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ECONOMIC IMPORTANCE OF THE FLEMISH MARITIME PORTS: REPORT 2002

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The views expressed in this paper are those of the author and do not necessarily reflect the views of the National Bank of Belgium.

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Abstract

This paper provides an extensive overview of the economic importance and development of the Flemish maritime ports, over the period 1995 - 2002. Focusing on the three major variables of value added, employment and investment, it also provides some information about the financial situation of a few vital segments in each port. In addition, it includes figures with respect to the ongoing growth of several cargo traffic segments and attempts to establish a link between these and the progress of the production in the industries at stake.

The breakthrough of this research - compared to its previous editions - consists of evaluating the indirect effects of the sectors in question in terms of value added and employment. A few refinements have also been made, such as the routine geographical and functional selection of companies according to the cluster they belong to (NACE-Bel code approach), the limitation of administrative work incurred, the review of the company-size analysis, etc. Annual reports data from the Central Balance Sheet have been computed for the calculation of direct effects, the study of financial ratios and the analysis of the social balance sheet. For the estimation of indirect effects, Supply and Use Tables from the National Accounts Institute have been resorted to.

The developments in the maritime ports sector are numerous nowadays, namely in the Hamburg - Le Havre range: concentration of capital, privatization of ports logistics services, expansion and dispersion of foreign trade, the internationalization of the production and consumption patterns (e.g. increase in containerized shipments), the latest requirements of world trade concerning transport and distribution. The increase in scale and specialization of the vessels inevitably impact on the operation of the ports.

Production, trade and transport are not longer considered as individual, isolated activities, but are integrated in a single system. Therefore, ports have to evolve from mere centres of transport (discharging and loading of vessels) to logistics centres. Moreover, ports able to add value to the goods passing through the port area, have a major asset in a climate of increasing international competition. These developments are also mentioned in this report, since no Flemish port is an exception to this rule.

Key words: branch survey, maritime cluster, subcontracting, indirect effects, transport intermodality, public investments.

JEL classification: C67, H57, J21, L22, L91, L92, R15, R34 and R41.

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Preface

For several years the National Bank of Belgium has published annual studies relating to the ports of Antwerp, Ghent, Ostend and Zeebrugge. These four studies will from now on be presented as a single item. In addition to this change of form, the methodology has been considerably changed, notably for the purpose of estimating the indirect effects linked to the activity of the port sector. This approach offers the best way of assessing their economic importance.

Introduction and objectives of the report

Restructuring of the ports went on throughout the nineties following changes in the economic environment: dispersal of centres of rapidly expanding foreign trade, accelerated internationalisation of production and consumption processes and new requirements for world trade in terms of transport and distribution. The port authorities now had to adopt new management styles to bring the ports more in line with the market. Rapid changes were seen, particularly in the container sector in the Hamburg – Le Havre range[1], in order to make the ports in this region more attractive to this trade. The need for automation was also undeniable and the cargo handlers recorded significant job losses due to takeovers and mergers in this sector.

« Cargo handling is [indeed] one of the activities most affected by technological progress and competition between ports. The market trend is towards concentration of capital, specialisation and vertical integration. Provision of these services is being transferred, little by little, from the public to the private sector in order to increase efficiency and reduce public expenditure on labour at ports. »[2] This phase of liberalisation of the port cargo handling sector (dockers) across Europe was a result of the order made by the Court of Justice of the European Communities on 10 December 1991 (also called the « Port of Genoa » order).[3]

Ports in Europe are of considerable importance in terms of labour. They have considerable infrastructure requirements and are at the heart of a huge network of interdependent branches of activity. Their growth is very important for the European economy.

In addition, « (...) because of its geography, its history and, now, globalisation, the European Union (EU) remains heavily dependent on maritime transport:

- More than 90 p.c. of its foreign trade and around 43 p.c. of its domestic trade is done by sea; in total more than 1 billion tonnes of freight are unloaded and loaded in ports in the Union each year;[4]
- The shipping companies belonging to EU countries control a third of the world fleet and around 40 p.c. of EU trade is carried on ships controlled by European shipping companies (which doesn't mean that their ships are flying the flag of an EU member);
- The maritime transport sector, which also includes shipbuilding, the ports, fishing and related industries and services, employs some 2.5 million people in the European Union. »[5]

Just as in the air, road and inland water transport sectors, the process of liberalization and opening up maritime transport to competition from national markets within the Union is practically complete. (...)

This necessary process has not, unfortunately, been sufficient to stop the continuing exodus of the community fleet to what are called « flags of convenience », i.e. countries offering shipping companies much more favourable

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1 This term refers to the area where different important seaports, serving the same hinterland, operate and therefore are in competition with each other.

2 Quotation from the EC Green Paper relating to « Maritime ports and infrastructures » published on 10 December 1997.

3 See the speech by K. Van Miert made at Ghent on 6 October 1997: « Competition rules and maritime ports », or see the website of the Court of Justice of the European Communities.

4 The increase of the port infrastructure is mainly due to the growth of the container transport. The latter considerably reduces the cost of shipping (for example compared to bulk cargo). The main factor which determines such a low cost level lies in the rapidity and flexibility of this mode of transport and the economies of scale it allows (some ships can carry up to 10,000 TEU – see glossary in annex 9). Maritime transport is also economically essential for distances greater than 1,500 kilometres. This explains its importance for extra-Community trade (Sources: work by Dr. Jean-Paul Rodrigue of the Dept. of Economics & Geography, Hofstra University, 11549 NY - USA; « Maritime Economics » 2nd edition, Martin Stopford).

5 Extracts from the « Overall view of the maritime transport policy » supplied by the European Commission. For further information, see the website http://europa.eu.int/comm/transport/maritime.

conditions than those in Europe in terms of taxation, social security and safety or environmental standards. (...) Today only 13 p.c. of the world fleet is flying the flag of a Member State as against 32 p.c. in 1970. (...)

As a result of this evolution, which mainly affects the freight sector, the European Union has decided on two courses of action:

1) To define a global strategy aimed at making the community fleet competitive again by means of « positive measures »;
2) To increase safety on ships and environmental protection by ensuring strict compliance within the Union with international standards (« the polluter pays » principle).

The Commission White Paper on the subject[6], published in 2001, lists sixty practical measures designed to make significant improvements to the quality and efficiency of transport in Europe by 2010. The development of the ports in the European Union is one of the mainstays of this general strategy, with the particular objective of relieving congestion on traffic axes. According to this analysis, the growth of maritime transport in Europe currently relies on two pillars: the increase in capacity and intermodal[7] efficiency of the ports and the opening up of the port services market to potential service providers.

The European Community Green Paper relating to ports and maritime infrastructures, published on 10 December 1997, presents this sector as characterised by major disparities between regions in terms of structures, operations, organisations and legal systems. Competition between the ports continues to grow. The new technologies and the development of the trans-European rail network (TEN) are playing major roles. The TEN means that users and operators can be offered greater choice within an intermodal environment. A community framework would seem to be necessary in order to guarantee the principle of competition without obstruction or discrimination.

These considerations obviously apply to Belgium, a country largely dependent on the rest of the world with regard to trade, since it exports the equivalent of two thirds of its GDP. Because of its geographical location and its role as a place of transit in Europe, Belgium would certainly not have been able to achieve its economic expansion without an excellent transport infrastructure (ports, waterways, railways, roads, etc.). In addition, there are few industries in Belgium which do not in some way depend on the ports in the Kingdom and it is important to know how these affect the economy as a whole. This is why, for the first time as part of this study, an attempt is being made to estimate the importance for the rest of the economy of the indirect effects linked to port activity.

In view of the scope of this study, its structure and the priority given to the use of micro-economic data processed by the Bank, certain changes have been made to the methodology in relation to previous issues[8]. These relate mainly to the following aspects:

- Standardisation of the method for extracting micro-economic data and calculations to give a more systematic analysis. A break from the casuistical approach used up to now;
- Greater consistency with figures in the national accounts (NAI);
- Limiting the use of surveys, which leads to time-saving and a reduction in the administrative overload suffered by businesses (only a few public institutions or enterprises are still surveyed);
- Previously unpublished presentation of the **indirect effects** of port activity based on an algorithm used to study the ICT and car manufacturing sectors[9,]

These modifications were introduced with a view to maintaining consistency with previous issues with regard to definition of the sample and the industry groups studied. The results obtained with the classification previously used, relating to the « sectors » of port activity, are therefore also presented in chapter 4. With regard to calculation methods, however, some differences should be noted: for example, for investments or for distinction between large businesses and SMEs. The modifications are expected to improve the accuracy of the results.

The micro-economic data used come mainly from the Central Balance Sheet Office and the NAI, the latter being used in particular for the calculation of indirect effects. As in previous issues of the study, this report presents an

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6 2001 white paper entitled « European Transport Policy for 2010: time to decide ».

7 ***Intermodality*** relates to transfer of goods from one mode of transport to another. See also annex 9.

8 See « Economisch Belang van de Zeehavens: Boekjaar 2001, methodologie » - NBB, Antwerp branch.

9 Respectively NBB publications: « The ICT sector in Belgium », Economic Review 2004/1 and « De autonijverheid in België: het belang van het toeleveringsnetwerk rond de assemblage van personenauto's », Working Paper no. 38 of June 2003.

analysis of the economic, financial and social positions of businesses belonging to the industries which show an economic link with the ports concerned.

The economic importance of the four ports is analysed on the basis of development from 1995 to 2002 of three basic aspects:

- value added at current prices;
- FTE[10] salaried employment;
- investment at current prices.

Other developments are presented for the last three years: financial analysis and the social balance sheet based on the annual accounts.

In order better to identify the developments in progress, the work has been done in two stages. The results of the Flemish maritime ports as a whole are given in chapter 3, while each port is reviewed separately in chapter 4.

[10] Full-time equivalents; employment, whether direct or indirect, is expressed in this unit.

1 INTERNATIONAL CONTEXT

In 2002 the world economy suffered even more acutely the consequences of the slowdown in growth which had started the previous year. The drop in consumer confidence, the growing uncertainty on the markets and international tensions were manifested by a postponement of business investment. The rate of growth of the Belgian economy fell below the 1 p.c. threshold and bankruptcies rose sharply, especially in Flanders.

Port policy and port management were regionalised in Belgium in 1989. Public investment in the ports and maritime accessibility therefore became the responsibility of the Flemish regional authority. Since then, the Flemish Region has invested more than 3.3 billion euro[11] in the four Flemish seaports, over half of which was allocated to maritime accessibility. Since 1995 a clear increase in these budgets has been recorded, particularly because of the programme to deepen the Scheldt[12]. This operation was begun on the west bank of the river and was practically completed in 2001.

In spite of the economic slowdown, the transport sector was relatively less affected than most of the other sectors, and the ports managed to maintain their levels of activity, especially because of the structural growth in container traffic in the ports of Antwerp and Zeebrugge. Although within the Hamburg - Le Havre range the Flemish ports lost some points of their market share, this was essentially because the neighbouring ports caught up after the cumulative delays during the eighties.

1.1 Short description of the ports in the Hamburg - Le Havre Range

The ports described here, from North to South, are only those foreign ports which belong to the range. Chapters 3 and 4 give a wide-ranging account of the three Belgian ports in the range - Antwerp, Ghent and Zeebrugge, together with Ostend.

Hamburg: Major port or « Central hub port » of a huge region located where the North Sea meets the Baltic: it is the largest German port and the third largest in Europe, a passage for sea traffic to and from northern, central and eastern Europe. This port also plays a major role in trade to Asia, especially China. Traffic volumes of just under 98 million tonnes were recorded there in 2002. Cargo traffic, which grew by 6 p.c. in the same year, and container cargo, which increased by 14.6 p.c., are the keys to this expansion.

Bremen: This is the most southerly German port, situated on the Weser about sixty kilometres from the North Sea coast: it benefits from excellent links with its hinterland. It handles almost 47 million tonnes every year.

Amsterdam: This Dutch port belongs to a region which includes the harbours of Beverwijk, Velsen/IJmuiden and Zaanstad. These are independent but work in close collaboration so that the figures given below cover all of them. This is one of the most important port regions in Europe, supported by a highly-developed transport network in its hinterland. Almost 70 million tonnes are transhipped each year at Amsterdam, a port which specialises in bulk cargo handling (coal, oil, animal feeding stuff) and is number one in the world for cocoa.

Rotterdam: This port, which extends over a 40-kilometre long area at the mouth of the Maas and covers 10,500 hectares, is one of the main crossroads for goods in the world and the leading world port for tonnage of freight handled annually. It holds first place in Europe for trade in chemicals and oil, iron ore, coal, metals and foodstuffs and leads the continent in container traffic. It has a highly-developed overland communication network and the deepest sea channel in the North Sea: in 2002 it handled 322 million tonnes and can accommodate ships with a draught of up to 22.5 metres, i.e. a maximum of 350,000 dwt[13].

Dunkirk: The third French port, the first being Marseilles; it is situated at the entrance to the North Sea and occupies first place in France for the export of steel and sugar and for the import of ores, coal and West-Indian bananas. It handled more than 47 million tonnes in 2002. The tidal Port Ouest is accessible to ships of 300,000 tonnes for short stays.

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[11] Source : Vlaamse Havencommissie Annual Report 2002.

[12] Investments by the Flemish Region for improvement to maritime access amounted to 187.7 million euro in 2002, which includes the amounts invested in deepening the Western Scheldt.

[13] See glossary in annex 9.

Le Havre: First French port for handling general cargo including containers, second French oil port: it concentrates mainly on the import and export of automobiles with the United Kingdom. Since the Port 2000 project has been implemented, Le Havre is among the leaders in terms of growth in container traffic (+ 12.9 p.c. in 2002, just behind Hamburg and Antwerp). This port recorded a total of more than 68 million tonnes of transhipments in 2002, taking all types together (goods, oil, containers, automobiles, etc.).

1.2 Maritime goods traffic: comparative analysis

In 2002, the total maritime[14] traffic (loadings and unloadings) improved somewhat in all the ports in the range, surprisingly with the exception of Le Havre (table 1). In the ten ports (those in the range and Ostend) the total transhipment recorded is in fact 2.6 p.c. greater than that for the previous year, since it reached 827.1 million tonnes. This increase is attributable in the first place to the ports of Rotterdam (+ 2.4 p.c.), Hamburg (+ 5.6 p.c.) and Dunkirk (+ 7.0 p.c.), although throughput at the port of Antwerp only expanded by 1.2 p.c. But this is the logical consequence of the strong growth recorded in Antwerp port traffic in 2000 (+ 12.8 p.c.). The proportion of the traffic in the range (including Ostend) which relates to the Flemish seaports remained stable at 23.5 p.c. The total traffic for the range and Ostend amounted to 15.1 p.c. of world maritime traffic and has therefore recovered a few points after the nineties which were marked by significant growth in South-East Asia. The development of trade by the countries in this zone could however again affect this percentage in future years.

TABLE 1 **TOTAL MARITIME TRAFFIC IN THE HAMBURG - LE HAVRE RANGE (INCLUDING OSTEND)**
(millions of tonnes)

	1995	1996	1997	1998	1999	2000	2001	2002	Average relative share (in p.c.)	Relative share in 2002 (in p.c.)
Hamburg	72.1	71.1	76.7	75.8	81.0	85.1	92.4	97.6	10.8	11.8
Bremen	31.2	31.6	34.0	34.5	36.0	45.0	46.1	46.6	5.1	5.6
Amsterdam	31.2	36.7	36.8	36.1	37.6	44.6	49.3	50.3	5.4	6.1
Rotterdam	292.9	292.0	310.1	314.4	303.4	322.1	314.7	322.1	41.1	38.9
Antwerp	108.1	106.5	111.9	119.8	115.7	130.5	130.1	131.6	15.9	15.9
Ghent	21.6	21.0	23.0	23.6	23.9	24.0	23.5	24.0	3.1	2.9
Zeebrugge	30.6	28.5	32.4	33.3	35.4	35.5	32.1	32.9	4.3	4.0
Ostend	4.6	4.5	4.3	3.9	3.1	4.3	4.8	6.2	0.6	0.8
Dunkirk	39.4	34.9	36.5	39.2	38.3	45.3	44.5	47.6	5.4	5.8
Le Havre	53.8	56.2	59.7	66.9	64.4	68.0	69.0	68.1	8.4	8.2
Total for the ten ports	685.5	683.0	725.4	747.6	738.9	804.4	806.4	827.1	100.0	100.0
Total world traffic	4,687	4,859	5,092	5,062	5,161	5,434	5,435	5,491		
Share of the ten ports in world traffic (in p.c.)	14.6	14.1	14.2	14.8	14.3	14.8	14.8	15.1		

Sources: For traffic in the range: Vlaamse Havencommissie Annual Report 2002 and data from the port authorities – including statistics from the Port of Rotterdam; for world traffic: Shipping Statistics Yearbook 2003.

1.3 Employment in the range in 2002

It is rather difficult to develop a standard way of calculating the level of employment in the ports in the range since each port authority applies its own methods of estimation. The definition of maritime employment poses a particular problem. The inclusion of personnel put at the disposal of businesses established in the port poses another problem. On the basis of the figures supplied by the previous issues of this study (NBB data), the port of Antwerp, in terms of its workforce, was above the average for the range with 56,400 direct jobs in 2002. The port of Ghent had 27,500 direct jobs. Zeebrugge employed 11,200 people in the same year and the workforce at Ostend was 2,750. The figures obtained after applying the new methodology are slightly different (see below).

For the ports of Rotterdam, Hamburg, Amsterdam and Bremen, the figures supplied by the various port authorities with regard to their population are 61,000, 56,000, 38,000 and 25,000 units respectively. Although all these figures relate to direct employment, they do not correspond to the values which might have been expected on the basis of the traffic observed over the last few years (table 1). At Rotterdam, for example, the method of estimating employment seems in effect quite restrictive: only the industries which exhibit an immediate economic link with the port are taken into consideration. Over the period 1995 – 2002, Rotterdam itself represented on

[14] Goods shipped through inland navigation are not taken into account in these figures.

average 41.1 p.c. of the traffic in the range, which is more than two and a half times that of Antwerp. Even if the level of employment is not directly proportional to the tonnage passing through the ports, the nature of the tasks and the productivity encountered in the ports further influences the activity of the workforce. For example, the port of Rotterdam, which concentrates more on bulk liquids, needs proportionally fewer workers than the port of Antwerp, which is traditionally oriented towards general cargo. The figures relating to employment should be treated with great caution.

Moreover, by estimating the indirect effects we can go further towards assessing the economic importance of the ports. These figures are given in detail for the Flemish seaports in the chapters which follow.

2 NOTE ON METHODOLOGY[15]

2.1 Selection and sampling

Numerous studies[16] on the economic impact of port activities focus on the notion of « maritime cluster », which groups together all the industries (companies and supplier chains) associated with the ports. For the sake of consistency with previous port studies and the Bank's other publications, and in order to cover port activity as a whole, it was also decided to study other segments and present the results by « sector » of activity, as defined previously (detailed in annexes 1 and 3).

Two « clusters » are thus considered within the framework of the study on Belgian port activity:

- The maritime cluster, which includes branches of the ports themselves, and whose existence is essential to them (management and maintenance, shipping, transhipment, loading, locks, storage, dredging, fishing, maritime services, etc.);
- Four segments that do not have an immediate economic link with port activity but which exhibit a high degree of interdependence with it by virtue of their geographical proximity, and vice versa. This cluster, known as « non-maritime » covers, in particular:
    - the *industry* segment;
    - the *wholesale trade* segment;
    - the *transport* segment;
    - the *logistics services* segment.

Two approaches have been selected, depending on whether the company under review forms part of the maritime or non-maritime cluster.

For non-maritime companies, geographical location within the port area[17] is the determining factor.
With regard to companies in the maritime sector, these have an immediate operational link with port activity. This does not necessarily imply that they are situated in the port area. Depending on the definition of their activity, a geographical approach based on the narrow or wider sense has been adopted for the selection of the companies of this cluster. Some maritime companies are, therefore, not situated in the port area. Nevertheless, their results are taken into account in chapter 3, and allocated, by port, in chapter 4.

2.2 Calculation of direct effects

Direct effects are calculated mainly on the basis of the following variables, relating to the activities of the companies in the sample:

- Value added (or VA) at current prices;
- Salaried employment;
- Investment at current prices.

For companies established in more than one location, i.e. companies which have several subsidiaries, employment is calculated by subsidiary according to data from the National Accounts Institute (NAI) relating to employment data at places of business established within the port area (reference: NSI code[18]). Since this is the only information used for selecting these companies, it was decided to calculate their VA and their investment using the same procedure.

Public company data are obtained from surveys by the various authorities concerned. This is the only category of company for which information needs to be gathered in this manner, and most of the data are taken from the annual accounts filed at the Central Balance Sheet Office and from the national accounts for the estimation of indirect effects.

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[15] The complete version of this note is given in annex 1 (calculation method, main adaptations from previous methodology, impact on the results, etc.).

[16] Including Dutch publications of the Nederlands Economisch Instituut and the Nationale Havenraad (Netherlands), and studies by the Faculty of Applied Economics at Antwerp University.

[17] The four port areas in question are given in annex 2.

[18] National Statistical Institute.

The study goes on to describe some of the latest social changes for the years 2000 to 2002 in all the ports. The social balance sheet constitutes a consistent set of data covering different aspects of employment in the company. All private companies for which the data relating to the social balance sheet are available in sufficient quantity for these three years are analysed (constant sample). This is particularly the case for those filing annual accounts based on the full presentation.

Three financial ratios are stated for the period 2000 – 2002 for each port, with regard to clusters and « sectors »:

- Return on equity after taxes;
- Liquidity in broad sense;
- Solvency.

2.3 Estimation of indirect effects

The Supply and Use Tables available up to 1999[19] can be used to estimate the indirect effects linked to port activity, but with certain provisoes. The industries in ports actually generate indirect VA and indirect employment, especially through purchases which the companies under review make from subcontractors.

On the basis of the Supply and Use Table we may determine the subcontracting branches and the dependency rates for a given branch. By applying this dependency rate to the total employment of the supplier or suppliers indirect employment is obtained. The same procedure is used to calculate the indirect VA, where the dependency rate is applied to the total VA.

This method is applied to the industries covered by the study at two levels of calculation: level 1 - first rank suppliers – and the infinite level – the chain of all the upstream suppliers.

2.4 Presentational structure of the results

Chapter 3 presents the results in terms of value added, employment and investment for all the ports. We should remember that some maritime companies, which are not established in port areas, have nevertheless been selected: they are covered under a separate heading. In chapter 4, the results relating to them are divided by port in order to assess their actual overall economic impact. In each summary table, the values relating to these companies are shown for information purposes.

Additional details:

- For companies in the maritime cluster which are selected but are outside the port areas, direct employment, direct VA and direct investment is allocated to the different ports using the allocation formula relating to the direct VA weighting which each holds in all the ports, at the level of each SUT branch;
- The allocation of indirect effects for employment and VA by branch is carried out according to the same pattern as the allocation of direct effects observed in each port;
- For VA and employment, once the distinction between direct effects and indirect effects has been established, direct VA and direct employment are defined as the sum of what is achieved in the ports and what is allocated (i.e. the maritime companies established outside of the port area, see above). The concepts of total employment and total VA for their part express the sum of the direct and indirect figures. On the other hand, total investment is defined as the sum of the investment by companies established at the ports and investment attributed to ports by allocation: it therefore corresponds to direct investment;
- The percentage of annual average change over a given period is calculated by geometric mean.

[19] The 2000 SUT (Supply and Use Tables) data were only published after the calculations for this study were carried out: the figures for 1995, 1997 and 1999 respectively were used to calculate the indirect effects for the years 1995 - 96, 1997 - 98 and 1999 - 2002. Detailed results by sector are given for the years 1995 to 1999 (see annex 5).

3 GENERAL SITUATION FOR ALL THE FLEMISH MARITIME PORTS

This chapter relates to the situation observed from 1995 to 2002 for all four ports. In the following chapter, the details are given by port, for each variable studied, with an attempt to explain the changes observed.

3.1 Overall data on direct and indirect value added (VA)

As defined in the methodology, the value added at current prices is the value which the company adds to its inputs by means of the production process. The sum of all the gross VA of private and public companies, households, non-profit-making organisations, etc. is equivalent to the Gross Domestic Product (GDP).

TABLE 2 **VALUE ADDED**
(millions of euros)

	1995	1996	1997	1998	1999	2000	2001	2002	Relative share in 2002 (in p.c.)	Change from 1995 to 2002 (in p.c.)	Annual average change (in p.c.)
Direct effects											
Antwerp	5,475.7	5,548.3	5,956.1	6,106.0	6,091.3	6,927.0	6,705.3	6,936.4	63.2	26.7	3.4
Ghent	2,670.9	2,731.0	2,565.8	2,897.9	2,661.5	2,891.4	2,795.6	2,929.0	26.7	9.7	1.3
Ostend	188.0	201.4	217.3	236.0	271.8	255.9	319.1	313.8	2.9	66.9	7.6
Zeebrugge	514.4	534.9	516.7	583.1	630.9	686.7	694.6	663.2	6.0	28.9	3.7
Outside ports[20]	122.2	112.6	208.9	130.2	121.7	125.5	139.0	124.4	1.1	1.7	0.2
Total direct effects	8,971.3	9,128.1	9,464.9	9,953.1	9,777.2	10,886.4	10,653.6	10,966.8	100.0	22.2	2.9
Indirect effects											
1st level	5,105.6	5,265.3	5,517.1	5,574.8	5,924.7	5,882.3	6,021.2	6,322.0	56.1	23.8	3.1
2nd level	2,094.8	2,178.2	2,318.4	2,386.6	2,611.3	2,598.8	2,669.4	2,803.5	24.9	33.8	4.3
3rd level	847.1	882.9	969.9	1,009.0	1,128.1	1,127.0	1,160.3	1,213.4	10.8	43.2	5.3
Next levels	583.5	609.4	701.9	742.1	856.8	862.1	889.0	922.5	8.2	58.1	6.8
Total indirect effects	8,630.9	8,935.8	9,507.2	9,712.4	10,520.9	10,470.3	10,740.0	11,261.4	100.0	30.5	3.9
Total value added	**17,602.2**	**18,063.9**	**18,972.1**	**19,665.6**	**20,298.1**	**21,356.7**	**21,393.6**	**22,228.1**	**-**	**26.3**	**3.4**

Source: NBB.

3.1.1 Changes in direct VA

Over the eight years in question, the port of Antwerp has achieved on average 62.3 p.c. of the VA for all four ports (table 2). The greatest increase was recorded in 2000, with 11.3 p.c. growth compared to 1999. This growth should be compared to the excellent performance of the Belgian economy in 2000, when GDP grew by 3.7 p.c.[21]. From 1995 to 2002 it was at Ostend that the VA increased most significantly (+ 66.9 p.c., i.e. 7.6 p.c. as an annual average). This figure reached 3.4, 1.3 and 3.7 p.c. respectively for Antwerp, Ghent and Zeebrugge. The years 1998 and 2000 were exceptional in terms of production (direct VA associated with the ports) for Ghent (+ 12.9 p.c.) and Antwerp (+ 13.7 p.c.) respectively.

The contrast between the growth in VA at Antwerp and Ghent arose particularly from the more favourable geographical position of Antwerp (see next chapter).

For all ports together, the average growth in direct VA reached 2.9 p.c. per annum, a rate higher than that of inflation in 2002 (general *domestic output price index* of 1.3 p.c.[22]). The VA achieved in the ports was therefore almost 11 billion euro.

[20] As already indicated, a significant proportion of the VA also relates to the companies in the maritime cluster situated outside the port area (detailed methodological explanations in annex 1). When each port is studied separately, care is taken to allocate the VA of the companies in each port.

[21] Change observed from 1999 to 2000, at 1995 prices. Source: NBB Annual Report 2002.

[22] Source: Belgostat Online http://www.belgostat.be.

3.1.2 Changes in indirect VA

As pointed out above and explained in detail in point 5.2 of annex 1, we can distinguish several levels of calculation of indirect effects. Level 1 only takes into account first rank suppliers or sub-contractors. But this is not sufficient to measure all the indirect VA, which implies that we have to consider all the higher levels. If we add the figures obtained for the infinite level to those for direct VA, we can estimate the total economic impact of the sector in terms of production. Only a few are given in table 2, the volumes diminishing as the number of middlemen increases.

From 1995 to 2002, the indirect VA increased on average by 3.9 p.c. per annum[23] (table 2). Taking all levels together, the most significant increase is found in 1999 (+ 8.3 p.c.). This growth was followed by a slowdown the following year and a weak recovery in 2001. The next year was a favourable one for suppliers of the companies in question since the indirect VA increased, taking all levels together, by 4.9 p.c. and, at first level, by 5.0 p.c. It amounted to 11.3, which is well above that of direct VA, and 6.3 billion euro respectively. This recovery is analysed in greater detail below.

The indirect VA for all suppliers of the companies in question is practically equivalent to the total direct VA achieved in the Flemish maritime port sector (exactly 99.97 p.c. over this period). The ratio of indirect VA to direct VA reached a peak in 1999, as it increased by 10.3 p.c. to reach 107.6 p.c. With a return to values lower than the 100 p.c. threshold, the year 2000 seemed to mark a significant fall in that trend, although in the two following years the ratio increased by 4.8 p.c. and 1.9 p.c. respectively, taking all levels together, and by 4.6 and 2.0 p.c. for the first level. In 2002 the ratio amounted to 102.7 p.c.

3.2 Overall data on direct and indirect salaried employment

Direct employment is measured in FTE[24], on the basis of the annual accounts filed by companies. If certain corrections[25] are made, indirect employment calculated using the supply and use table[26] may be expressed in the same units. The importance of port workers in employment in the ports studied should be noted. In 2002, the annual report published by the Vlaamse Havencommissie indicated that their work had increased at Antwerp and Ostend and diminished at Ghent and Zeebrugge. These port workers are, of course, included in the employment figures which are given in detail below, particularly with regard to the cargo handling sector (maritime cluster). The majority of the contingent is based at Antwerp (C.E.P.A.[27]). The general contingent may be distinguished from the logistics contingent. The first includes mainly dockers and goods handlers and the second includes more specialised personnel such as warehousemen.

[23] The changes observed because of the application of the VA allocation formula for each port (see annex 1) are as follows: + 3.2 , + 5.3 , - 3.8 and + 6,3 p.c. respectively for Antwerp, Ghent, Ostend and Zeebrugge (see details in chapter 4).

[24] Full-time equivalents.

[25] See point 5.2.2 in annex 1.

[26] NAI data. Details of the algorithm used to estimate the indirect effects are included in point 5.2 of annex 1.

[27] Centrale der Werkgevers aan de Haven van Antwerpen. The regularly used acronym C.E.P.A. stands for Centrale des Employeurs au Port d'Anvers. In English: Group of Employers at the Port of Antwerp.

TABLE 3 **EMPLOYMENT**
(FTE)

	1995	1996	1997	1998	1999	2000	2001	2002	Relative share in 2002 (in p.c.)	Change from 1995 to 2002 (in p.c.)	Annual average change (in p.c.)
Direct effects											
Antwerp	59,618	59,596	59,703	58,695	57,776	59,300	61,074	59,472	57.8	- 0.2	0.0
Ghent.....	27,905	26,885	27,300	27,493	27,909	28,370	29,348	28,309	27.5	1.4	0.2
Ostend	4,909	4,847	4,688	4,290	4,296	3,745	3,981	3,960	3.8	- 19.3	- 3.0
Zeebrugge	9,394	9,051	9,117	9,122	9,493	9,801	9,846	9,465	9.2	0.8	0.1
Outside ports	2,778	2,032	1,871	1,942	1,883	1,835	1,950	1,736	1.7	- 37.5	- 6.5
Total direct effects	104,604	102,410	102,680	101,541	101,358	103,051	106,199	102,942	100.0	- 1.6	- 0.2
Indirect effects											
1st level	62,694	63,621	63,367	64,415	65,544	64,859	66,980	62,720	56.9	0.0	0.0
2nd level	25,661	26,075	26,111	26,720	27,818	28,010	29,022	27,035	24.5	5.4	0.8
3rd level	10,348	10,521	10,845	11,150	11,821	12,003	12,455	11,614	10.5	12.2	1.7
Next levels	7,228	7,348	7,917	8,183	8,967	9,158	9,502	8,873	8.0	22.8	3.0
Total indirect effects	105,931	107,566	108,240	110,468	114,150	114,031	117,959	110,242	100.0	4.1	0.6
Total employment	**210,535**	**209,976**	**210,920**	**212,009**	**215,508**	**217,081**	**224,158**	**213,184**	**-**	**1.3**	**0.2**

Source: NBB.

3.2.1 *Changes in direct employment*

The level of employment seems relatively stable in the ports, down by an average of just 0.2 p.c. per annum (table 3). This slight contraction is due mainly to Ostend, where employment has deteriorated on average by 3.0 p.c. per annum. At the port of Antwerp, however, there is considerable stability. With regard to Ghent and Zeebrugge, the workforce there has increased on average by 0.2 and 0.1 p.c. respectively per annum. The largest rise in overall direct employment, recorded in 2001, was 3.1 p.c., the employment level amounting to 106,199 FTE. The year 2002 saw this gain disappear as it fell again to 102,942 FTE for the four ports. Over the period under review, the port of Antwerp accounted on average for 57.6 p.c. of the total workforce in the sector. In 2002 it was in fact employing 59,472 FTE.

3.2.2 *Changes in indirect employment*

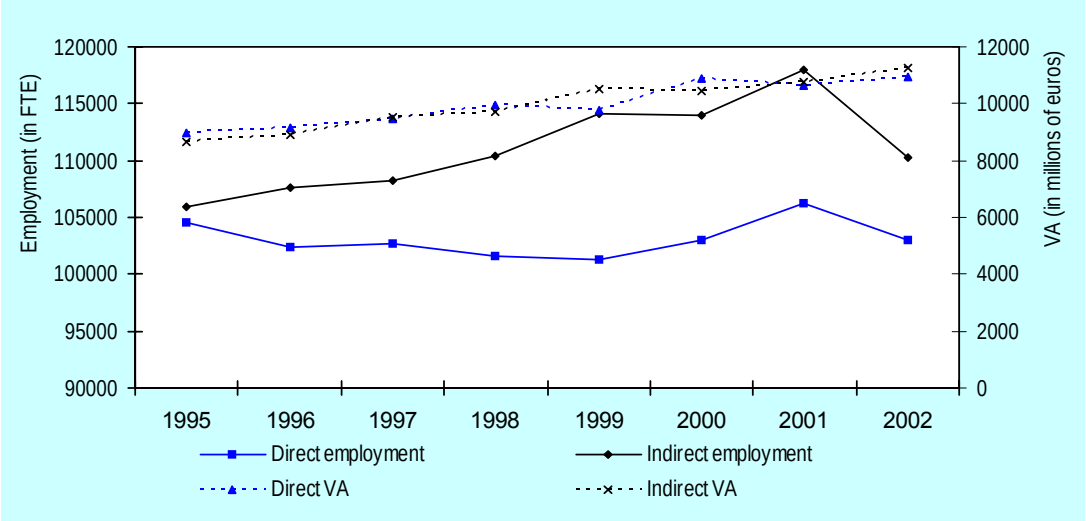
There is a certain degree of stability observable here as well, since indirect employment has increased by just 0.6 p.c. on average per annum[28]. However, a significant increase in indirect employment, taking all levels together, was recorded in 1999 (+ 3.3 p.c.). First level indirect employment (first rank suppliers) recorded its strongest growth in 2001 with 3.3 p.c. The same year, total indirect employment increased by 3.4 p.c. The largest fall over the period in question was in 2002, with a decrease in indirect employment of 6.5 p.c. taking all ports together (- 6.4 p.c. at first level). After peaking at 117,959 FTE in 2001, indirect employment taking all levels together fell back to 110,242 FTE in 2002.

Subcontracting was a very marked trend at the end of the nineties and these estimates show the extent of the phenomenon and its evolution. For the years under review, estimated total indirect employment for all the Flemish maritime ports, taking all levels together, produced an average figure of 107.7 p.c. of direct employment. This ratio grew to 112.6 p.c. in 1999 and stabilised at 110.7 p.c. in 2000 and 111.1 p.c. in 2001. It then fell again to 107.1 p.c. in 2002, i.e. less than the average level for the period. Subcontracting in the ports covered by the study therefore seemed to show a slight decline in the most recent years. Chapter 4 examines the extent of this phenomenon port by port.

[28] Calculated using the employment allocation formula (see annex 1). This figure corresponds to an average annual change of + 0.2, + 2.2, - 7.4 and + 2.4 p.c. respectively in indirect employment in the ports of Antwerp, Ghent, Ostend and Zeebrugge (see chapter 4).

3.3 Comparison of change in value added and employment

GRAPH 1 **CHANGES IN VA AND EMPLOYMENT**



Source: NBB.

Graph 1 shows that direct and indirect VA changes in almost the same way. Anyway the correlation is quite high. However the same cannot be said about employment. Although over the period in question direct employment is relatively stable, with a peak in 2001, the same is not the case for indirect employment. The latter, after strong growth up to 2001, shows a marked drop the following year. The decline in employment by the Antwerp shipping companies, in the car manufacturing at Antwerp and Ghent and in the fishing sector at Ostend explains the decrease in indirect employment in 2002, since these three sectors are heavily dependent on external manpower, the ratio of indirect to direct employment sometimes exceeding the 200 p.c. mark. The fall in indirect employment is also explained by the deterioration in the economic climate in 2002. As noted in point 3.5, stagnation in temporary working is observed as well.

The graph also highlights the changes between indirect and direct VA in 1999 and 2000. Although these two variables change according to the same pattern, we can in fact see a significant positive difference between indirect VA and direct VA in 1999, which becomes negative in 2000. The origin of the first event can be found in the fact that in 1999, services provided by shipping companies improved at Antwerp, Ghent and Zeebrugge; this year was also favourable to the other Antwerp logistics services (mainly coordination centres) and the Ghent and Ostend food industry. Although other sectors, which were not very dependent on subcontracting, saw their production fall in the same year, those just quoted, which are heavily dependent on external services, saw an increase in their own production. This explains why the curve for indirect VA moves above that for direct VA. At the same time, the reversal of the trend observed in 2000 is explained by a fall in activity in the car manufacturing sector at Antwerp and Ghent and with regard to shipping companies at Ghent and Zeebrugge.

3.4 Overall data on direct investment

The study relates to tangible fixed assets at current prices as fixed assets realised in the course of the financial year. Some corrections are made in the event of takeovers, as stated in the methodology (annex 1).

TABLE 4 **INVESTMENT**
(millions of euros)

	1995	1996	1997	1998	1999	2000	2001	2002	Relative share in 2002 (in p.c.)	Change from 1995 to 2002 (in p.c.)	Annual average change (in p.c.)
Antwerp	1,098.2	1,231.8	1,224.6	1,211.8	1,012.0	1,321.4	1,559.5	1,481.3	59.2	34.9	4.4
Ghent	331.4	447.4	385.3	430.5	659.0	600.3	629.8	802.4	32.0	142.1	13.5
Ostend	154.2	50.8	90.1	101.5	117.7	97.5	64.8	58.5	2.3	- 62.0	- 12.9
Zeebrugge	109.9	97.4	130.1	187.6	191.0	166.4	122.7	110.0	4.4	0.1	0.0
Outside ports	55.5	65.4	71.5	80.1	70.5	77.9	63.2	51.6	2.1	- 7.0	- 1.0
Total investment.	**1,749.2**	**1,892.8**	**1,901.5**	**2,011.5**	**2,050.3**	**2,263.5**	**2,440.0**	**2,503.8**	**100.0**	**43.1**	**5.3**

Source: NBB.

For Antwerp, the year 2001 constitutes a peak for the period concerned, with investments exceeding 1.5 billion euro (table 4). The upward trend, which began in 2000, seemed to be confirmed after a more modest year in 1999. From 1995 to 2002, the port of Ghent saw investments more than double (+ 142.1 p.c., i.e. + 13.5 p.c. as an annual average). At Antwerp, the amount of investment has increased by 4.4 p.c. per annum over the same period. On the other hand, there was stagnation at Zeebrugge (after several increases in 1997 and 1998, in 2002 it returned to the 1995 level) and a drop of 12.9 p.c. per annum at Ostend. In 2002, investments at current prices reached 2.5 billion euro for all ports, i.e. a rise of 2.6 p.c. in comparison to the previous year: this level was above the *investment price index* for 2002 (- 0.4 p.c.[29]) This trend came from the port of Ghent, which recorded a rise of 27.4 p.c. However, investments dropped in the other three ports: - 5.0 p.c. for Antwerp, - 9.6 p.c. for Ostend and - 10.4 p.c. for Zeebrugge. These developments are examined in detail in the next chapter.

3.5 Overall data on the social balance sheet[30]

Since its introduction in 1996, the social balance sheet has offered a consistent data set covering changes in various aspects of company employment ranging from staff appointments and staff composition to employees' contractual status and qualifications, personnel costs, training policy and reasons for contract termination. As not all companies included in this study file their annual accounts based on the full presentation, the findings below are not exhaustive. Indeed, the constant sample defined for the period from 2000 to 2002 groups together 1,555 companies, which is slightly less than half of the total population considered in this study (3,147 companies in 2002). Comments focus on the changes that took place during the last three years. The 2002 figures are given in greater detail, by sector, in annex 7.

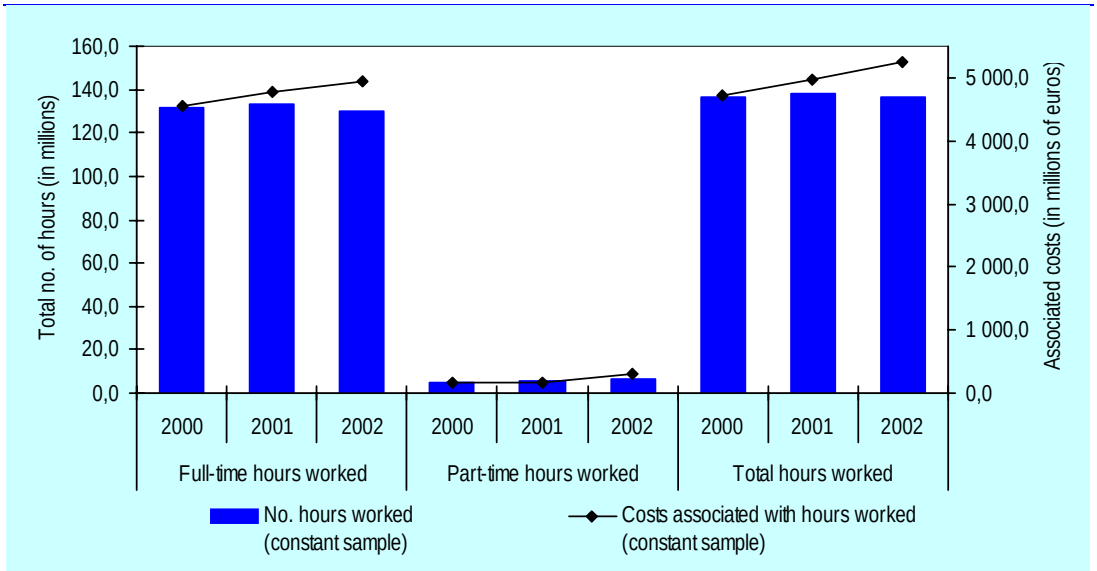
[29] Source: Belgostat online (http://www.belgostat.be)

[30] The national data given in point 3.5 are taken from the Social Balance Sheet 2002 (NBB, Economic Review 2003/4). The results given here relate to a constant sample and are aggregated for all of the ports.

3.5.1 Contract type and human resources

In 2002, the port staff as a whole comprised 60.5 p.c. blue-collar workers and 39.5 p.c. white-collar staff, as opposed to 61.8 p.c. and 38.2 p.c. in the previous year.

GRAPH 2 **HOURS WORKED AND COSTS ASSOCIATED WITH INTERNAL HUMAN RESOURCES[31]**



Source: NBB.

For the companies under review as a whole, an increase was seen from 103,051 FTE in 2000 to 106,199 FTE in 2001, falling back to 102,942 FTE in 2002 (table 3). This change can also be seen at the level of full-time hours worked (constant sample), which increased from 131.6 million in 2000 to 132.8 million in 2001, before falling back to 130.2 million in 2002 (graph 2). Part-time employment developed in a different way, increasing consistently from 2000 to 2002. In 2002, it totalled 6.5 million hours, an increase of 17.4 p.c. against the previous year – exceeding the national average -, while full-time work fell, in these same terms, by 2.0 p.c. But full-time employment still accounts for 93.4 p.c. of total port employment (in FTE), above the national average (88.7 p.c.)

