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The Impact of Directive 2000/36/EC on the Economies of those Countries Producing Cocoa and Vegetable Fats other than Cocoa Butter

Main Report

Prepared for:

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Executive Summary

The European Parliament and Council adopted Directive 2000/36/EC on 23 June 2000. The aim of the Directive was to allow the use of up to 5% of a limited number of vegetable fats in the production of chocolate. The objective of the Directive was to simplify Community provisions concerning chocolate, with a view to allowing the free movement of chocolate products within the Internal Market. The Directive was implemented by member states during 2003.

The vegetable fats that were permitted for use required strict technical characteristics and were limited to six (Illipe, palm oil, sal, shea, kokum gurgi, and mango kernel). Five of these (illipe, sal, shea, kokum gurgi and mango kernel) can be classed as exotic fats; that is, the fat is obtained from the seeds/nuts of trees that are mainly growing wild in the tropics. Enzymic modification of the fats was prohibited.

This study provides an evaluation of the impact of the Directive as required under the Directive. The aim of the evaluation is to:

- Determine the impact of Directive 2000/36/EC on the economies of those countries producing cocoa and vegetable fats other than cocoa butter; and
- Provide guidance to the Commission on whether or not to amend the list of vegetable fats other than cocoa butter that are permitted for use in chocolate. In this regard, three options are considered:
  - To maintain the list for a further period of time;
  - To shorten the list; or
  - To extend the list.

EU CHOCOLATE CONSUMPTION AND COCOA IMPORTS

EU-15 consumption of chocolate products is around 2.2 million tonnes. There has been little change in total consumption since the Directive was adopted in 2003. Four markets, UK, Germany, Italy and France account for close to 80% of EU-15 chocolate consumption.

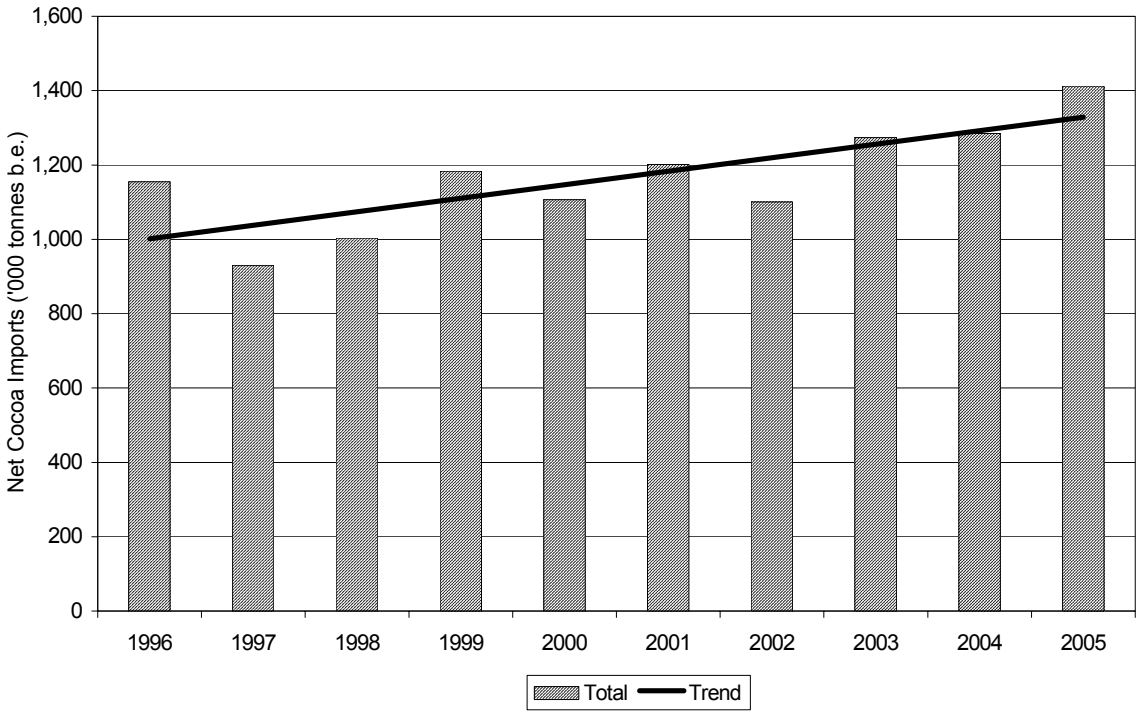
There are a number of reasons for the slow growth in consumption:

- Slow growth in income. Per capita consumption is related to per capita incomes, and the slow growth of incomes in recent years adversely affected demand;
- Market saturation in some of the mature markets; and
- Increasing concerns over obesity.

Not all segments of the market have experienced the same growth rates; in particular there has been growth in whole bar (tablet) consumption over other products. This has been driven by campaigns highlighting the benefits of cocoa consumption (in particular, the presence of the antioxidant flavanol which has been found to reduce blood pressure) and the growth of speciality products such as single origin bars. Both of these types of products have a higher cocoa content.

Net imports of cocoa beans and cocoa products in bean equivalent (b.e.) terms from outside the EU-15 countries have increased from around 1.2 million tonnes in 1996 to over 1.4 million tonnes in 2005, recording an average annual growth rate of 2.1% over the last 10 years (Diagram EXEC 1). This is somewhat higher than the growth of chocolate production and consumption, which has grown by 0.6% per annum over the period. Over the last two years, since the adoption of the Directive, the rate of growth of net cocoa imports has accelerated to 3.5% despite a flat chocolate product market. This points towards the increased cocoa solids content of chocolate as well as the increased use of cocoa products for other food applications.

Diagram EXEC 1: Total EU-15 Net Imports of Cocoa Beans and Cocoa Products



VEGETABLE FAT IMPORTS AND CBE PRODUCTION

When converted to the raw materials that are used for CBE manufacture, exotic fat imports have increased from 8,000 tonnes in 1996 to 24,500 tonnes in 2005 (Table EXEC 1). Since the adoption of the Directive, imports of these exotic fat raw materials have increased by 25%.

Table EXEC.1: EU-15 Exotic Fat Imports (tonnes)

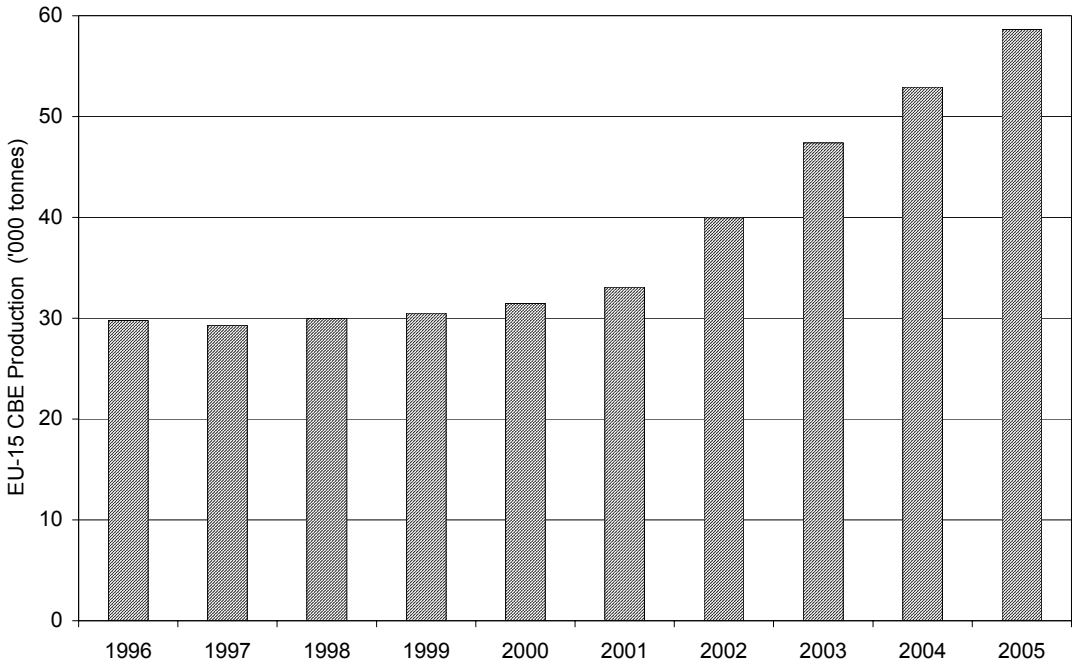
	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Sheanuts	31,938	24,856	52,757	30,155	29,396	59,575	48,787	80,802	67,626	85,040
Shea butter	138	241	1,542	3,543	1,590	2,177	7,502	10,358	7,049	15,397
Sal Oil	278	324	174	177	330	401	230	544	201	900
Sal Stearin	650	757	405	412	770	936	537	1,269	469	2,100
Mango Kernel Stearin	331	1,001	142	1,300	0	125	141	744	146	437
Illipe nuts	30	20	19	24	4	4	4,187	44	2	52
Illipe butter	1,688	857	327	47	31	9	121	646	193	1,446
CBE raw material	7,987	6,865	9,884	8,587	6,285	11,393	11,776	19,638	14,979	24,459

Source: LMC.

While it is possible to get an impression of the level of exotic fat imports and use in CBEs, the level of palm oil (or more specifically palm mid-fraction) is more difficult to gauge owing to the large number of end uses. The use of palm mid-fraction (PMF) varies between 10% to 100% of the weight of a CBE, depending upon what the product is to be used for. A lower proportion of exotics are used in “soft” CBEs (up to 30% exotic) while a higher proportion is used in “hard” CBEs (greater than 30%). The choice of CBE depends on the market and application.

Typically, soft CBEs are used in the UK and Ireland, and hard CBEs are used elsewhere. Splitting exotic fat use this way, with the balance being made up of PMF gives total EU-15 CBE production of 58,600 tonnes in 2005. Production has grown by 11% per annum since 2000 and at a similar rate since the adoption of the Directive (Diagram EXEC 2).

Diagram EXEC 2: EU-15 CBE Production



While exotic fat imports and CBE production have increased, the key question is: "Is this due to increased demand from chocolate manufacturers in the EU-15 following the implementation of the Directive? Or, are there other explanations?"

The Use of CBEs in EU-15 Chocolate

To determine the use of CBEs in EU-15 chocolate it is helpful to split the EU-15 market into two segments: those that permitted the use of CBEs in chocolate prior to 2000; and those that did not, and consider trends in each of these segments.

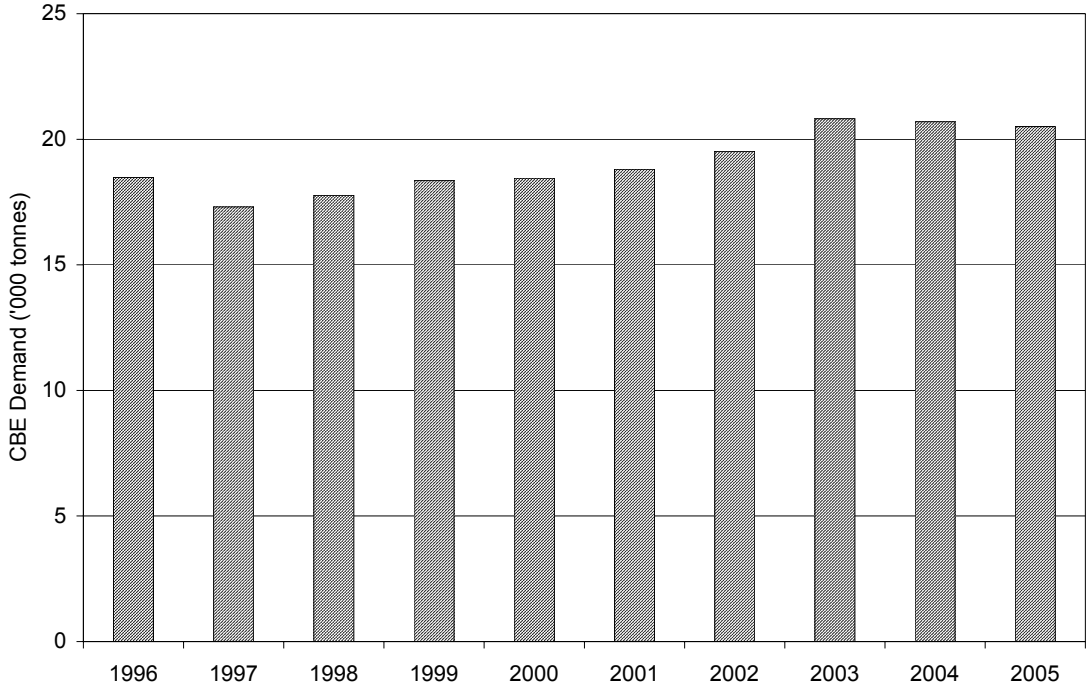
Our analysis suggests that the market for CBE use in chocolate in the EU-15 countries was 20,500 tonnes in 2005 (Diagram EXEC 3). This level of demand has been unchanged for three years, although this hides two changes:

- In countries permitting the use of CBEs in chocolate prior to 2000, CBE use as a proportion of chocolate weight has fallen by 3% since the adoption of the Directive. This is due to the Directive's definition of milk chocolate. Under the definition, vegetable fat is not included in the calculation of total fat that must be a minimum of 25% for a product to be called milk chocolate. Thus for a typical low cost milk chocolate recipe with 28.3% fat, the maximum vegetable fat that can be added is 3.3%. If 5% was previously being used then the amount of permitted vegetable fat has fallen. Consequently, we estimate that CBE demand is some 600 tonnes lower than would have been the case in the absence of the Directive.

- In countries previously not permitting the use of CBEs in chocolate, there has been no increase in demand from branded and artisanal chocolate manufacturers. There has been an increase of some 1,000 tonnes amongst the industrial chocolate manufacturers producing product for the biscuit and ice cream industries.

Net, there has been a 400 tonne increase in CBE demand since the adoption of the Directive.

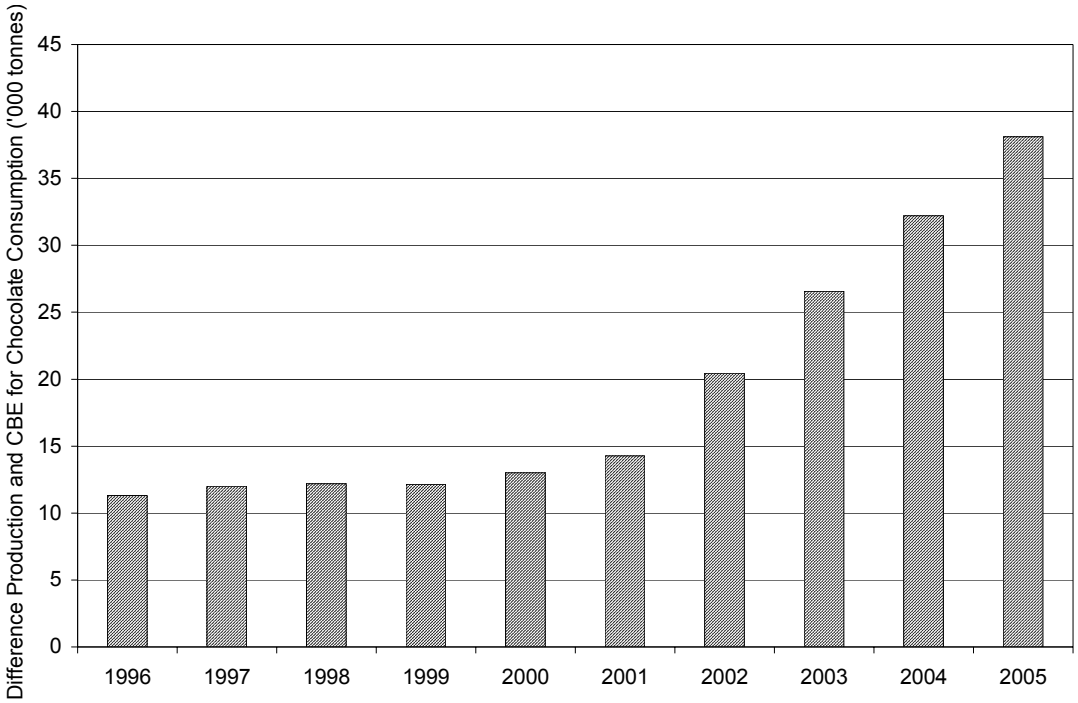
Diagram EXEC 3: EU-15 CBE Consumption for Chocolate Production



DEMAND FOR CBES OUTSIDE EU-15 CHOCOLATE PRODUCTION

This suggests that the growth of EU-15 CBE production has not been due to CBE use in EU-15 chocolate but due to other factors. The evidence above suggests that there is a growing difference between EU-15 CBE production and the amount of CBE used for EU-15 chocolate manufacture. The difference has increased from around 11,000 tonnes in 1996 to its current level of around 40,000 tonnes (Diagram EXEC 4).

Diagram EXEC 4: Difference Between EU-15 CBE Production and that used for EU-15 Chocolate Manufacture



Two issues warrant consideration and can explain this trend:

- The use of CBE-type fats for coatings and fillings; and
- Export demand.

For many years, EU chocolate companies have used CBEs in their fillings, even if they are not using them in chocolate. The Directive does not cover this use of CBEs. Our analysis suggests that demand for CBEs for fillings and coatings in the EU-15 has grown to between 20,000 to 25,000 tonnes. Demand growth has been steady over the reporting period and is growing as the market for these products increases.

Export demand is in the order of 15,000 to 20,000 tonnes and has grown sharply in recent years. This is due to:

- Changes in legislation to allow the use of CBEs in chocolate (for instance, in Brazil and Oceania);
- Substitution of Cocoa Butter Replacers (CBRs) in compound chocolate by CBEs. This is because CBRs are high in transfats; and
- Increased demand for chocolate/compound chocolate containing CBEs.

IMPACT OF THE DIRECTIVE ON COCOA AND VEGETABLE FAT PRODUCERS

Cocoa Producers

- Cocoa typically accounts for over one third of total export earnings in Ghana and Côte d'Ivoire, and around 10% in the case of Cameroon. It is less important in

Nigeria and Togo. As would be expected, cocoa prices are a major determinant of cocoa's share of export earnings in Ghana and Côte d'Ivoire.

- As can be surmised from the above, the Directive has had little impact on cocoa producers to date. We have calculated the impact (and potential impact) of the Directive under three scenarios.
  - The **base case** scenario calculates the impact of the Directive on the market to date;
  - **Scenario 1** calculates what would have been the state of the market had the Directive not been implemented in 2003/04; and
  - **Scenario 2** calculates what would have been the impact of the Directive if it had been fully implemented in 2003/04, i.e., CBE usage in chocolate rose to 5% in the EU-8.

The forecast levels of prices under the different scenarios between 2003/04 and 2010/11 are shown in Table EXEC.2.

Table EXEC.2: Forecast Global Cocoa Prices, 2003/04-2010/11 (Real US$ per tonne)

	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
Base Case	1,431	1,419	1,439	1,554	1,649	1,604	1,559	1,531
Scenario 1	1,435	1,421	1,441	1,555	1,650	1,605	1,560	1,532
Scenario 2	1,311	1,344	1,384	1,521	1,625	1,561	1,514	1,490

Source: LMC.

- Comparing the prices forecast under the base case scenario with those forecast under Scenario 1 suggests that the impact of not implementing the Directive in 2003/04 would have been modest i.e. a price difference of less than $5 per tonne.
- Were the Directive to have been implemented fully in 2003/04, the results suggest that the price impact would have been more pronounced.

Vegetable Fat Producers

- In terms of the total economy, the importance of the exotic fats is relatively small. However, in the regions where they are collected, they are very important for employment and income generation. In the case of shea, collection is primarily by women, while for illipe and the Indian exotics, collection is by tribal people living off non-timber forest products.
- For sheanuts, demand is from both the local market and for export. The other exotics are primarily export orientated, the only exception being for sal when production is higher than that which can be absorbed by the export market. In this case, the balance is used domestically.
- For all the exotics, with the exception of kokum, there can be extreme fluctuations in production between years. This is due to the uncultivated nature of production.

- There has been an increase in demand for exotics from the European CBE manufacturers: for shea since 2000, sal since 2003 and illipe in 2005.

- Trends in prices follow the supply-demand balance of the individual crops, thus in years of high production there is a tendency for prices to fall and vice-versa.

- For the Indian exotic fats and illipe, almost all processing occurs at origin and processed products are exported. This is not the case with sheanuts where the export is more of nuts than products.

- Both shea and the Indian exotics remain underdeveloped in terms of their potential. In both cases, there is scope to increase collection and improve the quality of the product, although whether this occurs is partly dependent upon the price paid to collectors. In the case of shea, some governments have recognised the crop's potential and are seeking to increase the development of the crop as part of a diversification strategy. For illipe, production potential is declining as palm oil development reduces the illipe forests.

- Palm oil production has grown dramatically since the adoption of the Directive. However, the growth of CBE demand is small in relation to the total volumes of palm oil produced and marketed.

The increase in demand for these products, although beneficial for the sector, cannot be attributed to the Directive.

CONCLUSIONS

Our analysis suggests that the Directive has had very little impact on the global cocoa market as very few EU-15 chocolate manufacturers have incorporated CBEs into their recipes. The same is true of the vegetable fat producers, although increased demand for CBEs from outside of the EU-15 chocolate market has increased demand for their products. However, although the Directive was passed in 2000, it was only implemented in 2003. Hence the market has only had two years to adjust to the new realities.

On the basis of this evidence, there is no need to change the list of permitted fats and our recommendation is to maintain the list for a further period of time, until the impact of the use of vegetable fats other than cocoa butter on the economies of developing countries can be further assessed.

There are a number of additional considerations:

- Two years is a very short time period for end users to make wholesale changes to recipes. A further review of the market in five to ten years time would be useful. This would allow time for manufacturers to work though the implications of the Directive and test consumer perceptions of products containing CBEs. As yet, this has not been possible, as no one has changed recipes.

- The shortage of shea and sal during 2005/06 has reduced exotic availability and led to a run down in exotic fat stocks. This has increased exotic prices and placed pressure on CBE manufacturers. This highlights the dangers of restricting the number of fats, as it reduces the scope for substitution. Any reduction in the list of permitted fats would create a worse situation.

- With the global market for CBEs increasing and the variability of annual exotic fat production, in the longer term there is potential for a shortage of exotic fats. This suggests that in the longer term, consideration could be given to one or all of the following:

  — **Crop development for the permitted exotics.** At present shea, sal and mango kernel are all underdeveloped wild crops. There is scope, in the longer term, to increase crop potential. For instance, in West Africa the local production of shea butter could be enhanced though the provision of basic hand expellers. This would reduce the time needed to produce local shea butter and increase processing efficiency. In both cases, the provision of nuts would increase: first, by allowing more time for nut collection; and, second, by reducing the quantity of nuts required to yield a certain volume of butter. Additionally it could be possible to reduce the gestation period for the trees. In the case of sal, the proportion of the crop collected is small in relation to total production.

  — **Expanding the list of permitted fats.** However, the number of possible fats is limited, with aceituno oil probably the largest.

Chapter 1: Background and Introduction

INTRODUCTION

The European Parliament and Council adopted Directive 2000/36/EC on 23 June 2000. The aim of the Directive was to allow the use of up to 5% of a limited number of vegetable fats in the production of chocolate. The objective of the Directive was to simplify Community provisions concerning chocolate with a view to allowing the free movement of chocolate products within the Internal Market. Member States were obliged to enact the Directive by August 2003.

The vegetable fats that were permitted for use required strict technical characteristics as set out in Annex II of the Directive and were limited to six (Illipe, palm oil, sal, shea, kokum gurgi, and mango kernel), see Table 1.1. Five of these (illipe, sal, shea, kokum gurgi and mango kernel) can be classed as exotic fats; that is, the fat is obtained from the seeds/nuts of trees that are mainly growing wild in the tropics.

Table 1.1: Permitted Fats and Main Producing Countries

Fat	Main regions of production
Shea butter	West Africa
Illipe fat	South East Asia
Sal fat	India
Kokum gurgi oil	India
Mango kernel oil	India
Palm oil	South East Asia

Source: EU Directive and LMC

Prior to the passing of the Directive, eight of the EU-15 countries prohibited the use of vegetable fats in chocolate production; namely, Germany, France, Netherlands, Belgium, Luxembourg, Italy, Greece and Spain. If the chocolate manufacturers changed their recipes for products sold in these markets, there would be two direct outcomes upon producers:

- For cocoa producers, a loss of market; and
- For producers of the other vegetable fats, an increase in demand.

This study provides an evaluation of the impact of the Directive as required under the Directive. The aim of the evaluation is to:

- Determine the impact of Directive 2000/36/EC on the economies of those countries producing cocoa and vegetable fats other than cocoa butter; and
- Provide guidance to the Commission on whether or not to amend the list of vegetable fats other than cocoa butter that are permitted for use in chocolate. In this regard, three options are considered:

— To maintain the list for a further period of time, until the impact of the use of vegetable fats other than cocoa butter on the economies of developing countries can be further assessed.

— To shorten the list, assessing whether this may lead to a reduction of the quantities of vegetable fats other than cocoa butter in the production of chocolate.

— To extend the list, considering which other vegetable fats other than cocoa butter from developing countries could be allowed for use in the manufacture of chocolate.

The report is in eight chapters. Chapter 1 outlines the scope of the evaluation, presents a background to the manufacture of CBEs and discusses the implementation of the Directive in the individual member states; Chapter 2 examines trends in EU chocolate production and consumption; Chapter 3 presents trends in cocoa bean and product imports; while Chapter 4 discusses trends in the importation of the permitted vegetable fats. Chapter 5 examines what has happened in the chocolate industry since the introduction of the Directive, and Chapters 6 and 7 discuss the impact of the Directive on cocoa and vegetable oils producers, respectively. Chapter 8 presents the conclusions and recommendations.

CBE MANUFACTURE

In this report, we refer to blends of the permitted fats as cocoa butter equivalents (CBEs). CBEs are fats, which behave like and are compatible with cocoa butter in any proportion. For a product to be called chocolate in the EU the proportion of CBEs used cannot exceed 5% of the chocolate and the choice of fat is limited to the above.

Furthermore, all the fats have to comply with the following criteria:

1. They are non-lauric fats which are rich in symmetrical triglycerides of the type POP, POS, SOS;

2. They are miscible in any proportion with cocoa butter and are compatible with its physical properties (melting point and crystallisation temperature, melting rate and need for a tempering phase);

3. They are obtained only by the process of refining and/or fractionation, which excludes enzymatic modification of the triglyceride structure[1].

The choice of fat blend used in a particular CBE is dependent upon the end use of that CBE. A standard CBE would typically contain 50% of an exotic fat or its fraction and 50% palm oil mid-fraction (PMF). However, technical improvements in the production of CBEs mean that they are becoming increasingly specialised according to the requirements of end users: where a CBE is being used as a Cocoa Butter Improver (CBI), to increase the hardness of a product for instance, the proportion of the exotic fat used will be higher; where the CBE is being used in a reformulation of the whole fat phase to achieve specific desirable functional properties, the proportion of PMF will probably be higher.

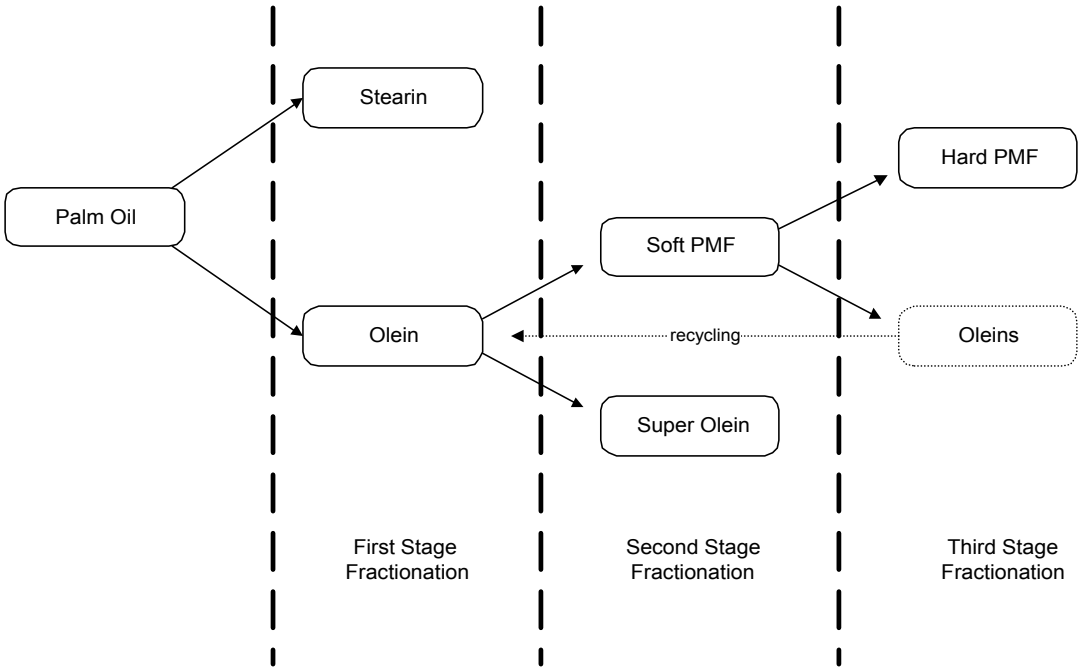
[1] Specifically this prohibits interesterification, which can be used to transform the properties of palm oil.

The choice of exotics is determined by the structure of the triglycerides contained in each product, particularly SOS. Shea stearin and kokum are the most valuable followed by mango kernel stearin and illipe. Sal stearin is quite variable in quality and contains up to 10% of another triglyceride, SOA. However, with technical know-how and a good product it can be almost as valuable as shea stearin and kokum.

In order to manufacture CBEs, shea butter and mango kernel oil require solvent fractionation to obtain the stearin that is used in the production process. Sal stearin can be processed using dry fractionation (or even not fractionated at all for less demanding applications). Kokum and illipe are not fractionated.

Soft palm oil mid-fraction (SPMF) is produced as a by-product from fractionating palm olein. A hard palm oil mid-fraction (HPMF) is then obtained by further fractionation (Diagram 1.1). The HPMF is typically used in CBE manufacture, although some SPMF is also used as it is cheaper and has the same functionality as HPMF.

Diagram 1.1: Palm Mid-fraction Production



Source: Confectionery Fats Handbook

ADOPTION OF THE DIRECTIVE

The Directive obliged Member States to implement it by August 2003; it has now been implemented in all of the EU-15 members. The Directive was first implemented in the Greece during 2001. The majority of states implemented it during 2003 (Table 1.2).

Table 1.2: Implementation of Directive 2000/36/EC

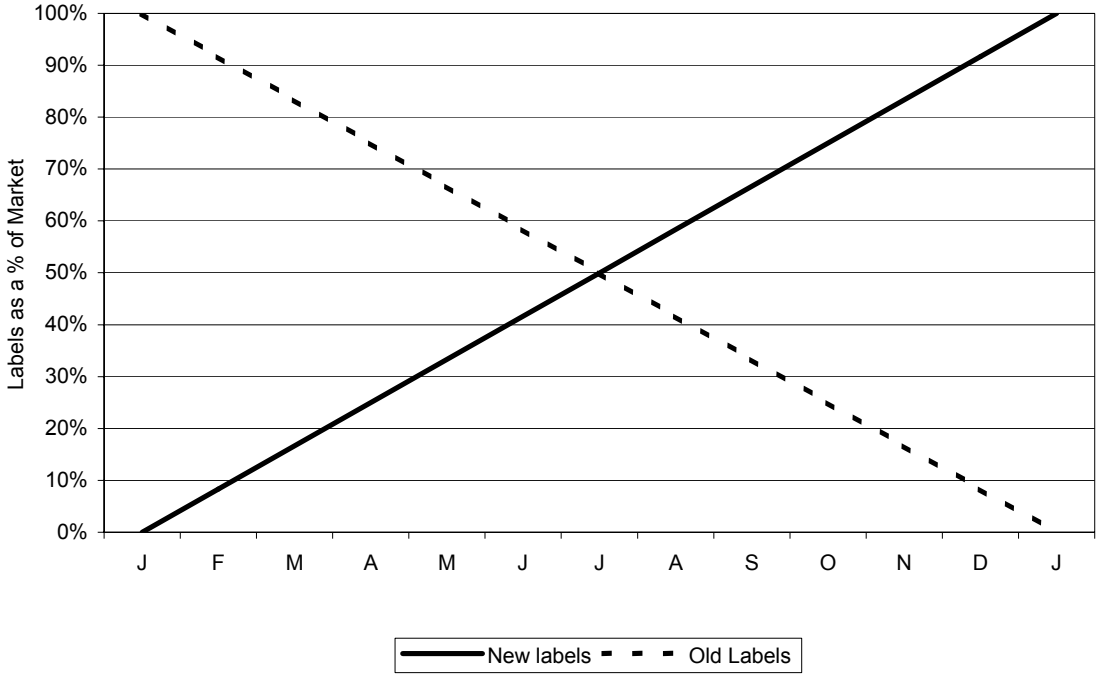
	Date of Implementation
UK	03-Aug-03
Sweden	03-Aug-03
Greece	01-Feb-01
Denmark	03-Aug-03
Belgium	29-Mar-03
France	29-Jul-03
Ireland	11-Jun-03
Austria	30-Dec-03
Germany	15-Dec-03
Luxembourg	25-Jul-03
Netherlands	02-Nov-01
Finland	03-Aug-03
Portugal	27-Sep-03
Spain	03-Aug-03
Italy	03-Aug-03

Note: In Germany, manufacturers were able to maintain recipes for 6 months after the implementation of the Directive. In Italy, the regulations contained a provision for "pure chocolate".

Source: National Regulation.

The regulations cover all chocolate products packaged after the date of adoption of the Directive. For products containing vegetable fats the product needs to be labelled “contains vegetable fats in addition to cocoa butter”. This labelling only appears after the date of implementation, hence for a period two differently labelled products appeared side by side on supermarket shelves; products that were packaged before the implementation date and those packaged afterwards. How long this occurred for depends on the distribution of chocolate production during the year and the shelf life of chocolate products. For example, assuming that production was equally distributed throughout the year and that the shelf life of a product is 12 months, newly packaged products would appear side by side for a 12-month period, with the proportion of old packaged products declining over time (Diagram 1.2).

Diagram 1.2: Labelling Requirements



For the purpose of this evaluation, we assume that the Directive was fully implemented by the end of 2003 and we compare the position before and after 2003.

Chapter 2: EU Chocolate Consumption and Production

This chapter examines chocolate consumption and production trends in the EU over the reporting period. The first part of the chapter considers the EU-15, while the second part considers the EU-10 accession states.

EU-15

Chocolate Product Consumption

Data on chocolate product[1] production and consumption to 2004 were provided by Caobisco. These data were supplemented by consumer market research data for the major markets for 2005. For the other smaller markets, we assume that consumption continues to follow its longer term trend. Trade data are from Eurostat.

EU-15 consumption of chocolate products is around 2.2 million tonnes. There has been little change in total consumption since the Directive was adopted in 2003, although there are variations between countries (Diagram 2.1). Four markets, UK, Germany, Italy and France account for close to 80% of EU-15 chocolate consumption. Per capita consumption levels are highest in UK, Ireland and Germany (Diagram 2.2).

[1] Chocolate products are defined as chocolate confectionery i.e., the chocolate plus the filling or other non-chocolate components, i.e., added fruit and nuts. This comprises the Caobisco categories of unfilled bars, filled bars, bonbon, and sugar containing cocoa.

Table 2.1: EU-15 Chocolate Consumption (tonnes)

	1996	2000	2001	2002	2003	2004	2005	Annual Growth since 2003	Annual Growth 5 years	Annual Growth 10 years
UK	487,415	491,516	475,981	509,241	530,226	529,187	500,381	-1.9%	1.0%	0.3%
Austria	70,235	50,013	60,183	53,225	49,688	54,322	53,676	2.6%	-2.3%	-2.7%
Sweden	52,265	56,708	59,239	60,899	58,173	59,742	58,447	0.2%	-0.3%	1.1%
Ireland	30,458	31,839	30,726	32,827	35,192	34,460	33,426	-1.7%	1.7%	0.9%
Finland	18,245	27,942	30,511	30,364	31,157	32,289	32,612	1.5%	1.3%	6.0%
Denmark	38,575	40,942	42,971	44,217	40,977	42,594	41,596	0.5%	-0.6%	0.8%
Portugal	11,660	21,229	24,598	25,213	21,695	19,237	20,500	-1.9%	-3.6%	5.8%
Germany	689,620	677,128	666,786	670,859	661,870	681,941	668,746	0.3%	0.1%	-0.3%
France	270,405	297,435	287,510	287,990	280,616	280,231	285,064	0.5%	-0.2%	0.5%
Netherlands	70,395	76,105	74,900	74,200	71,300	73,100	73,300	0.9%	-0.4%	0.4%
Italy	150,730	162,932	169,959	183,821	191,570	196,915	202,490	1.9%	3.6%	3.0%
Belgium	55,225	60,863	49,072	63,612	68,295	71,545	70,912	1.3%	7.6%	2.5%
Spain	64,175	61,025	64,250	64,655	65,285	68,235	71,874	3.3%	2.3%	1.1%
Greece	24,700	29,045	30,591	32,502	34,781	37,131	39,226	4.1%	5.1%	4.7%
Total	**2,034,103**	**2,084,721**	**2,067,278**	**2,133,625**	**2,140,824**	**2,180,927**	**2,152,250**	**0.2%**	**0.8%**	**0.6%**

Source: CAOBISCO, Market Research Data, LMC.

Diagram 2.1: Change in Consumption 2003 v 2005

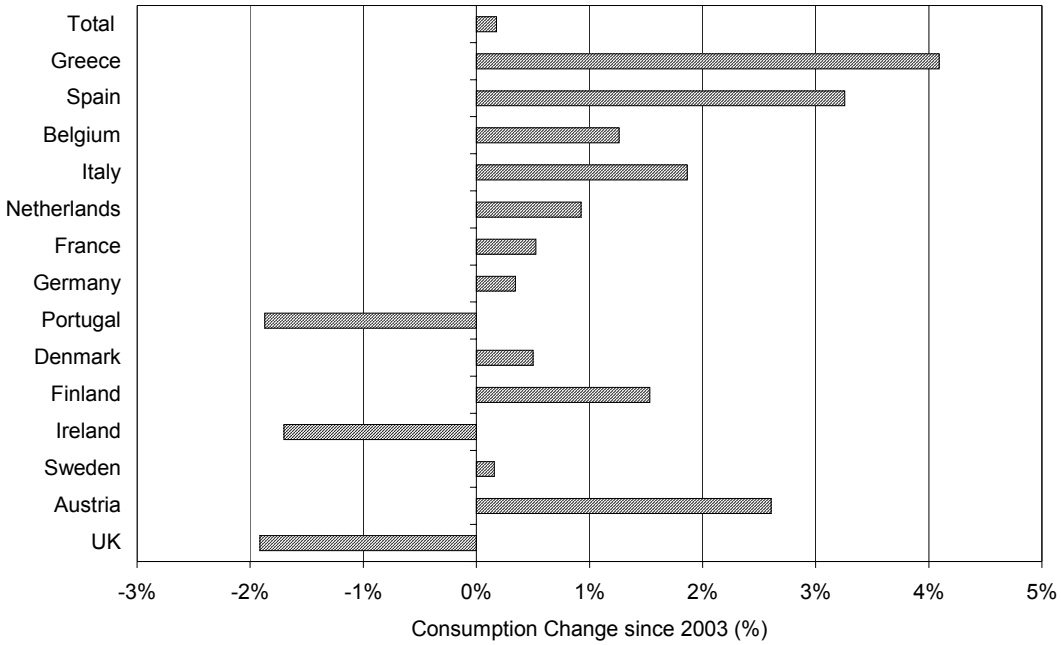
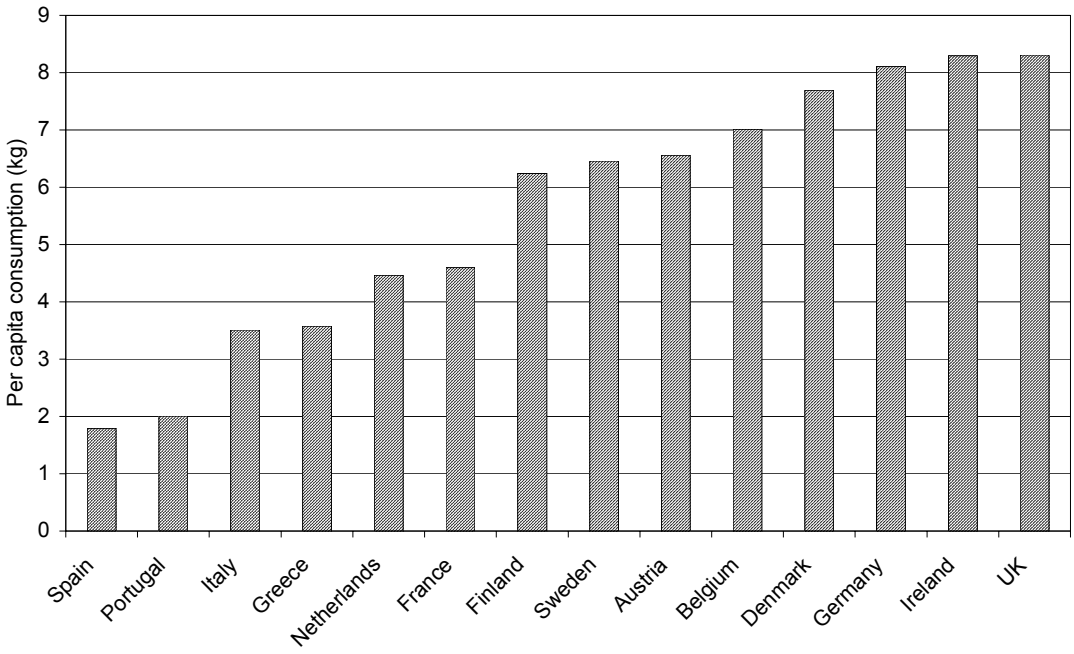


Diagram 2.2: Per Capita Chocolate Consumption, 2005



There are a number of reasons for the slow growth in consumption:

- Slow growth in income. Per capita consumption is related to per capita incomes and the slow growth of incomes in recent years has adversely affected demand;

- In some of the mature markets, the market is saturated; and
- Increasing concerns over obesity.

