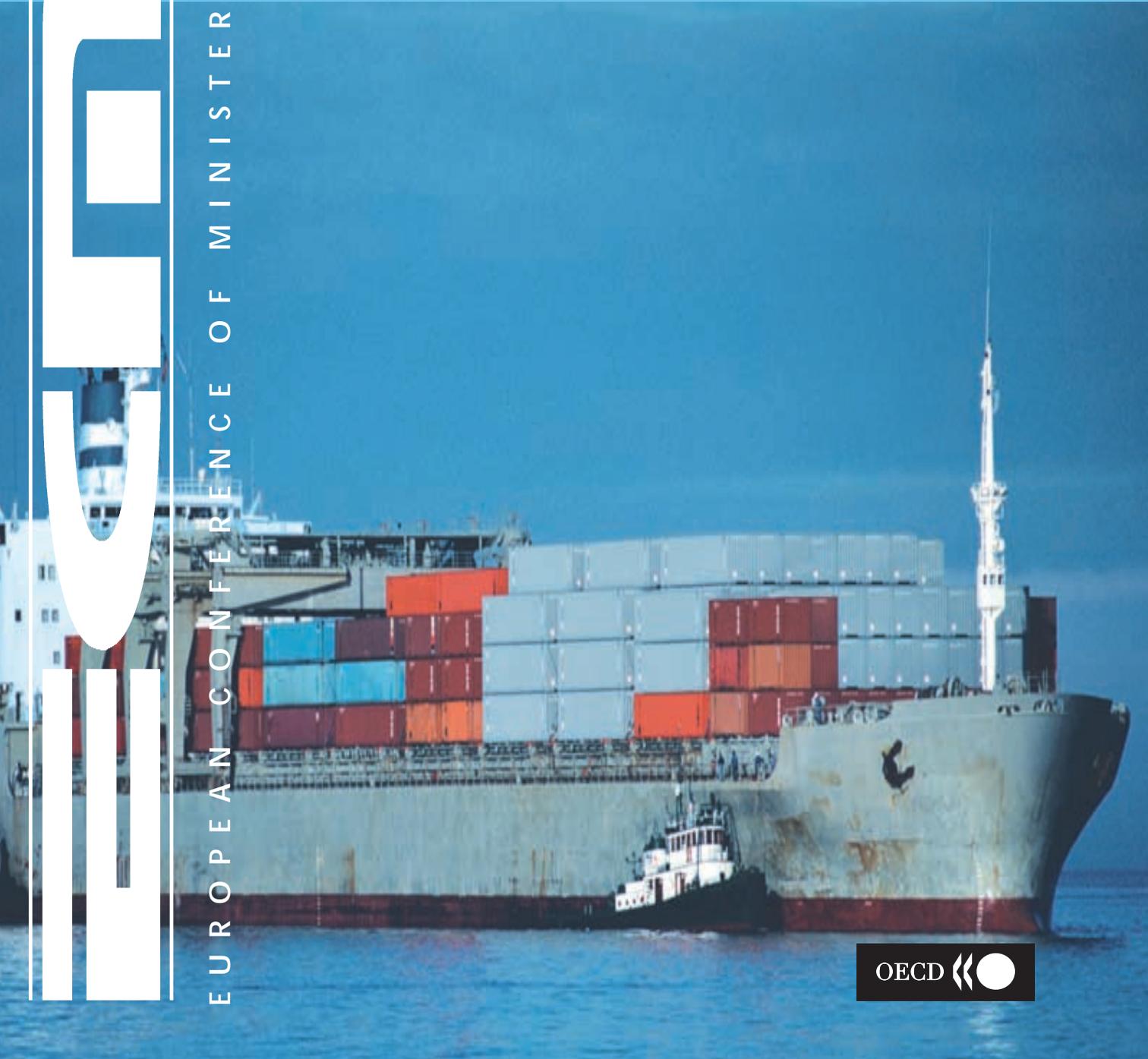


# SHORT SEA SHIPPING IN EUROPE

EUROPEAN CONFERENCE OF MINISTERS OF TRANSPORT



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# **SHORT SEA SHIPPING IN EUROPE**



**EUROPEAN CONFERENCE OF  
MINISTERS OF TRANSPORT**

## EUROPEAN CONFERENCE OF MINISTERS OF TRANSPORT (ECMT)

The European Conference of Ministers of Transport (ECMT) is an inter-governmental organisation established by a Protocol signed in Brussels on 17 October 1953. It is a forum in which Ministers responsible for transport, and more specifically the inland transport sector, can co-operate on policy. Within this forum, Ministers can openly discuss current problems and agree upon joint approaches aimed at improving the utilisation and at ensuring the rational development of European transport systems of international importance.

At present, the ECMT's role primarily consists of:

- helping to create an integrated transport system throughout the enlarged Europe that is economically and technically efficient, meets the highest possible safety and environmental standards and takes full account of the social dimension;
- helping also to build a bridge between the European Union and the rest of the continent at a political level.

The Council of the Conference comprises the Ministers of Transport of 40 full Member countries: Albania, Austria, Azerbaijan, Belarus, Belgium, Bosnia-Herzegovina, Bulgaria, Croatia, the Czech Republic, Denmark, Estonia, Finland, France, FYR Macedonia, Georgia, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Moldova, Netherlands, Norway, Poland, Portugal, Romania, the Russian Federation, the Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine and the United Kingdom. There are six Associate member countries (Australia, Canada, Japan, New Zealand, Republic of Korea and the United States) and two Observer countries (Armenia and Morocco).

A Committee of Deputies, composed of senior civil servants representing Ministers, prepares proposals for consideration by the Council of Ministers. The Committee is assisted by working groups, each of which has a specific mandate.

The issues currently being studied – on which policy decisions by Ministers will be required – include the development and implementation of a pan-European transport policy; the integration of Central and Eastern European Countries into the European transport market; specific issues relating to transport by rail, road and waterway; combined transport; transport and the environment; the social costs of transport; trends in international transport and infrastructure needs; transport for people with mobility handicaps; road safety; traffic management; road traffic information and new communications technologies.

Statistical analyses of trends in traffic and investment are published regularly by the ECMT and provide a clear indication of the situation, on a trimestrial or annual basis, in the transport sector in different European countries.

As part of its research activities, the ECMT holds regular Symposia, Seminars and Round Tables on transport economics issues. Their conclusions are considered by the competent organs of the Conference under the authority of the Committee of Deputies and serve as a basis for formulating proposals for policy decisions to be submitted to Ministers.

The ECMT's Documentation Service has extensive information available concerning the transport sector. This information is accessible on the ECMT Internet site.

For administrative purposes the ECMT's Secretariat is attached to the Organisation for Economic Co-operation and Development (OECD).

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*Further information about the ECMT is available on Internet at the following address:*

***<http://www.oecd.org/cem/>***

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## **FOREWORD**

The following two reports were presented to the national delegates of the ECMT Combined Transport Group to introduce economical and policy problems brought about by the development of short sea shipping. Work undertaken in 1997 was based on these reports and led to a report and recommendations adopted by the ECMT Council of Ministers in May 2000.

The first report was drawn up by M. Stratos Papadimitriou, responsible for urban transport in Athens and also the co-ordinator of concerted action in short sea shipping for the Commission of the European Union in 1996.

The second report was drawn up by Professor Dr. Manfred Zachcial, Institute of Transport ISL, Bremen.

These two reports are the framework of the work of the Conference and are reproduced for information. Their content binds only the respective authors.



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**SHORT SEA SHIPPING IN EUROPE:  
EXPERIENCE AND PROSPECTS**

**by Dr. Stratos Papadimitriou**



## **1. INTRODUCTION**

Transport and transport infrastructure were identified almost at the very early beginning of the European Common Market as a key field for a competitive economy. ECMT has now been in existence for almost 50 years, performing pioneering work, and the essential link to the OECD ensured the efficiency and the excellent co-operation with other international bodies. During the past ten years several major changes occurred in Europe in the political as well as the commercial fields. The commitment to a common peaceful and prosperous future for the European continent expressed in the form of the single market of the European Union, the economic and political collapse of the former socialist republics and the pressing need for improved competitiveness in the most competitive global market ever, forced and still is forcing the adoption of policies in key fields.

In December 1992, the White Paper on the Transport field was published and the Common Transport Policy was adopted. Among other important policy decisions declared in that document, there is one concerning the special transport mode of short sea shipping; shifting cargoes from land modes to the sea is not only an environmental and economic necessity but also a policy choice. In due course short sea shipping should relieve the congested road networks and improve the competitiveness of the European economy.

For the purposes of this paper, short sea shipping is understood to cover maritime transport services which do not involve an ocean crossing. It also includes maritime transport along the coasts and between the mainland coasts and islands of the European Union, covering purely national transport (cabotage) and cross border services, as well as sea-river transportation by coastal vessels to and from ports in the hinterland.

## **2. CURRENT STATUS**

In the “White Paper” for the development and promotion of a Common Transport Policy (CTP), three strong conclusions emerged:

1. The demand for both freight and passenger transport services is increasing.
2. There is an imbalance between modes which is increasing annually.
3. There is a worrying stagnation in transport infrastructure investments.

Simple statistics indicate the transport problem in Europe: the total volume of goods (imports) transported between the European Union countries amounted to  $685 \times 10^6$  tonnes in 1992<sup>1</sup>. The proportion carried by each mode of transport was as follows:

Table 1.

<b>Road</b>	43%	<b>Land</b>	50%
<b>Rail</b>	7%		
<b>Sea</b>	29%	<b>Waterborne</b>	50%
<b>Inland waterways</b>	21%		

Focusing on the road transport percentage, this figure represents 295 439 000 tonnes, and given that the European market is growing, the flows not only between the Member States, but also between other regions, such as the countries of East Europe and the regions of North Africa, will explode to figures that the existing infrastructure can not serve, bottlenecks and congestion will be the everyday problem along with the energy consumption and the environmental burdening. Thus will result in a dramatic loss of competitiveness of the European economy, demand for more investment in infrastructure and aggravation of the quality of living of the European citizens. All of the above have been well documented in the Commission's Paper dealing with the internalization of the external costs.

In a more quantitative approach it has been estimated that between 1995 to 2010, freight traffic in the Community is forecasted to increase by 37 per cent. All these trends have resulted in the congestion of the land networks with dangerous environmental impacts: therefore CTP has adopted the promotion of short sea shipping and the shifting of transport flows from land to sea in a non-mandatory and non-artificial way. The CTP aims also, in addition to all inherent advantages of short sea shipping as transport service, to achieve further growth and development of peripheral and isolated regions (achieving cohesion through short sea shipping) and indirectly contributing significantly to the development of European shipbuilding and supporting industries. It has been said that cohesion should not be viewed in its social or economic meaning alone, but also as an efficient connection achieving mobility (Psaraftis, 1995).

Therefore, in Europe and specially in the European Union, short sea shipping is a policy choice. Short sea shipping is considered important for the European cohesion because it:

- promotes European trade competitiveness;
- maintains vital transport links;
- decreases unit cost of transport;
- facilitates Eastern European integration;
- relieves congestion from land based networks.

Exploring the feasibility of this policy however, it became clear that several obstacles were hindering the whole effort. Due to improper infrastructure, including documentary and procedural requirements, and connecting links to the hinterland, a large number of ports fail to attract investors and shippers to use short sea shipping. Almost all southern ports charge high fees, transit times tend to be longer, and finally there is insufficient integration with other modes, so the just-in-time (JIT) requirements are not easily met. The market has an old-fashioned image of short sea shipping services and it is not aware of short sea shipping capabilities.

The overall geographical and operational setting in which short sea shipping functions in Europe is the following. Europe is a large peninsula penetrated by inland waterways. It has a favourable geographical configuration which makes it particularly well suited for waterborne transport. In Europe, road and rail networks are much denser as a reflection of the population distribution pattern.

Flexibility and frequency of service receive more attention from shippers and consignees than do the economies of long-distance haul. In Europe the 20ft container is the dominant one. Railroads must strive harder to gain a competitive advantage over trucks on the relatively short distances that characterise the average journey within the continent. Originally the majority of containers were transported by road and thus, because the initial arrangement was underlined by U.S. carriers, the principle was that every container should have a chassis, leading to investments only few could afford. This trend reversed completely and now almost 80 per cent of containers that move over long distances travel by rail. Double-stack railcars are not currently in use in Europe because of the low bridges height. This can be explained by the railway system in general, its size and capacity, which solves the quantitative problems of container transport to and from the hinterland. As an example, the break-even point between rail and road haulage is about 170 to 250 km from the sea terminal (Schiffer, 1996). This result also emphasizes the fact that a port inaccessible to a major railway axis or system is seriously handicapped in the competition of intermodal traffic. By optimizing container movements and increasing the use and the number of inland depots, trucking companies are tending to concentrate their activities on short-haul movements and door-to-door services.

In accordance with the above, the strategic objective of short sea shipping in Europe is the diversion of freight streams from across the mainland of Europe to around the continent, requiring an alliance between terminal corporations, short sea shipping, and land mode organisations and shuttle companies. In other words cargoes should be shifted from land to sea modes. This cargo potential can be determined on the basis of detailed cost estimates and quality assessment of the quality factors. From the logistics point of view, time and cost are the most crucial factors. Selecting some example routes, two shifting criteria can be applied and reflect the potential of shifting<sup>2</sup>:

Table 2.

<b>Routes</b>	<b>Price ratio road: ship [1]</b>	<b>Time ratio road: ship [2]</b>	<b>[1] / [2]</b>
General Cargo from Hamburg to			
- Venice	1.27	7.26	0.17
- Piraeus	2.55	4.51	0.57
Sawn timber from Sweden to			
- Rouen	3.00	3.31	0.91
- Bilbao	3.71	2.51	1.48
Containers from Bremerhaven to			
- Marseilles	1.58	4.59	0.34
- Cadiz	3.24	1.30	2.49

Such considerations and calculations are highly relevant to the general problem of shifting cargoes from overland to the transport.

Most European ports are innovative and have broken away from the traditional jobs of just handling and storing cargo, and now offer service packages. The ports are entering into joint ventures with companies moving in special markets such as the fruit trade, offering intermodal links and the monitoring of cargoes for the shipper and forwarding agent in a compatible EDI way.

Regarding the existing short sea shipping fleet and the services which it can offer in the transport chain, the following table<sup>3</sup> gives a broad picture:

Table 3.

		<b>Number (%)</b>	<b>GT (%)</b>	<b>DWT (%)</b>	<b>Average age (Years)</b>	<b>Average GT</b>
EU	Deep Sea	42.7	92.1	93.3	14	25 958
	Short Sea	57.3	7.9	6.7	20	1 654
Rest of Europe	Deep Sea	37.3	88.6	90.8	13	24 598
	Short Sea	62.7	11.4	9.2	21	1 882
Rest of the World	Deep Sea	31.5	90.4	91.1	13	27 155
	Short Sea	68.5	9.6	8.9	18	1 319

In these statistics, short sea shipping vessels are considered to be those of less than 6 000 GT. However, it is recognized that in practice larger ships are also active in short sea shipping and that smaller vessels are also engaged in some deep sea routes. In any case, the use of different criteria can alter the apparent make-up of the fleet. The data of the above table indicate that the share of short sea shipping vessels of the total cargo carrying fleet is broadly similar worldwide. Some small differences can be seen in the average size and the age of the vessels. From the same sources is also known that multi-purpose vessels constitute almost between 57 per cent to 72 per cent of the short sea shipping total fleet reflecting the need for flexibility.

New types of ships are most unlikely to be needed in the European short sea shipping routes, as far as the general principles and concepts are concerned, but important details of existing vessel types need more investigation and consideration. More likely, flexible load-on/load-off (LO/LO) dry cargo vessels and other small cargo vessels offering the ability to work under LTL conditions bypass the season-related obstacles. On the other hand, Europe needs more fast vessels. In Europe many fast ferries are constructed and operated by European-based companies. This focused interest originates from the ever-increasing value of time and the concentrated funds needed for such investments. The European policy of Marine Corridors is offering a very strong initiative for investments, especially in wealthy countries, where time costs more and money is available for investment. It is not accidental that although short sea shipping can and should flourish in the southern regions, and specially in the vital routes for the social cohesion of the Mediterranean, the majority of short sea shipping applications are in the Baltic Sea, the North Sea and the English Channel.

The European short sea shipping industry possesses more strategic advantages than other regions because of favourable geography, networking limited land areas, and extensive coastlines and a traditional and successful operating culture among different nations (Europe comprising so many different nations in contrast to North America with only three). In Europe, market mechanisms are highly developed, there is an after-market for ageing vessels, and the technology is impressive. Short sea shipping in Europe faces challenges but it has proven to be innovative and viable with vigorous competition in most of its sectors, so European short sea shipping can provide a base of expertise and capacity for participation in new markets.

