Surabaya stock exchanges in June 1996.⁵⁹
 - Arranged a US\$ 213 million syndicated loan for the **London Sumatra Group** in September 1997.
 - Coordinated the debt restructuring of the **London Sumatra Group** in April 1998.
 - Co-managed the international placement part of the IPO of Golden Agri-Resources Ltd., the ultimate oil palm holding company of the **Sinar Mas Group**, on the Stock Exchange of Singapore in July 1999.⁶⁰
 - Provided a loan of US\$ 10 million to **Anglo-Eastern Plantations** in October 2000.⁶¹
- **Business ties with the Brazilian soybean production chain:**
 - Co-managed a US\$ 75 million Eurobond for Banco Itamarati SA, the banking arm of the **Itamarati Group**, in November 1994.⁶²

6.12 ING Bank

- **Country of origin:** The Netherlands
- **Important subsidiaries:** ING Barings
- **Business areas:** Retail banking
Commercial banking
Investment banking
Insurance
- **Total assets:** US\$ 350 billion
- **Business ties with the Indonesian oil palm production chain:**
 - Lead managed a US\$ 150 million syndicated loan for PT SMART Corporation Tbk., the oil palm holding company of the **Sinar Mas Group**, in April 1995.⁶³
 - Issued short-term notes of Rp 9.2 billion issued to PT SMART Corporation Tbk., the oil palm holding company of the **Sinar Mas Group**, during 1995.
 - Co-managed the IPO of **London Sumatra** on the Jakarta and Surabaya stock exchanges in June 1996.⁶⁴
 - Participated in a US\$ 100 million syndicated loan for Kulim (Malaysia) Bhd., the oil palm plantation arm of the **Johor Group**, in October 1996.
 - Arranged a US\$ 6 million syndicated loan for PT Kalimantan Sanggar Pusaka (KSP), the oil palm company of the **Lyman Group**, in November 1996.
 - Lead managed a US\$ 95 million syndicated loan for PT Asianagro Lestari, one of the oil palm companies of the **Raja Garuda Mas Group**, in April 1997.⁶⁵
 - Handled the placement of 254 million new shares of First Pacific Company Ltd. (valued at US\$ 200 million) with institutional investors in June 1999, in connection with a restructuring of the interests of the **Salim Group** in the food and oil palm industry.
 - Lead managed the international placement part of the IPO of Golden Agri-Resources Ltd., the ultimate oil palm holding company of the **Sinar Mas Group**, on the Stock Exchange of Singapore in July 1999.⁶⁶
 - Co-arranged the issuance of Rp 1 trillion (about US\$125 million) bonds by PT Indofood Sukses Makmur, the food and oil palm holding of the **Salim Group**, in June 2000.⁶⁷
- **Business ties with the Brazilian soybean production chain:**
 - Participated in a US\$50 million syndicated loan connected with commercial paper programme for **Ceval Alimentos SA** in April 1994.⁶⁸
 - Co-managed a US\$ 500 million syndicated trade finance facility for **Ceval Alimentos SA** in August 1998.⁶⁹
 - Co-managed a US\$ 150 million syndicated trade finance facility for **Ceval Alimentos SA** in June 1999.⁷⁰

6.13 Louis Dreyfus

- **Country of origin:** France
- **Important subsidiaries:** Coinbra
- **Business areas:**
 - Citrus
 - Commodities
 - Manufacturing
 - Energy
 - Real Estate
 - Shipping
 - Telecommunications
- **Sales:** US\$ 18 billion (1999)
- **Business ties with the Brazilian soybean production chain:**
 - Is an important international trader of Brazilian soybeans and soybean products.
 - Owns **Coinbra**, one of the most important soybean crushing and refining companies in Brazil.⁷¹