Not all segments of the market have experienced the same level of growth. There has been growth in whole bar (tablet) consumption which has been driven by campaigns highlighting the benefits of cocoa consumption. This is due to the presence of the antioxidant flavanol which has been found to reduce blood pressure. In addition, there has been growth in speciality/gourmet products, such as single origin and dark chocolate. Both of these products have a higher cocoa content and are positioned as premium products with a higher price.

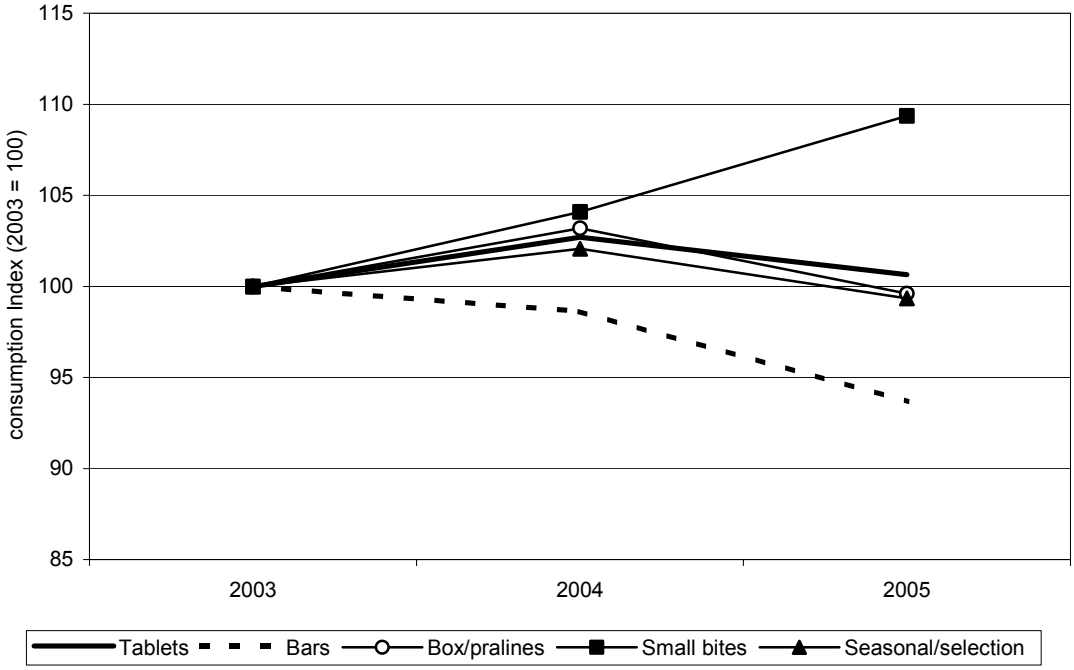
The strongest growth, albeit from a low base, has been for the small bite segment (Table 2.2 and Diagram 2.3).

Table 2.2: Consumption by Type, UK, Germany, France and Italy (tonnes)

	2003	2004	2005
Tablets	446,230	458,289	449,096
Bars	435,069	429,092	407,497
Box/pralines	244,374	252,183	243,388
Small bites	120,319	125,234	131,583
Seasonal/selection	196,867	200,935	195,562
Total	**1,442,859**	**1,465,733**	**1,427,126**

Source: Market Research Data

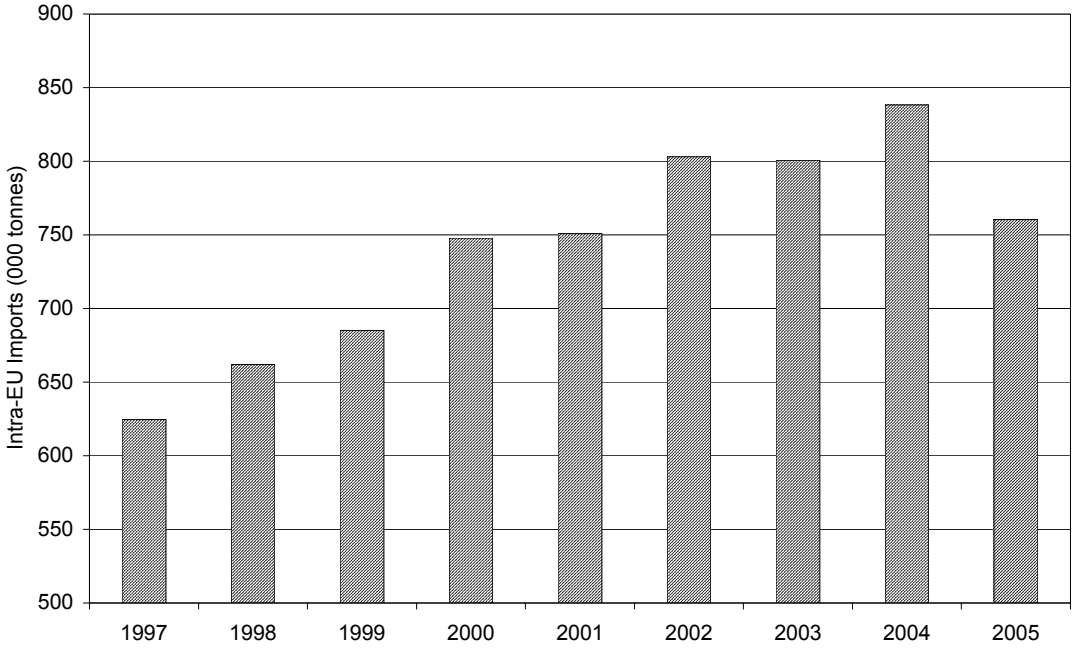
Diagram 2.3: Consumption by Type



Chocolate Product Trade

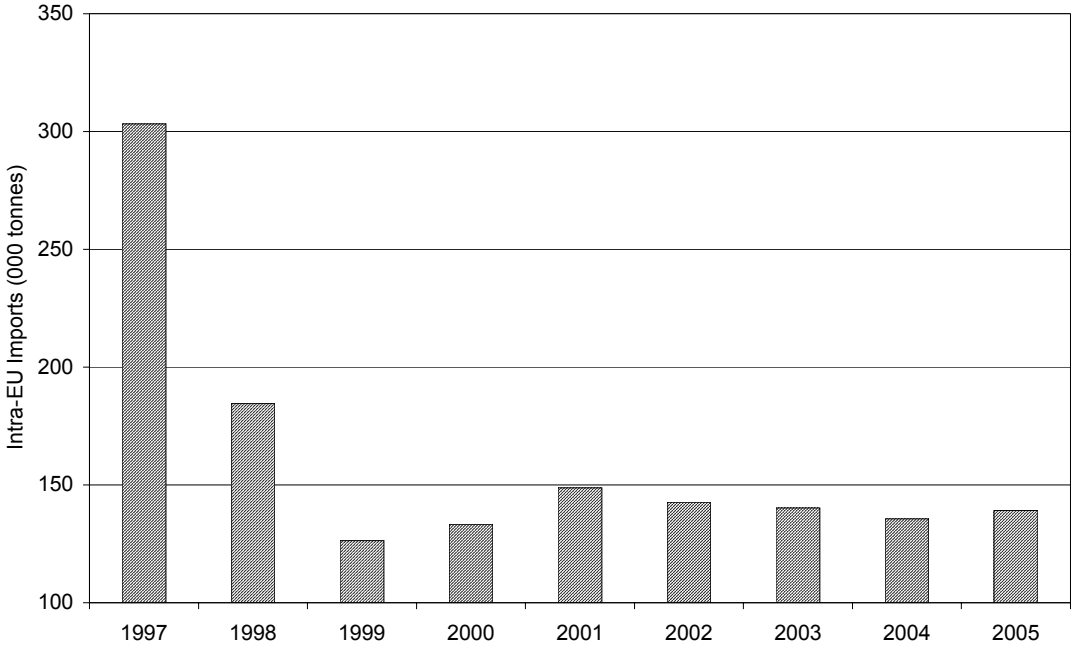
Increasing volumes of chocolate products are being shipped around the EU-15 as the confectionery industry consolidates. This is due to the economies of scale in the production of chocolate products. The volume of intra-regional trade (i.e., trade between the EU-15 member states) increased from 624,000 tonnes to 834,000 tonnes between 1997 and 2004. The traded volume fell back in 2005 (Diagram 2.4). This means that there is increasing dislocation of consumption and production.

Diagram 2.4: Intra-EU Chocolate Product Trade



The EU-15 is a net exporter of chocolate products. Net exports (to countries outside of the EU-15) fell substantially in 1997 and 1998 as exports to Eastern Europe declined. However, since then net exports have remained stable at around 140,000 tonnes per annum (Diagram 2.5)

Diagram 2.5: Net EU-15 Exports



Chocolate Product Production

Chocolate product production is defined as:

Production = Consumption + Exports – Imports.

Table 2.3 highlights the major trends. Total EU-15 production has been unchanged since the adoption of the Directive, although this hides trends in individual countries. Of the major producers production has fallen by 5% in the UK as imports have increased.

Table 2.3: EU-15 Chocolate Production (tonnes)

	1996	2000	2001	2002	2003	2004	2005	Annual Growth since 2003	Annual Growth 5 years	Annual Growth 10 years
UK	515,620	473,255	469,300	464,245	482,238	459,637	406,375	-5.5%	-2.8%	-2.4%
Austria	55,640	56,860	63,030	56,175	55,285	55,160	58,807	2.1%	-1.4%	0.6%
Sweden	52,265	52,075	51,650	50,325	47,970	45,027	46,144	-1.3%	-2.2%	-1.2%
Ireland	59,823	58,473	56,811	68,563	75,109	63,640	59,962	-7.2%	1.1%	0.0%
Finland	35,105	33,910	34,080	34,050	33,015	32,395	31,518	-1.5%	-1.6%	-1.1%
Denmark	20,130	24,440	27,550	25,795	25,660	28,195	28,827	4.0%	0.9%	3.7%
Portugal	2,465	2,305	2,800	1,545	1,040	1,230	1,262	6.7%	-14.7%	-6.5%
Germany	811,871	719,175	730,660	751,410	753,208	798,599	786,169	1.4%	1.5%	-0.3%
France	282,335	275,971	275,403	281,061	264,626	284,050	268,146	0.4%	-0.5%	-0.5%
Netherlands	173,205	185,866	188,597	182,353	180,387	162,498	185,265	0.9%	-0.4%	0.7%
Italy	166,655	165,800	174,300	189,550	193,800	201,500	204,047	1.7%	3.2%	2.0%
Belgium	131,515	173,665	171,605	195,850	196,405	218,765	214,866	3.0%	4.6%	5.0%
Spain	69,565	38,615	46,165	50,780	47,149	52,460	62,678	10.0%	6.3%	-1.0%
Greece	22,300	20,700	21,000	21,200	22,000	22,500	26,675	6.6%	4.9%	1.8%
Total	**2,398,494**	**2,281,110**	**2,312,950**	**2,372,902**	**2,377,893**	**2,425,656**	**2,380,741**	**0.0%**	**0.6%**	**-0.1%**

Source: LMC

RETAIL CHOCOLATE PRICES

Of the major EU chocolate producers, retail price data (as collected for consumer price indices) only include chocolate in two cases: France and Germany. These data suggest the real prices have risen by 1.5% per annum in Germany, but have fallen by 1.2% per annum in France since the adoption of the Directive.

Diagram 2.6: France Chocolate Retail Price Index

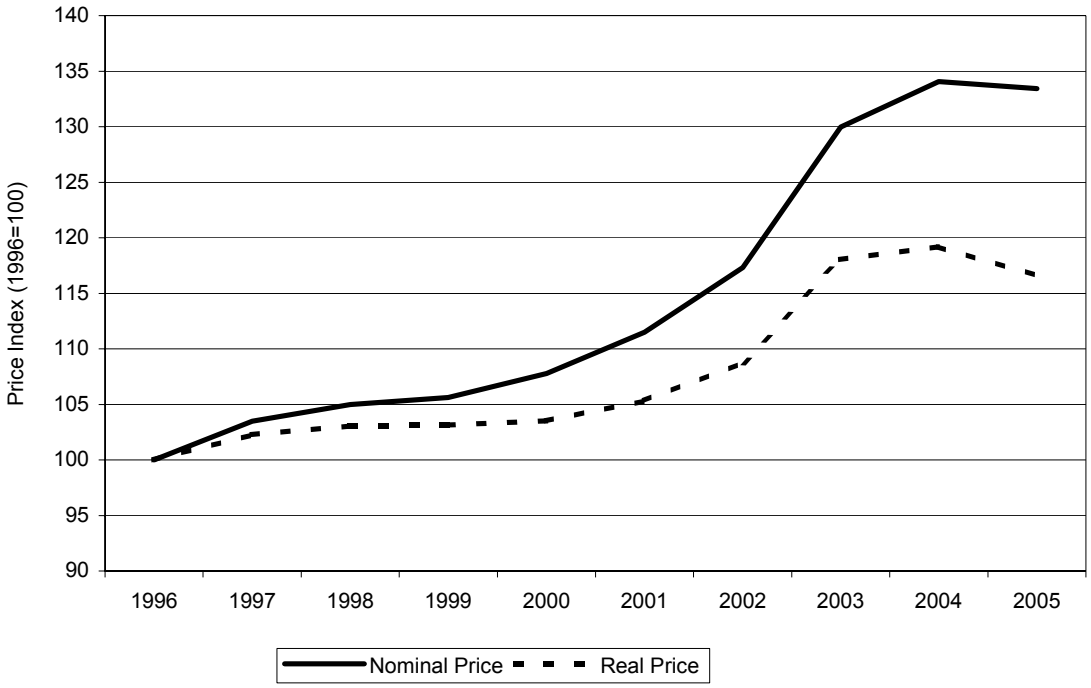
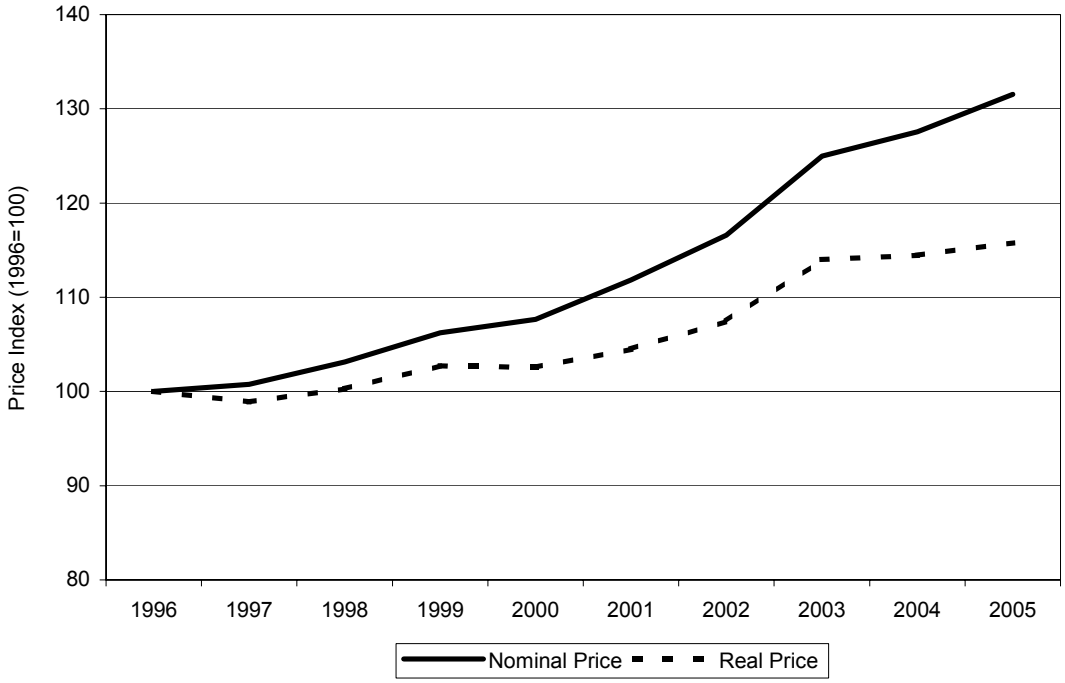


Diagram 2.7: Germany Milk Chocolate Retail Price Index



CENTRAL AND EASTERN EUROPE

Confectionery markets are growing more quickly in the EU-10 accession countries than is the case in the EU-15. Poland is the hub, both in terms of consumption and production. There has also been an increase in the export of chocolate products.

Chocolate Consumption

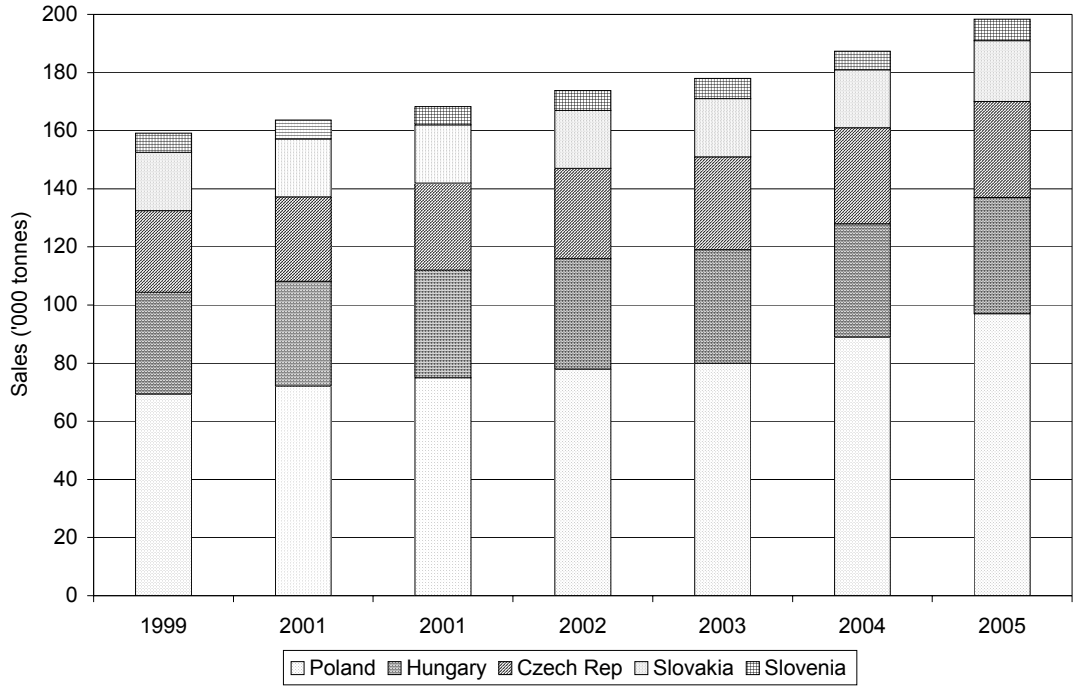
The chocolate confectionery market in the Central European member states is estimated at around 200,000 tonnes in 2005, having grown by 3% per year on average over the last five years. The most rapid growth has been in Poland, which is also by far the largest market, accounting for approaching 100,000 tonnes (Table 2.4 and Diagram 2.8).

Table 2.4: Central European Member States — Chocolate Product Consumption (tonnes)

	1999	2001	2001	2002	2003	2004	2005	Growth 5 years
Czech Rep	28,096	29,032	30,000	31,000	32,000	33,000	33,000	2%
Poland	69,342	72,115	75,000	78,000	80,000	89,000	97,000	5%
Hungary	35,078	36,026	37,000	38,000	39,000	39,000	40,000	2%
Slovakia	20,000	20,000	20,000	20,000	20,000	20,000	21,000	1%
Slovenia	6,652	6,484	6,324	6,755	6,998	6,289	7,328	3%
Total	**159,168**	**163,658**	**168,324**	**173,755**	**177,998**	**187,289**	**198,328**	**3%**

Source: NCA, LMC.

Diagram 2.8: Central European Member States — Chocolate Product Consumption



Chocolate Trade

As is the case with the EU-15, there is an increasing volume of trade in chocolate confectionery products between both within the EU-10 (particularly the Central European member states) and with the EU-15. Poland is becoming the regional hub and has become a significant net exporter. This is partly the influence of the EU-15 chocolate manufacturers who over the last ten years have made significant acquisitions in the market and are using the country as a base for production for both the local market and for export.

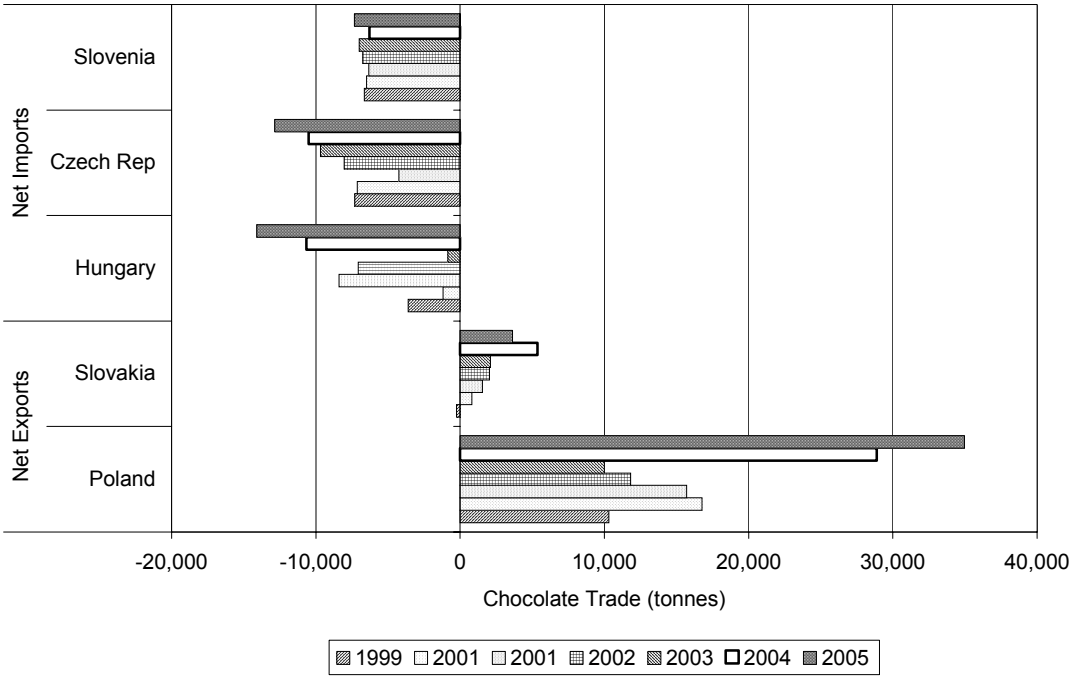
Net chocolate exports by Poland have grown from below 16,000 tonnes in 2001 to almost 35,000 tonnes in 2005, an average annual increase of 17%. Over the same period, net imports by Hungary, the Czech Republic and Slovenia have risen by an average of 13% per year (Table 2.5 and Diagram 2.9).

Table 2.5: Central European Member States — Chocolate Trade (tonnes)

		1999	2001	2001	2002	2003	2004	2005	Growth 5 years
Net Exports	Poland	10,317	16,759	15,695	11,809	10,008	28,883	34,955	17%
	Slovakia	-252	822	1,535	2,032	2,108	5,373	3,622	19%
	Total	**10,065**	**17,581**	**17,230**	**13,841**	**12,116**	**34,256**	**38,577**	**17%**
Net Imports	Hungary	-3,600	-1,191	-8,384	-7,056	-842	-10,652	-14,106	11%
	Czech Rep	-7,312	-7,125	-4,252	-8,040	-9,682	-10,494	-12,848	25%
	Slovenia	-6,652	-6,484	-6,324	-6,755	-6,998	-6,289	-7,328	3%
	Total	**-17,565**	**-14,800**	**-18,960**	**-21,851**	**-17,523**	**-27,435**	**-34,283**	**13%**

Source: Eurostat.

Diagram 2.9: Central European Member States — Chocolate Trade



Chocolate Production

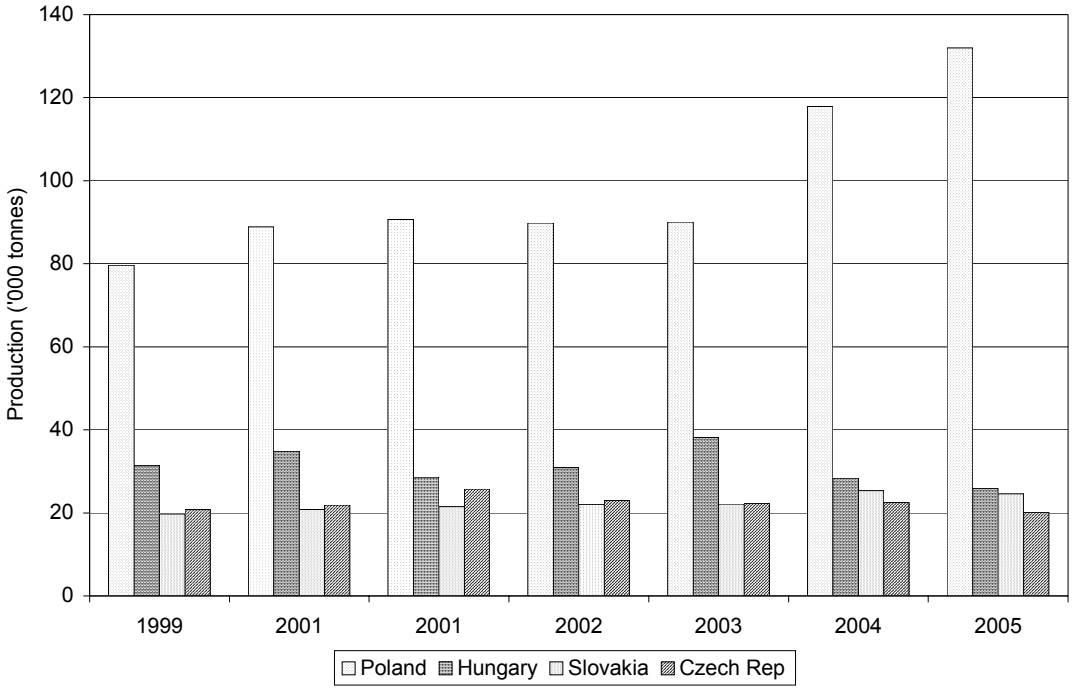
Estimates of chocolate production are derived from the trade and consumption data presented above. As mentioned previously, Poland has become a production base for many EU-15 manufacturers, and production there is estimated to have increased from around 90,000 tonnes in 2001 to over 130,000 tonnes in 2005, equivalent to an annual average growth rate of 8%. Over the same period, production has declined in both the Czech Republic and Hungary. It is assumed that all consumption in Slovenia is supplied by imports (Table 2.6 and Diagram 2.10).

Table 2.6: Central European Member States — Chocolate Production (tonnes)

	1999	2001	2001	2002	2003	2004	2005	Growth 5 years
Czech Rep	20,783	21,907	25,748	22,960	22,318	22,506	20,152	-5%
Poland	79,659	88,874	90,695	89,809	90,008	117,883	131,955	8%
Hungary	31,478	34,835	28,616	30,944	38,158	28,349	25,894	-2%
Slovakia	19,748	20,822	21,535	22,032	22,108	25,373	24,622	3%
Total	**151,668**	**166,439**	**166,594**	**165,745**	**172,591**	**194,111**	**202,622**	**4%**

Source: Derived from Tables 2.4 and 2.5

Diagram 2.10: Central European Member States — Chocolate Production



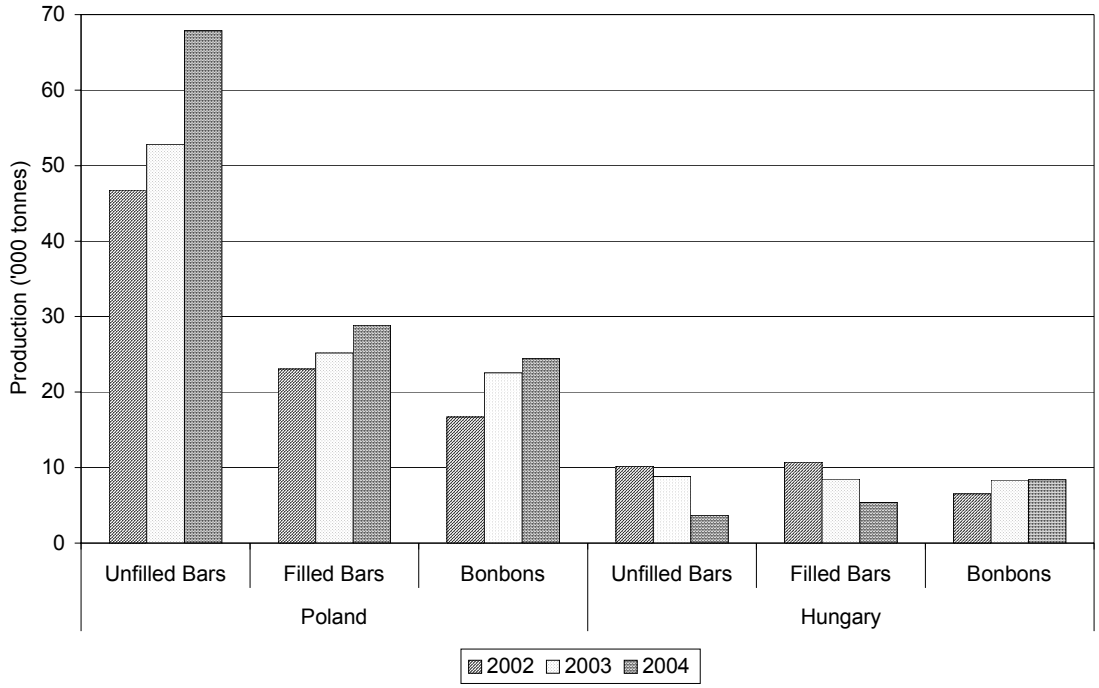
The derived production estimates are supported by the Prodcom data, which also show how production is broken down by type in Poland and Hungary. In Poland, production of unfilled bars (which account for over half of total output) and bonbons grew by an annual average of 13% between 2002 and 2004. In Hungary, the data suggests a sharp fall in chocolate bar production (Table 2.7 and Diagram 2.11).

Table 2.7: Poland and Hungary — Chocolate Production by Type (tonnes)

		2002	2003	2004	Growth 3 Years
Poland	Unfilled Bars	46,750	52,822	67,885	13%
	Filled Bars	23,063	25,183	28,878	8%
	Bonbons	16,722	22,557	24,406	13%
Hungary	Unfilled Bars	10,158	8,824	3,707	-29%
	Filled Bars	10,706	8,481	5,392	-20%
	Bonbons	6,519	8,353	8,405	9%

Source: Prodcom.

Diagram 2.11: Poland and Hungary — Chocolate Production by Type



The data point to strong growth in chocolate production in Poland over the last few years as EU-15 manufacturers have established their operations there. However, there is considerable over-capacity in the Polish market and a degree of consolidation is taking place:

- In 2005, Nestlé Polska sold its Poznan production facility (which manufactures *Goplana* brand confectionery) to a local manufacturer, Jutrzenka;
- In 2005, the Swedish manufacturer Cloetta Fazer closed its Polish subsidiary in Gdansk due to falling sales;
- In 2006, Barry Callebaut announced plans to construct a 25,000 tonne chocolate factory in Russia, a market that it had previously supplied from its Polish plant.

Chapter 3: The EU Market for Cocoa

As cocoa and the vegetable fats used in the manufacture of chocolate are produced outside of the EU, import data can be used to gain an indication of the market size. This chapter examines trends in both cocoa and cocoa product imports, while the following chapter examines the imports of the vegetable fats permitted for use in chocolate.

NET IMPORTS

The EU imports cocoa beans as well as cocoa mass (liquor), cocoa butter and cocoa powder/cake. In order to determine the level of net imports on a consistent basis, cocoa product imports have to be converted to a cocoa bean equivalent. For this, we have used the ICCO's standard conversions[1].

Net imports of cocoa beans and cocoa products in bean equivalent (b.e.) terms from outside the EU-15 countries have increased from around 1.2 million tonnes in 1996 to over 1.4 million tonnes in 2005, recording an average annual growth rate of 2.1% over the last 10 years. Since 2003, the growth rate has increased to 3.5%; almost all of this growth occurred in 2005. The major EU-15 importers are the Netherlands (accounting for 38% of net imports in 2005), France (16%), Belgium (14%) and the UK (10%). Net imports into Belgium have grown by 16% per year since 2003, while German and Italian net imports have fallen (Table 3.1 and Diagram 3.1).

[1] The ICCO conversions are:

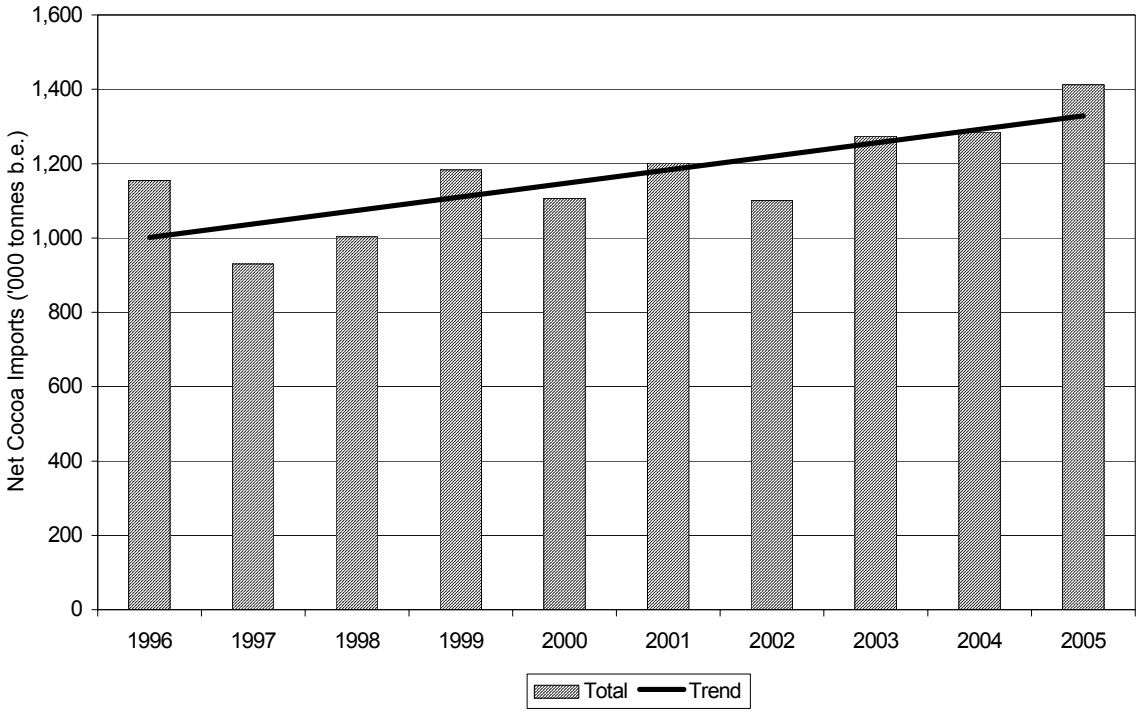
Beans: liquor /mass/paste	1.25:1
Beans: butter	1.33:1
Beans: powder/cake	1.18:1

Table 3.1: Net Imports of Cocoa Beans and Cocoa Products by Major EU-15 Importers (tonnes b.e.)

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Annual Growth since 2003
Belgium (and Luxembourg)	55,222	87,379	92,962	47,139	105,001	92,496	123,981	122,463	148,399	190,842	15.9%
France	172,996	134,467	141,070	164,282	169,436	195,709	176,114	197,999	217,498	214,683	2.7%
Germany	188,195	185,615	182,347	161,424	159,844	143,441	134,032	134,951	104,271	134,321	-0.2%
Italy	74,937	69,756	68,206	65,821	73,285	66,221	53,303	70,448	59,036	60,836	-4.8%
Netherlands	383,902	211,688	243,741	437,294	369,189	471,517	392,195	517,750	514,723	549,120	2.0%
Spain	53,921	62,527	69,988	72,494	72,735	77,007	82,019	82,915	86,258	94,789	4.6%
UK	197,513	144,571	171,663	217,090	128,707	139,052	121,820	135,244	140,603	139,546	1.0%
Other EU-15	27,684	33,887	33,336	17,865	28,139	15,815	17,372	11,673	14,388	27,794	33.5%
Total EU-15	**1,154,370**	**929,889**	**1,003,312**	**1,183,410**	**1,106,335**	**1,201,257**	**1,100,836**	**1,273,444**	**1,285,176**	**1,411,931**	**3.5%**

Source: Eurostat.

Diagram 3.1: Total EU-15 Net Imports of Cocoa Beans and Cocoa Products



The majority of EU-15 cocoa imports are in the form of raw beans. Cocoa product imports, particularly of paste, have grown more rapidly, mainly due to the increase in downstream processing in producing countries such as Côte d'Ivoire. The EU-15 is a net exporter of cocoa powder (Table 3.2).

This growth in processing at origin has been led by the multinational cocoa processors increasing their investment at origin. These products can be incorporated into standard blends and the companies have invested in good quality control procedures that ensure that bacterial contamination, particularly of paste products, can be avoided.

Factors that have encouraged this downstream processing are:

- Access to beans, including the lower quality mid-crop beans, which can be obtained at a discount. In Côte d'Ivoire though, over the last two years, high demand has forced the price of mid-crop beans upwards;
- Advantageous export tax rates for processed products;
- Investment incentives; and
- Lower average shipping costs as shell is not being exported.

Table 3.2: Net Imports of Cocoa Beans and Cocoa Products by Product Category (tonnes b.e.)

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Annual Growth since 2003
Cocoa Beans	1,145,128	939,139	1,016,815	1,182,023	1,123,065	1,172,624	1,064,778	1,194,169	1,234,691	1,363,931	4.5%
Cocoa Paste	26,658	33,627	48,189	64,601	66,202	85,439	85,597	65,403	78,680	106,964	17.8%
Cocoa Cake	23,848	47,241	39,287	49,714	52,943	54,324	41,386	48,876	44,639	47,990	-0.6%
Cocoa Butter	51,524	26,573	24,396	32,319	26,966	25,765	62,348	87,396	81,581	54,400	-14.6%
Cocoa Powder	-92,789	-116,691	-125,376	-145,247	-162,840	-136,895	-153,273	-122,400	-154,414	-161,353	9.6%
Total EU-15	**1,154,370**	**929,889**	**1,003,312**	**1,183,410**	**1,106,335**	**1,201,257**	**1,100,836**	**1,273,444**	**1,285,176**	**1,411,931**	**3.5%**

Source: Eurostat.

IMPORTS BY ORIGIN

The majority of EU-15 cocoa imports are from West Africa, which supplied approaching 1.6 million tonnes of beans and cocoa products in 2005. Côte d'Ivoire alone accounted for 33% of total 2005 imports, with three other West African origins (Ghana, Nigeria and Cameroon) accounting for a further 49%. Imports from Central and South America have grown by an average of 5% per year, although the region's import share is still only 5%, similar to that of Asia and Oceania (Table 3.3).