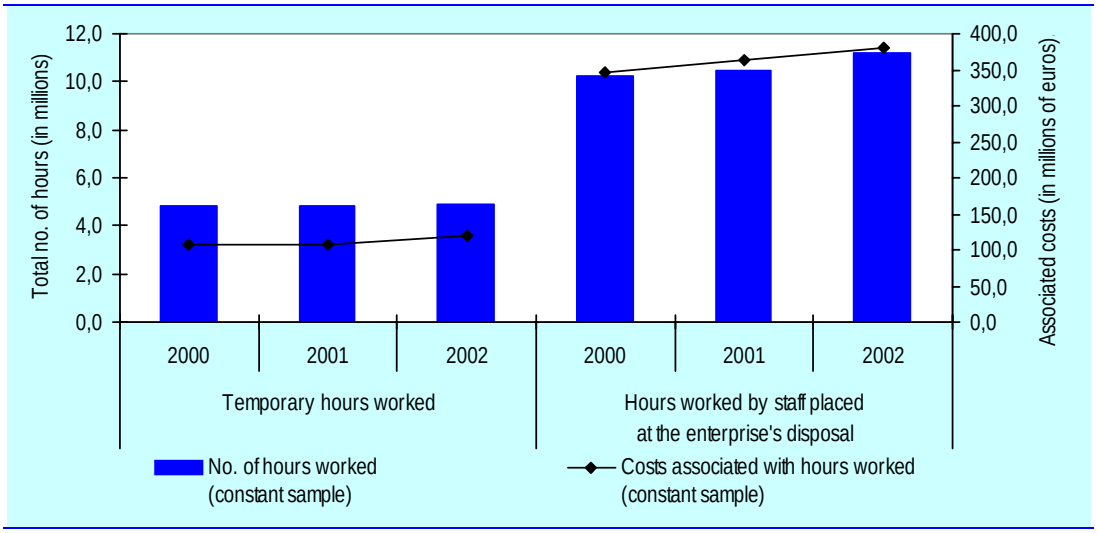
Staff costs increased for both full-time and part-time employment. In 2002, despite the fact that the number of full-time hours worked fell, these costs continued to rise due, particularly, to expenditure related to early retirement (see table 5). Staff costs increased from 4.6 billion euro in 2000 to 4.9 billion in 2002 (+ 8.3 p.c., an increase above the 2.2 p.c. rate of inflation for domestic producer prices recorded between 2000 and 2002[32]). Turning to staff costs associated with part-time work, these rose from 157.6 to 316.4 million euro in two years. This represents an increase of 100.7 p.c. for this period[33].

[31] Term covering employees recorded in the personnel register of the companies under review.

[32] Source: Belgostat online.

[33] This increase, which appears disproportionate compared to the increase in part-time hours worked, stems from the cargo handling sector (see annex 7). This sudden rise is explained in the accounts of C.E.P.A.

GRAPH 3 **HOURS WORKED AND COSTS ASSOCIATED WITH EXTERNAL HUMAN RESOURCES[34]**



Source: NBB.

Note: The analysis of graph 3 relates only to companies filing their accounts based on the full presentation.

The number of hours worked by temporary staff barely changed, increasing from 4.8 to 4.9 million hours between 2000 and 2002 (graph 3). The costs associated with these services increased at current prices from 107.9 to 118.3 million euro in two years (+ 9.7 p.c., an increase above the 2.2 p.c. rate of inflation for domestic producer prices recorded between 2000 and 2002). The number of hours worked by staff placed at the disposal of the companies rose from 10.3 million hours in 2000 to 11.2 million hours in 2002. The costs associated with these services continued to rise in 2002, reaching 379.9 million euro, an increase of 9.8 p.c. compared to 2000.

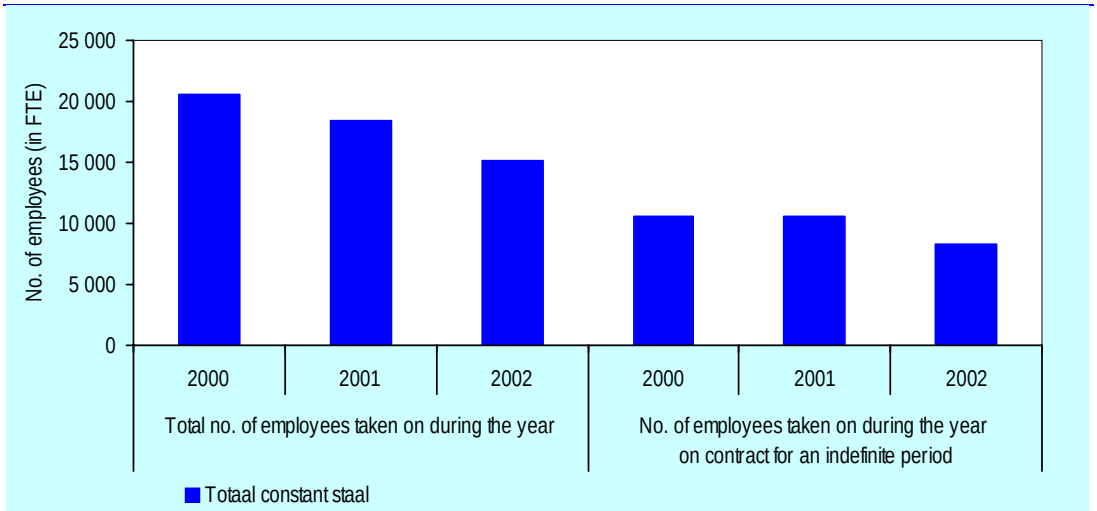
3.5.2 Entries and departures of personnel

For the ports as a whole, net employment fell in 2002, due more to the decline in the number of jobs created (graph 4), than to job cuts. Indeed, fewer jobs were cut in 2002, but this movement was not enough to counter the net reduction in the workforce (see graph 7). This was particularly the case in the chemicals, metal-working and car manufacturing industries, as well as in fishing. Whilst 20,549 FTE were still being created in 2000, this figure fell to 18,470 FTE and 15,143 FTE respectively over the next two years, the fall in 2002 amounting to 18.0 p.c. As far as contracts for an indefinite period are concerned, a slight decrease was noted initially, from 10,603 FTE in 2000 to 10,519 FTE in 2001. 2002 saw a fall of 20.9 p.c. with regard to these contracts as only 8,326 FTE were created.

Based on these last results, it can be deduced that the creation of fixed-term posts is also in decline (- 14.3 p.c. in 2002), in contrast to the creation of part-time employment.

[34] Category encompassing temporary staff and staff placed at the disposal of the companies under review.

GRAPH 4 **TOTAL NUMBER OF STAFF EMPLOYED IN THE PORTS**



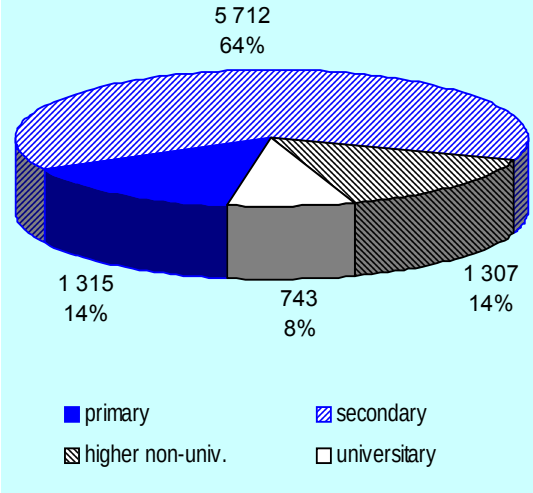
Source: NBB.

Note: The analysis of graphs 5 and 6 relates only to companies filing their accounts based on the full presentation.

In 2001 and 2002, men accounted for 84.9 p.c. of port staff. Although a significant decline in the number of jobs being offered to the least qualified men was recorded during this latter year, this was less so in the case of graduates. In fact, jobs created for holders of primary school certificates, secondary school diplomas or a non-university higher education diploma fell by 47.9, 7.2 and 16.4 p.c. respectively, whereas the creation of jobs for graduates climbed by 11.0 p.c. – a particularly marked trend in the oil industry. These figures must be seen in the context of a 18.0 p.c. fall in FTE jobs created (graph 4). In 2002, job creation totalled 1,315 FTE among the least qualified men, 5,712 for holders of secondary school diplomas, 1,307 for holders of non-university higher education diplomas and 743 for graduates (graph 5).

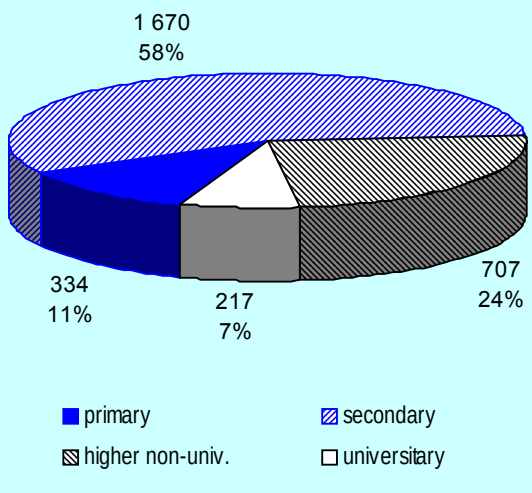
In 2001 and 2002, women accounted for 15.1 p.c. of port staff. Although, as with the men, a significant decline was recorded in 2002 in terms of jobs available to women entering from primary (- 12.2 p.c.), secondary (- 13.8 p.c.) or non-university higher (- 18.3 p.c.) education, it also applied to those with a university degree (- 20.8 p.c.). These figures must be seen in the context of an 18.0 p.c. fall in FTE jobs created (graph 4). In 2002, job creation among women was 334 FTE for the least qualified, 1,670 for holders of secondary school diplomas, 707 for non-university higher education (a higher percentage than that of men – graph 6) and 217 for university graduates. Unlike 2000 and 2001, 2002 was therefore not characterised by a significant rise in jobs created for highly qualified women.

GRAPH 5 **QUALIFICATION LEVEL OF MALE STAFF HIRED IN 2002**
(FTE)



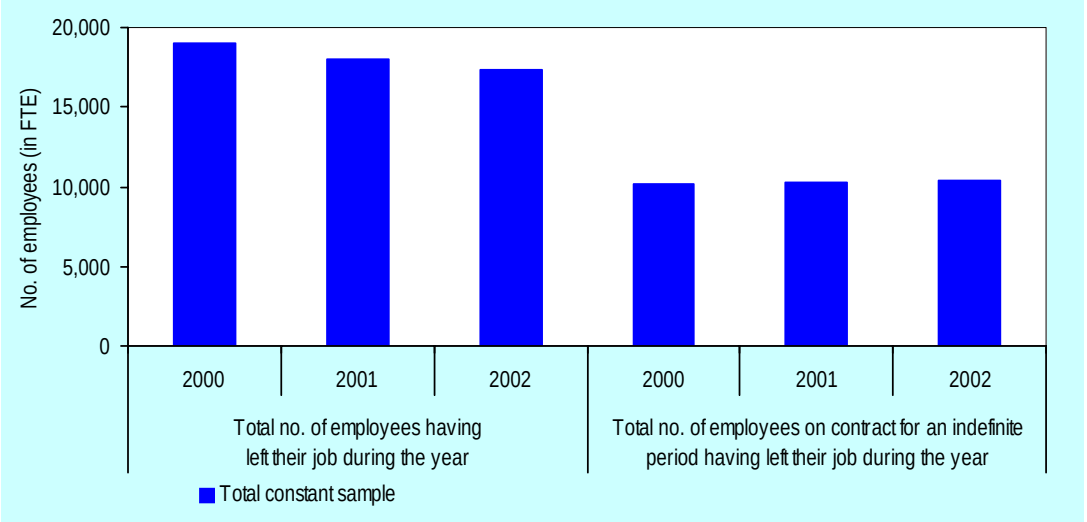
Source: NBB.

GRAPH 6 **QUALIFICATION LEVEL OF FEMALE STAFF HIRED IN 2002**
(FTE)



Source: NBB.

GRAPH 7 **TOTAL NUMBER OF TERMINATED CONTRACTS IN THE PORTS**



Source: NBB.

The changes in gross departures of staff (graph 7) must be seen in relation to the gross entries into employment of staff (graph 4), in order to obtain the balance of net job creation or job losses. Despite the constant fall in the number of job cuts - from 18,961 FTE in 2000 to 18,014 in 2001 and 17,337 in 2002 -, net job creation also shrank. Despite totalling 1,588 and 456 FTE in 2000 and 2001 respectively, this balance turned negative the following year with net job losses of 2,193 FTE. These figures do not fully show the real situation. A substantial part of the information is in fact not included in the social balance sheet analysis as a result of certain companies becoming defunct (bankruptcy, liquidation, takeover, etc.). It is indeed a constant sample which does not fully reflect economic reality. On the other hand, if the whole sample of this study on direct effects is taken into account, net job losses for 2002 actually amounted to 3,257 FTE, a 3.0 p.c. net loss of jobs in relation to 2001. This figure is worse than the deteriorating employment figure recorded in the national accounts for the economy

as a whole (0.8 p.c. in 2002). Despite a slight increase in production and port activity, the port employment situation could thus hardly be considered favourable in 2002.

The reasons given for contract terminations can be broken down as follows (this point only relates to companies having filed accounts based on the full presentation):

TABLE 5 **REASONS GIVEN FOR TERMINATING CONTRACTS**
(percentages)

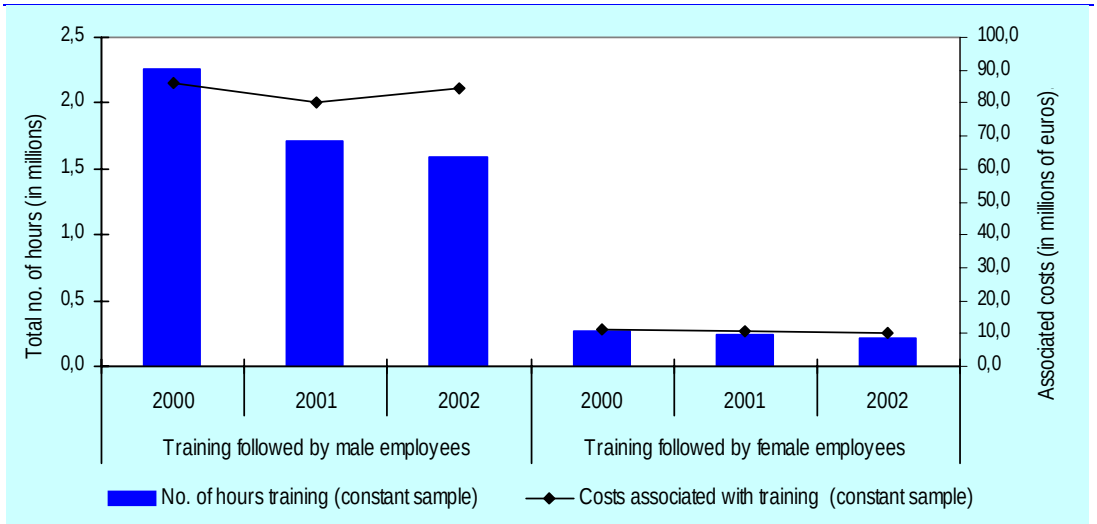
	2000	2001	2002
Retirement	4.9	3.7	4.0
Early retirement	4.9	6.5	9.9
Dismissal	13.9	17.4	17.7
Other reasons (in particular ending of temporary contracts)	76.3	72.4	68.4

Source: NBB.

Since 2000, the proportion of dismissals within this total has increased significantly, by 24.8 p.c. in two years (table 5). With 17.7 p.c. of contracts ended for reasons of dismissal in 2002, this remains just below the average noted for all Belgian companies filing accounts based on the full presentation (17.9 p.c.). This is followed by early retirements: their number more than doubled over the same period, partly explaining the continuing increase in staff costs during 2002, despite a fall in staff numbers.

3.5.3 Training

GRAPH 8 **HOURS OF TRAINING AND ASSOCIATED COSTS**



Source: NBB.

The number of men following a training course has been declining since 2000. Whereas 41,747 men were involved in some form of training in 2000, this number had fallen to 40,160 and 38,042 in 2001 and 2002 respectively. The respective change in the number of training hours for the years 2000 - 2002 is as follows: 2.3, 1.7 and 1.6 million hours. In relation to the previous year, account being taken of the change in male employment, this last decrease represented a fall of 1.7 p.c., with the proportion of men following a training course in 2002 falling to 50.8 p.c., whereas the costs associated with this policy continued to rise (+ 5.1 p.c.).

More women participated in training sessions during 2002 (+ 1.1 p.c.), the number involved being 6,573, or 48.9 p.c. of the total number of female employees. In 2000 and 2001, the number of female employees involved was 6,019 and 6,479 respectively. The gap is thus gradually being closed with the men, even though a certain fall in number of hours devoted to their training could be noted: 0.3 million hours in 2000 and 0.2 million hours in 2001 and 2002. Training sessions were thus more frequent but shorter. A slight drop in associated costs incurred by companies in 2002 was also noted (- 4.8 p.c., graph 8).

The proportion of hours devoted to training in relation to the total number of hours worked - for both men and women - fell from 1.42 p.c. in 2001 to 1.32 p.c. in 2002, a level which remained above the national average (0.90 p.c. recorded in 2002). In spite of the difficulties encountered in terms of employment, companies that rely on the ports are maintaining their staff training efforts, particularly with regard to women, whilst endeavouring to limit costs. This is particularly the case in the following sectors: other services, the electronics and oil industries where more workers are spending time training.

In cargo handling, too, there would seem to be an effort to broaden, update and improve workers' qualifications. This translates into a dynamic human resources policy and lifelong training efforts. This will cannot yet be seen, however, in the 2002 figures.

3.6 Overall data on the financial situation

The financial ratios are aggregated by port and compared to levels recorded for the economy as a whole (non-financial companies). The detailed results by port are presented in chapter 4.

The trend over the last three years under review is as follows:

TABLE 6 SUMMARY OF FINANCIAL RATIOS BY PORT

Ports	Return on equity after tax (in p.c.)			Liquidity in broad sense			Solvency (in p.c.)		
	2000	2001	2002	2000	2001	2002	2000	2001	2002
Antwerp	5.3	3.8	7.4	1.2	1.4	0.9	48.3	50.9	47.4
Ghent	8.9	3.3	- 7.6	1.1	1.0	0.9	47.0	46.2	41.8
Ostend	4.4	7.2	7.0	1.1	1.2	1.2	32.1	33.7	36.1
Zeebrugge	5.5	5.9	2.8	1.2	1.2	1.3	37.6	43.4	45.2
Total Ports	**6.2**	**3.8**	**4.5**	**1.2**	**1.2**	**0.9**	**47.1**	**48.9**	**46.0**
Non-financial companies	**9.4**	**5.0**	**2.7**	**1.1**	**1.2**	**1.2**	**42.9**	**45.9**	**45.7**

Source: NBB.

The same method is used to calculate the ratios for the ports and for non-financial companies as a whole, i.e. aggregation. This method differs somewhat from that used by the end of 2003 in the Economic Review[35].

- Although the profitability of Belgian non-financial companies almost halved in 2002, that of all the ports under review increased slightly, with the exception of Zeebrugge and Ghent. The strongest growth was noted at Antwerp port, where the average ratio in 2002 was more than 2.5 times that of non-financial companies as a whole, due particularly to good performance on the part of the chemicals and energy industries (see chapter 4). From 2000 to 2002, profitability fell rapidly at Ghent port and turned negative, due to bad results in the metal-working industry. At Zeebrugge, it was the metal-working and electronics industries that primarily pushed down profitability;

- In 2002, the liquidity ratio was less than 80 p.c. that of non-financial companies. The Antwerp oil industry's cash position explains this development and, to a lesser extent, that of logistics services at Ghent. For the ports of Ostend and Zeebrugge, liquidity was above that of the economy as a whole, due to a reduction in the short-term debts of services in the former and in the electronics industry in the latter;

[35] In the chapter on non-financial companies' results in 2002 (NBB, Economic Review 2003/4), the median ratio method is used.

- A slight decline in solvency was noted in 2002 at the ports of Antwerp (chemicals and car manufacturing industries) and Ghent (metal-working and electronics industries). Ghent port's solvency is less than the average for non-financial companies as a whole. At Ostend and Zeebrugge, the opposite situation can be noted in the metal-working and cargo handling sectors respectively.

4 SPECIFIC SITUATION OF EACH PORT

4.1 Port of Antwerp

4.1.1 Significant facts in 2002[36]

- Context

The signs of economic recovery at the beginning of 2002 did not last. World growth in output however amounted to 2.8 p.c. in spite of poor performances in Europe (0.7 p.c. for the EU, the same as Belgium at 2000 prices[37]). During this period, the prospects for recovery in 2003, which have since proved unfounded, helped to support trade and, consequently, the freight level.

According to the Antwerp port authority Annual Report 2002, this year was relatively favourable to the port's activity. The total volume of freight (131.6 million tonnes transhipped in total) placed it in the Top 10 of the world's major ports, in fourth place for international maritime goods traffic[38] and tenth place for container traffic. Container freight remained the main element in the growth of the port of Antwerp and domestic freight also grew.

However with regard to the competitive position of the port of Antwerp in the Hamburg – Le Havre range, a cyclical decline was recorded in liquid bulk traffic and a structural decline in dry bulk traffic, even though the port remains the European leader for non-containerised general cargo[39] with a 25 p.c. market share for the range. Antwerp, just like Hamburg, is gaining ground in container traffic, at the expense of the leader in this field, Rotterdam. But the ports of Antwerp and Rotterdam are becoming increasingly complementary with regard to infrastructures. The conditions for achieving synergies are also being examined. To this end, a memorandum has been signed by Belgium and the Netherlands.

- Industry

In January 2002, Opel expanded with a spare parts unit. The following month, Noord Natie Terminals planned the setting up of a new tank storage terminal for hazardous chemicals to be run by A4S (Antwerp for Storage). On 28 February, the merger between Hessenatie and Noordnatie was completed. At the end of April, the first semi-mobile container scanner was introduced. In the chemicals sector, the BASF group decided to build a factory at Antwerp to manufacture ABS material and in June the same company opened a new factory on its site for the production of SAP, superabsorbent polymer. The construction of combined systems for the production of electricity, industrial gas and steam distribution was confirmed in 2002. Air Liquide, RWE and Electrabel are taking major initiatives to extend their presence and networks in the port area.

- Infrastructure

A memorandum of understanding was signed on 4 March 2002 with a view to reaching a decision at the end of 2004 on the strategic report on the environmental effects and cost-benefit analysis for the project to deepen the Scheldt. In order to deal with the continued growth in container traffic, it was decided to build Containerdok West, also called Deurganckdok, to the South of Doel on the left bank. In addition, a number of projects were continuing: « Iron Rhine route »[40], the development of a second railway line for the port and the opening up of the left bank.

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[36] Sources: Antwerp Port Authority Annual Report 2002 and Vlaamse Havencommissie Annual Report 2002. See also website www.portofantwerp.be.

[37] Source: Belgostat online.

[38] This ranking does not take account of the traffic between two ports of the same country.

[39] See terminology in the glossary in annex 9.

[40] This Belgian-Dutch project, which made little progress in 2002, consists of continuing the development of the railway line linking the port of Antwerp to the German region of the Ruhr and to eastern Europe. Reducing the railway section with 50 kilometres compared to the existing line constitutes the main benefit of this project, together with the fact that the land through which it runs is much flatter than that of its present route.

4.1.2 Value added

TABLE 7 **SUMMARY OF CHANGES IN VALUE ADDED AT ANTWERP FROM 1995 TO 2002**
(millions of euros)

Sectors (direct effects)	1995	1996	1997	1998	1999	2000	2001	2002	Relative share in 2002 (in p.c.)	Change from 1995 to 2002 (in p.c.)	Annual average change (in p.c.)
Maritime cluster											
Shipping agents and forwarders	431.7	449.8	511.1	485.1	490.0	513.1	489.6	449.8	6.4	4.2	0.6
Cargo handlers	814.4	717.1	805.7	789.1	849.8	794.5	868.1	903.8	12.9	11.0	1.5
Shipping companies	241.5	204.1	169.2	120.9	121.3	225.8	140.7	62.6	0.9	- 74.1	- 17.5
Other services	6.4	6.3	5.3	6.2	7.5	9.8	8.4	8.3	0.1	28.6	3.7
Fishing	0.9	0.0	0.0	0.0	0.5	0.3	0.3	0.2	0.0	- 77.6	- 19.3
Shipbuilding and repair	23.6	32.3	28.8	34.3	28.7	30.1	28.9	26.4	0.4	11.5	1.6
Other industries	56.0	60.9	51.1	42.1	53.6	75.5	91.7	108.0	1.5	92.8	9.8
Public sector	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total maritime	**1,574.5**	**1,470.5**	**1,571.2**	**1,477.8**	**1,551.3**	**1,649.2**	**1,627.6**	**1,559.0**	**22.2**	**- 1.0**	**- 0.1**
Non-maritime cluster											
Total wholesale trade	405.5	401.8	469.9	460.5	583.2	706.1	599.4	772.8	11.0	90.6	9.6
Energy	157.9	156.3	182.7	145.9	140.2	163.9	199.4	183.9	2.6	16.4	2.2
Oil industry	604.0	685.0	820.4	780.1	736.8	1 096.3	870.0	929.4	13.3	53.9	6.4
Chemicals	1,709.0	1,745.5	1,930.7	1,975.2	1,849.4	2,113.0	2,123.3	2,143.9	30.6	25.4	3.3
Car manufacturing	550.1	584.4	530.6	704.0	559.1	492.1	469.1	488.4	7.0	- 11.2	- 1.7
Electronics	6.3	6.9	8.0	10.3	10.1	13.7	11.9	8.3	0.1	31.4	4.0
Metal-working industry	67.8	68.6	76.9	71.6	79.1	84.4	93.1	99.9	1.4	47.4	5.7
Food industry	23.3	22.0	27.2	20.6	19.7	35.9	36.7	40.4	0.6	73.7	8.2
Other industries	60.9	65.9	80.9	88.1	93.8	117.9	132.3	142.0	2.0	133.3	12.9
Total industry	3,179.3	3,334.6	3,657.3	3,795.8	3,488.3	4,117.2	3,935.6	4,036.2	57.6	27.0	3.5
Other services	138.4	146.4	152.9	193.2	253.7	239.8	291.4	288.4	4.1	108.4	11.1
Other industries	29.6	25.8	26.8	30.1	41.9	42.8	55.1	54.1	0.8	83.0	9.0
Public sector	89.9	90.4	81.4	79.0	91.2	90.6	94.7	93.4	1.3	3.9	0.5
Total logistics services	257.9	262.6	261.1	302.3	386.8	373.3	441.2	435.9	6.2	69.0	7.8
Road transport	70.8	72.8	75.3	78.0	81.6	83.0	82.5	93.1	1.3	31.4	4.0
Other services	71.5	85.8	86.5	84.6	80.9	86.2	103.5	115.9	1.7	62.0	7.1
Total transport	142.4	158.6	161.8	162.6	162.5	169.2	186.0	209.0	3.0	46.8	5.6
Total non-maritime	**3,985.1**	**4,157.7**	**4,550.1**	**4,721.1**	**4,620.9**	**5,365.8**	**5,162.2**	**5,453.9**	**77.8**	**36.9**	**4.6**
Direct effects	**5,559.6**	**5,628.2**	**6,121.3**	**6,198.9**	**6,172.2**	**7,015.0**	**6,789.9**	**7,012.9**	**100.0**	**26.1**	**3.4**
Allocation (p.m.)[41]	83.9	80.0	165.2	92.9	80.9	88.0	84.5	76.5	-	- 8.8	- 1.3

Source: NBB.

[41] The results of the maritime companies located outside the port area are recorded under the title « Allocation (p.m.) ». These results have already been taken into account in the direct effects' figures and are mentioned here for the record. For the methodology, see chapter 2 and annex 1.

TABLE 7 **SUMMARY OF CHANGES IN VALUE ADDED AT ANTWERP FROM 1995 TO 2002**
(continued) (millions of euros)

Sectors: indirect effects[42]	1995	1996	1997	1998	1999	2000	2001	2002	Relative share in 2002 (in p.c.)	Change from 1995 to 2002 (in p.c.)	Annual average change (in p.c.)
Total maritime	**2,267.6**	**2,192.8**	**2,511.6**	**2,086.7**	**2,228.7**	**2,152.0**	**2,126.9**	**2,031.8**	**29.1**	**- 10.4**	**- 1.6**
Total non-maritime	**3,320.9**	**3,541.1**	**3,812.6**	**4,126.8**	**4,352.9**	**4,461.7**	**4,543.4**	**4,950.8**	**70.9**	**49.1**	**5.9**
Indirect effects	**5,588.4**	**5,733.9**	**6,324.2**	**6,213.6**	**6,581.5**	**6,613.7**	**6,670.3**	**6,982.6**	**100.0**	**24.9**	**3.2**
Total value added.....	**11,148.0**	**11,362.1**	**12,445.5**	**12,412.5**	**12,753.7**	**13,628.7**	**13,460.1**	**13,995.5**	-	**25.5**	**3.3**

Source: BNB.

General changes

From 1995 to 2002, the direct VA for the port of Antwerp (including allocation) grew by 26.1 p.c., with an annual average of 3.4 p.c. (table 7). This figure reaches 25.5 p.c. and 3.3 p.c. as an annual average if indirect VA is included. The rise in total VA is therefore due both to the companies in the sample and to subcontracting operations, in very similar proportions. The largest increase in total VA (direct, including allocation, and indirect) was recorded in 1997 with growth of 9.5 p.c. The strongest growth in direct VA (+ 13.7 p.c.) was seen in 2000. The sharpest drop was recorded in 2001 with a fall of 3.2 p.c. in direct VA, i.e. 1.2 p.c. in total. A feature of the year 2002 was the return to growth in the port of Antwerp where the total VA rose by 4.0 p.c. while direct VA was up by 3.3 p.c. In the same year, direct VA in the port of Antwerp amounted to 7.0 billion euro and 14.0 billion euro if indirect effects are added.

From the point of view of production, the ratio of indirect VA to direct VA reached a peak in 1999 at 106.6 p.c., due to the growth seen particularly in production by shipping companies, a sector strongly dependent on external labour. This ratio fell back again in 2000 (drop in production in the car manufacturing) and amounted to 99.6 p.c. in 2002.

Changes by cluster in direct effects

The maritime cluster occupies an important position in the direct VA at the port of Antwerp (24.7 p.c. on average over the period 1995 - 2002). Over this period, the sharpest drop was recorded in 1996 with a fall of 6.6 p.c. The non-maritime industry segment represents the largest percentage of production at the port of Antwerp (58.5 p.c.); its most significant rise was recorded in 2000 (+ 18.0 p.c.). The VA for this segment improved on average by 3.5 p.c. per annum from 1995 to 2002. The non-maritime wholesale trade segment improved by 9.6 p.c. per annum for direct VA and recorded its largest increase in 1999 (+ 26.7 p.c.) and in 2002 (+ 28.9 p.c.). The VA for the non-maritime logistics services and transport segments rose on average by 7.8 p.c. and 5.6 p.c. per annum respectively. In 2002, the wholesale trade and transport segments recorded their greatest improvements with rises in VA of 28.9 p.c. and 12.4 p.c. respectively. The reasons for this are touched on below.

Changes by sector in direct effects

Chemicals (30.9 p.c. on average of the VA in the port) and, to a lesser extent, the car manufacturing, other services, cargo handling, oil industry and shipping agents and forwarders constitute the main part of the VA produced at the port of Antwerp (table 7). The most significant rise was recorded in 1997 (+ 8.8 p.c.), a year in which chemicals production saw its second strongest growth (+ 10.6 p.c.).

The year 2002 was favourable for most of the sectors.

At the port of Antwerp, the major changes recorded in 2002 for the direct VA in the main sectors were as follows:

- Chemicals gained 1.0 p.c. to reach 2.1 billion euro. In 2002, this rise was explained in part by the increase of 11 p.c. in production at Degussa, which brought the new Oxeno unit into service for dibutene production. In addition, BASF opened a new factory on its site for the production of the super absorbent polymer, SAP, and decided to build a factory to manufacture ABS materials: this was in spite of a slight fall in production (- 0.3 p.c. the same year); Air Liquide, whose production level remained exactly the same as in 2001, announced the construction of a new wet goods factory on BASF land;

[42] The breakdown of the indirect effects by sector for the period 1995 - 1999 can be found in annex 5 (table 49).

- The car manufacturing rose by 4.1 p.c. to reach 488 million euro. Opel Belgium, whose production grew in the same year by 9 p.c., expanded to include a spare parts unit;
- The other services (including wholesale trade) increased by 18.2 p.c., to reach almost the 1.2 billion euro mark;
- Cargo handling recorded a rise of 4.1 p.c., producing a total of almost 904 million euro. At the end of February, Hessenatie, whose VA was estimated at 146 million euro, merged with Noordnatie Group to create the largest group in this sector; in addition, a new tank terminal for storage of hazardous chemicals was taken on by A4S, on the initiative of Noordnatie Terminals; Havenbedrijf Antwerpen ordered an automatic dredging crane; LBC, whose production grew by 1.6 p.c. in 2002, decided on the construction of a new storage terminal;
- The oil industry gained 6.8 p.c. to reach 929 million euro: production improved by 47.0 p.c. for Exxon Mobil Petroleum & Chemical, whose VA reached 431 million euro following the takeover of the Diegem branch, and by 38.0 p.c. for Petroplus Refining Antwerp, whose VA amounted to some 17 million euro;
- The shipping agents and forwarders showed a fall of 8.1 p.c., declining to 450 million euro. Large companies such as Transaf, whose VA was worth 2.5 million euro, were taken over; however, production at StoraEnso Transport and Distribution increased by 19 p.c. (VA of 2.7 million euro in 2002); production at Katoen Natie improved by 20 p.c. in the course of the same year.

VA Top 10 at the port of Antwerp in 2002

Kuwait Petroleum Belgium, a company established in more than one location and belonging to the oil sector, is in second place in this list. In addition, starting with this issue, **Havenbedrijf van Antwerpen has been included in the cargo handling sector because of its NACE classification (NACE-Bel code 63.220)**. It is therefore included in this table.

TABLE 8 **VA TOP 10 AT THE PORT OF ANTWERP IN 2002**
(millions of euros)

Ranking	Company name	Sectors	Value added
1	B.A.S.F. ANTWERPEN	Chemicals	851.1
2	KUWAIT PETROLEUM-BELGIUM	Other services	509.8
3	EXXONMOBIL CHEMICAL BELGIUM	Chemicals	430.7
4	OPEL BELGIUM	Car manufacturing	366.1
5	BAYER ANTWERPEN	Chemicals	315.1
6	BELGIAN REFINING CORPORATION	Oil industry	237.9
7	FINA RAFFINADERIJ ANTWERPEN	Oil industry	236.2
8	HESSE NOORD NATIE	Cargo handliers	196.2
9	ELECTRABEL	Energy	183.9
10	HAVENBEDRIJF VAN ANTWERPEN	Cargo handlers	182.5
	Total		**3,509.3**

Source: NBB.

4.1.3 Salaried employment

TABLE 9 **SUMMARY OF CHANGES IN EMPLOYMENT AT ANTWERP FROM 1995 TO 2002**
(FTE)

Sectors (direct effects)	1995	1996	1997	1998	1999	2000	2001	2002	Relative share in 2002 (in p.c.)	Change from 1995 to 2002 (in p.c.)	Annual average change (in p.c.)
Maritime cluster											
Shipping agents and forwarders	6,832	5,675	6,082	5,868	5,980	6,322	5,969	6,536	10.8	- 4.3	- 0.6
Cargo handlers	12,900	14,059	13,666	13,425	13,093	12,910	13,588	12,604	20.8	- 2.3	- 0.3
Shipping companies	1,967	1,781	1,428	1,246	1,154	1,031	663	573	0.9	- 70.9	- 16.2
Other services	116	91	76	96	117	135	123	129	0.2	11.2	1.5
Fishing	19	0	0	0	5	4	4	4	0.0	- 81.5	- 21.4
Shipbuilding and repair	853	741	615	697	583	576	545	499	0.8	- 41.5	- 7.4
Other industries	675	580	512	540	519	605	792	811	1.3	20.1	2.7
Public sector	0	0	0	0	0	0	0	0	0.0	-	-
Total maritime	**23,363**	**22,928**	**22,379**	**21,871**	**21,451**	**21,584**	**21,685**	**21,156**	**34.9**	**- 9.4**	**- 1.4**
Non-maritime cluster											
Total wholesale trade	2,597	2,266	2,456	2,446	2,455	2,356	2,559	2,654	4.4	2.2	0.3
Energy	1,173	1,193	1,197	1,051	1,029	983	1,194	1,119	1.8	- 4.6	- 0.7
Oil industry	2,673	2,616	2,659	2,616	2,672	2,804	2,780	3,145	5.2	17.7	2.4
Chemicals	11,869	12,168	12,001	11,782	11,431	11,866	12,129	11,577	19.1	- 2.5	- 0.4
Car manufacturing	8,976	9,208	9,415	9,377	8,360	8,124	7,883	7,208	11.9	- 19.7	- 3.1
Electronics	121	123	138	166	190	179	141	69	0.1	- 43.4	- 7.8
Metal-working industry	1,757	1,763	1,570	1,433	1,640	1,648	1,769	1,776	2.9	1.1	0.2
Food industry	418	431	461	335	304	624	676	648	1.1	55.1	6.5
Other industries	1,067	1,167	1,342	1,448	1,515	1,816	2,102	2,165	3.6	102.9	10.6
Total industry	28,053	28,668	28,781	28,208	27,141	28,044	28,673	27,707	45.7	- 1.2	- 0.2
Other services	2,010	1,985	2,072	2,283	2,426	2,808	3,296	3,028	5.0	50.6	6.0
Other industries	157	123	125	204	319	310	444	466	0.8	196.6	16.8
Public sector	2,212	2,174	2,040	2,003	2,183	2,136	2,113	2,104	3.5	- 4.9	- 0.7
Total logistics services	4,379	4,282	4,237	4,491	4,928	5,253	5,853	5,597	9.2	27.8	3.6
Road transport	1,327	1,231	1,233	1,237	1,307	1,294	1,249	1,304	2.2	- 1.7	- 0.2
Other services	1,797	1,711	2,005	1,829	1,788	2,034	2,307	2,145	3.5	19.3	2.6
Total transport	3,124	2,942	3,238	3,065	3,095	3,328	3,556	3,449	5.7	10.4	1.4
Total non-maritime	**38,152**	**38,157**	**38,713**	**38,210**	**37,620**	**38,981**	**40,641**	**39,408**	**65.1**	**3.3**	**0.5**
Direct effects	**61,515**	**61,085**	**61,092**	**60,081**	**59,071**	**60,564**	**62,326**	**60,563**	**100.0**	**- 1.5**	**- 0.2**
Allocation (p.m.)	1,897	1,489	1,388	1,385	1,294	1,265	1,253	1,092	-	- 42.4	- 7.6

Source: NBB.

TABLE 9 **SUMMARY OF CHANGES IN EMPLOYMENT AT ANTWERP FROM 1995 TO 2002**
(continued) (FTE)

Sectors: Indirect effects[43]	1995	1996	1997	1998	1999	2000	2001	2002	Relative share in 2002 (in p.c.)	Change from 1995 to 2002 (in p.c.)	Annual average change (in p.c.)
Total maritime	**25,335**	**25,698**	**26,683**	**26,238**	**24,059**	**26,242**	**24,512**	**21,214**	**32.0**	**- 16.3**	**- 2.5**
Total non-maritime	**40,222**	**41,638**	**41,707**	**43,128**	**45,387**	**45,243**	**48,004**	**45,050**	**68.0**	**12.0**	**1.6**
Indirects effects	**65,557**	**67,335**	**68,390**	**69,366**	**69,446**	**71,486**	**72,516**	**66,263**	**100.0**	**1.1**	**0.2**
Total employment	**127,072**	**128,420**	**129,482**	**129,447**	**128,517**	**132,050**	**134,842**	**126,827**	**-**	**- 0.2**	**0.0**

Source: NBB.

General changes

From 1995 to 2002, direct employment in the Antwerp port area declined slightly (- 1.5 p.c. – see table 9), which is an annual average drop of 0.2 p.c. Over the same period, total employment (direct, including allocation and indirect) was stable, as the slight fall in direct employment was compensated for by the improvement in indirect employment (+ 0.2 p.c. per annum on average). The trend to outsourcing was particularly marked in 2000, when indirect employment increased by 2.9 p.c. and total employment by 2.7 p.c. Over the period in question, the record year for direct employment for the port was 2001, with an increase of 2.9 p.c. compared to the year 2000. In 2002 the worst result in terms of change of total employment (- 5.9 p.c.) was recorded: direct employment fell by 2.8 p.c. and indirect employment by 8.6 p.c.

With regard to subcontracting in terms of employment, the ratio between indirect employment and direct employment reached a peak in 2000 (118.0 p.c.), i.e. one year after this trend was seen at aggregated level. This ratio also went above 115 p.c. from 1999 to 2001 and then fell back to 109.4 p.c. in 2002. This drop in indirect employment was attributable particularly to the decline in employment in the car manufacturing and shipowner sectors, which are heavily dependent on external manpower.

Changes by cluster in direct effects

The maritime cluster and the non-maritime industry segment are by far the best represented in the port of Antwerp (table 9). The strongest improvement recorded for employment was in 2001 (+ 2.9 p.c.). Employment then peaked with 62,326 FTE, of which 21,685 FTE for the maritime cluster and 28,673 FTE for the industry segment. The logistics services segment was the one with the strongest growth in terms of employment from 1995 to 2002 (+ 27.8 p.c., i.e. + 3.6 p.c. on average per annum). The year 2002 was marked by the fall already mentioned, which was very pronounced in maritime and industrial companies.

Changes by sector in direct effects

The largest proportion of employment associated with the port of Antwerp relates to the cargo handling and chemicals sectors (21.8 and 19.5 p.c. respectively of the direct employment at the port on average over the period) and, to a lesser extent, to those of the car manufacturing, shipping agents and forwarders, other services and other industries. The significant creation of jobs noted in 2000 was partly attributable to a recovery in chemicals (+ 3.8 p.c. of employment) and the continuing recruitment of staff in the other services and by shipping agents and forwarders. Employment at the port of Antwerp was at its highest in 2001, especially in chemicals, where it reached 12,129 FTE and in cargo handling 13,588 FTE.

At the port of Antwerp, the major changes recorded in 2002 for the direct employment in the main sectors were as follows:

- Cargo handling lost 7.2 p.c. of its direct employment, recording the sharpest fall over this period, down to 12,604 FTE. There was large-scale restructuring in this sector, especially in the « Naties »;
- Employment in chemicals fell by 4.5 p.c. and dropped back to 11,577 FTE. In spite of investments which were in progress or scheduled, this highly competitive sector had to restructure in 2002; this applied particularly to Monsanto Europe, which shed 128 jobs, and to a lesser extent to 3M Belgium and Bayer Antwerpen;

[43] The breakdown of the indirect effects by sector for the period 1995 - 1999 can be found in annex 5 (table 50).

- The car manufacturing also showed its most significant fall after that recorded in 1999, i.e. - 8.6 p.c., with employment in this sector dropping to 7,208 FTE. Most of the companies in this sector shed jobs, notably GM Automotive Services Belgium;
- The shipping agents and forwarders sector was one of the rare exceptions which managed to increase employment (+ 9.5 p.c.) to reach, after a gloomy 2001, 6,536 FTE in total. The Improvement in VA at StoraEnso and Katoen Natie Bulk Terminals led, among other things, to staff being taken on again in this sector.

Employment Top 10 at the port of Antwerp in 2002

As a change from previous issues, Havenbedrijf van Antwerpen is added and will be classified in the cargo handling sector and SNCB will now for the first time be considered as part of the other services sector and no longer as a public service company.