Europe did not follow the American model of national merchant marine development. The primary difference between the cabotage laws in Europe and those in the United States stems from the building provision. The direct restrictions originating from the Jones Act prohibit the viable entrance of small vessel in the coastal chains. U.S.-built vessels are relatively more expensive and the cost of the U.S. flag is burden. In an indirect way this Act promotes a sheltered market and cabotage conditions. This U.S. model proves also that separate national regulation is a major obstacle to competitiveness and that regulatory structures should support a concordance with world standards and

trends. The unavoidable high costs of small vessels led also to the implementation of tug-barge systems in coastal trades. It should also be underlined that due to the Jones Act, U.S. economy has not integrated ship ownership, ship operation, ship repair and marine technology development. The integration of these activities is a vital element of successful long-term market evolution. Europe's ability to be a source for its own short sea tonnage requirements is an important foundation, and exports of ships and domestic opportunities will continue to provide high paying employment. The U.S. experience has shown, that the loss of any element of this capability ultimately erodes the competitiveness of the entire marine-related industry.

The Commission's decision to support short sea shipping is expressed through funding effective R&D in new maritime transport technologies, aimed at enhancing the competitiveness of European shipping, the development of short sea shipping in parallel with an increase of port efficiency and the improvements in reliability and safety. More important the CTP expects the shipping sector to adopt proper cargo units for optimal intermodal utilization, automated mooring and loading procedures to reduce turnaround time, and the design and construction of suitable sea vessels compatible with the information technology based logistic systems and port-terminals. CTP urges implementation of the following measures in the total design of transport chain:

- Use of **VTMIS**.
- Optimal use of human resources.
- Re-engineering in maritime transport.
- Promotion of inland waterway transport systems.

### **3. PERFORMED RESEARCH & DEVELOPMENT**

Although the European market is not so promising, like other markets, such as the region of south-east Asia, the policy choice and the strong and traditional supporting industry of almost all shipping fields are designating European research on the field of short sea shipping as the most advanced worldwide, despite the fact that in many special fields research is more advanced in institutions and institutes of other regions, such as in Australia.

Taking into account the inadequacy of the existing infrastructure and fleet as well as the not so well developed interface between land and sea, the European Commission-sponsored R&D<sup>4</sup> in all maritime transport activities, and focusing on short sea shipping, as a policy object, short sea shipping has to play a major role in the future of European transport under the summary title-theme "Integration of Fast Waterborne Transport Systems in the Logistical Chain".

There has been an explosive growth in short sea shipping related research during the last six years. In this period there have been about 80 papers presented at the three European Research Round Table on Short Sea Shipping conferences to date (1992, 1994, and 1996). In addition, the three FAST international conferences on fast waterborne transport (1991, 1993, and 1995) presented close to 300 papers, of which about 70 directly focus on short sea shipping.

In view of such a boom of research activity, it became imperative to critically survey such work, and also make a taxonomy of it, so that all this work is sorted out, and the baseline for further research

becomes clear. Failure to do this would inevitably result in duplication of effort, gaps in research, lack of vision on what is needed, and other negative ramifications.

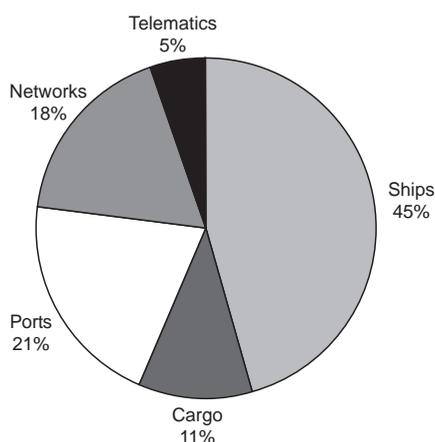
A special request for research on waterborne transport produced a noticeable collection of information from papers, research projects and programs, books, articles, etc. (Psaraftis, 1996). The purpose of that study on short sea shipping was to carry out a critical survey and taxonomy of such work. The survey has involved a European-wide solicitation of input on related work, mainly in the context of the Concerted Action on short sea shipping, but also from other sources. The material is available on the Internet and is supported by a search engine, assisting the researcher to get the most out of the data<sup>5</sup>. The data from all sources are gathered in a final matrix.

Table 4.

	<b>Ships</b>	<b>Cargo</b>	<b>Ports</b>	<b>Networks</b>	<b>Telematics</b>	<b>Total</b>
Engineering	221	23	32	23	5	<b>304</b>
Economics/Logistics	82	41	61	54	17	<b>255</b>
Business/Management	88	29	66	48	18	<b>249</b>
Regulatory /Policy	32	6	28	40	6	<b>112</b>
Environmental/Safety	23	7	16	10	5	<b>61</b>
<b>Total</b>	<b>446</b>	<b>106</b>	<b>203</b>	<b>175</b>	<b>51</b>	

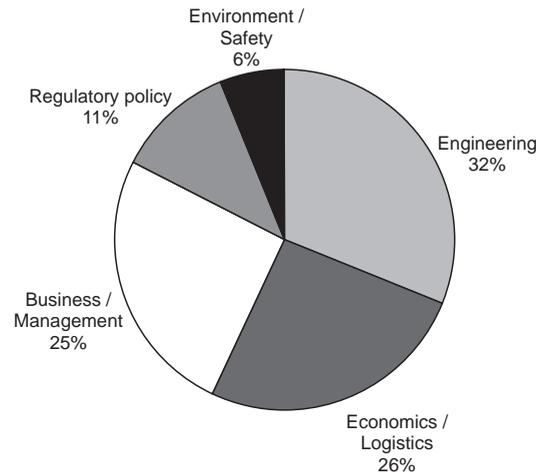
After solicitation for input, computerised retrieval, and presentation to the sponsor and to the academic community in June 1996, this material is also presented here focused on the statistical results. All inputs followed a special taxonomy broken down by discipline and subject. Analysing the above information to two pie charts (Figures 1 and 2) we can understand where research is focused in Europe.

Figure 1.



Source: "Concerted action on short sea shipping", DG VII, Commission of the European Communities.

Figure 2.



Source: "Concerted action on short sea shipping", DG VII, Commission of the European Communities.

It is obvious that ships as a subject are the primary target of European research and they are examined intensively from the engineering, managerial and economics points of view. Although intermodality and short sea shipping chains demand the efficient interface among modes -- that port terminals be integral parts of the shipping system -- researchers are primarily interested in ships and as far as ports are concerned, only in their managerial and logistic problems. Terminals hold pivotal positions, but do not attract the interest of researchers.

From Table 1, it is obvious that 72.4 per cent of all engineering-related entries are of pure engineering interest. Consequently, 49.6 per cent of all ship-related entries are products of engineering research, 38.1 per cent of economic and managerial origin and only 12.3 per cent of regulatory or policy matters, including safety and environmental issues. It is remarkable that most entries on these public decision issues such as policy, regulation and safety are conducted in several countries and funded by national budgets. Another interesting result is that only 48 out of 441 entries are reported as telematics. A translation of this can be that there is not yet a real interest in such matters.

Observing the trends of data from the conferences as a mirror of the research and the interest of researchers, it should be noted that in the first conference on short sea shipping papers of all kinds were presented. The strongest field of interest was policy and network regulatory matters. In the ESSS 92 Conference, 5 out of 6, including all FAST conferences, telematics-related paper appeared, where in no other conference one was presented. As expected also in the ESSS 94 Conference, regulatory and policy matters dominated, but this time the interest was broken into two: ships and networks shared almost the same percentage of 35 per cent. This conference represents the 56.3 per cent of environment and safety-related papers. At the ESSS 96 Conference the focus was on logistics and management. Also for the first time many papers on cargoes were presented.

#### 4. CLOSING REMARKS AND FUTURE PROSPECTS

The sea-leg is often the largest part in a logistical chain as far as the travelled distance is concerned, but not in the cost logistic. Trying to improve each part, the total performance is only marginally optimized. That is the reason for an holistic view of every transport chain.

There is a need to view the many different aspects of the term “integration”; such as integration in the transport chains, in market evolution, in regional markets, and in world-wide compatible cost and distribution systems. Transport integration implies that all modes share the common objective of optimum service in the holistic approach to the production process. Intermodality should be achieved in order to exploit better any single mode and to minimize cost and time wastage in terminal or cargo shifting nodes. Transport integration affects the market also by another more direct way. The alliances between organisations and companies shape joint lobbies that influence authorities to adopt rules and to invest in specific infrastructure. These alliances promote standardisation and information management, creating also the appropriate wealth for investments in new technology. Integration in markets means that ship ownership, operation, building and repair shall be well founded in the market. From the same point of view port authorities, shippers and supporting industry shall also be well founded in the market. This integration provides high-paying employment and industrial development. Regional integration is synonymous with the term “statewide co-operation”. Today’s transports and especially short sea shipping need high volumes in order to achieve acceptable break-even points, and usually the frequency and the volumes needed are offered by more than only one state. In addition to the dismantling of borders, regional integration leads to larger, more homogenous and integrated markets, improving commercial terms and allowing further evolution and market expansion. The expansion of a regional economy under free trade tends also to reduce the complexity of trade patterns, helping to proceed to the next step of a larger regional market and a world-wide integrated transport market. For the achievement of this goal, the existence of common ground in cost and time logistics and a compatible way of cargo shifting is vital. This will not only produce a base line for all transactions but will generate trades between regions that are isolated today due to different regulatory and logistic approaches.

Ports and terminals should change attitude -- from a traditional passive role to that of an active concern for the total production chain. Ports and terminals should integrate successfully and accept co-operation with other transport nodes and companies involved in the chain.

In conclusion, short sea shipping can provide new and wide traditional fields of research and occupation. Maritime business have always been considered to be the product of a thinking involving three separate and interactive environments: First is the technical one consisting of the design, construction and interaction with classification societies and specialized international or national organisations. Second is the managerial environment, where shipowners, operators and supporting staff try to supply the vessel with money, documentation, people and cargo, and third is the operational environment, where people operate the vessel -- in other words, handle someone else’s capital -- the crew, pilots, shore staff, etc. So it is meaningless to focus all interest only on technical matters when so many other factors affect the proper operation. The application of new technology and the reduced number of crew demand more skilled and well trained personnel onboard and these serious problems deserve a scientific approach.

Almost all these fields of research and interests are approached by many scientists and researchers as the market and the policy makers are identifying the problems and the inadequacies. At this point a hidden “truth” is revealed: there is not only one approach to these matters and solutions

should be tailor-made for all interested parts. Consequently, a very small list of possible activities and interests can be as follows:

- New designs and improvement of existing ones.
- Cargo handling equipment.
- Cargo unitization.
- EDI and information technology.
- Energy saving and conservation systems.
- Unmanned systems and unattended machinery.
- Crew training and proper number and type of manning.
- Planning and design of intermodal terminals.
- Design of special automation.
- Advanced transport logistics.
- Regulatory proposals and market investigations.

Concluding, ECMT has and can promote short sea shipping by:

- convincing all individual countries in Europe of the potential of short sea shipping. The existing routes indicate that all European regions can and should be included;
- promoting the close co-operation of all involved parties. ECMT as an international body should assist in the creation of fair competition between all modes;
- encouraging the research on port and terminal technology and logistic management, since their improvement eliminate unnecessary delays, costs and hindrances which hamper the normal transport commodities;
- putting even more emphasis on the marketing aspects of short sea shipping;
- wide-spreading the knowledge regarding the possibilities of short sea shipping.

Short sea shipping can be used as vehicle and driving force for creating more jobs in the transport sector and for achieving a more competitive commercial power by optimizing parts of the cost chains. As Europe faces the “ghost” of unemployment throughout the Member States, especially in young and productive ages, short sea shipping can be an “expensive” investment but a promising sector, expanding and growing in such a way as to create more employment too in the hands of policy makers of the unified Europe.

ECMT should call upon other countries and the European Union along with the European Commission to include short sea shipping in their overall transport policy. Only this inclusion can guarantee a better use of the sealane, promote a sea-based transport chain and foster the integration of short sea shipping into an integrated European transport network.

## NOTES

1. Source: EUROSTAT.
2. Source: "European Short Sea Shipping" by Professor Manfred Zachcial, 1994.
3. Source: Policy Research Corporation N.V. Data supplied by Lloyd's Register.
4. "Short sea shipping-CA", Concerted Action on Short Sea Shipping, Contract No. WA-00-CA.95/186 of the Commission of the European Communities, Directorate General for Transport/DG VII. The National Technical University of Athens is the contractor and co-ordinator of the whole project.
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**SHORT SEA SHIPPING AND INTERMODAL TRANSPORT**

**by Professor Dr. Manfred ZACHCIAL**



## 1. INTRODUCTION

The paper presented deals with the assessment of shift potentials from unimodal to multimodal transport and especially from road to sea. In this context it should be made clear that European short sea shipping nearly always includes a percentage to a varying degree of hinterland transport which is in many cases road haulage, in others rail or inland waterways transport.

There is no doubt that an automatic shift from road to sea is not possible. What is needed is a favourable offer of the suppliers of short sea shipping to their present and potential clients, namely shippers and forwarders. The EU-Commission as well as a number of European transport and research ministries are going to promote respective actions and programmes to improve the competitive position of short sea shipping.

Short sea shipping has a market share of about 32 % within intra-community trades. For the contribution to solve existing and future transport problems the competitive position of short sea shipping compared to road transport has to be strengthened and competitive disadvantages have to be reduced.<sup>1</sup>

Empirical research shows a volume of 15 million tonnes<sup>2</sup> presently being carried on the German highway network which could be shifted to short sea shipping. Comparable volumes have been identified for other European countries (e.g. Netherlands: 3 % of total road haulage of the country). It is important to realise that these potentials cannot be shifted only via German seaports, but also via Dutch and Belgian ports. Moreover, this quantity also contains present land traffic flows -- for example between Scandinavia and South Europe which might be shifted to sea transport without using ports either in German or Benelux countries.

A statistical analysis of European cargo flows showed that during the period 1990-1995 freight flows by sea within European trades have increased by about 4 % p.a. (feeder traffic excluded). It has been a smooth and steady growth, without sudden increases as is sometimes expected from promoters of short sea shipping.

## **2. BASIC REQUIREMENTS ON IMPROVED SERVICES OF SHORT SEA SHIPPING**

### **2.1 Technical and infrastructural aspects**

With respect to technical aspects and handling procedures port performances have to be improved as stated by researchers and organisations/institutions involved in this field of activities. Obviously short sea shipping is competitive if time spent in ports can be significantly reduced. A “round the clock service” for loading and unloading activities should be provided, whenever possible. A great number of all ports do not dispose of up-to-date handling equipment. Respective movements would allow shorter turn-around times in ports and hence reduce travel time and transport cost.

If short sea shipping is to be strengthened it is an absolutely necessary precondition to improve hinterland connections of sea ports. This is especially essential for promoting European short sea shipping in the sense of a modern transport mode.

The promotion programme of the EU Commission for strengthening ports and shipping is directed to communication centres in seaports. At present, the structure of most ports allows only slow handling because of deficient infrastructure or even lack of hinterland connections by rail, road and inland waterways. The negative image has been increased by high port duties and overcapacities of the ports’ infra- and supra-structure. Customs operations and administrative procedures are often too complicated and time consuming.

### **2.2 Commercial Aspects**

It must be a decisive aim that combined land/sea transport be carried out through mutual co-operation and agreements so as to:

- maintain control over the complete chain from dispatching to receiving;
- guarantee delivery times;
- minimise delays in ports;
- offer maximum service frequency.

An important precondition for the functioning of the intermodal transport chains and entities involved is the use of telecommunication. There are various systems in operation which are focussed on different centres of application areas.

Measures must be directed towards the improvement of overall logistics and also towards the development of acquisition by means of transparency and marketing instruments. The strengthening of ports and shipping against sole land transport across Europe will require full-scale integration of data and information of hinterland services, port performances and maritime services including ship and freight characteristics (freight rates/tariffs, frequency, speed, punctuality, load capacity and special features).

### **2.3 Political Aspects**

The future development of European shipping depends also on the general set-up regarding transport policy. The following important aspects should be discussed:

- charging of road-related and external traffic cost to users as a prerequisite for undistorted intermodal competition in favour of environment-friendly modes of transport;
- ending discriminative treatment of inner-community shipping in favour of overland traffic by suppressing complicated customs procedures;
- harmonization of rules for land and sea carriage of hazardous goods; harmonization of different rulings in different ports and introduction of comparable liability and insurance conditions;
- incorporation of short sea shipping into transport infrastructure planning and integration of sea ports as multi-modal interfaces into the trans-European networks.

The system components are basically valid for the overall European network. They are naturally to be referred to the maritime network in coastal areas (enterprises, ports, hinterland connections, flows of goods and shipping movements).

For seaports to take a stronger part of traffic volumes to relieve road/railway traffic in the future, a more intensive and comprehensive use of information systems will be essential which clearly should exceed the present conceptional frame of telecommunication.