Over the reporting period, imports from Côte d'Ivoire as a proportion of total imports peaked in 2000 and have fallen since. Exports from other West African producers have increased to compensate (Diagram 3.2).

In any one year changes in imports by country, on top of the underlying trend growth, can be attributed to:

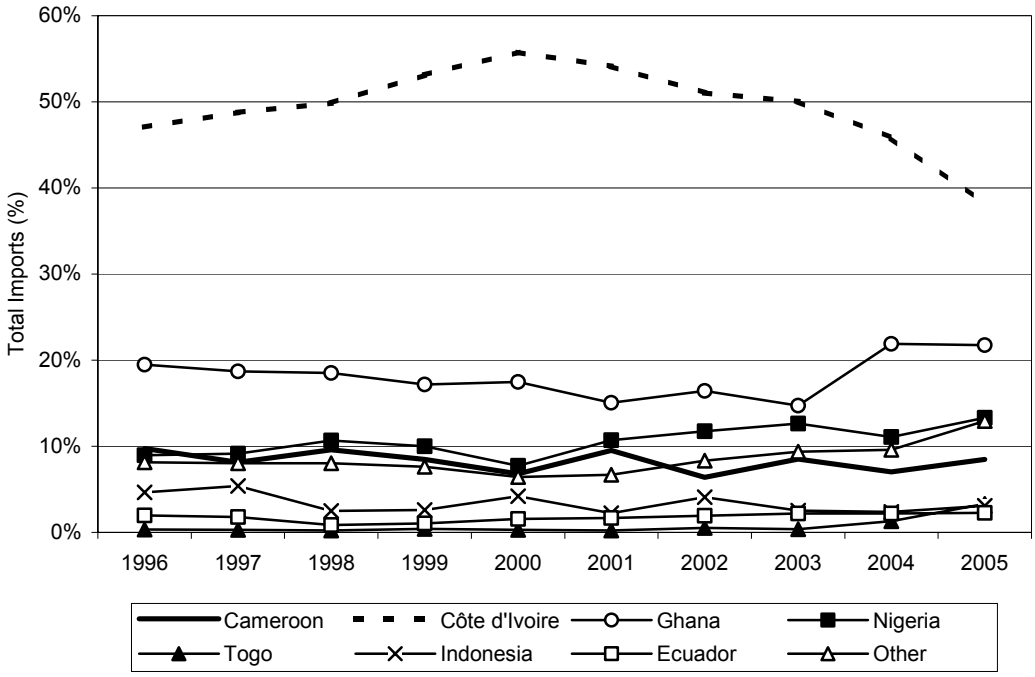
- Statistical error;
- Seasonal fluctuation in the timing of the crop: for instance, as the crop is harvested towards the end of a calendar year, an early crop could see an increase in imports in December as opposed to January; and
- Cross-border movements: There has long been a trade in cocoa between Ghana and East Côte d'Ivoire, with the direction of the trade depending upon relative prices. In addition, the rise in imports from Togo since 2003 is largely attributed to increased smuggling from Côte d'Ivoire.

Table 3.3: Imports of Cocoa Beans and Cocoa Products by Exporting Region and Country (tonnes b.e.)

Exporting Region	Exporting Country	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Average Annual % Change 1996-2005
Africa	Cameroon	131,223	95,170	120,891	123,086	97,262	144,043	90,622	135,246	116,311	151,732	-1%
	Côte d'Ivoire	633,342	571,189	627,347	771,979	796,470	818,984	723,407	794,341	759,860	684,162	2%
	Ghana	262,400	219,058	232,831	249,497	249,439	227,579	233,061	233,698	362,701	390,294	4%
	Nigeria	120,583	107,039	134,517	145,472	110,322	161,993	166,649	200,474	183,810	238,598	5%
	Togo	4,619	3,686	2,896	6,154	4,014	3,357	7,623	5,779	21,753	59,580	21%
	Others	28,822	25,884	33,960	27,672	26,546	23,071	25,546	40,111	36,929	51,438	3%
	Total	**1,180,989**	**1,022,026**	**1,152,441**	**1,323,860**	**1,284,053**	**1,379,028**	**1,246,909**	**1,409,650**	**1,481,364**	**1,575,804**	**3%**
Asia and Oceania	Indonesia	62,493	62,952	31,255	37,683	60,249	33,955	58,221	40,227	39,440	55,609	-6%
	Malaysia	23,045	15,053	13,536	15,423	16,298	19,896	14,053	28,049	26,824	37,418	2%
	Papua New Guinea	8,543	8,414	9,348	7,615	7,816	9,474	9,182	7,634	9,073	12,468	1%
	Others	9,285	9,238	5,829	11,800	7,715	9,905	17,581	20,604	13,174	16,163	4%
	Total	**103,366**	**95,657**	**59,968**	**72,521**	**92,079**	**73,230**	**99,038**	**96,513**	**88,511**	**121,657**	**-2%**
Central and South America	Ecuador	26,380	21,072	10,925	14,930	22,496	25,125	27,324	34,715	36,444	40,762	4%
	Brazil	6,107	9,103	13,545	16,425	13,483	10,115	12,247	18,527	16,513	18,004	13%
	Dominican Republic	2,824	2,686	3,968	3,122	3,208	9,105	7,137	7,815	10,369	12,234	18%
	Others	22,911	15,973	15,078	13,594	9,117	10,851	17,334	17,670	21,533	18,104	-1%
	Total	**58,221**	**48,834**	**43,517**	**48,071**	**48,303**	**55,195**	**64,042**	**78,727**	**84,859**	**89,103**	**5%**
Other Regions	**Total**	**3,553**	**4,182**	**2,726**	**9,244**	**3,799**	**5,506**	**7,451**	**2,802**	**2,874**	**6,908**	**-3%**
Total EU-15		**1,346,129**	**1,170,699**	**1,258,652**	**1,453,696**	**1,428,234**	**1,512,958**	**1,417,439**	**1,587,691**	**1,657,608**	**1,793,472**	**3%**

Source: Eurostat.

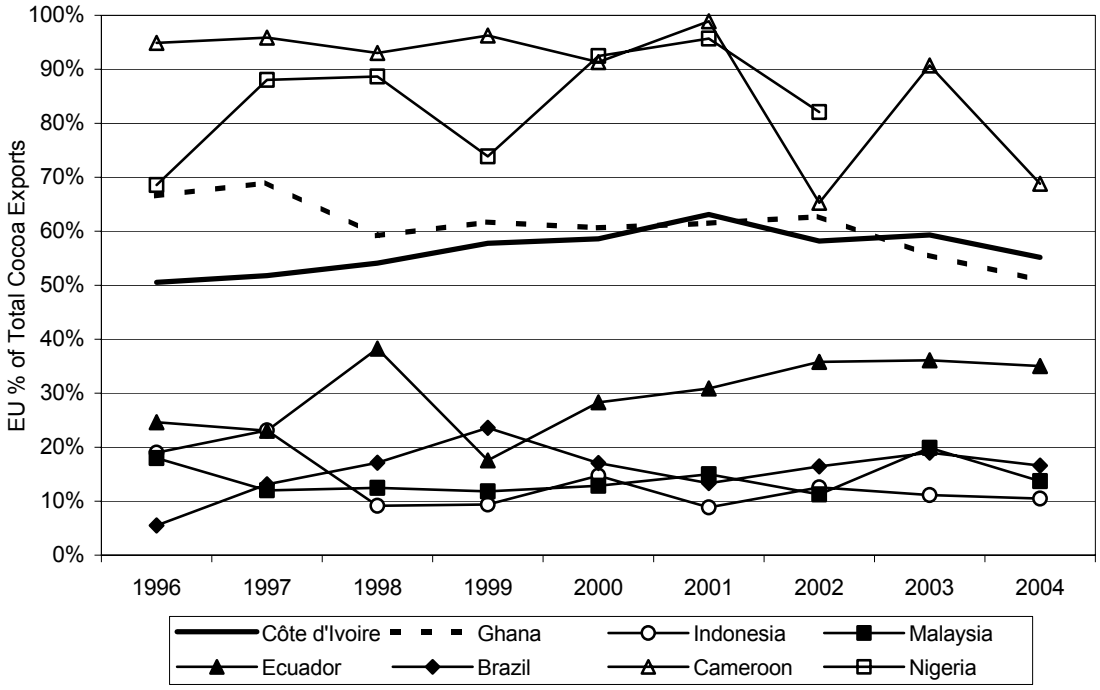
Diagram 3.2: EU-15 Cocoa Imports % of Total



In order to illustrate the importance of the EU-15 markets to cocoa producing countries, a comparison has been made between the import data and export data mainly compiled from official sources by the International Cocoa Organisation (ICCO).

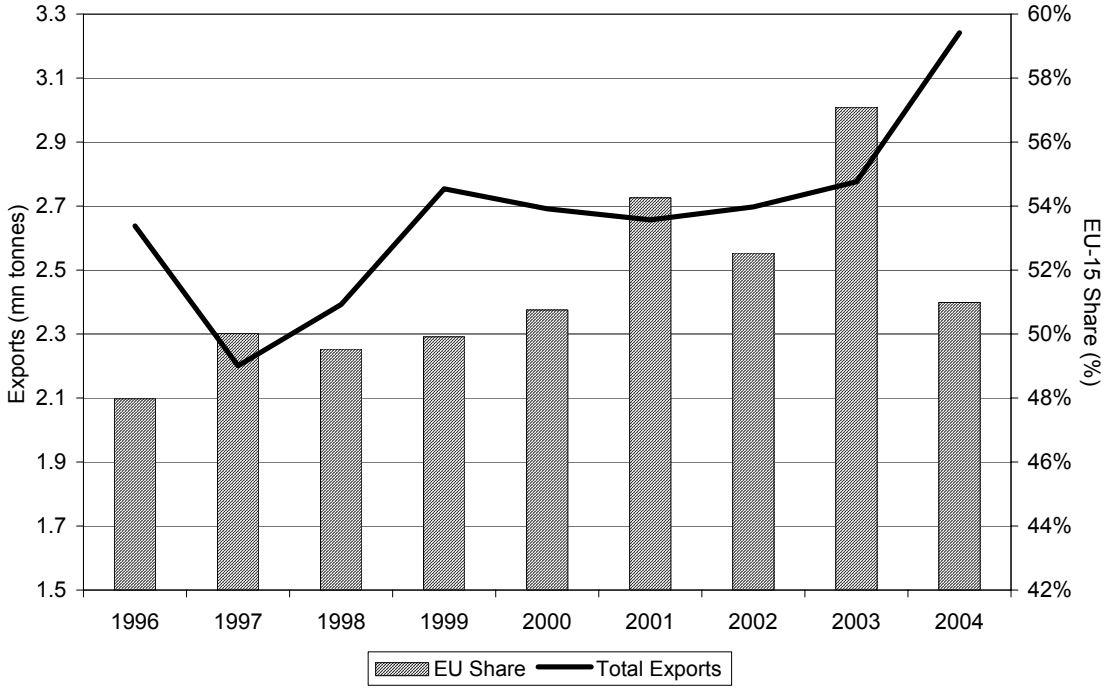
This analysis shows that, in the case of Cameroon and Nigeria, EU-15 imports typically account for around 80% of total cocoa exports, while for Côte d'Ivoire and Ghana, the share is over 50%. These are much higher shares than those for exports from Asian producers, such as Indonesia and Malaysia (both less than 20%), and from South American producers, such as Ecuador (less than 40%) and Brazil (less than 25%) (Diagram 3.3).

Diagram 3.3: EU-15 Share of Total Cocoa Exports by Producing Countries



Typically, the EU accounts for between 48% to 57% of total cocoa exports from the producing countries (Diagram 3.4).

Diagram 3.4: EU-15 Share of Total Cocoa Exports



EU GRINDINGS

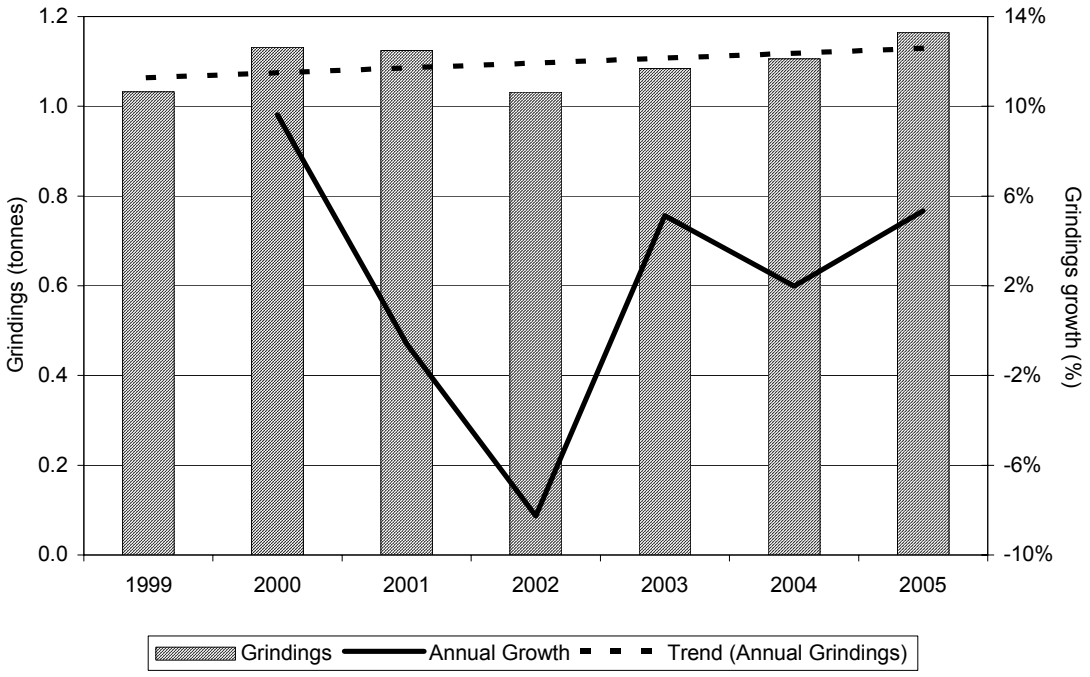
CAOBISCO and the European Cocoa Association (ECA) jointly publish cocoa grinding statistics covering the EU and Switzerland. The data account for around 95% of total Western European grindings. Grindings over the 1999 to 2005 period have grown at an annual average rate of 2.0%, a similar growth rate to that reported for net EU-15 bean imports over the last ten years. The increase in imports in 2005 is also picked up by the higher grind in 2005. The fluctuation in annual growth is related to changes in processing margins, which are in turn driven by cocoa product stock levels and prices (Table 3.4 and Diagram 3.5).

Table 3.4: Western Europe — Cocoa Grindings, 1999-2005 (tonnes)

	Grindings	Annual Growth
1999	1,032,105	
2000	1,131,452	10%
2001	1,124,623	-1%
2002	1,031,683	-8%
2003	1,084,494	5%
2004	1,106,025	2%
2005	1,165,128	5%
Growth 7 Years	**2.0%**	

Source: ECA.

Diagram 3.5: Western Europe – Cocoa Grindings



INTRA EU-15 TRADE

Since cocoa is a tropical crop, the majority of trade is extra EU-15 imports. However, the increasing concentration of cocoa shipping, storage and processing/manufacturing activities, has also driven an increase in intra EU-15 trade (Table 3.5).

IMPACT OF THE DIRECTIVE ON COCOA IMPORTS

Since the Directive was implemented in 2003, the rate of net cocoa imports has accelerated due to higher imports in 2005. However, as seen in Chapter 2, in an essentially flat chocolate market, this suggests that more cocoa solids are being used in chocolate products. This is in keeping with the trend towards the consumption of darker chocolate and gourmet chocolate products. Diagram 3.6 uses simple trend lines to compare the performance of cocoa imports before and after the adoption of the Directive. Since the adoption of the Directive the slope of the trend line has increased, pointing to higher growth. However, the sample is limited as it is only based on two years' worth of data.

Diagram 3.6: EU-15 Share of Total Cocoa Exports

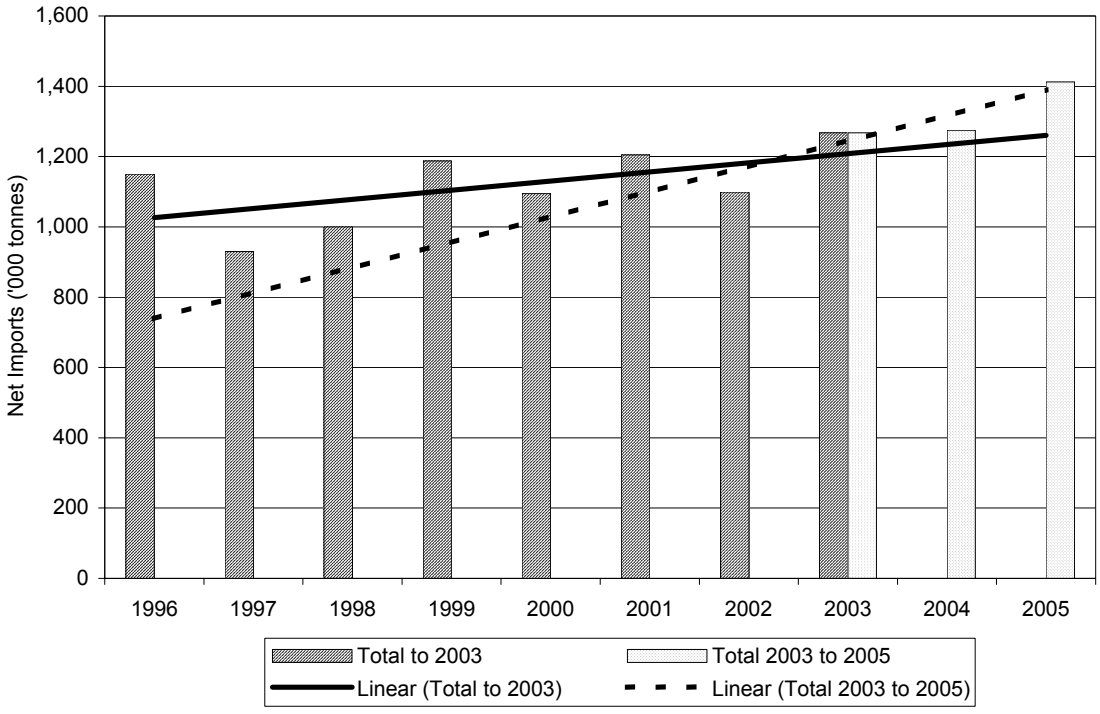


Table 3.5: Intra-EU Trade in Cocoa Beans and Cocoa Products by Product Category (tonnes b.e.)

		1996	1997	1998	1999	2000	2001	2002	2003	2004	Average Annual % Change 1996-2004
Imports	Cocoa Beans	154,867	185,582	168,209	170,036	189,975	177,977	159,919	144,539	183,447	2%
	Cocoa Paste	126,280	118,415	118,525	116,665	119,677	112,077	140,627	148,653	142,252	1%
	Cocoa Butter	245,077	244,521	253,119	274,140	260,326	283,469	276,256	272,254	283,298	2%
	Cocoa Powder	135,237	136,977	137,327	146,490	165,776	184,906	166,890	161,131	168,664	3%

Source: Eurostat.

EU-10 COCOA DEMAND

Net cocoa imports into the EU-10 have grown by 2% per year on average between 2001 and 2005. The Central European member states account for almost 95% of the total. Imports have remained relatively stable over the last three years at around 117,000 tonnes, after rising from below 110,000 tonnes in 2001 and 2002. Poland accounts for almost 70% of imports (Table 3.6).

Table 3.6: EU-10 — Net Cocoa Bean and Product Imports by Country (tonnes, b.e.)

	1999	2000	2001	2002	2003	2004	2005	Growth 5 years
Cyprus	359	360	328	454	323	332	339	1%
Malta	52	48	6	25	47	49	45	50%
Total	**411**	**408**	**334**	**479**	**370**	**381**	**384**	3%
Czech Rep	14,479	12,419	13,698	13,740	13,570	11,411	12,404	-2%
Poland	63,308	72,952	68,552	66,896	71,836	80,110	79,168	3%
Hungary	10,755	10,823	10,548	11,970	11,900	8,811	7,605	-6%
Slovakia	1,117	1,064	-422	-2,092	1,452	594	-1,038	20%
Slovenia	7,619	7,934	8,833	11,379	10,847	8,303	11,419	5%
Total	**97,278**	**105,192**	**101,208**	**101,894**	**109,605**	**109,229**	**109,559**	2%
Estonia	1,598	1,581	1,342	1,321	1,305	1,601	1,396	1%
Latvia	1,648	1,569	1,793	1,952	2,031	2,750	2,203	4%
Lithunania	3,364	2,743	3,639	3,501	2,851	2,294	3,179	-3%
Total	**6,609**	**5,893**	**6,774**	**6,773**	**6,186**	**6,645**	**6,778**	0%
Total	**104,298**	**111,492**	**108,317**	**109,146**	**116,161**	**116,255**	**116,721**	**2%**

Source: Eurostat.

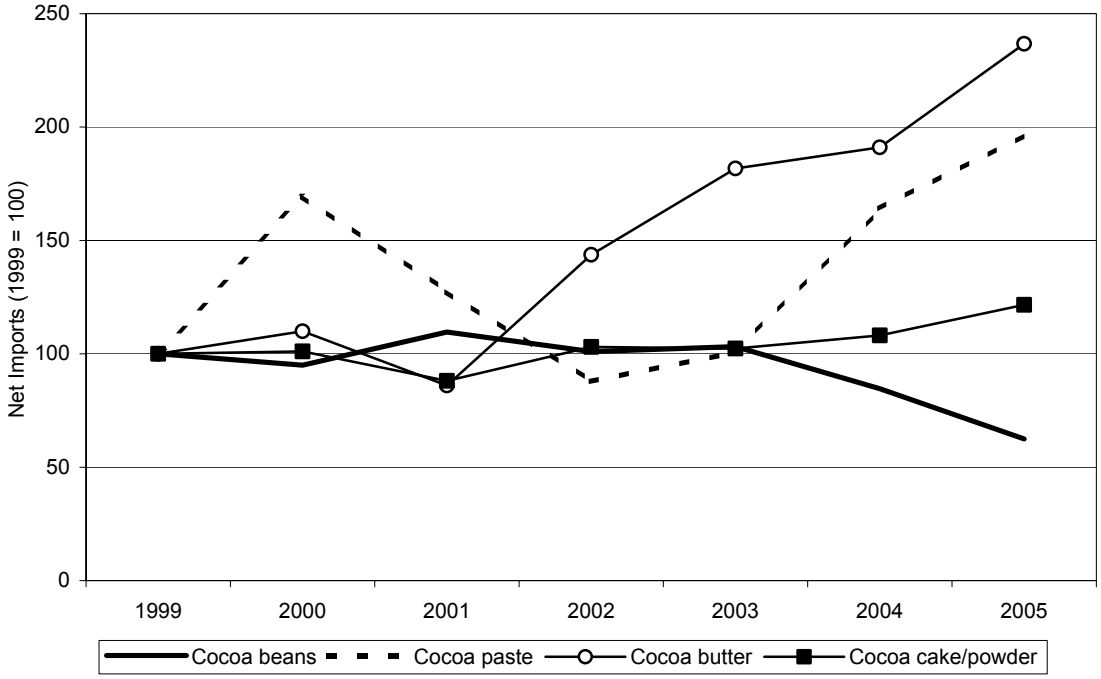
While EU-10 imports of cocoa beans (and consequently the cocoa grind) have fallen by an average of 11% per year between 2001 and 2005, increasing volumes are being imported as processed products. This is particularly the case for cocoa paste and cocoa butter (the ingredients for chocolate manufacturing) since 2003 (Table 3.7 and Diagram 3.7).

Table 3.7: EU-10 — Net Cocoa Bean and Product Imports by Type (tonnes, b.e.)

	1999	2000	2001	2002	2003	2004	2005	Growth 5 years
Cocoa beans	55,015	52,269	60,312	55,558	56,770	46,567	34,361	-11%
Cocoa paste	12,278	20,796	15,640	10,779	12,378	20,138	24,119	9%
Cocoa butter	11,508	12,656	9,899	16,535	20,914	21,985	27,243	22%
Cocoa cake/powder	25,496	25,771	22,466	26,275	26,099	27,566	30,998	7%
Total	**104,298**	**111,492**	**108,317**	**109,146**	**116,161**	**116,255**	**116,721**	**2%**

Source: Eurostat.

Diagram 3.7: EU-10 — Changes in Net Cocoa Bean and Product Imports by Type



Chapter 4: EU-15 Imports of Vegetable Fats Allowed by Directive 2000/36/EC for the Manufacturer of Chocolate

While all the permitted fats are imported, the calculation of the EU-15 market size for CBEs is more complex than is the case for cocoa. This is because:

- The HS codes used for the vegetable oils are not specific to CBEs. Prior to 2001, sheanut imports were recorded under HS code 12079290 while other tropical fats were under code 12079998. In 2002, the codes were revised and shea nuts were also placed under 120799. As this is a more general category, the only way of distinguishing individual products is to make assumptions based on the source country. Hence products coming from West Africa are assumed to be shea, products from Indonesia illipe and products from India either sal, kokum or mango kernel. Processed products are mainly imported under code 151590 and the same assumptions have to be applied as the code does not distinguish between individual products.

- Sheanut trade data are suppressed for Denmark, the largest importer in the EU. The level of imports were determined by examining Western African export data as well as discussions with exporters and importers conducted as part of the case studies.

- A proportion of sheanuts are being exported to India, processed and then imported into Europe. Imports of sheanuts to India can be picked up from Indian import statistics, but exports of products from India are not so clearly defined.

- Sal, kokum and mango kernel are imported in relatively small quantities and are not adequately picked up in trade statistics. The Solvent Extractors' Association of India data provide some estimates but these are incomplete. These data were enhanced by information gained during the case studies.

- CBEs comprise blends of the permitted vegetable fats. In the case of palm oil, palm mid-fraction is used for the production of CBEs; however, the large volume of palm oil entering foreign trade does not identify mid-fractions on their own; this makes it impossible to determine what is being used for CBEs from trade data alone. Estimates of the levels of mid-fractions used are based on CBE recipes.

- An increasing proportion of CBEs is exported from the EU-15 to Central and Eastern Europe and Latin America. These exports are not contained in specific HS codes and hence estimates of the volume of exports have been derived.

- Chocolate manufacture is not the sole use of these fats and adjustments have to be made for CBE and other applications. Three applications are worth considering:

  — Filling fats: these have the same components as CBEs but are used as fillings for confectionery products. For instance, filling fats for use in products such as truffles are commonly used in the Netherlands, Germany and Belgium;

  — Similarly some CBE type products are used as coatings for compound chocolate products; and

— Personal care products: these use shea butter, although many use shea olein, rather than stearin in their manufacture. As shea stearin is required for CBEs, products using shea olein can be considered as joint products with shea use in CBEs.

Given these difficulties, initial estimates on the size of imports and the CBE market have been refined following the case studies in both Europe and producing countries. This chapter discusses the importation of vegetable fats, while the following chapter presents estimates of the market size and EU-15 CBE production.

EXOTICS

Sheanuts and Butter

Sheanut imports for EU countries were derived from Eurostat data for all countries with the exception of Denmark. Denmark's imports were estimated from the case study data. These data only show the port of entry into the EU for sheanuts and not the final point of processing or use. Sheanut imports to the EU-15 show considerable fluctuation between years due to the fluctuation and timing of the crop. There is also considerable variation in the supplying countries as production varies considerably between years. However, the underlying trend is upwards (Diagram 4.1). Imports in 2006 will be considerably lower than those of 2005 due to the failure of the shea crop; this has placed pressure on available supplies.

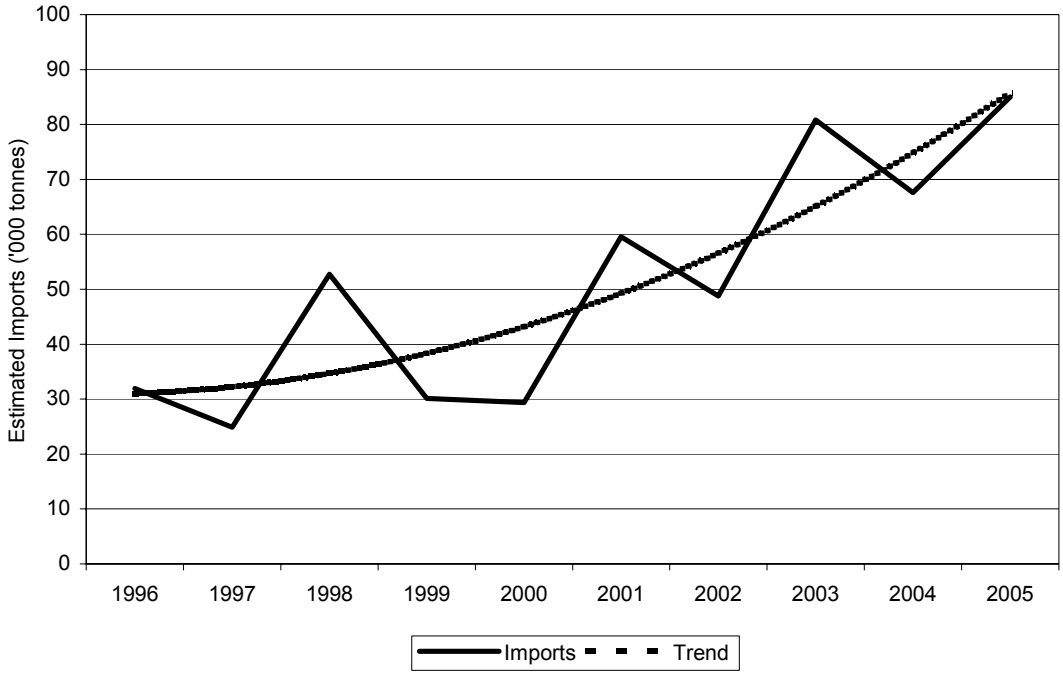
Table 4.1: EU-15 Sheanut Imports (tonnes)

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Total	**31,938**	**24,856**	**52,757**	**30,155**	**29,396**	**59,576**	**48,787**	**80,802**	**67,626**	**85,040**
of which from:										
Mali	0	0	0	0	0	0	0	0	0	0
Burkina Faso	0	0	2,844	0	0	5,316	1,983	1,805	1,244	0
Ivory Coast	63	18	5,742	565	1,048	1,051	1,710	636	679	597
Ghana	19,801	15,166	24,585	18,457	16,851	40,501	41,753	47,780	47,031	60,059
Togo	3,252	3,477	2,036	2,353	3,514	180	889	8,408	1,576	0
Benin	8,822	6,195	17,534	7,852	7,928	11,647	1,786	22,171	17,095	24,381
Nigeria	0	0	15	929	54	881	667	2	1	3

Note: Derives from HS codes 12079290 (from 1996 - 2001), and 12079998 afterwards and West African export data.

Source: Eurostat and LMC estimates.

Diagram 4.1: EU-15 Sheanut Imports, 1996–2005



Shea butter imports have risen substantially over the reporting period, peaking at 15,400 tonnes in 2005. The main exporting countries are Togo and Ghana. The main importing country is the Netherlands. Part of the reason for the increase in butter imports in 2005 is the reduction in processing in the UK, which has resulted in this crushing moving to West Africa (Table 4.2 and Diagram 4.2).

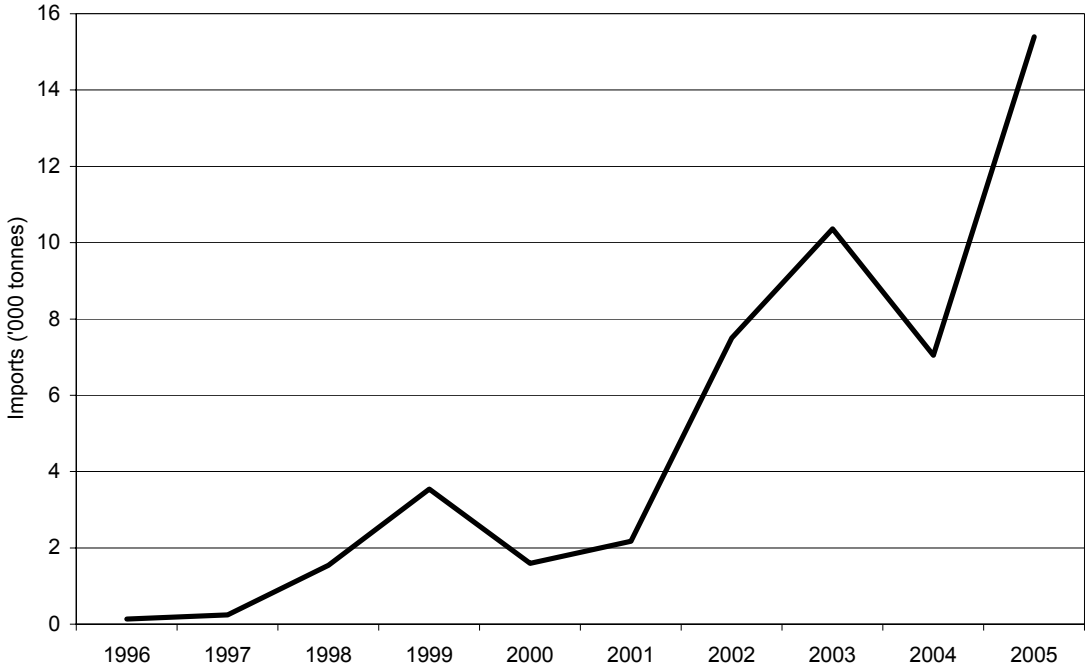
Table 4.2: EU-15 Shea Butter Imports (tonnes)

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Total from Listed Origins of which from:	**138**	**241**	**1,542**	**3,543**	**1,590**	**2,177**	**7,502**	**10,358**	**7,049**	**15,397**
Mali	0	0	0	514	53	22	14	0	0	0
Burkina Faso	0	64	327	245	184	252	87	335	350	255
Ivory Coast	66	37	874	2,199	424	10	32	2	0	17
Ghana	20	43	322	585	666	949	2,965	5,664	4,497	5,343
Togo	52	97	19	0	263	944	3,717	4,356	2,201	9,747
Benin	0	0	0	0	0	0	2	1	1	35
Nigeria	0	0	0	0	0	0	687	0	0	0
of which to:										
UK	0	0	0	0	0	2	12	0	0	27
Denmark	0	42	402	1,120	268	2	0	0	0	0
Netherlands	56	43	989	2,244	1,099	1,950	7,363	9,888	6,320	14,651
France	58	126	138	145	166	129	3	228	186	215
Germany	0	0	0	0	0	2	0	0	19	3
Italy	0	1	13	34	57	92	109	77	108	42
Belgium	0	29	0	0	0	0	0	165	416	426
Sweden	0	0	0	0	0	0	15	0	0	34
Total	**114**	**241**	**1,542**	**3,543**	**1,590**	**2,177**	**7,502**	**10,358**	**7,049**	**15,397**

Note: Derived from HS 15159059 and 15159099.

Source: Eurostat.

Diagram 4.2: EU-15 Shea Butter Imports

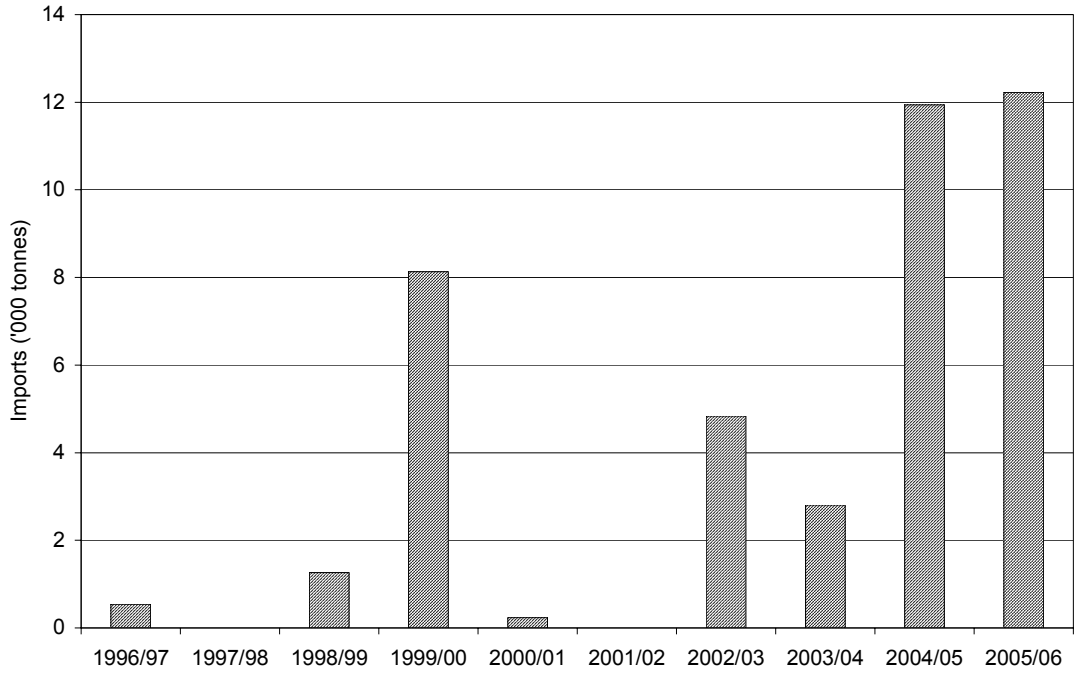


There is a further level of imports of shea stearin from India, which is not being picked up by the sheanut HS codes. The flow of this trade is that sheanuts are exported from West Africa to India, processed in India and then re-exported as shea stearin, the raw material for CBE manufacture. A proportion of this production is exported to the EU-15. This trade and processing is currently undertaken by only one India processing company, Foods, Fats and Fertilisers (FFF). Data from India on sheanut imports suggests that this trade has risen to over 12,000 tonnes of nuts per annum (Diagram 4.3). This leads to the production and re-export of around 2,000 tonnes of shea stearin[1]. Around 50% of this shea stearin is exported to the EU.

[1]Based on the standard conversions of:

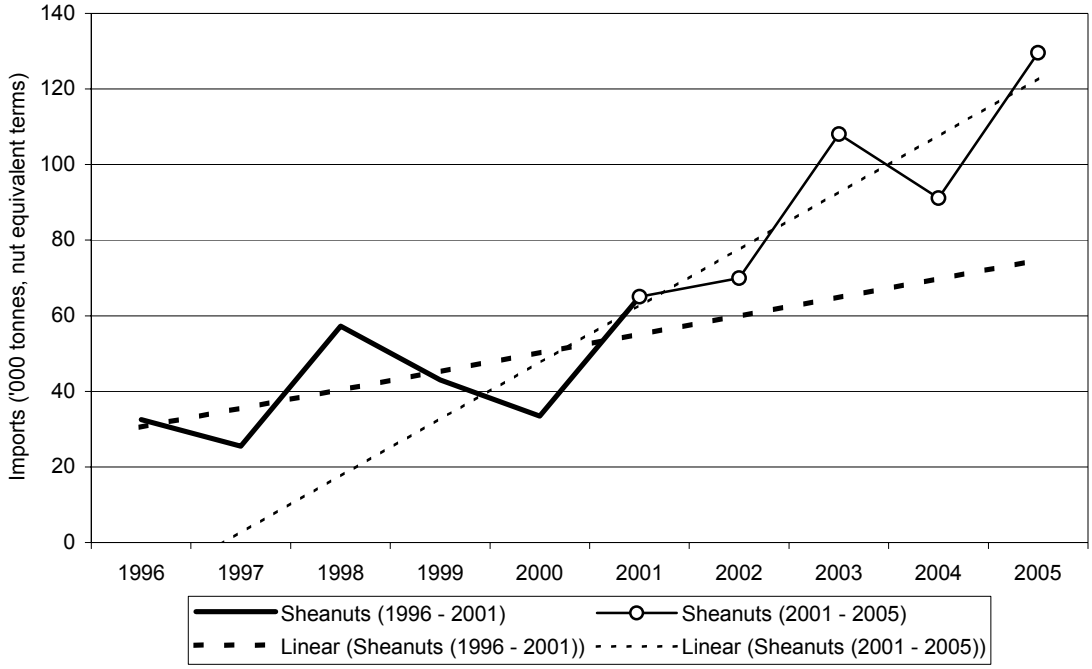
Sheanuts: shea butter	1:0.45
Shea butter: shea stearin	1:0.35
Illipe nuts: illipe butter	1:0.5

Diagram 4.3: India — Sheanut Imports



Converting the sheanut, butter and stearin imports to a nut equivalent basis suggests that approaching 130,000 tonnes of sheanuts were imported into the EU-15 in 2005. There is an upward trend in sheanut imports and this trend has accelerated since 2000/01 (Diagram 4.4).