TABLE 10 **EMPLOYMENT TOP 10 AT THE PORT OF ANTWERP IN 2002**

(FTE)

Ranking	Company name	Sector	Employment
1	OPEL BELGIUM	Car manufacturing	5,204
2	B.A.S.F. ANTWERPEN	Chemicals	3,629
3	HESSE NOORD NATIE *	Cargo handlers	2,642
4	BAYER ANTWERPEN	Chemicals	2,412
5	PUBLIC ADMINISTRATION	Public sector	2,104
6	SNCB – NMBS	Other services	1,858
7	EXXONMOBIL CHEMICAL BELGIUM	Chemicals	1,763
8	HAVENBEDRIJF VAN ANTWERPEN	Cargo handlers	1,669
9	DEGUSSA ANTWERPEN	Chemicals	1,129
10	ELECTRABEL	Energy	1,119
	Total		**23,529**

Source: NBB.

*Employment of dockers (C.E.P.A. here) has been distributed among these companies in the cargo handling sector.

4.1.4 Investment

General changes

Investment in the port of Antwerp itself has increased on average by 4.2 p.c. per annum (table 11). The best year is still 2001 with almost 1.6 billion euro invested in the port area. The year 2000 was the one which showed the strongest growth (+ 30.6 p.c. – including allocated amounts). Compared to the preceding year, 2002 recorded a drop of 5.4 p.c. with a total of a little more than 1.5 billion euro (1,514.8 million euro of which 33.5 million are the result of allocation), the most significant decline for the period from 1995 to 2002 being recorded in 1999 with a drop of 17.9 p.c. in total.

Changes by cluster

Concerning the total investment associated with the port of Antwerp, the maritime cluster and industry dominate equally, their share of the total being 29.8 p.c. and 51.2 p.c. respectively and their growth 5.9 p.c. and 1.8 p.c. as an annual average. In all respects, the year 1999 was unfavourable and the maritime cluster showed the largest drop, down by 51.9 p.c. Investment associated with the port of Antwerp was at its highest level in 2001 (1.6 billion euro in total), following two successive increases of 30.6 p.c. in 2000 and 17.1 p.c. in 2001. But the year 2002 stands out due to a drop largely attributable to the decline noted in industry and to a lesser extent in logistics services after 2001, which was quite favourable for these two segments.

TABLE 11 **SUMMARY OF CHANGES IN INVESTMENT AT ANTWERP FROM 1995 TO 2002**
(millions of euros)

Sectors (direct effects)	1995	1996	1997	1998	1999	2000	2001	2002	Relative share in 2002 (in p.c.)	Change from 1995 to 2002 (in p.c.)	Annual average change (in p.c.)
Maritime cluster											
Shipping agents and forwarders	60.1	52.9	61.6	110.4	59.8	77.0	84.3	70.2	4.6	16.9	2.3
Cargo handlers	144.2	176.9	264.2	181.1	115.9	157.7	262.2	223.8	14.8	55.2	6.5
Shipping companies	78.7	119.6	41.3	221.4	41.8	96.0	44.0	65.2	4.3	- 17.1	- 2.6
Other services	0.7	1.0	0.7	0.6	2.1	2.0	1.4	2.1	0.1	211.2	17.6
Fishing	0.3	0.0	0.0	0.0	0.3	0.2	0.1	0.1	0.0	- 71.0	- 16.2
Shipbuilding and repair	1.7	2.0	2.1	2.2	1.7	3.2	3.4	2.4	0.2	37.6	4.7
Other industries	15.9	37.6	29.9	18.2	34.9	14.9	24.8	87.2	5.8	448.5	27.5
Public sector	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-
Total maritime	**301.6**	**390.1**	**399.8**	**533.9**	**256.6**	**351.1**	**420.2**	**451.0**	**29.8**	**49.5**	**5.9**
Non-maritime cluster											
Total wholesale trade	31.8	33.7	50.5	39.8	52.3	38.7	49.3	59.7	3.9	87.9	9.4
Energy	13.7	32.8	13.1	17.6	18.9	17.1	25.9	6.4	0.4	- 53.3	- 10.3
Oil industry	111.6	63.8	80.7	126.0	166.2	169.7	98.0	109.0	7.2	- 2.3	- 0.3
Chemicals	406.5	421.7	326.3	307.6	306.6	485.7	704.2	551.1	36.4	35.6	4.4
Car manufacturing	134.1	140.8	245.0	59.3	37.1	41.7	23.8	72.6	4.8	- 45.8	- 8.4
Electronics	0.2	0.4	0.2	0.5	0.3	2.8	0.2	0.2	0.0	1.3	0.2
Metal-working industry	3.8	3.9	1.9	4.8	3.7	4.9	3.7	3.7	0.2	- 1.3	- 0.2
Food industry	3.6	6.7	7.5	6.2	7.8	6.2	6.5	7.7	0.5	113.8	11.5
Other industries	11.7	6.1	14.9	6.7	13.1	14.1	34.7	24.6	1.6	111.3	11.3
Total industry	685.2	676.1	689.5	528.6	553.8	742.3	897.0	775.5	51.2	13.2	1.8
Other services	23.7	36.5	28.0	33.8	54.7	76.3	68.6	55.8	3.7	135.6	13.0
Other industries	6.9	12.8	4.9	13.2	12.7	29.5	47.3	14.6	1.0	112.0	11.3
Public sector	36.7	55.1	30.5	60.7	48.8	46.7	46.8	69.9	4.6	90.4	9.6
Total logistics services	67.2	104.4	63.4	107.7	116.2	152.5	162.8	140.2	9.3	108.5	11.1
Road transport	14.0	14.4	25.2	15.5	19.2	15.9	16.1	9.9	0.7	- 28.9	- 4.8
Other services	39.8	53.4	52.2	50.1	49.4	67.5	56.3	78.5	5.2	97.3	10.2
Total transport	53.7	67.8	77.4	65.7	68.6	83.4	72.4	88.4	5.8	64.5	7.4
Total non-maritime	**837.9**	**882.0**	**880.8**	**741.8**	**791.0**	**1,016.8**	**1,181.5**	**1,063.8**	**70.2**	**27.0**	**3.5**
Direct effects	**1,139.5**	**1,272.1**	**1,280.6**	**1,275.7**	**1,047.6**	**1,367.9**	**1,601.6**	**1,514.8**	**100.0**	**32.9**	**4.2**
Allocation (p.m.)	41.3	40.3	56.0	63.9	35.6	46.6	42.2	33.5	-	- 18.8	- 2.9

Source: NBB.

Changes by sector

The sector in which investment at the port of Antwerp was at its highest level was chemicals (table 11). This indeed accounted for 36.4 p.c. of the total amount invested in 2002. Cargo handling and the other services also represented a significant share. Then came the oil industry, the shipping companies, shipping agents and forwarders, the car manufacturing and the other industries. The sharpest drop in total investments in the port of Antwerp was recorded in 1999, followed by a recovery in the next two years. This decline was striking with regard to shipping companies, cargo handling firms, shipping agents and forwarders and in the car manufacturing, with investments falling by 81.1, 36.0, 45.8 and 37.4 p.c. respectively. In 2000, investment in chemicals rose by 58.4 p.c. This trend continued the following year (+ 45.0 p.c.) with the total amount of investment in chemicals reaching a record level of 704.2 million euro. In 2002, the total amount invested in the port of Antwerp registered a fall.

At the port of Antwerp, the major changes recorded in 2002 for investment in the main sectors were as follows:

- Chemicals showed a drop of 21.7 p.c. after two outstanding years. The amount of investment was 551.1 million euro. BASF announced the deferment of its investment plan for 150 million euro for the extension of its cracking unit; investment was down very sharply at 3M, Solvay and Bayer;
- Investment in the cargo handling sector fell by 14.6 p.c. to 223.8 million euro. Rationalisation in this sector continued with the merger of Hessenatie and Noord Natie; investment also decreased significantly at Antwerp

Distribution and Product Operations and Belgian New Fruit Wharf. Havenbedrijf Antwerpen, Hesse-Noord Natie and P&O Ports remained the largest investors in this sector in the port of Antwerp;

- In other services investment rose by 11.6 p.c. to 196.1 million euro. SNCB invested large amounts in the Main Hub, an important container terminal on the right bank. The port of Antwerp is the best served in Europe with regard to access by rail;
- Investments made in the oil industry rose by 11.3 p.c. to 109.0 million euro. In 2002 Petroplus Refining Antwerp invested in a desulphurisation unit producing ULSD (Ultra Low Sulphur Diesel), an automotive fuel which satisfies the new EU environmental standards;
- While investment by shipping companies was in decline in 2001, it rebounded in 2002 recording quite a substantial rise for this sector, with an increase of 48.1 p.c., to 65.2 million euro;
- After 2001, during which major building work was completed (i.e. putting into operation of a large logistics platform by Katoen Natie), the shipping agents and forwarders showed a fall of 16.7 p.c. in their investment to 70.2 million euro in 2002;
- The public services invested 69.9 million euro in that year, i.e. 49.3 p.c. more than in 2001. In addition, more than 87 p.c. of public investment was dedicated that year to the construction of the Deurganckdok.

Investment Top 10 at the port of Antwerp in 2002

Investment information is very volatile and it is difficult to draw comparisons between one year and another for this type of classification. However it should be noted that BASF held its position as the largest investor at the port of Antwerp.

TABLE 12 **INVESTMENT TOP 10 AT THE PORT OF ANTWERP IN 2002**

(millions of euros)

Ranking	Company name	Sector	Investments
1	B.A.S.F. ANTWERPEN	Chemicals	152.0
2	HAVENBEDRIJF VAN ANTWERPEN	Cargo handlers	85.2
3	DREDGING INTERNATIONAL	Other industries	83.2
4	FINA ANTWERP OLEFINS	Chemicals	81.3
5	PUBLIC ADMINISTRATION	Public sector	69.9
6	ATOFINA ANTWERPEN	Chemicals	66.2
7	DEGUSSA ANTWERPEN	Chemicals	59.6
8	OPEL BELGIUM	Car manufacturing	52.9
9	BAYER ANTWERPEN	Chemicals	43.6
10	SAFMARINE CONTAINER LINES	Shipping companies	40.3
	Total		**734.3**

Source: NBB.

4.1.5 *Financial ratios (private companies)*

By cluster

TABLE 13 RATIOS BY CLUSTER

Clusters	Return on equity after tax (in p.c.)			Liquidity in broad sense			Solvency (in p.c.)		
	2000	2001	2002	2000	2001	2002	2000	2001	2002
Maritime cluster	8.3	2.4	5.7	0.9	0.9	0.9	33.9	35.7	40.5
Non-maritime cluster									
Wholesale trade	- 1.7	5.0	- 3.9	1.2	1.1	1.1	24.3	25.9	24.3
Industry	11.5	5.1	14.5	0.6	0.7	0.3	29.1	32.7	31.8
Logistics services	2.6	3.8	3.3	4.0	5.0	6.1	80.7	82.3	85.2
Transport	- 6.5	- 7.6	- 15.5	0.9	1.0	0.9	33.6	31.4	25.9
Weighted average	**5.3**	**3.8**	**7.4**	**1.2**	**1.4**	**0.9**	**48.3**	**50.9**	**47.4**

Source: NBB.

- Of the clusters shown in table 13, it is the industry segment which produced the best result with regard to profitability (return on equity), with the sectors benefiting most widely in 2002 shown in table 14. On the other hand, margins were reduced further in the transport segment, which showed a significant fall in its financial profitability. Helped by industry's excellent result, the average profitability of companies attached to the port of Antwerp rose from 3.8 p.c. in 2001 to 7.4 p.c. in 2002;
- The liquidity of companies at the port of Antwerp fell in 2002, a trend largely attributable to the industry segment, whose ratio was halved. The average net working capital for industry therefore produced negative values. Table 14 presents some special circumstances which explain this phenomenon. The other segments did not exhibit similar falls. With regard to logistics services (coordination centres here), whose liquidity is by far the highest, the capacity to honour short-term commitments continued to rise;
- The solvency of the Antwerp companies in the study worsened slightly in 2002: a marginal decline was observed in industry, in addition to those noted in wholesale trade and transport. The trend was moderated by an improvement in this ratio in the maritime cluster and logistics services.

By sector

- The significant rise in profitability of companies dependent on the port of Antwerp is attributable particularly to the industry segment (table 13). The most remarkable rises were recorded in the chemicals and energy industries and, to a lesser extent, the food industry. It was in fact in 2002 that chemical companies, such as 3M Belgium and Borealis Polymers, started to see significant profits again, of 9.8 and 30.9 million euro respectively. For the maritime cluster, the rise was in large part attributable to the shipping agents and forwarders;
- The decline in liquidity in 2002, which was particularly noticeable in industry, resulted from a sharp drop in this ratio in the oil industry. This is explained by a sharp rise in Exxonmobil Petroleum & Chemical's short-term debts (takeover of Exxon Diegem), which in 2002 exceeded the restricted current assets. Production by this company also increased sharply in the course of the year, helped by the good results of 2001. Note should also be taken in this industry of the investment agreed with Petroplus Refining Antwerp (transfer of current assets to fixed assets). The car manufacturing and the other industries did not exhibit any significant decline;
- With regard to solvency, the slight decline observed in 2002 in industry was seen mainly in the chemicals and car manufacturing industries. In the former sector, for example, the solvency ratio of Atofina Antwerpen fell from 13.1 to 10.9 p.c. and Speciality Polymers Antwerp from 44.4 to 35.9 p.c. For the first company, this related to a drop in its equity capital (from 34.1 million euro in 2001 to 27.6 million euro in 2002) in the course of this year in which it invested 67.6 million euro in new plant. For the second company, there was a significant increase in short-term debt (which rose in one year from 25.8 to 36.4 million euro) due to fixed assets under construction and advance payments made which increased from 4.5 to 22.7 million euro. In the car manufacturing it was G.M. Automotive Services and Opel

Belgium, in the case of the latter following an increase in its contingency and loss provision, which showed the most significant falls.

TABLE 14 RATIOS BY SECTOR

Sectors	Return on equity after tax (in p.c.)			Liquidity in broad sense			Solvency (in p.c.)		
	2000	2001	2002	2000	2001	2002	2000	2001	2002
Shipping agents and forwarders	10.0	12.2	21.2	1.0	1.0	1.0	24.8	24.9	25.2
Cargo handlers	9.7	2.4	1.7	1.1	1.0	0.9	43.1	46.2	47.8
Shipping companies	7.0	- 2.8	4.3	0.7	0.7	1.0	32.4	30.0	46.5
Road transport	2.2	10.8	6.7	1.0	1.1	1.1	18.9	23.3	24.6
Other services	2.3	3.6	2.8	3.2	3.7	4.1	74.3	75.9	77.5
Energy	19.0	17.4	21.6	0.7	0.9	1.5	42.2	39.1	38.5
Oil industry	39.3	29.4	22.9	0.7	0.7	0.1	15.3	14.1	29.0
Chemicals	6.4	1.2	5.3	0.6	0.6	0.6	33.8	38.2	36.0
Shipbuilding and repair	9.6	18.0	- 11.7	1.1	1.2	1.2	18.6	23.3	19.7
Car manufacturing	2.8	11.8	- 1.8	0.6	1.2	1.1	14.5	16.7	14.4
Electronics	- 4.9	- 9.7	8.4	0.9	0.8	0.7	7.1	9.9	11.0
Metal-working industry	13.2	3.9	- 7.7	1.1	1.1	1.2	21.6	22.7	22.2
Fishing	8.1	- 5.0	- 10.1	1.0	1.1	0.9	32.5	35.3	36.0
Food industry	- 3.9	- 15.3	12.5	0.9	0.8	0.9	27.9	28.5	33.2
Other industries	5.6	6.4	5.9	0.9	0.9	0.8	38.9	35.5	34.0
Public sector	n.	n.	n.	n.	n.	n.	n.	n.	n.
Weighted average	**5.3**	**3.8**	**7.4**	**1.2**	**1.4**	**0.9**	**48.3**	**50.9**	**47.4**

Source: NBB.

4.1.6 *Cargo traffic at the port of Antwerp in 2002*

Summary

Table 15 Antwerp
(thousands of tonnes)

	Unloaded	Loaded	2002 total	2001- 2002 change (in p.c.)	2002 share (in p.c.)
Containers	21,455	31,562	53,017	14.2	40.3
Roll-on/roll-off	2,906	2,931	5,837	- 2.6	4.4
Other general cargo	6,001	8,482	14,483	- 9.1	11.0
Liquid bulk	22,885	9,110	31,995	- 7.1	24.3
Dry bulk	19,348	6,950	26,298	- 3.6	20.0
Total	**72,595**	**59,035**	**131,630**	**+ 1.2**	**100.0**

Source: Vlaamse Havencommissie Annual Report 2002.

From 1998 to 2002, traffic at Antwerp increased on average by 2.5 p.c. per annum. In 2002, like it was for the VA at the port (see above), good figures were recorded in line with those of 2000. With an absolute record of 131.6 million tonnes for transhipment of goods (a figure which was topped again in 2003) it passed the 130 million tonne mark for the third consecutive year. In spite of falls recorded in bulk traffic, particularly in crude oil, oil derivatives, general cargo and Ro-Ro, container traffic continued to grow in 2002. This year also saw a growth of 14.2 p.c. (table 15), higher than that recorded the preceding year (+ 4.2 p.c.). The trend in transhipment of non-ferrous metals (+ 17.7 p.c.), fruit (+ 4.6 p.c.) and rolling material (+ 12.8 p.c.) is also rising.

For those interested additional information on cargo traffic at the port of Antwerp in 2002 is presented in table 66 of annex 8, by categories of goods.

4.2 Port of Ghent

4.2.1 Significant facts in 2002[44]

- Context

Of the four ports under review, Ghent is the one at which the number of businesses increased most from 1995 to 2002 (+ 31.7 p.c., while the average for all the ports was + 15.9 p.c.).
Due to the slowdown in growth, 2002 got off to a slow start in the port of Ghent and traffic picked up only gradually. The event of the year was without doubt the putting into operation on 9 December of the IPG (Intermodaal Platform Gent). This intermodal platform gave the port a large capability for handling and transporting containers via the inland water network to Antwerp, Rotterdam and the Rhine basin. These new facilities constitute an important asset for Ghent because they offer a lasting alternative to road transport.

Generally speaking, the year 2002 was relatively positive for the port of Ghent which handled almost 24 million tonnes of goods and was able to maintain its transhipment volume and even slightly increase it in comparison to the preceding year. The most significant increase was recorded for dry bulk traffic with a rise of 10.2 p.c. compared to 2001. This activity was also supported by the emergence of new freight categories as peat and fish oil, and also by higher volumes of fruit juices and molasses. A marked fall was however recorded for the general cargo segment. This development seemed to become general, to the benefit of container traffic.

- Industry

On 22 March 2002 a new terminal was inaugurated on the Peltracom site for the transhipment, storage and handling of peat. In the car manufacturing, Frans Maas Automotive Belgium began operations and Volvo Cars Gent built an external warehouse. IPG, a joint venture between Rhinecontainer, a company operating on inland waterways, and Stukwerkers, the goods handler, came on stream in December. The expected increase in traffic as a result of this platform is on average 165,000 tonnes per annum: the platform will act as a hub with the capability to open up the hinterland further and thereby open up the port, particularly by facilitating links with the ports of Antwerp and Rotterdam.

- Infrastructure

The largest infrastructure development site of the year is the expansion of the Kluizendok, with, in particular, the installation of additional roads at its entrance. Operations to remove asbestos here began in July and major dredging work was carried out the following month. All the projects undertaken at Kluizendok should in future generate additional traffic of 1.6 million tonnes. An invitation to tender was issued on 29 August for the new maintenance plan for the port, highlighting the urgent need to develop the quays, port roads, etc.

The aim of these projects is to improve the port's accessibility, which continues to cause problems, especially for the metal-working company Sidmar, the largest on the site: this company is still somewhat disadvantaged in comparison with three other maritime establishments of the Arcelor group (Dunkirk, Fos and Gijon). Although the productivity and layout of the site compensate for this handicap, the development of a new capesize[45] sea lock at Terneuzen would, according to some sources, be an effective solution to facilitate access by sea. IPG enables progress to be made with regard to inland traffic.

[44] Sources: Havenbedrijf Gent GAB Annual Report 2002 and Vlaamse Havencommissie Annual Report 2002.

[45] The term capesize denotes the capacity of a lock which can accommodate ships (mainly carrying solid bulk) of over 80,000 dwt.

4.2.2 Value added

TABLE 16 **SUMMARY OF CHANGES IN VALUE ADDED AT GHENT FROM 1995 TO 2002**
(millions of euros)

Sectors (direct effects)	1995	1996	1997	1998	1999	2000	2001	2002	Relative share in 2002 (in p.c.)	Change 1995 - 2002 (in p.c.)	Annual average change (in p.c.)
Maritime cluster											
Shipping agents and forwarders	27.7	22.3	40.5	42.1	39.2	45.6	56.2	61.1	2.1	120.2	11.9
Cargo handlers	108.2	113.8	116.0	130.6	138.6	129.3	122.6	127.1	4.3	17.5	2.3
Shipping companies	11.3	8.5	8.2	9.7	23.6	10.3	13.4	13.5	0.5	19.5	2.6
Other services	1.8	1.4	0.9	0.9	1.0	1.3	1.7	2.5	0.1	43.9	5.3
Fishing	0.3	0.3	0.3	0.4	0.5	0.5	0.6	1.9	0.1	594.8	31.9
Shipbuilding and repair	3.0	2.3	2.7	4.7	3.7	3.6	4.7	4.8	0.2	60.2	7.0
Other industries	0.0	0.0	0.0	0.0	0.0	0.0	3.2	3.3	0.1	-	-
Public sector	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-
Total maritime	**152.2**	**148.7**	**168.6**	**188.3**	**206.7**	**190.6**	**202.3**	**214.1**	**7.3**	**40.7**	**5.0**
Non-maritime cluster											
Total wholesale trade	564.2	598.4	456.0	614.9	529.1	530.8	616.0	592.5	20.1	5.0	0.7
Energy	239.5	218.9	206.2	113.4	115.6	145.2	169.8	150.1	5.1	- 37.3	- 6.5
Oil industry	0.0	0.0	0.0	0.0	0.0	4.1	6.1	7.0	0.2	-	-
Chemicals	167.7	177.9	175.5	190.8	181.7	229.9	229.4	221.9	7.5	32.3	4.1
Car manufacturing	476.8	481.3	491.3	545.7	525.7	518.8	511.2	516.2	17.5	8.2	1.1
Electronics	103.0	160.9	100.5	104.7	99.1	106.6	60.2	58.4	2.0	- 43.3	- 7.8
Metal-working industry	628.8	609.6	634.8	727.7	657.5	774.8	545.7	725.9	24.7	15.4	2.1
Food industry	56.8	60.1	61.6	59.0	60.8	60.0	72.8	88.5	3.0	55.8	6.5
Other industries	156.5	144.4	150.5	173.1	168.5	176.2	227.5	191.5	6.5	22.4	2.9
Total industry	1,829.1	1,853.0	1,820.5	1,914.4	1,808.8	2,015.6	1,822.7	1,959.4	66.6	7.1	1.0
Other services	68.2	67.5	67.1	113.2	49.8	87.1	88.0	97.7	3.3	43.2	5.3
Other industries	6.5	9.5	10.9	12.1	14.3	14.6	9.6	3.8	0.1	- 41.1	- 7.3
Public sector	20.3	20.4	11.3	11.1	11.1	8.8	9.1	10.5	0.4	- 48.1	- 8.9
Total logistics services	95.0	97.3	89.4	136.4	75.3	110.5	106.6	112.0	3.8	17.9	2.4
Road transport	28.3	24.8	27.4	30.0	31.2	30.3	39.5	38.3	1.3	35.2	4.4
Other services	8.7	13.8	18.7	21.4	20.2	20.5	22.7	26.6	0.9	204.2	17.2
Total transport	37.1	38.6	46.1	51.4	51.4	50.8	62.2	64.9	2.2	75.1	8.3
Total non-maritime	**2,525.4**	**2,587.3**	**2,411.9**	**2,717.1**	**2,464.6**	**2,707.6**	**2,607.6**	**2,728.8**	**92.7**	**8.1**	**1.1**
Direct effects	**2,677.6**	**2,735.9**	**2,580.5**	**2,905.4**	**2,671.3**	**2,898.1**	**2,809.9**	**2,942.9**	**100.0**	**9.9**	**1.4**
Allocation (p.m.)	6.6	4.9	14.7	7.5	9.8	6.7	14.4	13.9	-	109.6	11.2

Source: NBB.

TABLE 16 (continued) **SUMMARY OF CHANGES IN VALUE ADDED AT GHENT FROM 1995 TO 2002**
(millions of euros)

Sectors (indirect effects[46])	1995	1996	1997	1998	1999	2000	2001	2002	Relative share in 2002 (in p.c.)	Change from 1995 to 2002 (in p.c.)	Annual average change (in p.c.)
Total maritime	**203.1**	**203.8**	**222.2**	**204.3**	**243.3**	**193.4**	**195.0**	**217.8**	**6.3**	**7.2**	**1.0**
Total non-maritime	**2,211.9**	**2,340.0**	**2,409.1**	**2,609.2**	**2,825.3**	**2,826.3**	**3,082.1**	**3,250.0**	**93.7**	**46.9**	**5.7**
Indirect effects	**2,415.0**	**2,543.8**	**2,631.2**	**2,813.5**	**3,068.5**	**3,019.7**	**3,277.0**	**3,467.7**	**100.0**	**43.6**	**5.3**
Total value added	**5,092.6**	**5,279.7**	**5,211.8**	**5,718.9**	**5,739.8**	**5,917.8**	**6,087.0**	**6,410.7**	**-**	**25.9**	**3.3**

Source: NBB.

General changes

The total VA associated with the port of Ghent grew by 25.9 p.c. from 1995 to 2002, i.e. an increase of 3.3 p.c. on average per annum (table 16). This increase was largely attributable to subcontracting, since the indirect VA increased over the same period by 43.6 p.c. (+ 5.3 p.c. as an annual average), while the direct VA only grew by 9.9 p.c. (+ 1.4 p.c. as an annual average). The largest increases in direct and total VA occurred in 1998 (12.6 p.c. and 9.7 p.c. respectively). 2002 was a positive year for production at Ghent, with the total VA rising by 5.3 p.c. Direct VA for these companies amounted to 2.9 billion euro. Total VA accounted for 6.4 billion euro if indirect effects are included.

The ratio of indirect VA to direct VA reached 117.8 p.c. in 2002, which is slightly more than the figure recorded in 1999 (114.9 p.c.), a record year for the ports on average. To explain this high figure, the VA of the Ghent shipping companies was in fact marked in 1999 by high growth: this is a sector which is strongly dependent on subcontracting. After a decline in the trend towards outsourcing seen in 2000, accompanied by a fall in production in the car manufacturing and shipping companies sectors, it seems therefore that the following years were once again marked by an increase in this trend at the port of Ghent.

Changes by cluster in direct effects

From 1995 to 2002, the direct VA at the port of Ghent rose by 1.4 p.c. on average per annum. The industry and wholesale trade segments accounted for the largest shares of this total (67.6 and 20.3 p.c. respectively). The maritime cluster, the logistics services and transport segments are further down the list. In spite of its minor importance, the transport segment was the one which recorded the largest increase in annual average VA (+ 8.3 p.c.). The wholesale trade segment recorded its largest rise in 1998 (+ 34.9 p.c.) and its sharpest fall the preceding year (- 23.8 p.c.). Industrial production continued to grow and the most marked rise was in 2000 (+ 11.4 p.c.). The largest increase in VA at the port of Ghent (+ 12.6 p.c. in 1998) was due above all to the expansion of the wholesale trade and logistics services segments. 2002 produced a 4.7 p.c. rise in direct VA, while wholesale trade declined by 3.8 p.c., industry gained 7.5 p.c. and the maritime cluster recovered by 5.9 p.c.

Changes by sector in direct effects

It is the metal-working and car manufacturing industries and the other services which carry the greatest weight in terms of VA at the port of Ghent. The chemicals and energy industries, cargo handling and other industries also contributed, but to a lesser extent. The largest increase in port production at Ghent was recorded in 1998: in that year, the VA of the other services sector saw a major growth (particularly in the wholesale trade, see table 16). After very average years, a recovery began in 2000 in the chemicals and energy industries (+ 26.5 and 25.7 p.c. respectively), partly offset by the fall in cargo handling (- 6.7 p.c.). This growth trend continued into 2002, the second year after 1998 in terms of a rise in direct VA, with a rate of 4.7 p.c. The VA consequently exceeded 2.9 billion euro.

At the port of Ghent, the major changes recorded in 2002 for the direct VA in the main sectors were as follows:

- The metal-working industry recorded its highest growth (+ 33.0 p.c.) with VA amounting to 726 million euro. The Sidmar VA rose by 38 p.c. to reach 616 million euro: the company completed its tests which aimed at more environmentally friendly steel production;
- The VA in the car manufacturing increased by 1.0 p.c., with the direct VA for this sector amounting to 516 million euro. Volvo Cars Gent saw its VA remain identical to that for 2001 (312.8 million euro);

[46] The breakdown of the indirect effects by sector for the period 1995 - 1999 can be found in annex 5 (table 51).

- The VA for the chemicals showed a decline of 3.3 p.c. to 222 million euro. To give only one example, production at Kronos Europe declined by 23.3 p.c., its VA amounting to 26.3 million euro;
- After unfavourable conditions in 1998 and 1999 and a recovery in 2000 and 2001, the VA for the energy industry fell again, by 11.6 p.c. to 150 million euro. Electrabel's VA fell by 7.8 p.c. to reach 121.5 million euro;
- After two consecutive years of fall, the VA for cargo handling recovered by 3.7 p.c. to reach 127 million euro. Euro-Silo's production rose by 10.4 p.c. with its VA reaching 15 million euro;
- The VA of other services fell by 1.3 p.c. to 719 million euro in 2002.

VA Top 10 at the port of Ghent in 2002

Compared to the 2001 study, Sidmar, Volvo Cars, TotalFinaElf and Volvo Europa Trucks held their position at the top of this list, in the same order. They were joined by Electrabel, Belgian Shell and BP Belgium, companies established in more than one location, for which the zone considered is the port area in the wider sense.

TABLE 17 **VA TOP 10 FOR THE PORT OF GHENT IN 2002**
(millions of euros)

Ranking	Company name	Sector	Value added
1	SIDMAR	Metal-working industry	616.0
2	VOLVO CARS	Car manufacturing	312.8
3	TOTALFINAELF BELGIUM	Oil industry	242.1
4	VOLVO EUROPA TRUCK	Car manufacturing	174.3
5	ELECTRABEL	Energy	121.5
6	BELGIAN SHELL	Other services	98.8
7	U.C.B.	Chemicals	63.7
8	HONDA EUROPE	Car manufacturing	49.8
9	STORA ENSO LANGERBRUGGE	Other industries	49.1
10	BP BELGIUM	Other services	33.5
	Total		**1,761.5**

Source: NBB.

4.2.3 Salaried employment

TABLE 18 **SUMMARY OF CHANGES IN EMPLOYMENT AT GHENT FROM 1995 TO 2002**
(FTE)

Sectors (direct effects)	1995	1996	1997	1998	1999	2000	2001	2002	Relative share in 2002 (in p.c.)	Change from 1995 to 2002 (in p.c.)	Annual average change (in p.c.)
Maritime cluster											
Shipping agents and forwarders	505	382	509	544	543	547	634	830	2.9	64.3	7.4
Cargo handlers	1,254	1,111	1,210	1,347	1,385	1,335	1,342	1,172	4.1	- 6.5	- 1.0
Shipping companies	166	98	91	112	306	109	122	137	0.5	- 17.3	- 2.7
Other services	24	23	20	17	20	22	23	38	0.1	57.3	6.7
Fishing	4	5	6	8	11	8	8	8	0.0	92.5	9.8
Shipbuilding and repair	100	55	63	85	75	69	86	81	0.3	- 19.0	- 3.0
Other industries	0	0	0	0	0	0	49	47	0.2	-	-
Public sector	0	0	0	0	0	0	0	0	0.0	-	-
Total maritime	**2,053**	**1,673**	**1,898**	**2,112**	**2,339**	**2,090**	**2,265**	**2,312**	**8.1**	**12.6**	**1.7**
Non-maritime cluster											
Total wholesale trade	2,841	2,562	2,578	2,565	2,494	2,601	2,782	2,851	10.0	0.3	0.0
Energy	1,779	1,671	1,350	817	848	871	890	841	3.0	- 52.7	- 10.1
Oil industry	0	0	0	0	0	70	63	56	0.2	-	-
Chemicals	1,802	1,802	1,773	1,833	1,798	2,040	2,090	1,903	6.7	5.6	0.8
Car manufacturing	5,916	6,133	6,222	6,668	6,791	6,532	6,851	6,624	23.2	12.0	1.6
Electronics	1,747	1,542	1,490	1,428	1,395	1,493	1,185	1,099	3.9	- 37.1	- 6.4
Metal-working industry	6,973	6,864	7,090	7,243	7,419	7,505	7,582	7,163	25.1	2.7	0.4
Food industry	498	484	470	476	520	508	673	674	2.4	35.2	4.4
Other industries	2,557	2,496	2,638	2,478	2,427	2,507	2,641	2,562	9.0	0.2	0.0
Total industry	21,272	20,991	21,032	20,944	21,199	21,527	21,975	20,923	73.4	- 1.6	- 0.2
Other services	777	645	600	612	663	918	1,019	1,057	3.7	36.0	4.5
Other industries	117	138	166	193	206	245	215	61	0.2	- 47.6	- 8.8
Public sector	301	293	287	294	295	238	244	283	1.0	- 6.0	- 0.9
Total logistics services	1,195	1,076	1,052	1,099	1,164	1,402	1,478	1,401	4.9	17.3	2.3
Road transport	448	378	429	449	426	405	530	513	1.8	14.6	2.0
Other services	259	296	418	453	433	456	507	500	1.8	93.1	9.9
Total transport	707	674	847	902	859	861	1,038	1,014	3.6	43.4	5.3
Total non-maritime	**26,015**	**25,303**	**25,510**	**25,509**	**25,716**	**26,391**	**27,272**	**26,189**	**91.9**	**0.7**	**0.1**
Direct effects	**28,068**	**26,977**	**27,408**	**27,622**	**28,055**	**28,482**	**29,536**	**28,501**	**100.0**	**1.5**	**0.2**
Allocation (p.m.)	163	92	108	129	145	111	188	191	-	17.3	2.3

Source: NBB.

TABLEAU 18 **SUMMARY OF CHANGES IN EMPLOYMENT AT GHENT FROM 1995 TO 2002**
(continued) (FTE)

Sectors: (indirect effects[47])	1995	1996	1997	1998	1999	2000	2001	2002	Relative share in 2002 (in p.c.)	Change 1995 - 2002 (in p.c.)	Annual average change (in p.c.)
Total maritime	**2,231**	**1,850**	**2,188**	**2,519**	**3,340**	**2,628**	**3,126**	**3,122**	**9.4**	**39.9**	**4.9**
Total non-maritime	**26,382**	**26,506**	**25,915**	**26,950**	**29,686**	**29,505**	**31,133**	**30,110**	**90.6**	**14.1**	**1.9**
Indirect effects	**28,613**	**28,355**	**28,102**	**29,469**	**33,027**	**32,133**	**34,259**	**33,233**	**100.0**	**16.1**	**2.2**
Total employment	**56,681**	**55,332**	**55,511**	**57,091**	**61,081**	**60,615**	**63,795**	**61,733**	**-**	**8.9**	**1.2**

Source: NBB.

General changes

Direct employment in the Ghent port area (including allocation) rose by 1.5 p.c. from 1995 to 2002, i.e. 0.2 p.c. as an annual average (table 18). Total employment (including indirect effects) rose more strongly by 8.9 p.c. over these seven years, i.e. + 1.2 p.c. as an annual average. As with the VA of companies established at Ghent, this rise was due above all to subcontracting, since indirect employment increased over the same period by 16.1 p.c., i.e. 2.2 p.c. as an annual average. The years 1999 and 2001 were marked by the greatest creation of jobs, especially in subcontracting. Indirect employment in those years rose by 12.1 and 6.6 p.c. respectively, while in the same two years direct employment only increased by 1.6 and 3.7 p.c. This difference may be attributed to the increase in employment in sectors which are heavily dependent on subcontracting, such as the metal-working, chemicals and car manufacturing industries. 1999 was the year with the most marked total rise (+ 7.0 p.c.), and 2001 the year with the largest number of jobs (29,536 direct FTE and 63,795 FTE total). As for the port of Antwerp, 2002 was marked by the decline in direct employment (- 3.5 p.c., almost as great as the drop of 3.9 p.c. recorded in 1996) and total employment (- 3.2 p.c.).

The ratio of indirect employment to direct employment remained high in 2002. As for the total for the four ports, 1999 showed a record (117.7 p.c.). This ratio then decreased slightly before returning in 2002 to a relatively high level (116.6 p.c.). The drop in indirect employment at that time was due above all to the decline in employment in the chemicals and car manufacturing sectors, which are heavily dependent on subcontracting. But the effect was limited because of the recovery in employment by shipping companies.

Changes by cluster in direct effects

The industry segment employs the majority of those working in the port, i.e. 75.6 p.c. on average over the period in question. This proportion is only 9.5 and 7.4 p.c. respectively for wholesale trade and the maritime cluster. The largest rise in direct employment (including allocation) was seen in 2001: employment in the maritime cluster increased by 8.4 p.c. and that in industry by 2.1 p.c. Although not as large, logistics services and transport over these seven years recorded their best average rises in direct employment (+ 2.3 and + 5.3 p.c. respectively). In 2002, the decline of 3.5 p.c. in direct employment in the port of Ghent was above all due to the drop seen in industry (- 4.8 p.c.).

Changes by sector in direct effects

Jobs at the port of Ghent are centred mainly on the metal-working and car manufacturing industries and, to a lesser extent, the other services, the chemicals and other industries. 2001 was an excellent year for employment, with the workforce of the metal-working industry amounting to 7,582 FTE. The same year, employment in the car manufacturing and chemicals industries reached 6,851 and 2,090 FTE respectively. That is when the 2002 decline referred to above started.

[47] The breakdown of the indirect effects by sector for the period 1995- 1999 can be found in annex 5 (table 52).

At the port of Ghent, the major changes recorded in 2002 for the direct employment in the main sectors were as follows:

- The metal-working industry lost 5.5 p.c. of jobs to return to a level of 7,163 FTE. Sidmar in particular closed down some R & D activities and shed numerous jobs (according to the calculations, 480 FTE);
- Employment in the car manufacturing declined by 3.3 p.c. to 6,624 FTE. Production at Volvo Cars Gent did not increase in 2002 and, except for this company which showed good results, the sector was in rather poor shape, which explains an almost general decrease in employment;
- Employment in the chemicals also declined, and it lost 8.9 p.c. of its workforce, which amounts to 1,903 FTE. The drop in activity referred to in point 4.2.2 was the main cause of this;
- Other services (including wholesale trade) were one of the only sectors where employment increased in 2002 (+ 2.7 p.c.). Employment for the sector totalled 4,446 FTE. At BP Belgium, the workforce increased by 45.5 p.c. to reach 182 FTE;
- After a good year in 2001 in terms of employment, the other industries lost 8.1 p.c. of their workforce to 2,670 FTE.

Employment Top 10 at the port of Ghent in 2002

Sidmar, Volvo Cars and Volvo Europa Truck held their positions in the 2001 list. They were joined by Electrabel, a company established in more than one location, and SNCB, which is included in the other services sector.

TABLE 19 **EMPLOYMENT TOP 10 AT THE PORT OF GHENT IN 2002**
(FTE)

Ranking	Company name	Sector	Employment
1	SIDMAR	Metal-working industry	5,792
2	VOLVO CARS	Car manufacturing	3,831
3	VOLVO EUROPA TRUCK	Car manufacturing	2,473
4	ELECTRABEL	Energy	740
5	GE POWER CONTROLS BELGIUM	Electronics	683
6	HONDA EUROPE	Car manufacturing	654
7	STORA ENSO LANGERBRUGGE	Other industries	446
8	SNCB – NMBS	Other services	419
9	U.C.B.	Chemicals	350
10	DENYS	Other industries	336
	Total		**15,724**

Source: NBB.

4.2.4 Investment

TABLE 20 **SUMMARY OF CHANGES IN INVESTMENT AT GHENT FROM 1995 TO 2002**
(millions of euros)

Sectors (direct effects)	1995	1996	1997	1998	1999	2000	2001	2002	Relative share in 2002 (in p.c.)	Change from 1995 to 2002 (in p.c.)	Annual average change (in p.c.)
Maritime cluster											
Shipping agents and forwarders	5.3	2.7	12.3	6.2	6.3	5.3	6.4	6.8	0.8	28.1	3.6
Cargo handlers	31.9	32.1	27.6	36.3	50.5	34.7	31.8	37.0	4.6	15.9	2.1
Shipping companies	2.9	1.1	3.6	6.8	7.7	4.7	6.5	8.2	1.0	184.0	16.1
Other services	0.2	0.2	0.2	0.1	0.1	0.2	0.0	0.2	0.0	- 9.6	- 1.4
Fishing	0.4	0.1	0.1	0.1	0.1	0.1	0.2	0.6	0.1	57.3	6.7
Shipbuilding and repair	0.2	0.3	0.5	0.5	0.4	0.5	0.6	0.7	0.1	286.5	21.3
Other industries	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.1	-	-
Public sector	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-
Total maritime	**40.8**	**36.6**	**44.3**	**50.1**	**65.1**	**45.4**	**46.2**	**54.0**	**6.7**	**32.2**	**4.1**
Non-maritime cluster											
Total wholesale trade	39.9	38.5	40.8	35.9	39.2	49.3	64.1	63.5	7.9	59.4	6.9
Energy	20.8	45.9	14.8	13.7	15.6	15.3	18.7	5.0	0.6	- 76.2	- 18.5
Oil industry	0.0	0.0	0.0	0.0	0.0	1.6	0.3	0.1	0.0	-	-
Chemicals	32.5	17.8	26.3	31.9	34.7	32.9	46.3	38.3	4.7	17.7	2.4
Car manufacturing	52.0	150.6	62.2	116.3	220.2	90.0	77.3	132.6	16.4	155.2	14.3
Electronics	2.9	3.5	5.1	12.5	8.4	12.3	13.8	9.6	1.2	227.0	18.4
Metal-working industry	40.9	66.5	115.8	83.2	170.8	244.2	239.5	126.2	15.6	208.7	17.5
Food industry	13.8	11.1	11.9	16.7	27.6	14.3	18.0	18.6	2.3	34.6	4.3
Other industries	40.7	29.9	20.3	19.7	32.8	26.8	53.0	302.5	37.4	643.2	33.2
Total industry	203.6	325.2	256.3	294.0	510.1	437.4	467.0	632.9	78.3	210.8	17.6
Other services	6.4	14.1	8.4	9.0	5.6	26.4	24.0	18.5	2.3	188.8	16.4
Other industries	7.3	4.2	2.5	2.8	7.8	8.8	4.0	0.9	0.1	- 88.1	- 26.2
Public sector	20.4	18.6	22.4	19.0	8.9	14.1	10.5	12.5	1.5	- 38.5	- 6.7
Total logistics services	34.1	36.9	33.4	30.7	22.3	49.3	38.4	31.9	3.9	- 6.4	- 0.9
Road transport	10.3	4.9	4.7	9.4	17.0	7.3	8.0	7.7	1.0	- 25.0	- 4.0
Other services	5.7	7.7	10.7	14.3	12.6	15.9	13.0	18.1	2.2	216.0	17.9
Total transport	16.0	12.7	15.3	23.7	29.7	23.2	21.0	25.8	3.2	61.0	7.0
Total non-maritime	**293.6**	**413.3**	**345.7**	**384.3**	**601.3**	**559.2**	**590.5**	**754.2**	**93.3**	**156.8**	**14.4**
Direct effects	**334.5**	**449.9**	**390.1**	**434.4**	**666.3**	**604.6**	**636.6**	**808.2**	**100.0**	**141.6**	**13.4**
Allocation (p.m.)	3.1	2.4	4.8	3.9	7.3	4.3	6.8	5.8	-	88.9	9.5

Source: NBB.