6.14 Rabobank

- **Country of origin:** The Netherlands
- **Business areas:** Retail banking
Commercial banking
Investment banking
- **Total assets:** US\$ 282 billion
- **Business ties with the Indonesian oil palm production chain:**
 - Co-arranged a US\$ 183.5 million syndicated loan for the **London Sumatra Group** in November 1994.
 - Arranged a US\$ 150 million syndicated loan for PT SMART Corporation Tbk., the oil palm holding company of the **Sinar Mas Group**, in April 1995.⁷²
 - Participated in a US\$ 197 million syndicated loan for the **London Sumatra Group** in May 1996.
 - Lead-managed a US\$ 150 million syndicated trade finance facility for Lewis & Peat (Rubber) Holdings Pte. Ltd., a subsidiary of PT Bakrie Sumatera Plantations, the holding company for the oil palm interests of the **Bakrie Group**.
 - Participated in a US\$ 100 million syndicated loan for Kulim (Malaysia) Bhd., the oil palm plantation arm of the **Johor Group**, in October 1996.⁷³
 - Entered into a lease agreement with a net finance amount of US\$ 2.9 million with the **London Sumatra Group** in January 1997.
 - Arranged a US\$ 95 million syndicated loan for PT Asianagro Lestari, one of the oil palm companies of the **Raja Garuda Mas Group**, in April 1997.⁷⁴
 - Participated for Rp 40 billion (US\$ 17.06 million) in a syndicated bank loan of Rp 80 billion (US\$ 34.1 million) to PT Gunung Maras Lestari, the Indonesian oil palm holding of the **Oriental Group**, in April 1997.⁷⁵
 - Issued a short-term US\$ loan of Rp 5.3 billion to PT Bakrie & Brothers Tbk., the holding company for the oil palm interests of the **Bakrie Group** during 1997.
 - Issued a long-term US\$ 10.8 million loan to PT Agro Indomas, the Indonesian oil palm holding of the **Carson Cumberbatch Group**, in December 1998.
 - Was chosen as the global manager of the IPO of New Britain Palm Oil, an oil palm company in Papua New Guinea which is owned 80% by the **Johor Group** in May 1999. However, the IPO was cancelled in July 1999.

6.15 Rowe Evans Investments

- **Country of origin:** United Kingdom
- **Business areas:** Oil palm
Rubber
- **Sales:** £ 4.8 million (1999)
- **Business ties with the Indonesian oil palm production chain:**
 - Operates oil palm plantations in Indonesia with a total acreage of 22,500 hectares.⁷⁶

6.16 Sipef

- **Country of origin:** Belgium
- **Important subsidiaries:** Tolan Tiga
Melania
- **Business areas:** Oil palm
Bananas
Rubber
Tea
Other commodities
- **Sales:** US\$ 103 million (1999)
- **Business ties with the Indonesian oil palm production chain:**
 - Owns 90% of the oil palm plantation groups Tolan Tiga and Melania, which operate a total acreage of 53,000 hectares in Indonesia.⁷⁷

6.17 Société Generale

- **Country of origin:** France
- **Important subsidiaries:** SocGen Asia
- **Business areas:** Retail banking
Commercial banking
Investment banking
- **Total assets:** US\$ 407 billion
- **Business ties with the Indonesian oil palm production chain:**
 - Lead managed a US\$ 150 million syndicated loan for PT SMART Corporation Tbk., the oil palm holding company of the **Sinar Mas Group**, in April 1995.⁷⁸
 - Co-managed a US\$ 27 million syndicated credit facility for PT Bakrie Sumatera Plantations, the holding company for the oil palm interests of the **Bakrie Group**, in April 1995.⁷⁹
 - Arranger of a US \$ 15.6 million syndicated loan for PT Swakarsa Sinarsentosa, an oil palm plantation company belonging to the **Astra Group**, in August 1996.⁸⁰
 - Participated in a US\$ 100 million syndicated loan for Kulim (Malaysia) Bhd., the oil palm plantation arm of the **Johor Group**, in October 1996.⁸¹
- **Business ties with the Brazilian soybean production chain:**
 - Co-arranged a US\$ 150 million syndicated trade finance facility for **Ceval Alimentos SA** in June 1999.⁸²

6.18 UBS

- **Country of origin:** Switzerland
- **Business areas:** Retail banking
Commercial banking
Investment banking
- **Total assets:** US\$ 687 billion
- **Business ties with the Indonesian oil palm production chain:**
 - Lead managed a US\$ 197 million syndicated loan for the **London Sumatra Group** in May 1996.
 - Acted as international financial advisor for the IPO of **London Sumatra** on the Jakarta and Surabaya stock exchanges in June 1996.⁸³
 - Bought \$ 300 million of bonds from PT Inti Indosawit Subur, one of the oil palm holding companies of the **Raja Garuda Mas Group**, in June 1997.
 - Concluded a currency par forward contract with **London Sumatra** in July 1997, which was later converted into short-term debt.
 - Issued US\$ 15 million of promissory notes to **London Sumatra** in October 1997.
- **Business ties with the Brazilian soybean production chain:**
 - Arranged a US\$ 300 million syndicated trade finance facility for **Ceval Alimentos SA** in February 1999.⁸⁴

Annex 1 Notes

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