Diagram 4.4: EU-15 Sheanut Imports (nut equivalent basis)



The EU-15 is the most important importer of sheanuts. accounting for over 80% of African regional exports.

Sal, Mango Kernel and Kokum

The imports of sal, mango kernel and kokum are solely from India and it is difficult to determine import levels from Eurostat data alone. Greater detail on sal, kokum and mango kernel exports are available from the Solvent Extractors' Association of India (SEA), however, these data underestimate the total volume of trade. Our import numbers supplement the SEA data with information gained during the field visits. Imports are in the form of intermediate products that can be incorporated into CBEs (sal stearin[2], mango kernel stearin and kokum butter).

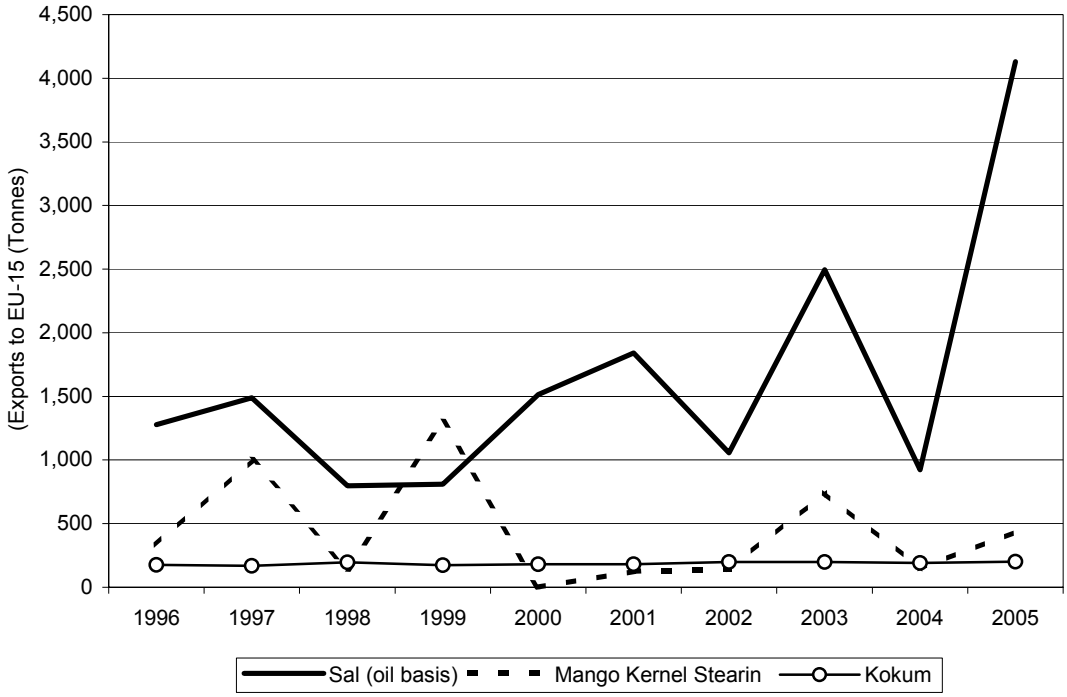
Sal oil and sal stearin are the main EU-15 imports from India. As is the case with sheanuts, there is considerable fluctuation in imports each year. This is dependent upon crop production levels. With a large sal crop in 2005, sal stearin imports to the EU rose to 2,100 tonnes. Mango kernel imports show a similar level of volatility. There is less fluctuation in kokum production and import levels although the total size of the crop is low (Table 4.3 and Diagram 4.5).

Table 4.3: Estimated Indian Exotic Oil Exports to EU-15 (tonnes)

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Sal Oil	278	324	174	177	330	401	230	544	201	900
Sal Stearin	650	757	405	412	770	936	537	1,269	469	2,100
Mango Kernel Stearin	331	1,001	142	1,300	0	125	141	744	146	437
Kokum	175	168	197	175	180	180	198	198	190	200

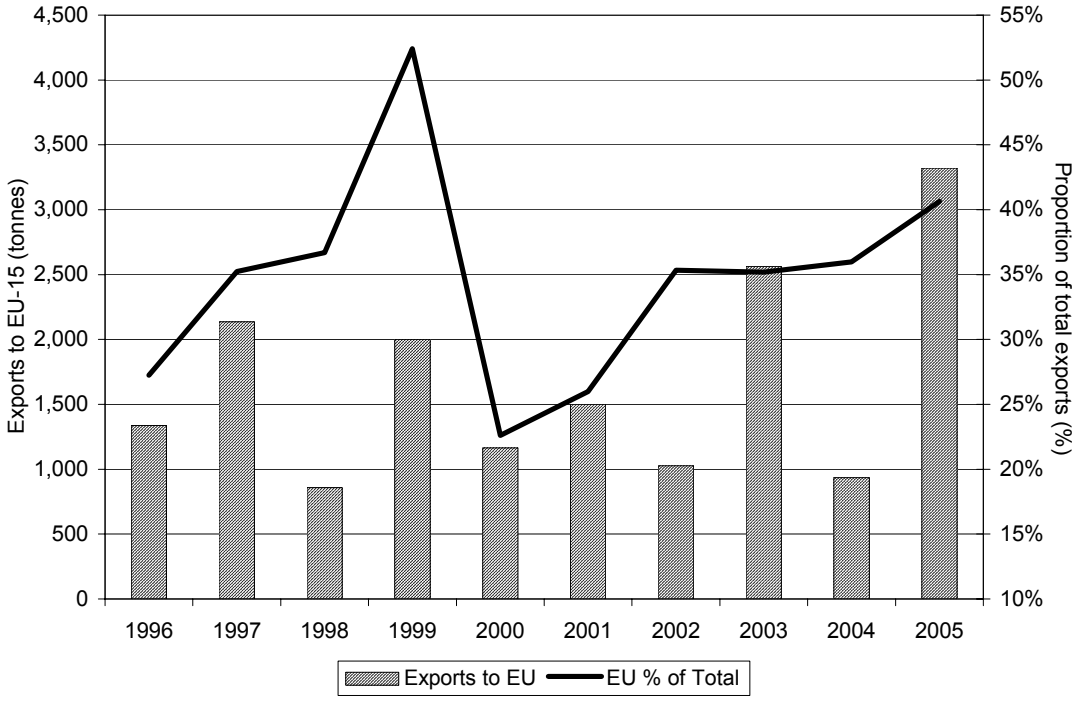
[2] Some sal oil is also imported into the EU for further processing or use as a filling fat.

Diagram 4.5: India — Exotic Oil Exports



Around 40% of Indian exotic fat exports are destined for the EU. The other main destination is Japan (Diagram 4.6).

Diagram 4.6: Sal, Kokum and Mango Kernel Exports from India to the EU-15



Illipe Nuts

Illipe nut/butter imports are sporadic and suffer from severe fluctuations. The majority of imports are butter. Every three or four years there is a bumper crop. There were high imports in 2002 and 2005 (Table 4.4).

Table 4.4: Illipe Imports to the EU-15 (tonnes)

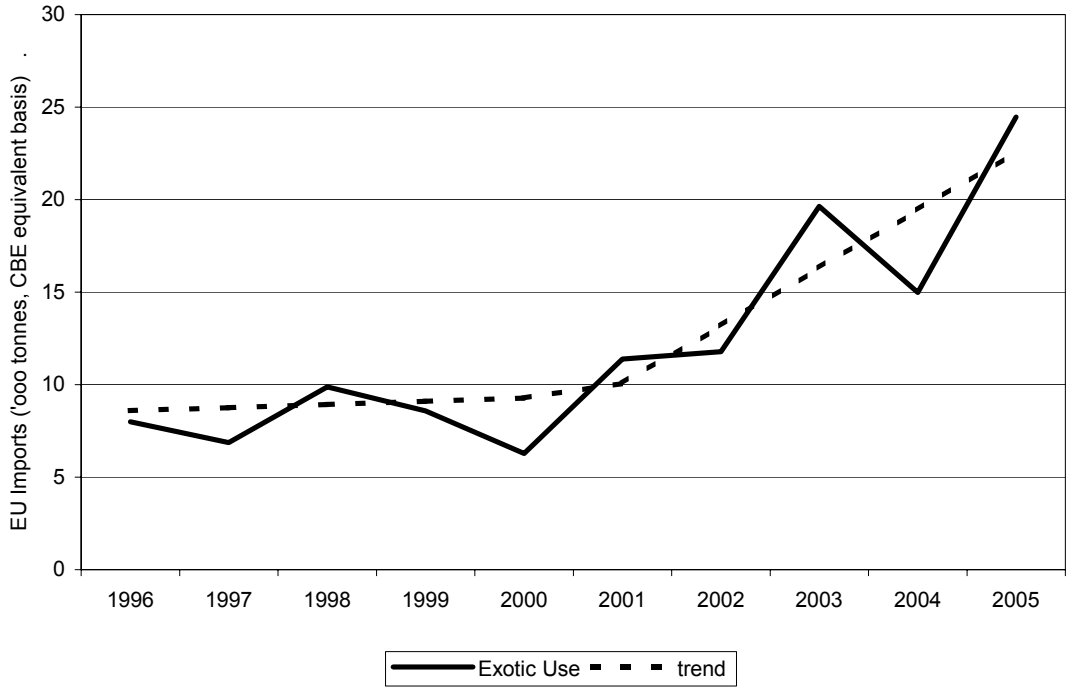
	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Nuts	**30**	**20**	**19**	**24**	**4**	**4**	**4,187**	**44**	**2**	**52**
Illipe butter										
Belgium	0	0	97	1	0	0	0	108	0	193
UK	18	0	0	0	0	0	120	200 :		200
Germany	647	173	0	10	31	9	1	319	90	353
France	0	0	0	0	0	0	0	0	0	0
Italy	1,023	684	230	35	0	0	0	19	102	0
Netherlands	0	0	0	0	0	0	0	0	0	700
Total	**1,688**	**857**	**327**	**47**	**31**	**9**	**121**	**646**	**193**	**1,446**

Source: Eurostat.

Total Exotic Imports

Combining the above data and converting it to a CBE raw material form (i.e., shea stearin, sal stearin, mango kernel stearin, kokum and illipe butter) suggest that the volume of exotic raw material imports was almost 25,000 tonnes in 2005. This volume fluctuates each year, necessitating the holding of stocks by processors. An impression of underlying demand can be gained by using a trendline. We have split the trend pre-2000/01 and post 2000/01 as the volume of exotics being used begins to increase after this period.

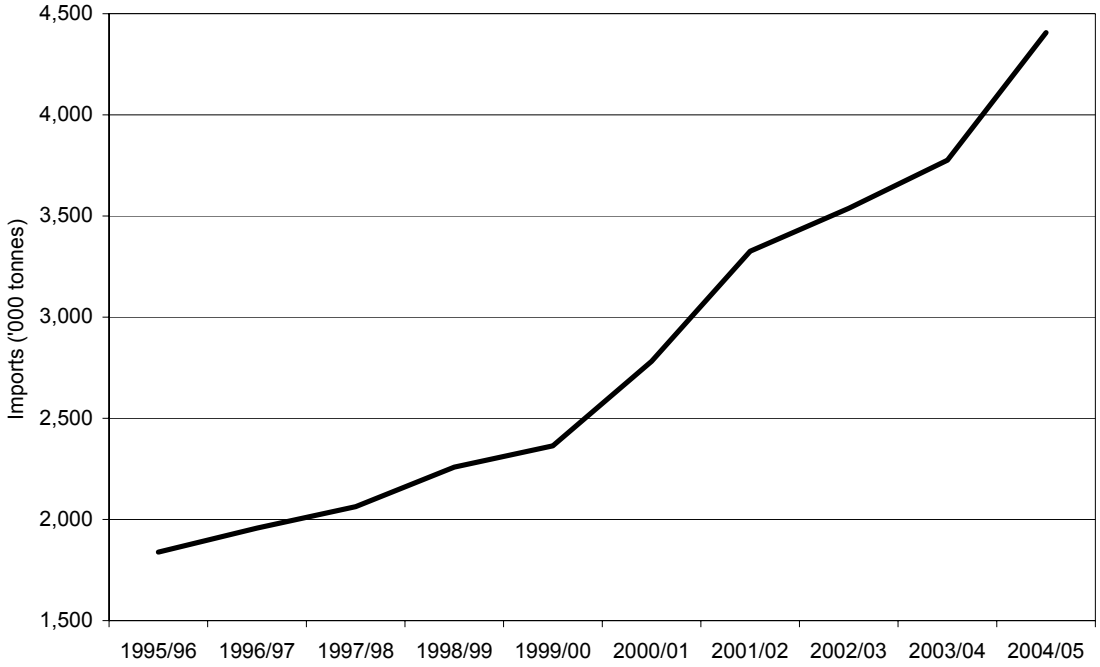
Diagram 4.7: Exotic Fat Imports to EU-15



PALM OIL

While it is possible to get an impression of the level of exotic fat imports and use in CBEs, the level of palm oil (or more specifically palm mid-fraction) is more difficult to gauge owing to the large number of end uses. While the level of palm oil imports has more than doubled over the last ten years (Diagram 4.8), this presents a misleading picture of usage for CBEs.

Diagram 4.8: EU-15 Palm Oil Imports



The use of palm mid-fraction (PMF) varies between 10% to 100% of the weight of a CBE, depending upon what the product is to be used for. A lower proportion of exotics are used in "soft" CBEs (up to 30% exotic) while a higher proportion is used in "hard" CBEs (greater than 30%). The choice of CBE depends on the market and application. While the split between hard and soft CBEs provides a broad indication of CBE use, increasingly, CBE products are changing from more generalised commodity products to speciality products that are formulated according to the exact demands of the end user.

In order to determine total CBE production (and the amount of PMF used) in the CBE we have divided the market between soft and hard CBEs. This is discussed further in Chapter 5.

Chapter 5: The Use of Vegetable Fats in Chocolate in the EU-15 and CBE Production

THE USE OF THE PERMITTED FATS FOR THE PRODUCTION OF CHOCOLATE IN THE EU-15

An analysis of CAOBISCO data allows us to estimate the usage of CBEs in the EU-15 and any change in demand since the adoption of the Directive. We split the analysis between countries who permitted the use of CBEs prior to the Directive and those who did not. Given an increasing trade in chocolate products, we have based our CBE estimates on consumption in particular markets. For instance, the UK has always used CBEs and the majority of chocolate products consumed contain CBEs, even if this chocolate is manufactured in countries that did not use CBEs prior to the adoption of the Directive. Hence there are flows of chocolate products containing CBEs that are produced in a market that they are not destined for. Prior to the adoption of the Directive this would have been prohibited in some markets.

Countries that Permitted the Use of CBEs Prior to 2000

Chocolate product consumption in countries permitting the use of CBEs in chocolate prior to 2000 was some 740,000 tonnes in 2005. In addition, chocolate biscuit production was 450,000 tonnes (Tables 5.1 and 5.2).

Table 5.1: Chocolate Product Consumption Countries Permitting CBEs Prior to 2000 (tonnes)

	1996	2000	2001	2002	2003	2004	2005	Annual Growth since 2003	Annual Growth 5 years	Annual Growth 10 years
UK	487,415	491,516	475,981	509,241	530,226	529,187	500,381	-1.9%	1.0%	0.3%
Austria	70,235	50,013	60,183	53,225	49,688	54,322	53,676	2.6%	-2.3%	-2.7%
Sweden	45,905	56,708	59,239	60,899	58,173	59,742	58,447	0.2%	-0.3%	2.4%
Ireland	30,458	31,839	30,726	32,827	35,192	34,460	33,426	-1.7%	1.7%	0.9%
Finland	18,245	27,942	30,511	30,364	31,157	32,289	32,612	1.5%	1.3%	6.0%
Denmark	38,575	40,942	42,971	44,217	40,977	42,594	41,596	0.5%	-0.6%	0.8%
Portugal	11,660	21,229	24,598	25,213	21,695	19,237	20,500	-1.9%	-3.6%	5.8%
Total	**702,493**	**720,188**	**724,210**	**755,985**	**767,107**	**771,830**	**740,639**	**-1.2%**	**0.4%**	**0.5%**

Source: Caobisco, LMC.

Table 5.2: Chocolate Biscuit Consumption Countries Permitting CBEs Prior to 2000 (tonnes)

	1996	2000	2001	2002	2003	2004	2005	Annual Growth since 2003	Annual Growth 5 years	Annual Growth 10 years
UK	296,660	343,800	360,675	356,435	402,795	398,020	393,245	-0.8%	1.7%	2.9%
Austria	na	24,015	26,605	28,375	26,845	25,095	23,345	-4.5%	-2.6%	
Sweden	na	1,165	1,740	1,160	1,425	1,425	1,425	0.0%	-3.9%	
Ireland	13,000	10,420	10,420	10,420	10,420	9,572	9,742	-2.2%	-1.3%	-2.8%
Finland	8,638	8,220	8,575	9,290	10,635	9,290	10,462	-0.5%	4.1%	1.9%
Denmark	3,055	3,410	3,330	4,165	4,345	4,180	4,653	2.3%	6.9%	4.3%
Portugal	800	4,365	3,930	4,875	4,555	5,340	5,386	5.7%	6.5%	21.0%
Total	**322,153**	**395,395**	**415,275**	**414,720**	**461,020**	**452,922**	**448,257**	**-0.9%**	**1.5%**	

Note: 2005 data are estimates based on trends.

Source: Caobisco, LMC.

In order to determine the amount of chocolate used in these products we assume:

- Unfilled chocolate bars comprise 100% solid chocolate bars and those containing added fruits, cereals and nuts. The breakdown between these unfilled products is based on Eurostat Prodcom data. Solid chocolate bars are assumed to be 100% chocolate, while bars with added fruit etc, are assumed to be 80% chocolate (this is in line with the weight of chocolate in mixed products that are produced by Cadbury, the largest manufacturer of chocolate in the UK) (Table 5.3).

Table 5.3: Cadbury Dairy Milk, Filling Weights (%)

	Filling weight
Fruit and Nut	23%
Whole Nut	15%
Turkish	14%
Wafer	29%
Mint chips	28%

Source: Supermarket Research.

- In the UK, there has been an increase in the production of solid bars at the expense of bars with added fruit, etc. (Table 5.4).

Table 5.4: UK Chocolate Bar Production by Type (tonnes)

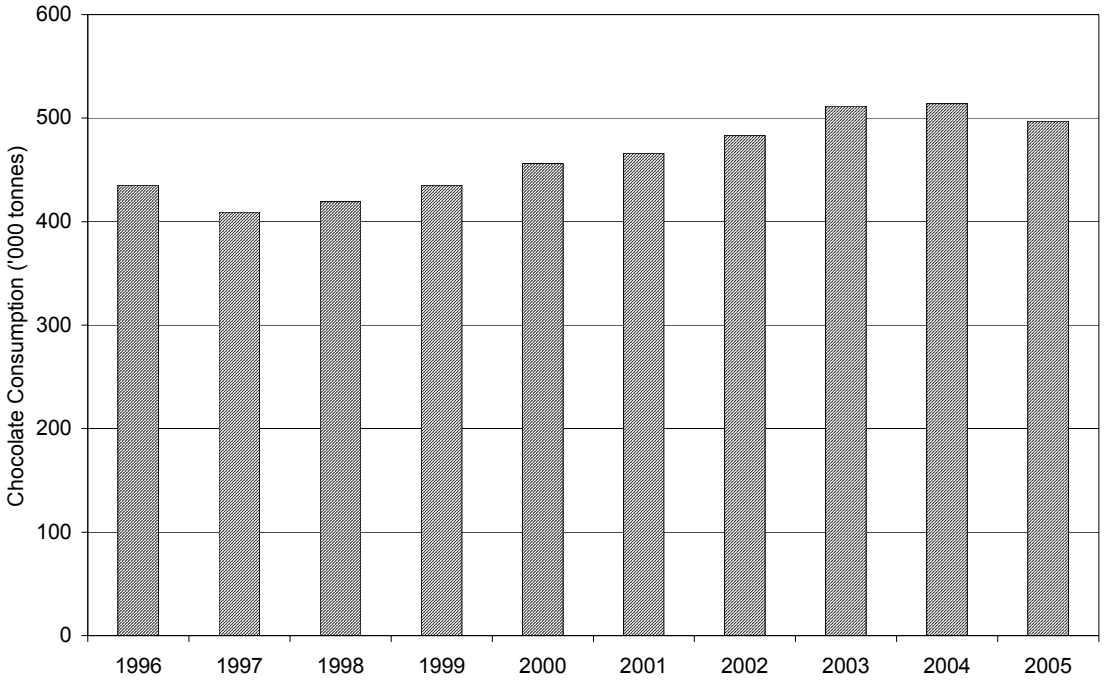
	1996	1997	1998	1999	2000	2001	2002	2003	2004
Solid Chocolate	62,107	62,000	61,420	69,304	75,829	96,332	101,242	106,922	112,752
Added fruit, nuts, etc	35,825	34,012	40,035	42,393	38,779	17,572	17,412	16,753	13,060
Other	17,275	23,658	17,599	21,028	19,470	22,603	41,424	43,660	42,542
Total	**115,208**	**119,671**	**119,054**	**132,724**	**134,078**	**136,508**	**160,079**	**167,335**	**168,354**
% Solid Chocolate	54%	52%	52%	52%	57%	71%	63%	64%	67%

Source: Prodcom.

- Filled tablets and bonbons, pralines, etc. contain 40% chocolate (based on standard ICCO conversions).
- Chocolate biscuits contain 25% chocolate (based on typical UK recipes).

This gives rise to chocolate consumption of 500,000 tonnes in countries that did use CBEs prior to 2000 (Diagram 5.1).

Diagram 5.1: Chocolate Use in EU-15 Countries Permitting CBEs Prior to 2000



In calculating CBE use in these countries, there are a number of factors that need to be taken into account:

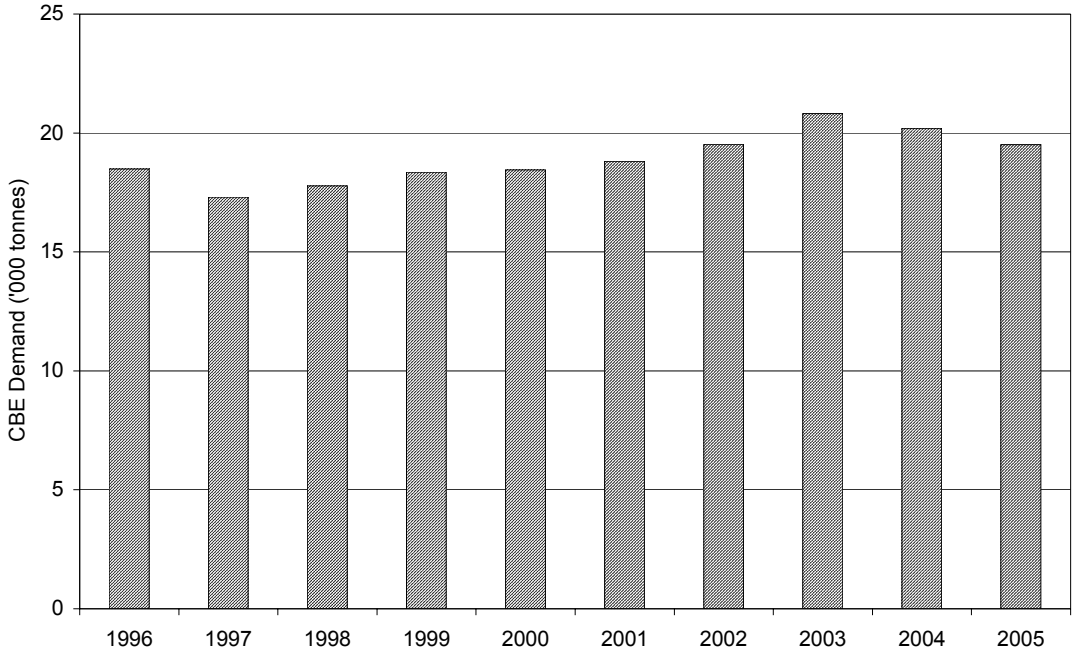
- Danish confectioners, although permitted to use CBEs, stopped using them in 2000 in response to consumers' concerns following adverse publicity surrounding the adoption of the Directive;
- In Sweden, only one of the two chocolate major manufacturers uses CBEs;
- In Finland, confectioners were permitted to use 10% of CBEs prior to the adoption of the Directive. However, not all manufacturers were using CBEs and not all products contained CBEs. Since the adoption of the Directive, there has been some change in recipes, and some products which did not previously contain CBEs, do now.
- The Directive's definition for milk chocolate has meant that manufacturers have had to reduce the proportion of CBE used in milk chocolate products. This is because the vegetable fat is not included in the calculation of total fat that must be a minimum of 25% in milk chocolate. Thus for a typical low cost milk chocolate recipe with 28.3% fat, the maximum vegetable fat that can be added is 3.3%. Even at 30% of true total fat (i.e. including the vegetable fat) you cannot have 5% vegetable fat as you have to allow for indiscernibles, which at a minimum includes vanillin, lecithin and other emulsifiers. As shown in the case studies, in the UK, at one extreme, one manufacturer has not changed its usage of CBEs, while at the other, usage has fallen from 5% to 4.5%. For the UK market, once allowance is made for companies not using CBEs in their recipes, CBE consumption has fallen from 4.4% to 4.1%.

CBE consumption for chocolate products in these markets is estimated to be in the order of 20,000 tonnes per annum. Consumption has fallen by 1,500 tonnes since the

adoption of the Directive (Diagram 5.2). This is partly due to the fall in chocolate consumption, but also to the impact of the Directive. The adoption of the Directive in these countries is estimated to have reduced demand by around 600 tonnes per annum (Table 5.5).

Visits to supermarkets in these countries confirm that labels have been changed to reflect the Directive. Thus in the UK, for instance, a Cadbury Dairy Milk bar, in addition to the ingredient list, carries the statement: “Milk solids 20% minimum, Cocoa Solids 20% minimum, contains vegetable fats in addition to cocoa butter”.

Diagram 5.2: CBE Demand in EU-15 Countries Permitting the Use of CBEs Prior to 2000



Countries Not Permitting the Use of CBEs Prior to 2000

Chocolate product consumption in countries not permitting the use of chocolate prior to 2000 was some 1.4 million tonnes in 2005 (Diagram 5.3). In addition, chocolate biscuit production was some 600,000 tonnes (Tables 5.6 and 5.7).

Table 5.5: Impact of the Directive on CBE Consumption in EU-15 Countries Permitting the Use of CBEs Prior to 2000 (tonnes)

	1996	2000	2001	2002	2003	2004	2005	Annual Growth since 2003	Annual Growth 5 years	Annual Growth 10 years
Adoption of Directive	18,482	18,450	18,804	19,519	20,817	20,198	19,508	-2.1%	0.7%	0.5%
No Adoption	18,482	18,450	18,804	19,519	20,817	20,867	20,133	-1.1%	1.4%	0.9%
Impact of Directive					0	-669	-625			

Source: LMC.

Table 5.6: Chocolate Product Consumption in EU-15 Countries Not Permitting CBEs Prior to 2000 (tonnes)

	1996	2000	2001	2002	2003	2004	2005	Annual Growth since 2003	Annual Growth 5 years	Annual Growth 10 years
Germany	689,620	677,128	666,786	670,859	661,870	681,941	668,746	0.3%	0.1%	-0.3%
France	270,405	297,435	287,510	287,990	280,616	280,231	285,064	0.5%	-0.2%	0.5%
Netherlands	70,395	76,105	74,900	74,200	71,300	73,100	73,300	0.9%	-0.4%	0.4%
Italy	150,730	162,932	169,959	183,821	191,570	196,915	202,490	1.9%	3.6%	3.0%
Belgium	55,225	60,863	49,072	63,612	68,295	71,545	70,912	1.3%	7.6%	2.5%
Spain	64,175	61,025	64,250	64,655	65,285	68,235	71,874	3.3%	2.3%	1.1%
Greece	24,700	29,045	30,591	32,502	34,781	37,131	39,226	4.1%	5.1%	4.7%
Total	**1,325,250**	**1,364,533**	**1,343,068**	**1,377,640**	**1,373,717**	**1,409,098**	**1,411,611**	**0.9%**	**1.0%**	**0.6%**

Source: Caobisco, LMC.

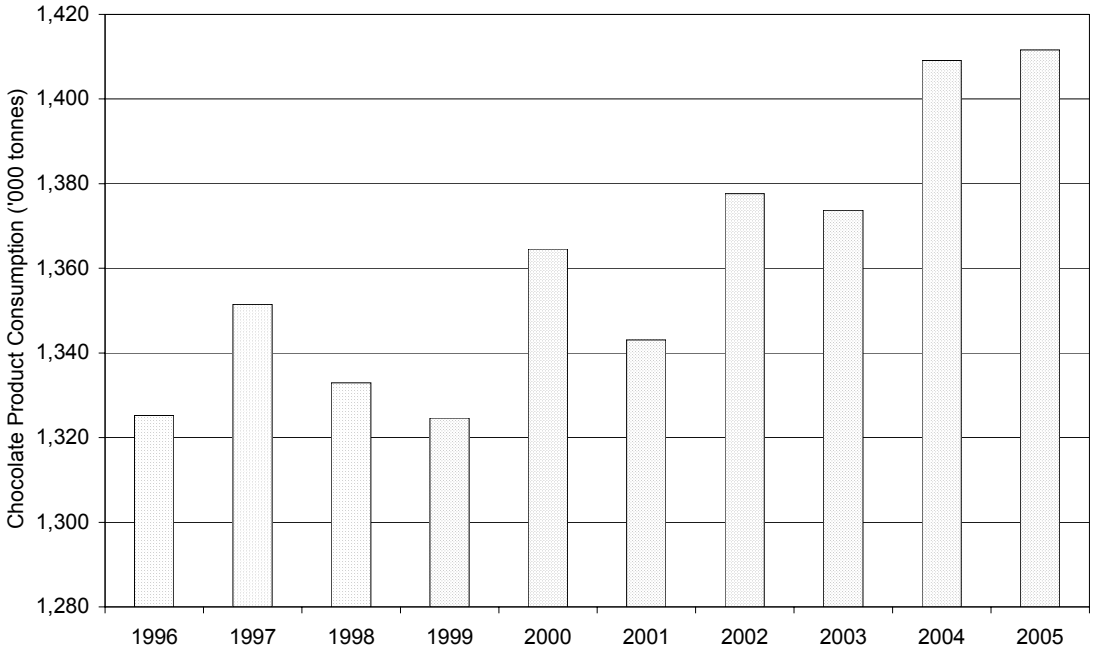
Table 5.7: Chocolate Biscuit Consumption in EU-15 Countries Not Permitting CBEs Prior to 2000 (tonnes)

	1996	2000	2001	2002	2003	2004	2005	Annual Growth since 2003	Annual Growth 5 years	Annual Growth 10 years
Germany	249,420	268,962	282,713	296,465	298,920	334,090	340,169	4.4%	3.8%	3.2%
France	43,090	57,720	59,020	61,790	63,640	62,835	65,456	0.9%	2.1%	4.3%
Netherlands	0	0	0	0	0	0	0			
Italy	43,300	47,700	52,400	54,500	54,200	55,600	58,160	2.4%	2.1%	3.0%
Belgium	128,750	113,140	73,625	83,475	77,795	76,050	77,571	-0.1%	1.0%	-4.9%
Spain	6,960	12,590	15,900	14,775	15,430	23,325	22,704	13.7%	7.4%	12.6%
Greece	10,200	18,920	19,805	20,935	22,320	22,380	23,703	2.0%	3.7%	8.8%
Total	**481,720**	**519,032**	**503,463**	**531,940**	**532,305**	**574,280**	**587,763**	**3.4%**	**3.1%**	**2.0%**

Note: 2005 data are estimates based on trends.

Source: Caobisco, LMC.

Diagram 5.3: Chocolate Product Consumption in Countries Not Permitting CBEs Prior to 2000



Chocolate production in these countries can be divided into three segments:

- Branded products;
- Artisanal production; and
- Private label

Branded Products

The results of the case studies reveal that no major chocolate manufacturer has changed its recipes to include CBEs as a result of the Directive. Recipes have changed in other ways though. This is because the calculations of fat contents must now take account of both 'discernible' and 'indiscernible' substances in the chocolate. Previously, if whey or soy powder, for instance, were added and ground up so you could not see/discern it, it was part of the chocolate (as happened in Germany for instance). Now, the indiscernibles are excluded and many Continental chocolate recipes have had to be reformulated.

The decision not to use CBEs has primarily been a marketing one and the major chocolate manufacturers have been unwilling to change recipes for fear of adverse publicity that could lead to a loss of market share. For these companies, the value is in the brand.

In some markets, stating that the fat content of the chocolate is 100% cocoa solids has become a marketing tool and an additional stamp has been added to the packaging. In France, for instance, Cote d'Or chocolate products contain a logo stating "pur buerre de cacao" while for Poulain products the logo says "chocolat – pur beurre de cacao". In Italy, Novi products show a "puro" seal.

In Belgium the “Ambao” mark, which was devised to identify special quality chocolate products and chocolate containing no vegetable fats, is no longer promoted, although it remains on a few product labels. The organisation set up by the government to administer it was officially wound up in December 2005. It did not have enough support from industry for the following reasons:

- Consumers were unclear about the meaning of Ambao;
- It was not only associated with Belgian chocolate (foreign manufacturers could also apply to use it);
- Branded manufacturers preferred to promote their own brand (while private label manufacturers saw using the Ambao mark as a way of upgrading their products);
- Artisanal producers wanted coverage to be extended to ingredients other than cocoa; and
- Manufacturers were reluctant to pay the additional inspection, certification and administration costs involved.

In Belgium and the Netherlands, product testing by consumer associations confirms that CBEs have not been added to chocolate bars. The laboratory sampling of 40 brands in the Netherlands and 26 brands in Belgium confirmed that no vegetable fats were present in any of the chocolate tablets sampled.

In France, tests of 72 products by DGCCRF found that in half of the cases (those of solid tablets) vegetable fats were not present, but in the other half the results were inconclusive due to the presence of vegetable fats in the filled centres. The conclusion from the analysis was that in filled products it was not possible to tell if the vegetable fat in the filling had migrated to the chocolate or whether the fat was already present in the chocolate. The EC is currently developing testing procedures for chocolate products .

In Italy and Germany, it has been felt unnecessary to test products to date as manufacturers have not changed their recipes.

Artisanal Production

The artisan segment of the market was probably the most vocal in its opposition to the introduction of the Directive and as far as we are aware no recipes have been changed in response to the Directive. In Italy, the artisans’ associations together with consumers’ associations have applied to the EC to gain Traditionally Specialty Guaranteed (STG) status. If granted this would mean that producers would preserve their recipes, giving a guarantee to consumers that members’ chocolate only contained cocoa solids.

In addition, the main market growth is for higher quality products and greater differentiation. This means more specialty chocolates, for instance, dark chocolate, single origins, etc. These are higher quality products requiring higher cocoa solid contents. This trend does not support the use of CBEs which many consumers consider results in an inferior product.

Private and Own Label

In most cases, the economies of scale in chocolate production mean that private and own label products are produced by the large industrial chocolate manufacturers. Of

the companies interviewed, there has been a marginal increase in CBE demand, with some biscuit and ice cream manufacturers changing their recipes.

Among the retailers' own label brands, there has been no change of recipes to incorporate CBEs. There are a number of reasons for this:

- Cocoa butter/CBE price differential has not been large enough to justify a change in recipe;
- Retailers do not want their own label products to contain CBEs. This is partly because retailers have sought to upgrade their own label products and adding CBEs is perceived to be making the product inferior; and
- Private label buyers do not want CBEs in their chocolate.

From the point of view of the industrial chocolate manufacturer, there are additional costs associated with producing products with CBEs, including installing additional storage tanks, piping etc. Buyers of industrial chocolate who do not want their products to contain CBEs are also insisting that there is no adulteration of their products. In addition, as CBEs become more specialised and tailored to the needs of individual confectioners, the more complicated it becomes for industrial chocolate producers to use these products, as more down time is required between production runs.

Future evidence can be gleaned from an analysis of retail prices. The use of CBEs would reduce the cost of chocolate production and in a competitive market this would be expected to reduce retail prices. Cocoa solids account for around 10% to 15% of the total retail price and the use of CBEs in a recipe would reduce fat costs by between 5% and 10%. This would result in a 1% fall in retail prices. The evidence is mixed and, as shown in Chapter 2, German retail prices have risen, while French prices have fallen, since the introduction of the Directive.

On the basis of our interviews, we put the increase in demand for CBEs arising from the Directive at 1,000 tonnes per annum. This increase is in the industrial chocolate segment.

EU-15 CBE PRODUCTION

As suggested in Chapter 4, the volume of exotic raw material for CBE manufacture imported into the EU was almost 25,000 tonnes in 2005. To determine CBE production it is necessary to determine the use of soft and hard CBEs. We have assumed that CBEs destined for the UK and Ireland chocolate market, where a soft tasting product is preferred, are soft CBEs containing 10% of exotics, the balance being PMF. The remaining exotics are assumed to be hard CBE containing 50% exotic and 50% PMF.

This gives total EU-15 CBE production of 58,600 tonnes in 2005. Production has grown by 11% per annum since 2000 and a similar proportion since the adoption of the Directive (Table 5.8).

Table 5.8: Estimated EU-15 CBE Production (tonnes)

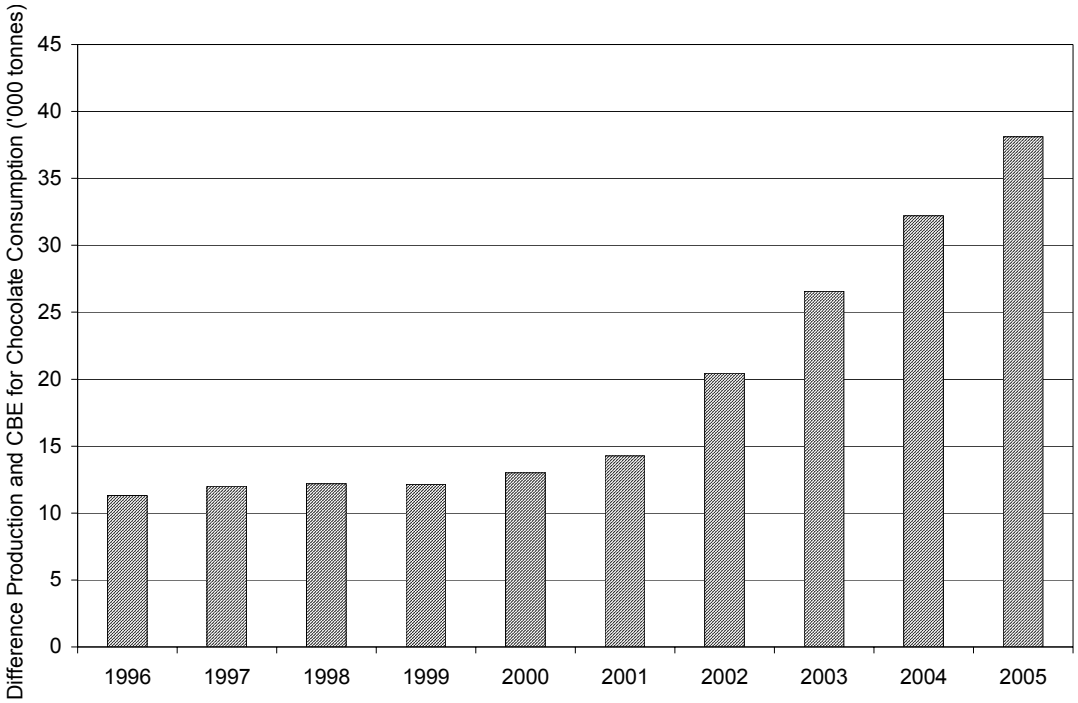
	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Exotic Use (Trend)	8,594	8,762	8,931	9,099	9,267	10,063	13,191	16,319	19,447	22,576
CBE Production										
Soft CBE										
UK and Ireland	15,754	14,718	15,133	15,375	16,149	16,199	16,983	18,434	17,529	16,842
Exotic Proportion	10%									
Exotic Use	1,575	1,472	1,513	1,538	1,615	1,620	1,698	1,843	1,753	1,684
PMF Use	14,179	13,246	13,620	13,838	14,534	14,579	15,285	16,591	15,776	15,158
Hard CBEs										
Exotic Balance	7,019	7,291	7,417	7,561	7,652	8,443	11,492	14,476	17,695	20,892
Exotic Proportion	50%									
PMF Use	7,019	7,291	7,417	7,561	7,652	8,443	11,492	14,476	17,695	20,892
Total hard CBE	14,038	14,581	14,835	15,123	15,304	16,885	22,985	28,951	35,389	41,783
TOTAL CBE Production	**29,792**	**29,299**	**29,968**	**30,498**	**31,453**	**33,084**	**39,968**	**47,385**	**52,918**	**58,625**
Average exotic %	29%	30%	30%	30%	29%	30%	33%	34%	37%	39%

Source: LMC

DEMAND FOR CBES OUTSIDE EU-15 CHOCOLATE PRODUCTION

The case study evidence as discussed above points to a stable market for vegetable fats for chocolate in the EU-15, whereas the evidence from the importation of vegetable fats points to growing production of CBEs. The difference between EU-15 CBE production and the amount of CBE used for EU-15 chocolate manufacture has increased from around 11,000 tonnes in 1996 to its current level of around 40,000 tonnes (Diagram 5.4).