### **3. IDENTIFICATION OF SHIFT-RELATED POTENTIALS**

#### **3.1 Statistical basis**

For the identification of shift potentials only the relevant routing of direct road haulage without sea transport has been analysed in detail. Information about modal split and route choice have been broken into 52 commodity groups (NSTR-2-digits) for traffic zone related data. The commodity-specific affinities have been used to understand the modal split into road haulage and combined land/sea transport through German as well as Dutch/Belgian ports. The respective affinities have been sub-divided into weak, neutral and strong ones. From these affinities possible shift potentials were estimated. Again the shift potentials had to be distinguished in an independent and dependent potential. On the basis of the branch classification of Statistisches Bundesamt shift potentials in each NSTR-2 group were classed for relevant industry branches in the specific traffic cell source or destination area.

#### **3.2 Market Transparency**

Along with the statistical analysis of origin/destination data, ISL designed a questionnaire to analyse the behaviour of shippers and forwarders. This questionnaire contained the following major aspects:

- Objective criteria of choice of mode.
- Assessment of the image of European short sea shipping and of shippers/forwarders' knowledge on service supply shipping;
- Information on the true attitude of shippers/forwarders.

For getting a statistically reliable sample, a random approach has been applied. This means that the traffic zones according to the German transport planning system have been further disaggregated down to a system of small administrative units. This was necessary to identify individual companies within the traffic zones and cells mentioned.

A top-down approach has been applied showing goods-specific origin / destination relationships, opening information on industrial sections and individual companies. The working steps have been as follows:

- Determination of relevant partner countries based upon foreign trade volumes and existing modal split situations (road haulage potentials);
- Analysis of foreign trade flows that are relevant for considerations regarding "From Road to Sea" (basis: individual Federal States in Germany and regions in Spain and Portugal), disaggregated into traffic zones;
- Further detailed analysis of foreign trade traffic with the Iberian Peninsula regarding transport prices and transport times in both road and sea transport;
- Based upon the findings of Portugal/Spain traffic further potentials have been analysed between individual Federal States in Germany and partner countries in Scandinavia/Finland, the Netherlands, Belgium, France, Italy, Greece, Turkey and the Mediterranean;
- Assessment of the chances of realisation of potentials identified considering the affinities of commodities and modes based upon surveys/interviews of relevant companies.

### **3.3 Assessment of marketing and transparency requirements**

Important for shifting potentials is the fact that about 90 % of the responsibility for the modal split determination and about 75 % of the transport chain organisation are managed by the dispatching or receiving companies. The decisive contact persons for short sea shipping are therefore to be found in the shippers' logistics departments.

As well as identifying company-related shift potentials, it is essential to increase market transparency on the supply side. A survey on a sample of 700 shippers has shown that shippers' knowledge about short sea shipping can be split into an affective and a cognitive side. The cognitive base means that shippers act on practical and impartial knowledge about short sea shipping services, while an affective base means that shippers decide on emotional and subjective knowledge which is influenced by prejudices (e.g. short sea shipping is slow, unreliable, etc.).

In this connection it has to be mentioned that shippers' decisions about modal split are influenced by so-called measurable and non-measurable criteria. Measurable criteria are factors of competition which are comparable (e.g. money items, time). Non-measurable criteria are not directly comparable between road and sea transport, but they are influenced by subjective judgement concerning reliability, punctuality, etc. It is important to perceive that non-measurable criteria also have a strong influence on shippers' decisions regarding modal split.

## 3.4 Results

### 3.4.1 *General*

Obviously, there seems to be a lack in market transparency which has to be eliminated within the logistic departments of shipping companies. This assumption results from interviews made by ISL with several companies with respect to their knowledge and experience regarding the alternative short sea shipping. The result shows that shippers have specifically affective and cognitive opinions or attitudes facing short sea shipping.

The cognitive attitude bases on the degree of shippers' knowledge regarding offers of transport services in short sea shipping, whereas the affective attitude often depends on emotional judgements. The cognitive knowledge is characterised as an "imperfect information" or as a deficit thereof. This means that the level of information of a company normally does not comprise the whole set of existing information which is known to be the necessary base for a decision to be taken. In this situation the measurable criteria are influenced with respect to an objective assessment of competitiveness within transport modes.

Contrary to this, the affective knowledge is determined only by subjective confidence and emotion. Both aspects, confidence and emotion, determine widely the mode choice of shippers/forwarders. Their non-measurable criteria, e.g. reliability, relations of confidence, punctuality or security of goods are important and specific arguments for the decision regarding modal split and organisation of transport chains.

These differences existing between the cognitively and affectively characterised knowledge level of shippers and the services in European short sea shipping being available are significant for the fact that in the past a larger shifting of potentials has not yet been realised. The survey mentioned yielded several additional results which can be transferred from German conditions to those of other European countries.

### 3.4.2 *Specific*

Concerning the frequency of exports and imports 63 % of the companies in the sample explained that several times per day transports depart from the company's ground; 20 % have daily shipments, 8 % have 2-6 times per week, another 8 % weekly shipments and only 1 % declared to have 1 to 2 shipments per month. A similar distribution - even more equal - can be observed regarding imports. 46 % of the companies interviewed answered that several times per day goods would be delivered; 23 % received daily consignments, 9 % between 2 and 6 times per week, 19 % weekly and 3 % between 1 and 2 times per month.

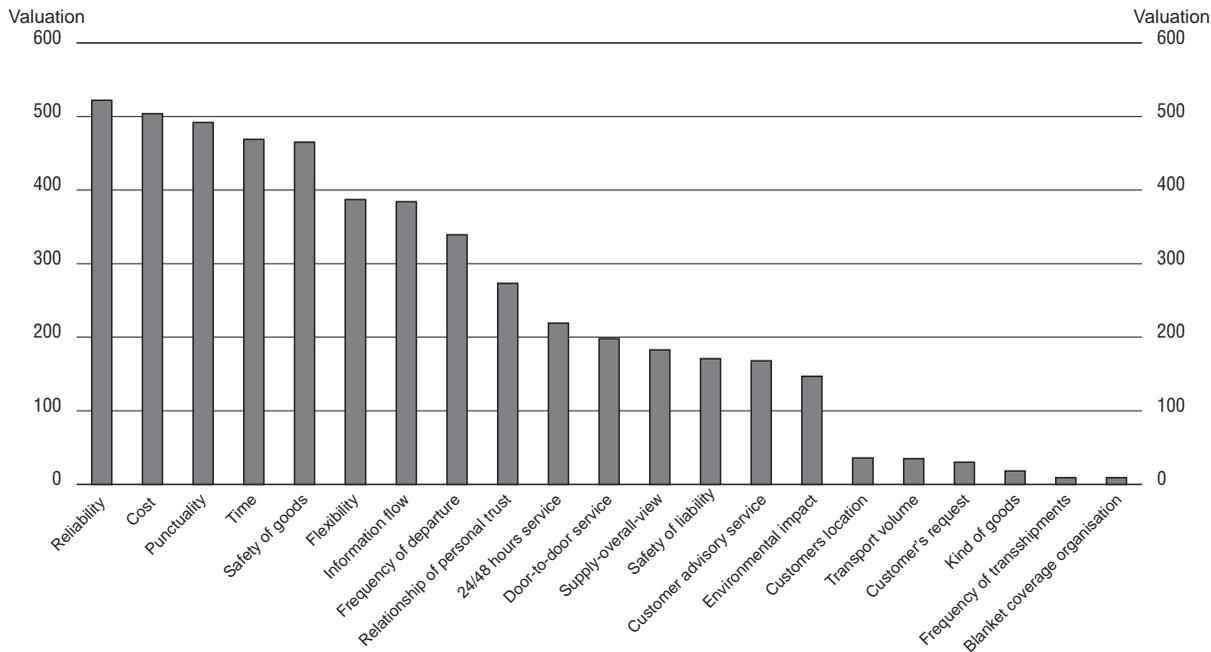
With respect to the orientation of fixed schedules of departures and arrivals of exports, a high percentage of 81 % answered that they are bound to fixed times. Regarding departure times 39 % are oriented during the morning, 16 % around noon, 14 % in the evening and 5 % late noon and night as well. Concerning times of arrival, fixed time schedules are related to the morning (26 %), early noon (24 %), evening (12 %), late noon (6 %), night time (32 %). Out of a subtotal not being fixed to specific time (19 %), a third of interviewed companies mentioned a rhythm of 24 or 48 hours as necessary.

A very important topic of discussion is the requirement for Just-In-Time (JIT) delivery. The requirements were structured as follows:

The question of just-in-time was extended by asking for particular preferences of the companies. This requirement was structured as follows: mentioning of preferences within a ranking without a scaling given (active structure); the passively structured question to be measured by a scaling of 5 degrees for 15 criteria.

The results of the latter requirement are shown in Figure 1.

Figure 1. **Weighted results of criteria modal split**



Source: ISL Survey, 1996.

The survey showed that with regard to the transparency of information obviously (substantial improvements will be necessary. Only the time schedules of liner shipping have a good image (53 % “good’). However, even in this case companies requested better or substantially better services.

**Table 1. Evaluation of Market Transparency in Short Sea Shipping**  
(Percentages)

Grading components	Good	Fair	Poor	Unknown/ No answer	<b>Total</b>
Time schedules and line services	53	25	22	--	<b>100</b>
Conditions	33	38	27	2	<b>100</b>
Transport time	41	26	32	1	<b>100</b>
Prices	33	42	24	1	<b>100</b>
Technical details, e.g. transport units	32	45	20	3	<b>100</b>
Non-scheduled transport	12	41	39	8	<b>100</b>
Guidelines, regulations, e.g. customs	16	30	30	14	<b>100</b>
Free capacities	29	39	27	5	<b>100</b>
Movement data of consignments	11	36	49	4	<b>100</b>
<b>Average</b>	<b>29</b>	<b>36</b>	<b>31</b>	<b>4</b>	<b>100</b>

In addition to this, the survey tried to gain a better insight into the affective component. The problems indicated by the survey participants may be explained by both missing knowledge and/or lack of trust in the maritime transport compared to land transport. The most important problem seems to be the duration of the transport process by sea (nearly 37 % of all answers concerning the question of primary problems). For nearly 92 % of the companies interviewed the time of transport is generally a problem of first, second or third ranking. All other factors are clearly located below this very serious problem. Nearly 30 % of the interviewed companies indicate a problem concerning a low transparency of the supply services, followed by frequency of departures, unknown cost structure, risk of delay, etc.

To get an idea under which circumstances cargo might be shifted from road to sea, scenarios have been defined. They contain stated preferences concerning benefits of cargo shifting due to cost savings. The latter has been split into several classes, namely 5-10 %, 10-20 %, 20-30 % and more than 30 %.

An extension of transport time due to shifting cargo from road to sea is accepted by 23 % of the companies only then if cost savings of more than 30 % can be realised. 52 % are not willing to change their mode choice even if more than 30 % cost savings would be achieved. The remaining 25 % would consider a shift from road to sea if transport cost would be reduced by less than 30 %. The structure of answers is similar concerning other qualitative topics such as lower departure frequency etc.

To touch another question, one third of the companies interviewed stated an interest in additional information about European shipping. Compared to previous statements it should be taken into account that 40 % of the companies do not envisage any cargo to be shifted from road to sea and also do not wish to have any more analyses, while 16 % do not envisage any shifting presently, but are of the opinion that future studies on this problem are necessary. This means that 56 % of the companies interviewed do not have any information about (additional) possible maritime transports for replacing road haulage. However, only one third would like additional information about short sea shipping. There should be a reduction of 16 % points out of this third which leaves altogether 17 % companies who are definitely interested in discussing possible shifting potentials.

## 4. ASSESSMENT OF ROAD TO SEA SPLIT FUNCTION

Until now, the system-immanent disadvantages of intermodal transport including maritime transport compared to direct trucking have not been quantified in monetary terms. There are only certain tentative estimations available assuming advantages of transport cost of 15-30 % in favour of sea transport to be necessary to shift a certain amount of cargo from road to sea.

### 4.1 Modelling Approach

Since a number of determinants of mode choice is not possible to be quantified and expressed in monetary terms, ISL has applied a modal split model which estimates system-immanent disadvantage of intermodal transport compared to pure road haulage. In concrete words, the freight flows between Lisbon and the centres of the German countries have been used for modelling purposes.

It has been assumed to have  $C_1$  and  $C_2$  as the known parts of transport cost (better of generalised cost) for each mode and origin/destination pair. Provided there are valid information about the portions choosing each mode (sea and road haulage) for each pair within the research areas. The following modal split model has been defined:

The ratio of the proportions or transport shares of both modes yields:

$$\frac{P_1}{1 - P_1} = \frac{1}{\exp \{-\lambda (C_2 + \delta - C_1)\}} = \exp \{ \lambda (C_2 + \delta - C_1) \}$$

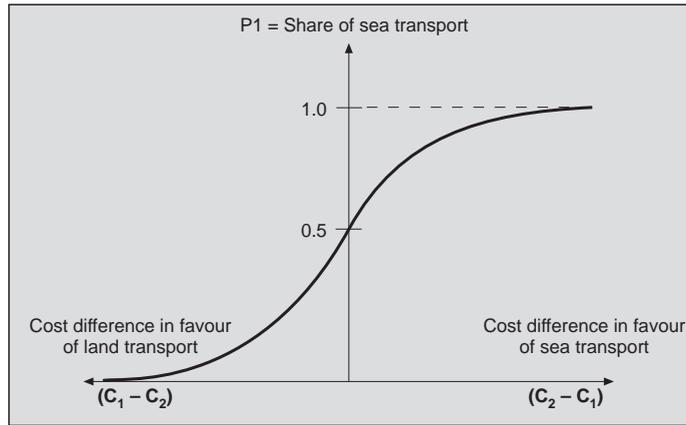
The various components of the formula mean the following:

- $P_{ij}$  : market shares of O/D pairs
- $\lambda$  dispersion parameter
- $\delta$  modal disadvantage (penalty)

Linearisation of using logarithms results in the following formula which is used later for linear regression:

$$\ln \left\{ \frac{P_1}{(1 - P_1)} \right\} = \lambda (C_2 - C_1) + \lambda \delta$$

Figure 2. Theoretical modal split function



$C_1$ : cost of mode sea.  
 $C_2$ : cost of mode road.

Source: ISL Survey, 1996.

The values of  $\lambda$  and  $\delta$  as the regression's unknown parameters have been calibrated by regression analysis with  $\{ \}$  acting as dependent variable and  $(C_2 - C_1)$  as the independent one. The product  $\lambda\delta$  equals the regression's constant and the slope of the function.  $\lambda$  equals  $\lambda\delta/\lambda$ .

The theoretical modal split function implies that both modes will have 50 % market share of the difference between total cost including all relevant qualitative factors is zero.

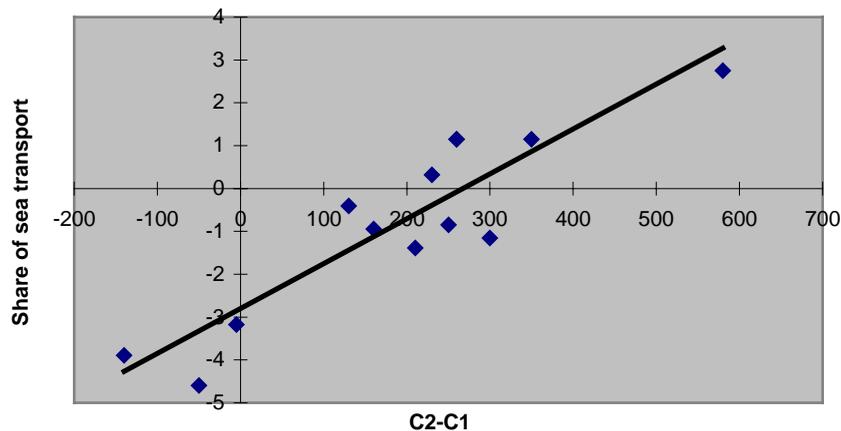
## 4.2 Results

By applying the modelling approach on empirical data for Germany/Portugal trades<sup>3</sup>, the following linear regression function resulted:

$$y = \ln \left[ \frac{P_1}{(1 - P_1)} \right] = 0.0095 (C_2 - C_1) - 7.4826$$

(5.402)                      (-5.689)

Figure 3. **Linearised regression line at trucking costs of 1,85 DM/km**



Source : Mr Holger Kramer, Institute of Shipping Economics and Logistics (ISL), Bremen.

The function is very satisfactory from statistics' point of view with a rate of determination of  $R^2$  - 81% and the values for the t-statistics (number in brackets below the regression coefficients). This holds for the fact that the regression has been calculated based upon cross section data (not time series).