General changes

Including allocation, investment in the port of Ghent rose on average by 13.4 p.c. per annum (table 20). This increase, the most striking for the four ports under review, was seen especially in 1996, 1999 and 2002, in which investment increased by 34.5, 53.4 and 26.9 p.c. respectively. Falls were recorded only in 1997 and 2000 (- 13.3 and - 9.3 p.c. respectively). 2002, the year in which the intermodal platform was put into operation, was very favourable in terms of investment, which reached a total amount of 802.4 million euro for the port area and 808.2 million euro, including allocation.

Changes by cluster

The most noteworthy changes in terms of investments occurred in industry (table 20). This segment alone accounted for practically three quarters of the average total amount (and 78.3 p.c. in 2002), well ahead of the maritime cluster and the other non-maritime segments. 1999 was the year of the largest rise in investments associated with Ghent port activity and was also the year in which industrial investments saw their sharpest rise (+ 73.5 p.c.). The following year was marked by a decline in maritime, industrial and transport investment, although logistics services recorded their sharpest rise (+ 121.4 p.c.). In 2002, the second largest increase in total

investments was seen (+ 26.9 p.c.), in spite of several falls: + 16.9 p.c. for the maritime cluster, - 0.8 p.c. in wholesale trade, + 35.5 p.c. in industry, - 17.0 p.c. in logistics services and + 23.2 p.c. in transport. It should be noted that SNCB investments that year reached 1.7 million euro.

Changes by sector

The development of direct investment in the port of Ghent progressed in two phases: before and after 1999. This year corresponded, as stated above, to the largest recorded rise for the period. In the car manufacturing, metal-working and chemicals industries and cargo handling firms, investment grew by 89.3, 105.4, 8.7 and 38.9 p.c. respectively. After the slack period in 2000 and 2001, an absolute record was achieved in 2002, and the growth figure was the best after 1999. The other industries played a crucial role in this.

At the port of Ghent, the major changes recorded in 2002 for investment in the main sectors were as follows:

- The other industries sector soared, the amounts invested compared to the preceding year multiplying by 5.3 to 303.9 million euro. The main reason for this rise was the almost tenfold increase in Stora Enso Langerbrugge investments, which that year reached 287 million euro: this related to the construction of a new paper mill unit, which is part of a machinery's renovation and enlargement project estimated at 500 million euro;
- Investments in the car manufacturing rose by 71.5 p.c. to reach 132.6 million euro. The construction of a warehouse on the Volvo Cars site was one explanation for this development;
- The metal-working industry showed a decline of 47.3 p.c. with investments amounting to 126.2 million euro. The fall was general and affected, among others, Sidmar, Decosteel, Europickling, etc.;
- Investments rose by 16.2 p.c. in cargo handling to reach 37.0 million euro;
- Just as in production, investment in chemicals fell by 17.4 p.c. to 38.3 million euro;
- The public sector invested 12.5 million euro, or 18.9 p.c. more than in 2001. The Flemish Region injected large sums into Kluizendok (around 41 p.c. of public investment granted to the port between 1989 and 2002). The grant for this project amounted to 76 p.c. of the total in 2002.

Investment Top 10 at the port of Ghent in 2002

Compared to 2001, Sidmar, Volvo Cars and Stora Enso Langerbrugge stayed at the top of the list, but in reverse order.

TABLE 21 **INVESTMENT TOP 10 AT THE PORT OF GHENT IN 2002**
(millions of euros)

Ranking	Company name	Sector	Investments
1	STORA ENSO LANGERBRUGGE	Other industries	287.1
2	VOLVO CARS	Car manufacturing	121.6
3	SIDMAR	Metal-working industry	95.1
4	HET HAVENBEDRIJF GENT GAB	Cargo handlers	23.2
5	DECOSTEEL II	Metal-working industry	19.9
6	BP BELGIUM	Other services	15.2
7	PUBLIC ADMINISTRATION	Public sector	12.5
8	ALGIST BRUGGEMAN	Food industry	10.4
9	VOLVO EUROPA TRUCK	Car manufacturing	9.0
10	OLEON	Chemicals	8.5
	Total		**602.6**

Source: NBB.

4.2.5 Financial ratios (private companies)

By cluster

TABLE 22 RATIOS BY CLUSTER

Clusters	Return on equity after tax (in p.c.)			Liquidity in broad sense			Solvency (in p.c.)		
	2000	2001	2002	2000	2001	2002	2000	2001	2002
Maritime cluster	0.3	2.0	3.7	1.0	1.0	1.0	48.1	47.2	49.1
Non-maritime cluster									
Wholesale trade	27.7	3.4	- 7.4	1.0	0.8	0.7	32.6	35.6	35.7
Industry	8.6	1.4	- 7.1	0.9	0.9	0.9	35.0	33.8	30.5
Logistics services	6.6	5.0	- 10.2	1.8	1.8	1.3	70.6	70.7	70.2
Transport	2.2	1.7	- 10.2	1.0	1.1	1.0	34.2	30.6	28.7
Weighted average	**8.9**	**3.3**	**- 7.6**	**1.1**	**1.0**	**0.9**	**47.0**	**46.2**	**41.8**

Source: NBB.

- A remarkable feature at the port of Ghent is the fact that the net return achieved by companies at the port turned negative in 2002, which should be seen in terms of an overall negative result in the non-maritime cluster. Table 23 gives further information, particularly for the two most important segments at the port, industry and wholesale trade;
- The slowdown in liquidity continued in 2002. Net working capital turned negative overall. Although this ratio remained constant in maritime companies (the realisable and available assets being equivalent to the short-term liabilities) and industry, an appreciable decline in logistics services was seen, with a lesser decline in the remaining two segments;
- Solvency, which was relatively stable in 2001, declined by more than 4.3 p.c. in the following year. Industry was largely responsible for this result, which is analysed in greater detail in table 23.

By sector

- Results in 2001 for the metal-working industry had already been unsatisfactory and this trend became more acute the following year, when it showed a negative return of - 29.7 p.c. (table 23). The large fall in this ratio is attributable to Sidmar, whose losses peaked in 2002 at 301.1 million euro with a fall in equity capital. These losses arose from a reduction in value of the financial fixed assets following integration of the company into the Arcelor group. Its profitability ratio (return on equity) therefore declined to - 35.6 p.c., while it was still - 9.4 p.c. in 2001. The position of this company, which employed 5,792 workers in 2002 and whose VA was 616.0 million euro, goes a long way towards explaining the negative average profitability of companies at the port of Ghent. This ratio also turned negative for the other industries such as Stora Enso Langerbrugge, whose losses approached 26.6 million euro in 2002 following depreciations generated by large-scale investments made the previous year. It should be noted, even if it is hardly significant, that the oil sector returned to positive territory in terms of profitability, a development due to favourable results at Adpo - Ghent;
- The liquidity of logistics services, and in particular of other services, was marked by a significant decline. Volvo Treasury Europe Coordination Center and Sidmar - Stahlwerke Bremen were two examples of those companies whose debts of up to one year increased in 2002 because of a cash deficit. Net operating capital in the oil industry turned positive again in that year, following the significant fall in Adpo – Ghent's short-term debts;
- In 2002, the decline in solvency affected industry above all, in particular metal-working and electronics industries. In the former, Sidmar saw this ratio decline from 36.4 to 30.4 p.c., mainly due to losses carried forward, which were partly offset by writedowns as part of the integration into the Arcelor group. In the latter, equity capital in GE Power Controls Belgium continued to decrease (own funds negative because of losses carried forward). Although the shipping companies sector was of minor importance at Ghent, its solvency almost quadrupled, particularly following the increase in self-financing capacity of companies such as

Binnenvaart Bulk en Container Transport, whose equity capital rose significantly, mainly due to settlement of trade claims.

TABLE 23 RATIOS BY SECTOR

Sectors	Return on equity after tax (in p.c.)			Liquidity in broad sense			Solvency (in p.c.)		
	2000	2001	2002	2000	2001	2002	2000	2001	2002
Shipping agents and forwarders	9.5	12.1	7.1	1.2	1.1	1.1	23.0	27.5	25.7
Cargo handlers	- 0.9	0.7	3.0	1.1	1.1	1.1	59.2	58.1	57.7
Shipping companies	7.0	3.5	3.0	0.6	0.8	0.9	10.2	10.4	40.9
Road transport	10.6	14.2	10.9	1.2	1.2	1.3	24.8	26.0	31.2
Other services	9.9	4.7	- 9.6	1.4	1.2	0.9	59.7	58.7	55.4
Energy	19.0	13.3	17.0	0.7	0.9	1.6	42.3	43.8	43.8
Oil industry	- 54.8	- 20.0	5.7	0.6	0.6	1.1	39.2	41.0	48.2
Chemicals	16.1	15.4	10.0	1.1	1.4	1.3	36.2	45.4	48.6
Shipbuilding and repair	7.6	12.1	24.2	1.6	1.5	1.7	43.7	43.2	52.5
Car manufacturing	2.4	3.3	3.6	0.5	0.6	0.6	30.2	28.1	27.8
Electronics	- 10.3	2.7	5.4	1.1	0.8	0.7	15.1	- 5.0	- 10.0
Metal-working industry	8.0	- 8.3	- 29.7	1.0	0.9	1.0	37.9	35.5	30.5
Fishing	19.8	11.7	- 8.3	1.1	1.2	0.6	25.0	27.8	21.3
Food industry	- 0.4	- 7.6	13.3	1.0	0.9	0.9	29.1	25.3	25.4
Other industries	15.2	15.4	- 8.4	1.1	1.2	1.0	31.9	34.4	21.2
Public sector	n.	n.	n.	n.	n.	n.	n.	n.	n.
Weighted average	**8.9**	**3.3**	**- 7.6**	**1.1**	**1.0**	**0.9**	**47.0**	**46.2**	**41.8**

Source: NBB.

4.2.6 Cargo traffic at the port of Ghent in 2002

Summary

TABLE 24 **GHENT**
(thousands of tonnes)

	Unloaded	Loaded	Total 2002	Change 2001- 2002 (in p.c.)	2002 share (in p.c.)
Containers.....	67	126	193	28.7	0.9
Roll-on/roll-off.....	672	606	1,278	9,0	5.3
Other general cargo.	735	870	1,605	- 48.4	6.7
Liquid bulk.....	2,443	612	3,055	8.4	12.7
Dry bulk.....	15,777	2,073	17,850	10.2	74.4
Total.....	**19,694**	**4,287**	**23,981**	**+ 2.2**	**100.0**

Source: Vlaamse Havencommissie Annual Report 2002.

With slightly fewer than 10,000 ships entering the port in 2002, traffic, which had been relatively stable until then, increased by 2.2 p.c. compared to the preceding year (table 24), i.e. growth was marginally lower, which is explained by a difficult start to the year. Unloading activities accounted for nearly 82.1 p.c. of the 24.0 million tonnes transhipped. Bulk recorded a sharp rise, attributable to the good results in grain shipments (+ 647 kt), oil products (+ 21.7 p.c.) and iron ore (+ 32.6 p.c.). On the other hand, general cargo traffic fell sharply, as did that of metal-working industry products (- 52.3 p.c.).

For those interested additional information on cargo traffic at the port of Ghent in 2002 is presented in table 67 of annex 8, by categories of goods.

4.3 Port of Ostend

4.3.1 Significant facts in 2002[48]

- Context

The port of Ostend has been Belgium's leading passenger and car-ferry port for more than 150 years. Until 1993, Regie voor Maritiem Transport (RMT) operated a daily shuttle service to Dover (United Kingdom) before competition from the Channel Tunnel and other ports brought it to its knees in 1997 (liquidation declared in 2000) with other private operators (like Hoverspeed) taking its place, albeit with a more limited service. This far-reaching change in the environment – until that time, RMT had monopolised the outer port – has, however, helped to revive the port's operations and diversify its ro-ro traffic. The transit of cargo has since risen, by 85.3 p.c. from 1998 to 2002, an increase of 3.4 million tonnes transhipped each year[49].

It is also one of the best-equipped fishing ports in Europe. In 2002, cargo traffic exceeded 6 million tonnes, a capacity which the port authorities hope to see increase over the next few years, with the renovation of the outer port and the widening of the port entrance channel. As far as the ro-ro port is concerned, the new Zeewezendok has significantly increased its capacity to receive and handle containers; it is now considered to be one of the most flexible ports in this respect. In 2002, ro-ro activity achieved record growth of more than 40 p.c., with other activities also enjoying comparable growth. This can be attributed largely to the success of a number of shipping companies such as Transeuropa Ferries. This company has a number of vessels operating ro-ro services in particular towards Ramsgate.

- Industry

In 2002, Tractebel concluded a contract with Proviron Fine Chemicals (group created by the acquisition in 1996 of the Fine Chemicals group, a division of UCB) to manage, operate and maintain the supplies and facilities on the Plassendale Chemie site. In December, the Belgian-American consortium Immo Industry Group, GE Capital Real Estate and KBC unveiled their construction project for a logistics park in the Plassendale 1 zone situated in the inner port of Ostend.

- Infrastructure

On 1 October 2002, construction work began on a new railway bridge aimed at opening up the Plassendale 1 site. At the same time, a new bank defence was built near the Seminck Gas site. At the end of the year, major work was carried out at the De Bolle junction with a view to easing the flow of traffic to the port. Generally, the port of Ostend has great expectations of the improvements made in respect of its maritime accessibility. In particular, this improvement includes new developments to the outer port which will initially enable annual maritime traffic to reach the ten million tonne mark.

It is also noticeable that production associated with the port, and notably subcontracting, is increasing sharply, in line with that of maritime traffic.

[48] Source: Website port of Ostend (http://www.portofoostende.be) and Vlaamse Havencommissie Annual Report 2002.

[49] This last figure must be compared with those figures obtained from other ports: on average + 12.5 p.c. growth over the same period, i.e. an increase of 22.7 million tonnes, due largely to Antwerp. Source of this information: The Lloyd of 26 February 2004: article entitled « Ostend has increased its market share in 2003 », H. Van Der Zee.

4.3.2 Value added

TABLE 25 **SUMMARY OF THE CHANGES IN VALUE ADDED AT OSTEND FROM 1995 TO 2002**
(millions of euros)

Sectors (direct effects)	1995	1996	1997	1998	1999	2000	2001	2002	Relative share in 2002 (in p.c.)	Change from 1995 to 2002 (in p.c.)	Annual average change (in p.c.)
Maritime cluster											
Shipping agents and forwarders	5.3	5.0	4.4	4.2	4.6	4.7	3.3	4.0	1.2	- 24.1	- 3.9
Cargo handlers	0.6	0.7	5.2	5.4	4.2	4.9	5.4	6.3	1.9	920.0	39.3
Shipping companies	17.4	8.6	- 10.5	4.9	0.5	0.0	- 2.6	- 4.4	- 1.3	- 125.1	- 182.1
Other services	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.1	-	-
Fishing	27.4	30.9	30.6	33.8	27.2	21.9	30.3	17.5	5.4	- 36.2	- 6.2
Shipbuilding and repair	3.2	2.9	2.8	3.4	4.8	4.5	4.5	4.0	1.2	24.5	3.2
Other industries	12.2	10.9	32.5	26.1	33.7	19.9	23.1	22.8	7.0	86.7	9.3
Public sector	14.0	11.4	11.4	9.0	10.1	8.7	7.8	7.8	2.4	- 44.7	- 8.1
Total maritime	**80.2**	**70.4**	**76.4**	**86.9**	**85.2**	**64.6**	**71.9**	**58.3**	**18.0**	**- 27.3**	**- 4.5**
Non-maritime cluster											
Total wholesale trade	18.5	17.4	18.7	21.7	24.8	26.2	24.0	21.7	6.7	17.1	2.3
Energy	0.0	0.0	0.1	1.3	0.9	1.0	0.8	0.7	0.2	-	-
Oil industry	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-
Chemicals	25.1	34.9	32.8	27.7	29.8	23.3	24.7	35.7	11.0	42.3	5.2
Car manufacturing	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-
Electronics	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-
Metal-working industry	19.9	38.7	46.8	54.4	84.9	88.3	130.9	118.5	36.6	497.0	29.1
Food industry	0.7	0.5	0.5	0.6	3.3	0.6	6.1	6.7	2.1	874.6	38.4
Other industries	13.5	13.9	12.7	12.1	8.1	8.6	9.4	6.9	2.1	- 48.9	- 9.1
Total industry	59.1	88.1	92.8	96.0	126.9	121.8	172.0	168.5	52.0	185.2	16.2
Other services	17.7	11.6	5.7	9.0	8.8	11.4	13.5	21.4	6.6	21.2	2.8
Other industries	0.0	0.0	0.0	2.6	4.5	4.6	5.5	6.1	1.9	-	-
Public sector	13.9	15.0	19.3	19.4	20.7	23.4	24.9	25.7	7.9	84.9	9.2
Total logistics services	31.6	26.6	25.0	31.1	34.0	39.4	43.9	53.2	16.4	68.6	7.7
Road transport	10.3	10.0	10.9	11.9	11.7	12.3	16.9	18.5	5.7	79.2	8.7
Other services	1.5	1.6	1.4	1.8	0.8	1.2	3.4	3.8	1.2	158.2	14.5
Total transport	11.8	11.6	12.4	13.8	12.5	13.5	20.3	22.3	6.9	89.2	9.5
Total non-maritime	**120.9**	**143.7**	**148.9**	**162.6**	**198.3**	**200.9**	**260.2**	**265.7**	**82.0**	**119.7**	**11.9**
Direct effects	**201.2**	**214.1**	**225.3**	**249.5**	**283.4**	**265.5**	**332.0**	**324.0**	**100.0**	**61.1**	**7.0**
Allocation (p.m.)	13.2	12.8	8.0	13.5	11.6	9.6	12.9	10.2	-	- 22.7	- 3.6

Source: NBB.

TABLE 25 (continued) **SUMMARY OF THE CHANGES IN VALUE ADDED AT OSTEND FROM 1995 TO 2002**
(millions of euros)

Sectors: indirect effects[50]	1995	1996	1997	1998	1999	2000	2001	2002	Relative share in 2002 (in p.c.)	Change from 1995 to 2002 (in p.c.)	Annual average change (in p.c.)
Total maritime	**89.0**	**82.0**	**- 4.9**	**116.5**	**73.8**	**49.9**	**35.0**	**- 68.8**	**- 46.3**	**- 177.3**	**- 196.4**
Total non-maritime	**105.6**	**119.1**	**112.0**	**126.4**	**245.5**	**273.6**	**214.9**	**217.5**	**146.3**	**105.9**	**10.9**
Indirect effects	**194.6**	**201.0**	**107.1**	**242.9**	**319.3**	**323.5**	**249.8**	**148.6**	**100.0**	**- 23.6**	**- 3.8**
Total value added	**395.8**	**415.1**	**332.4**	**492.4**	**602.8**	**589.0**	**581.8**	**472.6**	**-**	**19.4**	**2.6**

Source: NBB.

General changes

Between 1995 and 2002, the port of Ostend's total VA increased by 19.4 p.c., which corresponds to + 2.6 p.c. per annum on average (table 25). In contrast to Ghent, this growth seems primarily to be due to the companies under review since their VA increased by 61.1 p.c. over the same period (+ 7.0 p.c. per annum on average) whereas the indirect VA decreased by 23.6 p.c. (- 3.8 p.c. per annum). The striking feature of 2001 was its record growth in direct VA (+ 25.0 p.c.), following the year in which it recorded its worst fall (- 6.3 p.c.). Indirect VA rose in 1998 (+ 126.8 p.c.) and 1999 (+ 31.5 p.c.) in particular, before then falling back sharply in 2002 (- 40.5 p.c.). The largest increase in total VA was recorded in 1998 (+ 48.1 p.c.), while in 2002 it fell by 18.8 p.c. (its second worst fall after that of 1997), thus following the indirect VA pattern. During this last year, the VA of the port companies contracted by just 1.7 p.c. The total VA related to port activity for the port of Ostend therefore amounted to 472.6 million euro.

2000 saw the ratio of indirect VA to direct VA settle at 121.8 p.c. at the port of Ostend, its highest level. The sharp fall witnessed in 2001 was confirmed in 2002, when this ratio reached no more than 45.9 p.c. The fall in production noted in the fishing sector is in keeping with this phenomenon (see below).

Changes by cluster in direct effects

Table 25 shows the quite contrasting changes in VA by respective cluster. For the period under review, 1999 was the year in which all records were set: following the increases in the preceding years, the direct VA peaked at 283.4 million euro. The maritime cluster and logistics services both recorded their biggest increases in 1998 (+ 13.7 p.c. and + 24.2 p.c. respectively). In 2001, industry recorded its second sharpest increase after 1996 (+ 41.1 p.c.). 2002 was characterised by a fall in direct VA (- 2.4 p.c.). Production related to the maritime cluster therefore fell by 18.8 p.c. The VA of the wholesale trade and industry segments was down by 9.6 p.c. and 2.0 p.c. respectively. The VA for transport and logistics services gained 9.8 p.c. and 21.2 p.c. respectively.

Changes by sector in direct effects

The predominant sectors as far as VA is concerned are metal-working, other industries and chemicals, followed to a lesser extent by public services, other services, fishing and road transport. The direct VA of the port of Ostend recorded its largest increases in 1999 (+ 13.6 p.c.) and 2001 (+ 25.0 p.c.). In 1999, the VA of the metal-working industry rose by 56.1 p.c. After RMT ceased trading, the outer port was redeveloped, freeing up vast areas, favourable to the development of new activities. Besides the metal-working industry, the chemicals industry has also benefited from these favourable circumstances and has seen its VA go up by 7.6 p.c. Following a slight fall in 2000, and a moderate recovery in 2001 which only affected the port companies and was not enough to offset the drop in indirect VA, the aforementioned record fall was the characteristic feature of 2002, particularly in the maritime cluster.

At the port of Ostend, the major changes recorded in 2002 for the direct VA in the main sectors were as follows:

- The VA of the metal-working industry decreased by 9.5 p.c. to 118.5 million euro. In the same year, the VA for Daikin was down 9 p.c. to 116 million euro;
- The direct VA of other services (including wholesale trade) increased by 14.9 p.c. to reach 47.2 million euro. The bankruptcy of Onderlinge Visafslag should be mentioned in this context;
- Following two gloomy years, production in the chemicals industry recovered by 44.7 p.c. and its VA was 35.7 million euro. The VA of Proviron Fine Chemicals grew by 17.5 p.c. to 16.7 million euro and the company

[50] The breakdown of the indirect effects by sector for the period 1995 - 1999 can be found in annex 5 (table 53).

concluded a contract with Tractebel to manage, operate and maintain the supplies and facilities on the Plassendale Chemie site;

- The VA of fishing registered its biggest drop over the period, falling 42.2 p.c. to 17.5 million euro. Morubel, whose VA was worth 10 million euro in 2001, was incorporated into Morubel Holding (industry other than fishing according to the NACE-Bel nomenclature); Stolt Sea Farm and De Zwerver lost 13 and 6 p.c. respectively of their VA, recording 2.6 and 1.1 million euro;
- The VA of road transport increased by 9.4 p.c. to 18.5 million euro.

VA Top 10 at the port of Ostend in 2002

Daikin Europe, a company in the metal-working industry and specialising in the manufacture of air-conditioning systems, heads this table. Proviron continues to expand, as demonstrated in particular by the growth of Provironftal, a subsidiary which since 2001 has specialised in the production of phthalic anhydride and other phthalates. Compared to 2001, a number of companies no longer figure in this table because they are not obliged to file annual accounts; this is the case with De Oesterbank, a non-profit-making organisation whose NACE-Bel code of 85.322 (« Protected Workshops ») is not comparable to that of any cluster or segment. The absence from this list of Hoverspeed Holyman Ltd is due to the fact that it is a foreign company which does not file accounts at the Central Balance Sheet Office.

TABLE 26 **VALUE ADDED TOP 10 AT THE PORT OF OSTEND IN 2002**
(millions of euros)

Ranking	Company name	Sector	VA
1	DAIKIN EUROPE NV	Metal-working industry	116.3
2	PUBLIC ADMINISTRATION	Public sector	25.7
3	BAGGERWERKEN DECLOEDT EN ZOON	Other industries	21.4
4	PROVIRON FINE CHEMICALS	Chemicals	16.7
5	PROVIRONFTAL	Chemicals	13.0
6	MORUBEL HOLDING	Other services	10.3
7	NAVY (DEFENCE ACTIVITIES)	Public sector	7.8
8	TRANSPORT MAENHOUT	Road transport	6.6
9	CHOCOLATERIE JACALI	Food industry	6.1
10	INTERCOMMUNALE VOOR VUILVERWIJDERING... *	Other industries	5.6
	Total		**229.4**

Source: NBB.

* INTERCOMMUNALE VOOR VUILVERWIJDERING EN -VERWERKING VOOR OOSTENDE EN OMMELAND

4.3.3 Salaried employment

TABLE 27 **SUMMARY OF THE CHANGES IN EMPLOYMENT AT OSTEND FROM 1995 TO 2002**
(FTE)

Sectors (direct effects)	1995	1996	1997	1998	1999	2000	2001	2002	Relative share in 2002 (in p.c.)	Change from 1995 to 2002 (in p.c.)	Annual average change (in p.c.)
Maritime cluster											
Shipping agents and forwarders	85	67	66	78	80	74	31	45	1.1	- 47.0	- 8.7
Cargo handlers	15	10	40	45	55	76	68	75	1.8	387.3	25.4
Shipping companies	1,387	1,309	767	501	390	0	10	11	0.3	- 99.2	- 50.1
Other services	0	0	0	0	0	1	2	2	0.0	-	-
Fishing	577	545	452	454	448	364	391	250	6.1	- 56.7	- 11.3
Shipbuilding and repair	112	69	59	61	79	76	86	79	1.9	- 29.3	- 4.8
Other industries	161	155	402	324	281	172	227	187	4.6	15.9	2.1
Public sector	475	358	355	232	259	237	212	212	5.2	- 55.4	- 10.9
Total maritime	**2,813**	**2,513**	**2,141**	**1,694**	**1,594**	**1,000**	**1,026**	**860**	**21.0**	**- 69.4**	**- 15.6**
Non-maritime cluster											
Total wholesale trade	452	341	389	365	373	411	402	367	9.0	- 18.8	- 2.9
Energy	0	0	0	8	5	5	4	4	0.1	-	-
Oil industry	0	0	0	0	0	0	0	0	0.0	-	-
Chemicals	338	465	437	442	464	369	307	408	10.0	20.6	2.7
Car manufacturing	0	0	0	0	0	0	0	0	0.0	-	-
Electronics	0	0	0	0	0	0	0	0	0.0	-	-
Metal-working industry	396	561	649	738	882	948	1,117	1,150	28.1	190.5	16.5
Food industry	15	15	10	12	48	11	56	62	1.5	315.3	22.6
Other industries	358	364	341	313	205	195	194	134	3.3	- 62.6	- 13.1
Total industry	1,107	1,405	1,437	1,513	1,604	1,529	1,679	1,758	42.9	58.8	6.8
Other services	188	179	104	132	153	162	168	238	5.8	26.7	3.4
Other industries	0	0	0	30	33	34	36	36	0.9	-	-
Public sector	434	438	557	526	527	569	533	540	13.2	24.4	3.2
Total logistics services	622	617	661	688	713	765	736	814	19.9	30.9	3.9
Road transport	157	140	142	169	160	163	231	226	5.5	43.7	5.3
Other services	35	32	31	38	13	18	69	70	1.7	100.0	10.4
Total transport	192	172	173	207	173	181	300	296	7.2	54.0	6.4
Total non-maritime	**2,373**	**2,535**	**2,660**	**2,773**	**2,863**	**2,886**	**3,117**	**3,235**	**79.0**	**36.3**	**4.5**
Direct effects	**5,186**	**5,048**	**4,801**	**4,467**	**4,457**	**3,886**	**4,143**	**4,095**	**100.0**	**- 21.0**	**- 3.3**
Allocation (p.m.)	277	201	112	178	161	141	162	135	-	- 51.2	- 9.7

Source: NBB.

TABLE 27 **SUMMARY OF THE CHANGES IN EMPLOYMENT AT OSTEND FROM 1995 TO 2002**
(continued) (FTE)

Sectors (indirect effects[51])	1995	1996	1997	1998	1999	2000	2001	2002	Relative share in 2002 (in p.c.)	Change from 1995 to 2002 (in p.c.)	Annual average change (in p.c.)
Total maritime	**3,587**	**3,857**	**3,792**	**3,277**	**2,563**	**544**	**654**	**539**	**17.6**	**- 85.0**	**- 23.7**
Total non-maritime	**1,678**	**1,900**	**1,796**	**1,985**	**2,229**	**2,203**	**2,389**	**2,526**	**82.4**	**50.5**	**6.0**
Indirect effects	**5,266**	**5,756**	**5,588**	**5,262**	**4,792**	**2,747**	**3,043**	**3,065**	**100.0**	**- 41.8**	**- 7.4**
Total employment	**10,451**	**10,804**	**10,389**	**9,729**	**9,249**	**6,633**	**7,186**	**7,159**	**-**	**- 31.5**	**- 5.3**

Source: NBB.

General changes

In contrast to the three other ports, total employment (direct, including allocation, and indirect) at the port of Ostend fell markedly over the period 1995 - 2002, by 31.5 p.c., which corresponds to - 5.3 p.c. per annum on average. This change is attributable, above all, to the sharp fall in subcontracting, since indirect employment contracted by 41.8 p.c. over this period, or by - 7.4 p.c. per annum on average. The decrease in direct employment is not as sharp but is nevertheless quite pronounced at - 21.0 p.c., which corresponds to - 3.3 p.c. per annum on average. The employment created, especially in the highly productive sector of the chemicals, was not sufficient to reverse this trend. 2000 will remain a bad year in terms of employment: 12.8 p.c. of direct jobs, 42.7 p.c. of indirect jobs and, as a result, 28.3 p.c. of total employment was lost. This significant fall can be explained largely by the cessation of trading by RMT and by the restructuring work carried out in other sectors such as chemicals. As shown in greater detail below, employment here has fallen constantly, as has investment, which has been virtually zero for Ostend-based shipping companies since 1996. The indirect employment related to this sector is very substantial and the collapse that can be seen in table 27 is the result of RMT ceasing trading, among other things. Since most of the other shipping companies are foreign, the loss of this company has caused Ostend's share in the allocation of the indirect effects related to this sector to fall very sharply. However, the sector generates a lot of indirect jobs. Although Ostend no longer contributes to this total, the impact on the supply chain is immediate, assuming that the indirect effects are limited to the national economy (cf. hypothesis 2 of annex 1 - point 5.2.3).

The slight upturn in 2001 (+ 6.6 p.c. direct jobs, + 10.8 p.c. indirect jobs and + 8.3 p.c. total jobs) was not enough to offset these losses. In 2002, another fall in direct employment (- 1.2 p.c.), barely offset by the slight rise in indirect employment (+ 0.7 p.c.), was noted. Overall, this represented a total drop of 0.4 p.c. for all of the companies associated with the port of Ostend.

For subcontracting, the ratio between indirect and direct employment peaked at 117.8 p.c. in 1998. It then dropped somewhat in 1999, before falling below 75 p.c. in 2000. In 2002, this ratio amounted to 74.8 p.c. The relative fall in indirect employment at the port of Ostend is due principally to the fall in employment at the shipping companies and in fishing, sectors that are heavily dependent on external labour.

Changes by cluster in direct effects

Even though employment has been declining since 1998, it fell most sharply in 2000 (- 12.8 p.c., see table 27), with the liquidation of RMT and the loss of its 390 jobs. With the disappearance of this company's direct employment, together with the labour related to its operations, the number of jobs in the maritime cluster shrank by 37,3 p.c. The industry segment was also dragged down by this fall, although to a lesser degree (- 4.7 p.c.). After picking up slightly in 2001 (+ 6.6 p.c.), direct employment fell once again the following year, which also saw a considerable decrease in VA at Ostend. In 2002, there was a substantial decline in employment in the maritime cluster (- 16.2 p.c.) and in the wholesale trade (- 8.7 p.c.). On the other hand, the number of people employed in industry and in logistics services grew by 4.7 p.c. and 10.6 p.c. respectively.

[51] The breakdown of the indirect effects by sector for the period 1995 - 1999 can be found in annex 5 (table 54).

Changes by sector in direct effects

The fall in employment at the port of Ostend between 1995 and 2002 stemmed mainly from the cessation of trading of RMT. This public corporation, included in the shipping companies sector, still employed 1,356 workers in 1995. This workforce shrank to 390 during the four next years. As has been highlighted already, the year 2000 saw a record fall in employment at the port of Ostend, with particularly sharp decreases in the chemicals (- 20.4 p.c.) and fishing (- 18.9 p.c.) industries. Despite the general recovery in 2001, 2002 reaffirmed the fall which has been in evidence previously.

At the port of Ostend, the major changes recorded in 2002 for the direct employment in the main sectors were as follows:

- The fall recorded stems principally from the fishing sector, where employment fell by 36.0 p.c. to 250 FTE. The falls in production at Stolt Sea Farm or De Zwerver, and also the takeover of Morubel by Morubel Holding (which, according to the NACE-Bel nomenclature, is not categorised under the industry « Fishing ») were noted; these impacted on employment;
- Employment in the chemicals increased by 32.7 p.c., to 408 FTE. The good results posted by Proviron and Provironftal explain why these companies have been taking on staff since 2001;
- There were no major changes in employment in the metal-working industry. Employment rose by 2.9 p.c. to 1,150 FTE, and this despite the fall in production at Daikin Europe;
- In the other services, employment climbed 5.7 p.c. to 677 FTE;
- As for employment in other industries, this fell by 21.8 p.c. to 357 FTE.

Employment Top 10 at the port of Ostend in 2002

As far as employment is concerned, the importance of Daikin and Provironftal is also noticeable. Daikin Europe alone employs more than 1,000 people.

TABLE 28 **EMPLOYMENT TOP 10 AT THE PORT OF OSTEND IN 2002**
(FTE)

Ranking	Company name	Sector	Employment
1	DAIKIN EUROPE NV	Metal-working industry	1,112
2	PUBLIC ADMINISTRATION	Public sector	540
3	NAVY (DEFENCE ACTIVITIES)	Public sector	212
4	PROVIRONFTAL	Chemicals	176
5	BAGGERWERKEN DECLOEDT EN ZOON	Other industries	168
6	PROVIRON FINE CHEMICALS	Chemicals	122
7	MORUBEL HOLDING	Other services	104
8	STOLT SEA FARM	Fishing	69
9	ORAC	Chemicals	66
10	OSWALD DE BRUYCKER	Other services	63
	Total		**2,631**

Source: NBB.

4.3.4 *Investment*

TABLE 29 **SUMMARY OF THE CHANGES IN INVESTMENT AT OSTEND FROM 1995 TO 2002**
(millions of euros)

Sectors (direct effects)	1995	1996	1997	1998	1999	2000	2001	2002	Relative share in 2002 (in p.c.)	Change from 1995 to 2002 (in p.c.)	Annual average change (in p.c.)
Maritime cluster											
Shipping agents and forwarders	0.3	1.6	0.1	0.3	0.5	0.7	0.8	0.5	0.8	58.2	6.8
Cargo handlers	0.4	0.8	0.8	2.7	8.6	9.1	5.3	4.6	7.5	1,079.5	42.3
Shipping companies	111.9	1.0	0.0	0.6	0.0	0.0	0.0	0.6	0.9	- 99.5	- 53.2
Other services	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.1	0.1	-	-
Fishing	5.9	12.2	5.7	11.0	17.8	19.1	6.8	4.0	6.5	- 32.1	- 5.4
Shipbuilding and repair	0.9	0.2	0.4	0.7	2.9	2.3	0.8	0.4	0.6	- 57.5	- 11.5
Other industries	1.4	0.9	30.4	18.7	42.7	6.2	0.8	0.6	0.9	- 59.5	- 12.1
Public sector	0.6	2.8	1.5	1.9	0.0	0.0	1.7	0.0	0.0	- 100.0	- 100.0
Total maritime	**121.4**	**19.5**	**38.9**	**35.9**	**72.6**	**37.6**	**16.3**	**10.7**	**17.4**	**- 91.2**	**- 29.4**
Non-maritime cluster											
Total wholesale trade	5.4	3.5	7.0	10.4	7.0	7.4	4.3	6.0	9.8	11.7	1.6
Energy	0.0	0.0	0.1	0.1	0.1	0.2	0.1	0.0	0.0	-	-
Oil industry	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-
Chemicals	3.1	10.5	8.9	18.5	12.5	20.6	7.6	7.3	12	140.6	13.4
Car manufacturing	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-
Electronics	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-
Metal-working industry	6.2	5.0	7.2	11.3	11.8	14.0	17.3	7.7	12.6	25.3	3.3
Food industry	0.6	0.0	0.0	0.0	1.3	0.3	4.0	1.0	1.6	56.6	6.6
Other industries	1.6	1.5	1.2	0.8	0.7	0.8	1.2	0.7	1.1	- 57.5	- 11.5
Total industry	11.5	17.0	17.5	30.8	26.4	35.8	30.2	16.8	27.4	46.1	5.6
Other services	4.0	1.8	2.2	1.1	2.3	2.6	5.4	7.6	12.5	89.1	9.5
Other industries	0.0	0.0	0.0	4.4	0.7	0.4	0.4	1.4	2.2	-	-
Public sector	13.0	16.7	23.7	19.6	16.1	17.4	6.2	12.0	19.5	- 8.1	- 1.2
Total logistics services	17.0	18.5	25.9	25.2	19.2	20.4	12.0	21.0	34.2	23.0	3.0
Road transport	3.3	2.5	2.7	3.4	2.6	3.7	4.5	3.4	5.6	3.5	0.5
Other services	0.2	0.5	0.8	1.0	0.4	0.5	1.4	3.5	5.7	1534.5	49.1
Total transport	3.5	3.0	3.5	4.4	3.0	4.2	5.9	6.9	11.3	96.8	10.2
Total non-maritime	**37.4**	**42.0**	**53.9**	**70.9**	**55.6**	**67.8**	**52.3**	**50.7**	**82.6**	**35.4**	**4.4**
Direct effects	**158.8**	**61.5**	**92.8**	**106.8**	**128.3**	**105.4**	**68.6**	**61.3**	**100.0**	**- 61.4**	**- 12.7**
Allocation (p.m.)	4.7	10.7	2.7	5.3	10.6	7.9	3.8	2.8	-	- 39.8	- 7.0

Source: NBB.

General changes

Over the period under review, the total investment at the port of Ostend fell by an average of 12.7 p.c. per annum (table 29). The sharpest fall in the total was recorded in 1996 (- 61.3 p.c.), the year when investments at RMT ceased (the « Regie » acquired the Prins Filip ferryboat in 1995). The trend then rose in 1997, in particular with regard to port infrastructures, increasing by 50.8 p.c. in total. On the other hand, over the last three years, there was a sustained fall in investment: of 17.8 p.c. in 2000, 35.0 p.c. in 2001 and 10.6 p.c. in 2002, the year for which investment at the port of Ostend reached 61.3 million euro, 2.8 million of which were from allocation.

Changes by cluster

From 1995 to 2002, the most noticeable changes in investments at the port of Ostend were in the maritime cluster. At this level, the sharpest fall (- 83.9 p.c.) was observed in 1996 (table 29). This can be explained to a very great extent by the cessation of investments at RMT. 1997 saw an improvement in investments at the port of Ostend. For the maritime cluster, growth was 100.0 p.c., as was also the case for the wholesale trade segment, while growth for the logistics services was 39.7 p.c. The rise continued until 1999, followed by a structural decline in 2000, the year when RMT officially ceased trading. This downturn was confirmed in 2001 and the trend

continued in 2002. Hence, investments in industry and the maritime cluster fell by 44.3 and 34.4 p.c. respectively. However, investment in logistics services rose again.

Changes by sector

Apart from 1995 - which was an exceptional year for RMT on account of the extent of its investments at the port of Ostend (110.8 million euro, including the acquisition of the Prins Filip ferryboat) – and the subsequent sharp fall, total investment climbed steadily between 1996 and 1999 before falling back again from 2000 onwards. During 1999, the other industries and fishing sectors increased their investments by 84.2 and 61.1 p.c. respectively. Over the next two years, total investment then plummeted, and the downward trend continued in 2002, albeit at a more moderate rate.

At the port of Ostend, the major changes recorded in 2002 for investment in the main sectors were as follows:

- The sums invested in other services increased by 55.1 p.c. to 17.2 million euro. The efforts made by the SNCB in terms of investments should also be observed;
- Investments in other industries increased by 7.4 p.c. to 2.6 million euro. Baggerwerken De Cloedt en Zoon followed this trend;
- Investments in the chemicals decreased slightly (- 2.8 p.c.) to 7.3 million euro;
- Investment at cargo handling firms fell by 13.7 p.c. to 4.6 million euro. For example, Ostend Transport, Transshipment and Trading followed this trend;
- A sharp reduction was recorded in the metal-working industry (- 55.2 p.c.), with investments falling to 7.7 million euro. Daikin Europe posted the sharpest fall; in 2002, investment totalled just 7.6 million euro;
- In the public sector, investment rose 52.5 p.c. to 12.0 million euro. Of note here is the importance of the construction of the Plassendale 1 industrial zone into which the Flemish Region injected 6 million euro in 2002, or 40.8 p.c. of the total public funds invested in the port. Since port activities were regionalised in 1993, the Flemish Region has devoted a budget of more than 154.3 million euro to the development of the port of Ostend;
- Investment in the fishing sector fell by 41.3 p.c. to 4.0 million euro. The increase in investment at Stolt Sea Farm did not compensate for the effect of the takeover of Morubel by Morubel Holding.

Investment Top 10 at the port of Ostend in 2002

Daikin Europe tops the list. The picture is quite different to that of the previous year. SNCB is highly placed on the list. Work on the construction of a new railway bridge over the channel joining the ports of Ostend and Ghent, aimed at opening up the Plassendale 1 site, began in October 2002. Stadsvernieuwing Oostende plays an active role, especially in terms of development at the Churchill Site port.

TABLE 30 **INVESTMENT TOP 10 AT THE PORT OF OSTEND IN 2002**
(millions of euros)

Ranking	Company name	Sector	Investment
1	PUBLIC ADMINISTRATION	Public sector	12.0
2	DAIKIN EUROPE NV	Metal-working industry	7.6
3	J M HUBER BELGIUM	Chemicals	5.1
4	AUTONOOM GEMEENTEBEDRIJF HAVEN OOSTENDE	Cargo-handlers	3.9
5	JET CENTER	Other services	2.7
6	TRANSPORT MAENHOUT	Road transport	2.1
7	OSWALD DE BRUYCKER	Other services	1.7
8	SNCB – NMBS	Other services	1.6
9	STADSVERNIEUWING OOSTENDE	Other services	1.6
10	BOOT CENTER	Other services	1.1
	Total		**39.3**

Source: NBB.

4.3.5 Financial ratios (private companies)

By cluster

TABLE 31 RATIOS BY CLUSTER

Clusters	Return on equity after tax (in p.c.)			Liquidity in broad sense			Solvency (in p.c.)		
	2000	2001	2002	2000	2001	2002	2000	2001	2002
Maritime cluster	- 0.2	3.4	2.4	1.2	1.2	1.0	38.1	38.6	34.1
Non maritime cluster									
Wholesale trade	15.5	5.8	2.5	1.3	1.3	1.4	28.1	31.9	36.0
Industry.....	11.1	18.9	12.2	0.6	0.6	0.7	15.8	15.6	26.7
Logistics services.....	2.6	5.3	6.6	1.5	1.8	2.3	42.6	45.7	50.2
Transport.....	10.4	7.1	5.9	1.7	1.2	0.8	54.5	41.3	22.5
Weighted average	**4.4**	**7.2**	**7.0**	**1.1**	**1.2**	**1.2**	**32.1**	**33.7**	**36.1**

Source: NBB.

- The slight decrease recorded in 2002 with regard to the financial profitability of companies associated with the port of Ostend was due mainly to the maritime cluster and the industry segment (table 31). The increase achieved by logistics services partly offset this decline. 2001 was an excellent year at the port of Ostend in terms of profitability (return on equity), despite the fact that it proved impossible to maintain these good results the following year;
- On average, there was no change in the liquidity ratio, since the fall recorded at the maritime cluster level was offset by the increase in industry and logistics services;
- In 2002, the port companies were, on average, more solvent than during the two previous years. This trend was evident in industry and logistics services. The fall at the maritime cluster level did not lead to a trend reversal.