Diagram 5.4: Difference Between EU-15 CBE Production and that used for EU-15 Chocolate Manufacture



There are two explanations for this trend:

- The use of CBE type fats for coatings and fillings; and
- Export demand.

Coatings and Fillings

In addition to CBE use for chocolate, CBE type fats are also used as fillings in certain chocolate products.

A large number of the most popular chocolate products are filled products, i.e. a centre filling is coated with chocolate (chocolate shell). The filling may typically be a hazelnut paste, praline, toffee, nut, wafer biscuit, or fat-based filling. For the consumer, the chocolate and the centre are one and comprise the product. For the best product performance - melting, flavour, taste, mouthfeel – the shell must melt with the filling. Fat-based fillings may be made from milk fat and cocoa butter. However, manufacturers find that this offers limited functionality. Better products can be made using vegetable fats tailored to meet the exact requirements of the confectioner and his product. Fillings may be based on coconut or palm kernel oils, which have very good melting properties. However, CBEs offer even better possibilities because they are compatible with the cocoa butter in the shell. Exchange of fat can occur between the shell and the filling. If the two fats are compatible as CBEs and cocoa butter necessarily are, then this exchange will not lead to fat bloom, the whitish discolouration on the surface of chocolate which looks a little like the bloom on a grape. As a result, for many years, many EU chocolate companies have used CBEs in their fillings, even if they are not using them in chocolate.

CBEs are also used as coatings for some compound chocolate products.

The demand for CBEs for fillings and coatings in the EU-15 is in the order of 20,000 to 25,000 tonnes tonnes per annum. Demand growth has been steady over the reporting period and is growing as the market for these products increases.

Export Demand

The EU-15 has become the hub of global CBE production with most global demand, with the exception of Japan, being met by the EU-15 CBE manufacturers. There is also a small amount of CBE production in the ASEAN region. Export demand is in the order of 15,000 to 20,000 tonnes. Export demand has grown sharply in recent years because of:

- **Changes in legalisation to allow the use of CBEs in chocolate**. In particular, in Brazil and Oceania, legislation has changed to allow the use of CBEs in chocolate. Legislation was changed in 2003. In these markets, chocolate manufacturers have begun to change recipes to incorporate CBEs. This has been partly driven by price but also by the improved functionality that the incorporation of CBEs can give to products. In particular using a hard CBE raises the melting point of the chocolate which can be useful in hotter climates. Evidence from the case studies suggests that the Brazilian market has grown from zero in 2003 to a level of around 8,000 tonnes at the end of 2005.

- **Reduced demand for Cocoa Butter Replacers (CBRs).** CBRs are produced by the hydrogenation of liquid oils such as soybean, cottonseed, rapeseed (canola) or palm olein. They are hydrogenated either alone or as a blend under selective, trans-promoting conditions to give relatively steep solid fat content melting curves. They are high in trans-fats and as health concerns have arisen from the use of trans-fats, many users have sought to replace them in compound chocolate products. One way of replacing them has been to use CBEs. There has been increased use of CBEs for this application in Latin America (including Brazil) and Central and Eastern Europe.

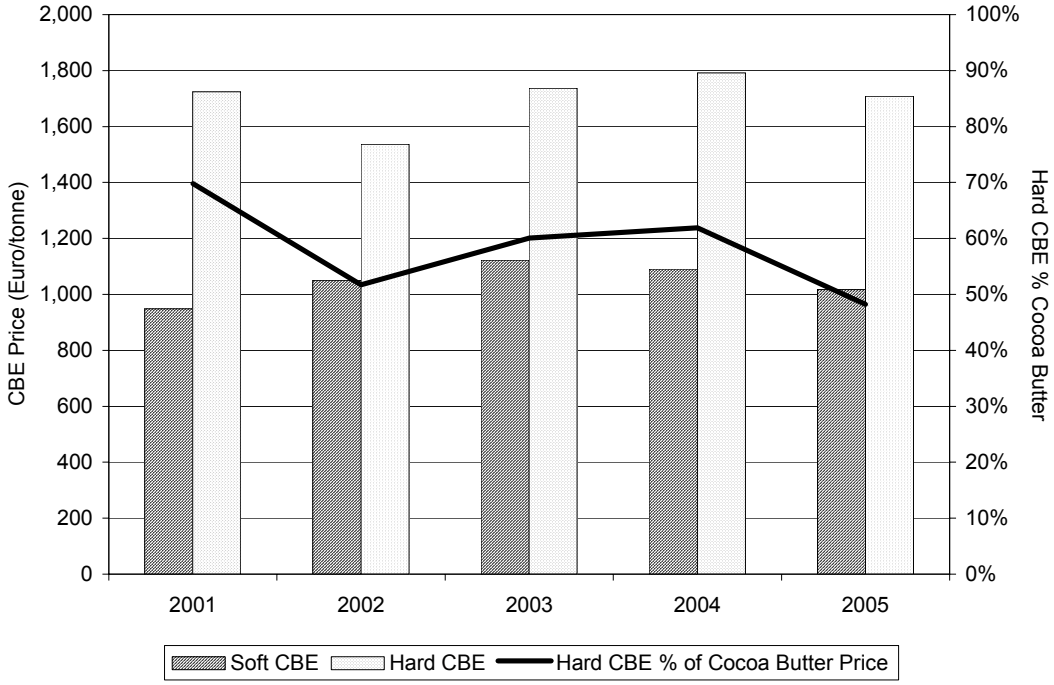
- **Increased demand of chocolate/compound chocolate containing CBEs.** This is particularly the case in Eastern Europe where rising incomes have led to an increase in chocolate demand and products containing CBEs.

CBE demand in the EU-10 accession countries has risen due to a combination of a replacement for CBRs and increased use in some chocolate recipes. However, as is the case with EU-15 chocolate manufacturers, there has been some reluctance among companies to change recipes in countries that did not previously permit the use of CBEs. We estimate EU-10 CBE consumption at around 2,500 to 3,000 tonnes.

PRICES AND MARGINS

CBE prices vary according to application and the components of the CBEs. Historically, traditional CBEs (50% exotic, 50% PMF) were priced in relation to cocoa butter, with a standard price being 80% of the cocoa butter price. However, in recent years, this relationship has broken down and pricing is much more in accordance with the prices of the individual raw materials plus a margin. This has led to a fall in CBE prices and a reduction of processors' margins. This is due to increasing competition in the industry and the price pressure that is being placed on the industry by end users (Diagram 5.5).

Diagram 5.5: Estimated CBE Prices



Soft CBE prices, where the majority of the product is PMF, are closely aligned with palm olein prices.

THE IMPORTANCE OF THE CBE INDUSTRY TO THE EU-15

The main CBE manufacturers in Europe are:

- AarhusKarlshamns;
- Loders Croklaan;
- Britannia Food Ingredients;
- Fuji Oil Europe;
- ADM Noblee; and
- Walter Rau.

AarhusKarlshamns is the largest manufacturer, a position that was produced by the merger of Aarhus United and Karlshamns.

The importance of the industry has grown as production and demand have grown. To date, the international growth of the industry has benefited the EU and export sales. However, with a flat market in the EU, any future new investment is likely to be nearer to other end use markets.

Comparing import prices with finished product prices allows us to calculate the value addition of the industry. During 2004 and 2005, the industry annually transformed €53 million worth of raw materials into €85 million of final products. This assumes that all palm oil is already imported in PMF form. In the case where fractionation is occurring in

Europe, the value added will be higher. In 2001 and 2002, the annual value added was €10 million. Determining employment generation levels for the industry is difficult as the companies produce other vegetable fats apart from CBEs.

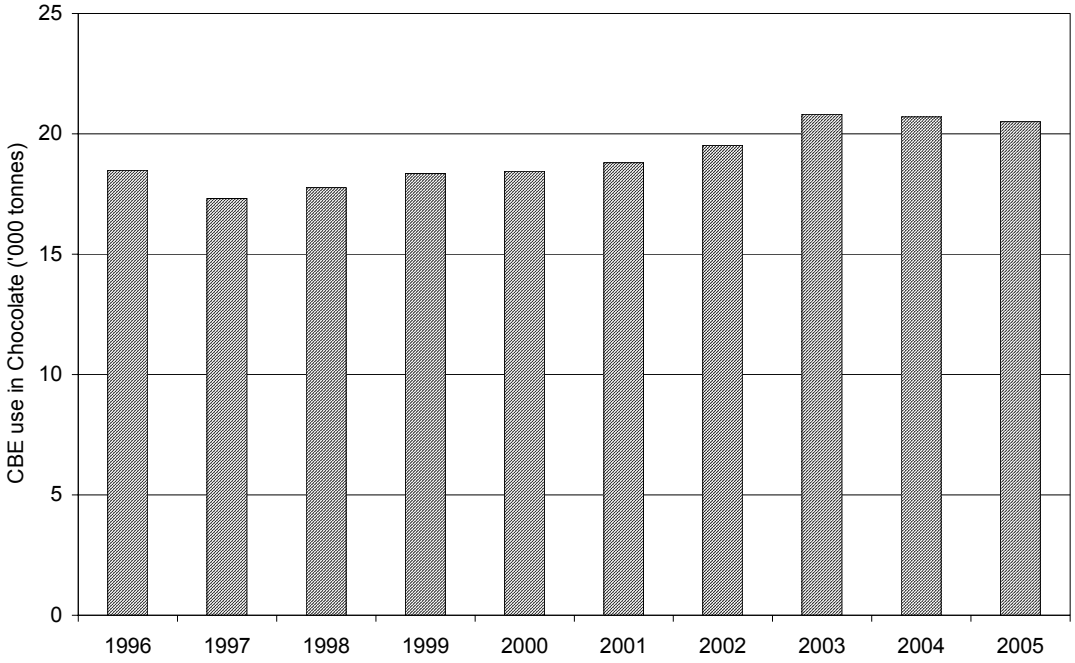
SUMMARY

Our analysis suggests that the market for CBE use in Chocolate in the EU-15 countries was 20,500 tonnes in 2005 (Diagram 5.6). The level of demand has been unchanged for three years, although this hides two changes.

- In countries permitting the use of CBEs in chocolate prior to 2000, CBE use as a proportion of chocolate weight has fallen by 3% since the adoption of the Directive. Consequently, CBE demand is some 600 tonnes lower than would have been the case in the absence of the Directive.

- In countries previously not permitting the use of CBEs, there has been no increase in demand from branded and artisanal chocolate manufacturers. There has been an increase of some 1,000 tonnes amongst the industrial chocolate manufacturers producing product for the biscuit industry.

Diagram 5.6: Estimated CBE Use in EU-15 Chocolate



Chapter 6: Impact of the Directive on Cocoa Producers

Case studies to determine the impact of the Directive on producers were conducted in Côte d'Ivoire, Togo and Ghana.

ECONOMIC DEVELOPMENTS

Following recession in the late 1990s, the cocoa-producing economies of Côte d'Ivoire, Ghana and Togo recovered over the 2000-2004 period, with Ghana growing at a faster rate than the Sub-Saharan African region as a whole. However, per capita incomes in Ghana and Togo are still significantly lower than the regional average (Table 6.1).

Ghana's recent economic success is mainly attributed to the combination of good governance and freedom from political conflict. In contrast, the Ivorian economy has been facing a political crisis that has split the country into two parts since 2002, with all sectors except oil, telecommunication and cocoa in stagnation. Political problems have also constrained the smaller Togolese economy.

IMPORTANCE OF THE COCOA SECTOR

Cocoa typically accounts for over one third of total export earnings in Ghana and Côte d'Ivoire, and around 10% in the case of Cameroon. It is less important in Nigeria and Togo (exports of smuggled Ivorian cocoa account for the increase in Togo's 2004 share). As would be expected, cocoa prices are a major determinant of cocoa's share of export earnings in Ghana and Côte d'Ivoire (Table 6.2 and Diagram 6.1).

Table 6.1: Côte d'Ivoire, Ghana and Togo — Macroeconomic Data

		1996	1997	1998	1999	2000	2001	2002	2003	2004	Average Annual % Growth 1996-2000	2000-2004
GDP (US$ Billions)	Côte d'Ivoire	12.14	11.72	12.88	12.57	10.46	10.56	11.52	13.76	15.50	-4%	10%
	Ghana	6.93	6.88	7.47	7.71	5.00	5.30	6.15	7.62	8.85	-8%	15%
	Togo	1.65	1.69	1.59	1.58	1.33	1.30	1.45	1.70	2.03	-5%	11%
	Sub-Saharan Africa	349.53	350.36	327.55	328.83	338.35	334.58	355.42	433.71	526.21	-1%	12%
Population (Millions)	Côte d'Ivoire	15.17	15.59	16.00	16.38	16.74	17.05	17.34	17.60	17.87	2%	2%
	Ghana	18.16	18.59	19.01	19.43	19.87	20.31	20.76	21.21	21.66	2%	2%
	Togo	4.66	4.83	5.01	5.19	5.36	5.53	5.68	5.84	5.99	4%	3%
	Sub-Saharan Africa					662.90	678.81	694.55	710.55	725.82		2%
GDP per Capita	Côte d'Ivoire	800	752	805	768	625	620	664	782	867	-6%	9%
	Ghana	381	370	393	397	252	261	296	359	409	-10%	13%
	Togo	355	350	317	304	249	235	255	291	339	-9%	8%
	Sub-Saharan Africa					510	493	512	610	725		9%

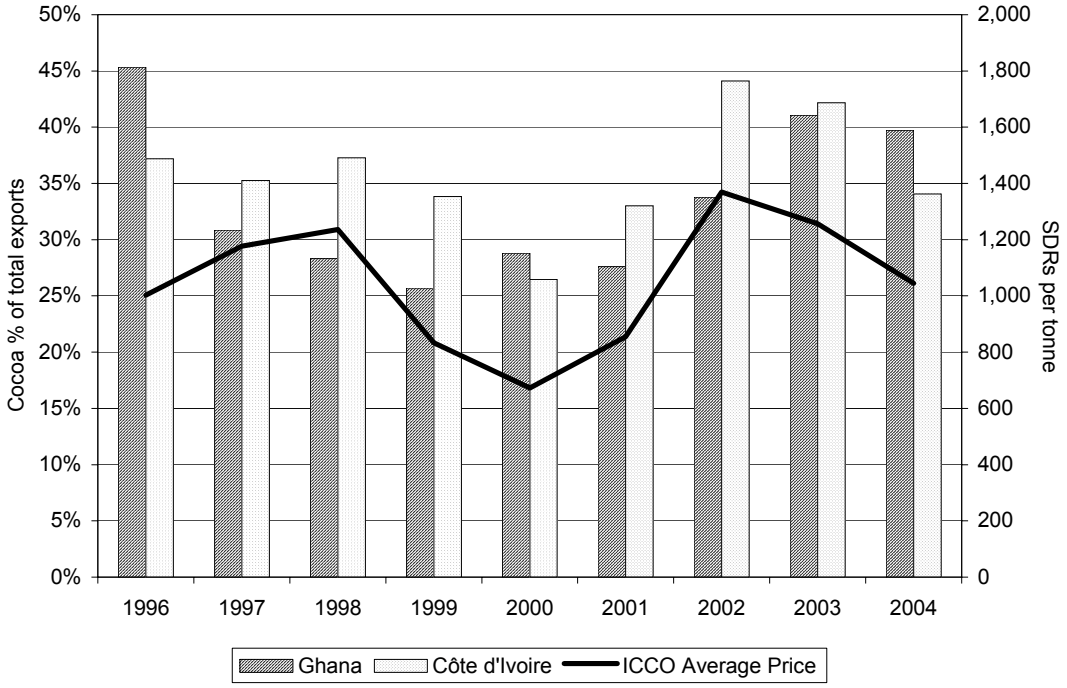
Sources: IMF, World Bank.

Table 6.2: Importance of Cocoa as % of Total Export Earnings

	1996	1997	1998	1999	2000	2001	2002	2003	2004
Ghana	45%	31%	28%	26%	29%	28%	34%	41%	40%
Côte d'Ivoire	37%	35%	37%	34%	26%	33%	44%	42%	34%
Cameroon	10%	10%	11%	12%	6%	8%	12%	11%	10%
Togo	7%	6%	3%	2%	1%	1%	2%	2%	7%
Nigeria	1%	1%	2%	2%	1%	1%	2%	2%	1%

Source: IMF, FAO.

Diagram 6.1: Ghana and Côte d'Ivoire:
Cocoa as % of Total Export Earnings and Cocoa Prices



OVERVIEW OF PRODUCTION AND EXPORT TRENDS

Production Trends

West Africa accounts for around 70% of global cocoa production, and output in the region has grown by 2% per year on average between 1995/96 and 2004/05, compared to global production growth of around 1% per year. Good weather contributed to regional output reaching 2.526 million tonnes in 2003/04, before falling back to 2.298 million tonnes in 2004/05 (Table 6.3).

Individual producing country production data is estimated to take account of the smuggling of crop occurring within the West African region. While Côte d'Ivoire remains the dominant world producer, accounting for around 40% of global output, production in Ghana is estimated to have grown more rapidly than in Côte d'Ivoire; consequently, Ghana's share of global production reached 17% in 2003/04, compared to 12% in the mid-1990s. Nigeria and Cameroon have maintained their shares at around 6% and 4%

of global output, respectively, over the review period, while the Togolese share is less than 1% (Diagram 6.2 and Table 6.3).

Diagram 6.2: West Africa — Cocoa Production

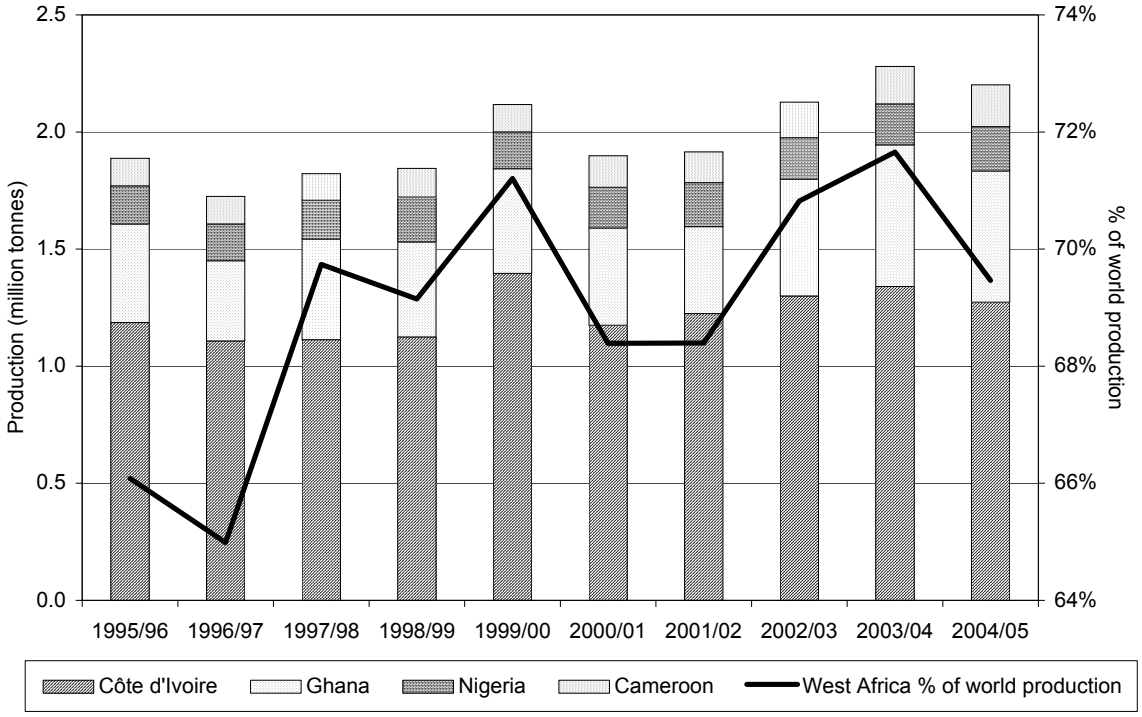


Diagram 6.3: West Africa — Global Cocoa Production Shares

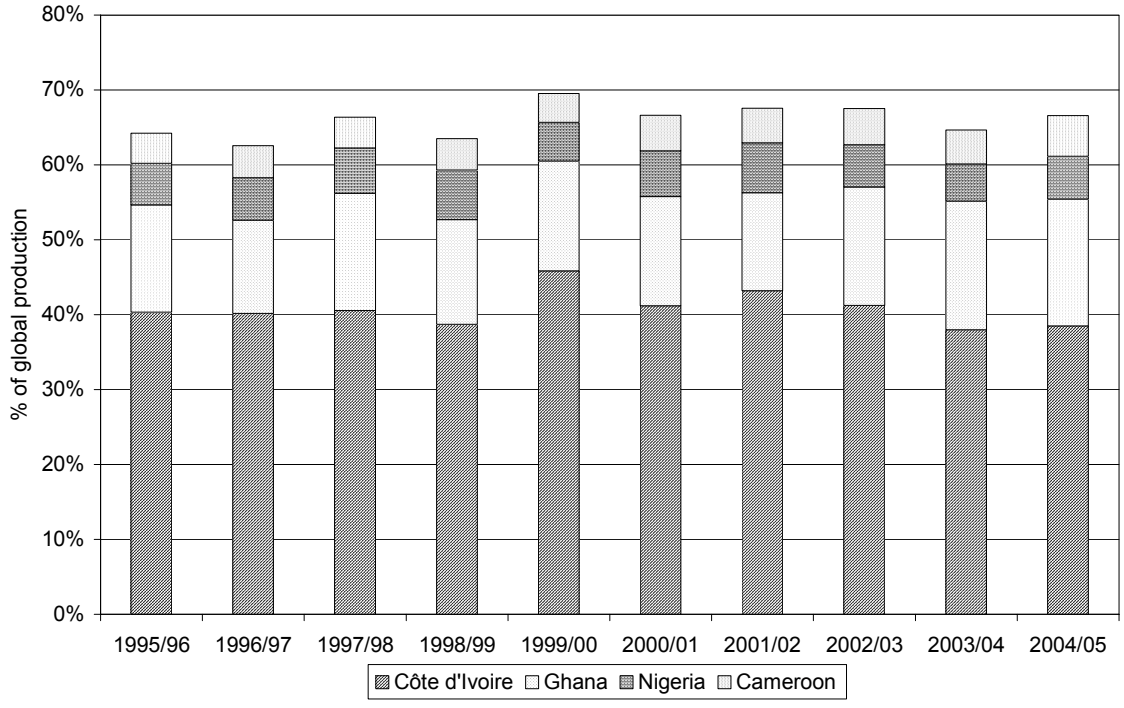


Table 6.3: Cocoa Production, 1995/96-2004/05 ('000 tonnes)

	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	Annual % Change 1995/96-2004/05
World	**2,940**	**2,757**	**2,744**	**2,905**	**3,045**	**2,851**	**2,835**	**3,152**	**3,526**	**3,307**	**1%**
of which:											
West Africa	1,943	1,792	1,914	2,009	2,168	1,950	1,939	2,232	2,526	2,298	2%
of which:											
Côte d'Ivoire	1,186	1,108	1,113	1,125	1,396	1,175	1,225	1,300	1,340	1,273	1%
Ghana	421	342	429	405	447	415	371	498	605	560	3%
Nigeria	163	157	166	192	157	174	188	178	175	190	2%
Cameroon	118	117	113	122	117	135	131	152	160	178	5%
Togo	5	9	6	7	7	6	6	6	5	4	-4%

Sources: BNETD, Togo Customs, LMC.

Ivorian cocoa production grew strongly (at an annual average rate of 7%) between 1960 and 1990 due to the expansion of the planted area into the western forest zones, supported by an influx of labour from neighbouring countries such as Burkina Faso, Guinea and Mali. More recently, however, a number of factors have combined to contain further increases in Ivorian output, including:

- Lack of land for further expansion;
- Declining soil fertility in the western forest zones;
- Progressive ageing of plantings in the eastern zones;
- Shortage of labour due to the political crisis; and
- Low usage of inputs such as fungicide and fertiliser.

The contrasting rise in Ghanaian production is attributed to a number of factors, including:

- Provision of subsidised inputs such as fungicide and fertiliser;
- Government involvement in supporting and regulating producer prices; and
- Strong currency devaluation.

Togolese production is declining due to ageing trees, disease problems and lack of maintenance.

Export Trends

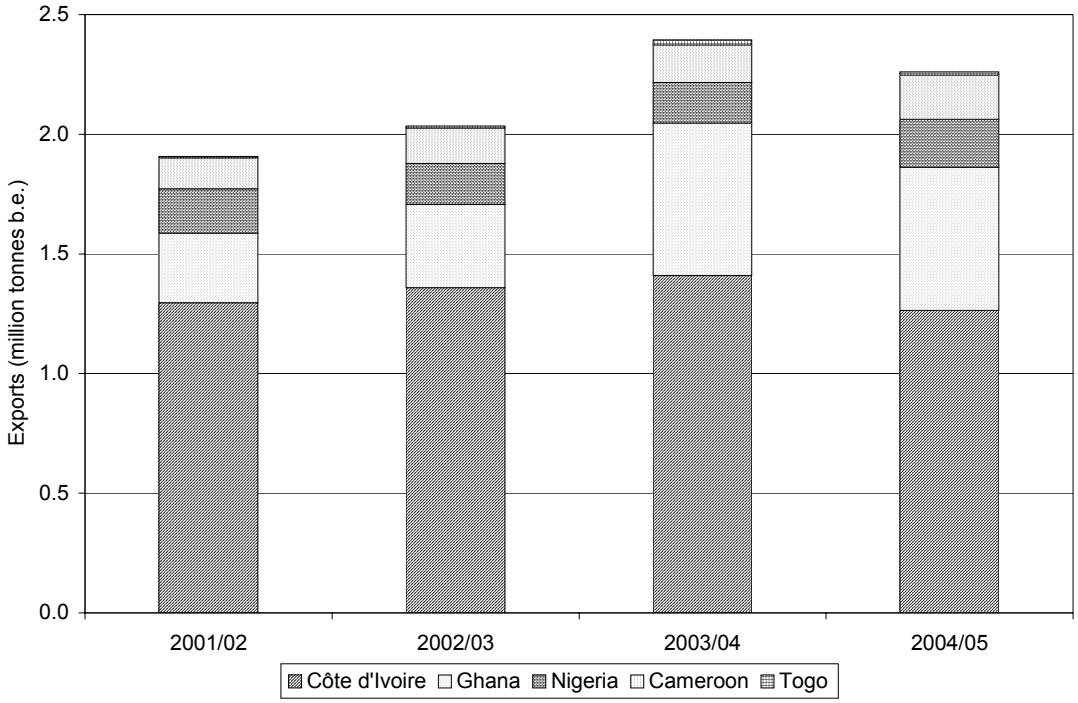
Total exports of cocoa beans and cocoa products by the four large West African producers (Côte d'Ivoire, Ghana, Nigeria and Cameroon) plus Togo, increased from 2.034 million tonnes in 2002/03 to 2.261 million tonnes in 2004/05, reflecting an annual average growth rate of 5%. Ivorian exports, which rose steadily between 2001/02 and 2003/04, declined in 2004/05, mainly due to the impact of the political crisis (which resulted in the closure of feeder roads and ports). However, Ivorian crop was instead smuggled into Ghana and Togo, contributing to an increase in exports from those countries (Table 6.4 and Diagram 6.4).

Table 6.4: Exports of Cocoa Beans and Cocoa Products, 2001/02-2004/05 (tonnes b.e.)

	2001/02	2002/03	2003/04	2004/05	Annual % Change 2002/03-2004/05
Côte d'Ivoire	1,296,056	1,358,642	1,409,883	1,264,256	-4%
Ghana	290,509	348,651	637,141	598,184	31%
Nigeria	186,333	170,341	169,000	200,141	8%
Cameroon	128,452	148,894	156,858	184,842	11%
Togo	5,700	7,900	21,600	13,300	30%
Total of above	**1,907,050**	**2,034,428**	**2,394,482**	**2,260,723**	**5%**

Sources: BCC, Togo Customs, Cocobod.

Diagram 6.4: Exports of Cocoa Beans and Cocoa Products



According to the producing country data between 2001/02 and 2004/05, the EU-15 share of exports of cocoa beans and cocoa products declined from 93% to 61% in Côte d'Ivoire, and from 90% to 72% in Togo; on the other hand, the EU-15 share of Ghanaian exports increased from 74% to 78%. While the EU-15 is still by far the largest export destination for all three producers, the increase in Ivorian exports to other (notably American) destinations in particular has caused the EU-15 share of exports from the three producers to decline from 90% in 2001/02 to 67% in 2004/05 (Table 6.5 and Diagrams 6.5 and 6.6). These data somewhat contradict EU Eurostat import data and it is possible that there has been some misclassification of exports by destination, while the overall total remains correct.

Table 6.5: Exports of Cocoa Beans and Cocoa Products by Destination, 2001/02-2004/05
(tonnes b.e.)

		2001/02	2002/03	2003/04	2004/05	Annual % Change 2002/03-2004/05
Côte d'Ivoire	EU-15	1,208,433	1,108,621	1,024,134	771,196	-17%
	Others	87,623	250,021	385,749	493,060	40%
Ghana	EU-15	214,517	231,088	490,130	467,440	42%
	Others	75,992	117,563	147,011	130,744	5%
Togo	EU-15	5,130	6,715	19,440	9,576	19%
	Others	570	1,185	2,160	3,724	77%

Sources: BCC, Togo Customs, Cocobod.

Diagram 6.5: Exports of Cocoa Beans and Cocoa Products by Destination

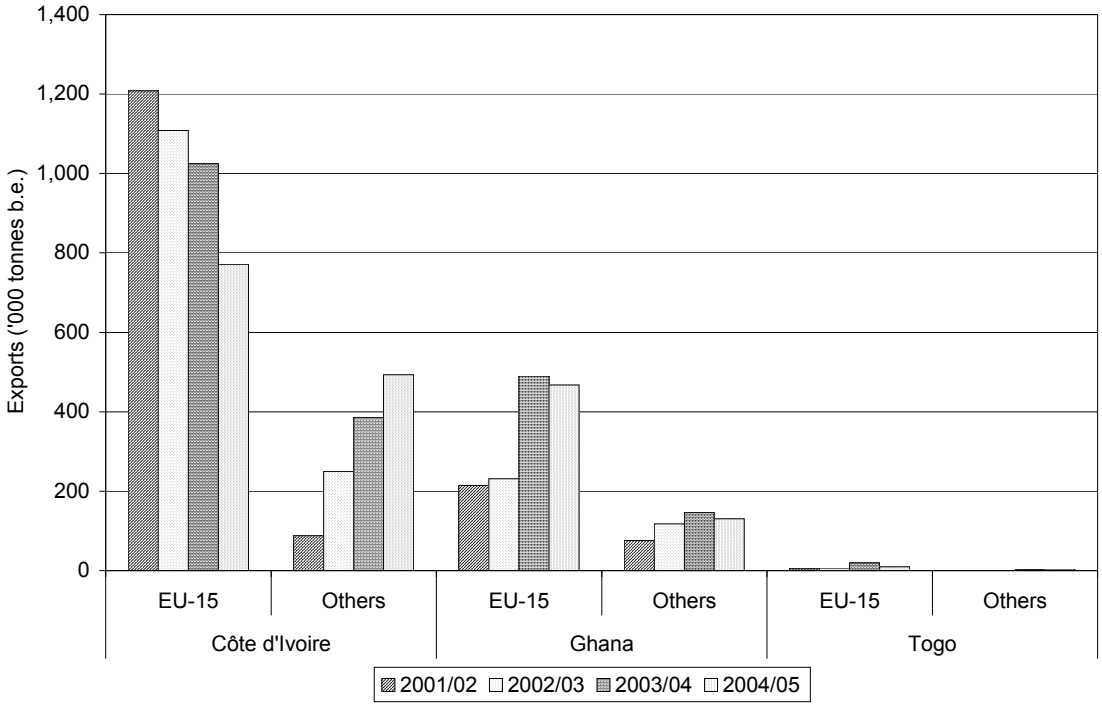
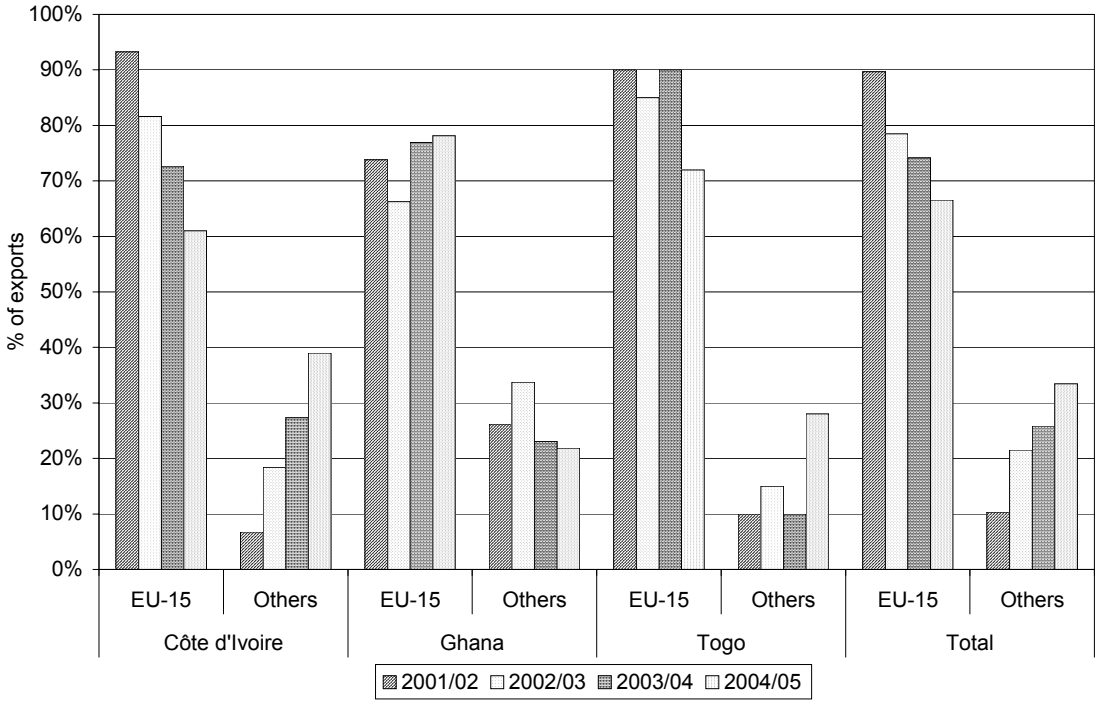


Diagram 6.6: EU-15 Shares of Cocoa Exports



The decline in Ivorian cocoa exports to the EU-15 countries is also reflected in the official import data, while the increase in exports to America is partly attributed to US cocoa processors sourcing Ivorian rather than Indonesian beans (which are increasingly in demand by processors in the Asian region) as well as increased bean imports by Brazilian processors.

VALUE ADDITION

The governments of both Côte d'Ivoire and Ghana are keen to encourage downstream processing in their cocoa industries as a way of adding value to exports. Other reasons include:

- Providing an alternative market for lower quality beans, thereby preserving the quality of export beans;
- Reduced shipping costs; and
- Providing employment opportunities in the food processing industry.

Various investment incentives have been offered to investors in both countries, ranging from discounts on bean purchases to tax breaks and import duty exemptions.

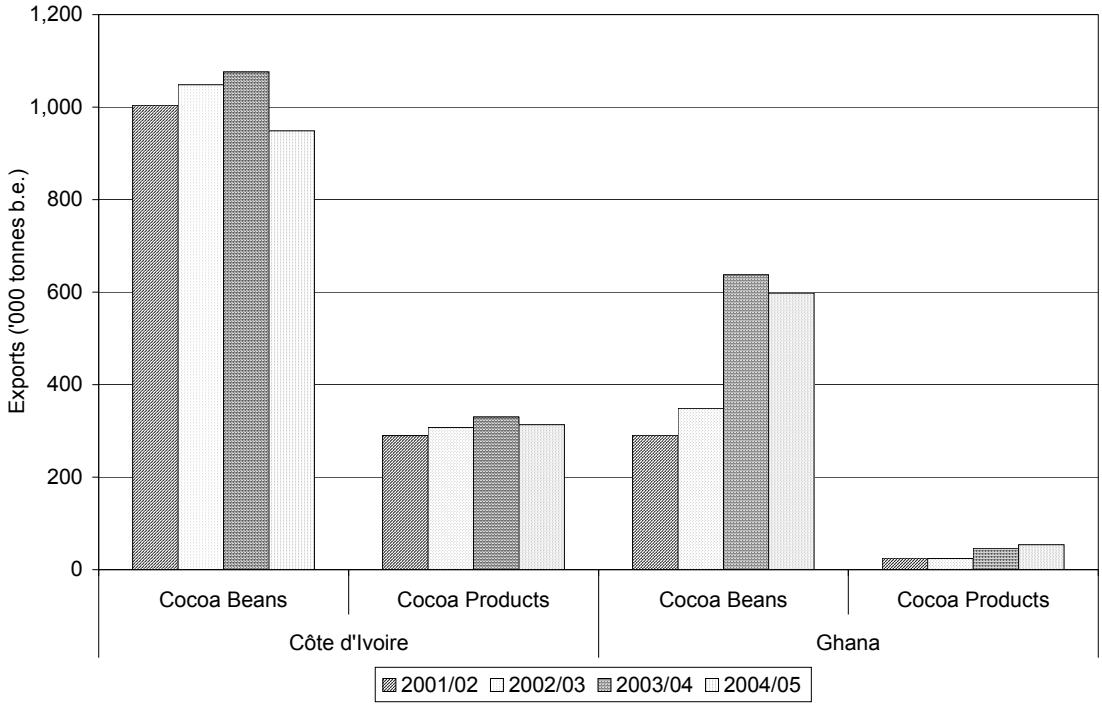
In Côte d'Ivoire, while processing costs are estimated to be considerably higher than in Europe, the levels of export tax on cocoa beans and products has for a number of years been explicitly set to make downstream processing financially viable. Consequently, several processing plants were established prior to 2001/02 and around 25% of Ivorian cocoa exports are now in the form of semi-finished products (i.e. cocoa liquor/paste, cocoa butter and cocoa powder/cake). In Ghana, the processed proportion of exports is lower than in Côte d'Ivoire, although cocoa product exports have been growing by almost 50% per year between 2002/03 and 2004/05 (Table 5.6 and Diagram 5.7). Ghanaian processing capacity is set to double by 2008.

Table 6.6: Cocoa Exports by Type, 2001/02-2004/05 (tonnes b.e.)

		2001/02	2002/03	2003/04	2004/05	Annual % Change 2002/03-2004/05
Côte d'Ivoire	Beans	1,004,308	1,048,614	1,076,332	948,861	-5%
	Liquor	147,277	137,512	160,999	140,514	1%
	Butter	64,545	76,737	78,515	76,148	0%
	Powder/Cake	78,015	92,915	90,359	96,748	2%
	Total Products	289,837	307,164	329,873	313,410	1%
	% Processed	**22%**	**23%**	**23%**	**25%**	
Ghana	Beans	290,509	348,651	637,141	598,184	31%
	Liquor	18,773	14,520	26,733	23,945	28%
	Butter	4,638	9,190	10,148	11,478	12%
	Powder/Cake	1,707	555	9,582	18,444	477%
	Total Products	25,118	24,265	46,462	53,866	49%
	% Processed	**8%**	**7%**	**7%**	**8%**	

Source: BCC, Cocobod.