The numerical result can be interpreted as follows: The regression line crosses x-axis at about DM 267,--. This means that with regard to this transport relation (Lisbon-Germany cities) sea transport achieves 50 % of the market if the pure transport price (including port handling) is by DM 267, - cheaper than trucking (as average). If the price differential is zero or even negative, the share of intermodal land/sea transport is zero or close to it.

This means also that the market share of intermodal transport could be increased if on a certain route the price difference could be increased (for example by lower handling cost or lower freight rates by using economies of scale) or the qualitative disadvantage of shipping including time cost, capital binding cost and others would be reduced. Our Institute continues to analyse interesting routes to improve the knowledge on the market shares and competitive situation between trucking and intermodal transport by sea.

## 5. DATA BASE AND ROUTE ASSIGNMENT MODEL

To simulate traffic shift potentials from road to sea, the European Continent has been divided into 77 regions based upon the NUTS-2 regional units (see Map 1). For these regions several sociodemographic and economic parameters have been compiled from various sources and a classification of these zones with respect to European shipping has been carried out. Moreover, a semi-matrix has been set up containing 2.926 origin/destination relationships<sup>4</sup>. Out of these pure

land/land relationships have been excluded from further analysis resulting in about 700-800 interesting O/D pairs from short sea shipping's point of view.

For a sample of O/D pairs mode-specific freight flows have been compiled from different sources (trade, transit, transport, port and ferry statistics). By applying transport prices, handling charges, port fees, travel time and other determinants of mode as well as route/port choice, a route assignment model has been applied which is capable to simulate the impacts of the variation of several parameters including price reduction/increase, alterations of the transport policy and measures of the transport policy. An example of such a route assignment is attached as Map 2.

## **6. OVERVIEW ON SHORT SEA SHIPPING PROJECTS IN EUROPE**

There is a large number of projects on the European level, but also on national and even regional basis.

In July 1995 the European Commission published a strategy paper on "The Development of Short Sea Shipping in Europe: Prospects and Challenges", focussing on the improvement of quality and efficiency in short sea shipping as well as on the improvement of port infrastructure and port efficiency. Increasingly, the use of modern telematics within short sea shipping and intermodal transport are promoted by the EU-Commission (DG VII, frequently joined with DG XIII). Moreover, the planning of Trans-European networks contains also the role of ports and shipping.

The implementation of a task force "maritime system of the future in 1995 took the obligation to co-ordinate short sea shipping projects as part of the 4th Framework Programme and those on a national level. After an evaluation procedure in June 1997 by independent experts in Brussels, a number of about 10 research and consulting projects has been selected to be financed by the EU Commission. The average value/investigation of these projects is about one million ECU each.

The Alliance of Maritime Regional Interests in Europe (AMRIE) deals with European shipping under the headline "Regional Aspects of Short Sea Shipping". Participants are delegates of public organisations, of regional units, companies and associations with relation to the maritime economy. This working group is involved in the elaboration of political statements from a regional point of view. Concerning maritime transport, AMRIE delivered substantial input to EU guidelines (Trans European Networks as well as Round Tables). AMRIE was also involved in the setting up of the G7 pilot project MAR15 (Maritime Information Society). The latter has close relations to short sea shipping via its module MARTRANS.

The Commission/DG VII decided to establish several "concerted actions" in the field of Waterborne Transport. One of the most important is that about Short Sea Shipping, also known as a project "short sea shipping-CA". The objectives of short sea shipping-CA are:

- compiling the state of the art in this (broadly defined) area;
- monitoring progress in related research and other work;
- setting the terms of reference for pilot projects and demonstrators;
- identifying key focal points for short sea shipping future developments, and

- providing the widest possible exposure and dissemination of the results of the action.

Representation is open to all EU countries and other countries associated with the research programme (according to the association protocol). With the exception of Austria and Luxembourg, all EU countries plus Norway officially participate in the action (a total of 14 countries).

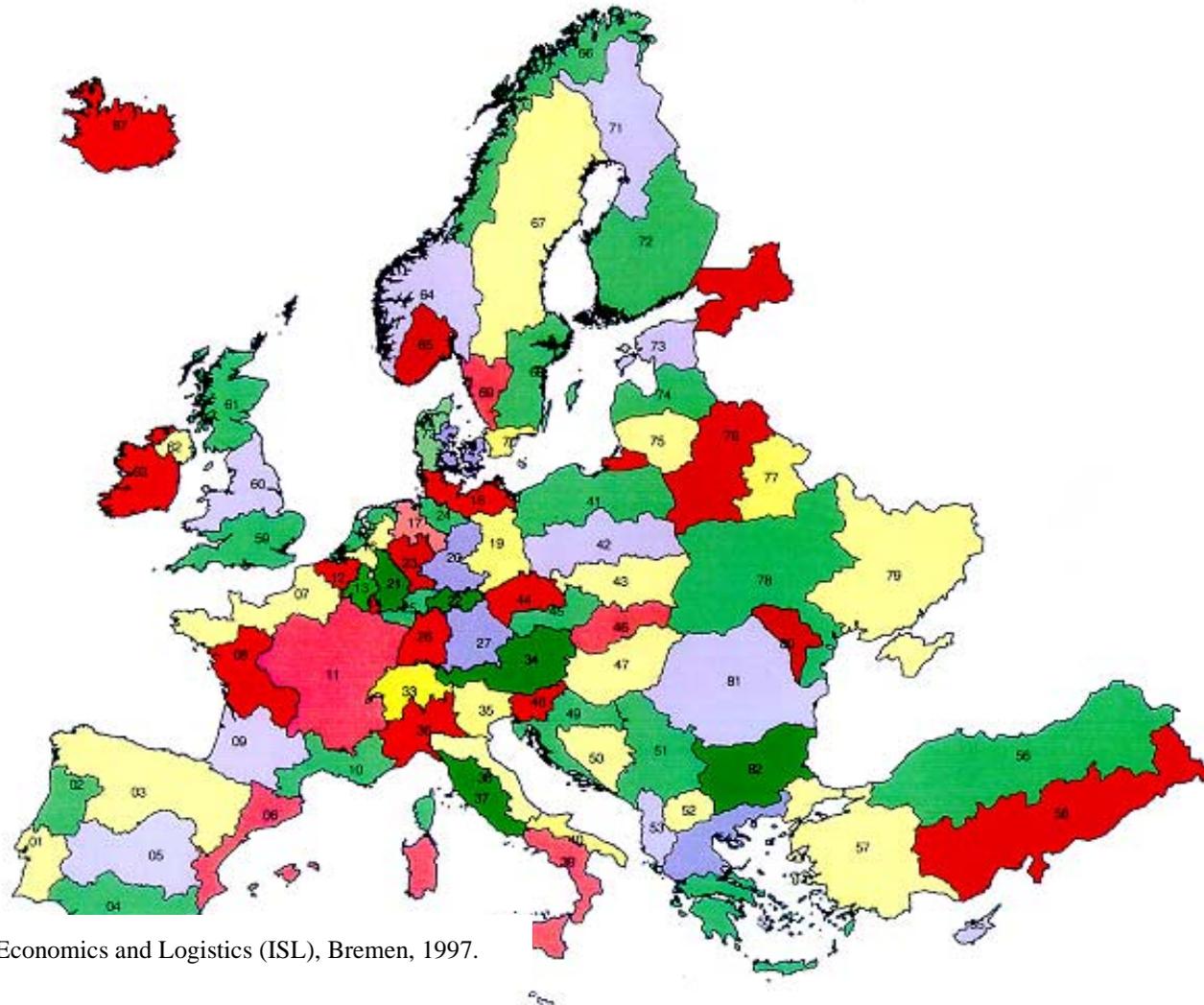
The representatives of each participating country contribute input, advice, and other expertise to the action. Such input typically represents information coming from the specific country (e.g. relevant research carried at the national level, suggestions for pilot projects, etc.). Whenever necessary, special ad hoc “task forces” are formed among other action participants, which will be assigned to collectively tackle specific issues relevant to the action. In addition to nominated regular action participants, several “observers” may be invited to action meetings, representing organisations with an interest in short sea shipping. Such organisations include ECSA, ESPO, FEPORT, and others.

Every two years a so-called Short Sea Shipping Conference is held (1992: Delft; 1994: Athens; 1996: Bergen) where scientist and participants from government associations and the industry discuss problems and solutions for the promotion of short sea shipping and intermodal transport.

## NOTES

1. Commission of the European Union: The development of short sea shipping in Europe. Prospects and challenges. Communication from the Commission to the European Parliament, the Council, the Economic and Social Committee and the Committee of the Regions, Luxembourg 1995.
2. This is equivalent to about 2.5 % of total German long-distance road haulage measured in tonnes (due to longer distances within this specific freight market: 7 % of long-distance road haulage measured in t-km).
3. Market Shares for sea transport between 2 % (Stuttgart-Lisbon) and 94 % (Bremen) - average trucking price: DM 1 85 per kilometre.
4.  $[(77 \times 77) - 77] / 2 = 2 926$   
The diagonal (77 fields) of the matrix (intra-regional flows is not relevant).

Map 1. Regions for Transport Modelling in Europe



Source: Institute of Shipping Economics and Logistics (ISL), Bremen, 1997.



**SHORT SEA SHIPPING: AN ALTERNATIVE TO EUROPEAN INLAND TRANSPORT OR  
A COMPLEMENTARY MODE**

**Report adopted by the ECMT Ministers of Transport at the Council of Ministers  
Prague, 30-31 May 2000**



This report was drafted at the request of the Combined Transport Group of the ECMT at its meeting on 15 October 1998. Its purpose is to analyse the development of short sea shipping in Europe in the light of the most recent initiatives taken, particularly at European Union level, so that the ECMT will be able to adopt an innovative approach to the issues and formulate concrete proposals for addressing them.

The report follows on from previous documents, but is not intended to be an update of these documents. On the contrary, it attempts to enlarge upon them in order to give the Group an overview of the broad issues in short sea shipping in Europe with the aim of determining what the ECMT, specifically, could usefully contribute to improving the utilisation of short sea shipping throughout Europe from a policy-maker's perspective.

## **EXECUTIVE SUMMARY**

Short sea shipping already accounts for a large share of intra-EU trade (around 30 per cent in volume terms), of which a significant portion (more than 80 per cent in volume terms) is bulk commodities. For some years now, short sea shipping (SSS) has benefited from a number of government initiatives aimed at promoting its development. In seeking to secure more intensive use of this mode not only within the EU but throughout Europe, the aim has been to promote a more balanced modal split in transport in Europe while also contributing to other objectives, such as: reducing the impact of transport on the environment, ensuring greater European cohesion; and, lastly, promoting a sustainable transport system in Europe.

Short sea shipping has therefore aroused interest at policy level as an alternative to road transport, the predominant mode in Europe.

However, a review of overall transport policies in Europe shows that the current view of short sea shipping as an alternative to road transport is probably too narrow to exploit the full potential of this mode of transport as a means of achieving the objectives outlined above and does not take sufficient account of the way in which transport market structures in Europe have developed.

Firstly, as globalisation and the constant effort to improve production processes have increasingly become features of economic development, transport operations become an integral part of the management functions of firms. Consequently, transport networks have become the basis of a high-value-added function: logistics.

Secondly, opening access to transport markets encourages competition within and between modes at the same time as giving users a wider choice of mode. Shippers expectations are now focusing on the conditions of access to transport networks integrating the different modes, so that they can optimise their logistics chains. While the traditional competition between modes continues, it is now supplemented by relations based on mode complementarity.

These trends present policy-makers with new challenges. Market regulation, the implementation of competition rules, the need to adopt a co-ordinated approach to the different transport modes, and the need to take into account policies in other sectors (environmental and regional policy for instance) make co-ordination a key factor in the effectiveness of government policies. Lastly, the rapid development of markets requires that governments be able to forecast which regulatory trends are most appropriate to ensure sustainable mobility. In this context, short sea shipping warrants being part of an integrated strategy promoted throughout Europe.

## INTRODUCTION

### **Short sea shipping: review of main features, its importance, advantages and obstacles to development**

#### **1. The main characteristics of short sea shipping in Europe**

##### *1.1 Lack of statistics*

As a result of the abolition of customs frontiers between the Member States of the European Union in 1993, and until new statistical resources become operational from 2000, figures on intra-EU maritime transport are currently rather unreliable. It is estimated that maritime transport carries approximately 30 per cent of intra-European freight.

The very general pointers available to us<sup>1</sup> do show, however, that short sea shipping now carries a substantial share of intra-European freight flows, but the supposed trends do not suggest growth on a scale that indicates that it has won market shares from other modes, particularly road. Nor do they permit an analytical approach -- by type of freight or by shipment origin or end destination -- that would be essential for a thorough understanding of the sector and for determining its potential in terms of achieving a more balanced modal split in the organisation of transport throughout Europe.

##### *1.2 What is short sea shipping?*

This report covers maritime transport between European ports. This includes:

- i) national coastal traffic between two ports in the same country;
- ii) international traffic from one European port to another, and
- iii) the European leg of inter-ocean trades.

We chose to use this broad definition because of the need to look at the potential role of short sea shipping as an alternative to inland transport<sup>2</sup>. In this context, the issue of a modal shift from road to sea concerns all types of transport regardless of the origin or end destination of cargoes whenever the operation concerned includes a European leg.

Short sea shipping comprises different types of carriage as follows:

- Tramping of dry goods or liquids in full bulk carriers, for a shipper (or a limited number of shippers). Tramping accounts for the major share (80 per cent) of intra-Community maritime transport by volume.

- The carriage of general cargo, usually unitised (containers) by carriers which, in theory at least, operate regular services for a large number of shippers (liner services). A variety of vessels are used: multipurpose ships, containerships, roll-on/roll-off vessels).

In the discussion that follows, we take the view that the issues that have to be resolved at pan-European level concern bulk commodities and general cargo transport equally. These are not hard and fast categories and the long-term trend is towards containerisation of both general and bulk cargo. It is in fact possible to unitise some cargoes that have traditionally been shipped in bulk (referred to as “neo-bulk” cargoes), particularly dangerous goods. At European level, some modes of inland transport well suited to bulk transport (rail, inland waterway) and are competing effectively with maritime transport. Even road, which at first glance is not well suited to the transport of large cargoes, is competing with maritime transport. History shows, for example, that national coastal traffic has lost out to road and rail whenever HGVs and trains have been able to compete with seagoing vessels in terms of both loading unit capacity and speed of carriage.

Bulk freight is mainly carried by unimodal transport. With a view to a more balanced modal split, it is hardly realistic to trust that there will be a shift from one mode to another. In contrast, the continuing containerisation of certain goods currently transported in bulk, and greater recourse to a combination of non-road transport modes well suited to bulk traffic (chiefly inland waterway/maritime transport) could be viable solutions that address current policy concerns.

### ***1.3 Main structural features of the short sea shipping market***

The short sea shipping market is regarded as highly competitive. Two techniques are used alongside each other: traditional unimodal port-to-port transport, chiefly for bulk transport, and multimodal transport comprising a maritime leg, for general cargo. General cargo traffic is generally dependent on “feeder” or tonnage contracts with one or more shippers, in order to ensure sufficient freight flows to enable more frequent round voyages. Non-contract transport or spot charters supplement “feeder” and contract cargoes. The low returns on short sea shipping, due equally to intra-modal competition and competition from inland transport, is partly offset by the fact that multimodal techniques enable more efficient management of container fleets, facilitate repositioning and, lastly, reduce voyages with empty containers.

The majority of operators specialising in short sea shipping are “niche” carriers for whom national coastal shipping has recently expanded to Community-wide and even Europe-wide traffic (intra-European international transport) and who still have a traditional approach to their business, although they are capable of offering a door-to-door service. However, this is a sector that is changing radically. Many services have been set up over the last few years, but many have been short-lived. In contrast, it should be noted that the most recent innovations have been where maritime carriers have been able to offer inland carriers an alternative to road (road trailer transport in the Mediterranean) or to integrate themselves into the logistics chains of shippers, going so far as to provide floating storage on their vessels (for the automobile industry and whisky exporters). In the Adriatic, the development of links served by high-speed combination ro-ro ships has been going on for some years now. Lastly, intra-European maritime traffic is increasingly being served by modern, high-performance containerships.

However, we would point out that ro-ro ships still only have a weak presence on the European market. The *economic* explanation is the additional cost of ro-ro ships (construction and operating costs) due to their inevitably lower load factor compared with containerships. Another explanation is what we might term a “*cultural*” one: setting up logistics operations of this kind necessitates:

- i) major investments by ship owners;
- ii) a radical rethink of the logistics solutions currently used by shippers;
- iii) equally radical changes in the behaviour of road hauliers; and
- iv) the introduction of new methods of working, based on complementarity rather than competition between inland and maritime carriers.

This said, from a *technical* standpoint, ro-ro ships have none of the problems with incompatible unit loads that containerships experience. Swap-bodies are the simplest way of linking inland and maritime transport, albeit at the price of using three transport components: the container, the chassis and, lastly, the ship.