In the transport segment, the three ratios continued to fall in 2002. As far as profitability was concerned, the profits of companies like Vervoer Depoorter fell substantially. As far as liquidity is concerned, the short-term debts of Ostend Office continued to rise, owing to investments in fixed assets and in the form of leasing.

By sector

- In industry, the slight fall in profitability in 2002 was due to the poor results in the chemicals and metal-working industries (minor change in relative terms but significant in nominal terms). The decreasing profitability recorded by J M Huber Belgium – associated with a capital increase – and increasing depreciation at Provironftal explain this phenomenon in the chemicals industry, while a capital increase at Daikin Europe following deferred profits accounts for the fall in the ratio in metal-working industry. The poor results in the fishing and shipbuilding sectors explain the decrease in the ratio for the maritime cluster;
- The apparent stability of the liquidity ratio at the port of Ostend concealed a decrease in the maritime cluster and an increase in the logistics services segment. The first observation stemmed from the noticeable fall in the ratio for fishing (table 32), with, in particular, an increase of 44.8 p.c. in debts of more than one year at Stolt Sea Farm. This company, which carries out fish processing operations, continued to invest in extending its production site and, consequently, in the purchase of new equipment. This was reflected at the level of depreciations and by the increase in short-term debts, and in particular financial debts. The increase in logistics services was the result of a significant drop (- 25.0 p.c.) in short-term debts at Daikin Europe Coordination Center, a company dominating the other services sector;

TABLE 32 RATIOS BY SECTOR

Sectors	Return on equity after tax (in p.c.)			Liquidity in broad sense			Solvency (in p.c.)		
	2000	2001	2002	2000	2001	2002	2000	2001	2002
Shipping agents and forwarders	- 47.0	28.2	33.9	1.1	1.2	1.0	13.6	26.8	16.3
Cargo handlers	3.8	3.1	2.3	1.1	1.0	1.0	73.5	75.2	72.8
Shipping companies	n.	n.	n.	n.	n.	n.	n.	n.	n.
Road transport	15.1	15.1	13.8	1.5	1.4	1.6	48.7	42.5	45.1
Other services	4.0	5.0	5.7	1.5	1.7	2.0	41.2	44.0	45.7
Energy	9.5	6.7	21.6	0.7	0.9	1.5	56.5	59.9	38.5
Oil industry	n.	n.	n.	n.	n.	n.	n.	n.	n.
Chemicals	- 15.4	4.0	- 18.1	0.7	0.5	1.0	7.6	- 2.3	31.0
Shipbuilding and repair	8.3	4.8	2.2	1.1	1.1	1.0	29.8	31.3	14.8
Car manufacturing	n.	n.	n.	n.	n.	n.	n.	n.	n.
Electronics	n.	n.	n.	n.	n.	n.	n.	n.	n.
Metal-working industry	15.4	21.5	19.1	0.5	0.6	0.6	16.3	18.5	25.4
Fishing	- 14.4	0.3	- 7.4	1.4	1.3	0.7	33.0	32.1	23.3
Food industry	17.1	19.4	42.2	1.3	1.1	1.6	17.2	15.4	25.3
Other industries	2.4	4.0	5.8	1.2	1.3	1.6	28.6	29.4	33.4
Public sector	n.	n.	n.	n.	n.	n.	n.	n.	n.
Weighted average	**4.4**	**7.2**	**7.0**	**1.1**	**1.2**	**1.2**	**32.1**	**33.7**	**36.1**

Source: NBB.

- In 2002, the increase in the average solvency of the port of Ostend's companies was attributable primarily to metal-working, chemicals and other industries. Some examples for these three sectors are: Daikin Europe which proceeded to increase its equity capital (its solvency ratio consequently increasing from 18.3 to 25.3 p.c.), J M Huber Belgium which followed suit (ratio increased from - 34.4 to 81.1 p.c.) and Baggerwerken De Cloedt (ratio increased from 26.9 to 30.8 p.c.).

4.3.6 Cargo traffic in the port of Ostend in 2002

Summary

TABLE 33 OSTEND
(thousands of tonnes)

	Unloaded	Loaded	Total 2002	Change 2001- 2002 (in p.c.)	Share 2002 (in p.c.)
Containers	31	10	41	100.0	0.7
Roll-on/roll-off	1,795	2,773	4,579	42.1	73.4
Other general cargo	n.	n.	33	13.8	0.5
Liquid bulk	20	1	21	16.7	0.3
Dry bulk	n.	n.	1,565	1.8	25.1
Total	**n.**	**n.**	**6,239**	**+ 29.2**	**100.0**

Source: Vlaamse Havencommissie Annual Report 2002.

Although not all of the data relating to the distribution of total transit at the port of Ostend are available, in particular for the distribution of unloadings and loadings of general cargo and solid bulk, the totals may

nevertheless serve as a basis in drawing up comparisons with 2001 (table 33). An increase in transhipments was recorded, thus following the trend begun in 2000, following six years of decrease. As indicated in point 4.3.1, transhipments at Ostend grew by 85.3 p.c. between 1998 and 2002. Ro-ro activities, which here account for 73.4 p.c. of the total, were characterised in 2002 by an historic increase, related to the increased frequency of ferry services to Ramsgate and Ipswich and the introduction of a service to Killingholme. The increase in this « traffic is, at Ostend, well ahead of that for Ghent and is beginning to seriously challenge that of Zeebrugge »[52].

Passenger transport recorded a fall of 44.5 p.c., producing a figure of only 394,107 passengers in 2002; the same goes for car ferry transport which has fallen by 57.1 p.c. The fall in passenger traffic must be considered in relation to the competition from low-cost airlines and the Channel Tunnel. The reduction in car transit is related in particular to the withdrawal of the Hoverspeed service to Dover.

Unlike the three other ports, 99 p.c. of the services from the port of Ostend are to Europe, and above all to the United Kingdom.

For those interested additional information on cargo traffic at the port of Ostend in 2002 is presented in table 68 of annex 8, by categories of goods.

[52] Extract from an article in The Lloyd of 26 February 2003 entitled: « Ostend has increased its market share in 2003 », H. Van Der Zee.

4.4 Port of Zeebrugge

4.4.1 Significant facts in 2002[53]

- Context

Between 1974 and 1984, the port of Zeebrugge underwent large-scale expansion with the construction of a new outer port, sea lock and inner port. These changes have ensured that the port is now capable of accommodating vessels with a much greater draught and increased tonnage. Modern and spacious terminals have been installed, considerably increasing the transhipment capacity. In 2002, cargo traffic reached nearly 33 million tonnes, more than double the figure recorded in 1985, a pivotal year. Three-quarters of the cargo handled are unit cargo: new cars, containers and trailers.

Over recent years, the port of Zeebrugge has transformed itself from a simple transit port into a logistics platform where value is added to cargo prior to distribution. The volume of ro-ro traffic fell by 4.9 p.c. in 2002, while the tonnage of cargo transported by container once again reached the peak achieved in 2000: nearly 12 million tonnes (+ 12.1 p.c.). Moreover, Zeebrugge is underlining its position as the European leader in unaccompanied ro-ro freight traffic.

- Industry

In 2002, the American fruit juice manufacturer Tropicana built a new production unit alongside the USA-Kaai. Antwerp's mobile scanner is made available to the Zeebrugge port authorities on a regular basis. Inter Ferry Boats (IFB) began construction work on a new cross docking station. Bridgestone Firestone Europe (BFE) expanded the inner port warehouse and Middlegate Europe acquired a new warehouse with offices, in the port's transport zone.

- Infrastructure

In order to improve the integration of the port into the logistics chain from and towards the hinterland, the port authorities have created a structure enabling the transportation of containers by rail and by coastal or inland waters to be better organised: PortConnect.

In the outer port, work on the Leopold II dam continued as part of the sixth phase of renovation of the Kaaimuur (Wielingendok). The development of the Noordelijk Insteekdok has been completed. On 22 November, the Flemish Region authorised the deepening of the channel towards the port of Zeebrugge, as part of the programme entitled « 55/46 feet[54] ».

[53] Sources: Maatschappij van de Brugse Zeevaartinrichtingen Annual Report 2002 and Vlaamse Havencommissie Annual Report 2002.

[54] 55 feet correspond to approximately 16.7 m.

4.4.2 Value added

TABLE 34 **SUMMARY OF THE CHANGES IN VALUE ADDED AT ZEEBRUGGE FROM 1995 TO 2002**
(millions of euros)

Sectors (direct effects)	1995	1996	1997	1998	1999	2000	2001	2002	Relative share in 2002 (in p.c.)	Change from 1995 to 2002 (in p.c.)	Annual average change (in p.c.)
Maritime cluster											
Shipping agents and forwarders	25.1	28.8	28.3	22.2	22.6	21.6	21.2	23.7	3.5	- 5.5	- 0.8
Cargo handlers	43.5	35.1	50.8	54.0	71.2	88.4	95.2	99.9	14.5	130.0	12.6
Shipping companies	13.3	15.3	6.9	5.8	13.7	4.4	5.8	11.3	1.6	- 14.8	- 2.3
Other services	0.3	0.2	0.3	0.6	0.2	0.4	0.1	0.2	0.0	- 31.3	- 5.2
Fishing	27.5	23.0	28.7	23.0	26.4	30.6	35.3	28.2	4.1	2.5	0.4
Shipbuilding and repair	7.6	4.8	6.2	7.2	7.8	9.7	10.6	8.5	1.2	12.4	1.7
Other industries	28.6	27.9	13.8	18.5	19.6	33.3	26.6	29.4	4.3	2.8	0.4
Public sector	39.3	45.3	47.6	73.6	76.0	72.8	70.1	69.8	10.2	77.7	8.6
Total maritime	**185.0**	**180.5**	**182.5**	**205.0**	**237.5**	**261.3**	**264.7**	**271.1**	**39.5**	**46.5**	**5.6**
Non-maritime cluster											
Total wholesale trade	37.4	51.3	58.0	65.9	67.5	55.4	60.5	41.2	6.0	10.1	1.4
Energy	33.0	33.5	36.5	62.5	65.2	80.6	78.6	69.1	10.1	109.2	11.1
Oil industry	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-
Chemicals	20.9	23.1	24.9	26.9	28.3	29.3	29.6	28.4	4.1	35.8	4.5
Car manufacturing	7.0	6.0	7.4	9.3	10.4	11.4	20.9	15.1	2.2	114.6	11.5
Electronics	87.2	95.4	71.0	55.4	55.9	72.0	64.8	58.3	8.5	- 33.2	- 5.6
Metal-working industry	38.7	38.1	36.8	42.1	42.7	48.1	49.8	50.4	7.3	30.4	3.9
Food industry	15.5	11.1	18.0	17.9	15.7	13.8	13.3	12.5	1.8	- 19.4	- 3.0
Other industries	32.0	25.1	23.5	27.6	29.8	38.7	40.1	38.5	5.6	20.5	2.7
Total industry	234.3	232.3	218.1	241.8	248.1	293.9	297.2	272.2	39.6	16.2	2.2
Other services	12.0	9.6	6.9	7.3	10.3	11.9	14.5	15.9	2.3	32.9	4.1
Other industries	11.4	13.1	12.9	15.0	16.2	18.3	17.8	11.9	1.7	3.9	0.5
Public sector	14.3	15.2	15.2	15.4	15.6	13.9	17.5	17.4	2.5	21.6	2.8
Total logistics services	37.7	38.0	35.0	37.8	42.1	44.1	49.8	45.2	6.6	19.8	2.6
Road transport	27.3	34.8	33.3	36.7	42.9	39.7	35.7	40.5	5.9	48.4	5.8
Other services	11.2	13.0	10.9	12.2	12.3	13.4	14.0	16.8	2.4	49.4	5.9
Total transport	38.5	47.8	44.2	48.9	55.1	53.2	49.7	57.3	8.3	48.7	5.8
Total non-maritime	**348.0**	**369.4**	**355.3**	**394.4**	**412.8**	**446.6**	**457.1**	**415.9**	**60.5**	**19.5**	**2.6**
Direct effects	**533.0**	**549.8**	**537.8**	**599.4**	**650.3**	**707.8**	**721.8**	**687.0**	**100.0**	**28.9**	**3.7**
Allocation (p.m.)	18.5	14.9	8.0	16.3	19.4	21.2	27.2	23.8	-	28.3	3.6

Source: NBB.

TABLE 34 **SUMMARY OF THE CHANGES IN VALUE ADDED AT ZEEBRUGGE FROM 1995 TO 2002**

(continued) (millions of euros)

Sectors: indirect effects[55]	1995	1996	1997	1998	1999	2000	2001	2002	Relative share in 2002 (in p.c.)	Change from 1995 to 2002 (in p.c.)	Annual average change (in p.c.)
Total maritime	**165.7**	**181.0**	**175.1**	**148.4**	**225.8**	**170.0**	**171.0**	**300.6**	**45.4**	**81.5**	**8.9**
Total non-maritime	**267.2**	**276.1**	**269.6**	**294.0**	**325.6**	**343.3**	**371.8**	**361.8**	**54.6**	**35.4**	**4.4**
Indirect effects	**432.9**	**457.1**	**444.7**	**442.4**	**551.5**	**513.3**	**542.8**	**662.4**	**100.0**	**53.0**	**6.3**
Total value added	**965.8**	**1,007.0**	**982.4**	**1,041.8**	**1,201.8**	**1,221.1**	**1,264.7**	**1,349.4**	**-**	**39.7**	**4.9**

Source: NBB.

General changes

Between 1995 and 2002, the total VA (direct, allocation, and indirect) increased by 39.7 p.c., which corresponds to 4.9 p.c. per annum on average (table 34). This rising trend was more apparent for indirect VA which increased by 6.3 p.c. per annum on average, compared to 3.7 p.c. for direct VA. The most substantial increase in direct VA was recorded in 1998 (+ 11.5 p.c.), while both total VA and indirect VA increased most in 1999 (+ 15.4 p.c. and + 24.6 p.c. respectively). The only fall in total VA came in 1997 (- 2.4 p.c.). In 2002, the total production related to the port of Zeebrugge recorded its second highest growth rate (+ 6.7 p.c.), to 1.3 billion euro, underpinned by subcontracting. Indirect VA increased by 22.0 p.c. and direct VA decreased by 4.8 p.c.

Expressed in proportion to direct VA, there is less indirect VA in relative terms than in the other three ports, since these sectors most dependent on subcontracting activities are quite poorly represented at Zeebrugge. Between 1995 and 2001, the ratio of indirect VA to direct VA only peaked to 84.8 p.c. in 1999, owing to the growth achieved by the shipping companies, a sector heavily dependent on external labour. This ratio reached 96.4 p.c. in 2002, a year of high production levels for shipping companies, metal-working industry and road transport.

Changes by cluster in direct effects

The average annual growth (+ 3.7 p.c.) of the direct VA is largely attributable to the maritime cluster (+ 5.6 p.c.) and the industry segment (+ 2.2 p.c.). In 1998, the year in which the port of Zeebrugge recorded its largest general increase in direct VA, maritime cluster production rose by 12.3 p.c., while respective production figures for other sectors were as follows: wholesale trade (+ 13.7 p.c.), industry (+ 10.8 p.c.), logistics services (+ 8.0 p.c.). and transport (+ 10.7 p.c.). This upward trend continued up to 2001, followed by a fall in 2002 (- 4.8 p.c.). The VA of the maritime cluster grew by 2.4 p.c. and that of transport by 15.3 p.c.. On the other hand, the fall in industrial production registered 8.4 p.c. In logistics services, the VA decreased by 9.3 p.c. while the VA of the wholesale trade fell by 31.8 p.c.

Changes by sector in direct effects

The production of the port of Zeebrugge is divided between the following sectors: cargo handling, the energy and electronics industries, other industries, other services, public sector, fishing, the metal-working industry and road transport (table 34). A slight drop in VA was only recorded in 1997, a year characterised by a significant fall in production at shipping companies (- 54.9 p.c.) and in the electronics industry (- 25.5 p.c.). The increase witnessed in subsequent years was sharp particularly in 1999: cargo handling production recorded its second largest increase (+ 31.7 p.c.), while VA for the energy industry, fishing and road transport rose by 4.3, 14.7 and 16.8 p.c. respectively. This growth continued over the following years until 2001, as already mentioned.

At the port of Zeebrugge, the major changes recorded in 2002 for the direct VA in the main sectors were as follows:

- The VA of cargo handling rose by 5.0 p.c. to reach its highest level: 99.9 million euro. By way of example, note should be taken of the considerable increases in production at Maatschappij van de Brugse Zeevaartinrichtingen (+ 20 p.c. and 22.5 million euro), Ocean Containerterminal Hessenatie Zeebrugge (+ 35 p.c. and 11 million euro) and Sea-Ro Terminal (+ 7 p.c. and 43 million euro);
- The VA of other services (including wholesale trade) fell by 16.8 p.c. to 74.1 million euro. The VA of International Repair Services fell by 8 p.c. to 1.2 million euro;

[55] The breakdown of the indirect effects by sector for the period 1995 - 1999 can be found in annex 5 (table 55).

- The VA of the energy industry fell by 12.1 p.c., to 69.1 million euro. This fall is due largely to a production decrease of 8 p.c. at Electrabel, the VA of which was reduced to 38 million euro;
- The VA of the electronics decreased by 10.1 p.c. to 58.3 million euro. However, the fall in production at Philips Industrial Activities, the VA of which fell by 12 p.c. to 55.3 million euro, should be noted. This fall was compensated for by the introduction of a new company: Ninix Technologies, the VA of which was 1.4 million euro;
- The VA of fishing fell by 19.9 p.c. to 28.2 million euro. The decrease in VA recorded by Seagull (0.9 million euro) is one of the reasons behind this fall, as is the decrease in activities at companies like Vaya Con Dios;
- The VA of the metal-working industry continued to grow (+ 1.2 p.c.) to 50.4 million euro. Among the largest increases: Donaldson Europe (+ 13 p.c. and 1.8 million euro);
- The VA of road transport rose sharply (+ 13.4 p.c.) to 40.5 million euro. The production of D.D. Trans increased by 18.0 p.c., and its VA amounted to 17.2 million euro.

VA Top 10 at the port of Zeebrugge in 2002

Philips Industrial Activities and Sea-Ro Terminal retained their positions as the port of Zeebrugge's largest producers. Fluxys dropped two places and Electrabel gained one place due, inter alia, to the inclusion in the top 10 of the public sector. Maatschappij van de Brugse Zeevaartinrichtingen, which manages and operates the port, occupies seventh place in the table, just after Pieters Visbedrijf (which belongs to the wholesale trade segment and the other services sector - NACE-Bel 51381).

TABLE 35 **VA TOP 10 AT THE PORT OF ZEEBRUGGE IN 2002**
(millions of euros)

Ranking	Company name	Sector	Value added
1	NAVY (DEFENCE ACTIVITIES)	Public sector	69.8
2	PHILIPS INDUSTRIAL ACTIVITIES	Electronics	55.3
3	SEA-RO TERMINAL	Cargo handlers	43.3
4	ELECTRABEL	Energy	38.4
5	FLUXYS	Energy	30.6
6	PIETERS VISBEDRIJF	Other services	22.6
7	MAATSCHAPPIJ VAN DE BRUGSE ZEEVAARTINRICHTINGEN	Cargo handlers	22.5
8	GLAVERBEL	Other industries	20.0
9	PEMCO BRUGGE	Chemicals	19.1
10	BAGGERWERKEN DECLOEDT EN ZOON	Other industries	17.5
	Total		**339.1**

Source: NBB.

4.4.3 Salaried employment

TABLE 36 **SUMMARY OF THE CHANGES IN EMPLOYMENT AT ZEEBRUGGE FROM 1995 TO 2002**
(FTE)

Sectors (direct effects)	1995	1996	1997	1998	1999	2000	2001	2002	Relative share in 2002 (in p.c.)	Change from 1995 to 2002 (in p.c.)	Annual average change (in p.c.)
Maritime cluster											
Shipping agents and forwarders	409	394	442	360	321	267	252	294	3.0	- 28.1	- 4.6
Cargo handlers	684	866	987	1,054	1,196	1,327	1,303	1,291	13.2	88.8	9.5
Shipping companies	257	135	82	82	114	119	96	118	1.2	- 54.1	- 10.5
Other services	7	4	6	7	2	9	6	5	0.0	- 31.0	- 5.2
Fishing	529	395	433	348	395	494	489	430	4.4	- 18.7	- 2.9
Shipbuilding and repair	247	115	136	169	179	190	197	157	1.6	- 36.5	- 6.3
Other industries	410	401	172	221	231	319	296	331	3.4	- 19.3	- 3.0
Public sector	1,379	1,541	1,750	1,888	1,956	1,982	1,907	1,907	19.5	38.3	4.7
Total maritime	**3,921**	**3,851**	**4,007**	**4,129**	**4,394**	**4,707**	**4,546**	**4,533**	**46.3**	**15.6**	**2.1**
Non-maritime cluster											
Total wholesale trade	804	591	753	888	865	613	663	677	6.9	- 15.9	- 2.4
Energy	106	106	131	335	348	378	355	330	3.4	210.7	17.6
Oil industry	0	0	0	0	0	0	0	0	0.0	-	-
Chemicals	320	335	339	344	347	321	357	285	2.9	- 11.0	- 1.7
Car manufacturing	31	27	34	24	30	42	210[56]	51	0.5	65.5	7.5
Electronics	1,579	1,484	867	662	693	749	761	657	6.7	- 58.4	- 11.8
Metal-working industry	634	626	588	646	586	652	681	675	6.9	6.5	0.9
Food industry	277	212	266	293	298	271	267	267	2.7	- 3.5	- 0.5
Other industries	494	499	463	538	560	626	650	612	6.3	23.9	3.1
Total industry	3,441	3,288	2,688	2,842	2,861	3,039	3,281	2,878	29.4	- 16.4	- 2.5
Other services	264	189	99	116	135	217	216	235	2.4	- 11.0	- 1.6
Other industries	205	155	152	155	178	267	271	183	1.9	- 10.9	- 1.6
Public sector	414	410	409	408	403	348	338	337	3.4	- 18.6	- 2.9
Total logistics services	883	754	660	679	716	832	826	755	7.7	- 14.5	- 2.2
Road transport	479	531	566	593	686	660	599	616	6.3	28.6	3.7
Other services	307	286	705	241	255	269	279	325	3.3	6.0	0.8
Total transport	786	817	1,271	833	941	929	878	942	9.6	19.8	2.6
Total non-maritime	**5,914**	**5,449**	**5,373**	**5,242**	**5,382**	**5,412**	**5,648**	**5,251**	**53.7**	**- 11.2**	**- 1.7**
Direct effects	**9,835**	**9,300**	**9,379**	**9,371**	**9,776**	**10,119**	**10,193**	**9,783**	**100.0**	**- 0.5**	**- 0.1**
Allocation (p.m.)	441	249	262	250	282	318	347	318	-	- 27.9	- 4.6

Source: NBB.

[56] The large discrepancy arising here stems from the fact that the company International Van - a manufacturer of prefabricated units for lorries and semitrailers - did not file any annual accounts in 2000 and 2002.

TABLE 36 **SUMMARY OF THE CHANGES IN EMPLOYMENT AT ZEEBRUGGE FROM 1995 TO 2002**
(continued) (FTE)

Sectors (indirect effects[57])	1995	1996	1997	1998	1999	2000	2001	2002	Relative share in 2002 (in p.c.)	Change from 1995 to 2002 (in p.c.)	Annual average change (in p.c.)
Total maritime	**2,225**	**2,126**	**2,306**	**2,305**	**2,501**	**3,007**	**3,015**	**3,107**	**40.5**	**39.7**	**4.9**
Total non-maritime	**4,270**	**3,993**	**3,853**	**4,067**	**4,385**	**4,658**	**5,126**	**4,574**	**59.5**	**7.1**	**1.0**
Indirect effects	**6,495**	**6,119**	**6,159**	**6,371**	**6,886**	**7,665**	**8,141**	**7,681**	**100.0**	**18.3**	**2.4**
Total employment	**16,331**	**15,419**	**15,539**	**15,742**	**16,662**	**17,784**	**18,334**	**17,465**	**-**	**6.9**	**1.0**

Source: NBB.

General changes

Total employment at the port of Zeebrugge increased by 6.9 p.c. between 1995 and 2002, which corresponds to + 1.0 p.c. per annum on average (table 36). The growth pattern is very similar to that for Ghent: it is actually indirect employment which increased the most (+ 18.3 p.c., or + 2.4 p.c. per annum on average), while direct employment decreased on average by 0.1 p.c. per annum. The biggest increase was recorded in 2000 (increase in total employment of 6.7 p.c.), mainly due to a rise in subcontracting (+ 11.3 p.c.), linked to the growth in employment in the metal-working industry and fishing, sectors which are heavily dependent on external labour. On the other hand, in 2000 direct employment only rose by 3.5 p.c. as opposed to + 4.3 p.c. in 1999. The most significant fall in employment occurred in 2002, when total employment dropped by 4.7 p.c. to 17,465 FTE (direct and indirect employment were down by 4.0 p.c. and 5.6 p.c. respectively).

In contrast to the observations made for VA, there was no major change to the ratio of indirect to direct employment in 2002. This had increased on an almost constant basis since 1995, peaking in 2001 (79.9 p.c.). In 2002, this ratio dipped to 78.5 p.c.

Changes by cluster in direct effects

The most marked growth in employment at the port of Zeebrugge was in 1999, one year after the best year in terms of production growth. After a period of relative stagnation between 1996 and 1998, the three following years were characterised by an increase in employment until 2001, when the total of 10,193 direct FTE was reached. 2002 was characterised by a fall of 4.0 p.c., mainly in industry (- 12.3 p.c.), but also in logistics services (- 8.5 p.c.). However, a slight rise was noted in the wholesale trade (+ 2.0 p.c.) and in transport (+ 7.3 p.c.).

Changes by sector in direct effects

Most of the employment related to the operations of the port of Zeebrugge is concentrated in the following sectors: the public sector (the Navy), cargo handling firms, other services, other industries and, to a lesser degree, the electronics and metal-working industries, road transport and fishing (table 36). In 1999, the most substantial increases in employment were recorded in cargo handling (+ 13.4 p.c.), the electronics industry (+ 4.7 p.c.), fishing (+ 13.5 p.c.), etc. The increase continued to a moderate extent in 2001.

At the port of Zeebrugge, the major changes recorded in 2002 for the direct employment in the main sectors were as follows:

- Public sector employment (main employer in the port), stagnated in 2002 at 2,244 FTE;
- Employment in cargo handling, a sector undergoing restructuring, fell by 0.9 p.c. to 1,291 FTE;
- Employment in other services grew by 6.7 p.c. to 1,242 FTE, as a result in particular of the increases in staff at Group 4 Total Security and SNCB;
- Employment in other industries fell by 7.5 p.c. to 1,126 FTE. By way of example, there have been considerable decreases in the number of employees at Deme Environmental Contractors;
- Following several years of growth, employment fell by 13.7 p.c. in the electronics industry to 657 FTE. The workforce at Philips Industrial Activities, the largest private employer at the port of Zeebrugge, decreased from 719 to 595 FTE;

[57] The breakdown of the indirect effects by sector for the period 1995 - 1999 can be found in annex 5 (table 56).

- Following two good years for the labour market, employment related to the metal-working industry stagnated (- 0.8 p.c.) and now stands at 675 FTE. Despite the good results, this sector – including Motogroup and Seapane –cut a number of jobs;
- Following a poor 2001, employment in road transport advanced by 2.9 p.c. to 616 FTE. A slight increase in employment was recorded at D.D. Trans, Macotruck and Vandamme Madoe;
- The loss of jobs in the fishing sector was confirmed (- 12.1 p.c.), with employment falling back to 430 FTE. Most of the small businesses in the sector have reduced their workforce, especially Seagull.

Employment Top 10 at the port of Zeebrugge in 2002

Electrabel and SNCB now feature on this list: Electrabel is a business established in more than one location and SNCB is now considered to be part of the other services sector. The navy is the port's largest employer, which explains why it also heads the list in terms of VA.

TABLE 37 **EMPLOYMENT TOP 10 AT THE PORT OF ZEEBRUGGE IN 2002**
(FTE)

Ranking	Company name	Sector	Employment
1	NAVY (DEFENCE ACTIVITIES)	Public sector	1,907
2	PHILIPS INDUSTRIAL ACTIVITIES	Electronics	595
3	SEA-RO TERMINAL *	Cargo handlers	493
4	BELGIAN NEW FRUIT WHARF *	Cargo handlers	386
5	PUBLIC ADMINISTRATION	Public sector	337
6	PIETERS VISBEDRIJF	Other services	336
7	ELECTRABEL	Energy	234
8	SNCB – NMBS	Other services	233
9	D.D. TRANS	Road transport	219
10	ONDERNEMINGEN JAN DE NUL - ENTREPRISES JAN DE NUL	Other industries	202
	Total		**4,942**

Source: NBB.

* The employment of dockers was distributed among companies in the cargo handling sector.

TABLE 38 **SUMMARY OF THE CHANGES IN INVESTMENT AT ZEEBRUGGE FROM 1995 TO 2002**
(millions of euros)

Sectors (direct effects)	1995	1996	1997	1998	1999	2000	2001	2002	Relative share in 2002 (in p.c.)	Change from 1995 to 2002 (in p.c.)	Annual average change (in p.c.)
Maritime cluster											
Shipping agents and forwarders	3.9	4.0	10.4	5.6	8.6	5.2	5.2	7.8	6.5	98.3	10.3
Cargo handlers	14.8	9.3	21.1	29.1	65.1	45.0	23.6	25.3	21.2	71.4	8.0
Shipping companies	4.2	2.1	3.1	4.6	2.1	3.6	3.2	9.3	7.8	120.2	11.9
Other services	0.1	0.1	0.0	0.1	0.0	0.0	0.1	0.0	0.0	- 95.0	- 34.9
Fishing	5.9	15.2	11.8	9.7	21.4	20.1	10.3	7.1	6.0	20.1	2.6
Shipbuilding and repair	1.0	0.7	0.8	1.2	0.9	1.7	0.5	0.5	0.4	- 51.1	- 9.7
Other industries	4.1	3.6	2.3	5.6	11.1	8.8	1.8	1.6	1.4	- 60.2	- 12.3
Public sector	0.0	0.1	0.1	3.2	0.7	4.2	0.8	0.0	0.0	-	-
Total maritime	**34.0**	**35.1**	**49.5**	**59.0**	**109.9**	**88.6**	**45.4**	**51.7**	**43.2**	**52.0**	**6.2**
Non-maritime cluster											
Total wholesale trade	11.5	6.1	8.9	10.4	12.1	7.9	10.7	9.3	7.8	- 19.3	- 3.0
Energy	3.5	4.0	11.9	51.2	7.2	7.4	7.7	4.0	3.3	15.0	2.0
Oil industry	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-
Chemicals	4.4	2.2	2.7	3.6	3.0	3.5	3.3	2.3	1.9	- 46.9	- 8.7
Car manufacturing	0.4	0.3	0.9	0.8	1.0	2.6	4.7	1.0	0.8	174.0	15.5
Electronics	13.5	13.8	6.6	11.7	8.6	8.9	13.5	6.5	5.4	- 52.1	- 10.0
Metal-working industry	2.8	5.6	7.0	5.5	4.6	9.5	6.9	5.2	4.3	81.4	8.9
Food industry	4.1	3.0	4.2	2.7	2.7	1.5	1.2	1.1	0.9	- 74.0	- 17.5
Other industries	4.8	1.7	1.7	4.2	7.6	6.4	5.9	7.6	6.4	57.8	6.7
Total industry	33.5	30.7	34.9	79.7	34.7	39.8	43.1	27.6	23.1	- 17.6	- 2.7
Other services	4.4	2.3	1.5	3.1	6.6	5.2	4.4	4.8	4.0	9.3	1.3
Other industries	4.5	4.7	13.6	7.7	3.9	5.6	5.2	0.8	0.7	- 81.8	- 21.6
Public sector	13.1	14.7	14.1	15.2	24.2	21.0	11.4	4.4	3.7	- 66.2	- 14.4
Total logistics services	22.0	21.7	29.2	26.0	34.7	31.9	21.0	10.1	8.4	- 54.2	- 10.6
Road transport	9.8	9.2	10.5	14.2	10.2	9.3	6.4	11.2	9.4	14.2	1.9
Other services	5.6	6.5	5.1	5.3	6.5	8.1	6.5	9.7	8.1	73.4	8.2
Total transport	15.4	15.8	15.6	19.5	16.7	17.5	12.9	20.9	17.5	35.6	4.4
Total non-maritime	**82.4**	**74.2**	**88.5**	**135.6**	**98.2**	**97.0**	**87.7**	**67.8**	**56.8**	**- 17.7**	**- 2.7**
Direct effects	**116.4**	**109.3**	**138.0**	**194.6**	**208.0**	**185.6**	**133.1**	**119.5**	**100.0**	**2.7**	**0.4**
Allocation (p.m.)	6.5	11.9	2.7	7.0	17.0	19.2	10.4	9.5	-	46.6	5.6

Source: NBB.

General changes

In 2002, the port of Zeebrugge's total investment was slightly greater than that in 1995 (table 38). However, between these two dates, some major changes were observed: an increase between 1997 and 1999, followed by a decline until 2002. The largest increase was recorded in 1998 (+ 41.0 p.c.) and the sharpest fall in 2001 (- 28.3 p.c.). In 2002, investments fell once more, by 10.2 p.c. (- 10.4 p.c. for companies established in the port area), to 119.5 million euro.

Changes by cluster

The changes in the different clusters reflected the overall changes. The spectacular increase in 1998 (+ 41.0 p.c.) can be explained by the sharp rise in industrial investments (+ 128.5 p.c.), whereas in 1999, it was maritime investments which set the tone (+ 86.3 p.c.). These represented 52.8 p.c. of the amounts invested in the port for that year. 2001 was characterised by a general fall in the amounts invested (- 28.3 p.c.), except in the wholesale trade and industry. The fall continued in 2002 – see supra. Investment fell by 13.5 p.c. in the wholesale trade, by

36.0 p.c. in industry and by 51.9 p.c. in logistics services. On the other hand, in the maritime cluster and transport, investment advanced by 13.8 p.c. and 61.9 p.c. respectively.

Changes by sector

Following several years of sustained increases in investments at the port of Zeebrugge, the period from 2000 to 2002 was characterised by the opposite trend (table 38). Whereas in 1999, the amounts invested in cargo handling totalled 65.1 million euro, three years later this figure only came to 25.3 million euro. During this period, the port of Zeebrugge's most dynamic sectors in investment terms were cargo handling, fishing, the public sector, the electronics and energy industries (in 1998, record investment by Distrigas), other industries, other services and road transport. Following 2001, a year which was characterised by a pronounced fall in investments, this trend was underlined in 2002, albeit to a lesser degree.

At the port of Zeebrugge, the major changes recorded in 2002 for investment in the main sectors were as follows:

- Investment in cargo handling was up by 7.5 p.c. to 25.3 million euro. This trend was underpinned in particular by Sea Ro Terminal;
- Following a somewhat lacklustre 2001, investment in fishing fell by 30.4 p.c., to 7.1 million euro. Sharp falls were recorded at Sea Food Incorporation and Vertrouwen among others;
- Following a year of growth, investment in the electronics industry fell by 52.0 p.c., to 6.5 million euro. Philips Industrial Activities posted the sharpest fall, with investment in 2002 of just 5.4 million euro, as opposed to 13.4 million euro a year earlier;
- Investment in the energy industry fell by 48.4 p.c., to 4.0 million euro. At Electrabel, investments fell by 75.0 p.c. on the previous year, and totalled just 1.3 million euro;
- Investment in other industries decreased by 21.8 p.c. to 10.0 million euro;
- Investment in other services grew by 9.5 p.c. to 23.8 million euro. Investment by the SNCB rose by 128.6 p.c. to 4.7 million euro;
- Following three rather uneventful years, investment in road transport recovered (+ 74.7 p.c.) to 11.2 million euro. Among those to record increases were D.D. Trans and Vandamme Madoe (which more than doubled its figure of 2001);
- Following several years of public investment, only 4.4 million euro were invested in the port of Zeebrugge in 2002, a decrease to the tune of 63.7 p.c. compared to the previous year. The greater part of this sum (41.7 p.c. of regional investment in the port) was spent on the channel deepening project and on the construction of the quay wall in the Wielingendok.

Investment Top 10 at the port of Zeebrugge in 2002

In 2002, the management of the port of Zeebrugge (Maatschappij van de Brugse Zeevaartinrichtingen) invested considerable sums of money, especially in the outer port (Leopold II dyke).

TABLE 39 INVESTMENT TOP 10 AT THE PORT OF ZEEBRUGGE IN 2002
(millions of euros)

Ranking	Company name	Sector	Investment
1	MAATSCHAPPIJ VAN DE BRUGSE ZEEVAARTINRICHTINGEN	Cargo handliers	13.1
2	SEA-RO TERMINAL	Cargo handlers	7.4
3	COBELFRET FERRIES	Shipping companies	7.3
4	D.D. TRANS	Road transport	6.3
5	COMPAGNIE BELGE D'AFFRETEMENTS	Shipping agents	5.4
6	PHILIPS INDUSTRIAL ACTIVITIES	Electronics	5.4
7	SNCB – NMBS	Other services	4.7
8	PUBLIC ADMINISTRATION	Public sector	4.4
9	ONDERNEMINGEN JAN DE NUL - ENTREPRISES JAN DE NUL	Other industries	3.6
10	VR CAR	Other services	2.8
	Total		**60.3**

Source: NBB.

4.4.5 Financial ratios (private companies)

By cluster

TABLE 40 RATIOS BY CLUSTER

Clusters	Return on equity after tax (in p.c.)			Liquidity in broad sense			Solvency (in p.c.)		
	2000	2001	2002	2000	2001	2002	2000	2001	2002
Maritime cluster ..	1.6	4.8	6.6	1.2	1.1	1.3	44.6	46.6	53.2
Non-maritime cluster									
Wholesale trade	4.2	6.2	7.9	1.2	1.2	1.3	22.3	25.2	27.3
Industry	13.5	8.1	- 0.8	1.3	1.2	1.4	31.4	41.2	40.6
Logistics services..	- 2.6	2.3	2.3	1.2	2.0	2.3	49.7	60.1	63.6
Transport.....	2.4	1.8	- 5.2	0.9	1.0	1.0	37.2	36.8	33.7
Weighted average	**5.5**	**5.9**	**2.8**	**1.2**	**1.2**	**1.3**	**37.6**	**43.4**	**45.2**

Source: NBB.

- 2002 was characterised by a very marked fall in the profitability (return on equity) of the companies dependent on the port of Zeebrugge (table 40). This drop was evident in industry and transport, even though the latter segment was less representative. The maritime cluster, which is highly representative, followed the opposite trend;
- There was little change in liquidity, except for a minor increase in industry;
- The solvency ratio continued to grow, underpinned by the maritime cluster.

By sector

TABLE 41 RATIOS BY SECTOR

Sectors	Return on equity after tax (in p.c.)			Liquidity in broad sense			Solvency (in p.c.)		
	2000	2001	2002	2000	2001	2002	2000	2001	2002
Shipping agents and forwarders	5.2	9.4	7.8	1.0	1.0	0.9	18.9	25.2	22.5
Cargo handlers	3.1	4.2	8.3	0.8	0.8	1.0	59.3	61.3	65.7
Shipping companies	- 3.7	- 1.2	2.9	3.2	3.7	3.2	71.1	73.6	73.8
Road transport	5.8	8.3	12.0	0.9	1.1	1.2	37.1	43.1	44.6
Other services	0.8	2.6	0.7	1.1	1.4	1.4	30.6	37.8	39.8
Energy	18.0	9.3	11.4	1.3	1.4	1.7	26.5	48.6	52.0
Oil industry	n.	n.	n.	n.	n.	n.	n.	n.	n.
Chemicals	24.9	18.8	18.4	1.5	1.3	1.2	41.6	42.8	42.9
Shipbuilding and repair	11.5	12.6	9.0	1.1	1.2	1.4	18.4	23.4	33.8
Car manufacturing	19.5	10.8	11.0	1.6	1.4	2.4	68.2	49.6	66.3
Electronics	14.5	- 14.9	- 388.9	1.5	1.2	1.8	50.9	47.1	14.0
Metal-working industry	2.6	18.2	4.5	1.1	1.1	1.2	29.2	31.3	31.6
Fishing	- 3.5	12.5	1.7	0.8	0.7	0.6	28.1	27.2	30.8
Food industry	4.4	- 7.3	- 25.5	1.2	1.2	1.0	25.1	24.5	21.0
Other industries	5.0	5.0	3.3	1.1	1.2	1.5	31.6	34.7	38.9
Public sector	n.	n.	n.	n.	n.	n.	n.	n.	n.
Weighted average	**5.5**	**5.9**	**2.8**	**1.2**	**1.2**	**1.3**	**37.6**	**43.4**	**45.2**

Source: NBB.

- The average profitability of those companies at the port of Zeebrugge fell substantially in 2002. Industry was directly affected by this drop, mainly metal-working, other and electronics industries (table 41). For the latter, changes can be explained by the drastic financial restructuring programme at Philips Industrial Activities where record losses were recorded (nearly 142 million euro for the Bruges-Zeebrugge site in 2002);
- Liquidity increased slightly in 2002, especially in the electronics industry. The liquidity ratio for Phillips Industrial Activities advanced from 1.1 to 1.8;
- Solvency increased, especially in the maritime cluster – principally in the cargo handling, fishing and other maritime industries sectors: Belgian New Fruit Wharf, Brugse Visrokerij Alloo and Baggerwerken Decloedt en Zoon in particular witnessed a sharp fall in their debts.

4.4.6 Cargo traffic in the port of Zeebrugge in 2002

Summary

TABLE 42 **ZEEBRUGGE**
(thousands of tonnes)

	Unloaded	Loaded	Total 2002	Change 2001- 2002 (in p.c.)	Share 2002 (in p.c.)
Containers.....	5,260	6,605	11,865	12.1	36.1
Roll-on/roll-off.....	5,636	8,015	13,651	- 4.9	41.4
Other general cargo.	638	148	786	- 23.8	2.4
Liquid bulk.....	4,042	880	4.922	18.9	14.9
Dry bulk.....	1,667	45	1,712	- 13.4	5.2
Total.....	**17,243**	**15,693**	**32,936**	**+ 2.7**	**100.0**

Source: Vlaamse Havencommissie Annual Report 2002

Following an average annual fall in traffic of 1.2 p.c. since 1998, a 2.7 p.c. increase was observed in 2002, due to growth in the container transport lines (36.0 p.c. of total goods transhipped at Zeebrugge). Given the importance of this activity, the port authorities have for several years been working towards establishing a structure that would enable organisational improvements in container transportation via rail, coastal and inland waters to be made. This initiative, now called PortConnect, enabled 65,000 TEU, or 715,000 tonnes, to be transported in 2002. The decrease in transhipment of dry bulk is attributable to a fall in sand and gravel supplies. The increase in liquid bulk is due to liquid natural gas (LNG) distribution, which grew by 49.4 p.c. The fall observed in Ro-Ro volumes can be explained by the decline in traffic with the United Kingdom, in particular following the restructuring of the P&O fleet. More than 770,000 passengers passed through Zeebrugge port in 2002.

For those interested additional information on cargo traffic at the port of Zeebrugge in 2002 is presented in table 69 of annex 8, by categories of goods.

4.5 Breakdown of findings by company size

This relates only to the findings for port companies in the narrow sense (before allocation of the findings for companies situated outside the port areas).

TABLE 43 **SUMMARY OF FINDINGS BY PORT IN 2002**

	Number of companies		Direct value added (millions of euros)		Direct salaried employment (in FTE)		Investment (millions of euros)	
Port	Large companies	SMEs	Large companies	SMEs	Large companies	SMEs	Large companies	SMEs
Antwerp	342	1,112	6,530.2	406.2	53,796	5,676	1,392.0	89.3
Ghent	169	508	2,744.6	184.4	25,656	2,653	768.3	34.1
Ostend	29	224	263.2	50.6	3,097	862	42.1	16.4
Zeebrugge	69	314	554.1	109.1	7,691	1,774	86.9	23.1
Total	**609**	**2,158**	**10,092.1**	**750.4**	**90,241**	**10,965**	**2,289.3**	**162.9**

Source: NBB.