Diagram 6.7: Cocoa Exports by Type



There is no incentive to promote the downstream processing of cocoa in Togo.

PRICE DEVELOPMENTS

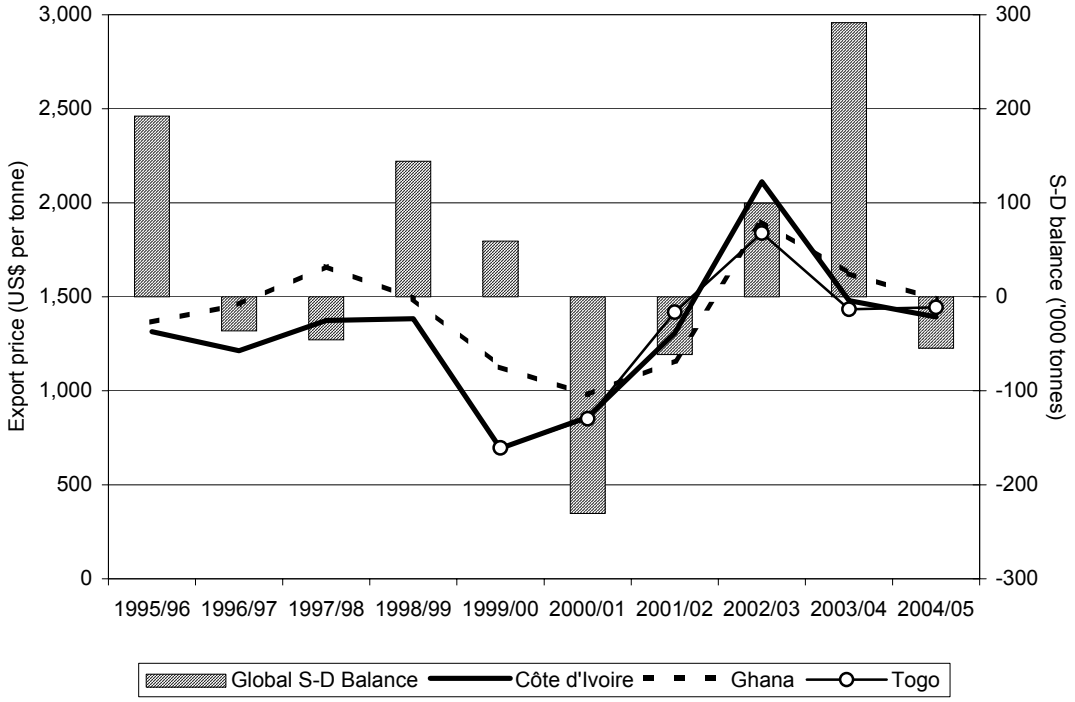
Between 1995/96 and 2004/05, cocoa bean export prices averaged $1,280 per tonne in Togo, $1,313 per tonne in Côte d'Ivoire and US$1,425 per tonne in Ghana; Ghanaian beans normally receive a premium over other origins on the international markets, partly due to their higher quality. The fluctuations in annual prices (including the steady decline between 2002/03 and 2004/05) are largely explained by changes in the global supply-demand balance (Table 6.7 and Diagram 6.8).

Table 6.7: Cocoa Bean Export Prices, 1995/96-2004/05 (US$ per tonne f.o.b.)

	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	Average
Côte d'Ivoire	1,314	1,213	1,374	1,383	694	859	1,307	2,112	1,480	1,393	1,313
Ghana	1,365	1,460	1,662	1,490	1,126	978	1,160	1,902	1,624	1,487	1,425
Togo					696	851	1,419	1,839	1,434	1,444	1,280

Sources: BNETD, Togo Customs, Cocobod.

Diagram 6.8: Cocoa Bean Export Prices and Global Supply-Demand Balance



The share of the export price received by producers largely depends on government policy towards the cocoa sector in the respective countries:

- In Côte d'Ivoire, the domestic market was liberalised in 1999, although a number of state authorities still regulate and service the sector, while the government imposes a significant tax on bean exports (amounting to almost 30% of the export price).

- In Ghana, the Cocobod licenses private buyers to carry out internal marketing, while its own subsidiary is responsible for export sales. Producer prices are fixed annually by a government-appointed committee in order to stabilise prices and support producer incomes during periods of low international prices. The export tax is 15%.

- In Togo, the domestic market was liberalised in 1996, and is only lightly regulated by a single agency. There is no export tax.

Lighter regulation and the lack of an export tax means that the producer share of the cocoa bean export price is much higher in Togo (at around 80%) than in Côte d'Ivoire and Ghana, although the Ghanaian share has improved markedly (from 53% to approaching 70%) over the last three seasons; meanwhile, in Côte d'Ivoire, the producer share has fallen from 57% to 41% over the same period (Diagram 6.9). The disparity between producer prices explains in large part the smuggling of crop from Côte d'Ivoire into Ghana and Togo.

Diagram 6.9: Producer Shares of Cocoa Bean Export Prices

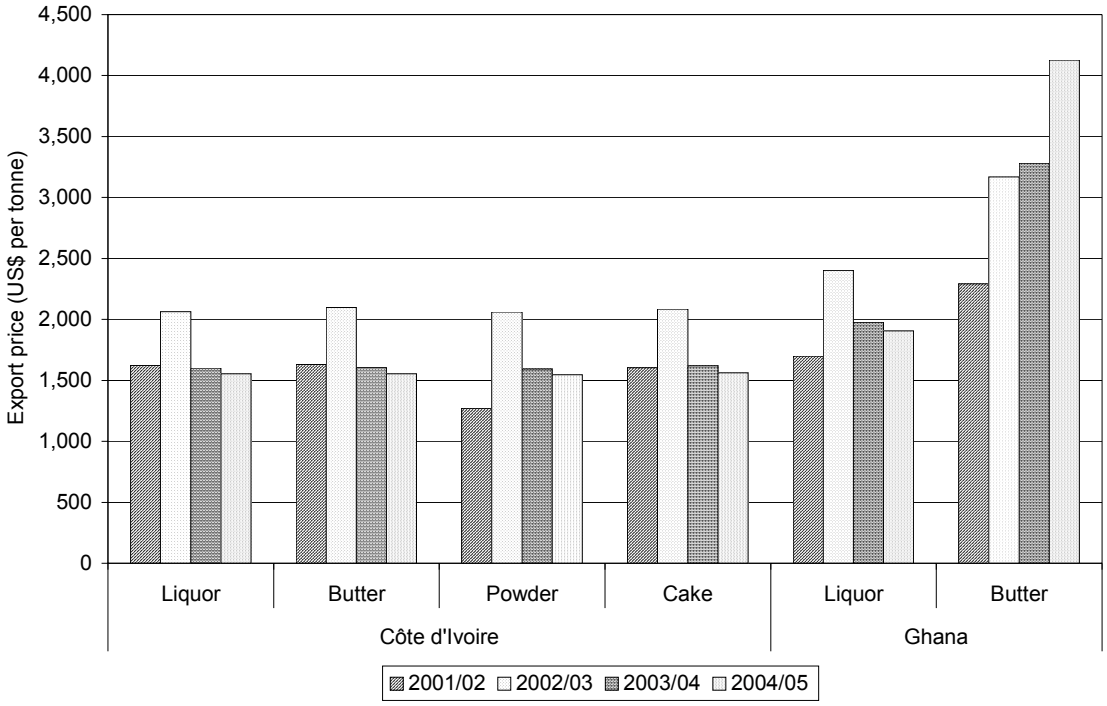
In Côte d'Ivoire, the movement in export prices of cocoa products between 2001/02 and 2004/05 largely reflected the movement in bean export prices over the same period, with prices peaking in 2002/03. In Ghana, while this was also true for liquor prices, butter prices rose strongly over the period (more in line with butter prices on the international markets) (Table 6.8 and Diagram 6.10).

Table 6.8: Cocoa Product Export Prices, 2001/02-2004/05 (US$ per tonne f.o.b.)

		2001/02	2002/03	2003/04	2004/05
Côte d'Ivoire	Liquor	1,622	2,063	1,602	1,554
	Butter	1,629	2,099	1,604	1,554
	Powder	1,271	2,061	1,594	1,546
	Cake	1,605	2,083	1,621	1,563
Ghana	Liquor	1,699	2,402	1,977	1,906
	Butter	2,293	3,169	3,282	4,127
	Powder				1,124
	Cake				445

Sources: BCC, Cocobod.

Diagram 6.10: Cocoa Product Export Prices



IMPACT OF THE DIRECTIVE

The impression gained from interviews with stakeholders in the cocoa producing countries is the Directive *per se* has so far had little impact on cocoa producers i.e. the demand for cocoa has not been affected to date.

Smuggling, particularly from Côte d'Ivoire into Ghana and Togo, complicates an analysis of the export data. Ivorian cocoa exports to the EU-15 appear to have fallen between 2002/03 and 2004/05, although this is partly due to higher demand from US processors; meanwhile, exports to the EU-15 from Ghana and Togo have increased. The changes in cocoa prices that have occurred over the same period are largely explained by changes in the global supply-demand balance situation.

Estimating The Impact Using LMC's Forecasting Model

In the following section, LMC's forecasting model is used to compare the impact of changes in demand on supply-demand balances and prices. The repercussions of a price change on profitability for large and small cocoa producers are then considered.

CBE Usage

The impact of the Directive is calculated under three scenarios.

The **base case** scenario calculates the impact of the Directive on the market to date. It follows the assumptions set out in Chapter 5: that is, from 2003/04:

- In UK and Ireland CBE use has fallen from 4.4% to 4.1%; while

- In Germany, France, Belgium/Luxembourg, Italy, the Netherlands, Spain and Greece (the so-called EU-8) CBE consumption has increased by 1,000 tonnes.

Scenario 1 calculates what would have been the state of the market had the Directive not been implemented in 2003/04, i.e., the following levels of CBE usage in chocolate apply:

- In UK and Ireland, CBE use remains at 4.4%;
- In the EU-8, usage is zero.

Scenario 2 calculates what would have been the impact of the Directive if it had been fully implemented in 2003/04, i.e., CBE usage in chocolate rose to 5% in the EU-8. This would have increased demand for CBEs by 52,600 tonnes (70,000 tonnes of cocoa in bean equivalent terms).

Results

Global Prices

The forecast levels of prices under the different scenarios between 2003/04 and 2010/11 are shown in Table 6.9 and Diagram 6.11.

Table 6.9: Forecast Global Cocoa Prices, 2003/04-2010/11 (Real US$ per tonne)

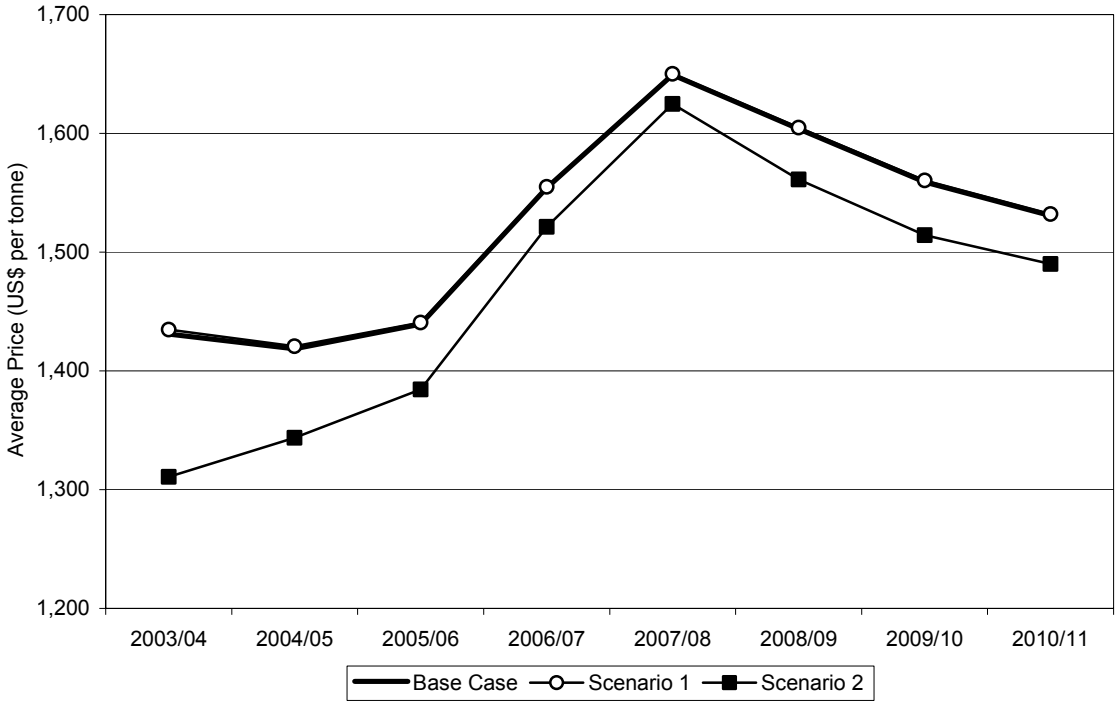
	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
Base Case	1,431	1,419	1,439	1,554	1,649	1,604	1,559	1,531
Scenario 1	1,435	1,421	1,441	1,555	1,650	1,605	1,560	1,532
Scenario 2	1,311	1,344	1,384	1,521	1,625	1,561	1,514	1,490

Source: LMC.

Comparing the prices forecast under the base case scenario with those forecast under Scenario 1 suggests that the impact of not implementing the Directive in 2003/04 would have been modest i.e. a price difference of less than $5 per tonne.

Were the Directive to have been implemented fully in 2003/04, the results suggest that the price impact would have been more pronounced: comparing the prices forecast under the base case scenario with those forecast under Scenario 2 suggests that in 2003/04, the average price would have been $120 per tonne lower if the Directive had been fully implemented. However, the price difference between the scenarios narrows to less than $40 per tonne on average between 2006/07 and 2010/11.

Diagram 6.11: Forecast Global Cocoa Prices, 2003/04-2010/11



Production and Export Earnings

The price forecasts are partly derived from global production estimates, which can be disaggregated to evaluate the impact of the Directive on production and export earnings in individual producing countries. The period of analysis begins in 2004/05 (the first year in which producers respond to a change in price that occurred in 2003/04). Export earnings are calculated as *Forecast Production x Forecast Global Price* and hence do not take account of any export differentials earned as a result of variations in bean quality, nor of any additional earnings received from exports of cocoa products as opposed to beans.

Larger Producers

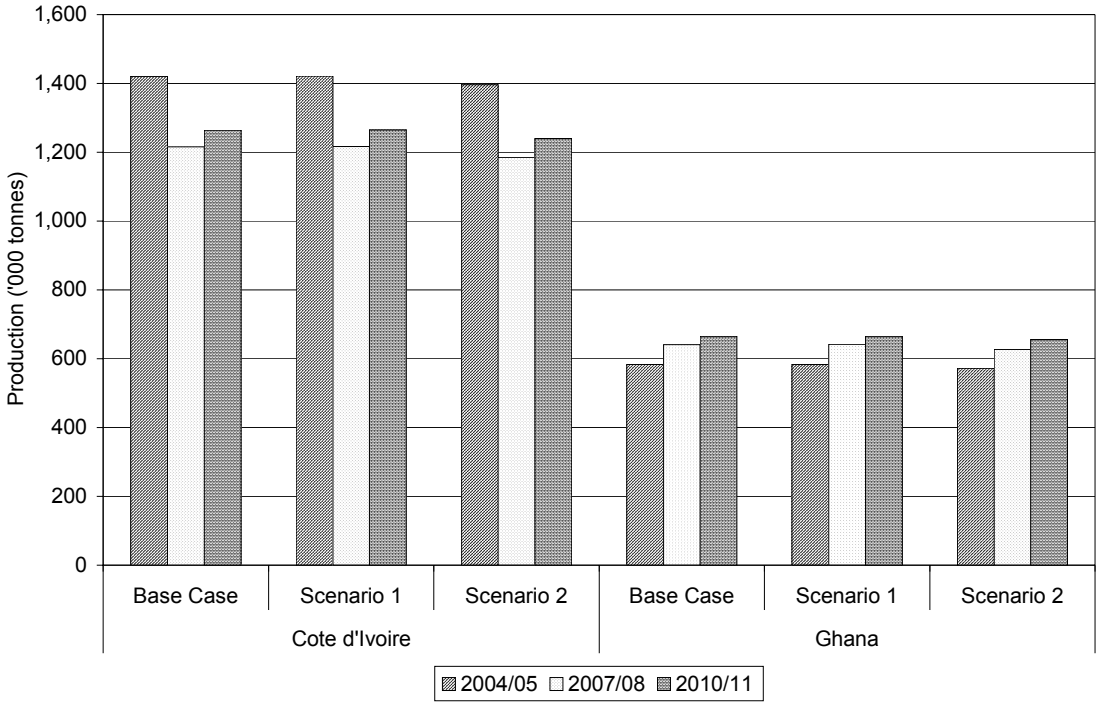
In the case of Côte d'Ivoire and Ghana, the two largest cocoa producers, the impact of the different scenarios on production between 2004/05 and 2010/11 are shown in Table 6.10 and Diagram 6.12.

Table 6.10: Larger Producers — Cocoa Production Forecasts, 2004/05-2010/11
('000 tonnes)

		2004/05	2007/08	2010/11
Cote d'Ivoire	Base Case	1,420.2	1,215.9	1,264.6
	Scenario 1	1,420.9	1,216.9	1,265.3
	Scenario 2	1,396.0	1,184.8	1,240.5
Ghana	Base Case	582.8	641.2	665.2
	Scenario 1	583.1	641.6	665.4
	Scenario 2	572.3	627.3	656.0

Source: LMC.

Diagram 6.12: Larger Producers — Cocoa Production Forecasts, 2004/05-2010/11



Comparing the levels of production forecast under the base case scenario with those forecast under Scenario 1 suggests that the impact of not implementing the Directive in 2003/04 would have been minimal. In Côte d'Ivoire, estimated annual production increases by less than 1,000 tonnes (0.1%) during the forecast period, while production in Ghana increases by less than 500 tonnes.

The impact of full implementation of the Directive in 2003/04 (Scenario 2) on production would have been larger. In Côte d'Ivoire, estimated annual production decreases by around 25,000 tonnes (or 2% of the total on average) while production in Ghana decreases by around 11,000 tonnes (a similar proportion to Côte d'Ivoire).

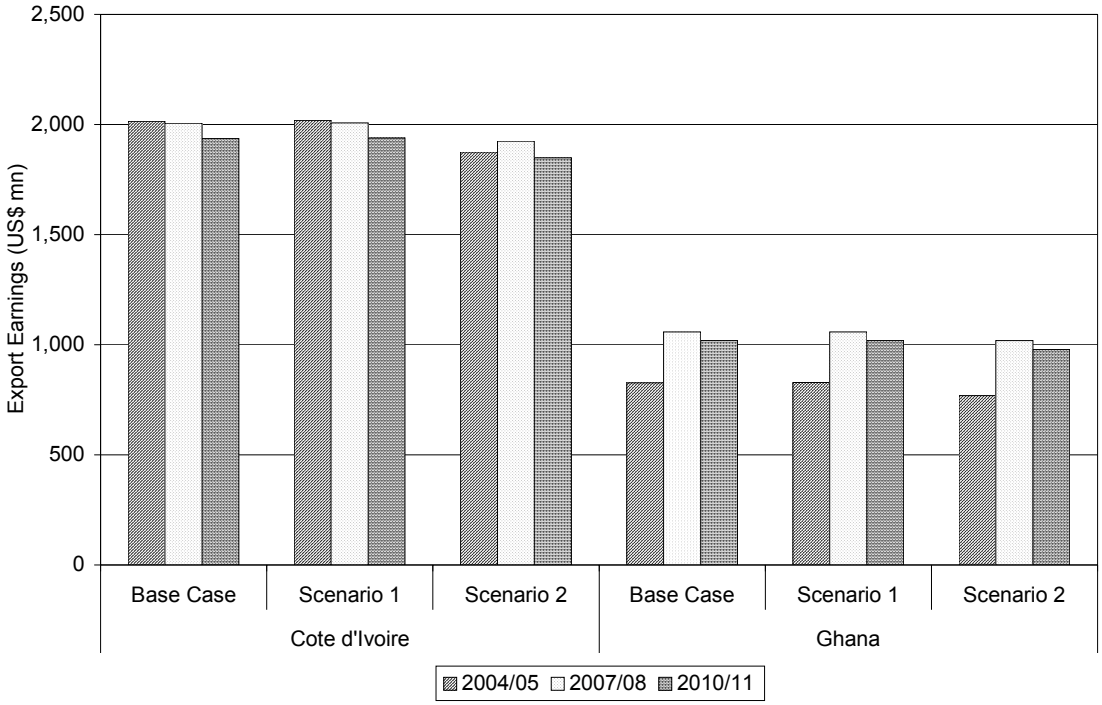
The impact of the different scenarios on export earnings between 2004/05 and 2010/11 are shown in Table 6.11 and Diagram 6.13.

Table 6.11: Larger Producers — Cocoa Export Earnings Forecasts, 2004/05-2010/11
(US$ mn)

		2004/05	2007/08	2010/11
Cote d'Ivoire	Base Case	2,014.5	2,005.5	1,935.8
	Scenario 1	2,018.9	2,007.9	1,938.4
	Scenario 2	1,875.7	1,925.1	1,848.5
Ghana	Base Case	826.7	1,057.5	1,018.2
	Scenario 1	828.5	1,058.6	1,019.4
	Scenario 2	768.9	1,019.3	977.5

Source: LMC.

Diagram 6.13: Larger Producers — Cocoa Export Earnings Forecasts, 2004/05-2010/11



The analysis suggests that in Côte d'Ivoire, the gain in export earnings arising from not implementing the Directive in 2003/04 (Scenario 1) would have been around US$4 million in 2004/05, while later in the forecast period the gains would average around $2.5 million per year. In Ghana, an additional US$1-2 million would have been earned each year. If all the cocoa produced by these countries were exported in the form of beans, this would be equivalent to an increase in export earnings of less than 0.25%.

In the case of full implementation of the Directive in 2003/04 (Scenario 2), the losses in export earnings in 2004/05 would have been around US$140 million in Côte d'Ivoire and US$60 in Ghana; later in the forecast period, annual losses would fall back to around US$85 million in Côte d'Ivoire and US$40 million in Ghana. If all the cocoa produced were exported in the form of beans, this would be equivalent to a decrease in export earnings of between 4% and 7%.

Smaller Producers

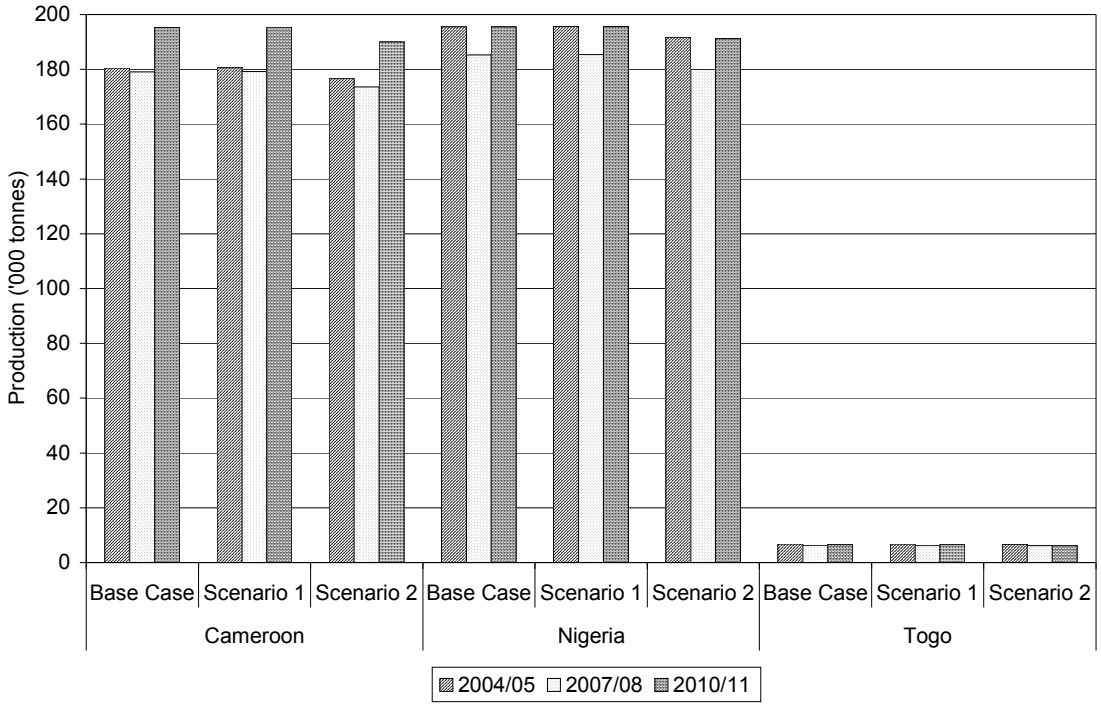
In the case of three smaller cocoa producers — Cameroon, Nigeria and Togo — the impact of the different scenarios on production between 2004/05 and 2010/11 are shown in Table 6.12 and Diagram 6.14.

Table 6.12: Smaller Producers — Cocoa Production Forecasts, 2004/05-2010/11
('000 tonnes)

		2004/05	2007/08	2010/11
Cameroon	Base Case	180.4	179.1	195.3
	Scenario 1	180.6	179.3	195.5
	Scenario 2	176.7	173.6	190.1
Nigeria	Base Case	195.6	185.3	195.6
	Scenario 1	195.7	185.4	195.7
	Scenario 2	191.7	180.1	191.3
Togo	Base Case	6.8	6.3	6.5
	Scenario 1	6.8	6.3	6.5
	Scenario 2	6.7	6.2	6.3

Source: LMC.

Diagram 6.14: Smaller Producers — Cocoa Production Forecasts, 2004/05-2010/11



As in the case of the larger producers, a comparison between the levels of production forecast under the base case scenario with those forecast under Scenario 1 suggests that the impact of not implementing the Directive in 2003/04 would also have been minimal in the smaller producers. In Cameroon and Nigeria (where total production is of a similar magnitude) estimated annual production increases by around 150 tonnes during the forecast period, while annual production in Togo increases by less than 10 tonnes (less than 0.1% of total production in each country).

The impact of full implementation of the Directive in 2003/04 (Scenario 2) on production would have been much larger. In Cameroon and Nigeria, estimated annual production decreases by between 3,500 and 5,500 tonnes, while in Togo production decreases by around 200 tonnes, equivalent to around 2.5% of total production in each country.

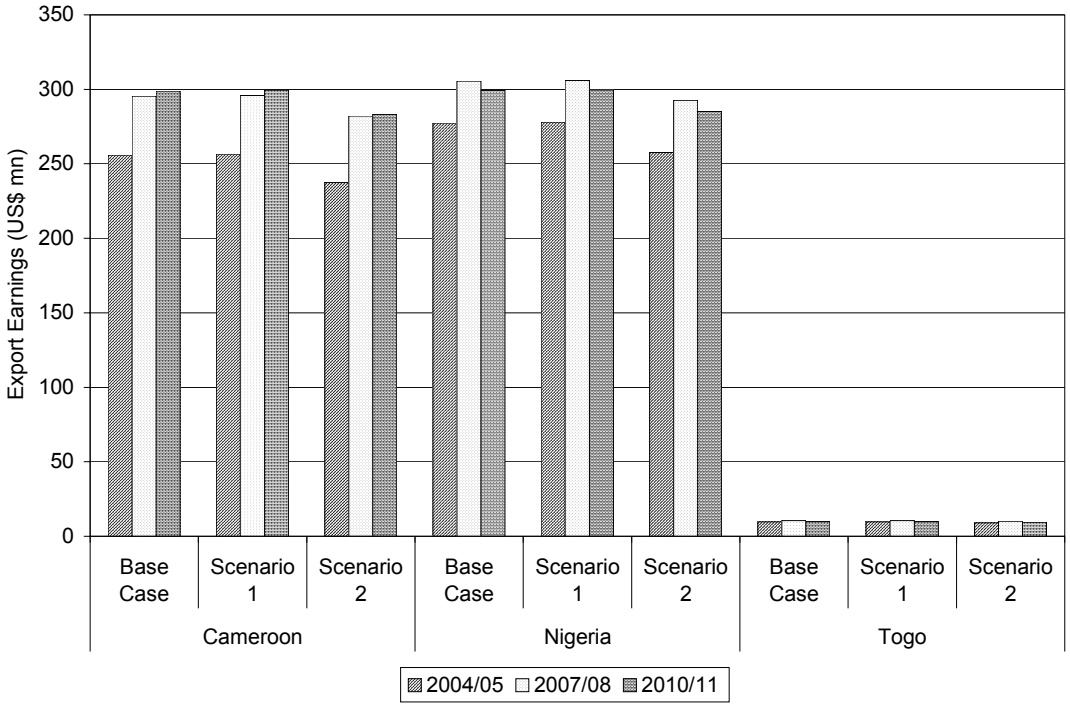
The impact of the different scenarios on export earnings between 2004/05 and 2010/11 are shown in Table 6.13 and Diagram 6.15.

Table 6.13: Smaller Producers — Cocoa Export Earnings Forecasts, 2004/05-2010/11
(US$ mn)

		2004/05	2007/08	2010/11
Cameroon	Base Case	256.0	295.4	298.9
	Scenario 1	256.5	295.8	299.4
	Scenario 2	237.5	282.1	283.3
Nigeria	Base Case	277.5	305.6	299.4
	Scenario 1	278.1	306.0	299.8
	Scenario 2	257.5	292.6	285.0
Togo	Base Case	9.6	10.4	9.9
	Scenario 1	9.7	10.5	9.9
	Scenario 2	8.9	10.0	9.4

Source: LMC.

Diagram 6.15: Smaller Producers — Cocoa Export Earnings Forecasts, 2004/05-2010/11



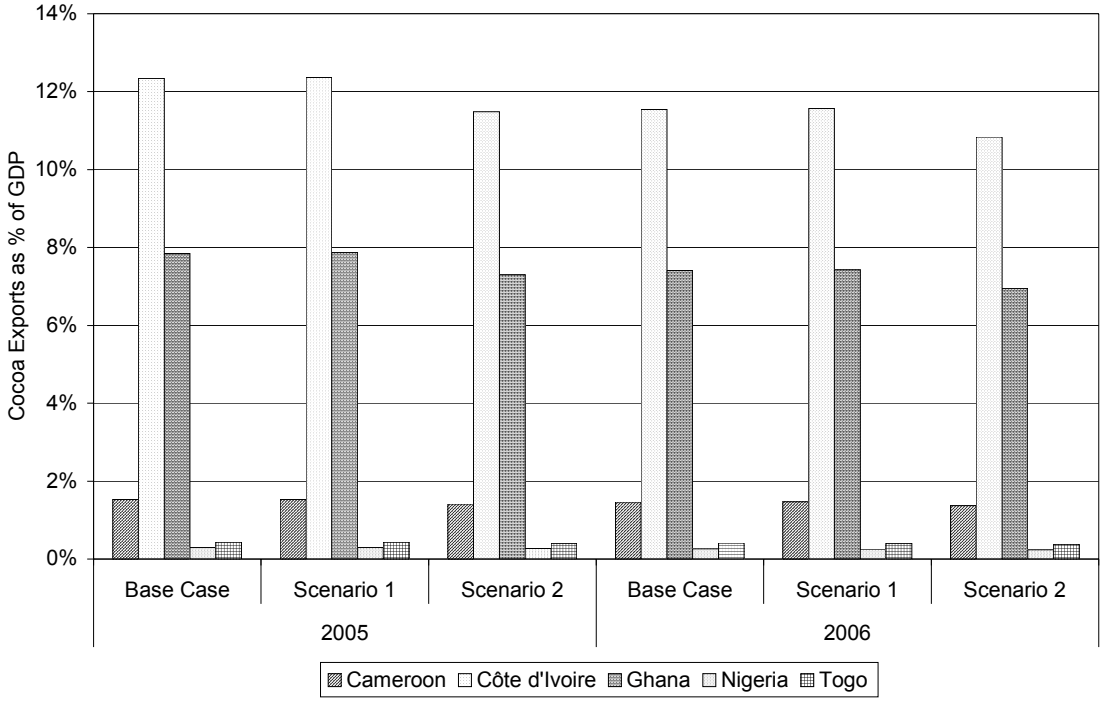
The analysis suggests that in Cameroon and Nigeria, the gain in export earnings arising from not implementing the Directive in 2003/04 (Scenario 1) would have been around US$0.6 million each in 2004/05, while later in the forecast period the gains would average around $0.4 million per year. In Togo, an additional US$10-20,000 would have been earned each year. If all the cocoa produced by these countries were exported in the form of beans, this would be equivalent to an increase in export earnings of around 0.2%.

In the case of full implementation of the Directive in 2003/04 (Scenario 2), the losses in export earnings in 2004/05 would have been around US$20 million in Cameroon and Nigeria; later in the forecast period, annual losses would fall back to US$10-15 million. In Togo, annual losses would be between US$0.5 million and US$0.7 million. If all the cocoa produced were exported in the form of beans, this would be equivalent to a decrease in export earnings of between 4% and 7%.

Macro Economic Impact

To gain an impression of the macro economic impact of the scenarios examined by the model, it is possible to compare the estimates of gains and losses in foreign exchange earnings with the GDP forecasts published by the IMF (Diagram 6.16).

Diagram 6.16: Cocoa Exports as % of GDP



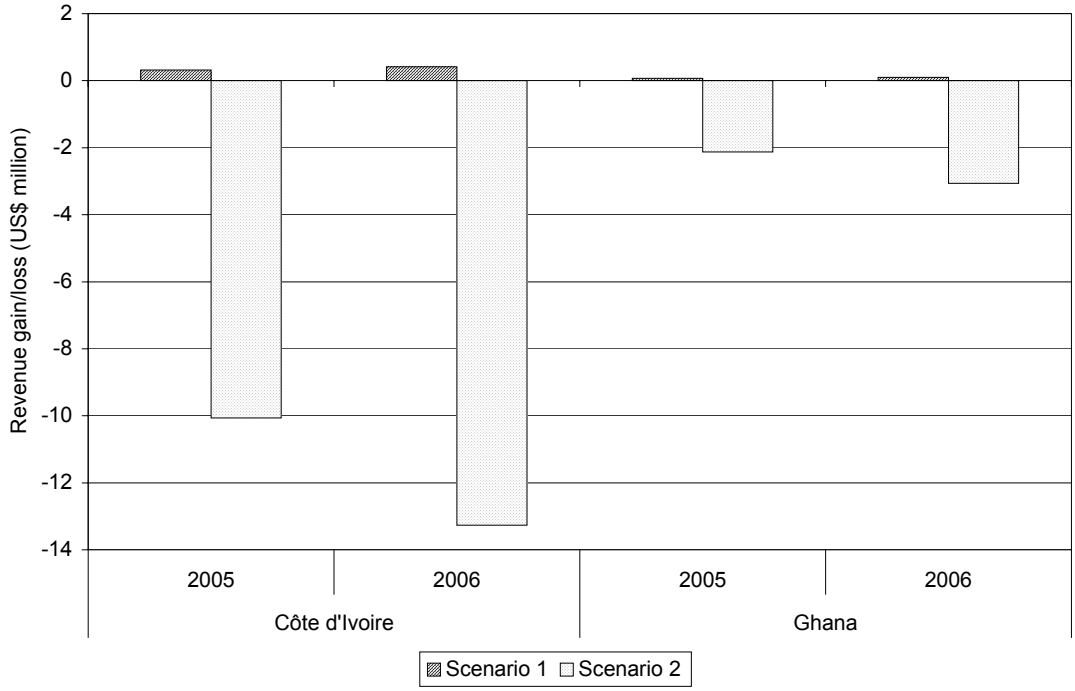
The analysis suggests that the macro economic impact of not implementing the Directive in 2003/04 (Scenario 1) in terms of the contribution of cocoa exports to the producing countries' GDP in 2005 and 2006 would have been minimal. Even in Côte d'Ivoire (where cocoa exports historically contribute at least 10% of total GDP) the impact would have been an increase of only around 0.03% of GDP in 2005.

The macro economic impact of full implementation of the Directive in 2003/04 (Scenario 2) would have resulted in a decline in the contribution of cocoa exports to the GDP of the two larger producers (Côte d'Ivoire and Ghana) of between 0.5% and 0.9%. In Cameroon, the impact would have been a 0.1% decrease, while the impact in Nigeria and Togo would have been minimal.

Apart from their contribution to GDP, the cocoa sectors are a major source of state tax revenue in the larger producers, particularly Côte d'Ivoire where the main export tax (the DUS — Droit Unique de Sortie) accounts for approaching 30% of the cocoa price. The analysis suggests that Côte d'Ivoire would have gained US$0.3-0.4 million in

annual tax revenue in 2005 and 2006 if the Directive had not been implemented in 2003/04 (Scenario 1) while it would have lost US$10-13 million if the Directive had been fully implemented in 2003/04 (Scenario 2). In Ghana, where a 15% export tax is levied, the gains in tax revenue would have been less than $100,000 under Scenario 1 while under Scenario 2 the losses would have been around US$2 million in 2005 and US$3 million in 2006 (Diagram 6.17).

Diagram 6.17: Changes in Cocoa Tax Revenue



Impact on Employment and the Environment

Some six million workers are directly employed in producing cocoa in Côte d'Ivoire and Ghana alone. The crop often provides a significant proportion of total cash income for many rural cocoa-growing households. This cash is often needed to pay for services such as education and health care, which are usually not provided free by the state. In the rural forest zone of Ghana, where many small cocoa farmers are located, income data from recent World Bank-supported living standards surveys suggest that increasing returns to agricultural activities are an important factor underlying the poverty reduction. The decline in poverty is partly attributed to past investment decisions (cocoa planting) along with a gradual increase in the producer price of cocoa and assistance with the maintenance of cocoa farms through enhanced extension services. A reduction in farmgate prices (which would be expected to occur in the case of full implementation of the Directive in 2003/04 (Scenario 2)) would reduce profitability and cash incomes, and consequently access to services, as well as contributing to an increase in poverty.

The environmental impact of changes in cocoa prices would be expected to be partly reflected in the changes in yields and harvested area calculated by the forecasting model, although the analysis suggests that these are relatively modest in all cases (Diagrams 6.18 and 6.19).