#### **1.4 Looking ahead**

In the future, it is reasonable to assume that the volume of maritime trade in Europe overall will increase as a result of a combination of four factors.

1. *Natural growth* -- linked to GNP growth and stronger trade -- which will generate a further escalation in intra-Community flows with the introduction of the Euro, as was the case with the earlier phases of building the new Europe, and in extra-Community flows with neighbouring CEECs and Mediterranean countries, which are already linked to the European Union through association agreements (Euro-Mediterranean partnership agreements).
2. *Growth by constraint*: environmental, technical and social standards will prompt certain shippers to integrate maritime transport or combined maritime/inland modes into their logistics chains more closely than in the past. The transport of dangerous goods and of products that are the most heavily penalised by current or future “road only” constraints, will be the first to be affected by this trend.
3. *Growth through efficiency*: developments in Community policies on infrastructure financing and charging for transport services will result in fairer competition between the various transport modes on a financial basis. We know that short sea shipping has been and still is adversely affected by competition from the other modes, which are exempt from various direct and indirect costs or are more heavily subsidised. Encouraging a level playing field for all modes should therefore benefit the maritime industry.
4. *Growth stemming from logistical improvements*: the development of nodal distribution and the need to achieve economies of scale are factors conducive to short sea shipping. Feeder transport has increased by more than 20 per cent per year over the past decade for these reasons, and today it accounts for over half of the maritime container traffic in Europe.

## **2. Advantages of short sea shipping**

Maritime transport has several competitive advantages over other transport modes.

### **2.1 Maritime transport and the environment**

Taking all modes together, transport is responsible for 25 per cent of CO<sub>2</sub> emissions worldwide. This 25 per cent breaks down as follows: maritime transport, 7 per cent; air transport, 12 per cent; road vehicles, 75 per cent; other modes, 6 per cent. Transport is specifically targeted in the current

negotiations on environmental protection. Maritime transport, including short sea shipping, is generally regarded as an environmentally friendly mode. The best known indicators are those for atmospheric pollution (see annex 1).

## ***2.2 An economic mode***

The advantage of maritime transport is that it uses a no-cost infrastructure, the sea. Port infrastructure requires smaller investment budgets than rail or road infrastructure. For instance, over the period 1990 to 1995, gross investment expenditure by the 18 Western European countries of the ECMT on inland infrastructure totalled an average of ECU 71 500 million per year (at 1995 exchange rates), as opposed to ECU 2 400 million on port infrastructure. Investment in this mode being less substantial, maritime transport can adjust more easily to fluctuations in traffic. Maritime transport and ports take up little unspoiled land. It is also an energy-efficient mode (see annex 1).

## ***2.3 Maritime transport and regional economies***

Europe's physical and economic geography lends itself to maritime and waterway/maritime transport. The European Union alone has 67 000 kilometres of coastline and 25 000 kilometres of navigable waterway. One advantage of maritime transport is that it is able to reach what are known as "peripheral" regions that are impossible or difficult to reach by other modes. This is the case for Ireland, Norway, regions on the Baltic Sea, the Black Sea and the Eastern Mediterranean. From this standpoint, short sea shipping is the leading mode of transport for trade in goods between Eastern and Western Europe and between the countries of the Mediterranean basin.

## ***2.4 Maritime economy***

Short sea shipping generates work for European shipyards. In 1995, the European Commission estimated that 50 per cent of the ships built in the European Union were for short sea shipping. The prospects of replacing this older fleet by one more suited to the needs of the market (containerships, ro-ro ships, self-unloading bulk carriers, and fast freighters) can only increase this sector's contribution to European shipbuilding. Shipbuilding is not the only activity related to maritime transport to benefit from the expansion of short sea shipping. Short sea shipping is a major source of employment (accounting for almost 60 per cent of French sea-going jobs). Another factor to be taken into account is its contribution to the turnover of the insurance, brokerage and freight forwarding sectors, for example. Lastly, short sea shipping develops as a logistics business; it will almost certainly require highly specialised personnel.

## **3. Obstacles to the development of short sea shipping**

Numerous studies on barriers to the development of short sea shipping have been carried out since 1992. The major barriers identified are listed below.

### 3.1 *Poor image*

Short sea shipping is still regarded as a mode of transport that is:

1. *Complex to organise.* Red tape and the complexity of through-carriage involving a maritime leg due to overlapping contracts of carriage and liability regimes are often criticised. Public health inspections, customs formalities and dangerous goods regulations are cited as obstacles to the development of short sea shipping. Most of the time, maritime freight transport is part of a multimodal, not a unimodal, operation. Successive modal transfers entail additional risks and costs for shippers, consignees and forwarders. The problem of modal transfers and their cost is a general one, shared by all alternatives to road transport as soon as they form part of a multimodal chain.
2. *Technically not flexible enough and slow.* In Europe, the vessels used for short sea shipping are old (about 20 years old) and generally not purpose-built (between 57 and 72 per cent of the fleet used for short sea shipping are reported to be multi-purpose vessels)<sup>3</sup>. The current trend towards gradual replacement of the present fleet by faster, better designed and more commercial vessels is likely to become more marked over the next few years: combined high-speed ro-ro ships, self-unloading bulk carriers, small containerships able to cater for 40' containers and better suited to inland transport loading units than 20' containers. Another factor that contributes to inflexibility is the low penetration of maritime transport inland -- an obstacle that inland waterway/maritime transport could help to overcome.
3. *Difficult to assess.* The lack of statistics is an added handicap. The result is that potential users have only a patchy picture of this mode of transport. The lack of transparency with regard to existing or potential services, provided by regular lines or not, is often quoted by shippers as a factor which puts them off using short sea shipping. The lack of statistical data also makes it difficult, for governments to assess the efficiency of policies implemented and hampers their ability to forecast market trends.

### 3.2 *Costs and standard of port services a disincentive*

Maritime transport professionals in the European Community estimate that stevedoring charges plus port taxes account for over 50 per cent of the costs of short sea shipping in Europe on average. Here again, the statistics should be treated with caution. Comparisons between two ports can be queried because charges are not sufficiently transparent and the structure of transit costs varies with local practice, which inevitably leaves comparisons open to question. However, we would point out that, on average, the deterrent nature of port transit costs is cited with regard to ports in Southern Europe as much as to those of Northern Europe.

The slowness that is still a feature of maritime transport can largely be put down to time spent in port, as owners estimate that an average of 50 per cent of the turnaround time of a short sea vessel is taken up by the approach to and stay in port. As well as time spent in port, another factor that affects the competitiveness of short sea shipping is the time necessary for transit through the port area. In addition to the efficiency of port handling and warehousing facilities, the issue here is the improvement of transfer facilities, where necessary. Over and above the need to modernise (gear on general cargo ships; self-unloading bulk carriers), it is the conditions under which some ports currently provide interface services from the vessel to other modes of transport (road, rail, inland waterway) which are regarded as one of the main obstacles to the development of short sea shipping: 24h access, organisation of warehousing and distributions areas, land access facilities.

### ***3.3 Intermodal competition***

One of the most frequent demands of maritime carriers is for the different modes to be allowed to compete on equal terms. A demand that is generally formulated by the idea that all transport users should pay for the infrastructure they use. The publication by the European Commission of a Green Paper (in 1996), then a White Paper on fair payment for infrastructure use, in 1998, has brought this issue to the fore.

### ***3.4 Pre- and post-shipment carriage***

Lastly, the issue of land access to ports is regularly cited as a major obstacle to the development of maritime transport. From a multimodal standpoint, it is essential that ports have adequate, efficient links to land transport networks. The planning of land access infrastructure is vital for a port's development.

Infrastructure investment and user charging policies also play an important role in ensuring a coherent European port network and in competition between ports. As well as the problems of road, rail and inland waterway infrastructure and their connections to ports, the challenge that ports are now facing is their competitive position compared to other land transfer terminals.

As well as network connections, different standards for loading units for land and maritime transport are also holding up the development of maritime transport. Sea containers are not really suitable for European pallets and, when they are used, stuffing rates are low. Consequently, low returns are a problem when sea containers are used on land routes.

## PART I

### Policy initiatives in recent years

The current organisation and operation of short sea shipping in Europe is the result of policies implemented by the EU from both a pan-European and a Community perspective. Within the EU, development has not been uniform. This is because:

- i) Community policies have flaws which affect the modes to different extents; and
- ii) the majority of these policies have been implemented by directives that leave a large degree of discretion to Member States as to their introduction into domestic law.

In non-EU Member States, development has been even more uneven. Iceland, Liechtenstein and Norway are covered by the Community Regulations through the Agreement on the European Economic Area. They are also used as benchmark in Switzerland and for policy and regulatory development in the New Independent States/Central and Eastern European Countries (NIS/CEECs). However, these latter countries all have their own highly specific characteristics (the common denominator being their recent transition to a market economy) which explains the necessary “adjustments” to the free-market principles that are applied more or less strictly within the European Union.

A further complicating factor is that the current organisation and operation of short sea shipping in Europe is the result of proposals specifically aimed at maritime transport and of others relating to overall transport policy. Seen in this light, the promotion of short sea shipping is the result of policy proposals for the sustainable economic development of the Community and of components of overall transport policy, rather than of any commitment to develop a structural policy for maritime transport.

### 1. Policy initiatives for the development of short sea shipping

Many Community-level policy proposals on maritime transport, including short sea shipping, have been announced by the European Commission, chiefly in a series of “Communications” and “Green Papers”. At the risk of drawing attention to a certain discrepancy between the intentions and the tangible results achieved, we have to say that the many recommendations contained in these documents -- although by no means all of them resulted in regulatory reforms -- have helped to make governments and transport professionals aware of the problems involved in making short sea shipping more efficient. One of the most visible results of Community policy has been the measures supporting research and innovation, to facilitate modernisation of the sector and its closer integration into the European transport system, while co-operation programmes with neighbouring countries were initiated to help ensure greater consistency of maritime transport and the port network throughout Europe.

#### 1.1 *The basis of Community policy on maritime transport*

A first communication in 1985, *Towards a common transport policy -- Maritime Transport*, expressed a commitment to liberalise the various modes of transport (by promoting a policy of free access to markets), announcing a package of four regulations which would be adopted by the Council of Ministers (Transport) on 22 December 1986. A few years later (1989) the Commission presented a more specific policy proposal in its Communication, *A future for the Community shipping industry* [COM(89)266].

With the completion of the Single Market, the aim was to develop an overall policy that would contribute to “sustainable mobility” of goods and people, i.e. the introduction of a sustainable transport system for future generations. The Commission’s White Paper, *The future development of the common transport policy. A global approach to the construction of a Community framework for sustainable mobility* [COM(92)494 of 2 December 1992] sought to achieve multiple objectives (environmental, social, and economic), a more balanced modal split, and improved interoperability/interconnection between transport networks. This gave birth to the idea of promoting a shift from road mode to maritime mode in order to develop a more environmentally friendly transport system and eliminate current and future bottlenecks on Europe’s roads.

On several occasions between 1991 and 1996, the European Commission outlined the components of a sectoral policy for maritime transport. A 1991 Communication, *New Challenges for the Maritime Industries* [COM(91)335] resulted in the creation of the Maritime Industries Forum (MIF). The objective of this initiative was to provide a forum for the main players in the maritime industry (carriers, shippers, shipbuilders, etc.), to discuss the sector’s problems and identify ways in which its efficiency could be improved.

The MIF’s short sea shipping panel drafted recommendations on initiatives to promote the development of short sea shipping in Europe. The work of this panel may be regarded as having substantially improved our knowledge of this sector and the obstacles hindering its development. The Forum’s main problem was in implementing concrete initiatives. The short sea shipping panel solved this problem by encouraging countries to hold round tables on ports, which bring together sector professionals and are responsible for implementing commercial reforms and for setting up “promotion’ bureaux” to foster greater co-operation between industry and government with a view to setting up transport operations that integrate the maritime sector more closely. Lastly, more recently, the Forum has recommended the institution of national “Focal Points” (contact points) who are responsible for promoting the interests of short sea shipping at government level by providing information and acting as co-ordinators.

Based on the work of the MIF, the Commission published a Communication, *The Development of Short Sea Shipping in Europe: Prospects and Development* [COM(95)317] in 1995. This Communication lists obstacles hindering the development of short sea shipping and proposes an action programme. It goes on to analyse eight “corridors” with the greatest potential for shifting traffic from road mode to maritime transport.

Two Communications from the Commission in 1996, *Towards a New Maritime Strategy* [COM(96)81] and *Shaping Europe’s Maritime Future. A contribution to the Competitiveness of Maritime Industries* [COM(96)84], are aimed at defining or redefining the guidelines for Community maritime policy. Specific aspects, such as maritime safety and external relations, are covered in separate communications or reports. Although these Communications do not deal specifically with short sea shipping, they will nevertheless influence the sector, since they define the policy framework in which it operates.

Lastly, several EU Council resolutions express Member States’ backing for measures to promote short sea shipping. For example, the Council Resolution of 11 March 1996 states that the main objectives of short sea shipping policy are:

- to achieve balanced growth in this mode of transport; and
- positive and active integration of short sea shipping, including feeder services, into the intermodal transport chain.

It refers to Member States' intention of "promoting, in the interest of the users, free and fair competition between modes of transport in which all modes bear their full costs, including external costs" ... and ... "fostering free and fair competition between Community ports and between shipping lines".<sup>4</sup>

For a long time, the *ports sector* had been left on the sidelines of the new Europe. Certainly, even before the completion of the Single Market and the obligations to liberalise the provision of services, which followed on from it, the Commission and judicial bodies of the Community enforced the general provisions of the Treaty of Rome regarding port dues, pilotage rates and conditions for handling operations. Now, in addition to ensuring that the regulations governing ports comply with the Treaty, port operations and competition between ports are now under the Commission's control in accordance with articles 81 (ex article 85) and 82 (ex article 86) of the Treaty.

The first building blocks of a Community port policy were seen in 1997 with the publication of the Commission's Green Paper, *Sea Ports and Maritime Infrastructure* [COM(97)678 Final of 10 December 1997]. The Green Paper contains recommendations on: linking sea ports to trans-European transport networks; improving the role of ports as transfer points in the multimodal transport chain; short sea shipping, improving the role of ports in maritime safety; and, environmental protection. Lastly, the Commission recommends greater transparency in port charges. It advocates a charging system based on the user-pays principle and the introduction of a regulatory framework aiming at a more systematic liberalisation -- although this would proceed in phases -- of the port services market in the main ports with international traffic.

### ***1.2 Research and development aid***

In order to promote maritime transport in general and short sea shipping in particular, the European Union and the Member States recently allocated, and are continuing to allocate, substantial amounts to fund research and development. Fifty-five projects were implemented under the 4th Framework Research and Development Framework (FRDP -- 1994/1998). These are co-financing measures totalling approximately ECU 45 million. Short sea shipping benefits from a special (Joint Action) measure. Due to their sheer number, research and development initiatives pose co-ordination and priority problems, which the Commission analysed in its Communication of 19 October 1994 [COM(94)438 Final]. On the basis of this analysis, the European Commission set up a *Task Force on Maritimes Systems of the Future* to co-ordinate the initiatives of all of the Directorates-General likely to undertake or co-finance projects directly or indirectly related to maritime transport. Lastly, short sea shipping is also eligible for support under PACT<sup>5</sup> and other programmes (PHARE, TACIS) and for funding (FEDER) [see Mr. Papadimitriou's report].

### ***1.3 The pan-European dimension of the policy to promote short sea shipping***

Community transport policy instruments would not be very effective if they confined themselves solely to Community level. The efficiency of the transport system is also dependent on the quality of its natural extensions outside the Community, that is, to the whole of the continent of Europe and even certain areas of the Mediterranean basin.

The gradual rapprochement between EU Member States and the CEECs/NIS stems, first from the latter countries' shared desire to develop into market economies. This development was facilitated by various Community association and partnership agreements: by the initiation of a policy dialogue with the Member countries of the OECD in general; by granting some countries observer status with the OECD and by paving the way for the accession of CEECs to the European Union. Today, all of the CEECs/NIS are Members of the ECMT and are therefore committed to promoting the implementation of resolutions and other types of undertaking negotiated under the aegis of the ECMT, particularly those relating to co-ordinating its Member countries' policies.

Some of the support programmes (4th FRDP, PACT, PHARE, TACIS) include maritime projects of interest to the CEECs. More recently, the European Commission and 10 states on the Baltic Sea (including Norway) set up a *Co-ordinating Committee* to review the status of maritime transport and ports in the region and define future avenues for co-operation in these sectors. Further south, under a Euro-Mediterranean partnership agreement, numerous co-operative initiatives are under way with a view to achieving better network integration, establishing an area in which goods and people can circulate more freely and, lastly, facilitating increased trade in goods and movement of people in the region.