The large companies, which in quantitative terms represent only one-fifth of the companies under review, accounted for a total of 89.2 p.c. of overall staff and were responsible for 93.1 p.c. of the VA undertaken in the four ports. They absorbed 93.4 p.c. of the amounts invested. A breakdown by sector is given in annex 6.

5 SUMMARY OF THE MAIN RESULTS AND PROSPECTS FOR THE FLEMISH MARITIME PORTS

5.1 Summary

5.1.1 Value added

For the companies under review, 2002 was a year marked by recovery, with direct VA growing by 2.9 p.c. (1.6 p.c. in constant terms as against 2001, a level above the growth recorded in Belgium for 2002: 0.7 p.c.). This VA totalled almost 11.0 billion euro. It was also a positive year for production among the suppliers of these companies, since indirect VA increased, all levels taken together, by 4.9 p.c. and, at the first level, by 5.0 p.c. It thus totalled 11.3 billion euro, of which 6.3 billion was at the first level. In 2002, the ratio of indirect VA to direct VA increased by 1.9 p.c., all levels taken together, to reach 102.7 p.c.

Total VA – indirect effects included – associated with the ports came to 22.2 billion euro in 2002, or 8.6 p.c. of GDP[58]. This proportion falls to 4.2 p.c. if only the companies in the study are taken into account (direct effects). This gives an indication as to the importance of the ports for the Belgian economy.

From 1995 to 2002, the port of Antwerp, which accounts for 66.5 p.c. of the maritime traffic recorded in the four ports and 62.3 p.c. of the total VA, is the port sector's engine of development. The increase in « Naties » (cargo handlers) and the chemicals industry (the most important port sector) particularly explains the success of Antwerp, which thus maintained its position as European leader in general cargo, and experienced a 14.2 p.c. increase in container traffic in 2002.

At Ghent, after several difficult years, production recovered in the metal-working industry during 2002. Total VA for the port as a whole thus increased by 5.3 p.c., all effects taken together. However, traffic in general cargo failed to keep up with this trend (- 48.4 p.c.).

Between 1995 and 2001, the growth in traffic and direct VA was most remarkable at the port of Ostend. Total VA was, however, curbed by the structural fall in subcontracted production. In 2002, production on the part of companies established within the port was in decline, particularly in fishing and the metal-working industry. In contrast, Ro-Ro continued to increase (+ 42.1 p.c.).

At the port of Zeebrugge, it was the shipowners, cargo handling and metal-working sectors that were, among others, responsible for the increase in total VA during 2002. Container transport increased by 12.1 p.c., boosted, among other things, by initiatives such as PortConnect.

5.1.2 Employment

During 2002, the gains achieved in the previous year in terms of jobs were lost, direct employment in the four ports thus falling from 106,199 to 102,942 FTE. On average, Antwerp port accounted for 57.6 p.c. of the staff of the sector as a whole reviewed over the period 1995 – 2002: it employed 59,472 FTE in 2002 (direct effects only).

Having peaked at 117,959 units in 2001, indirect employment, all levels taken together, fell to 110,242 FTE in 2002, including 62,720 FTE for first-line suppliers. For the four ports in total, the ratio of indirect jobs to direct jobs witnessed its sharpest decline in 2002, falling from 111.1 p.c. to 107.1 p.c., a level slightly less than the average for the period in question. Subcontracting of jobs thus seems to be in slight decline, particularly in Antwerp, where there are numerous indirect jobs associated with the cargo handling sector.

A decline in total employment can be noted in the four ports in question. It is fairly limited, if only employment in the ports is considered (direct employment in the port area), as it amounts to - 2.6 p.c. at Antwerp, - 3.5 p.c. at Ghent, - 0.5 p.c. at Ostend and - 3.9 p.c. at Zeebrugge, or - 3.1 p.c. in total. If the allocation of data from maritime companies not located in the ports and indirect effects are taken into account, the fall in total employment in relation to 2001 is, for the same ports, 5.9, 3.2, 0.4 and 4.7 p.c. This decline in employment is, above all, due to the cargo handling, chemicals and car manufacturing industries sectors at Antwerp, the metal-working and, to a

[58] Source: NBB, Annual Report 2002, Part 1.

lesser extent, car manufacturing and chemicals industries at Ghent, and the electronics industry at Zeebrugge. At Ostend, job losses in fishing were partly offset by recruitment in the chemicals industry.

In 2002, direct port employment accounted for 2.5 p.c. of the total active population[59]. If indirect employment is also taken into account, this share increases to 5.1 p.c.

Apart from a fall in employment in the port companies under review - particularly due to early retirement plans and dismissals - , an increase in part-time work and a continuing fall in the appointment of low-qualified staff, it can be seen that, despite a decline in 2002, the proportion of working time devoted to training remained above the national average. These companies are thus continuing to invest in skills management, focusing on highly qualified staff who require ongoing training. In this context, efforts are being made with regard to women, who formed a relatively higher proportion of those undertaking training in 2002 than in 2001.

5.1.3 Investment

The years 2000 to 2002 were very favourable for port investment. With total investment of more than 1.5 billion euro at Antwerp, 2001 was a record year during the period 1995- 2002. This upward trend began in 2000, after a rather modest 1999.
At the port of Antwerp, investments increased by 4.4 p.c. per annum on average. A fall was, however, noted in 2002 in the chemicals and cargo handling sectors.

From 1995 to 2002, investment more than doubled at the port of Ghent. As far as 2002 is concerned, the significant increase in amounts invested in the car manufacturing industry and in Stora Enso Langerbrugge should be noted.
In 2002, after increasing for several years, investments in the port of Zeebrugge returned to their 1995 level. 2002 was disappointing for the fishing and energy industries.

At Ostend, investment fell by 2.9 p.c. per annum on average between 1995 and 2002. This was largely due to the cessation of trading at RMT. 2002 was marked by a fall in investment within the metal-working and fishing industries.
In total, the amounts invested in the ports increased by 2.6 p.c. in 2002, to 2.5 billion euro for all of the ports, whilst the investment price index fell by 0.4 p.c.

Finally, public services, particularly the Flemish Region, continued to invest in major projects for port development: such was the case of Deurganckdok at Antwerp, Kluizendok at Ghent, the Plassendale 1 industrial zone at Ostend and the outer port at Zeebrugge.

[59] Source: NBB, Annual Report 2002, Part 1

5.2 Prospects for the Flemish maritime ports[60]

Foreign trade is essential for Belgium, given that the equivalent of two-thirds of its GDP is exported. Moreover, the European Union of the 15 relies on the sea for 90 p.c. of its foreign trade and for 43 p.c. of its domestic trade. Total VA for companies in the four ports and their supplier chains (sum of the direct and indirect effects) generally follows the development in foreign trade.

In relation to the previous two years' levels, exports and imports increased very slightly in 2002. However, this did not affect the production level of the companies under review very much despite the correlation between imports and exports and that of the VA of the companies in the study (maritime and non-maritime).

The development of the ports is in response to evolutions in foreign trade and their knock-on effect on maritime transport. Political events and technological developments have an impact on transport, on maritime and continental trade and, consequently, on port activities.

The economic environment of the ports is marked by an expansion in world trade, along with a growing dispersion of its centres through the internationalisation of production and consumption models and through new transport and distribution requirements. Production, trade and transport are now integrated into a single system. In this context, port activities are no longer restricted to the loading and unloading of vessels: the ports are turning into logistics centres that combine the business lines of production, trade and transport. It is by adapting to this new structure of international trade that the ports are likely to play an active role in trade expansion.

This new role for ports can be seen through an analysis of foreign trade and the transport chain. The latter begins at the site of production of raw materials or semi-finished products and continues until the finished product reaches its final destination. In order to rationalise all the activities involved in this process and minimise overall costs, a logistics approach has to be adopted.

For each product, operations ought to be carried out where:
- the cheapest production factor is available;
- a minimum of « downtime » is necessary;
- a minimum of transportation is required;
- the product can be manufactured in the largest quantities.

It is within this context that projects such as IPG in Ghent or PortConnect in Zeebrugge are relevant, because they enable improvements to be made in the transportation of goods to other ports and the interior of the country, combining various modes of transport. IPG is an example of a project capable of resulting in a multimodal hub (see annex 9).

The notion of « Value Added Logistics » (VAL) is also involved. Ports capable of adding value to the goods passing through them possess a major asset in a context of ever-increasing global competition. The « Naties » of Antwerp and Zeebrugge ports play this role completely, since these companies increasingly combine storage activities (bulk or general cargo, hazardous or controlled temperature goods), and activities with a high value added (assembly, packaging, labelling, quality control, route planning, tracking and tracing, customs clearance, etc.). It is a question of « business » type logistics, and this comprises two dimensions: materials management and their physical distribution from place of production to final consumer.

In order to develop, the ports must offer sufficient storage space close to the terminals. The warehouses must, to the extent of available resources, be adapted to meet the very stringent monitoring requirements. The overland transport infrastructure also needs to be developed. Given all these challenges, the approach will need to be more commercial than in the past. Concrete answers must be found at the level of infrastructure (vessel access) and superstructure (cranes, warehouses, etc.) facilities, whilst ensuring compliance with increasingly strict European environmental standards.

All stakeholders agree on the prime objective of all these policies: to minimise the costs of cargo transit whilst maximising value added. This policy requires, among other things, economies of scale. The port of Antwerp has thus set itself the objective of passing the 140 million tonne mark of cargo transhipped per annum. Ostend is relying heavily on improving its maritime access which should, following renovation of its outer port and

[60] See, among others: « Port Marketing », Maritiem Instituut - Universiteit Gent (1998).

development of the new Plassendale 1 industrial zone, enable it to rapidly top the 10 million tonne mark. Ghent and Zeebrugge are following this trend too.

All of the ports in the Hamburg - Le Havre range must accept the conditions imposed by a competitive environment. The fact that there is, in reality, only one hinterland for all of the ports equipped with state-of-the-art technology encourages each one of them to maintain, indeed strengthen, its position by aiming at ever-increasing specialisation, as can be seen from the development of different types of cargo traffic that is taking place[61]. In this context, the significance of economies of scale in terms of production and investment sometimes has the consequence of reducing the number of players and thus undermining competition mechanisms. This is a matter for concern, particularly for the shipowners, as regards container terminals. There is thus a need for the political authorities – and particularly the European Commission – to intervene with corrective measures in order to maintain an economic environment that is favourable to competition and, consequently, to development and technological innovation within the ports of this range.

Expansion of the European Union's ports is at the heart of the overall strategy presented in the Commission's 2001 White Paper[62]. According to this, the key to growth in European maritime transport currently lies in two areas: increased capacity and intermodal effectiveness on the part of ports and an opening up of the port services market to potential service providers. The ports under review are aware of these challenges.

[61] Details in chapter 4 and annex 8.

[62] « European Transport Policy for 2010: time to decide ».

List of abbreviations

d.w.t.	deadweight tonnage
ESA 95	European System of Accounts
EU	European Union
FTE	Full-time equivalents
GDP	Gross Domestic Product
IOT	Input-Output Table
n.	not available
NACE	Statistical nomenclature of economic activities in the European Community
NAI	National Accounts Institute
NBB	National Bank of Belgium
NSI	National Statistical Institute
p.c.	per cent
p.m.	pro memoria
R&D	Research and Development
RMT	Regie voor Maritiem Transport
SME	Small and Medium-sized Enterprise
SNCB	Belgian National Railway Company
SUT	Supply and Use Table
TEN	Trans-European Network
TEU	Twenty-foot equivalent unit
VA	Value added

ANNEX 1: NOTE ON METHODOLOGY

1 Clusters

Numerous studies[63] on the economic impact of port activities are structured around the notion of « Maritime Cluster », which denotes all the industries (companies and supplier chains) associated with the ports. It is generally accepted that the port is situated at the intersection of these different activities. This approach gives rise to the study of those industries that define or interact with the port.

For the sake of consistency with previous port studies and the Bank's other publications, and in order to cover port activity as a whole, it was also decided to study other segments. Two clusters are thus considered within this study on Belgian port activity:

TABLE 44 CLUSTERS AND SEGMENTS

- The maritime cluster, which includes branches of the ports themselves, and whose existence is essential to them (management and maintenance, shipping, transhipment, affreightment, piloting, locks, storage, dredging, fishing, maritime services, etc.);
- Four segments that do not have an immediate economic link with port activity but which exhibit a close interdependence with it by virtue of their geographical proximity. These are known as « non-maritime » and include:
  - the *industry* segment, comprising the oil, chemicals, metal-working, car manufacturing and electricity industries, etc.;
  - the *wholesale trade* segment, which includes the chain of wholesale commission agents who have links with the ports (suppliers, trades associated with the above industries, import-export, etc.);
  - the *transport* segment, which comprises the different modes transporting goods overland (road, rail, pipeline, etc.);
  - the *logistics services* segment, which groups together companies providing port support services that are not specifically maritime (computer services, coordination centres, management offices, consultancy, public services, maintenance services, etc.).

Source: NBB.

The companies in the maritime cluster define port activity and have an immediate economic link with the ports. In contrast, the activities of « non-maritime » companies may only have a mediate economic link with them, which requires a geographical presence in the port.

2 Branches and choice of level of aggregation

Some of the branches selected[64] for this study are described according to their NACE-Bel classification, in line with the ESA 95 approach (see « European System of Accounts ESA 95 », Eurostat). When a distinction between branches is called for, it is possible to go as far as precision level 5. The definition of SUT[65] codes is of particular importance when calculating the indirect effects.

The shaded areas in table 45 show the industries which, although basically classified in one of the four segments of the non-maritime cluster, are, according to this analysis grid, partially in the maritime cluster.

[63] Including Dutch publications of the Nederlands Economisch Instituut and the Nationale Havenraad, and studies by the Faculty of Applied Economics at Antwerp University.

[64] The complete list of NACE-Bel branches in the study can be found in annex 3.

[65] Supply & Use Table. This designation also enables the branches included in these tables, and which correspond to precision level 2 NACE-Bel codes, to be described in summary form. See also point 5.2 of this appendix 1 and « Input-Output Tables of Belgium in 1995 », NAI, February 2003.

TABLE 45 CLUSTERS

Clusters	NACE codes	Description of Nace code	Sectors
Maritime	63.11.1	Cargo handling in seaports	Cargo handlers
	63.11.2	Other cargo handling	Cargo handlers
	63.12.1	Storage and warehousing in cold-storage buildings	Cargo handlers
	63.12.2	Other storage and warehousing	Cargo handlers
	63.22.0	Other supporting water transport activities	Cargo handlers
	61.1	Sea and coastal water transport	Shipping companies
	61.2	Inland water transport	Shipping companies
	45.24.1	Dredging	Other industries
	45.24.2	Other construction of water projects	Other industries
	35.11	Building and repairing of ships	Other industries
	35.12	Building and repairing of pleasure and sporting boats	Shipbuilding and repair
	05.01	Fishing	Fishing
	05.02	Operation of fish hatcheries and fish farms	Fishing
	15.20.1	Processing and preserving of fish - production of fresh fish products	Fishing
	15.20.2	Processing and preserving of fish - production of deep frozen fish products	Fishing
	63.40.1	Forwarding offices	Shipping agents and forwarders
	63.40.2	Chartering	Shipping agents and forwarders
	63.40.3	Ships' agencies	Shipping agents and forwarders
	63.40.4	Customs agencies	Shipping agents and forwarders
	63.40.5	Transport mediation	Shipping agents and forwarders
	63.40.6	Other activities of transport agencies	Shipping agents and forwarders
	71.22	Renting of water transport equipment	Shipping companies
	75.22	Defence activities	Public sector
	51.7	Other wholesale	Other services
Non-maritime			
Industry	15	Manufacture of food products and beverages	Food industry
	23	Manufacture of coke, refined petroleum products and nuclear fuel	Oil industry
	24	Manufacture of chemicals and chemical products	Chemicals industry
	27	Manufacture of basic metals	Metal-working industry
	28	Manufacture of fabricated metal products, except machinery and equipment	Metal-working industry
	31	Manufacture of electrical machinery and apparatus n.e.c.	Electronics
	32	Manufacture of radio, television and communication equipment and apparatus	Electronics
	34	Manufacture of motor vehicles, trailers and semi-trailers	Car manufacturing
	35	Manufacture of other transport equipment	Other industries
	40	Electricity, gas, steam and hot water supply	Energy
	14	Other mining and quarrying industries	Other industries
	20	Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	Other industries
	21	Manufacture of pulp, paper and paper products	Other industries
	26	Manufacture of other non-metallic mineral products	Other industries
	37	Recycling	Other industries
	45	Construction	Other industries
Wholesale trade	50	Sale, maintenance and repair of motor vehicles and motorcycles; retail sale of automotive fuel	Other services
	51	Wholesale trade and commission trade, except of motor vehicles and motorcycles	Other services
Transport	60.1	Transport via railways	Other services
	60.242	Freight transport by road	Road transport
	60.3	Transport via pipelines	Other services
Logistics services	63.21	Other supporting land transport activities	Other services
	63.3	Activities of travel agencies and tour operators; tourist assistance activities n.e.c.	Other services
	71.32	Renting of construction and civil engineering machinery and equipment	Other services
	71.34	Renting of other machinery and equipment n.e.c.	Other services
	74.2	Architectural and engineering activities and related technical consultancy	Other services
	74.7	Industrial cleaning	Other services
	74.8	Miscellaneous business activities n.e.c.	Other services
	75	Public administration, general public service activities; compulsory social security	Public sector
	92.723	Operation of beach, bicycle, pedal boats, ponies infrastructure and similar	Other services

Source: NBB.

Apart from this classification by clusters and branches of the NACE-Bel nomenclature, table 45 also shows the sectors of activity that were mentioned in previous editions of the study. For each port, the change in activity of each cluster and each sector appears in chapter 4.

Comments:

- The level of aggregation chosen for the branches noted above depends on the precision required for their definition. For example, branch 45 (construction) calls for precision level 5, since two NACE-Bel level 5 branches (45.241 and 45.242) form part of the maritime cluster while the rest of branch 45 belongs to the non-maritime industries segment. This is not the case for branch 24 (chemicals) which, although aggregated at level 2, falls completely within the industry segment.

- In relation to previous editions, a change has taken place in the classification of the following « public » companies: the SNCB (Belgian National Railway Company) and port companies. Given that the choice of companies was based on their NACE-Bel branch, and that these companies do not belong to branch 75 of that nomenclature, the SNCB was allocated to the « other services » sector and the port companies to the « cargo handling » sector instead of the public sector.

- For the first time, companies of the public sector (NACE-Bel 75) appear in the classifications by value added, employment and investment (Top 10 classifications). « Public administration » is taken to mean the whole branch (NACE-Bel 75) excluding the Navy (Defence activities). This distinction was particularly necessary for the ports of Ostend and Zeebrugge.

3 Geographical selection

3.1 Approaches

Two approaches have been selected, depending on whether the company in question forms part of the maritime cluster or not.

For non-maritime companies, geographical location within the port area is the determining factor. In fact, it is assumed that these companies are linked to the port precisely because of the location of their activities, even if they do not appear to have an immediate link with the port. All the companies located in the port area in the narrow sense are included in the sample if they belong to a branch of interest to the study, in accordance with the reports previously produced.

Definition of the port area in the narrow sense is in accordance with the Royal Decree of 2 February 1993, published on 4 March of that year. A definition of the four port areas in question can be found in annex 2.

A complete review of the definition of these four areas was undertaken for this study, in order to take account of political decisions, and environmental/land-use planning changes and agreements.

For larger companies established in more than one location, whose head office may not necessarily be located in the port area, the NAI data enable tracing of their centres of operations within the port area in the wider sense. This latter corresponds to the National Statistical Institute's (NSI) classification and also takes precedence in the choice of companies for two of the maritime cluster branches (see below).

Companies in the maritime cluster demonstrate a direct operational link with port activity but are not necessarily situated in the port area. Depending on the definition of their activity, a geographical approach based on the narrow or wider sense has been adopted in the selection of the companies for this cluster (see below).

3.2 Selection

Non-maritime companies

These were selected on two conditions only:

- That they were part of one of the branches demonstrating an economic link with the ports (for the 2001 study, the list of these branches included a total of 234 NACE-Bel codes[66]);
- That their head office was located in the port area in the narrow sense, as defined by the Royal Decree of 2 February 1993, for smaller companies established in a single location. With regard to larger companies established in more than one location, their centre(s) of operations established within the port area in the wider sense (according to the NSI code definition) is (are) also be included. The consideration of these centres of operations is carried out using the casuistical method.

Maritime companies

These companies are operationally linked to the ports. 24 branches (level 5 NACE codes, given below) were included in this classification. Depending on the definition of these branches, three levels of geographical division were envisaged:

- *Port area in the narrow sense* for companies in branches whose definition requires a port presence:

  NACE 05020: Operation of fish hatcheries and fish farms;
  NACE 15201: Processing and preserving of fish - production of fresh fish products;
  NACE 15202: Processing and preserving of fish - production of deep frozen fish products;
  NACE 35120: Building and repairing of pleasure and sporting boats;
  NACE 45241: Dredging;
  NACE 45242: Other construction of water projects;
  NACE 51700: Other wholesale;
  NACE 63112: Other cargo handling;
  NACE 63121: Storage and warehousing in cold storage buildings;
  NACE 63122: Other storage and warehousing;
  NACE 63404: Customs agencies;
  NACE 63405: Transport mediation;
  NACE 63406: Other activities of transport agencies;
  NACE 75220: Defence activities (Navy).

- *Port area in the wider sense* (defined as being the area demarcated by the NSI codes to which the ports belong):

  NACE 63401: Forwarding offices;
  NACE 63402: Chartering.

This level of division is called for insofar as most of the forwarding offices and charter companies are located close to but outside the port area in the narrow sense.

- *The whole national territory* for companies in branches where their definition is sufficient to denote an immediate economic link to port activity, wherever they may be established:

  NACE 05010: Fishing;
  NACE 35110: Building and repairing of ships;
  NACE 61100: Sea and coastal water transport;
  NACE 61200: Inland water transport;
  NACE 63111: Cargo handling in seaports (terminals, « Naties », etc.);
  NACE 63220: Other supporting water transport activities (development of navigable waterways, maritime transport equipment, etc.), port authorities, etc.;
  NACE 63403: Ships' agencies;
  NACE 71220: Renting of water transport equipment.

[66] The complete list of NACE-Bel branches included in the study is given in annex 3.

Some companies belonging to this group are thus located outside the ports. In chapter 3, overall figures for VA, employment and investment are given in the form of comparisons between the four port areas and the periphery. This latter groups together the companies not belonging to any port area. Just under 400 small companies from the maritime cluster were thus selected in 2002 despite the fact that they were located outside the port areas.

In chapter 4, where the same results are given for each port individually, employment, VA and investment for companies located outside of the ports are allocated by means of the allocation key « weight of each port's VA by SUT branch ».[67] The figures for the allocation, although broken down by sector within the maritime cluster, of which the relevant companies form a part, are given for information.

4 Direct effects

4.1 Value added (VA) at current prices[68]

- Private companies

VA is made up of the following elements taken from the consolidated annual accounts:

- Staff costs: headings 62 (remuneration, social security and pensions) and 617 (costs to the enterprise associated with temporary staff and persons placed at the enterprise's disposal; this heading is, however, only counted after calculation of indirect effects, see comment on the following point)[69];
- Depreciation: headings 630 (depreciation of, and other amounts written off formation expenses, intangible and tangible fixed assets), 631/4 (amounts written off) and 635/7 (provisions for liabilities and charges);
- Other costs: heading 640/8 (other operating charges) less heading 649 (operating charges carried to assets as restructuring costs);
- Company results: heading 70/64 (operating profit) or 64/70 (operating loss, negative);
- Operating subsidies: heading 740 (negative).

The method of calculating VA differs somewhat from that applied in the national accounts, particularly in terms of considering depreciation.

For companies established in more than one location, the total VA is distributed by subsidiary, according to NAI data on employment by location.

- Public companies[70]

Here, we proceeded on the basis of surveys and by adding together headings 62 and 617, taking into account possible increases. The VA of public companies is calculated by the sum of staff costs, corrected to take annual amendments to the national accounts into account for the branches in question.

4.2 Employment

- Private companies

Average staff numbers for 1995 were obtained on the basis of heading 9090. Since 1996, this has been replaced by headings 9086 (total number of employees at the closing date) and 9087 (average number of employees calculated in FTE). Heading 9097 is added for temporary staff, the costs of which are included in heading 617, defined above. Staff placed at the disposal of port companies comprises almost exclusively blue-collar port workers, who also appear in the staff numbers of their employer: CEPA, CEPG, CEWEZ or CEWO[71]. This must be taken into account in order to avoid double counting.

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67 More detail in point 6 of this annex.

68 The current price approach was chosen because the price deflator values were not established for all SUT branches in 2002. There may be considerable variation in these figures from one branch to another and an overall correction was thus not appropriate.

69 Headings 62 and 617 correspond to employment headings 9087 and 9097 respectively.

70 In contrast with previous editions of the report, the SNCB and port authorities are no longer considered as public companies given that they are not listed in the National Accounts under the public services branch but under NACE-Bel branches 60.100 and 63.220 respectively.

71 The Centrale der Werkgevers aan de Haven van Antwerpen, Centrale der Werkgevers aan de Haven van Gent, Centrale der Werkgevers aan de Haven van Zeebrugge and Centrale der Werkgevers aan de Haven van Oostende respectively.

Comment: This is why there is a two-stage process:

- The approach chosen in chapter 3 (study of variables for all ports) when calculating indirect effects is to consider temporary port employment as a separate activity (belonging to SUT 74) since the algorithm used is based on data from the national accounts in which the division of employment is given by SUT[72], not including heading 9097 and its corollary heading 617 relating to the costs incurred. This is the first stage of presentation of findings, in overall form;
- Then, in order to allocate activities by port and by branch (chapter 4), the employment of temporary staff involved in the « client » companies (primarily from SUT 63, that is, cargo handling) of the four above-mentioned employers is distributed by using headings 9097 and 617 in order to show the real employment situation among companies actually using such staff as objectively as possible.

For companies established in more than one location, employment is allocated by subsidiary according to NAI data on employment within the different centres of operations (reference: NSI code). As this is the only information enabling an allocation to be made at the level of these companies, VA and investment are also allocated according to the same procedure.

- Public companies

The information is provided by the different bodies or companies in question by means of surveys.

4.3 Investment at current prices

- Private companies

The basic rule consists of using heading 8169 of the annual accounts: tangible fixed assets acquired during the course of the financial year (including fixed assets produced).

However, if the company has carried out any takeovers (in other words, if there are amounts in heading 829), we use the NAI data are used, which have been corrected to exclude any amounts relating to possible takeovers. Unlike the national accounts method, however, no additional corrections are made for the « disinvestments » noted annually.

For companies established in more than one location, total investment is allocated in the same manner as VA and employment (reference: NSI code).

- Public companies

The information is provided by the different bodies or companies in question by means of surveys.

4.4 The social balance sheet

The study presents a series of data relating to the social balance sheet for 2002. A comparison has also been made with 2000 and 2001. While the previous edition of the study restricted its analysis of the social balance sheet to large companies that were representative of port activity, in this study all companies for which sufficient social balance sheet data are available for the years 2000 to 2002 have been analysed in this section. A constant sample is analysed and the results enable us to carry out comparisons with findings shown in the Social Balance Sheet for the whole economy[73]. This relates among others to those filing their annual accounts based on the full presentation.

[72] Supply & Use Table. This designation also enables the branches included in these tables, and which correspond to NACE-Bel precision level 2 codes, to be described in abbreviated form.

[73] Social Balance Sheet 2002 (NBB, Economic Review 2003/4).

TABLE 46 HEADINGS OF THE SOCIAL BALANCE SHEET

- Employees on the personnel register – average number during the financial year:
  - 1001 Full-time
  - 1002 Part-time
  - 1003 Total in FTE
- Employees on the personnel register - number on the closing date of the financial year:
  - 1051 Full-time
  - 1052 Part-time
  - 1053 Total in FTE
  - 1203 Total in FTE – men
  - 1213 Total in FTE - women
  - 1343 Total in FTE – employees
  - 1323 Total in FTE – workers
- Temporary staff and persons placed at the enterprise's disposal
  - 1501 Temporary staff – average number (*)
  - 1502 Staff placed at the enterprise's disposal (*)
- Personnel movements during the financial year – entries
  - 2053 Number of employees added to the personnel register during the financial year, in FTE
  - 2103 Idem, on contract for an indefinite period (*)
  - 2203 Idem, men – primary education (*)
  - 2213 Idem, men – secondary education (*)
  - 2223 Idem, men – higher non-university education (*)
  - 2233 Idem, men – university education (*)
  - 2303 Idem, women – primary education (*)
  - 2313 Idem, women – secondary education (*)
  - 2323 Idem, women – higher non-university education (*)
  - 2333 Idem, women – university education (*)
- Personnel movements during the financial year - contract-terminations
  - 3053 Number of employees recorded in the personnel register whose contract-termination date has been entered during the financial year, in FTE
  - 3103 Idem, on contract for an indefinite period (*)

The results of some additional headings are given in relation to previous years:

- Employees on the personnel register – number of hours actually worked during the financial year
  - 1011 Full-time
  - 1012 Part-time
  - 1013 Total in FTE
- Employees on the personnel register – personnel costs during the financial year
  - 1021 Full-time
  - 1022 Part-time
  - 1023 Total in FTE
- Temporary staff and persons placed at the enterprise's disposal
  - 1511 Temporary staff –number of hours actually worked (*)
  - 1512 Persons placed at the enterprise's disposal – number of hours actually worked (*)
  - 1521 Temporary staff – costs for the enterprise (*)
  - 1522 Staff placed at the enterprise's disposal – costs for the enterprise (*)
- Staff movements during the financial year – departures based on reason for contract termination
  - 3403 retirement (*)

- 3413 early retirement (*)
- 3423 dismissal (*)
- 3433 other reasons (*)

- Training provided to employees during the financial year
  - 5801 Number of male employees involved in training initiatives at the expense of the employer
  - 5802 Number of actual training hours followed by male employees
  - 5803 Costs for the enterprise of the training followed by men
  - 5811 Number of female employees involved in training initiatives at the expense of the employer
  - 5812 Number of actual training hours followed by female employees
  - 5813 Costs for the enterprise of the training followed by women

Source: NBB.

The headings marked with an (*) relate only to companies filing their accounts based on the full presentation.

The information for 2002 is presented in a format similar to that of previous editions in annex 7.

4.5 Financial ratios

Three ratios are given by port for the period 2000 - 2002, at the level of clusters and « sectors ». Their numerators and denominators are detailed in the data base, in order to be able to present these ratios at any level of aggregation. We have used the average approach on the basis of overall data, because the sample is of limited size. The level of detail in the analysis is high (see the « sectors »), and this increases the volatility of the figures observed.

4.5.1 Return on equity after tax (ratio 9 of the Central Balance Sheet Office):

This ratio gives the relationship between the year's results and equity capital: it relates to the company's capacity to maximize returns on its available financial resources: that is, to generate profit. The denominator must be strictly positive, and the data must correspond to a 12-month period (financial year). This ratio is calculated as follows:

- Heading 70/67 or 67/70 (profit or loss for the period respectively) divided by heading 10/15 (equity capital)

4.5.2 Liquidity in broad sense (ratio 13 of the Central Balance Sheet Office):

The liquidity ratio expresses the company's capacity to mobilise, within the required time limit, sufficient cash to enable it to meet its short-term commitments. The Liquidity in broad sense (also called *current ratio*) is just one of the ratios relating to liquidity and is defined as follows:

- Sum of headings 3 (stocks and contracts in progress), 40/41 (amounts receivable within one year), 50/53 (cashflow investments) 54/58 (cash at bank and in hand) and 490/1 (deferred charges and accrued income), divided by the sum of headings 42/48 (amounts payable within one year) and 492/3 (accrued charges and deferred income).

This ratio is another way of representing net working capital[74]. The net working capital is positive if the Liquidity in broad sense is greater than one.

4.5.3 Solvency (ratio 19 of the Central Balance Sheet Office):

This is the ratio of equity capital to total liabilities, which provides information on the company's independence from external funding and, thus, its self-financing capacity. This ratio reflects the company's capacity to meet all of its financial commitments: debt repayments within the agreed deadlines, interest payments and payments resulting from « off-balance-sheet » liabilities. It is calculated as follows:

- Heading 10/15 (equity capital) divided by heading 10/49 (total liabilities).

[74] Net working capital is calculated as follows: current assets less short-term debts.

4.6 Size of companies

While previous editions of the report examined the presentation based on the way in which the annual accounts were filed in order to establish the distinction between large companies and SMEs, priority is now given to the objective criteria defined below. It transpires, in fact, that almost 45 p.c. of SMEs file their accounts based on the full presentation[75]. The criterion of presentation is therefore insufficient.

The following are considered to be « large » in the terms of the Companies Code[76]:

- companies with an annual average staff of more than 100 employees;
- companies that meet more than one of the following criteria:
  - average annual number of employees: over 50 units;
  - annual turnover (exc. VAT): over 6,250,000 euro;
  - balance sheet total: over 3,125,000 euro.

In chapter 4, a breakdown of findings between SMEs and large companies is presented in summary form, by port. Details by sector are given in annex 6.

5 Indirect effects

5.1 National accounts

The national accounts are a detailed and quantified overall representation of the national economy within the accounting framework. It is structured according to two approaches: by product and by income. The first is a by branch approach, grouping together all companies producing a similar category of output (chemicals, food, textiles, electricity, car manufacturing industries, etc.). The data for each branch are suitable for studies covering product markets or « input - output » analyses. The second approach relates to sectors. This information is useful for studying patterns in terms of investment, financing, wage policy, etc. This notion of sector should not be confused with the « sectors » that are considered in this report, companies grouped together in accordance with previous editions of the study.

The analysis carried out favours the product approach, which enables interdependence between branches to be studied and the indirect effects of the activities of the companies of one branch and, by summation, all branches, to be assessed.

The Belgian national accounts are drawn up in line with the definitions of the « European System of National and Regional Accounts 1995 » (ESA 1995)[77], which replaced the ESA 1979 and came into force in 1998. For Belgium, the introduction of ESA 1995 was an opportunity to adopt a new benchmark methodology. New statistical sources, whether from administrative information or surveys, were used and a complete register of companies established. These efforts resulted in the setting up of a consistent base of statistical information that ensures an exhaustive evaluation of high quality of the national accounts.

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[75] Source: article on non-financial companies (Economic Review 2003/4).

[76] Article 15 of the Companies Code (« Code des sociétés » in French and « Wetboek van vennootschappen » in Dutch). For further explanation, see the Central Balance Sheet Office website: http://www.nbb.be/BA/

[77] ESA 1995 was adopted in the form of an EU Council Regulation (EC) No. 2223/96 dated 25 June 1996 and its application is obligatory for all Member States as from the reference year, 1998. For further information on the methodology, please see the National Accounts website: http://www.bnb.be/DQ/F/national_acc_1.htm.

5.2 Estimation of indirect effects

5.2.1 Method:

The Supply and Use Tables available up to 1999[78] enable indirect employment related to port activity to be calculated. In fact, the different branches of port activity create indirect employment through the purchases the companies make from subcontractors.

The Supply and Use Table is divided into two parts: the use table which, for each branch gives the inputs used and the supply table, which gives the production of each branch, broken down by product group.

On the basis of this table, the subcontracting branches for a given branch can be established (for example, « port cargo handling »), along with their levels of dependence. To do this, we check in the use table to see which inputs are used in port cargo handling and then look in the supply table to see what industries produce the inputs used.

The industries that supply the port handling branch, along with the amount of their deliveries, thus appear. The rate of dependence is calculated as the proportion of subcontracting within the total turnover of the subcontracting branch. By applying this rate of dependence to the supplier(s)' total employment, indirect employment is obtained. The same approach is adopted for the calculation of indirect VA.

Application of this method to the industries covered by the study is done at two levels of calculation: level 1 and the infinite level. Level 1 takes account only of first-level suppliers. These first-level suppliers themselves obtain supplies from other suppliers (level 2) and so on *ad infinitum*. In this way, the infinite level is obtained, which enables the total economic impact in terms of jobs and VA for the selected companies to be evaluated.

It thus becomes possible to compare total indirect employment created and the direct employment of the branches included in the sample. The ratio obtained enables the relative importance of the port-related supplier chain in employment terms[79] to be estimated. This line of reasoning can also be applied to the calculation of value added.

5.2.2 Calculations

The latest data available for the Input-Output Tables date from 1995. Priority was thus given to the most recent information relating to use and supply for 1999. On the basis of these SUT data, input-output (branch-branch) ratios were calculated, as explained above. Using these relationships in terms of inter-branch deliveries, reduced to the proportions of the sample, indirect employment and indirect value added can be established for each branch. To this end, the matrix calculus is used.

As has already been pointed out, a detailed description of the algorithm used here may be found in the NBB Working Paper n°38 of June 2003. For further information of a technical nature, please contact the NBB's Microeconomic Analysis service.
Using certain important assumptions mentioned below, this method enables indirect VA and indirect employment to be estimated.

The result of these calculations, in terms of indirect employment, is formulated in terms of the number of persons employed. Direct employment is expressed in full-time equivalents (FTE). In order to establish certain comparisons, the result of indirect employment is therefore converted into FTE by applying a correction that corresponds to the ratio of the average annual number of hours worked per employee[80] to the number of annual hours of service represented by one FTE. For 2002, this equivalence factor measured 0.904. In other words, taking into account the different part-time systems in existence, a Belgian employee on average works the equivalent of 90.4 p.c. of a FTE.

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[78] The SUT data for 2000 were only published after the calculations for this study were carried out. The figures for 1995, 1997 and 1999 were used to calculate the indirect effects for the years 1995 - 96, 1997 - 98 and 1999 – 2002 respectively.

[79] See also the example given in chapter 4 of Working Paper no. 38 dated June 2003 devoted to the car manufacturing (pp. 55 to 75) or « The ICT sector in Belgium ».

[80] For the Belgian economy as a whole, this number of hours corresponds to the ratio between heading 1013 and the sum of headings 1001 and 1002 of the social balance sheet. See table 46, which gives these headings (point 4.4 of this annex).

It should be pointed out that the indirect effects caused by the public companies in the sample were not calculated.

5.2.3 Assumptions

1. It is assumed that the interdependence between companies of the branches included in the port study is in line with that of the economy as a whole, which is given in the supply and use tables. In fact, we take the share of each SUT branch associated with the companies under review and then apply the algorithm. This is based on the Input-Output matrix updated using the supply and use tables produced by year and by SUT branch in the national accounts;
2. Cross-border transits are assumed to have no influence on the result. This assumption is important as it is assumed that each branch has indirect effects limited to the other branches of the national economy;
3. It is assumed that a product is bought from all branches that are capable of producing it, that is, that deliveries are shared homogeneously between companies of the branches presenting an interdependence between one another;
4. It is assumed that inputs are homogeneously shared between outputs, whatever the level of indirect effect envisaged (from level 1 to the infinite level). In fact, it is assumed that each input involved in the production process is used for all the outputs created;
5. The variation in inter-branch dependency rates is negligible over the space of a few years. We are thus using SUT inter-branch relations defined in 1995 for 1995 and 1996, those defined in 1997 for 1997 and 1998, and those defined in 1999[81] for 1999 to 2002. Given that the latest rates available for inter-branch dependency date from 1999, information on indirect effects in terms of VA and employment by sector is only shown for the years 1995 to 1999 (annex 5). For the period under review as a whole, only the totals per port are given in chapters 3 and 4.

6 Structure of the presentation of results

Chapter 3 gives the findings in terms of employment, value added and investment for the ports as a whole. Some maritime companies that are not established in the port areas were nonetheless included: they are covered by a separate section. In chapter 4, the findings relating to them are allocated by port, in order to evaluate their actual overall economic impact.

Further clarifications:

- For companies of the maritime cluster selected from outside the port areas, direct employment, direct VA and direct investment have been allocated to the different ports according to the allocation key relating to the weight in direct VA that each one has in the ports as a whole by SUT branch. This allocation key for port π, branch β and year α is calculated as the ratio of direct VA achieved in port π for branch β and year α to the sum of the direct VA achieved by all the ports in branch β during year α;
- The Input-Output tables only exist at national level. A means of allocating indirect VA and indirect employment by port must therefore be found. This allocation by branch is calculated according to the same pattern as the allocation of direct effects observed in each port on the basis of the sample. This allocation is calculated according to the same keys: for each SUT branch, the port's share in total direct employment and direct VA. If port π accounts for x p.c. of the ports' total of direct VA of branch β during year α, then x p.c. of the indirect VA associated with branch β will be attributed to port π for the same year α. The same reasoning applies to employment, but in this case the share of the port in the total employment of the branch is taken. In fact, it is assumed that the more a port creates direct VA or direct employment for a given branch, the more it will create indirect VA and indirect employment;
- For VA and employment, once the distinction between direct (from the port area and to be allocated) and indirect effects has been established, direct VA and direct employment can be defined as the sum of that which is observed in the ports and their surroundings (by allocation). The concepts of total VA and total employment express the sum of both direct and indirect dimensions, whatever the level of branch grouping (by cluster or by « sector » approach). In order to analyse the changes observed in 2002, the distinction between direct and indirect effects is also made. On the other hand, total investment is defined as the sum of investment specific to the companies established in the ports plus investment attributed to the ports by allocation;
- The percentage changes given in the analysis in chapters 3 and 4 are calculated on an annual basis. If, for example, total VA associated with activity at the port of Antwerp increased by 4.0 p.c. in 2002, this therefore

[81] The data in the supply and use tables for 2000 were, indeed, published only after the calculations included in this study had been made.

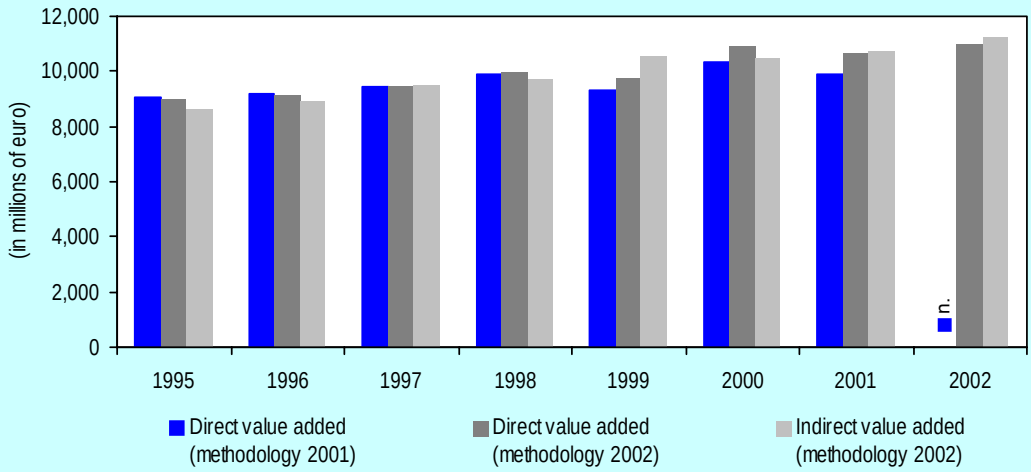
means that this value grew by 4.0 p.c. in relation to the previous year, 2001. To calculate the average annual change over a given period, the geometric mean is used;

- The analyses relating to the financial ratios and the presentation of findings by company size only cover the companies in the sample. Indirect effects are therefore not taken into account. These findings are given by port in the wider sense, that is, after allocation of figures relating to companies established outside of the port areas (still using the VA key);
- The social balance sheet relates to the companies of a constant sample for the period from 2000 to 2002 (without taking indirect effects into account). This is included in an overall presentation, all ports taken together (point 3.5).