Diagram 6.18: Changes in Yields

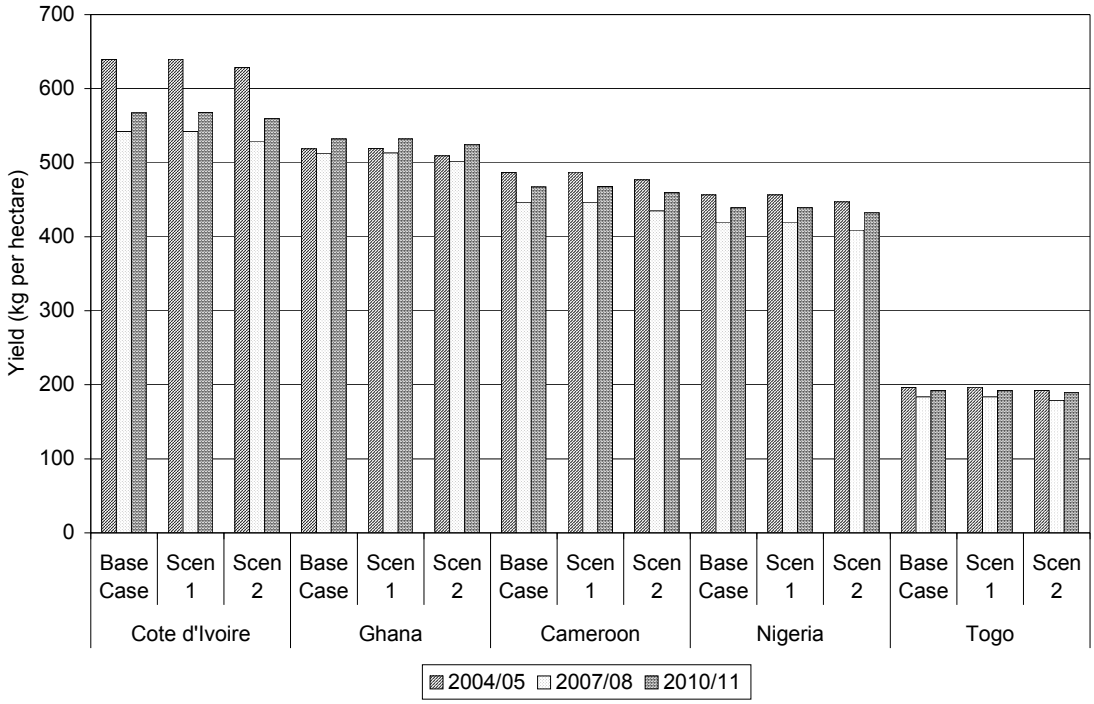
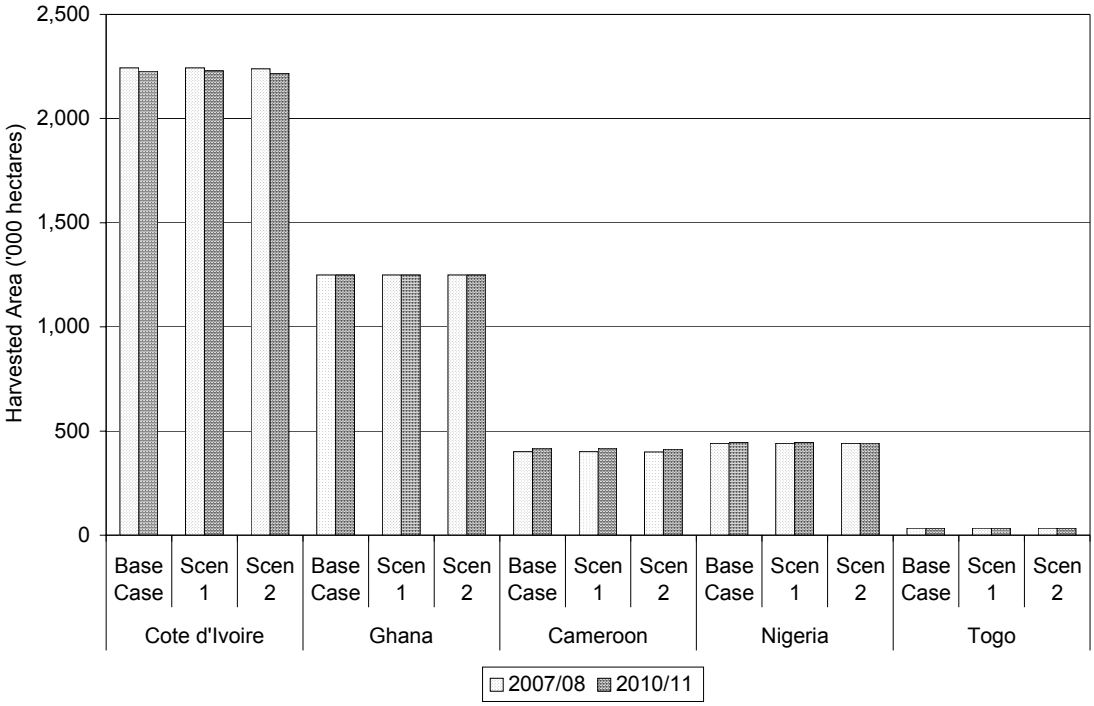


Diagram 6.19: Changes in Harvested Area



Chapter 7: Impact of the Directive on Vegetable Oil Producers

This chapter examines the impact of the Directive on the vegetable oil producers. Firstly, we provide a macro-economic background with a view to determining the importance of the sector to the economy. Next, we provide an overview of production trends and exports. In this case, all the exotics have one thing in common: they are wild crops that are not cultivated; rather they are collected from the forests. This leads to extreme variability in annual collection levels. Following this, we examine developments in the value chain and price developments, and finally we investigate the impact of the Directive on producers. This chapter is based on analysis of case study data.

The chapter is in four sections: Part 1 deals with sheanuts; Part 2 the Indian exotics; Part 3 illipe; and Part 4 palm oil.

SHEANUTS

Importance of Exotic Fats to the Economy

Sheanuts are cultivated in West Africa. Nigeria is the most important sheanut producer although very little is exported, with most nuts being used internally. Trends in Nigeria are not discussed in this report. Togo, Ghana and Benin are the most important regional exporters. Production from Mali and Burkina Faso is also exported, largely to Togo and Ghana, and then re-exported.

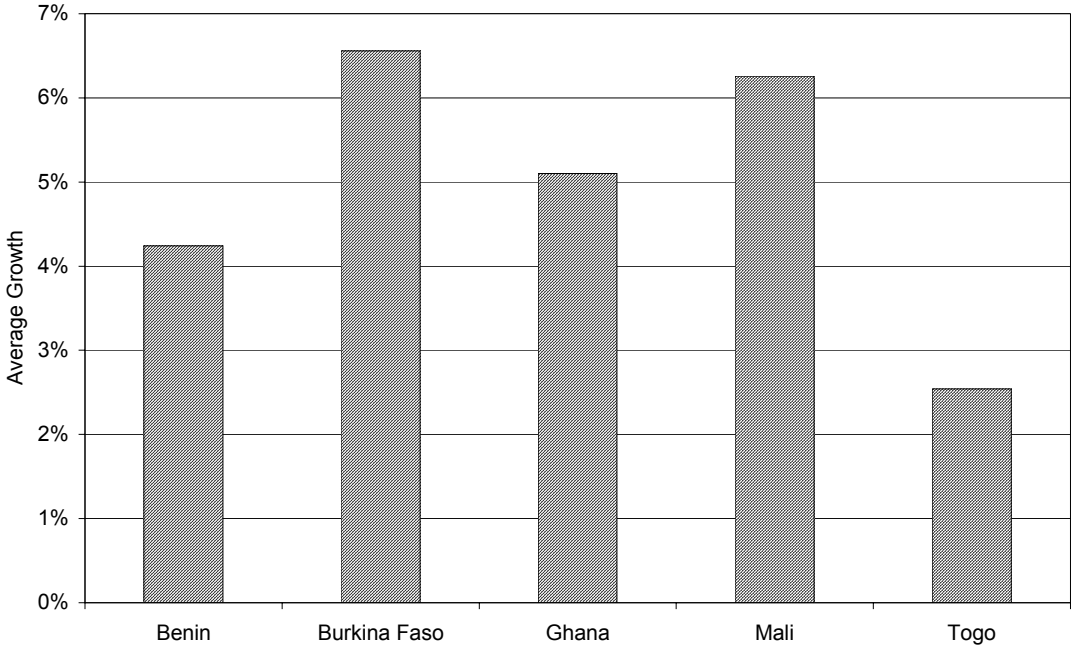
Per capita incomes among the producing countries are under $500 per annum (Table 7.1), while the economies have grown between 2.5% and 6.5% per annum over the last five years (Diagram 7.1).

Table 7.1: Shea Producing Countries, Average Per Capita Income

	$
Burkina Faso	399
Benin	495
Mali	376
Togo	339
Ghana	409

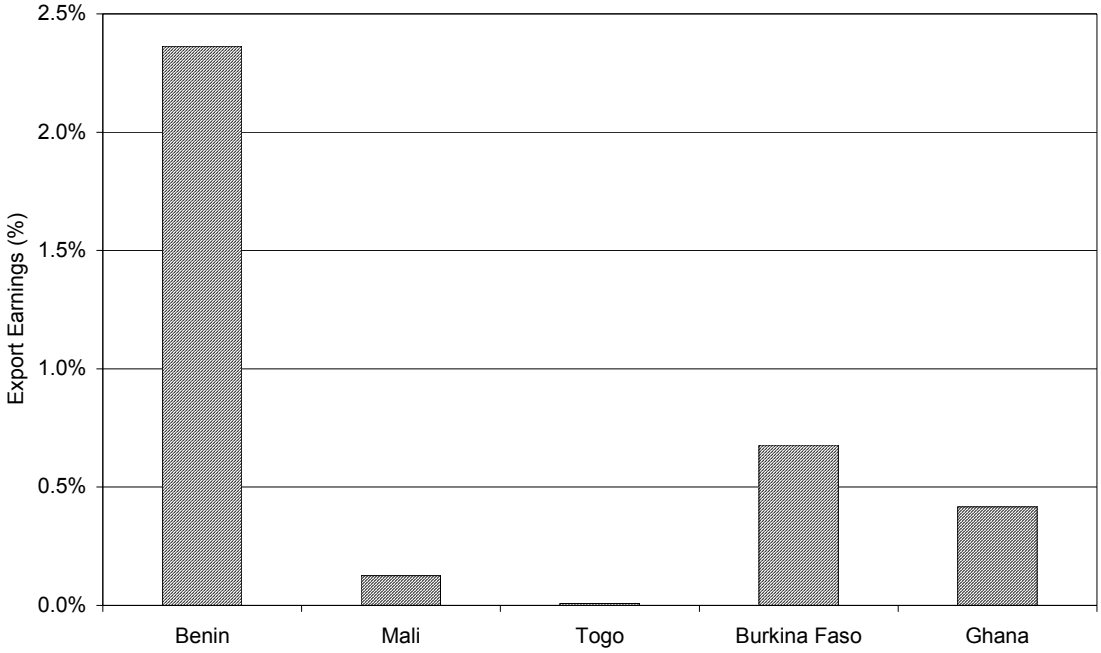
Source: IMF.

Diagram 7.1: Average GDP Growth



Annual export earnings from sheanuts and products account for up to US$25 million. The importance of export earnings to the economies varies significantly between years according to the size of the crop. In 2004, export earnings accounted for up to 2.5% of total export earnings (Diagram 7.2).

Diagram 7.2: Importance of Sheanuts to Export Earnings



However, to consider export earnings alone underestimates the importance of the sector. Sheanut collection provides important income earning opportunities for women in rural areas and the shea butter[1] when used domestically is an important cooking oil throughout the region.

The market can be split into two components:

- Local market: where shea is an important cooking oil. It can also be used for locally produced cosmetics, medicine and the production of traditional soaps.
- Export market: where sheanuts are exported for use by CBE manufacturers and to a much lesser extent by cosmetics manufacturers.

The importance of the local market varies between country (Table 7.2), while West African exports (excluding intra-regional trade) have averaged 100,000 tonnes over the last five years. Around 80,000 tonnes are exported in nut form and 20,000 tonnes in butter form (on a nut equivalent basis)[2] (Diagram 7.3).

Table 7.2: Estimated Local Shea Consumption (% of Total)

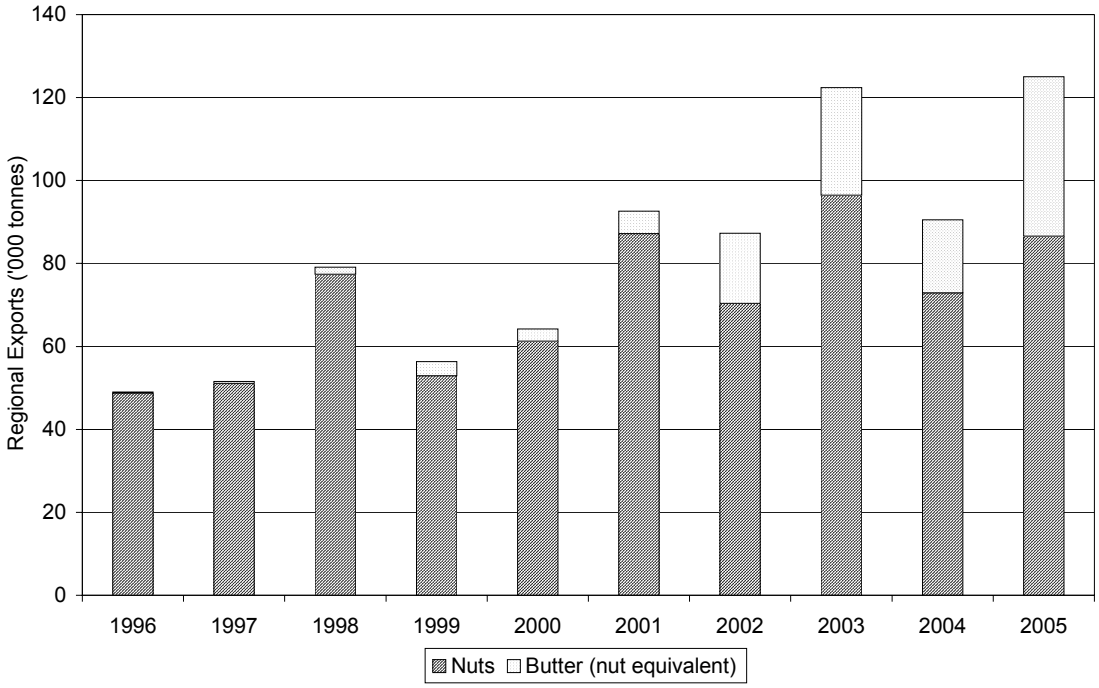
	local
Burkina Faso	85%
Benin	< exports
Mali	95%
Togo	60%
Ghana	50%

Source: Case Studies.

[1] Butter is a common name for the fat.

[2] It is assumed that the EU accounts for all butter exports and export figures are derived from EU Eurostat import data.

Diagram 7.3: Regional Sheanut Exports



Our export figures have been derived from the case study material for nuts and Eurostat import data for butter. What is clear from the case studies is that formal data from the sector is sparse and export figures between sources often conflict. From the studies, Eurostat data and discussions with importers we have derived our best estimates of the size of these flows. The data, while not tying up exactly with our derived import series (Chapter 4), do have the same annual average volume. One of the explanations for the differences is the timing of exports and imports as these cross calendar years.

Table 7.3: Sheanut Exports (tonnes)

	1996	2000	2001	2002	2003	2004	2005
Benin	6,301	8,531	13,299	7,092	28,300	25,100	19,700
Burkina Faso	10,004	11,575	17,980	36,920	26,686	12,177	3,035
Ghana	21,467	35,983	45,281	27,627	47,312	33,946	83,202
Mali	2,975	4,205	12,379	4,000	3,730	4,100	2,200
Togo	8,330	4,764	368	1,166	3,819	100	
Total	**49,077**	**65,058**	**89,307**	**76,806**	**109,847**	**75,423**	**108,137**
of which:							
EU	35,617	44,276	53,730	34,437	79,068	55,569	77,355
Africa	13,181	17,022	33,447	35,918	17,411	17,326	9,233
Asia	279	3,760	2,131	6,450	13,368	2,528	21,549

Source: Case Studies.

Table 7.3 reveals the trends in exports. The export data reveal:

- A proportion of exports are within the West African region. Togo, Ghana and Benin are the most important exporters from the region. The majority of exports from Mali and Burkina Faso are exported to other African countries.

- Of West African exports, the EU is the most important importing market, accounting for over 80% of exports.

- The trend in West African exports is upwards as EU-15 import demand has increased. It is unclear whether this increase can be accounted for by an increase in nut collection or from a reduction in local consumption.

- Butter exports are increasing. This has occurred as one of the major European CBE manufacturers has increased its toll processing at origin.

- There is considerable variability in the level of exports per year. This occurs due to the wild nature of the product, which means that there are considerable fluctuations in annual production. The fluctuations in exports between countries can be even more extreme as there are changing trade flows between producers and because flowering and production patterns are not uniform across the region.

Using the export data and estimated proportions of local consumption we can derive collected nut figures. Given the variability of collection, we present these data as a five-year average. On the basis of these data, exports averaged 112,000 tonnes per annum, around 26% of total collection (Table 7.4).

Table 7.4: Per Annum Collected Sheanuts (tonnes, five-year average)

	Local	Exports	**Total**
Burkina Faso	113,325	19,999	**133,324**
Benin	28,076	18,717	**46,793**
Mali	100,697	5,300	**105,997**
Togo	17,360	11,573	**28,933**
Ghana	57,182	57,182	**114,365**
Total	**316,640**	**112,771**	**429,411**

Source: LMC.

Value Chain and Price Developments

Sheanuts are collected and unshelled by village women. Once they have unshelled the nuts they can:

- Sell the kernels immediately (either to local traders or village processors);

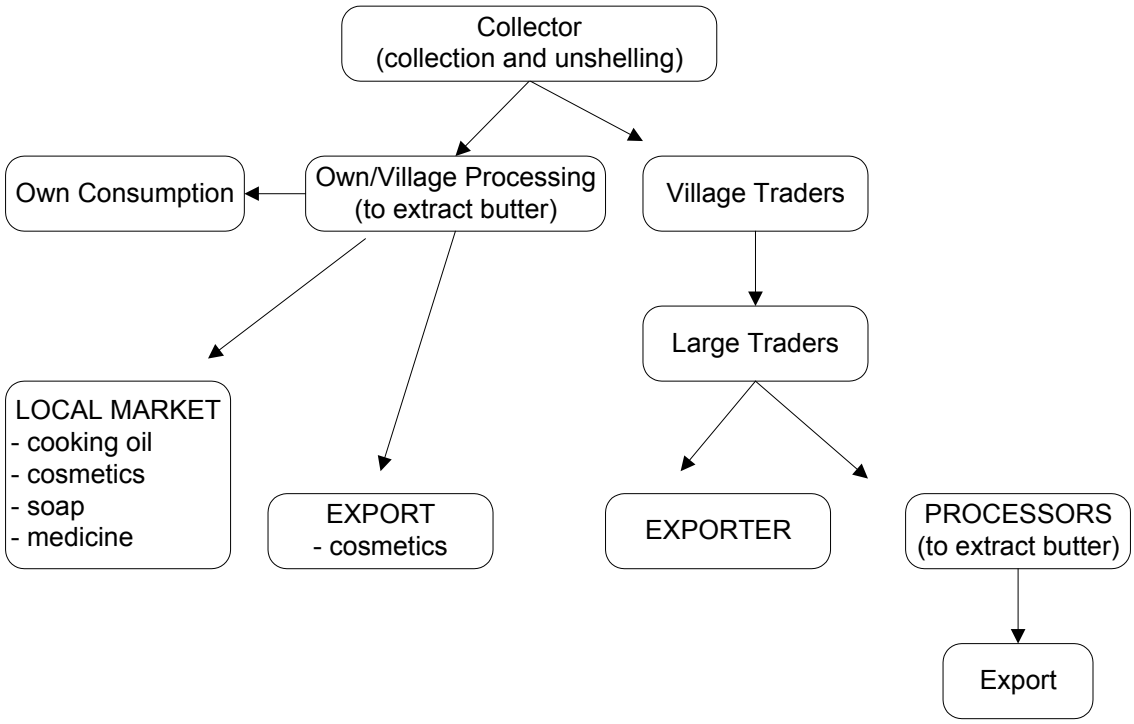
- Store them for further processing or sale;

- Extract shea butter themselves and use the shea butter for their own consumption or sell it.

The choice of these possibilities depends on the price offered by potential buyers and financial needs.

Where nuts are processed for the local market, the extraction of the butter occurs at village level and is undertaken by individual women or women's groups. The process is entirely manual, although some groups have obtained basic mechanical equipment. High quality locally produced butter is also exported, in small quantities, for use in cosmetics. The marketing of these products is often linked to an NGO. A stylised marketing chain is presented in Diagram 7.4. The traditional shea butter price fluctuates considerably from year to year depending on the level of production and, within a year, on the temperature. Prices are highest in the coldest months as the butter remains solid prior to use.

Diagram 7.4: Sheanut Marketing Chain



In the formal sector, sheanut buying is in the hands of the private sector, although in some countries the government sets minimum buying prices and the opening and closing of the buying season. Actual prices paid are set by the market and vary as supply and demand conditions (both local and international) alter. Prices change during the season according to quality and availability. Given the flow of product between countries, buying prices are at similar levels with the exception of Mali and Ghana (at the beginning of the season). In Mali, the poor quality of the crop points to lower collector prices (Table 7.5). In 2006, with a low shea crop (the worst in over 20 years), collector prices have risen considerably.

Table 7.5: Estimated Collector Prices, 2004/05 (US$ per tonne)

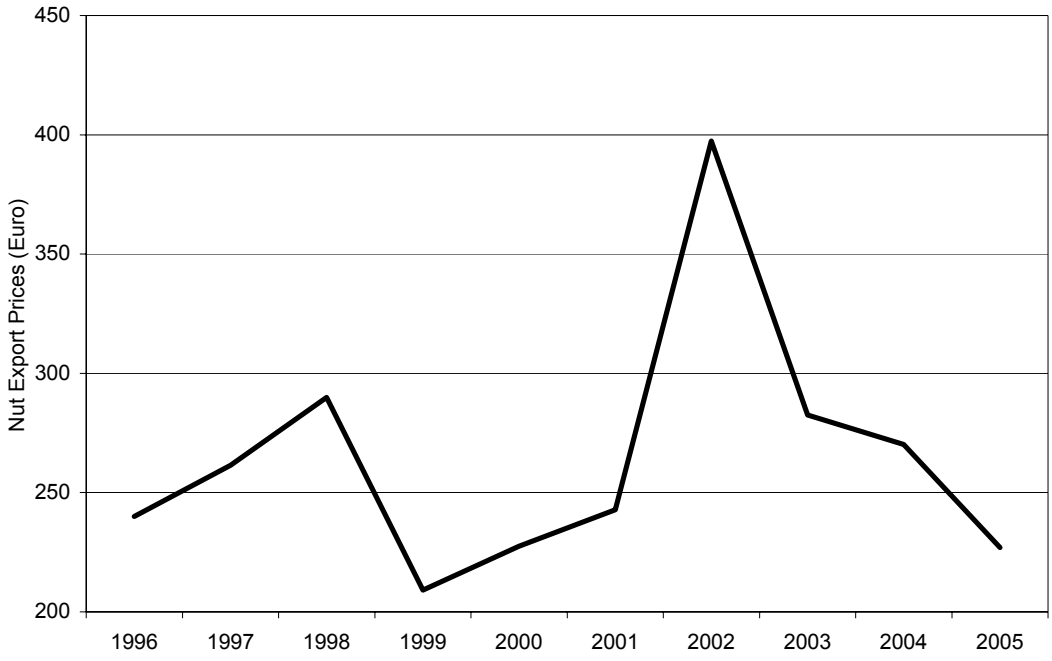
	High	Low
Burkina Faso	170	114
Benin		129
Mali		76
Togo	218	142
Ghana	150	55

Source: Case Studies.

Export price data are sparse; hence we have constructed price series from Eurostat data minus freight charges. These data give an average export price for the region. These data suggest that export prices are between €200 to €300 per tonne, with the exception of 2004 when prices rose to €400 per tonne. The rise in prices coincides with lower exports suggesting increased demand pushed prices higher (Diagram 7.5).

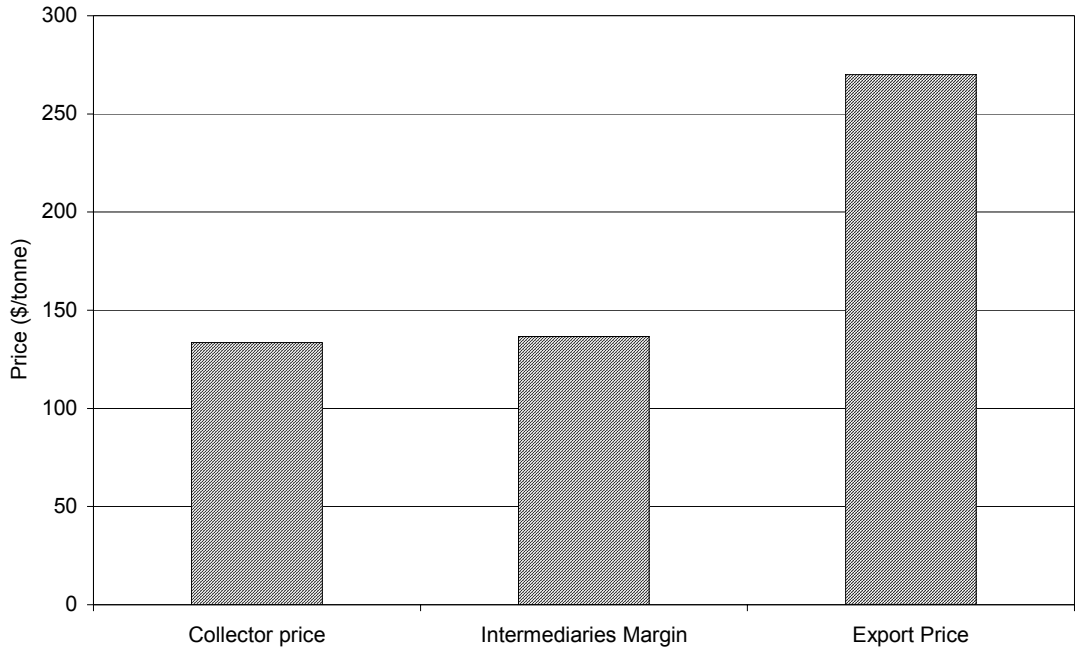
Only limited volumes of shea butter are exported and most of this is processed on a tolling basis.

Diagram 7.5: Estimated Sheanut Export Prices



Using the estimated collector prices and export prices, we can construct a value chain. This suggests that around 50% of the export value is received by the producers (Diagram 7.6). Intermediaries' margins include those attributed to village traders, larger traders and exporters. Depending upon the country, transport costs can be high. Details of individual country value chains are presented in the case studies.

Diagram 7.6: Stylised Sheanut Value Chain, 2004



Impact of the Directive

Since the adoption of the Directive a number of a number of factors are apparent:

- There has been an increase in demand from the European CBE manufacturers. This trend began around 2000/01.
- Prices rose strongly in 2002, but fell back between 2003 and 2005. Prices rose sharply again in 2006.
- The major importing countries have increased their presence at origin and are more involved in the procurement of nuts.
- The merger of Aarhus United with Karlshamns has reduced competition in some markets where these companies were the main competitors. Additional competition has been provided by Food, Fats and Fertilisers (an Indian company) procuring nuts for processing in India.
- There has been an increase in industrial butter processing for export, as one of the European manufacturers has increased demand for processed products.
- Some governments in the region have included sheanuts as part of their development/diversification agenda.

Most of these factors are positive for the development of the sector. However, they can not be attributed to the Directive.

INDIAN EXOTIC FATS

Importance of Exotic Fats to the Economy

In terms of export earnings and GDP, the exotic fats have little impact in India. Export earnings peaked in 2005 in the order of US $13 million. However, sal and mango kernel are particularly important in terms of employment in the Orissa and Chhattisgarh states where they provide valuable employment opportunities for rural communities with few income earning opportunities. There are an estimated 4 million people dependent upon the fats for their livelihoods.

The fats are processed in India and fractionated when required. In the case of sal, this means that both sal oil and sal stearin are exported. For the other fats, mango kernel stearin and kokum butter are exported. These are the raw materials for CBE manufacturing. Sal is the most important of the exotic fats produced in India.

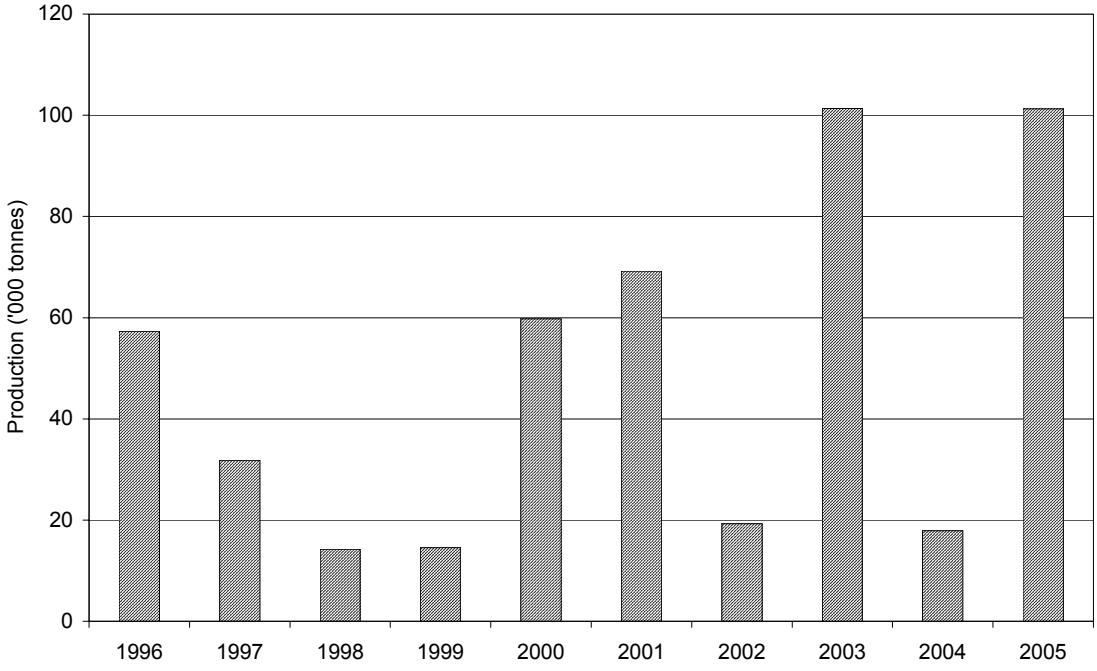
Sal

Production and Exports

Sal is a nationalised forest crop and production is concentrated in the Chhattisgarh and Orissa States. There is a small amount of production in other states. As a forest crop, there are very large natural annual fluctuations in production. Usually there is a three-year crop cycle but with changing weather conditions, this has changed to a two-year cycle over the last six years.

Production peaked at over 100,000 tonnes of nuts in both 2003 and 2005. In between, production fell to just 17,000 tonnes in 2004. 2006 production is estimated between 25,000 and 30,000 tonnes (Diagram 7.7). The Solvent Extractors Association data are lower than this as the data do not have full coverage.

Diagram 7.7: Estimated Sal Production



Potential production is considerably higher than actual production, with prices determining how far into the forest collectors go to collect sal. The state governments are the sole buyers of sal, although this may be changing, and government buying policies dictate how much of the crop is collected. If growers are not paid in a timely fashion then marketed production will decline. In 2005, despite a total marketed crop of over 100,000 tonnes, marketed production fell in Orissa as the government reduced its buying. This follows buying losses in 2003 and 2005. The Orissa state government is reportedly in the process of privatising buying.

The crop is processed into sal oil, which can then be fractionated into sal stearin for use in CBEs, and sal olein which is processed into an edible oil (either for cooking oil or as a shortening).

Both sal oil and sal stearin are exported. Sal oil is exported to Japan, while a combination of sal oil and stearin are exported to the EU-15 and Malaysia. Stearin exports dominate exports to the EU-15. The level of exports in any one year is determined by both production and demand. In a poor crop year, all of the sal oil and stearin are exported, whereas in a good crop year production is greater than export demand and the balance is used on the domestic market.

In 2005, a good year for production, exports were in the order of 8,000 tonnes (oil and stearin combined), with around 3,000 tonnes going to the EU-15. With higher production, this left around 4,500 tonnes for use on the domestic market, where the oil is used for shortenings and margarine. The EU-15 accounts for between 35% and 50% of total exports (Table 7.6).

Demand for sal stearin to the EU-15 has reportedly picked up over the last two years. This is thought to be due to a poor shea crop in 2005, which has led CBE manufacturers to seek alternative exotics for CBE blends.

Table 7.6: Estimated Sal Exports (tonnes)

	Total	EU	EU Oil	EU Stearin	Japan Oil	Malaysia Stearin
1996	**4,500**	928	278	650	2,953	619
1997	**4,800**	1,081	324	757	2,998	721
1998	**1,931**	579	174	405	965	386
1999	**1,963**	589	177	412	982	393
2000	**5,300**	1,100	330	770	3,467	733
2001	**5,800**	1,337	401	936	3,572	891
2002	**2,559**	768	230	537	1,280	512
2003	**6,500**	1,812	544	1,269	3,480	1,208
2004	**2,235**	670	201	469	1,117	447
2005	**8,000**	3,000	900	2,100	3,500	1,500

Source: LMC.

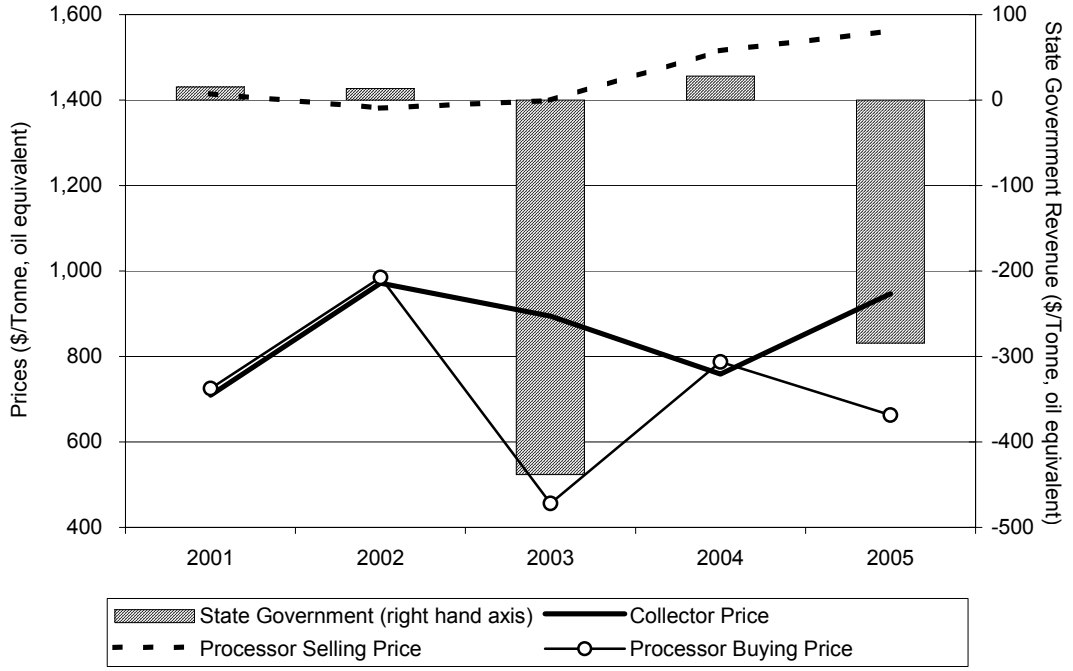
Value Chain

The sal value chain is very short; collectors gather the fallen sal nuts, and these are then sold to the state governments, who then sell on to the processors.

In Chattisgarh, government buying is through the Chattisgarh State Minor Forest Product (Trading and Development) Federation. The Federation sets minimum buying prices and then tenders the collected seed to buyers. These tenders are either prior to collection or once seed has been delivered into the Federation's warehouse. In the case where the selling price is higher than the buying price, a second payment is made to collectors at the end of the season. In the case where the selling price is lower than the buying price, the State government absorbs the losses. Losses were made in 2003 and 2005 (Diagram 7.8). A similar buying system exists in Orissa.

In 2005, minimum grower prices were Rp 5,000 per tonne ($114) of nuts, and the tendered buying price to the processors was around Rp 3,500 per tonne, implying a loss of Rp 1,500 per tonne ($34) of nuts sold. Export prices rose considerably during the year as the low shea crop in West Africa led to increased demand. At the beginning of the year, sal oil prices were around $1,200 per tonne, while sal stearin prices ranged between $1,500 and $1,900 per tonne, depending on the quality of the final product. Solvent fractionated product tends to have a $200 - $300 per tonne premium over dry fractionated product.

Diagram 7.8: Sal Prices and Margins



Mango Kernel Oil

Production and Exports

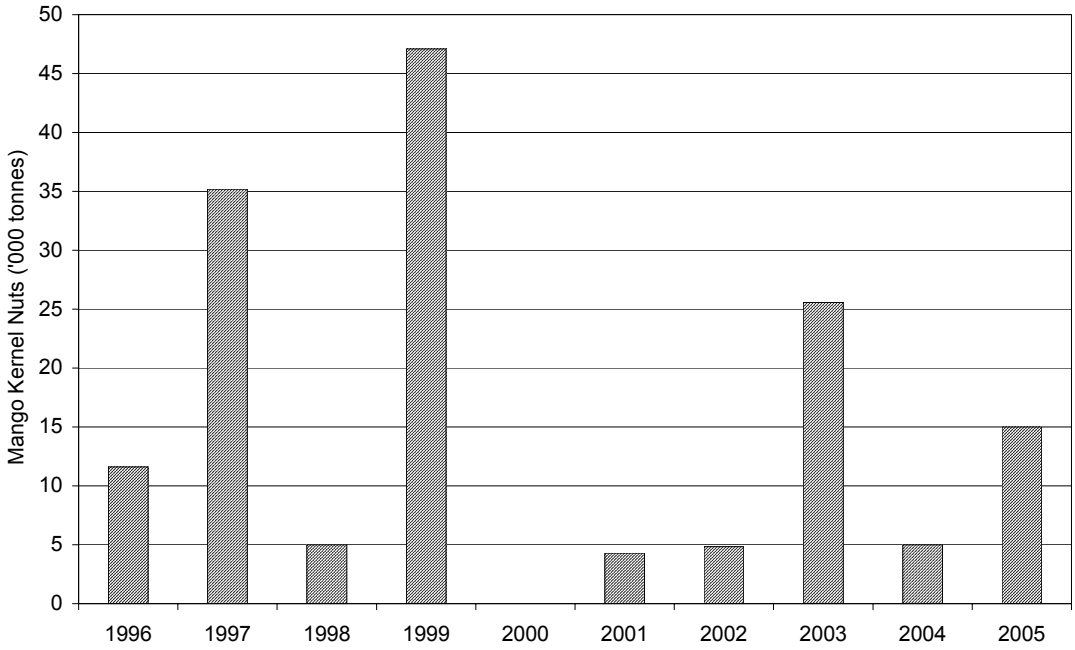
Mango kernels are either collected wild from the countryside around Chhattisgarh and Orissa States, or collected in the villages following the consumption of the fruit. The season is limited to June and July. The kernels from mango pulping factories are not used, as the pulping process disturbs the kernel. As with sal, as a forest crop there are very large natural annual fluctuations in production. The mango crop cycle has no relationship to the sal cycle. Maximum production is in the order of 30,000 tonnes,

while a low crop is in the order of 5,000 tonnes. Annual average production is in the order of 15,000 tonnes of kernels.

Most mango kernel is processed into stearin before export, with the olein used on the domestic market. There is greater risk involved in processing mango kernel as FFA levels can get very high. The kernels need to be processed soon after harvest.

While actual production figures for particular years are not available, an indication of the trend can be gained from the Solvent Extractors Association data. We have adjusted this data following discussions with the industry, to give a closer reflection of the level of production and exports (Diagram 7.9).

Diagram 7.9: Mango Kernel Harvested Production



As with sal, potential production is considerably higher, with the amount collected dependent upon the price paid and the incentives offered to collectors to collect the kernels.

Most exports are in the form of mango kernel stearin. The EU is the main export market, with some production also going to Malaysia.

While trade data are available from the Solvent Extractors Association, these data do not have full coverage of the industry and therefore understate total trade flows. We have derived potential exports by applying the extraction rate to production and then sought trade estimates as to the level of exports (Table 7.7).

Table 7.7: Estimated Mango Kernel Exports (tonnes)

	Total	EU	EU Oil	EU Stearin	Japan Oil	Malaysia Stearin
1996	**414**	331		331		83
1997	**1,252**	1,001		1,001		250
1998	**178**	142		142		36
1999	**1,625**	1,300		1,300		325
2000	**0**	0		0		0
2001	**156**	125		125		31
2002	**177**	141		141		35
2003	**930**	744		744		186
2004	**182**	146		146		36
2005	**546**	437		437		109

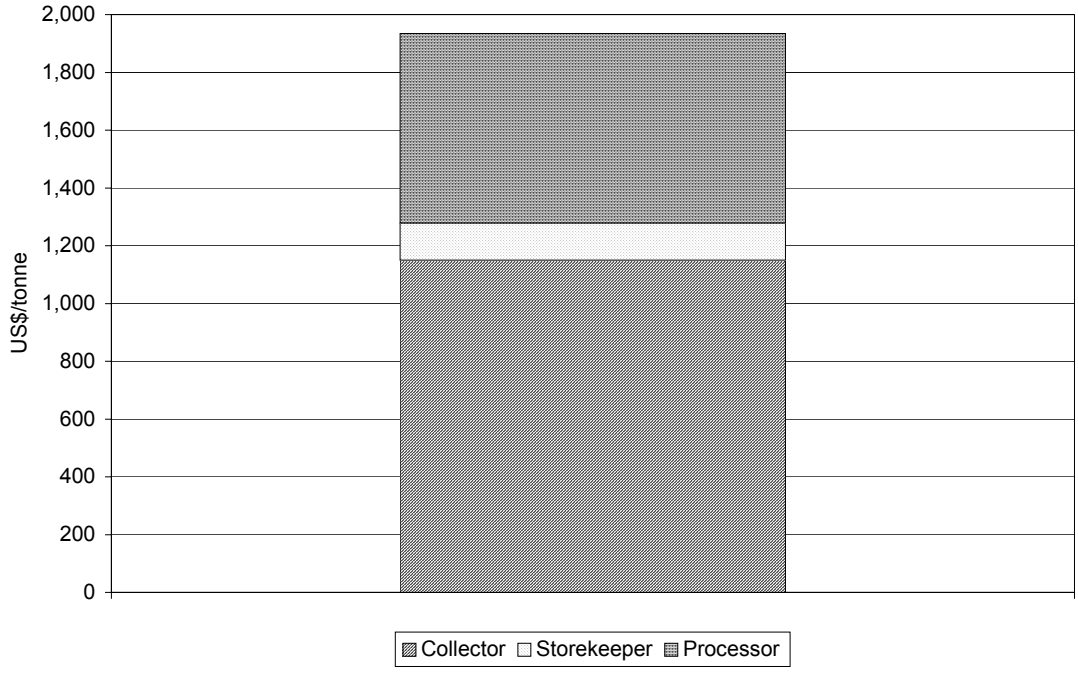
Source: LMC.