As regards the 11 candidates for accession to the EU (including Bulgaria, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovak Republic, Slovenia and the Czech Republic), the Transport Infrastructure Need Assessment (TINA) programme was instituted in 1996 in order to co-ordinate the development of an integrated transport network and to bring networks in these countries into line with networks in EU countries. Under this initiative, 10 pan-European corridors were defined in Eastern Europe. In addition, four pan-European transport areas were set up which concern candidate and other countries equally (Helsinki Conferences, June 1997). Community aid for upgrading the networks of the countries concerned takes the form of co-financing for studies, rather than aid for infrastructure programmes under PHARE or TACIS, or through the Instrument for Structural Policies for Pre-Accession (ISPA).

In the regulatory field, NIS/CEECs are gradually bringing their regulations into line with Community standards. The ECMT plays a major role in liaising between EU Member States and the other countries of Europe in the regulatory and policy area. The United Nations Economic Commission for Europe has a more technical research and advisory role.

## **2. Short sea shipping and overall transport policy**

It is virtually impossible to analyse trends in one mode -- short sea shipping -- without taking into account trends in other modes, if only because the modes are competing with each other. It is therefore important to review the different aspects of overall transport policy and the impact that they have had on the organisation and operation of European transport markets. These determine the environment in which short sea shipping is operating today. Important aspects of Community transport policy cover *infrastructure planning*, market access *liberalisation* (which varies significantly from one mode and one country to another, with marked differences between EU Member States and third countries) and the creation of a *level playing field including on environment and safety matters*, an undertaking that is still far from complete.

### **2.1 Infrastructure planning**

At Community level, a first three-year programme (1990/1992) adopted in November 1990 provided for financial support initiatives for projects in the interests of the Community. However, the

real launch of an infrastructure planning policy was based on the amendments that the Maastricht Treaty added to Title XII (articles 129B-129D) of the Treaty establishing the European Community. The political impetus was given by the June 1993 meeting, in Copenhagen, of the European Community Council (transport), following which three outline plans for trans-European combined transport, road and inland waterway networks were adopted. With the publication of the White Paper, *Growth, Competitiveness and Employment*, in December 1993 the establishment of trans-European networks, particularly in the transport sector, became official policy, with a view to completing the internal market and opening the European Union to the countries of Eastern Europe. At the European Councils in Corfu and Essen in 1994, 14 priority projects were selected. At the time, capital investment in these projects was estimated at around ECU 100 billion over the period 1995-2010 (36 per cent on rail projects; 11 per cent on road projects; 40 per cent on combined transport projects; 11.6 per cent on road/rail connections; 1 per cent on airport projects). This network policy was formalised in 1996 with the adoption of *Community guidelines for the development of the trans-European Network* (of 23 July 1996, OJ No. L228, 9 September 1996).

Trans-European transport networks (TEN-T) are regarded as an effective means of achieving economic and social cohesion throughout Europe. They rank high in co-operative programmes between the European Union and the CEECs.

Short sea shipping is not mentioned in the 1996 guidelines. However, it is concerned to some extent, since TEN-T have determined the major transport corridors at both pan-European and Community level. As well as helping to shape land access to sea and inland ports in Europe, Trans European transport networks are exerting a decisive influence on the relative competitive positions gradually being established between the different modes of transport as market liberalisation progresses. One of the challenges in reviewing these outline plans in 1999 will be “to clarify and strengthen the position of seaports, inland ports and intermodal terminals in the trans-European transport network” (preamble to the Proposal for a European Parliament and Council Decision amending Decision No. 1692/96/EC).

## ***2.2 Progress on liberalisation, but uneven across the different modes***

At Community level, liberalisation was regarded as an end in itself, because freedom to provide services, in other words, freedom of access to markets, was regarded as a means of achieving economic efficiency. However, the impact of this mode-based liberalisation policy on competition has substantially influenced the structure of transport in Europe. In the CEECs, current market access conditions are far from uniform and still a long way behind conditions in Western Europe, particularly in the road and railways sectors.

### *Maritime transport*

In the maritime transport sector, liberalisation came into effect from 1987 [Council Regulation (EEC) No. 4055/86 applying the principle of freedom to provide services to maritime transport between Member States and between Member States and third countries; Council Regulation (EEC) No. 3577/92 applying the principle of freedom to provide services to maritime transport within Member States (maritime cabotage). Except for national coastal shipping services to islands, liberalisation has now been achieved.

Apart from forcing freight rates down, due to stiffer competition and the increasing use of open-registry vessels, liberalisation at Community level has not had any very marked impact on the structures of short sea shipping and it would be imprudent to try to say which changes in the

current organisation of the European maritime markets are the result of liberalisation at European level and which are the result of liberalisation of the maritime sector at world level, or of economic globalisation.

It is more important for our purposes to note that it is the major ocean carriers who have the greatest influence on the structure of inland networks and transfer terminals in Europe. The trend towards flow consolidation through concentration (for example the merger of the container transport business of English operator P&O with the Netherlands operator Nedlloyd) or through the formation of strategic alliances, together with major owners' tendency to control pre- and post-shipment inland carriage have resulted in major legal battles on the application of Community competition law (Commission sanctions on inland rate fixing by shipping conferences<sup>6</sup>) and in the development of inland hub and spoke networks. However, the majority of these logistics facilities are still "closed", i.e. depot networks are still private (the depots set up on a trial basis by TACA shipowners in Frankfurt, Lyon and Munich are a case in point).

The main obstacles to the development of maritime transport are no longer at sea, but on land.

#### *Port services and transport ancillary services*

The terms of access to port services, the rules governing the establishment of firms in other countries or the operation of a business under free market conditions (the right to provide services) all affect the efficiency of maritime transport and investment conditions in the maritime and port sector. We would point out that one of the Commission's priorities in its Green Paper *Sea Ports and Maritime Infrastructure* was a more systematic liberalisation in the port services (stevedoring, tugging, pilotage, for instance).

#### *Road sector*

At Community level, access to road transport markets was liberalised in two stages: on 1 January 1993 for intra-Community international transport and on 1 July 1998 for cabotage. Except for the "eco-point" system required for transit through Austria, market access is now subject only to qualitative criteria (good repute, financial fitness and professional competence of carriers) not to quantitative criteria (quotas, permits). In the road transport sector, a strong trend towards concentration -- through internal growth or through take over -- is noticeable, together with a rapid growth of out-sourcing. This trend has been accentuated by the formation of a "strategic alliance" between carriers from different European Union Member States<sup>7</sup>, whose aim is to provide integrated transport solutions for shippers on a Europe-wide scale. Calling themselves "transport architects", these road transport firms have become providers of integrated world-wide logistics services, managing air and maritime operations as well as road transport operations. Lastly, they have focused their efforts on the use of "clean" vehicles.

Among ECMT Member countries road transport, other than national cabotage, is governed by different regulations depending on the nature and size of shipments. Transport for hire or reward and vehicles with a permissible maximum weight of over 6 tonnes (or a payload of over 3.5 tonnes) require permits. Below these limits and unless specific reservations, there are no quantitative restrictions on transport between ECMT Member countries. Cabotage, authorised within the European Union, is still prohibited or subject to licence requirements in other ECMT Member countries. The process of deregulation brought stiffer competition, a reduction in rates charged lower returns and ageing vehicle fleets due to lack of investment. The process of privatising former public undertakings combined with the trend towards setting up private companies led to the fragmentation of the market.

The risks of creating an oligopolistic market do not seem to have caused the concern that it did in Western Europe. From the point of view of enterprise structure, the East's problem seems to be the existence of small, competitive firms alongside state enterprises, which are now obsolete.

### *Rail sector*

At the start of the 1990s, the railways were a special case in that they were mainly monopolies heavily in debt from having to finance infrastructure for which they were virtually the sole users, and had been sheltered from market forces. The 1990s were the period in which the sector was gradually prepared for a free market environment. The preparation mainly consisted in:

- i) encouraging the emergence of railway service operators responsible for their own commercial management and separate from rail infrastructure managers (the means by which this was done was left up to individual Member States, currently 10 of them have separated operations from infrastructure management);
- ii) promoting the modernisation of the sector through co-operation rather than competition, although on this latter point only a few limited trials took place under the freight freeway initiative.

At Community level, Council Directive 91/440/EEC of 29 July 1991, grants access rights for international rail traffic to railway undertakings and international groupings. In practice access is restricted to certain types of undertakings under conditions that were defined later (Council Directive 95/18/EC and Council Directive 95/19/EC, which were to be transposed into national law by June 1997). Pending a more ambitious liberalisation of the sector (initiated recently by a series of European Commission proposals for the amendment of Council Directive 91/440/EEC) it is the 17 *rail freight freeways* recommended by the Commission in its July 1996 White Paper [COM(96)421] that will start to step up competition on the rail market. The rail freight freeways are to be administered via a one-stop shop (OSS) that will handle transport operations, allocate train paths, co-ordinate border crossings, but will allow freedom in setting charges.

The success of *rail freeways*, to judge by the disappointing utilisation rate, is moderate. There have been some experimental schemes, of which the most notable are:

- The Malmtrafickk consortium (Swedish and Norwegian railway companies), which transports ores in Sweden and Norway;
- European Rail Shuttle (ERS), set up by shipping companies (P&O - Nedlloyd, the Anglo-Dutch venture; the American company, Sealand; and the Danish company, Maersk) and German national railway companies, operating daily services between Rotterdam, Hamburg and Milan.
- Until September 1998, NDX, set up by the American company CSX (parent company of Sealand, the American shipping company), German railways (DB), Netherlands railways (NB), which operated several international routes within the EU (between Rotterdam and Munich, Antwerp and Barcelona and between Hamburg and Milan). In September 1998 almost all of NDX's operations were sold to one of the major European forwarders.

Other corridors that could be cited are:

- Muizen (near Antwerp) to Gioia Tauro (southern Italy), via Lyon and Genoa;
- The extension from Lyon to Marseilles;
- The extension from Lyon to Barcelona, via Avignon;
- Glasgow, Liverpool, London, Dunkirk, Metz (with a spur to Le Havre), Strasbourg, Frankfurt, Würzburg, Wels, Linz, Vienna and Sopron (Austro-Hungarian border).

Subject to a more detailed analysis, it would seem that the low train path utilisation rate illustrates the difficulty of making a return on multimodal transport chains in the framework of a freight freeway (as opposed to a network) when there is not yet full open access to the railways and their managers are still partially sheltered from market forces. The as yet only partial liberalisation of the railways is holding up intermodal integration of the European networks and at the same time creating major discrepancies in the competitive development of the transport modes. Of course, since 1996, the phasing in of freeways and other initiatives by the railway industry (like the setting up of dedicated block train services for OOCL (Orient Ocean Container Lines - an Hong Kong shipping company) and Chrysler from Antwerp to Graz) have improved commercial flexibility. However these initiatives are still limited to dedicated freight transport or freight freeways, which are the exception, while user demand tends to be for more general needs, which would require flow higher volume flows along corridors whose ability to meet market needs, probably warrants further evaluation.

Completing open access to the railways in Europe is a lengthy process. At the Council held on 9 and 10 December 1999, a common Position was agreed upon opening up the trans-European rail freight network by 2003.

*In the other countries of Europe*, ECMT Resolutions 93/6 and 95/3 aim to extend the principles behind Community Directives 91/440/EEC, 95/18/EC and 95/19/EC to its Member countries. The objectives of the Directives are to ensure:

- i) the designation of an infrastructure manager;
- ii) accounting separation for infrastructure management and transport operations; and
- iii) that managers operate on a sound financial basis.

Accounting separation (which has now been implemented in 14 of the 15 Member States of the EU) has now been implemented in the majority of non-EU ECMT Member countries. Practical measures for non-discriminatory access to infrastructure have still to be implemented. At present, national monopolies are the only companies that have been granted access rights. Lastly, the freedom to set charges is an objective to be achieved throughout the CEECs.

### *Inland waterways*

The inland waterways sector is very uneven. There has been open access to some waterways for years. On the Rhine, for example, the principle of free navigation for bordering countries is stipulated in the Mannheim Convention. Other waterways are also highly regulated and some of them have been closed to competition for years. In the European Union, coastal shipping has been permitted since 1 January 1995 and Directive 96/75/EC provides the legal basis for liberalisation of the sector. Arrangements for the free negotiation of charter contracts and prices (abolition of rotation systems) are to be phased in at national level by 1 January 2000, with transitional arrangements to be put into effect in the run up to this deadline. In many non-EU countries of Europe, access to inland waterways is restricted to vessels under national flags. This is the case in Russia, among other countries, where, because of its vast network and its potential for inland and maritime/inland waterway transport, these

restrictions are a substantial obstacle to the integration of waterway transport into the trans-European transport network.

The share of inland waterways in pre- and post-shipment maritime transport varies substantially from one port to another. While it accounts for over 50 per cent in the port of Rotterdam, the percentage is much lower in French ports: Le Havre 5 per cent, Marseille/Fos 2 per cent, Rouen 14 per cent.

### *Combined transport*

The European Union has repeatedly stated the need to promote and support combined transport, in particular as a competitive alternative to road transport, bearing in mind the aim of sustainable development and the current situation regarding road safety and road congestion. This political will lead, among others, to the adoption of Directive 92/106/EEC. Under this Directive, quota and authorisation systems do not apply to certain types of combined transport. Tax exemptions may be granted to road hauliers, as is the case in five EU Member States. Some non-EU countries -- the Czech Republic, the Slovak Republic, Bulgaria, Romania and Switzerland -- grant similar tax concessions. The legal restrictions on weight may also be relaxed for road trains (Germany, Austria, France, Greece, Portugal, Spain, and United Kingdom).

Combined transport still only accounts for 5 per cent of intra-Community international road traffic in tonne-kilometres. In contrast, it accounts for 23 per cent of cross-frontier rail traffic in the EU (road/rail transport is moreover the only source of rail freight growth in the EU), but only half of this is intra-Community traffic. The other half is inter-ocean trade sea containers. The implementation of this Directive has been hampered by the commercial and technical limitations inherent in rail transport, while the liberalisation of inland road cabotage as of 1 July 1998 renders this exemption policy less effective. This explains the objective of the current process of amending the 1992 Directive, which is to make greater use of combined transport as a means of encouraging a shift in freight transport from road to other modes. With regard to intra-community freight transport, intermodal transport will in any case be limited since economists estimate that 85 per cent of the goods produced and bought in the European Union are transported a distance of less than 150 km<sup>8</sup> -- at that distance "road only" is still more competitive than other modes including combined transport.

Combined transport benefits from the active support of governments, and of the European Commission in particular. The Pact programme, set up in 1992, aims to promote combined transport services in order to make them more competitive with "road only" modes. It provides for the co-financing of feasibility studies (up to 50 per cent) or the costs of actions of an innovative nature (30 per cent). The programme was recently extended for five years (1997/2001). Over the period 1997/1998, PACT provided financial support for 46 combined transport projects. Ten of them were more or less, maritime transport projects. According to specialists in this mode, the returns are eroded by the poor performance of the rail leg (high costs, lack of commercial flexibility).

While the railways are making progress with restructuring and improving their productivity gains and responsiveness to clients (development of shuttles, freight terminals), the completion of the open market in rail services seems, in the light of our-admittedly limited-experience to date, the key to the development of combined transport in Europe.

### 2.3 Patchy harmonisation: delays in transport market regulations

With the parallel moves towards liberalisation and the provision of interconnected infrastructure, co-ordinated action to establish a *level playing field* for market actors as regards network operation was put on the back burner for a while, although it had first begun years earlier<sup>9</sup>. The fact that the regulations in the various European Union Member States -- and in the other countries of Europe -- all differ may have had unwanted effects on *competition*. This raises the question of the need for *harmonisation of the social, technical and fiscal regulations within each mode*. Harmonisation is critical for establishing:

- i) the reliability of the transport mode concerned and the rules for fair competition between its operators; and
- ii) a level playing field for the different modes.

Harmonisation and the *effective implementation* of the rules, together with competition law, are the basic instruments available to the different countries for defining the “rules of the game” for operators within a single mode and for competing modes.

In the *maritime sector*, many operators claim that they have fallen foul of operating rules which put them at a disadvantage to their open registry competitors. An analysis of the costs (wages and social security contributions of seamen; vessel and maritime company taxes) show differences which the industry sees as distorting competition. In the maritime industry, the possibility of relocating companies and the means of production very easily creates a climate of competition between countries. The majority responds by setting up systems targeted towards attraction of foreign maritime investments. The widespread trend towards flat-rate company taxes (“tonnage tax”)<sup>10</sup> that we have witnessed over the last 10 years is one example. In areas relating to maritime safety, both from the technical and social angle, Community regulations provide for the harmonisation of transport conditions. However, wider harmonisation was an issue that brought countries into a long-running conflict and was ultimately rejected, as demonstrated by the dropping of the EUROS project<sup>11</sup>.