7 Impact of the new methodology on the results

- VA

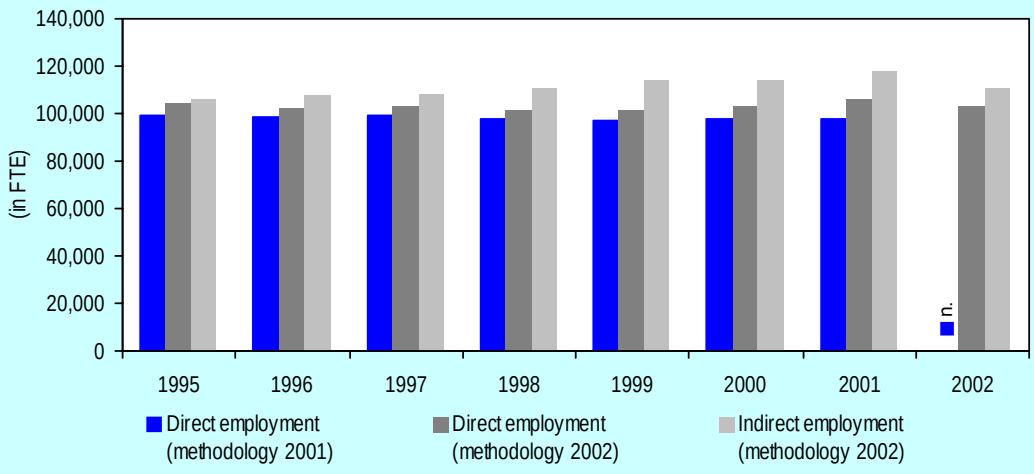
GRAPH 9 **COMPARISON OF VA RESULTS COMPARED WITH THE PREVIOUS EDITION**
(millions of euros)



Source: NBB.

- Employment

GRAPH 10 **COMPARISON OF EMPLOYMENT RESULTS WITH THE PREVIOUS EDITION**
(FTE)



Source: NBB.

- Explanations

The present sample includes more companies than the 2001 edition of the report. In fact, the previous methodology considered 1,920 companies compared to 3,356 in the new methodology. In addition to account being taken of small enterprises established outside of the port areas (maritime cluster), selection by branch is meant to be the most exhaustive possible. Below are some examples which aim to explain the changes observed in graphs 9 and 10.

- Some companies have been added to the sample following adoption of the new methodology:
  - Registration of wholesale companies such as Ostend Pharma and Oswald De bruycker (Ostend);
  - Registration of all the companies active in the building and repair of vessels, such as Nieuwe Scheldewerven;
  - Companies established within the port zone which were not taken into account previously, such as Daikin Europe in Ostend;
  - Registration of all the port workers in Antwerp (C.E.P.A.).
- Pursuant to the new methodology, other companies are no longer taken into account in the sample:
  - Foreign companies which do not file accounts with the Central Balance Sheet Office, such as P&O North Sea Ferries and Hoverspeed Holyman;
  - Certain non-profit institutions (NPIs) like De Oesterbank.

8 Comments

- Some companies that are not required to file annual accounts at the Central Balance Sheet Office are not considered in this study (this is the case, for example, for the self-employed and some partnerships, non-profit institutions and foreign companies).
- The methodology is based on an examination of micro-economic data. If at all possible, any error or omission should be corrected before analysis;
- The grouping of branches is based on an analysis of each company's NACE-Bel code. It is the dominant branch that is selected for this allocation, on the basis of the company's core business. As this may change over time, the classification may also change or, inversely, no longer correspond to the company's economic reality, through failure to change the code. This, like the assumptions underlying the assessment of indirect effects, calls for caution when examining the findings;
- Companies resulting from the breaking up of groups that were already part of the sample are also included in the study, provided they satisfy the selection criteria given in point 3.2 of this annex;
- The importance of the public administrations is under-estimated given that only those services that are of interest to the port(s) are taken into account. A list of public companies or administrations included in this study is given in annex 4.

ANNEX 2: PORT AREAS

These port areas have been defined in accordance with the Royal Decree of 2 February 1993, signed on the occasion of the transfer of port ownership from the State to the Flemish Region. The definition of the four port areas is given in Dutch in the appendix to this Royal Decree, issued on 4 March 1993 in the Belgian Law Gazette[82].

1 Definition of the Antwerp port area

« De begrenzing van de haven van Antwerpen wordt in dit Koninklijk Besluit omschreven als volgt :

Rechteroever

- *ten noorden, begrensd door de rijksgrens met Nederland vanaf de grens met de gemeente Beveren (het midden van de stroom) tot, oostwaarts, de snijding met de gemeentegrens Antwerpen-Stabroek*
- *ten oosten, de grens Antwerpen-Stabroek tot de rijksgrens A12, verder zuidwaarts tot rijksgrens N144a (Ekersesteenweg) via rijksweg N180 (Noorderlaan) tot de noordelijke oever van het Albertkanaal. Oostwaarts tot rijksweg N129 (Minister Delbekelaan) tot aan de Schijnpoort, de Slachthuislaan, Bredastraat, Viaduct Express, Ellermanstraat tot rijksweg N1 (Italiëlei) zuidelijk tot de Tunnelplaats, Ankerrui, Brouwersvliet tot de Tavernierskaai (waterkerende muur inbegrepen)*
- *ten zuiden, langsheen de waterkerende muur (inbegrepen) van de Scheldekaaien tot Schelde nr. 8. Vervolgens de Generaal Armstronglaan tot aan de spoorlijn Antwerpen-Zuid-Boom, verder tot de Krugerbrug, Naftaweg, de Grenspacht, de grenzen van lot B en J van de Petroleuminstellingen Zuid en de vroegere stadsgrens Antwerpen-Hoboken tot de grens Antwerpen-Zwijndrecht in de stroom*
- *ten westen, de grens Antwerpen-Zwijndrecht in de Scheldebedding. Vervolgens de linkerscheldeoever op Antwerps grondgebied tot aan de grens Zwijndrecht-Antwerpen ter hoogte van Pijp Tabak aan de Schelde. Vanaf hier noordwaarts in het midden van de stroom, de gemeentegrens met Zwijndrecht en Beveren tot aan de rijksgrens met Nederland.*

Linkeroever

- *ten oosten, de grens van de Stad Antwerpen vanaf de rijksgrens met Nederland tot de snijding met rijksweg nr. 617*
- *ten zuiden, de rijksweg nr. 617, vanaf voormeld snijpunt met de provincieweg nr. 356*
- *ten westen, de westelijke grens van de groenzone*
- *ten noorden, de rijksgrens met Nederland*

Sinds het opmaken van deze beschrijvende lijst kan het huidige havengebied op bepaalde plaatsen afwijken als gevolg van nieuwe politieke, ruimtelijke of ecologische afspraken en evoluties. »

2 Definition of the Ghent port area

« Onder het begrip havenzone wordt verstaan, het gebied afgebakend door de Koning Boudewijnlaan ten westen van het kanaal Gent-Terneuzen, de Belgisch-Nederlandse grens ten noorden, de Kennedylaan ten oosten en de Dampoort ten zuiden. De bedrijven-zones ten noorden van de R4 en ten oosten van de Kennedylaan, gelegen op Gents grondgebied, worden ook tot de havenzone gerekend. Het totale havenareaal beslaat een oppervlakte van 2.668 hectaren, waarvan 511 hectaren wateroppervlakte. »

3 Definition of the Ostend port area

« De havenzone van Oostende werd in dit KB omschreven als de zone begrensd door:
- *ten noorden: de Noordzee;*
- *ten oosten: de grens tussen Oostende en Bredene (van de zeedijk tot de Noord-Ede); vervolgens de Noord-Ede tussen de Spuikom en de Blauwe Sluis; en tot slot de Rijksweg N320 (Plassendaalsesteenweg) tussen de Blauwe Sluis en de Plassendalebrug;*

[82] Named « Moniteur belge » in French and « Belgisch Staatsblad » in Dutch.

- ten zuiden: het kanaal Plassendale-Nieuwpoort, tot aan de spoorlijn;
- ten westen: de spoorlijn Oostende-Brugge tussen het kanaal Plassendale-Nieuwpoort en het Zwaaidok; vervolgens de Konterdamstraat (langs de spoorlijn) tot de snijding met de N34 (Koninklijke Baan); de N34 tot de snijding met de N334; en tot slot de N334 tot aan de snijding met de zeedijk (d.w.z. de Vindictivelaan en de Visserskaai, zodat zowel de Mercator jachthaven als het Montgomerydok in de zone begrepen zijn).

Deze zone wordt verder aanschouwelijk voorgesteld op de bijgevoegde kaart. Er dient op gewezen dat hierin het zuidelijk deel van de industriezone (d.i. gelegen ten zuiden van de spoorlijn Oostende - Brugge en langs de E40-autosnelweg) niet inbegrepen is. »

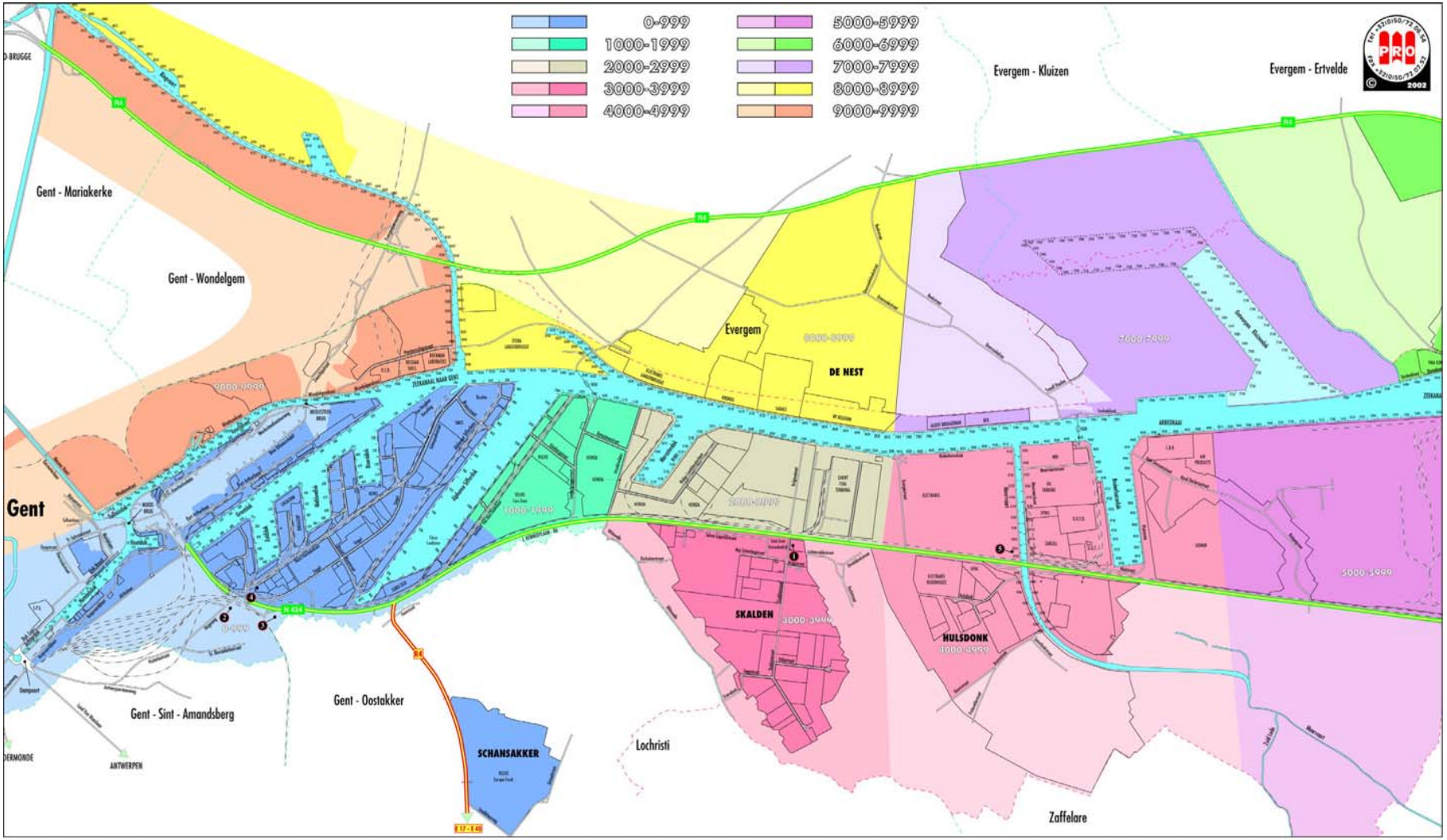
4 Definition of the Bruges-Zeebrugge port area

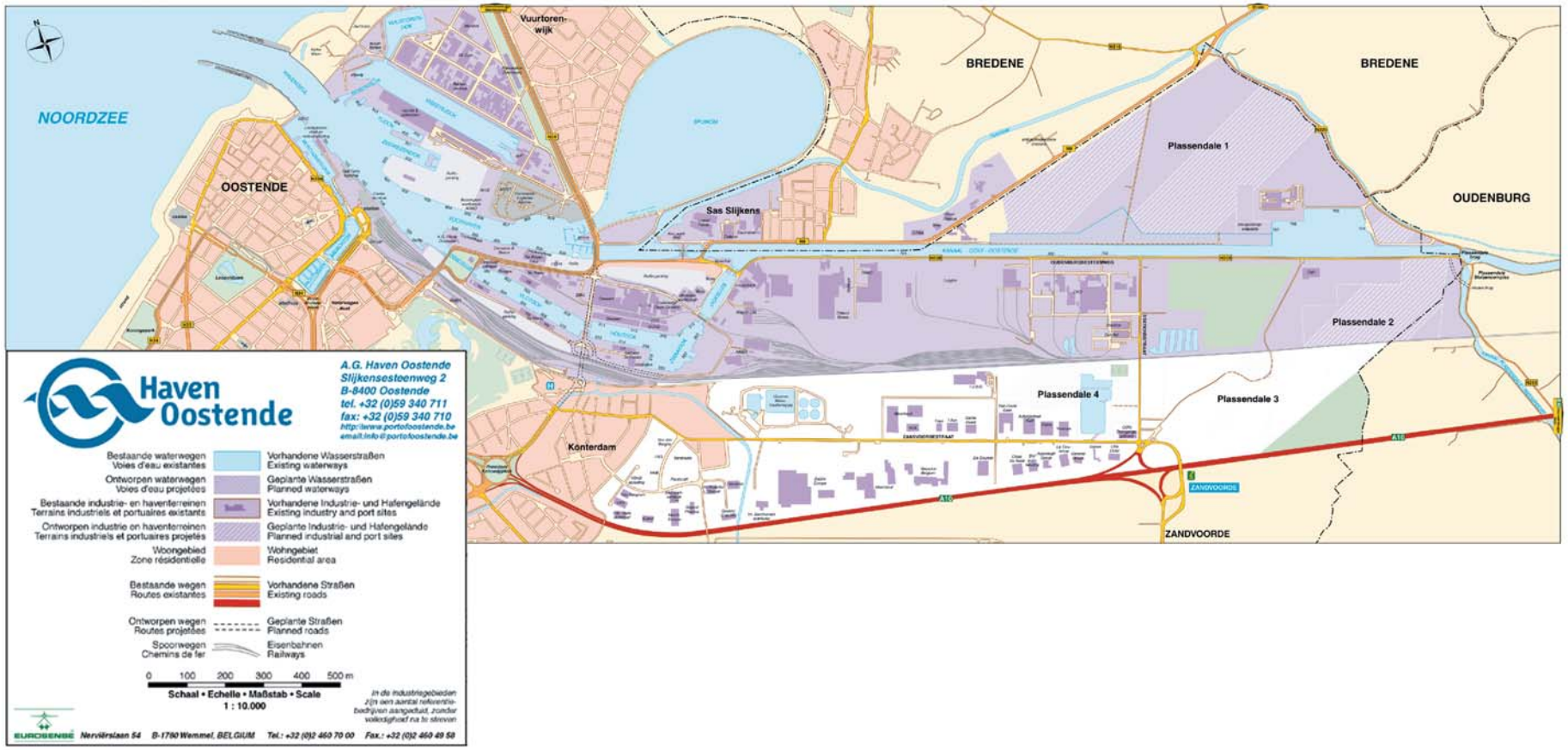
« De havenzone wordt daar omschreven als het gebied begrensd door:
- ten noorden :
de Noordzee, met als grens de westelijke en oostelijke dam van de Buitenhaven en de verbindingslijn tussen de damkoppen;
- ten oosten :
de De Maerestraat tussen de Zeedijk en de Kustlaan N34;
de rijksweg N300 tot snijding met N376;
de rijksweg N376 tot snijding met R30;
- ten zuiden :
de rijksweg R30 tussen de snijding met N 376 en de Krakelebrug;
- ten westen :
de spoorweg tussen de Krakelebrug en de snijding met het verlengde van de geplande N31 a;
de N31 a tussen voormelde snijding en de Kustlaan N34;
de Baron de Maerelaan tussen de Kustlaan N34 en de Zeedijk. »

5 Ports' maps

- Port of Antwerp
- Port of Ghent
- Port of Ostend
- Port of Zeebrugge

Haven van Antwerpen - Port d'Anvers - Port of Antwerp


0-999
1000-1999
2000-2999
3000-3999
4000-4999
5000-5999
6000-6999
7000-7999
8000-8999
9000-9999
Evergem - Kluizen
Evergem - Ertvelde
Gent - Mariakerke
Gent - Wondelgem
Evergem
DE NEST
Gent
SKALDEN
HULSDONK
Gent - Oostakker
Gent - Sint - Amandsberg
SCHANSAKKER
Lochristi
Zaffelare
ANTWERPEN



Haven van Oostende - Port d'Ostende - Port of Ostend

Haven van Zeebrugge - Port de Zeebrugge - Port of Zeebrugge

PLAN VAN DE HAVEN

01 Pas van het Zand
02 Wielingendok
03 Albert II-dok
04 Brittanniadok
05 Pierre Vandammesluis
06 Verbindingsdok
07 Noordelijk Insteekdok
08 Zuidelijk Kanaaldok
09 Visartsluis
10 Boudewijnkanaal
11 Ontworpen Noorderkanaal
12 Prins Albertdok
13 Prins Filipsdok
14 Oud-Ferrydok
15 Leopoldkanaal (Afleidingskanaal)
16 Schipdonkkanaal (Afleidingskanaal)

21 Westdam
22 Oostdam
23 L.N.G.-dam
24 Leopold II-dam
25 Marinebasis

ROLL-ON/ROLL-OFF BEHANDELING

30 Toyota Terminal
31 C.T.O. - Hessenatie Terminal
32 Sea-Ro Terminal (Wielingendok-StoraEnso)
33 P&O Ferries Terminal
34 Superfast Terminal
35 Sea-Ro Terminal (Zweedse Kaai)
36 Sea-Ro Terminal (Hermeskaai - Brittanniaterminal - Minervaplein)
37 Sea-Ro Terminal (Canadaterminal)
38 CdmZ
39 Wallenius Wilhelmsen Terminal
40 Sea-Ro Terminal
41 C.T.O. Terminal
42 C.T.O. Terminal
43 Roro terminal
44 Ontworpen roro terminals

CONTAINERBEHANDELING

45 Container Terminal Albert II-dok Zuid
46 Ocean Container Terminal Hessenatie Zeebrugge
47 Ontworpen container terminal

STUKGOEDBEHANDELING

51 Polyvalente terminal C.T.O.
52 Fruitterminal B.N.F.W. (Sea-Invest)
53 Flanders Cold Center (Sea-Invest)
54 Tropicana

BULKBEHANDELING

61 L.N.G.- terminal (Fluxys)
62 Tameco
63 Nieuwpoortse Handelsmaatschappij (zand en grint terminal)
64 Alzagri (zand en grint terminal)
65 Seaport Shipping & Trading
66 Minne Port Services
67 Hanson (zand en grint terminal)
68 Nieuwpoortse Handelsmaatschappij

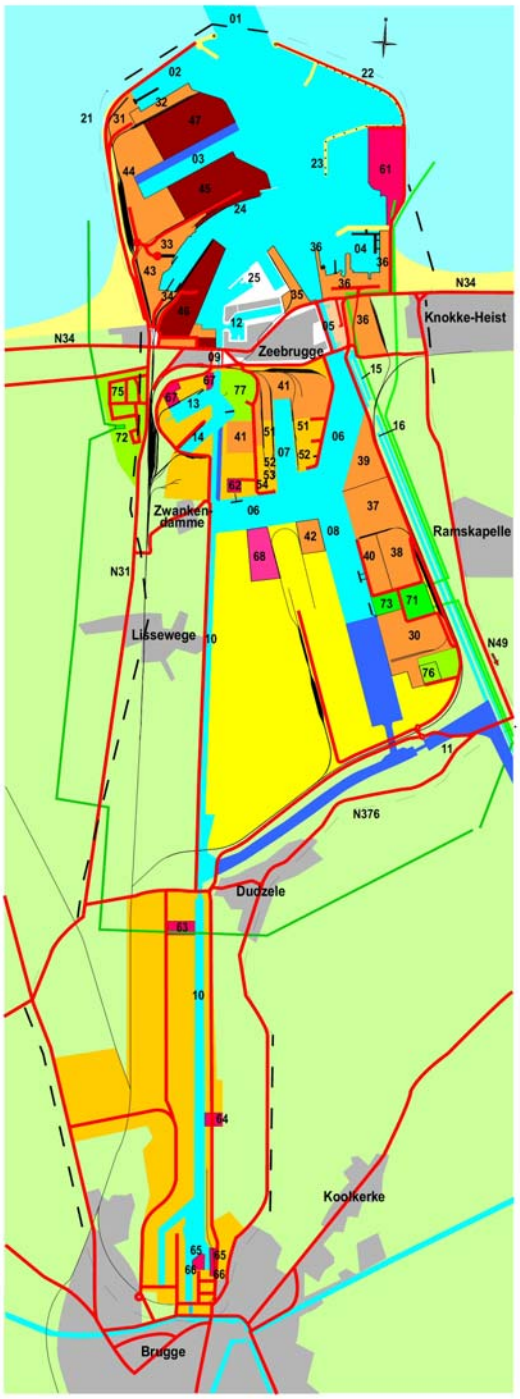
DISTRIBUTIE (gas)

71 Zeepipe-terminal (Statoil)
72 Interconnector-terminal (Interconnector Baczee)
73 Piekbesnoeiingsinstallatie (Fluxys)

DISTRIBUTIE (andere)

75 Transportzone Zeebrugge (T.Z.Z.)
76 Bridgestone - Firestone
77 European Fish Centre (E.F.C.) (Zeebrugse Visveiling ZV)

Geplande havenzone
Bestaande waterwegen of dokken
Waterwegen en dokken in uitvoering of gepland
Woonzones
Wegenis
Spoorwegen
Aardgaspijpleiding
Wind turbines
Radartoren
Gebouwen
Steigers
Afbakening havengebied



ANNEX 3: LIST OF NACE-BEL BRANCHES

TABLE 47 LIST OF BRANCHES

Suttak	Nace-bel	Cluster	Sector	Definition
05A1	05010	MA	VI	Fishing
14A1	14211	IN	AI	Quarrying of sand pits
14A1	14300	IN	AI	Mining of chemical and fertiliser minerals
14A1	14500	IN	AI	Other mining and quarrying n.e.c.
15A1	15131	IN	VO	Production of fresh products made of meat and canned meat
15B1	15201	MA	VI	Processing and preserving of fish - production of fresh fish products
15B1	15202	MA	VI	Processing and preserving of fish - production of deep frozen fish products
15C1	15320	IN	VO	Manufacture of fruit and vegetable juice
15D1	15420	IN	VO	Manufacture of refined oils and fats
15E1	15510	IN	VO	Fabrication of dairies and cheese making
15E1	15520	IN	VO	Manufacture of ice cream
15F1	15610	IN	VO	Manufacture of grain mill products
15G1	15710	IN	VO	Manufacture of prepared feeds for farm animals
15H1	15812	IN	VO	Small-scale bread and pastry bakehouses
15I1	15840	IN	VO	Manufacture of cocoa; chocolate and sugar confectionery
15J1	15890	IN	VO	Manufacture of other food products n.e.c.
15K1	15910	IN	VO	Manufacture of distilled potable alcoholic beverages
17A1	17110	IN	AI	Preparation and spinning of cotton-type fibres
17A1	17150	IN	AI	Throwing and preparation of silk including from noils and throwing and texturing of synthetic or artificial filament yarns
17B1	17402	IN	AI	Manufacture of other textile articles
20A1	20101	IN	AI	Sawmilling and planing of wood
20A1	20102	IN	AI	Impregnation of wood
20A1	20300	IN	AI	Manufacture of builders' carpentry and joinery
20A1	20400	IN	AI	Manufacture of wooden containers
21A1	21121	IN	AI	Manufacture of paper
21A1	21210	IN	AI	Manufacture of corrugated paper and paperboard and of containers of paper and paperboard
21A1	21250	IN	AI	Manufacture of other articles of paper and paperboard n.e.c.
23A1	23200	IN	PE	Manufacture of refined petroleum products
24A1	24110	IN	CH	Manufacture of industrial gases
24A1	24120	IN	CH	Manufacture of dyes and pigments
24A1	24130	IN	CH	Manufacture of other inorganic basic chemicals
24A1	24140	IN	CH	Manufacture of other organic basic chemicals
24A1	24151	IN	CH	Manufacture of fertilisers
24A1	24160	IN	CH	Manufacture of plastics in primary forms
24A1	24170	IN	CH	Manufacture of synthetic rubber in primary forms
24B1	24200	IN	CH	Manufacture of pesticides and other agro-chemical products
24C1	24300	IN	CH	Manufacture of paints, varnishes and similar coatings, printing ink and mastics
24D1	24410	IN	CH	Manufacture of basic pharmaceutical products
24D1	24421	IN	CH	Manufacture of medicines
24E1	24512	IN	CH	Manufacture of cleaning and polishing preparations
24E1	24520	IN	CH	Manufacture of perfumes and toilet preparations
24F1	24620	IN	CH	Manufacture of glues and gelatines
24F1	24640	IN	CH	Manufacture of photographic chemical material
24F1	24660	IN	CH	Manufacture of other chemical products n.e.c.
25A1	25120	IN	CH	Retreading and rebuilding of rubber tyres
25A1	25130	IN	CH	Manufacture of other rubber products
25B1	25210	IN	CH	Manufacture of plastic plates, sheets, tubes and profiles
25B1	25220	IN	CH	Manufacture of plastic packing goods
25B1	25230	IN	CH	Manufacture of builders' ware of plastic
25B1	25240	IN	CH	Manufacture of other plastic products
26A1	26110	IN	AI	Manufacture of flat glass
26A1	26120	IN	AI	Shaping and processing of flat glass
26C1	26510	IN	AI	Manufacture of cement
26D1	26610	IN	AI	Manufacture of concrete products for construction purposes
26D1	26620	IN	AI	Manufacture of plaster products for construction purposes

Suttak	Nace-bel	Cluster	Sector	Definition
26D1	26630	IN	AI	Manufacture of ready-mixed concrete
26D1	26700	IN	AI	Cutting, shaping and finishing of stone
26D1	26820	IN	AI	Manufacture of other non-metallic mineral products n.e.c.
27A1	27100	IN	ME	Manufacture of basic iron and steel and of ferro-alloys (ECSC)*
27A1	27220	IN	ME	Manufacture of steel tubes
27B1	27350	IN	ME	Other first processing of iron and steel n.e.c.; production of non-ECSC* ferro-alloys
27B1	27422	IN	ME	First processing of aluminium
27B1	27510	IN	ME	Casting of iron
28A1	28110	IN	ME	Manufacture of metal structures and parts of structures
28A1	28120	IN	ME	Manufacture of builders' carpentry and joinery of metal
28A1	28210	IN	ME	Manufacture of tanks, reservoirs and containers of metal
28A1	28220	IN	ME	Manufacture of central heating radiators and boilers
28A1	28401	IN	ME	Forging of metal
28B1	28510	IN	ME	Treatment and coating of metals
28B1	28520	IN	ME	General mechanical engineering
28C1	28741	IN	ME	Manufacture of fasteners and screw machine products
28C1	28742	IN	ME	Manufacture of chain
28C1	28743	IN	ME	Manufacture of springs
28C1	28755	IN	ME	Manufacture of other fabricated metal products n.e.c.
29A1	29110	IN	AI	Manufacture of engines and turbines, except aircraft, vehicle and cycle engines
29A1	29120	IN	ME	Manufacture of pumps and compressors
29B1	29220	IN	ME	Manufacture of lifting and handling equipment
29B1	29230	IN	ME	Manufacture of non-domestic cooling and ventilation equipment
29B1	29241	IN	ME	Manufacture of packaging machinery
29B1	29245	IN	ME	Manufacture of filter equipment
29B1	29247	IN	AI	Manufacture of other general purpose machinery n.e.c.
29C1	29403	IN	ME	Manufacture of machine- tools for woodworking
31A1	31100	IN	EL	Manufacture of electric motors, generators and transformers
31A1	31200	IN	EL	Manufacture of electricity distribution and control apparatus
32A1	32100	IN	EL	Manufacture of electronic valves and tubes and other electronic components
32A1	32300	IN	EL	Manufacture of television and radio receivers, sound or video recording or reproducing apparatus and associated goods
33A1	33103	IN	AI	Manufacture of orthopaedic appliances
33A1	33201	IN	AI	Manufacture of electrical instruments and appliances for measuring, checking, testing and navigating
34A1	34100	IN	AU	Manufacture of motor vehicles
34B1	34201	IN	AU	Manufacture of bodies (coachwork) for motor vehicles and trailers
34B1	34300	IN	AU	Manufacture of parts and accessories for motor vehicles and their engines
35A1	35110	MA	SB	Building and repairing of ships
35A1	35120	MA	SB	Building and repairing of pleasure and sporting boats
35A1	35200	IN	AI	Manufacture of railway and tramway locomotives and rolling stock
36C1	36630	IN	AI	Other manufacturing n.e.c.
37A1	37100	IN	AI	Recycling of metal waste and scrap
37A1	37200	IN	AI	Recycling of non-metal waste and scrap
40A1	40100	IN	EN	Production and distribution of electricity
40A1	40200	IN	EN	Manufacture of gas; distribution of gaseous fuels through mains
45A1	45111	IN	AI	Demolition and wrecking of buildings
45A1	45112	IN	AI	Earth moving
45B1	45211	IN	AI	Construction of individual houses
45B1	45213	IN	AI	Construction of buildings for industrial, commercial or agricultural use
45B1	45214	IN	AI	Construction of tunnels, bridges, viaducts
45B1	45215	IN	AI	Construction of pipelines, telecommunication- and high tension conduit
45B1	45220	IN	AI	Erection of roof covering and frames
45C1	45230	IN	AI	Construction of highways, roads, airfields and sport facilities
45C1	45241	MA	AI	Dredging
45C1	45242	MA	AI	Other construction of water projects
45C1	45250	IN	AI	Other construction work involving special trades
45D1	45310	IN	AI	Installation of electrical wiring and fittings
45D1	45320	IN	AI	Insulation work activities
45D1	45331	IN	AI	Installation of heating, air conditioning and ventilation
45D1	45332	IN	AI	Other plumbing
45D1	45340	IN	AI	Other building installation

Suttak	Nace-bel	Cluster	Sector	Definition
45E1	45421	IN	AI	Joinery installation in wood and synthetic material
45E1	45422	IN	AI	Joinery installation in metal
45E1	45441	IN	AI	Painting
45E1	45500	IN	AI	Renting of construction or demolition equipment with operator
50A1	50101	CO	AD	Wholesale of motor vehicles
50A1	50102	CO	AD	Agents involved in the sale of motor vehicles
50A1	50103	CO	AD	Retail sale of motor vehicles
50A1	50200	CO	AD	Maintenance and repair of motor vehicles
50A1	50301	CO	AD	Wholesale of motor vehicle parts and accessories
50B1	50500	CO	AD	Retail sale of car manufacturing fuel
51A1	51110	CO	AD	Agents involved in the sale of agricultural raw materials, live animals, textile raw materials and semi-finished goods
51A1	51120	CO	AD	Agents involved in the sale of fuels, ores, metals and industrial chemicals
51A1	51140	CO	AD	Agents involved in the sale of machinery, industrial equipment, ships and aircraft
51A1	51170	CO	AD	Agents involved in the sale of food, beverages and tobacco
51A1	51180	CO	AD	Agents specialising in the sale of particular products or ranges of products n.e.c.
51A1	51190	CO	AD	Agents involved in the sale of a variety of goods
51A1	51210	CO	AD	Wholesale of grain, seeds and animal feeds
51A1	51310	CO	AD	Wholesale of fruit and vegetables
51A1	51332	CO	AD	Wholesale of edible oils and fats
51A1	51340	CO	AD	Wholesale of alcoholic and other beverages
51A1	51381	CO	AD	Wholesale of fish, crustaceans and molluscs
51A1	51384	CO	AD	Specialised wholesale of other food
51A1	51391	CO	AD	Wholesale of deep-frozen foods
51A1	51392	CO	AD	Other non-specialised wholesale of food, beverages and tobacco
51A1	51410	CO	AD	Wholesale of textiles
51A1	51421	CO	AD	Wholesale of clothing, accessories and fur
51A1	51430	CO	AD	Wholesale of electrical household appliances and radio and television goods
51A1	51442	CO	AD	Wholesale of wallpaper and cleaning materials
51A1	51460	CO	AD	Wholesale of pharmaceutical goods
51A1	51478	CO	AD	Wholesale of other household goods n.e.c.
51A1	51510	CO	AD	Wholesale of solid, liquid and gaseous fuels and related products
51A1	51520	CO	AD	Wholesale of metals and metal ores
51A1	51531	CO	AD	Wholesale of wood
51A1	51532	CO	AD	Wholesale construction materials and sanitary equipment
51A1	51541	CO	AD	Wholesale of hardware
51A1	51550	CO	AD	Wholesale of chemical products
51A1	51562	CO	AD	Wholesale of other intermediate products n.e.c.
51A1	51570	CO	AD	Wholesale of waste and scrap
51A1	51610	CO	AD	Wholesale of machine tools
51A1	51620	CO	AD	Wholesale of construction machinery
51A1	51640	CO	AD	Wholesale of office machinery and equipment
51A1	51651	CO	AD	Wholesale of electric and electronic equipment
51A1	51652	CO	AD	Wholesale of other machinery for use in industry n.e.c.
51A1	51700	MA	AD	Other wholesale
52A1	52230	CO	AD	Retail sale of fish, crustaceans and molluscs
52A1	52461	CO	AD	Retail sale of hardware, paints and glass with sale surface less than 400m2
52A1	52481	CO	AD	Retail sale of fuels
52A1	52482	CO	AD	Retail sale of sport goods and camping equipment
52A1	52487	CO	AD	Retail sale of office machinery and equipment and computers
52A1	52498	CO	AD	Other retail sale in specialised stores n.e.c.
52A1	52502	CO	AD	Retail sale of second-hand goods
52A1	52621	CO	AD	Retail sale of food via stalls and markets
52A1	52740	CO	AD	Repair n.e.c.
55B1	55301	CO	AD	Restaurants
55B1	55302	CO	AD	Fast food, snack bars
55B1	55522	CO	AD	Taking care of parties and receptions
60A1	60100	TR	AD	Transport via railways
60B1	60230	TR	AD	Other land passenger transport
60C1	60241	TR	AD	Furniture removal by road
60C1	60242	TR	WE	Freight transport by road
60C1	60300	TR	AD	Transport via pipelines

Suttak	Nace-bel	Cluster	Sector	Definition
61A1	61100	MA	RE	Sea and coastal water transport
61B1	61200	MA	RE	Inland water transport
62A1	62200	TR	AD	Non-scheduled air transport
63B1	63111	MA	GO	Cargo handling in seaports
63B1	63112	MA	GO	Other cargo handling
63B1	63121	MA	GO	Storage and warehousing in cold-storage buildings
63B1	63122	MA	GO	Other storage and warehousing
63B1	63210	LO	AD	Other supporting land transport activities
63B1	63220	MA	GO	Other supporting water transport activities
63A1	63301	LO	AD	Travel agencies
63B1	63401	MA	SE	Forwarding offices
63B1	63402	MA	SE	Chartering
63B1	63403	MA	SE	Ships' agencies
63B1	63404	MA	SE	Customs agencies
63B1	63405	MA	SE	Transport mediation
63B1	63406	MA	SE	Other activities of transport agencies
64A1	64120	TR	AD	Courier activities other than national post activities
64B1	64200	TR	AD	Telecommunications
66A2	66031	LO	AD	Direct non-life insurance operations
67A1	67130	LO	AD	Activities auxiliary to financial intermediation n.e.c.
67A1	67201	LO	AD	Insurance brokers and agents
67A1	67202	LO	AD	Damage and risk experts
67A1	67203	LO	AD	Other activities auxiliary to insurance
70A1	70111	LO	AD	Development of real estate (residential)
70A1	70113	LO	AD	Development of real estate (infrastructure)
70A1	70201	LO	AD	Letting of houses, except. welfare lodging
70A1	70203	LO	AD	Letting of non-residential buildings
70A1	70311	LO	AD	Mediation in buying, selling and letting of real estate
70A1	70321	LO	AD	Management of residential buildings
70A1	70322	LO	AD	Management of other real estate
71A1	71100	LO	AD	Renting of automobiles
71A1	71210	LO	AD	Renting of other land transport equipment
71A1	71220	MA	RE	Renting of water transport equipment
71B1	71320	LO	AD	Renting of construction and civil engineering machinery and equipment
71B1	71340	LO	AD	Renting of other machinery and equipment n.e.c.
71B1	71408	LO	AD	Renting of personal and household goods n.e.c.
72A1	72200	LO	AD	Software consultancy and supply
73A1	73100	LO	AD	Research and experimental development on natural sciences and engineering
74A1	74124	LO	AD	Tax consultancy
74A1	74131	LO	AD	Market research
74B1	74142	LO	AD	Other business and management consultancy activities
74B1	74151	LO	AD	Management activities of holding companies
74B1	74152	LO	AD	Coordination centres
74C1	74203	LO	AD	Technical consultancy and engineering activities
74C1	74302	LO	AD	Other technical testing and analysis
74E1	74502	LO	AD	Temporary employees agencies and providers of temporary personnel
74F1	74601	LO	AD	Security activities
74F1	74700	LO	AD	Industrial cleaning
74F1	74820	LO	AD	Packaging activities
74F1	74835	LO	AD	Other administrative activities n.e.c.
74F1	74849	LO	AD	Other business activities n.e.c.
75B3	75220	MA	PU	Defence activities
90A1	90001	LO	AI	Effluent water collection and purification
90A1	90002	LO	AI	Collection and processing of household refuse
90A1	90003	LO	AI	Collection and processing of agricultural and industrial refuse
91A1	91110	LO	AD	Activities of business and employers organisations
92D1	92613	LO	AD	Operation of other sports accommodations
92D1	92723	LO	AD	Operation of beach, bicycle, pedal boats, ponies infrastructures and similar

Source: NBB.

Legend

Key	Cluster
MA	**Maritime**
	Non-maritime, of which:
CO	Wholesale trade
IN	Industry
LO	Logistics services
TR	Transport

Key	Sector
SE	Shipping agents and forwarders
GO	Cargo handlers
RE	Shipping companies
WE	Road transport
AD	Other services
EN	Energy
PE	Oil industry
CH	Chemicals
SB	Shipbuilding and repair
AU	Car manufacturing
EL	Electronics
ME	Metal-working industry
VI	Fishing
VO	Food industry
AI	Other industries
PU	Public sector

ANNEX 4: LIST OF PUBLIC ADMINISTRATIONS

TABLE 48 PUBLIC ADMINISTRATIONS

Port	Names
AN-GN-OO-ZB	FOD Financiën - Administratie der Douane en Accijnzen
AN-GN-ZB	FOD Binnenlandse Zaken - Federale politie
OO-ZB	FOD Defensie - Belgische Marine
AN-GN	FOD Economie, KMO, Middenstand en Energie - Bestuur Kwaliteit en Veiligheid - Metrolologische Dienst
AN-GN-OO-ZB	FOD Mobiliteit en Vervoer - Bestuur van Maritieme Zaken en Scheepvaart - Scheepvaartcontrole
ZB	FOD Mobiliteit en Vervoer - Bestuur van Maritieme Zaken en Scheepvaart - Zeevaart Scheepsmeting
AN-GN	FOD Volksgezondheid, Veiligheid van de voedselketen en Leefmilieu - Gezondheidsinspectie der haven
AN-OO	FOD Volksgezondheid, Veiligheid van de voedselketen en Leefmilieu - Instituut voor Veterinaire Keuring
AN	FOD Werkgelegenheid, Arbeid en Sociaal Overleg - Pool van de Zeelieden ter Koopvaardij
OO-ZB	Ministerie van de Vlaamse Gemeenschap - Departement voor Zeevisserij
GN	Ministerie van de Vlaamse Gemeenschap - Departement Leefmilieu en Infrastructuur - Administratie Milieu, Natuur, Land en Waterbeheer - Afdeling Milieuvergunningen
AN	Ministerie van de Vlaamse Gemeenschap - Departement Leefmilieu en Infrastructuur - Administratie Waterwegen en Zeewezen - Afdeling Maritieme Toegang
AN	Ministerie van de Vlaamse Gemeenschap - Departement Leefmilieu en Infrastructuur - Administratie Waterwegen en Zeewezen - Afdeling Zeeschelde
AN-GN-OO-ZB	Ministerie van de Vlaamse Gemeenschap - Departement Leefmilieu en Infrastructuur - Administratie Waterwegen en Zeewezen - Loodswezen DAB
AN-OO-ZB	Ministerie van de Vlaamse Gemeenschap - Departement Leefmilieu en Infrastructuur - Administratie Waterwegen en Zeewezen - Afdeling Vloot
AN	Ministerie van de Vlaamse Gemeenschap - Departement Leefmilieu en Infrastructuur - Administratie Waterwegen en Zeewezen - Afdeling Beleid Havens, Waterwegen en Zeewezen
GN	Ministerie van de Vlaamse Gemeenschap - Departement Leefmilieu en Infrastructuur - Administratie Waterwegen en Zeewezen - Afdeling Bovenschelde
OO-ZB	Ministerie van de Vlaamse Gemeenschap - Departement Leefmilieu en Infrastructuur - Administratie Waterwegen en Zeewezen - Afdeling Scheepvaartbegeleiding
OO-ZB	Ministerie van de Vlaamse Gemeenschap - Departement Leefmilieu en Infrastructuur - Administratie Waterwegen en Zeewezen - Afdeling Waterwegen Kust
ZB	Ministerie van de Vlaamse Gemeenschap - Departement Leefmilieu en Infrastructuur - Beheer- en Exploitatieteam Schelderadar
AN	Provincie Antwerpen - Havencentrum Lillo
AN-GN-ZB	Stad - Brandweer Havenafdeling
OO	Stad Oostende
AN-GN-ZB	VDAB - Aanwervingslokaal Havenarbeiders
ZB	VDAB - Centrum voor Maritieme Opleidingen

Source: BNB.

Legend

Key	Port
AN	ANTWERP
GN	GHENT
OO	OSTEND
ZB	ZEEBRUGGE

ANNEX 5: BREAKDOWN OF INDIRECT EFFECTS BY SECTOR: 1995 - 1999

1 PORT OF ANTWERP

1.1 VA

TABLE 49 **SUMMARY OF THE CHANGES IN INDIRECT VALUE ADDED AT ANTWERP FROM 1995 TO 1999**
(millions of euros)

Sectors	1995	1996	1997	1998	1999
Maritime cluster					
Shipping agents and forwarders	596.1	620.6	656.9	502.5	545.6
Cargo handlers	1,125.3	992.1	1,039.0	821.2	951.2
Shipping companies	512.9	542.0	783.3	735.6	691.6
Other services	2.7	2.9	2.6	3.1	4.9
Fishing	0.5	0.0	0.0	0.0	0.4
Shipbuilding and repair	2.7	3.8	3.1	3.8	4.3
Other industries	27.3	31.3	26.7	20.5	30.6
Public sector	0.0	0.0	0.0	0.0	0.0
Total maritime	**2,267.6**	**2,192.8**	**2,511.6**	**2,086.7**	**2,228.7**
Non-maritime cluster					
Total wholesale trade	204.9	219.3	290.4	276.2	443.1
Energy	49.9	49.2	57.1	48.5	48.7
Oil industry	573.2	587.5	513.9	527.9	521.7
Chemicals	788.2	864.7	1,051.5	1,139.2	1,196.6
Car manufacturing	851.3	920.8	920.2	1,138.2	1,035.4
Electronics	4.4	4.3	5.1	6.9	6.3
Metal-working industry	51.7	52.9	61.6	54.3	61.6
Food industry	63.9	64.1	80.4	58.2	52.5
Other industries	137.1	159.4	184.5	193.4	232.2
Total industry	2,519.6	2,702.9	2,874.3	3,166.5	3,155.0
Other services	487.8	504.2	527.1	555.9	613.2
Other industries	24.9	20.7	24.5	27.5	39.4
Public sector	0.0	0.0	0.0	0.0	0.0
Total logistics services	512.7	524.9	551.6	583.4	652.6
Road transport	33.3	33.2	34.9	36.9	40.1
Other services	50.4	60.8	61.2	63.9	62.0
Total transport	83.7	94.0	96.2	100.7	102.1
Total non-maritime	**3,320.9**	**3,541.1**	**3,812.6**	**4,126.8**	**4,352.9**
Indirect effects	**5,588.4**	**5,733.9**	**6,324.2**	**6,213.6**	**6,581.5**

Source: NBB.