Value Chain

The marketing chain is unorganised, with store keepers in many villages acting as the traders who purchase the nuts from collectors. Collectors pick the kernels and the remove the nut from the kernel and deliver it to the storekeepers who then sell the nuts to the processors. Storekeeper prices vary between Rp 3,000 and Rp 4,500 per tonne ($68 to $102). The storekeepers' gross margin is in the order of 10% (Diagram 7.10).

Mango kernel stearin export prices are typically 10% higher than sal stearin prices. The meal and olein are sold on the local market.

Diagram 7.10: Mango Kernel Marketing Margins, 2005



Kokum

Production and Exports

Kokum is the smallest of the crops. It is produced in Maharashtra State. The crop is wild, but it can also be cultivated. It is often intercropped with mangos. There is less annual variation in production than is the case with sal and mango kernel. Average production is around 1,000 tonnes of nuts. Once the butter is expelled from the nut there is no further processing. Around 400 tonnes of butter are produced per year.

As with Mango Kernel oil, the main markets are Western Europe and Malaysia.

Statistics on production and exports are poor. Our estimates based on discussions with the processors are presented in Diagram 7.11 and Table 7.8.

Diagram 7.11: Estimated Kokum Nut Production

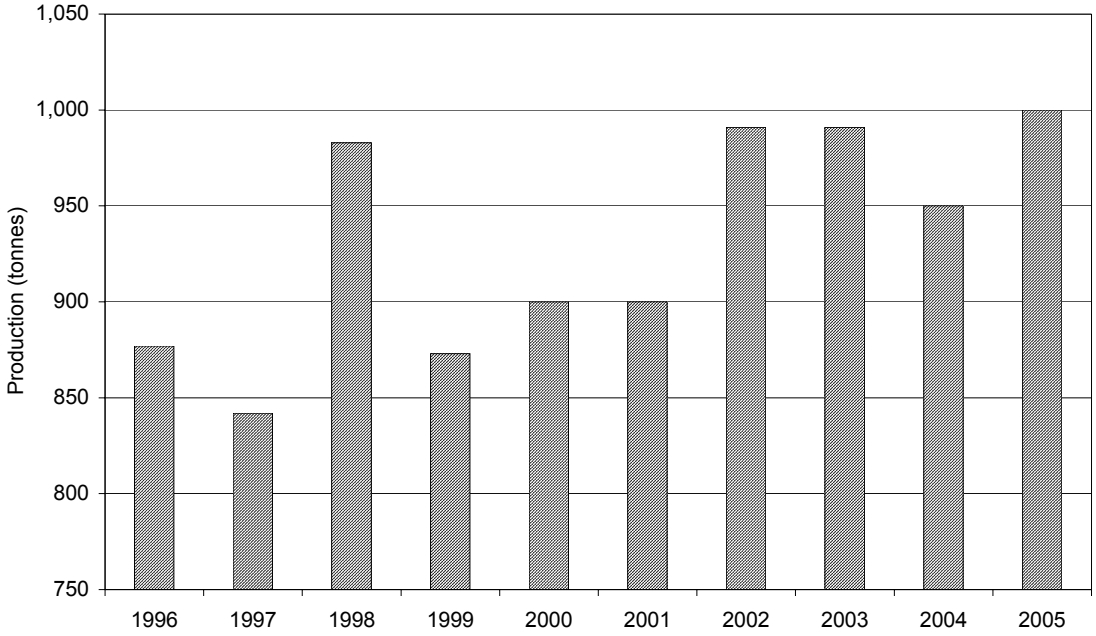


Table 7.8: Estimated Kokum Butter Exports (tonnes)

	Total	EU	Malaysia
1996	**351**	175	175
1997	**337**	168	168
1998	**393**	197	197
1999	**349**	175	175
2000	**360**	180	180
2001	**360**	180	180
2002	**396**	198	198
2003	**396**	198	198
2004	**380**	190	190
2005	**400**	200	200

Source: LMC.

Value Chain

The marketing chain is unorganised. The kokum nuts are sold to local traders who then sell on to processors. Grower prices vary between Rp 20,000 and Rp 35,000 per tonne ($455 to $795) (Diagram 7.12).

Diagram 7.12: Kokum Marketing Margins, 2005

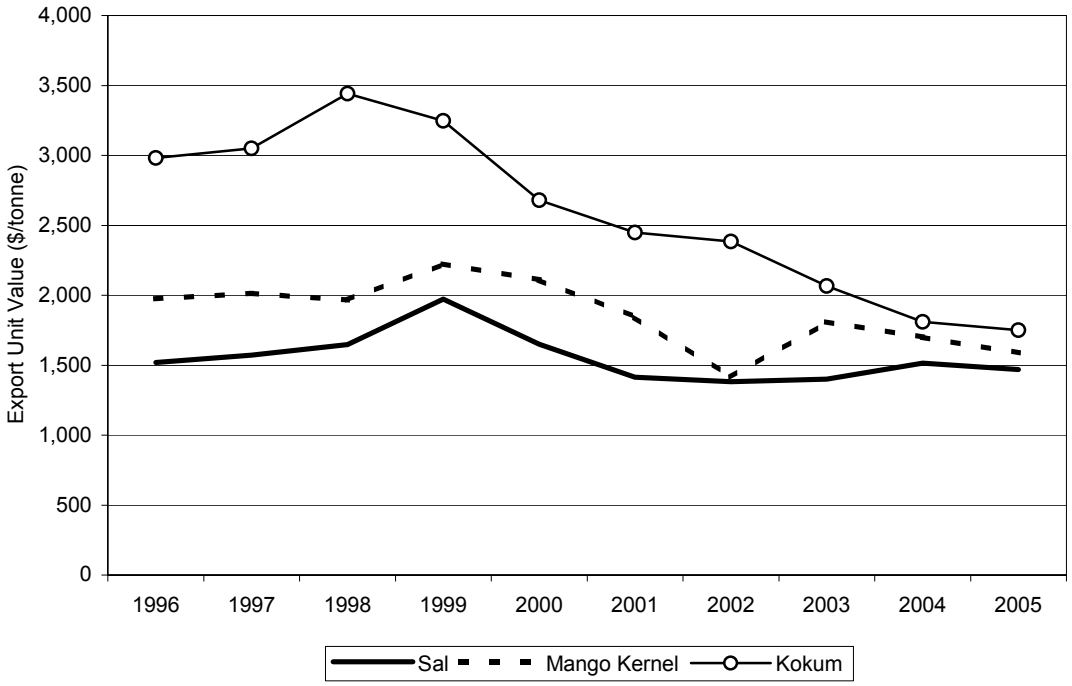
Impact of the Directive

Since the adoption of the Directive, a number of factors are apparent:

- Sal is the most important of the Indian exotic fats. There was been an increase in demand from the European CBE manufacturers. This trend began around 2003. There has been an increase in demand for mango kernel, although production and collection levels are variable.
- For some CBE manufacturers, the Indian fats are essential components of blends, while for others they are more of an opportunistic buy according to both price and the availability of other exotics.
- In a good year, production quantities are more than can be accommodated by the international market and the balance is absorbed on the local market.
- Mango kernel and kokum prices have a premium over sal. However, the volumes marketed are considerably smaller (Diagram 7.13). According to SEA data the kokum premium is falling. Prices have risen sharply in 2006.
- With an increase in demand and a rise in prices there is scope for marketing additional quantities. However, the sector is relatively underdeveloped.

- The Indian exotics are disadvantaged as an input for CBE use over sheanuts, because of the EU import duty structure. The Indian exotics attract 10% duty. Shea butter from West Africa, however, has zero duty in the EU.

Diagram 7.13: Indian Exotic Fat Export Prices



Most of these factors are positive for the development of the sector. However, they cannot be attributed to the Directive.

ILLIPE NUTS

As with the other exotics, illipe is a forest nut that is not cultivated as a commercial crop; instead it is collected by the local Dyak people and sold by collectors to (Chinese) middlemen via a long-standing trading network in Northern Kalimantan/Western Kalimantan.

Its importance to the overall Indonesian economy is minimal, although in the collecting areas it provides a valuable source of income and employment. It is an important non-wood forest crop. In addition, a processing industry has developed around the crop, producing both illipe butter and increasingly CBEs.

There is also production of illipe in Sarawak, Malaysia. This, though, is almost totally absorbed by Malaysian CBE manufacturers.

Production and Exports

Illipe output suffers from severe fluctuations in production. Heavy rains, high winds or dry conditions all have the potential to destroy the flowers, resulting in a poor crop. Trees rarely flower for two years in succession. Every three or four years there is a bumper crop. The last one was around 2000, when the crop was over 40,000 tonnes. On average, there are 3-4 years of good to bumper crops, and then a disaster. In 2005,

a typical good year, production was over 20,000 tonnes. In 2006, the crop will be almost zero. The production system is under threat from logging and the expansion of the oil palm sector. This could reduce the illipe area, meaning that collectors have to walk further into the forest to collect the nuts.

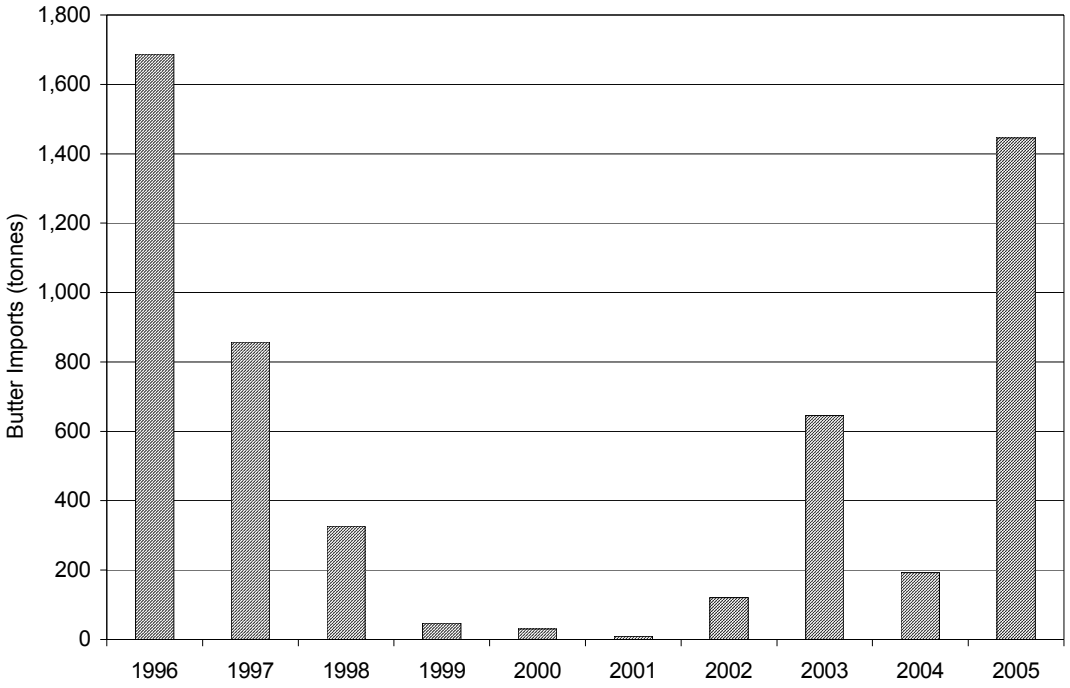
Very few illipe nuts are exported. The majority of exports are as butter, although the major trading company handling the crop also produces its own CBEs. This has reduced the export of illipe butter.

Over the last 5 years, a total of around 6,000 tonnes of illipe butter and 4,000 tonnes of illipe nuts were exported from Indonesia. During a bumper crop, annual exports can rise to 2,500 tonnes, while in the other years only a few hundred tonnes are exported. In 2005, with a good illipe crop, imports to the EU-15 rose to 1,500 tonnes (Diagram 7.14). The strength of exports was also a reflection of the poor shea crop which necessitated the use of other exotics for CBE manufacture.

Eurostat data are at odds with destination figures from the Indonesian statistics. Discussions with EU CBE manufacturers confirm the magnitude of the product flows to the EU-15.

Illipe imports are disadvantaged as an input for CBE use because of the EU import duty structure. Illipe butter attracts a 10% duty and nuts zero. Shea butter from West Africa, however, has zero duty in the EU.

Diagram 7.14: EU-15 Illipe Butter Imports



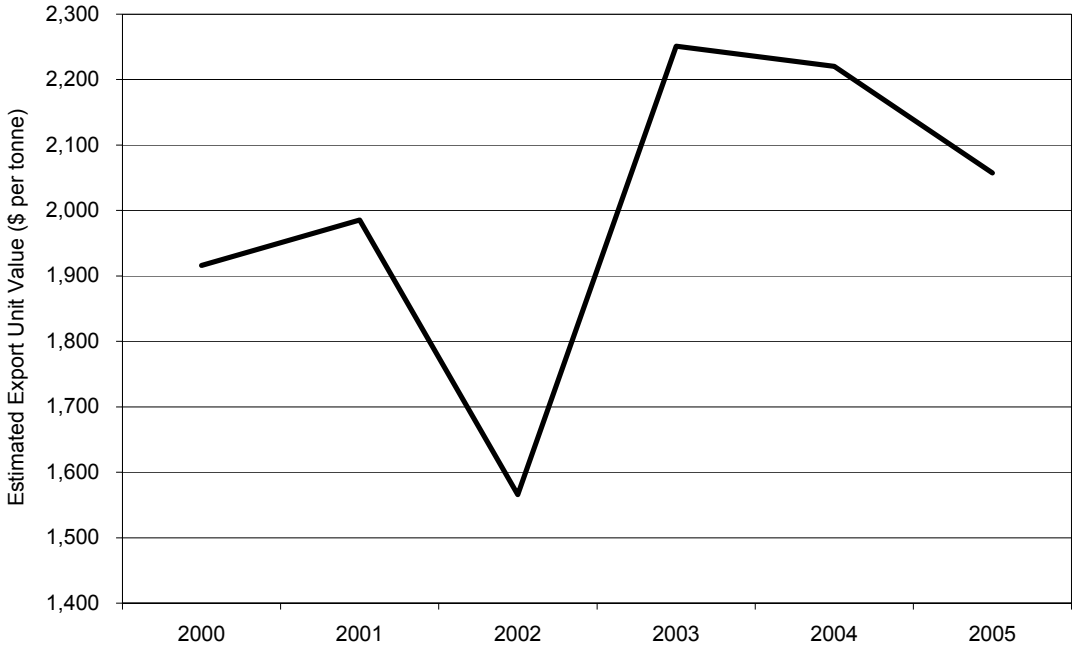
Value Chain

The illipe nut price has been quite stable over time, in the $300-$400 per tonne range, with the maximum maximum-minimum difference around $200 per tonne (i.e., from $250 to $450/ tonne). If the price is higher than usual, collectors will go deeper into the forest to collect nuts. If prices fall, collectors seek alternative incomes. In particular, the

rise in rubber prices has encouraged some producers to tap rubber rather than collect nuts.

With export prices in the order of $2,000 per tonne, collector prices are typically 30% of the export price (Diagram 7.15).

Diagram 7.15: Estimated Illipe Butter Export Unit Values



Impact of the Directive

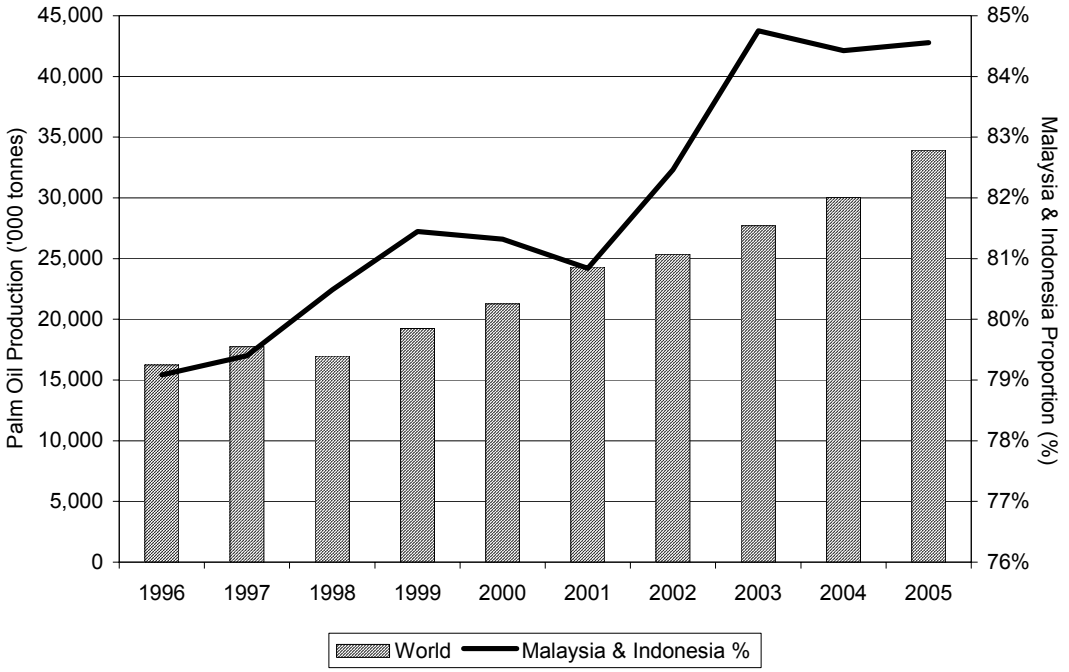
Since the adoption of the Directive, a number of factors are apparent:

- Illipe butter/nut exports fluctuate dramatically between years.
- A large proportion of illipe butter is processed locally into CBEs. These are sold into markets outside the EU-15.
- EU-15 imports rose strongly in 2005.
- Prices rose strongly in 2002, but fell back between 2003 and 2005.

PALM OIL

Palm oil production has increased from 16 million tonnes to 34 million tonnes during the reporting period, with 85% of production coming from Indonesia and Malaysia. CBE production accounts for a small proportion of this market (Diagram 7.16).

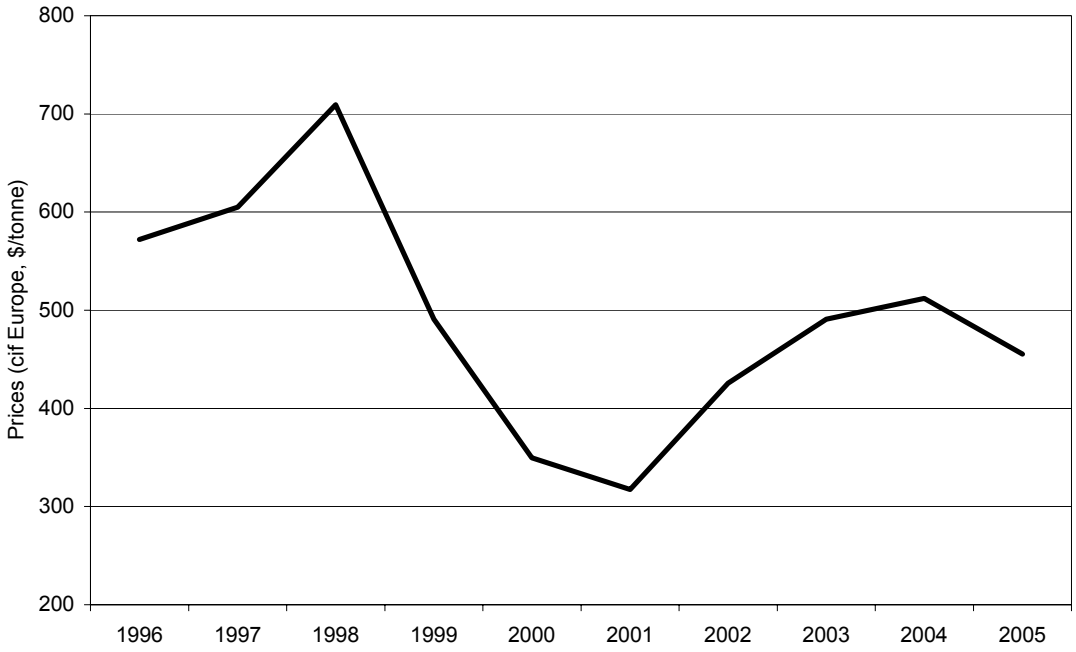
Diagram 7.16: Palm Oil Production, 1996-2005



Palm mid-fraction (PMF), the product used in CBEs, is derived from fractionated palm olein. As palm oil production has grown and plantation companies have added downstream processing capacity, so prices and margins for PMF have fallen. PMF prices are determined by palm olein prices plus a premium. The premium for the first fractionation is between $50 and $100 per tonne above palm olein, and this price rises with subsequent fractionations. The third fraction which is used in the production of hard CBEs commands a premium between $300 and $500 per tonne.

Palm olein prices peaked in 1998 at $700 per tonne and following a slump in 2001 recovered to over $500 per tonne in 2004 (Diagram 7.17).

Diagram 7.17: Palm Olein Prices, c.i.f. Europe



CONCLUSIONS

- In terms of the total economy, the importance of the exotic fats is relatively small. However, in the regions where they are collected, they are very important for employment and income generation. In the case of shea, collection is primarily by women, while for illipe and the Indian exotics, collection is by tribal peoples living off non-timber forest products.

- For sheanuts, demand is from both the local market and for export. The other exotics are primarily export orientated, the only exception being sal when production is higher than that which can be absorbed by the export market. In this case, the balance is used domestically.

- For all the exotics, with the exception of kokum, there can be extreme fluctuations in production between years. This is due to the uncultivated nature of production.

- There has been an increase in demand for exotics from the European CBE manufacturers: for shea since 2000, sal since 2003 and illipe in 2005. From the case studies, it is not possible to attribute this growth to the EU Directive; all that can be said is that demand has increased and so has the volume of product that is destined for EU-15.

- Trends in prices follow the supply-demand balance of the individual crops, thus in years of high production there is a tendency for prices to fall and vice-versa.

- For the Indian exotic fats and illipe almost all processing occurs at origin and processed products are exported. This is not the case with sheanuts where the export is more of nuts than products. The reasons for this are:

    — There is a distinct season for sheanut collection and it is difficult to store nuts for processing for the whole year. The harvest is also very variable

both between regions and years, making it difficult to secure nuts in a particular year. The most successful sheanut processing facility is in Togo. This is successful because it also processes cottonseed, which ensures high levels of capacity utilisation. In India, there are a variety of products that can be crushed to produce oil, so in the absence of exotics, other oils can be produced (one processor even imports sheanuts from West Africa for processing). In India, fractionation of products is also possible as the by-products can be used on the domestic market.

  - There are no specific incentives for industrial sheanut processing in West Africa. This contrasts with cocoa where incentives are offered: beans can be cheaper and the level of export tax can be lower for processed products.

  - In the case of illipe, as PMF is also produced in Malaysia and Indonesia, CBEs are being produced. This adds further value to illipe nut production. These CBE products tend to be sold in markets outside of the EU.

  - Shea processing to produce stearin requires solvent (preferably acetone) fractionation both to remove a latex gum and produce a good yield of shea stearin. The infrastructure in West Africa does not easily support such a production facility.

- Both shea and the Indian exotics remain underdeveloped in terms of their potential. In both cases, there is scope to increase collection and improve the quality of the product, although whether this occurs is partly dependent upon the price paid to collectors. In the case of shea, some governments have recognised the crop's potential and are seeking to increase the development of the crop as part of a diversification strategy. For illipe, production potential is declining as palm oil development reduces the illipe forests.

- Palm oil production has grown dramatically since the adoption of the Directive. However, the growth of CBE demand is small in relation to the total volumes of palm oil produced and marketed.

Chapter 8: Conclusions and Recommendations

The European Parliament and Council adopted Directive 2000/36/EC on 23 June 2000. The aim of the Directive was to allow the use of up to 5% of a limited number of vegetable fats in the production of chocolate. The objective of the Directive was to simplify Community provisions concerning chocolate with a view to allowing the free movement of chocolate products within the Internal Market. The Directive was implemented by member states during 2003.

The vegetable fats that were permitted for use required strict technical characteristics and were limited to six (Illipe, palm oil, sal, shea, kokum gurgi, and mango kernel). Five of these (illipe, sal, shea, kokum gurgi and mango kernel) can be classed as exotic fats; that is, the fat is obtained from the seeds/nuts of trees that are mainly growing wild in the tropics. Enzymic modification of the fats was prohibited.

CONCLUSIONS

EU Chocolate Consumption and Cocoa Imports

EU-15 consumption of chocolate products is around 2.2 million tonnes. There has been little change in total consumption since the Directive was adopted in 2003. Four markets, UK, Germany, Italy and France account for close to 80% of EU-15 chocolate consumption.

There are a number of reasons for the slow growth in consumption:

- Slow growth in income. Per capita consumption is related to per capita incomes, and the slow growth of incomes in recent years adversely affected demand;
- Market saturation in some of the mature markets; and
- Increasing concerns over obesity.

Not all segments of the market have experienced the same growth rates; in particular there has been growth in whole bar (tablet) consumption over other products. This has been driven by campaigns highlighting the benefits of cocoa consumption (in particular, the presence of the antioxidant flavanol which has been found to reduce blood pressure) and the growth of more speciality products such as single origin bars. Both of these types of products have a higher cocoa content.

Net imports of cocoa beans and cocoa products in bean equivalent (b.e.) terms from outside the EU-15 countries have increased from around 1.2 million tonnes in 1996 to over 1.4 million tonnes in 2005, recording an average annual growth rate of 2.1% over the last 10 years. This is somewhat higher than the growth of chocolate production and consumption, which has grown at 0.6% over the period. Over the last two years, since the adoption of the Directive, the rate of growth of net cocoa imports has accelerated to 3.5% despite a flat chocolate product market. This points towards the increased cocoa solids content of chocolate as well as increased use of cocoa products for other food applications.

Vegetable Fat Imports and CBE production

When converted to the raw materials that are used for CBE manufacture, exotic fat imports have increased from 8,000 tonnes in 1996 to 24,500 tonnes in 2005 (Table 8.1). Since the adoption of the Directive, imports of these exotic fat raw materials has increased by 25%.

Table 8.1: EU-15 Exotic Fat Imports (tonnes)

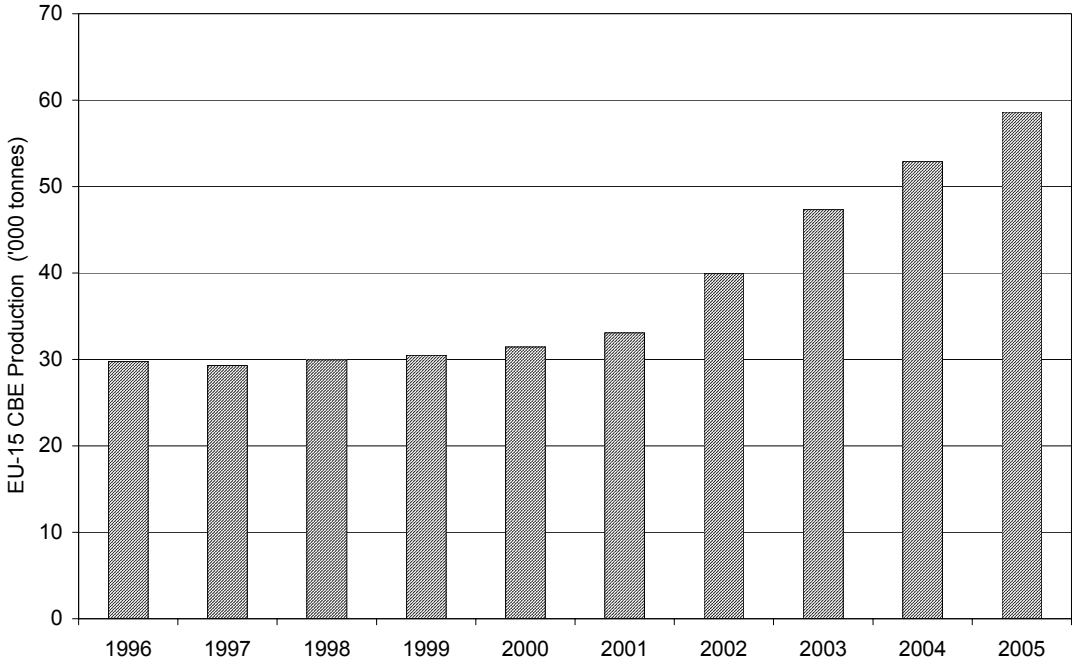
	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Sheanuts	31,938	24,856	52,757	30,155	29,396	59,575	48,787	80,802	67,626	85,040
Shea butter	138	241	1,542	3,543	1,590	2,177	7,502	10,358	7,049	15,397
Sal Oil	278	324	174	177	330	401	230	544	201	900
Sal Stearin	650	757	405	412	770	936	537	1,269	469	2,100
Mango Kernel Stearin	331	1,001	142	1,300	0	125	141	744	146	437
Illipe nuts	30	20	19	24	4	4	4,187	44	2	52
Illipe butter	1,688	857	327	47	31	9	121	646	193	1,446
CBE raw material	7,987	6,865	9,884	8,587	6,285	11,393	11,776	19,638	14,979	24,459

Source: Chapter 7 and LMC.

While it is possible to get an impression of the level of exotic fat imports and use in CBEs, the level of palm oil (or more specifically palm mid-fraction) is more difficult to gauge owing to the large number of end uses. The use of palm mid-fraction (PMF) varies between 10% to 100% of the weight of a CBE, depending upon what the product is to be used for. A lower proportion of exotics are used in "soft" CBEs (up to 30% exotic) while a higher proportion is used in "hard" CBEs (greater than 30%). The choice of CBE depends on the market and application.

Typically, soft CBEs are used in the UK and Ireland, and hard CBEs are used elsewhere. Splitting exotic fat use this way, with the balance being made up of PMF gives total EU-15 CBE production of 58,600 tonnes in 2005. Production has grown by 11% per annum since 2000 and at a similar rate since the adoption of the Directive (Diagram 8.1).

Diagram 8.1: EU-15 CBE Production



While exotic fat imports and CBE production have increased, the key question is: "Is this due to increased demand from chocolate manufacturers in the EU-15 following the implementation of the Directive? Or, are there other explanations?"

The Use of CBEs in EU-15 Chocolate

To determine the use of CBEs in EU-15 chocolate it is helpful to split the EU-15 market into two segments: those that permitted the use of CBEs in chocolate prior to 2000; and those that did not, and consider trends in each of these segments.

Our analysis suggests that the market for CBE use in chocolate in the EU-15 countries was 20,500 tonnes in 2005. The level of demand has been unchanged for three years, although this hides two changes.

- In countries permitting the use of CBEs in chocolate prior to 2000, CBE use as a proportion of chocolate weight has fallen by 3% since the adoption of the Directive. Consequently, CBE demand is some 600 tonnes lower than would have been the case in the absence of the Directive.

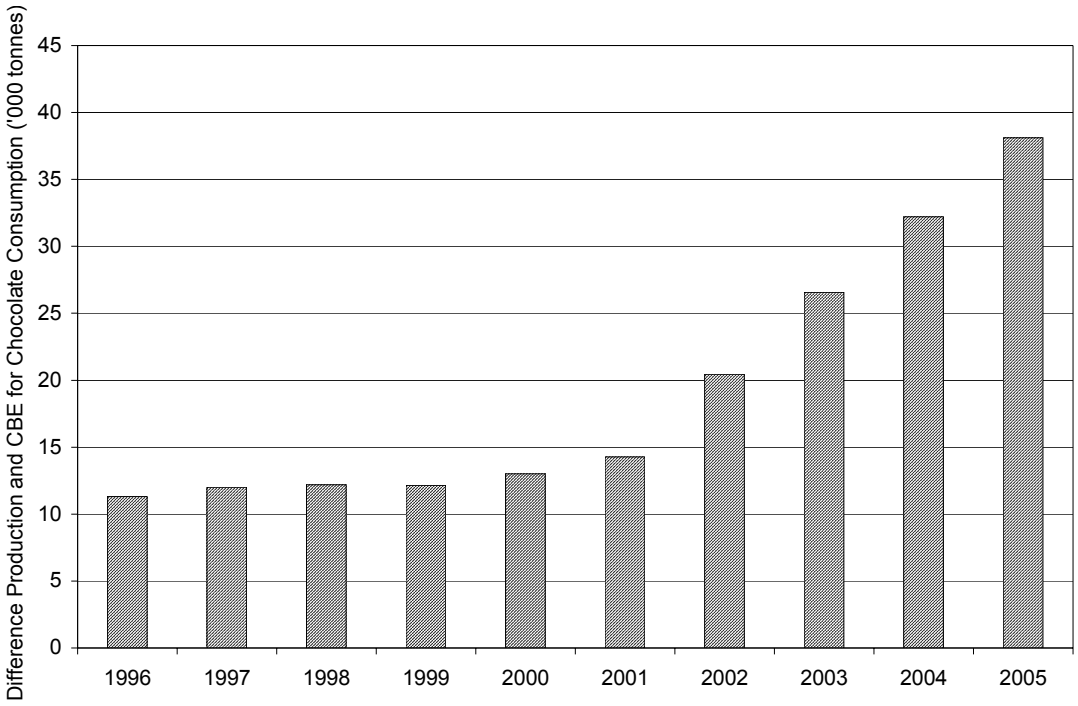
- In countries previously not permitting the use of CBEs in chocolate, there has been no increase in demand from branded and artisanal chocolate manufacturers. There has been an increase of some 1,000 tonnes amongst the industrial chocolate manufacturers producing product for the biscuit and ice cream industries.

Net, there has been a 400 tonne increase in CBE demand since the adoption of the Directive.

Demand for CBEs Outside EU-15 Chocolate Production

This suggests that the growth of EU-15 CBE production is not due to the use in chocolate but due to other factors, and the evidence above suggests that there is a growing difference between EU-15 CBE production and the amount of CBE used for EU-15 chocolate manufacture. The difference has increased from around 11,000 tonnes in 1996 to its current level of around 40,000 tonnes (Diagram 8.2).

Diagram 8.2: Difference Between EU-15 CBE Production and that used for EU-15 Chocolate Manufacture



Two issues warrant consideration and can explain this trend:

- The use of CBE type fats for coatings and fillings; and
- Export demand.

Our analysis suggests that demand for CBEs for fillings and coatings in the EU-15 has grown to between 20,000 to 25,000 tonnes. Demand growth has been steady over the reporting period and is growing as the market for these products increases. Export demand is in the order of 15,000 to 20,000 tonnes and has grown quickly in recent years. This is due to:

- Changes in legislation to allow the use of CBEs in chocolate (for instance in Brazil and Oceania);
- Reduced demand for Cocoa Butter Replacers (CBRs); and
- Increased demand for chocolate/compound chocolate containing CBEs.

Impact of the Directive on Cocoa and Vegetable Fat Producers

Cocoa Producers

- Cocoa typically accounts for over one third of total export earnings in Ghana and Côte d'Ivoire, and around 10% in the case of Cameroon. It is less important in Nigeria and Togo. As would be expected, cocoa prices are a major determinant of cocoa's share of export earnings in Ghana and Côte d'Ivoire.

- As can be surmised from the above, the Directive has had little impact on producers to date. We have calculated the impact (and potential impact) of the Directive under three scenarios.

  — The **base case** scenario calculates the impact of the Directive on the market to date;

  — **Scenario 1** calculates what would have been the state of the market had the Directive not been implemented in 2003/04; and

  — **Scenario 2** calculates what would have been the impact of the Directive if it had been fully implemented in 2003/04, i.e., CBE usage in chocolate rose to 5% in the EU-8.

The forecast levels of prices under the different scenarios between 2003/04 and 2010/11 are shown in Table 8.2.

Table 8.2: Forecast Global Cocoa Prices, 2003/04-2010/11 (Real US$ per tonne)

	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
Base Case	1,431	1,419	1,439	1,554	1,649	1,604	1,559	1,531
Scenario 1	1,435	1,421	1,441	1,555	1,650	1,605	1,560	1,532
Scenario 2	1,311	1,344	1,384	1,521	1,625	1,561	1,514	1,490

Source: LMC.

- Comparing the prices forecast under the base case scenario with those forecast under Scenario 1 suggests that the impact of not implementing the Directive in 2003/04 would have been modest i.e. a price difference of less than $5 per tonne.

- Were the Directive to have been implemented fully in 2003/04, the results suggest that the price impact would have been more pronounced.

Vegetable Fat Producers

- In terms of the total economy, the importance of the exotic fats is relatively small. However, in the regions where they are collected, they are very important for employment and income generation. In the case of shea, collection is primarily by women, while for illipe and the Indian exotics, collection is by tribal people living off non-timber forest products.

- For sheanuts, demand is from both the local market and for export. The other exotics are primarily export orientated, the only exception being for sal when

production is higher than that which can be absorbed by the export market. In this case, the balance is used domestically.

- For all the exotics, with the exception of kokum, there can be extreme fluctuations in production between years. This is due to the uncultivated nature of production.

- There has been an increase in demand for exotics from the European CBE manufacturers: for shea since 2000, sal since 2003 and illipe in 2005.

- Trends in prices follow the supply-demand balance of the individual crops, thus in years of high production there is a tendency for prices to fall and vice-versa.

- For the Indian exotic fats and illipe, almost all processing occurs at origin and processed products are exported. This is not the case with sheanuts where the export is more of nuts than products.

- Both shea and the Indian exotics remain underdeveloped in terms of their potential. In both cases, there is scope to increase collection and improve the quality of the product, although whether this occurs is partly dependent upon the price paid to collectors. In the case of shea, some governments have recognised the crop's potential and are seeking to increase the development of the crop as part of a diversification strategy. For illipe, production potential is declining as palm oil development reduces the illipe forests.

- Palm oil production has grown dramatically since the adoption of the Directive. However, the growth of CBE demand is small in relation to the total volumes of palm oil produced and marketed.

The increase in demand for these products, although beneficial for the sector, cannot be attributed to the Directive.

CONCLUSION

Our analysis suggests that the Directive has had very little impact on the global cocoa market as very few EU-15 chocolate manufacturers have incorporated CBEs into their recipes. The same is true of the vegetable fat producers, although increased demand for CBEs from outside of the EU-15 chocolate market has increased demand for their products. However, although the Directive was passed in 2000, it was only implemented in 2003. Hence the market has only had two years to adjust to the new realities.

On the basis of this evidence, there is no need to change the list of permitted fats and our recommendation is to maintain the list for a further period of time, until the impact of the use of vegetable fats other than cocoa butter on the economies of developing countries can be further assessed.

There are a number of additional considerations:

- Two years is a very short time period for end users to make wholesale changes to recipes. A further review of the market in five to ten years time would be useful. This would allow time for manufacturers to work though the implications of the Directive and test consumer perceptions of products containing CBEs. As yet, this has not been possible, as no one has changed recipes.

- The shortage of shea and sal during 2005/06 has reduced exotic availability and led to a run down in exotic fat stocks. This has increased exotic prices and placed

pressure on CBE manufacturers. This highlights the dangers of restricting the number of fats, as it reduces the scope for substitution. Any reduction in the list of permitted fats would create a worse situation.

- With the global market for CBEs increasing and the variability of annual exotic fat production, in the longer term there is potential for a shortage of exotic fats. This suggests that in the longer term, consideration could be given to one or all of the following:

  — **Crop development for the permitted exotics.** At present shea, sal and mango kernel are all underdeveloped wild crops. There is scope, in the longer term, to increase crop potential. For instance, in West Africa the local production of shea butter could be enhanced though the provision of basic hand expellers. This would reduce the time needed to produce local shea butter and increase processing efficiency. In both cases, the provision of nuts would increase: first, by allowing more time for nut collection; and, second, by reducing the quantity of nuts required to yield a certain volume of butter. Additionally it could be possible to reduce the gestation period for the trees. In the case of sal, the proportion of the crop collected is small in relation to total production.

  — **Expanding the list of permitted fats.** However, the number of possible fats is limited, with aceituno oil probably the largest.