The situation in the *road transport sector* is similar. Within the *European Union* standards are brought into line through Directives that leave the Member States some discretion as to the ways and means of implementing the principles agreed at Community level. A classic example of the difficulty of harmonising technical standards is vehicle weights and dimensions that may give an economic advantage to ports located in countries where the standards are less stringent, because larger sized lorries are allowed to serve their hinterland. In most *Central and Eastern European Countries* the abrupt liberalisation of the road transport sector prompted governments to introduce restrictions largely based on those implemented at Community level. Some of them are considering restoring quantitative control measures. A number of multilateral conventions (ADR on the carriage of dangerous goods; AETR on driving time; CMR on the international carriage of goods by road, TIR on customs transit) have helped to harmonise international transport conditions in Europe, even if some ECMT Member countries have not yet ratified all of these conventions. However, intra-European traffic is still penalised by numerous obstacles and discrepancies. The main problems, other than the lack of harmonisation, are poor control of social standards and customs frauds.

In Europe, the regulations on *inland waterway transport* differ substantially from one country to the next. The lack of harmonisation at regional level is frequently pointed out. The experts generally agree that a compromise between the Mannheim Agreement and the system currently applicable to other networks, such as the Danube, is a priority objective. Incompatible ship dimensions and administrative red tape (particularly customs) make a multilateral approach to the organisation of Europe’s inland waterways essential if they are to be integrated efficiently into European transport networks. The development of inland waterway and inland waterway/maritime transport is also

dependent on numerous other factors, particularly: the upgrading of national networks; the modernisation of fleets and the industry; better transshipment conditions, inasmuch as ships carrying out inland waterway/maritime transport operations claim that the conditions applied to them when they enter port areas are a disincentive (application of maritime handling regulations, transit and push towing dues, etc.).

While progress has been made on social and technical harmonisation, it is on taxation -- a field in which Community regulations are subject to a unanimous vote -- that the least progress has been made. In 1996, the Commission presented proposals for internalising costs through infrastructure charging. A White Paper published in July 1997 proposes to establish a framework in order to ensure that infrastructure charges are transparent and that they integrate the environmental and social costs they generate. Charging policies that integrate social costs are notoriously complicated. In practice, the methods of internalising costs raise policy trade-off problems. Solving them is a difficult task that be further compounded by the fact that, under the subsidiarity principle, Member States will be responsible for the practical implementation of the method outlined in the framework established at Community level, according to the Commission. This is a field where the gap that separates progress on policy proposals in Western Europe and the CEECs is at its widest.

Lastly, competition law, as a policy instrument for regulating market operation, is likely to become increasingly important. Already a fact of life in maritime transport, it is still in its infancy in the other modes. In the road sector, the recent trend towards an oligopolistic market is liable to prompt the enforcement of competition regulations. The same thing is likely to happen in the rail transport sector, for the same reason, as a result of its gradual entry into a market economy.

## PART II

### **Main characteristics of the transport system in Europe and its implications for future government policy**

#### **1. Main characteristics of the structure of logistics in Europe from the standpoint of ports and maritime transport**

While government policies in Europe were concentrating on three principles (infrastructure improvements; free access to market; creation of a level playing field, including environment and safety matters), the transport system in Europe was changing radically. Over and above the developments reviewed in Part I, it has frequently become apparent that the role of actors in the European transport market has changed from straightforward haulage operations to the provision of logistics services.

This has had major implications for the analysis of opportunities for short sea shipping and the part that it can play in an efficient, safe and sustainable European transport system.

##### ***1.1 From transport to logistics***

Firms' desire to be in control of their freight flows, the globalisation of trade and, lastly, moves towards the liberalisation of transport in Europe have radically altered the operational role of the players in the transport chain: manufacturers, carriers, forwarders and ports. While the traditional role of "transport" was to deliver goods to the right place at the right time, logistics aims to do more. Logistics is part of the management function of a firm (increasing productivity; reducing costs; customising services; standardising products; just-in-time inventory management) in that it controls internal and external flows in an environment in which industrial activities are dispersed (decentralisation; site specialisation). As a horizontal function, logistics is involved at all the various stages of the production and selling of goods (procurement, manufacturing, intra-company transfers, product distribution, after-sales support, inventory management). It relies on managing information and communications flows. It is a determining factor in the competitiveness and the competitive advantage (or disadvantage) of firms competing on the market. It is a source of value-added for the industry.

##### ***1.2 How transport and logistics are inter-related***

The "transport" function is now just one of a range of logistics services in which transport operators compete to win shares of the market not just by transporting larger volumes of goods, as before, but by becoming actively involved in the logistics strategies of firms. In this way transport operators are becoming providers of a complex, wide-ranging service, for whom the earnings from the transport operation itself matter less than what they can gain in value-added at each stage of the logistics chain.

In another sense, the development of logistics functions has radically transformed the key concepts of transport, as they are traditionally understood. The concept of a *port hinterland* is now losing any relevance it may have had, since distance is a relative concept that is factored into the logistics chain on the same basis as other criteria, such as density of the area served (higher volume

flows) or facilitating transit and transshipment operations (geographical location and efficiency of transfer points). In this context, logistics operators would ideally be totally free to choose the mode of transport and in most cases, the combination of modes they could use with no extra technical or legal constraints -- on either infrastructure or its use -- to limit their transport choices. That being the case, it is to be hoped that road transport's share would be limited to traffic that absolutely had to use that mode, and that modes more concerned with environmental protection would experience faster growth.

### ***1.3 The emergence of a new profession***

In the *maritime transport sector*, the globalisation of services, the emergence of world-wide ship-owners co-operating through strategic alliances, the increase in the size of containerships and the concentration of flows through a limited number of port *hubs* are the outcome, as in the road transport sector, of both efforts within the sector to achieve economies of scale and efforts by industry outside the sector to take at least partial control of the logistics function. The concentration of flows and of maritime transport operators has contributed to congestion problems on the approach to ports that we are trying to prevent today -- paradoxically enough by counting on the development of maritime transport.

In the *road transport sector* the parallel trends towards flow concentration and the creation of strategic alliances is not unlike the structural developments seen in inter-ocean trades in the maritime sector and for the same reasons: to be able to offer shippers integrated services on world-wide networks.

In the rail sector, co-operation -- an underlying principle of Community policy since the beginning of the 1990s -- has resulted in the emergence, albeit at a slower pace and in less radical forms, of companies or groups with the same objectives as in other sectors. The delayed implementation of liberalisation in the sector suggests that rail transport's "breakthrough" into logistics is yet to come.

Even *inland waterway transport*, with its reputation -- often mistaken -- for being behind the times, has joined the trend. It is able to provide logistics solutions for problems in handling heavy bulk freight, as demonstrated by its services to the largest terminal in Europe (rebuilding of the Potsdamer Platz in Berlin). It is now becoming capable of providing logistics for containerised flows. For example, the most modern containerships, with the right clearances for the Rhine, have a carrying capacity of over 270 TEU, i.e. equivalent to more than five trains or a road convoy over 3.5 km long. This potential can be fully utilised only by facilitating interconnections with other transport modes, particularly with maritime transport; and by actually implementing free access to inland waterways. Heavy investment will be required for modernisation, in order to bring Europe's inland waterway networks up to standard and ensure their interoperability. With the prospect of a high value-added logistics chain in mind, this now seems possible.

From this standpoint, inland waterway/maritime transport is particularly interesting technique as regards achieving the overall objectives of a more balanced modal split and environmental protection, because it limits the negative effects of transshipment and enables freight to be carried further into Europe.

Similarly, *ports* now serve as more than just transfer, warehousing or brokerage centres. They are developing into freight distribution hubs and so is becoming an integral part of the actual organisation of firms' logistics functions. Ports are taking on an active role in the development of inland logistics chains, either through their active involvement in the definition of freight corridors or through their part in determining the geographical location of logistics hubs. More than their connections to

transport corridors, once again, it is whether or not a port is integrated into transport and logistics networks that determines how it performs. The development of “dry ports” illustrates this point.

The breadth of these developments is reflected in the tendency for logistics service providers to come from *any transport background*: the “transport architect” may be a function developed by a firm from the inland transport sector (like the E1 road transport group), the rail/maritime sector (ERS), the inland waterway sector, or by a partnership of firms from any of these backgrounds. This trend has enabled transport intermediaries (*cargo intermediaries, forwarders*) to take a lead role in the organisation of logistics chains. For many years, transport actors and users, freed from the constraints of operating dedicated services, experienced in weighing up alternative modes, they are also at the centre of the process of flow concentration (for example, the take-over of NDX by Transfracht) and appear to be the key professions in decisions on modal and intermodal choice. Therefore, today, the backing of these professionals for European transport policy would seem to be crucial for its success.

## **2. New challenges for governments**

### **2.1 *Financing and use of infrastructure***

While the development of efficient, interconnected and interoperable infrastructure is essential, changes in the industry mean that these are now no more than a pre-condition for the efficient operation of logistics services. For example, all of principals on which policy proposals to promote short sea shipping are largely based -- a better balance between modes, alleviating congestion on inland routes, greater environmental awareness -- are issues that require governments to look closely at the ways in which the operation and utilisation of transport networks can help them to achieve the common interest objectives in the transport sector. The effectiveness of government policies now depends just as much on the intrinsic quality of the infrastructure networks planned as on the efficiency of the logistics operations served by those networks.

Faced with the development of a logistics-based economy, what should the proportion of public finance to private finance be for logistics terminals infrastructure? This is a question that the European Commission is currently looking into as it revises the *Guidelines for the development of the trans-European transport network* (Decision No. 1692/96/EC).

### **2.2 *Optimising logistics operations***

For governments, giving firms a wider range of logistics choices means making the integration of the different transport modes and their interconnection or transshipment points (including sea ports, dry ports, inland terminals) their objective. A systematic implementation of open non-discriminatory access to infrastructure, together with harmonisation in technical, environmental, social and fiscal matters, should therefore be considered priority objectives. Other than the administrative streamlining aspects, the organisation of the different modes should be viewed in terms of *complementarity and integration* -- for the sake of the efficiency of logistics chains -- and not simply in terms of modes competing “against” each other. From this perspective, the positions of the most environmentally friendly modes are further strengthened.

Lastly, recent transport developments in Europe show the limited impact of a modal shift policy. Even if the objectives of liberalisation and efficient market control have been achieved, the merits of the corridor approach chosen (which, true, accommodated the specific circumstances of the railways) should be compared with a “hub and spoke” arrangement. In addition, the question of how far the

compulsory aspects of transport policy should be increased arises: limiting road transport to certain areas or certain types of traffic, for example.

### **2.3 Policy co-ordination**

Existing policies are coming up against a number of paradoxes, which will require a major co-ordination drive by governments, in the years to come. For instance, *rail freight freeways* are a response to the trend towards higher volume flows, but seem to be handicapped in precisely this area by their operator's inability to consolidate flows. At the same time, the way they are designed directly benefit certain ports, increasing the risk that some ports will become congested. How can we prevent a maritime transport support policy from just shifting congestion to another location? Likewise, how do we tell in advance that facilitating border formalities -- a problem which, in a way, can be said to be to the advantage of maritime transport -- will not lead to increased use of road transport in the future? Finally, how to reconcile the need for competition between transport modes with complementarity, which is equally necessary? These are the issues, and there are others too, which make government policy choices so difficult.

## **CONCLUSION**

Short sea shipping must now be regarded not simply as an alternative to road transport, but also, in the context of modal complementarity, as a separate component in its own right of an integrated transport network aimed at optimising the efficiency of logistics.

The ECMT has already led numerous initiatives promoting an integrated Europe-wide transport policy. Without listing in detail the many Resolutions it has adopted on sectoral issues here, the main policy principles for transport in Europe recommended by the ECMT are contained in the Joint Statement by the Ministers of Transport of the ECMT, issued in Berlin in 1997.

## NOTES

1. See Annex I.
2. This definition is not consistent with the one currently used by ECMT and EU, as explained in Annex II, but has been kept for the coherence of the report itself.
3. See CEMT/CS/COMB(97)3.
4. A progress report following the Council Resolution of 11 March 1996 on short sea shipping has been edited under reference COM(99)317/Final dated 29 June 1999.
5. Pilot Actions on Combined Transport.
6. See Commission Decision of 16 September 1998 regarding the TACA.
7. This strategic alliance, called E1 comprises Dan Transport Holding (Denmark), Dubois (France), Saima Avandero (Italy) and Royal Nedlloyd (Netherlands).
8. Figure quoted in Containerisation International, August 1997, page 68.
9. In the social field, for example, the first Community regulation on working time in road transport dates back to 1969.
10. With such a system, ordinary tax law is not applied to shipowning activities and companies are liable to fleet rate income taxation, generally based on the tonnage of the fleet they control.
11. This was a project to set up a Community register alongside national registers and was to serve as a vehicle for standardising operating conditions on Community vessels.

## ANNEX I: STATISTICS

Table 1. **Intra-EU trade by mode of transport and commodity group, 1995**  
(In million tonnes)

Commodity group	Sea	Rail	Road	Inland waterway	Others	Total 1995	Total 1994
<b>IMPORT</b>							
Agricultural produce and live animals	25.2	7.0	47.9	6.0	0.0	86.2	66.0
Foodstuffs and animal food	16.9	2.1	52.2	5.2	8.3	84.7	75.7
Solid mineral fuels	2.4	1.6	4.5	3.1	0.1	11.6	15.0
Petroleum products	94.9	2.2	10.3	29.3	42.6	179.4	162.4
Ores and metal wastes	13.4	5.4	12.3	30.6	0.1	61.9	51.7
Metal products	17.5	15.0	37.9	2.7	0.0	73.2	55.7
Crude and manufactured minerals, building materials	32.3	4.9	52.8	42.1	1.4	133.6	177.1
Fertilisers	7.3	1.5	7.3	4.6	0.0	20.7	18.2
Chemicals	30.1	5.3	62.3	7.1	1.7	106.4	87.0
Machinery, transport equipment, manufactured articles and miscellaneous articles	31.3	5.6	87.3	0.2	25.9	150.4	103.4
<b>TOTAL</b>	<b>271.4</b>	<b>50.6</b>	<b>375.0</b>	<b>130.9</b>	<b>80.2</b>	<b>908.1</b>	<b>752.2</b>
<b>Percentage share of total (all modes)</b>	<b>29.9</b>	<b>5.6</b>	<b>41.3</b>	<b>14.4</b>	<b>8.8</b>	<b>100.0</b>	
<b>EXPORT</b>							
Agricultural produce and live animals	23.5	5.5	46.2	7.4	0.1	82.7	63.8
Foodstuffs and animal food	15.5	2.8	55.9	5.8	8.4	88.4	77.8
Solid mineral fuels	2.5	1.9	4.0	4.3	0.0	12.7	12.4
Petroleum products	102.2	2.1	8.8	32.2	53.6	199.0	183.2
Ores and metal wastes	9.4	16.3	13.1	8.9	0.0	47.7	36.7
Metal products	18.5	16.2	34.7	4.7	0.0	74.1	61.7
Crude and manufactured minerals, building materials	36.5	4.8	56.6	36.4	1.4	135.7	121.6
Fertilisers	6.6	1.4	6.3	4.8	0.0	19.1	17.0
Chemicals	27.8	4.5	54.9	7.5	2.0	96.7	78.7
Machinery, transport equipment, manufactured articles and miscellaneous articles	34.6	7.8	91.7	3.5	13.7	151.3	118.0
<b>TOTAL</b>	<b>277.1</b>	<b>63.3</b>	<b>372.1</b>	<b>155.5</b>	<b>79.3</b>	<b>907.3</b>	<b>770.9</b>
<b>Percentage share of total (all modes)</b>	<b>30.5</b>	<b>7.0</b>	<b>41.0</b>	<b>12.7</b>	<b>8.7</b>	<b>100.0</b>	

Source: ISL Bremen, Eurostat, October 1997.

Based on statistics provided by the European Commission and for EU countries only, short sea shipping rose by 17 per cent in volume and by 23 per cent in tonne-kilometres between 1990 and 1997. The respective shares of container short sea shipping and Ro-Ro transport are equivalent in national traffic (respectively 43 and 42 per cent in tonne-kilometres). In international traffic, short sea shipping (SSS) has a predominant share (69 per cent). After modest growth of 4 per cent between 1990 and 1993, SSS developed more rapidly from 1993 to 1997 (up 18 per cent). Only 6 per cent of aggregate intra-Community trade tonnage (national and international) are sent via short sea shipping, whereas 84 per cent of this trade is carried by road. With regard to extra-Community trade tonnage, the respective shares of these two modes are 33 and 45 per cent.

A number of additional figures underscore for instance the extent of short sea shipping in French ports:

- 1997: 20 million tonnes, or 6 per cent of aggregate tonnage;
- Estimated roughly at several billion tonne-kilometres in equivalent land transport (in maritime freight, 10 billion tonne-kilometres, half of which in bulk liquids, essentially petroleum products);
- 1995: Over 115 million tonnes in trade with other European Union countries, including 42 million tonnes in oil traffic and more than 35 million tonnes in cross-Channel road traffic.