TABLE 50 **SUMMARY OF THE CHANGES IN INDIRECT EMPLOYMENT AT ANTWERP FROM 1995 TO 1999**
(FTE)

Sectors	1995	1996	1997	1998	1999
Maritime cluster					
Shipping agents and forwarders	7,156	6,022	6,345	5,938	5,703
Cargo handlers	13,513	14,919	14,257	13,584	12,486
Shipping companies	4,288	4,459	5,835	6,427	5,537
Other services	38	35	33	40	62
Fishing	13	0	0	0	5
Shipbuilding and repair	138	105	78	96	101
Other industries	189	157	136	154	165
Public sector	0	0	0	0	0
Total maritime	**25,335**	**25,698**	**26,683**	**26,238**	**24,059**
Non-maritime cluster					
Total wholesale trade	1,500	1,602	1,860	1,906	2,229
Energy	1,076	1,073	1,069	961	915
Oil industry	5,687	5,806	4,728	5,030	5,011
Chemicals	7,729	8,111	8,976	9,426	10,538
Car manufacturing	15,384	15,674	14,883	15,426	15,437
Electronics	69	73	76	96	110
Metal-working industry	1,224	1,222	1,078	1,007	1,217
Food industry	654	715	779	578	473
Other industries	1,325	1,502	1,578	1,747	1,975
Total industry	33,147	34,175	33,167	34,271	35,677
Other services	4,137	4,464	5,027	5,434	5,766
Other industries	169	130	145	237	383
Public sector	0	0	0	0	0
Total logistics services	4,306	4,594	5,172	5,671	6,149
Road transport	420	419	358	399	424
Other services	848	847	1,151	880	907
Total transport	1,268	1,266	1,509	1,279	1,331
Total non-maritime	**40,222**	**41,638**	**41,707**	**43,128**	**45,387**
Indirect effects	**65,557**	**67,335**	**68,390**	**69,366**	**69,446**

Source: NBB.

2 PORT OF GHENT

2.1 VA

TABLE 51 **SUMMARY OF THE CHANGES IN INDIRECT VALUE ADDED AT GHENT FROM 1995 TO 1999**
(millions of euros)

Sectors	1995	1996	1997	1998	1999
Maritime cluster					
Shipping agents and forwarders	38.1	31.5	55.2	45.9	46.1
Cargo handlers	150.7	159.1	153.8	137.0	156.4
Shipping companies	12.7	11.7	11.8	19.5	38.3
Other services	0.7	0.7	0.5	0.4	0.7
Fishing	0.5	0.5	0.6	0.9	1.2
Shipbuilding and repair	0.4	0.3	0.3	0.5	0.6
Other industries	0.0	0.0	0.0	0.0	0.0
Public sector	0.0	0.0	0.0	0.0	0.0
Total maritime	**203.1**	**203.8**	**222.2**	**204.3**	**243.3**
Non-maritime cluster					
Total wholesale trade	322.3	365.8	328.9	427.7	459.0
Energy	75.6	68.9	64.5	37.7	40.1
Oil industry	0.0	0.0	0.0	0.0	0.0
Chemicals	84.0	90.5	101.9	105.9	128.1
Car manufacturing	810.6	807.5	920.2	927.2	1 037.9
Electronics	72.2	99.1	64.4	69.8	61.4
Metal-working industry	458.9	517.5	504.9	549.2	676.2
Food industry	64.0	77.7	92.0	83.7	83.6
Other industries	212.1	208.7	210.2	231.2	244.9
Total industry	1,777.4	1,869.9	1,958.0	2,004.7	2,272.2
Other services	92.0	83.9	98.0	149.9	63.5
Other industries	5.5	7.6	10.0	11.0	13.4
Public sector	0.0	0.0	0.0	0.0	0.0
Total logistics services	97.4	91.5	108.0	160.9	76.9
Road transport	13.3	11.3	12.7	14.2	15.3
Other services	1.5	1.5	1.4	1.7	1.8
Total transport	14.8	12.8	14.1	15.9	17.1
Total non-maritime	**2,211.9**	**2,340.0**	**2,409.1**	**2,609.2**	**2,825.3**
Indirect effects	**2,415.0**	**2,543.8**	**2,631.2**	**2,813.5**	**3,068.5**

Source: NBB.

TABLE 52 **SUMMARY OF THE CHANGES IN INDIRECT EMPLOYMENT AT GHENT FROM 1995 TO 1999**
(FTE)

Sectors	1995	1996	1997	1998	1999
Maritime cluster					
Shipping agents and forwarders	529	406	531	551	518
Cargo handlers	1,313	1,179	1,262	1,362	1,320
Shipping companies	362	245	373	579	1,468
Other services	8	9	8	7	10
Fishing	3	4	5	8	11
Shipbuilding and repair	16	8	8	12	13
Other industries	0	0	0	0	0
Public sector	0	0	0	0	0
Total maritime	**2,231**	**1,850**	**2,188**	**2,519**	**3,340**
Non-maritime cluster					
Total wholesale trade	1,640	1,812	1,952	1,999	2,265
Energy	1,632	1,503	1,206	747	754
Oil industry	0	0	0	0	0
Chemicals	1,173	1,201	1,326	1,467	1,658
Car manufacturing	10,140	10,440	9,835	10,970	12,540
Electronics	993	906	818	826	810
Metal-working industry	4,857	4,757	4,870	5,088	5,504
Food industry	780	803	793	820	810
Other industries	3,177	3,212	3,102	2,991	3,163
Total industry	22,751	22,822	21,951	22,909	25,240
Other services	1,600	1,450	1,456	1,456	1,576
Other industries	126	146	192	224	247
Public sector	0	0	0	0	0
Total logistics services	1,726	1,596	1,647	1,679	1,823
Road transport	142	129	124	145	138
Other services	122	147	240	218	220
Total transport	264	275	364	363	358
Total non-maritime	**26,382**	**26,506**	**25,915**	**26,950**	**29,686**
Indirect effects	**28,613**	**28,355**	**28,102**	**29,469**	**33,027**

Source: NBB.

3 PORT OF OSTEND

3.1 VA

TABLE 53 SUMMARY OF THE CHANGES IN INDIRECT VALUE ADDED AT OSTEND FROM 1995 TO 1999
(millions of euros)

Sectors	1995	1996	1997	1998	1999
Maritime cluster					
Shipping agents and forwarders	7.7	7.3	6.1	4.6	5.5
Cargo handlers	0.9	1.0	7.3	5.5	4.6
Shipping companies	45.7	34.0	- 79.2	47.7	3.8
Other services	0.0	0.0	0.0	0.0	0.0
Fishing	28.4	33.7	43.6	45.7	40.1
Shipbuilding and repair	0.4	0.3	0.3	0.4	0.7
Other industries	5.9	5.5	17.0	12.7	19.1
Public sector	0.0	0.0	0.0	0.0	0.0
Total maritime	**89.0**	**82.0**	**- 4.9**	**116.5**	**73.8**
Non-maritime cluster					
Total wholesale trade	14.7	15.7	17.8	20.0	25.3
Energy	0.0	0.0	0.0	0.4	0.3
Oil industry	0.0	0.0	0.0	0.0	0.0
Chemicals	12.5	18.4	18.2	16.3	18.3
Car manufacturing	0.0	0.0	0.0	0.0	0.0
Electronics	0.0	0.0	0.0	0.0	0.0
Metal-working industry	12.3	24.0	27.0	30.7	50.0
Food industry	1.7	1.6	1.5	1.9	4.1
Other industries	25.1	27.1	24.4	23.5	17.8
Total industry	51.6	71.1	71.3	72.8	90.5
Other services	33.4	26.7	17.4	25.0	119.8
Other industries	0.0	0.0	0.0	2.4	4.2
Public sector	0.0	0.0	0.0	0.0	0.0
Total logistics services	33.4	26.7	17.4	27.4	124.0
Road transport	4.8	4.6	5.1	5.6	5.7
Other services	1.0	1.0	0.5	0.5	0.1
Total transport	5.8	5.6	5.6	6.2	5.8
Total non-maritime	**105.6**	**119.1**	**112.0**	**126.4**	**245.5**
Indirect effects	**194.6**	**201.0**	**107.1**	**242.9**	**319.3**

Source: NBB.

TABLE 54 SUMMARY OF THE CHANGES IN INDIRECT EMPLOYMENT AT OSTEND FROM 1995 TO 1999
(FTE)

Sectors	1995	1996	1997	1998	1999
Maritime cluster					
Shipping agents and forwarders	89	71	68	79	77
Cargo handlers	16	11	42	45	53
Shipping companies	3,023	3,275	3,135	2,584	1,873
Other services	0	0	0	0	0
Fishing	396	447	433	468	457
Shipbuilding and repair	18	10	7	8	14
Other industries	45	42	107	93	89
Public sector	0	0	0	0	0
Total maritime	**3,587**	**3,857**	**3,792**	**3,277**	**2,563**
Non-maritime cluster					
Total wholesale trade	261	241	295	285	339
Energy	0	0	0	7	5
Oil industry	0	0	0	0	0
Chemicals	220	310	327	354	427
Car manufacturing	0	0	0	0	0
Electronics	0	0	0	0	0
Metal-working industry	276	389	446	518	654
Food industry	23	25	17	21	75
Other industries	445	468	401	378	267
Total industry	964	1,192	1,190	1,279	1,428
Other services	387	403	252	314	365
Other industries	0	0	0	35	39
Public sector	0	0	0	0	0
Total logistics services	387	403	252	349	404
Road transport	50	48	41	54	52
Other services	17	16	18	18	7
Total transport	66	64	59	73	59
Total non-maritime	**1,678**	**1,900**	**1,796**	**1,985**	**2,229**
Indirect effects	**5,266**	**5,756**	**5,588**	**5,262**	**4,792**

Source: NBB.

4 PORT OF ZEEBRUGGE

4.1 VA

TABLE 55 **SUMMARY OF THE CHANGES IN INDIRECT VALUE ADDED AT ZEEBRUGGE FROM 1995 TO 1999**
(millions of euros)

Sectors	1995	1996	1997	1998	1999
Maritime cluster					
Shipping agents and forwarders	35.6	41.3	38.4	23.5	25.9
Cargo handlers	59.8	48.4	66.2	55.7	79.0
Shipping companies	31.3	55.1	35.2	33.1	77.7
Other services	0.1	0.1	0.1	0.3	0.1
Fishing	23.9	21.2	27.3	26.1	30.8
Shipbuilding and repair	0.9	0.6	0.7	0.8	1.2
Other industries	14.0	14.4	7.2	9.0	11.2
Public sector	0.0	0.0	0.0	0.0	0.0
Total maritime	**165.7**	**181.0**	**175.1**	**148.4**	**225.8**
Non-maritime cluster					
Total wholesale trade	26.0	34.0	43.9	49.1	59.9
Energy	10.4	10.5	11.4	20.8	22.7
Oil industry	0.0	0.0	0.0	0.0	0.0
Chemicals	15.7	17.0	20.2	21.1	26.7
Car manufacturing	2.5	4.1	5.0	6.2	7.3
Electronics	46.4	49.5	31.2	26.9	33.3
Metal-working industry	30.8	31.2	29.9	35.8	33.0
Food industry	28.1	20.0	36.4	35.4	26.7
Other industries	67.0	66.8	48.9	51.5	62.4
Total industry	201.0	199.1	183.0	197.6	212.0
Other services	15.2	13.6	12.0	12.7	12.8
Other industries	9.6	10.6	11.8	13.7	15.2
Public sector	0.0	0.0	0.0	0.0	0.0
Total logistics services	24.9	24.2	23.8	26.4	28.0
Road transport	12.8	15.9	15.4	17.4	21.1
Other services	2.5	3.0	3.5	3.5	4.7
Total transport	15.3	18.8	18.9	20.9	25.8
Total non-maritime	**267.2**	**276.1**	**269.6**	**294.0**	**325.6**
Indirect effects	**432.9**	**457.1**	**444.7**	**442.4**	**551.5**

Source: NBB.

TABLE 56 SUMMARY OF THE CHANGES IN INDIRECT EMPLOYMENT AT ZEEBRUGGE FROM 1995 TO 1999

(FTE)

Sectors	1995	1996	1997	1998	1999
Maritime cluster					
Shipping agents and forwarders	428	418	461	365	306
Cargo handlers	716	919	1,029	1,067	1,140
Shipping companies	561	339	336	425	546
Other services	2	2	2	3	1
Fishing	362	324	414	359	403
Shipbuilding and repair	40	16	17	23	31
Other industries	115	108	46	63	73
Public sector	0	0	0	0	0
Total maritime	**2,225**	**2,126**	**2,306**	**2,305**	**2,501**
Non-maritime cluster					
Total wholesale trade	464	418	570	692	785
Energy	97	95	117	306	309
Oil industry	0	0	0	0	0
Chemicals	208	223	254	275	320
Car manufacturing	53	46	54	39	55
Electronics	897	872	476	383	403
Metal-working industry	441	434	404	454	435
Food industry	433	352	448	505	463
Other industries	614	642	544	649	730
Total industry	2,744	2,664	2,298	2,612	2,714
Other services	544	425	240	276	321
Other industries	221	164	176	180	213
Public sector	0	0	0	0	0
Total logistics services	765	589	416	456	534
Road transport	152	181	164	191	223
Other services	145	142	405	116	129
Total transport	297	322	569	307	352
Total non-maritime	**4,270**	**3,993**	**3,853**	**4,067**	**4,385**
Indirect effects	**6,495**	**6,119**	**6,159**	**6,371**	**6,886**

Source: NBB.

ANNEX 6: BREAKDOWN OF FINDINGS BY COMPANY SIZE IN 2002

TABLE 57 BREAKDOWN OF FINDINGS BY CLUSTER AT THE PORT OF ANTWERP

Clusters	Number of companies		Direct value added (in millions of euros)		Direct salaried employment (in FTE)		Investment (in millions of euros)	
	Large companies	SMEs	Large companies	SMEs	Large companies	SMEs	Large companies	SMEs
Maritime	140	468	1,285.6	196.9	17,315	2,749	394.2	23.3
Non-maritime								
Wholesale trade	54	219	725.2	47.6	1,967	687	49.3	10.3
Industry	80	89	3,987.0	49.2	26,760	948	753.7	21.8
Logistics services	47	279	365.2	70.7	4,949	648	112.2	28.0
Transport	21	57	167.1	41.9	2,805	644	82.6	5.8
Total	**342**	**1,112**	**6,530.2**	**406.2**	**53,796**	**5,676**	**1,392.0**	**89.3**

Source: NBB.

Remark: This relates only to the findings for port companies in the narrow sense.

TABLE 58 BREAKDOWN OF FINDINGS BY SECTOR AT THE PORT OF ANTWERP

Sectors	Number of companies		Direct value added (in millions of euros)		Direct salaried employment (in FTE)		Investment (in millions of euros)	
	SMEs	Large companies	SMEs	Large companies	SMEs	Large companies	SMEs	Large companies
Shipping agents and forwarders	77	265	308.1	122.3	4,451	1,874	62.3	6.4
Cargo handlers	44	86	833.7	35.9	11,583	443	191.5	7.8
Shipping companies	11	63	32.5	19.0	328	143	53.5	5.7
Road transport	17	50	57.3	35.8	739	565	4.8	5.2
Other services	97	535	1,055.8	129.5	6,456	1,498	155.6	40.5
Energy	1	0	183.9	0.0	1,119	0	6.4	0.0
Oil industry	6	3	929.2	0.3	3,145	0	109.0	0.0
Chemicals	34	5	2,140.6	3.3	11,565	12	537.9	13.3
Shipbuilding and repair	2	15	9.5	10.4	233	140	0.8	1.0
Car manufacturing	4	9	480.4	8.0	7,012	196	72.1	0.5
Electronics	2	1	7.9	0.4	61	8	0.2	0.0
Metal-working industry	10	19	88.5	11.4	1,542	235	2.8	0.9
Fishing	0	3	0.0	0.1	0	2	0.0	0.1
Food industry	3	0	40.4	0.0	648	0	7.7	0.0
Other industries	33	58	269.0	29.9	2,811	559	117.5	8.0
Public sector	1	0	93.4	0.0	2,104	0	69.9	0.0
Total	**342**	**1,112**	**6,530.2**	**406.2**	**53,796**	**5,676**	**1,392.0**	**89.3**

Source: NBB.

Remark: This relates only to the findings for port companies in the narrow sense.

TABLE 59 BREAKDOWN OF FINDINGS BY CLUSTER AT THE PORT OF GHENT

Clusters	Number of companies		Direct value added (in millions of euros)		Direct salaried employment (in FTE)		Investment (in millions of euros)	
	SMEs	Large companies	SMEs	Large companies	SMEs	Large companies	SMEs	PME
Maritime	28	100	156.9	43.4	1,576	545	44.1	4.1
Non-maritime								
Wholesale trade	35	142	551.1	41.3	2,225	625	56.1	7.4
Industry	83	96	1,916.9	42.5	20,112	810	626.1	6.8
Logistics services	17	141	76.6	35.5	1,076	326	21.7	10.2
Transport	6	29	43.2	21.7	667	347	20.2	5.6
Total	**169**	**508**	**2,744.6**	**184.4**	**25,656**	**2,653**	**768.3**	**34.1**

Source: NBB.

Remark: This relates only to the findings for port companies in the narrow sense.

TABLE 60 BREAKDOWN OF FINDINGS BY SECTOR AT THE PORT OF GHENT

Sectors	Number of companies		Direct value added (in millions of euros)		Direct salaried employment (in FTE)		Investment (in millions of euros)	
	SMEs	Large companies	SMEs	Large companies	SMEs	Large companies	SMEs	PME
Shipping agents and forwarders	9	29	51.2	9.3	673	150	5.6	1.1
Cargo handlers	14	30	100.8	21.4	842	250	33.4	1.3
Shipping companies	1	25	2.1	5.3	23	52	4.7	0.3
Road transport	4	24	18.3	20.0	205	309	2.6	5.1
Other services	52	291	639.0	80.2	3,439	1,006	82.2	18.2
Energy	3	1	150.1	0.0	841	0	4.6	0.4
Oil industry	1	0	7.0	0.0	56	0	0.1	0.0
Chemicals	16	7	217.7	4.2	1,864	39	38.0	0.3
Shipbuilding and repair	0	9	0.0	3.6	0	57	0.0	0.6
Car manufacturing	6	1	515.4	0.8	6,602	21	132.6	0.0
Electronics	4	2	57.7	0.7	1,079	21	9.6	0.0
Metal-working industry	18	29	709.3	16.6	6,870	294	123.6	2.6
Fishing	0	1	0.0	1.9	0	8	0.0	0.6
Food industry	9	6	87.6	0.9	663	11	18.6	0.0
Other industries	31	53	177.8	19.5	2,216	436	300.1	3.6
Public sector	1	0	10.5	0.0	283	0	12.5	0.0
Total	**169**	**508**	**2,744.6**	**184.4**	**25,656**	**2,653**	**768.3**	**34.1**

Source: NBB.

Remark: This relates only to the findings for port companies in the narrow sense.

TABLE 61 BREAKDOWN OF FINDINGS BY CLUSTER AT THE PORT OF OSTEND

Clusters	Number of companies		Direct value added (in millions of euros)		Direct salaried employment (in FTE)		Investment (in millions of euros)	
	SMEs	Large companies	SMEs	Large companies	SMEs	Large companies	SMEs	Large companies
Maritime	7	51	32.7	15.4	506	219	6.0	1.8
Non-maritime								
Wholesale trade	5	60	11.7	10.0	161	205	2.1	3.9
Industry	8	31	159.1	9.3	1,578	180	15.8	1.0
Logistics services	5	71	46.9	6.4	722	93	13.5	7.4
Transport	4	11	12.8	9.5	130	165	4.7	2.3
Total	**29**	**224**	**263.2**	**50.6**	**3,097**	**862**	**42.1**	**16.4**

Source: NBB.

Remark: This relates only to the findings for port companies in the narrow sense.

TABLE 62 BREAKDOWN OF FINDINGS BY SECTOR AT THE PORT OF OSTEND

Sectors	Number of companies		Direct value added (in millions of euros)		Direct salaried employment (in FTE)		Investment (in millions of euros)	
	SMEs	Large companies	SMEs	Large companies	SMEs	Large companies	SMEs	Large companies
Shipping agents and forwarders	0	8	0.0	3.7	0	42	0.0	0.5
Cargo handlers	1	8	3.6	2.5	28	42	3.9	0.4
Shipping companies	1	1	- 3.8	0.0	15	1	0.8	0.0
Road transport	2	9	9.2	9.3	66	160	2.2	1.2
Other services	10	134	30.8	16.3	374	303	5.3	11.8
Energy	1	1	0.6	0.1	4	0	0.0	0.0
Oil industry	0	0	0.0	0.0	0	0	0.0	0.0
Chemicals	4	1	35.5	0.2	405	3	7.2	0.1
Shipbuilding and repair	1	9	0.5	2.6	3	56	0.2	0.1
Car manufacturing	0	0	0.0	0.0	0	0	0.0	0.0
Electronics	0	0	0.0	0.0	0	0	0.0	0.0
Metal-working industry	2	6	117.0	1.6	1,120	31	7.6	0.1
Fishing	1	23	2.6	6.4	69	77	0.7	0.8
Food industry	1	1	6.1	0.6	50	13	0.9	0.1
Other industries	3	23	27.8	7.4	213	136	1.2	1.3
Public sector	2	0	33.4	0.0	752	0	12.0	0.0
Total	**29**	**224**	**263.2**	**50.6**	**3,097**	**862**	**42.1**	**16.4**

Source: NBB.

Remark: This relates only to the findings for port companies in the narrow sense.

TABLE 63 BREAKDOWN OF FINDINGS BY CLUSTER AT THE PORT OF ZEEBRUGGE

Clusters	Number of companies		Direct value added (in millions of euros)		Direct salaried employment (in FTE)		Investment (in millions of euros)	
	SMEs	Large companies	SMEs	Large companies	SMEs	Large companies	SMEs	Large companies
Maritime	22	78	217.3	30.0	3.780	435	38.0	4.2
Non-maritime								
Wholesale trade	16	95	19.5	21.7	283	394	2.4	6.9
Industry	20	55	239.1	33.1	2.332	545	23.4	4.2
Logistics services	5	64	38.2	7.0	674	81	6.4	3.7
Transport	6	22	40.0	17.3	623	319	16.7	4.2
Total	**69**	**314**	**554.1**	**109.1**	**7.691**	**1.774**	**86.9**	**23.1**

Source: NBB.

Remark: This relates only to the findings for port companies in the narrow sense.

TABLE 64 BREAKDOWN OF FINDINGS BY SECTOR AT THE PORT OF ZEEBRUGGE

Sectors	Number of companies		Direct value added (in millions of euros)		Direct salaried employment (in FTE)		Investment (in millions of euros)	
	SMEs	Large companies	SMEs	Large companies	SMEs	Large companies	SMEs	Large companies
Shipping agents and forwarders	7	22	13.8	9.7	149	144	6.3	1.4
Cargo handlers	6	21	93.0	3.1	1,185	38	21.2	0.8
Shipping companies	1	9	2.9	4.8	37	45	7.3	0.2
Road transport	4	20	24.8	15.7	340	276	7.1	4.1
Other services	21	162	43.7	30.3	722	520	13.4	10.4
Energy	2	0	69.1	0.0	330	0	4.0	0.0
Oil industry	0	0	0.0	0.0	0	0	0.0	0.0
Chemicals	3	3	27.2	1.2	264	21	2.1	0.3
Shipbuilding and repair	1	4	3.8	2.6	65	49	0.2	0.1
Car manufacturing	1	1	15.0	0.1	50	1	1.0	0.0
Electronics	1	3	55.3	3.0	595	61	5.4	1.1
Metal-working industry	7	16	39.2	11.2	486	189	4.3	0.9
Fishing	3	19	5.9	8.9	122	145	1.7	1.5
Food industry	2	8	6.2	6.2	150	117	0.3	0.8
Other industries	8	26	66.9	12.3	951	167	8.4	1.6
Public sector	2	0	87.2	0.0	2,244	0	4.4	0.0
Total	**69**	**314**	**554.1**	**109.1**	**7,691**	**1,774**	**86.9**	**23.1**

Source: NBB.

Remark: This relates only to the findings for port companies in the narrow sense.

ANNEX 7: SOCIAL BALANCE SHEET IN 2002

TABLE 65 **SOCIAL BALANCE SHEETS IN 2002 BY SECTOR**

	AVERAGE NUMBER OF EMPLOYEES														
	Number			Hours actually worked (1)			Personnel costs (2)			Hired temporary staff			Persons placed at the enterprise's disposal		
	full-time	part-time	total (in FTE)	full-time	part-time	total (in FTE)	full-time	part-time	total (in FTE)	number	hours actually worked (1)	costs (2)	number	hours actually worked (1)	costs (2)
Sector	1001	1002	1003	1011	1012	1013	1021	1022	1023	1501	1511	1521	1502	1512	1522
Shipping agents and forwarders	5,399	609	5,808	9.2	0.7	9.9	260.3	22.6	282.9	299	0.58	11.2	646	1.08	35.1
Cargo handlers	13,824	389	14,107	19.4	0.6	20.0	664.6	99.3	763.9	679	1.24	31.4	5,084	9.03	304.1
Shipping companies	604	77	643	1.1	0.1	1.1	37.8	2.2	40.0	3	0.01	0.2	81	0.14	4.8
Road transport	2,168	90	2,228	3.9	0.1	4.0	93.8	2.4	96.2	72	0.13	2.7	137	0.23	7.9
Other services	11,507	1,811	12,589	18.2	1.7	19.9	579.3	48.3	627.6	399	0.75	17.3	161	0.27	10.7
Energy	2,102	116	2,193	2.8	0.1	2.9	181.3	7.9	189.3	14	0.03	0.6	0	0.00	0.0
Oil industry	3,042	220	3,201	5.3	0.3	5.6	367.3	18.3	385.7	40	0.07	2.4	2	0.00	0.3
Chemicals	12,726	831	13,290	19.1	1.0	20.1	939.3	46.9	986.2	200	0.37	10.6	3	0.01	0.3
Shipbuilding and repair	741	40	764	1.1	0.0	1.1	27.8	0.9	28.7	56	0.10	2.4	0	0.00	0.0
Car manufacturing	13,264	829	13,823	18.9	0.8	19.7	670.6	29.7	700.4	324	0.58	14.5	143	0.21	8.1
Electronics	1,628	228	1,806	2.5	0.2	2.7	92.1	8.1	100.2	67	0.13	3.2	0	0.00	0.0
Metal-working industry	10,285	344	10,521	15.6	0.4	16.0	608.5	14.3	622.8	155	0.31	7.5	99	0.18	6.4
Fishing	645	33	666	0.9	0.0	1.0	28.6	1.1	29.7	32	0.06	1.1	0	0.00	0.0
Food industry	1,297	184	1,417	2.0	0.2	2.1	58.6	4.7	63.3	104	0.20	4.2	18	0.02	1.0
Other industry	6,610	265	6,785	10.2	0.3	10.5	321.5	9.6	331.1	209	0.37	9.2	26	0.05	1.2
Public sector	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.00	0.0	0	0.00	0.0
Total	85,842	6,064	89,841	130.2	6.5	136.7	4,931.7	316.4	5,248.0	2,653	4.92	118.3	6,401	11.21	379.9

Bron: NBB.

(1) The hours actually worked in terms of millions of hours.
(2) The personnel costs and costs in terms of millions of euros.

Table 65 **SOCIAL BALANCE SHEETS IN 2002 BY SECTOR**
(continued)

Sector	NUMBER OF PERSONS EMPLOYED AT THE END OF THE YEAR							TRAINING					
	Number			Number		Number		Men			Women		
	full-time	part-time	total	men	women	employee	worker	number	hours (1)	costs (2)	number	hours (1)	costs (2)
	1051	1052	1053	1203	1213	1343	1323	5801	5802	5803	5811	5812	5813
Shipping agents and forwarders	5,283	639	5,714	3,267	2,447	5,003	532	703	0.01	0.5	512	0.01	0.3
Cargo handlers	13,829	360	14,214	12,920	1,147	2,683	10,982	2,047	0.04	1.9	541	0.01	0.4
Shipping companies	557	51	590	455	135	391	188	172	0.00	0.2	55	0.00	0.1
Road transport	2,143	88	2,203	1,970	233	474	1,718	192	0.00	0.1	37	0.00	0.0
Other services	11,597	1,669	12,594	9,458	3,283	7,055	5,349	4,390	0.22	9.2	1,055	0.03	1.4
Energy	2,128	83	2,188	1,830	358	1,850	0	1,259	0.05	4.3	276	0.01	0.7
Oil industry	3,047	226	3,213	2,730	483	2,628	510	2,395	0.15	10.3	332	0.02	1.2
Chemicals	12,410	851	12,974	11,576	1,398	6,083	5,959	8,725	0.27	19.6	968	0.03	2.1
Shipbuilding and repair	736	41	757	719	38	127	624	56	0.00	0.1	3	0.00	0.0
Car manufacturing	12,474	781	13,021	11,758	1,262	1,468	10,649	10,000	0.36	16.8	1,194	0.04	2.1
Electronics	1,571	206	1,732	1,278	455	708	1,007	1,139	0.03	1.2	502	0.01	0.6
Metal-working industry	10,116	400	10,395	9,399	996	2,750	7,404	4,112	0.33	15.3	688	0.03	1.0
Fishing	511	32	532	408	123	34	494	11	0.00	0.0	8	0.00	0.0
Food industry	1,257	187	1,380	993	387	355	979	554	0.01	0.4	106	0.00	0.1
Other industry	6,672	279	6,860	6,164	696	1,901	4,871	2,288	0.10	4.5	297	0.01	0.4
Public sector	0	0	0	0	0	0	0	0	0.00	0.0	0	0.00	0.0
Total	84,331	5,894	88,367	74,925	13,442	33,511	51,266	38,042	1.59	84.5	6,573	0.21	10.2

Bron: NBB.

(1) The hours actually worked in terms of millions of hours.
(2) The personnel costs and costs in terms of millions of euros.

Table 65 **SOCIAL BALANCE SHEETS IN 2002 BY SECTOR**
(continued)

Sector	ENTERED									RESIGNED	
	Number (in FTE)	Indefinite period	Men				Women			Number (in VTE)	Indefinite period
			primary	secundary	higher	university	primary	secundary	higher	university	
	2053	2103	2203	2213	2223	2233	2303	2313	2323	2333	3103
Shipping agents and forwarders	1,434	919	34	374	195	34	21	297	145	19	976
Cargo handlers	2,203	1,827	90	1,553	87	55	22	221	51	14	2,021
Shipping companies	263	70	12	48	17	8	1	10	6	5	127
Road transport	742	405	116	258	21	1	4	31	9	1	441
Other services	3,448	1,865	209	931	357	158	156	482	188	63	1,664
Energy	277	77	0	86	38	16	0	60	70	6	115
Oil industry	394	290	2	51	76	167	0	9	58	30	295
Chemicals	1,088	440	44	506	134	93	7	166	95	39	1,133
Shipbuilding and repair	141	23	1	21	1	5	1	1	0	0	109
Car manufacturing	1,126	331	323	448	46	38	88	71	17	8	1,064
Electronics	153	104	0	64	27	16	0	28	4	6	268
Metal-working industry	870	410	76	411	64	34	6	117	19	12	788
Fishing	737	59	38	8	0	2	3	8	0	0	102
Food industry	297	78	14	116	6	5	16	105	4	1	101
Other industry	1,971	1,429	356	838	238	111	8	64	41	13	1,228
Public sector	0	0	0	0	0	0	0	0	0	0	0
Total	15,143	8,326	1,315	5,712	1,307	743	334	1,670	707	217	10,432

Bron: NBB.

(1) The hours actually worked in terms of millions of hours.
(2) The personnel costs and costs in terms of millions of euros.

ANNEX 8: MARITIME TRAFFIC BY PORT IN 2002

TABLE 66 MARITIME TRAFFIC IN THE PORT OF ANTWERP

Commodity	Unloaded (thousands of tonnes)	Loaded (thousands of tonnes)	Total (thousands of tonnes)	Relative share (in p.c.)
General cargo	**30,362**	**42,974**	**73,336**	**55.7**
Iron and steel products	2,040	6,228	8,268	6.3
Non-ferrous metals	532	107	639	0.5
Fertilizers / chemicals	62	323	385	0.3
Wood	428	104	532	0.4
Paper and cellulose	2,995	345	3,340	2.5
Fruit	1,391	10	1,401	1.1
Cereals	13	44	57	0.0
Rolling material	653	1,384	2,037	1.5
Flour	0	588	588	0.4
Sugar	11	602	613	0.5
Containers	21,455	31,562	53,017	40.3
Other general cargo	783	1,677	2,460	1.9
Bulk cargo	**42,233**	**16,059**	**58,292**	**44.3**
Petroleum	6,247	55	6,302	4.8
Petroleum products	12,237	6,885	19,122	14.5
Chemicals	4,059	2,103	6,162	4.7
Ores	5,911	649	6,560	5.0
Coal	8,403	429	8,832	6.7
Cereals	941	617	1,558	1.2
Fertilizers	1,319	3,321	4,640	3.5
Sand and gravel	1,234	551	1,785	1.4
Other bulk cargo	1,881	1,449	3,330	2.5
Total	**72,595**	**59,033**	**131,628**	**100.0**

Source: Havenbedrijf Antwerpen

TABLE 67 MARITIME TRAFFIC IN THE PORT OF GHENT

Commodity	Unloaded (thousands of tonnes)	Loaded (thousands of tonnes)	Total (thousands of tonnes)	Relative share (in p.c.)
Agricultural products	1,181	149	1,330	5.5
Foodstuffs and cattle feed	3,980	673	4,653	19.4
Solid mineral fuels	3,648	277	3,925	16.4
Petroleum and petroleum products	2,483	354	2,837	11.8
Ores and metal residues	5,023	703	5,726	23.9
Products from the metal industry	534	824	1,358	5.7
Crude minerals and buidling materials	666	159	825	3.4
Fertilizers	700	141	841	3.5
Chemicals	578	247	825	3.4
Other cargo	901	759	1,660	6.9
Total	**19,694**	**4,287**	**23,981**	**100.0**

Source: Havenbedrijf Gent GAB

TABLE 68 MARITIME TRAFFIC IN THE PORT OF OSTEND

Commodity	Unloaded (thousands of tonnes)	Loaded (thousands of tonnes)	Total (thousands of tonnes)	Relative share (in p.c.)
Conventionnel cargo and bulk	**1,646**	**14**	**1,660**	**26.4**
Ferrochrome	56	0	56	0.9
Gasoil	20	0	20	0.3
Sand and gravel	1,367	0	1,367	21.8
Wood	17	0	17	0.3
Cobble stone	12	0	12	0.2
Magnesium oxide	7	0	7	0.1
Orthoxylene	1	0	1	0.0
Scrap	2	0	2	0.0
Sepiolite	80	0	80	1.3
Silo machinery Jetfoil	0	1	1	0.0
Coal	40	2	42	0.7
Waterglass	13	13	26	0.4
Containers	**31**	**10**	**41**	**0.7**
Rolling material	**1,795**	**2,733**	**4,528**	**72.1**
Tourist cars	**25**	**26**	**51**	**0.8**
Total	**3,465**	**2,773**	**6,239**	**100.0**

Source: AG Haven Oostende

TABLE 69 MARITIME TRAFFIC IN THE PORT OF ZEEBRUGGE

Commodity	Unloaded (thousands of tonnes)	Loaded (thousands of tonnes)	Total (thousands of tonnes)	Relative share (in p.c.)
Agricultural products	379	25	404	1.2
Other foodstuffs and cattle feed	185	58	243	0.7
Solid mineral fuels	70	0	70	0.2
Petroleum and petroleum products	3,025	0	3,025	9.2
Ores, metal scrap, roasted iron pyrite	10	0	10	0.0
Iron, steel and non-ferrous metals	1	17	18	0.1
Crude minerals and buidling materials	1,544	21	1,565	4.8
Ferilizers	2	0	2	0.0
Chemicals	221	5	226	0.7
Other cargo	11,806	15,567	27,373	83.1
Total	**17,243**	**15,693**	**32,936**	**100.0**

Source: Maatschappij van de Brugse Zeevaartinrichtingen (MBZ)

ANNEX 9: GLOSSARY AND MARITIME TRANSPORT

1 Glossary

- *As defined in the Oxford English dictionary*

Port: a place by the shore where ships can shelter from storms or load and unload; a harbour, a haven.

- *As defined by M. Stopford*[83]*:*

Port: geographical area where ships are brought alongside land to load and discharge cargo.

Port authority: organization responsible for providing the various maritime services required to bring ships alongside land (public bodies or private companies).

Terminal: section of the port consisting of one or more berths devoted to a particular type of cargo handling. Provision is also made here for storage areas.

- *Other elements of port terminology*[84]*:*

Dry bulk *: cargo transported loose (ores, coal and grain, etc.).

Liquid bulk *: liquid cargo, mainly oil and derivatives.

Container: large, standard-format metallic box of 20 or 40 feet (6.1 or 12.2 metres) in length, used for transporting various types of cargo.

* The opposite of bulk cargo is general cargo (by container, ro-ro or general).

Cargo ship: ship for transporting goods. (e.g. for general cargo)

Ro-Ro: roll on roll off: horizontal handling of cargo using wheeled vehicles both inside and outside the ship, compare with Lo/Lo - lift on lift off – vertical handling.

TEU or « Twenty Foot Equivalent Unit »: unit used to measure the capacity of a cargo ship or of a containers' terminal, and to work out statistics related to transhipment of containers in a given port. Short containers are twenty feet in length. One TEU corresponds on average to 11 tonnes of cargo.

Draught: vertical distance between the waterline and the keel.

Terminal capacity: the number of containers that can be handled at the terminal in one year. The capacity is measured either in TEU (the most commonly-used unit), tonnes, or the number of containers. It depends on technical factors such as the length of the quay wall, the ground depth and the length of time that the containers remain at the terminal.

dwt or « deadweight tonnage »: a ship's maximum authorised freight, expressed in TEU or in tonnes – including cargo, passengers and fuel.

Scheduled navigation: navigation following a fixed route (called line), at fixed times and with fixed landing berths, irrespective of the ship's cargo.

Short-sea shipping (or *SSS*): navigation carried out within the limits assigned to long-distance voyages, and at a limited distance from the coastline.

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[83] Martin Stopford, « Maritime Economics », Routledge (1997), p29.

[84] Most of these definitions are taken from the weekly bulletin of Kredietbank no.16, 31 May 1996.

Maritime traffic: total of all the cargo loadings and unloadings which take place in a port during a given period of time. These figures are used to classify ports by size (cf. chapter 1).

2 Maritime transport

Maritime transport economics, which forms the focus of this study, is an area of transport economics cutting across two disciplines, namely economics and civil engineering. Transport economics is different from other fields of economic science in that it considers the activities' spatial dimensions, which represent a cost. This cost is linked as much to the structure of the networks that the producers and consumers use, as it is to the supply and demand profile for a given good.

Transport costs vary, depending on the regions of the world and the requirements in terms of speed (e.g.: lean production, just-in-time, etc.). The economic problems associated with transport are thus complex and are a major factor for a great number of players: vehicle designers, energy producers, government, etc. Furthermore, at European level, motorways, railways and waterways are developed in order to increasingly satisfy the need for structural development in the least advanced regions. Policies are therefore long-term in nature.

Mathematical models for maritime activity have been developed, including that of « ship market modelling », which enables the supply and demand pattern in the particular case of maritime traffic, to be applied[85].

In view of the fact that there is often no alternative to ocean-going transport, the supply and demand equation for maritime transport follows the equation below:

$$DD_t = f(CT_t, AH_t)$$
$$SS_t = f(MF_t, P_t)$$

where DD = demand for seaborne transport (expressed in tonnes x km);
CT = tonnes of cargo transported in time period;
AH = average haul of cargo (in km)
SS = supply of seaborne transport (in tonnes of cargo x km);
P = ship productivity (in tonnes of cargo x km / dwt / annum);
MF = merchant fleet (in dwt);
t = year subscript

Demand, measured in tonnes x km, is defined by the tonnage of cargo to be transported and the distance to be covered per tonne. Supply of transport capacity, measured in the same units, is determined by the capacity of the merchant fleet according to the ships' maximum capacity and the performance of the fleet, i.e. the average tonnage multiplied by the average annual distance covered, taking account of the ships' maximum capacity.

Maritime ports provide the only interface between land and sea. The majority of cargo activities are carried out in the ports, as dictated by loading and unloading operations.

[85] Martin Stopford, « Maritime Economics », Routledge (1997), pp. 515- 516. The units used in that book are: tons and miles.

3 Intermodality[86]

In the transport sector, the competitive environment that exists between the different modes of transport (maritime or inland water, road, rail and air) leads them to become segmented, which runs counter to integration. Each mode of transport benefits from its own specific advantages in terms of cost, service, reliability, speed and safety. In this respect, pubic monopolies have done very little to further integration, even though governments have understood the need to do so. The concept of the intermodal transport chain is the result of advances in technology, and in particular information technologies (e.g. Electronic Data Interchange or EDI). The development of container transport during the sixties and the privatisations, which began in this sector in the eighties, signalled the starting point for intermodality. Major integrated transport agencies now provide « door-to-door » services in such a way that the customer no longer has to take account of the way in which his cargo is handled by different charter companies using different modes of transport. Only the cost and the quality of the service are of importance to the customer.

Transport systems encompassing several means of transport may be viewed in two ways:

- *Intermodal* transport network: logistically integrated system using two or more modes of transport. These share certain characteristics with regard to cargo handling, enabling freight (or passengers) to be transferred between these modes of transport during the journey between the point of departure and the point of arrival;
- *Multimodal* transport network: all of the modes of transport providing connections between points of departure and arrival. Intermodal transport is not always applicable.

The limits to intermodality are imposed by factors of time, space, network model, number of hubs and connections, as well as the type and characteristics of the convoys and terminals.

In an intermodal environment, the success of containerisation – the traffic of which is increasing – is based on several factors:

- manoeuvrability of containers;
- standardisation of the means of transport (ISO standards);
- flexibility of use and automated management;
- low cost (if compared, for example, to the price for bulk shipments);
- speed of transhipment operations;
- ease of storage since a container often constitutes its own store;
- safety (very low level of cargo loss);
- optimal use of space (the capacity of a container ship is three to six times greater than that of a traditional cargo ship).

On the other hand, infrastructure costs related to this type of transport are very high, which limits the number of terminals that can be set up, especially in developing countries.

Throughout the Hamburg - Le Havre range, companies now have an extremely wide choice of operators within an intermodal environment. Cost and the duration of transport are the first decision-making criteria. Other factors (reliability, safety, etc.) also have a cost dimension. However, the technical, organisational and operational obstacles and those related to market conditions sometimes run counter to this decision-making process.

If we set aside the individual aspects, it is evident that transport by road, rail and waterways has different cost functions, given the current state of the market (price of fuels, infrastructures and costs associated with their usage, etc.). Thus, transportation by road turns out to be the most competitive means of transport for shorter distances (less than 750 km). Rail is the cheapest solution for intermediate distances (between 750 and 1,500 km) although in Europe, the incompatibility of cross-border networks is still a problem[87]. For long distances (more than 1,500 km), maritime transport remains the most competitive means of transport by far.

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[86] Sources: final report of the Services fédéraux des affaires Scientifiques, Techniques et Culturelles (SSTC - ULg) on « Inland water transport and its long-term development », Anast, December 2000 and the work of Prof. Dr. J-P. Rodrigue of the Department of Economics and Geography at Hofstra University - New York.

[87] Different types of electrical supply, gauge, etc. These are all problems to which the Trans-European Network is trying to provide medium-term solutions.

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