These figures, when compared with data for other modes of transport (20 million tonnes in trade between France and other European Union countries via rail and 130 million tonnes by road) show that short sea shipping is far from insignificant.

**Table 2. Air Emission Factor ranges for Truck, Rail and Marine, in g/tonne-km**

<b>Pollutant</b>	<b>Truck</b>	<b>Trains</b>	<b>Marine</b>
CO	0.5	0.2	0.04
CO <sub>2</sub>	98	28	15
HC	0.2	0.1	0.01
NOX	1	0.5	0.3
SO <sub>2</sub>	0.03	0.04	0.3
Particulates	0.08	0.03	0.006

Source: Eurostat Trends Project.

**Tableau 3. Energy consumption by mode of freight transport**  
(In kJ/tonne-km)

<b>Inland waterway</b>	<b>Road</b>	<b>Rail</b>	<b>Air</b>	<b>Pipeline</b>
423	2 890	677	15 839	168

Source: Whitelegg, "Transport for sustainable Future – the case for Europe", 1993, quoted by the Commission in COM(95)317 Final, "Short sea shipping: challenges and prospects", 5 July 1995.

## ANNEX II

### DEFINITIONS

#### ***Intermodal transport:***

The movement of goods in one and the same loading unit or vehicle which uses successively several modes of transport without handling of the goods themselves in changing modes.

*Source: ECMT.*

#### ***Combined transport:***

Intermodal transport where the major part of the European journey is by rail, inland waterway or sea and any initial and/or final legs carried out by road are as short as possible. (*Source: ECMT*).

The transport of goods between Member States where the lorry, trailer, semi-trailer, with or without tractor unit, swap body or container of 20 feet or more, use the road on the initial or final leg of the journey, and on the other leg, rail or inland waterway or maritime services where this section exceeds 100 km as the crow flies, and make the initial or final road transport leg of the journey;

- between the point where the goods are loaded and the nearest suitable rail loading station for the initial leg and between the nearest suitable rail unloading station and the point where the goods are unloaded for the final leg, or;
- within a radius not exceeding 150 km as the crow flies from the inland waterway port or seaport of loading or unloading.

*Source: Council Directive 92/106/EEC.*

#### ***Short sea shipping:***

Maritime transport between ports in mainland Europe, including

- i) national coastal shipping, between two ports of the same country;
- ii) intra-European international shipping whose ports of origin and destination are European ports; and
- iii) the European leg of inter-ocean trades.

*Source: Confavreux, Report CEMT/CS/COMB(99)1.*



**RECOMMENDATIONS ADOPTED BY THE ECMT MINISTERS OF TRANSPORT  
DURING THE COUNCIL OF MINISTERS HELD IN PRAGUE  
ON 30 AND 31 MAY 2000**



The conclusion to emerge from the report on “Short sea shipping: an alternative to European inland transport, or a complementary mode?” [CEMT/CM(2000)9], which deals exclusively with freight transport, is that short sea shipping (SSS), must now be regarded not simply as an alternative to road transport, but also, in the context of modal complementarity, as a separate component in its own right of an integrated transport network aimed at optimising the efficiency of logistics. It is important to acknowledge in this respect the global character of the shipping industry as a whole. Although statistics are lacking, it is generally estimated that 30 per cent of intra-European freight is carried by maritime transport and a major part of this by short sea shipping. Short sea shipping is particularly relevant to countries with a coastline on the enclosed seas bordering Europe (in particular, the Baltic Sea, the Black Sea, or indeed the Mediterranean Sea) and is expected to expand with the increasing globalisation of trade.

Certain of the main features of short sea shipping reviewed in the report prompt a number of conclusions, in some cases inescapable, as regards short sea shipping in its own right and as part of the transport chain, more particularly the combined transport chain. The present summary focuses however solely on the role that short sea shipping could play in combined transport.

### ***1. Promoting short sea shipping***

By integrating short sea shipping with combined transport, the aim is to include maritime shipping as a type of transport in multimodal traffic flows. It will thus be possible for the combined transport sector to achieve the modal shift from road to alternative environmentally-friendly transport modes – in this case, the waterborne transport chain - on a wider scale.

Ports – as interfaces - are particularly important for the integration of short sea shipping with combined transport modes. For combined transport, ports are major transshipment points at which road, rail and river and sea traffic converge. As such they, and particularly the port transfer terminals they require, should be included in appropriate combined transport promotion programmes, responding to the criteria set up in paragraph 6 below, just as inland transfer terminals are. This is a role that could be played by the short sea shipping information bureaux that have already been set up in some European ports.

Land and river access is increasingly a key factor in the competitiveness of seaports. If short sea shipping is to be integrated with combined transport, it is vital that rail and river infrastructure links and where necessary for access to ports, road infrastructure links, be improved.

### ***2. Harmonising terms of competition and progressive market liberalisation***

While free and non-discriminatory access to Europe’s transport markets is vital for the efficient operation of transport networks and logistics services, market liberalisation will not be enough to ensure sustainable mobility, without incentive measures. The first step is to establish a level playing field as soon as possible, particularly as regards social, environmental, technical and fiscal conditions. Given the high costs of transport infrastructure, particularly for rail and inland waterway modes, the longer term would require a more sustained effort to internalise external costs. Since neither a level playing field nor free market access has been achieved at this stage, government policy to develop combined transport in Europe, including short sea shipping, needs to be strengthened.

As market regulators, governments have to ensure that markets are fair. The problem of fair competition can be approached in a number of ways, depending on whether the focus is competition between modes or competition within modes. In both cases, another issue that arises is the harmonisation of the terms of competition in the transport sector and its regulation.

### **3. *Infrastructure investment***

As regards infrastructure investment planning, the challenge now is to integrate ports more closely into the TEN-T, taking into account their transshipment function (nodes). The European Commission's Communication of 29 June 1999, *The Development of Short Sea Shipping in Europe, Second Two Yearly Progress Report* [COM(99)317], deals with the practical and operational functioning of the infrastructures and superstructures in ports. This Communication therefore makes for a better understanding of the role of governments in infrastructure planning and the respective role of public and private sector operators in financing infrastructure for both seaports and the inland terminals linked to them. To this end, the conditions for private investment in port areas -- in handling operations, for example -- could usefully be reviewed, without ruling out the possibility of extending the scope of private activity.

### **4. *Optimising logistics chains: developing interoperability between modes and networks***

With reference to the development of interconnected and interoperable transport networks and the part that they can play in optimising logistics chains and, more generally, with reference to facilitating intra-European freight flows, central government should ensure that the efficient utilisation of the networks is not hampered by inappropriate regulatory, administrative or technical standards. For instance, the problems posed by customs transit and other administrative formalities (e.g. public health formalities) and the incompatibility of loading units are often mentioned as major obstacles to the development of maritime transport and its integration into transport networks.

From this standpoint, the development of inland waterway transport in general and inland waterway/maritime transport in particular as an integral part of inland port development policy, will necessitate:

- the use of sea-going vessels with suitable characteristics, draught and overhead clearances for this type of navigation;
- technical modifications and open access to inland waterways.

Moreover, in order to ensure the interoperability of the different modes of transport, close attention should be paid to the compatibility of loading units, the priority considerations being compatible internal and pallet dimensions, overall dimensions compatible with all modes, and reliability and safety, particularly where maritime transport is concerned. It should be noted that the dimensions of ISO1 containers are not compatible with Europallet sizes, thus making automated loading operations impossible.

As ports are vital interconnection points the key elements needed to encourage greater use of short sea shipping in Europe can be defined as follows:

- improved port services, to reduce ships' costs and transit times in ports;
- better integration of ports into modal infrastructure networks and connection to intermodal terminals, and;
- streamlined administrative formalities for ships and cargoes passing through ports.

Furthermore, integrating short sea shipping services into an efficient information system (EDI) compatible with the methods used by government administrations (customs, for example) and by other transport operators, would seem to be essential for the efficient operation of an integrated logistics chain.

Despite the improvements foreshadowed, the development of logistics chains which include a short sea shipping leg is encountering major problems: first, except in certain specific regions of Europe, i.e. the Baltic Sea, logistics trends over the last 10 years seem to be running counter to this type of chain; second,

for short sea shipping to be more cost-effective than inland modes, freight origin and destination points have to be relatively close to ports.

## **5. *Improving legal rules for inland waterway/maritime transport and adapting administrative structures***

Another disadvantage of maritime transport that is often mentioned is its lack of flexibility, compared with road transport mainly because it does not penetrate very far inland in Europe. In this connection, the first priorities should be to ensure permanent free access to inland waterways and to abolish the unfair conditions that seaports still apply to vessels operating inland waterway/maritime transport services.

Given the extensive inland waterway networks in Central and Eastern Europe, short sea shipping and inland waterway transport throughout Europe could become a much more attractive option if they could be integrated and use inland waterways without hindrance.

While it is generally agreed that the role of governments is primarily to facilitate the integration of the transport modes, often they are handicapped by the fact that their functions are organised on a modal basis. Efforts to reorganise administrative structures should focus on improving the documents required in ports and on port procedures, including customs and phytosanitary procedures. One of the achievements of the Maritime Industries Forum was to have encouraged the appointment within national administrations of a “contact point” for short sea shipping. Given the pan-European dimension of short sea shipping, other European countries could also usefully designate “contact points”.

## **6. *Support for the modernisation of the sector***

Although some short sea shipping traffic is state of the art, modernising the sector in order to integrate it into the European transport and logistics system will entail major investment -- and major financial risks -- particularly to modernise fleets and improve port productivity. Given the scale and number of research and development initiatives directly or indirectly related to the short sea shipping sector, the transparency and co-ordination of innovation support measures should be considered essential for the furtherance of the objectives cited in paragraph 1.

Under certain conditions, policy-makers may consider it appropriate to contribute to the investment costs of combined transport development projects which include an short sea shipping component, in which case they would wish to ensure that projects do actually promote a switch from road to sea transport. They would also have to ascertain that a number of other conditions are met, such as:

- *Additionality*: any government contribution should be to finance additional development and should not simply be a substitute for private sector investment that would have been forthcoming in any case.
- *Competitiveness*: the project would have to do more than simply absorb traffic from other short sea shipping movements or other environmentally-friendly transport modes.
- *Viability*: the project would have to be financially viable itself in the long term, without further government support.
- *Minimum intervention*: government funding should be limited to the minimum necessary for the project to continue. This ensures that public funds are used efficiently and that financial resources will be available for other projects.

Moreover, transport seems to be one area that shows how our societies are developing towards economies based on the flow of information and on new skills. The development of logistics services calls for such new skills. In order to establish a favourable climate for maritime transport and integrate it more closely into logistics chains, support should be provided for initiatives to train personnel who need to develop their logistics skills and to familiarise them with current best practice. At present, training initiatives are essentially the province of maritime sector co-ordination bodies. They could be particularly useful for the countries of Central and Eastern Europe and the New Independent States, inasmuch as improving skills is a key factor in achieving the balanced development of transport and logistics systems and practices on a Europe-wide scale.

## **7. *Co-ordinating transport policy***

Given the geographical coverage of its Member countries, the ECMT could play an important role in developing a coherent, co-ordinated transport policy throughout Europe that still leaves some scope for competitiveness. A dual policy of co-operation and co-ordination now seems more crucial than ever as the role of government has changed with the changing structure of the market where traditional transport services are increasingly being integrated into complex logistics management services. As the market evolves towards a transport and logistics system, governments will have to adopt or intensify a multimodal approach in framing their transport policies.

Preferably, at least for maritime transport and ports, co-operation and co-ordination efforts should focus on all aspects of transport policy including infrastructure finance, the definition of rules for ensuring a *level playing field* in the transport market, and further efforts towards harmonisation in conjunction with market liberalisation.

At national level, Member countries should also ensure that the policies implemented by other bodies or other sectors (regional or environmental policy, for example) will contribute to the transport policy objectives and vice-versa.

In implementing these policies it is important that support (financial, fiscal or other) granted by governments be co-ordinated in order to further the general policy objectives referred to above and to avoid distortions or discrimination that would be counterproductive, particularly for the development of short sea shipping.

Lastly, the need for a better understanding of markets and, for governments, the need to anticipate how those markets will develop in the future, makes the availability of reliable, consistent statistics and as detailed as possible an inventory of bottlenecks doubly necessary.

The Council of Ministers, meeting in Prague on 30 and 31 May 2000,

**NOTES** the report on the development of short sea shipping [CEMT/CM(2000)9] and the summary preceding this Resolution;

**RECALLS** previous Resolutions on the development of combined transport, in particular the Resolution adopted in Annecy in 1994 [CEMT/CM(94)13/final] and the Declaration adopted in Budapest in 1996 [CEMT/CM(96)16];

**SUPPORTS** ECMT efforts, in close co-ordination with the European Union and the other policy bodies concerned, to:

- continue with studies aimed at paving the way at pan-European level for a coherent policy that will ensure fair competition for all modes, principally through the formulation of a policy designed to internalise the costs of infrastructure usage so that each mode will cover all of the costs it generates;
- support, within the frame of international law and commitments, the harmonisation of social, technical and fiscal regulations applicable to each mode of transport at pan-European level;
- take an active part in the extension of EU legislation to the whole of Europe, thereby strengthening its role as a “bridge” between EU member and non-member states;

**NOTES** also that short sea shipping can play a significant part in achieving the objectives of a sustainable transport policy, by facilitating the implementation of an integrated, efficient and safe pan-European transport and logistics system, in a context of open, non-discriminatory access to competitive markets, in particular through the use of the most appropriate transport modes.

**RECOGNISES** the importance of short sea shipping not simply as an alternative to road transport, but also as an integral part of a transport system that is based on complementarity between modes, even though its area of development is geographically limited.

**CONSIDERS** that, as part of overall transport policy, short sea shipping can help to improve the links between ECMT Member countries and, in particular, help to revitalise peripheral regions;

and that, to this extent, specific initiatives must be taken to ensure its development;

**RECOMMENDS** for these purposes that Member countries, on the basis of work conducted by all of the organisations concerned:

- *take measures* to ensure that coherent and reliable statistical data is available, taking into account the joint action developed by the organisations concerned;
- *carry out* as detailed as possible an inventory of bottlenecks that could hinder the development of short sea shipping;
- *step up* the co-ordination of infrastructure investment, harmonising terms of competition and progressive market liberalisation, and the definition of the conditions needed to ensure a level playing field in the transport and logistics markets;

- *ensure* that support measures -- financial, fiscal and others -- are co-ordinated so that they contribute to the efficiency of the transport and logistics network at pan-European level;
- *intensify efforts*, at both national and international levels, to co-ordinate environmental and land-use development policies with transport policy, including policy on ports;
- *review*, on an on-going basis market conditions for combined transport incorporating a maritime leg;

**RECOMMENDS**, in particular,

- *in regard to the role of ports as interfaces between transport modes* that:
  - i) active support be given, in conjunction with the organisations concerned, to technical or legal initiatives that could improve network transfer operations;
  - ii) short sea shipping information bureaux, as already set up in some European countries, regions and ports, be encouraged;
- *promotion of the development of inland waterway/maritime transport in Europe* and, with this in view, restates the need to:
  - i) continue to bring networks up to technical standards, particularly from an environmental standpoint, and to ensure their compatibility;
  - ii) continue the policy of liberalising access to these networks under non-discriminatory terms;
  - iii) harmonise and simplify the regulations and administrative procedures for this type of transport;

**SUPPORTS**, in the interests of continuity of the transport supply, the designation in the non-EU member states concerned of contact points for the promotion of short sea shipping which will be responsible for:

- seeing that government policies, in particular their social, environmental, technical and fiscal aspects, that could have an impact on the development of short sea shipping in their country are compatible with this mode; and
- encouraging the streamlining of administrative procedures for short sea shipping in Europe, if necessary, through their harmonisation;.

**INSTRUCTS** the Committee of Deputies

- to make the report and Resolution available to all national, international, government and industry organisations concerned with short sea shipping;
- to develop means by which the ECMT could contribute to the co-ordination of initiatives to support the modernisation of the sector, in collaboration with the other organisations concerned -- chiefly the European Union -- in order to help achieve the objectives outlined above;
- in particular, to co-operate with the EU on the work concerning inventory of bottlenecks by addition of a similar inventory for non EU countries;
- to report in due time on actions taken and progress on the recommendations set out in the present Resolution.

## GLOSSARY

EDI	Exchange Data Information
ISPA	Instrument for Structural Polices for Pre-Accession
JIT	Just-In-Time
LO-LO	Lift On - Lift Off
O/D	Origin / Destination
CTP	Common Transport Policy
R-D	Research - Development
TEN-T	Trans-European Transport Networks
GT	Gross Tonnage
SSS	Short Sea Shipping
DWT	Dead Weight Tonne

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