
ASSESS

Assessment of the contribution of the TEN and other transport policy measures to the mid-term implementation of the White Paper on the European Transport Policy for 2010

FINAL REPORT

ANNEX XV ANALYSIS OF MARITIME AND INLAND SHIPPING POLICY

European Commission

DG TREN

DM 28

1043 Brussels

Belgium

28 October 2005



 **TRANSPORT & MOBILITY
LEUVEN**

TRANSPORT & MOBILITY LEUVEN
VITAL DECOSTERSTRAAT 67A BUS 0001
3000 LEUVEN
BELGIË
+32 (16) 31.77.30
<http://www.tmlleuven.be>

and:

TNO, Netherlands
WSP, UK
TRT, Italy
DLR, Germany
University of Gdansk, Poland
ITS Leeds, UK
SWOV, Netherlands
CAU Kiel, Germany
Istanbul Technical University, Turkey

Preface

This is ANNEX XV of the final report for '*Assessment of the contribution of the TEN and other transport policy measures to the mid-term implementation of the White Paper on the European Transport Policy for 2010*'.

Project title: ASSESS

Client: European Commission, Directorate-General for Transport and Energy, Unit B1.

Contract: TREN/04/ADM/S07.38796

Project contractor: Transport & Mobility Leuven

Author:

Bruno Van Zeebroeck, TML, Belgium

Griet De Ceuster, TML, Belgium

Version:

Final Version.

Date:

28 October 2005 (with editing corrections 29 November 2005)

Reference:

Van Zeebroeck B., De Ceuster G. (2005), Analysis of shipping policy, Annex XV of ASSESS Final Report, DG TREN, European Commission.

Scope

Scope of the ASSESS project

The ASSESS study is about the *“Assessment of the contribution of the TEN and other transport policy measures to the mid-term implementation of the White Paper on the European Transport Policy for 2010”*.

The European Commission’s White Paper of 12.9.2001 “European transport policy for 2010: time to decide” aims to promote a sustainable transport policy. The White Paper proposes to achieve sustainability by gradually breaking the link between transport growth and economic growth, principally in three ways: changing the modal split in the long term, clearing infrastructure bottlenecks and placing safety and quality at the heart of the transport policy.

As foreseen, the White Paper on Transport undergoes in 2005 an overall *assessment concerning the implementation of the measures it advocates and to check whether its targets* - for example, on modal split or road safety - *and objectives are being attained or whether adjustments are needed*.

ASSESS provides technical support to the Commission services for the above mid-term assessment of the White Paper.

The analysis accounts for the economic, social and environmental consequences of the proposed measures and their contribution to sustainable development objectives. It provides also a detailed analysis of those effects of enlargement likely to affect the structure and performance of the EU transport system.

The study takes a three pillar approach based on the use of analysis, indicators and models. National transport policies are reviewed for compatibility and coherence with the White Paper objectives. The models used allow a detailed analysis of the freight market, the passenger market and their infrastructure networks under a number of scenarios.

Scope of this Annex

This report describes for each of the maritime shipping measures that are part of the White Paper on European Transport Policy of 2001 its objective, the achievements up to now (2005), and the potential and impact of the measure. The last chapter also pays some attention to other, autonomous developments of the maritime sector.

Index

PREFACE	3
SCOPE.....	5
INDEX	7
TABLES.....	8
FIGURES.....	8
ANNEX XV ANALYSIS OF MARITIME AND INLAND SHIPPING POLICY	9
XV.1. MOTORWAYS OF THE SEAS	9
XV.1.1. Objective	9
XV.1.2. Achievements.....	9
XV.1.3. Potential	10
XV.1.4. Impacts	10
XV.1.5. Conclusion	11
XV.2. PORT SERVICES LIBERALISATION.....	11
XV.2.1. Objective	11
XV.2.2. Achievement.....	12
XV.2.3. Impacts	12
XV.2.4. Conclusion	12
XV.3. SIMPLIFIED SEA AND INLAND WATERWAY CUSTOM FACILITIES.....	13
XV.3.1. Objective	13
XV.3.2. Achievement.....	13
XV.3.3. Impacts	13
XV.3.4. Conclusion	14
XV.4. SECURITY.....	14
XV.4.1. Objective	14
XV.4.2. Achievement.....	14
XV.4.3. Impacts	15
XV.4.4. Conclusion	15
XV.5. SAFETY.....	15
XV.5.1. Objective	15
XV.5.2. Achievement.....	15
XV.5.3. Impacts	16
XV.5.4. Conclusion	16
XV.6. DOUBLE-HULL TANKERS.....	16
XV.6.1. Objective	16
XV.6.2. Achievement.....	17
XV.6.3. Impacts	17
XV.6.4. Conclusion	17
XV.7. PENAL SANCTION FOR SHIP SOURCE POLLUTION.....	17
XV.7.1. Objective	17
XV.7.2. Achievement.....	18
XV.7.3. Impacts	18
XV.7.4. Conclusion	18
XV.8. OIL POLLUTION DAMAGE COMPENSATION FUND.....	18
XV.8.1. Objective	18
XV.8.2. Achievement.....	18
XV.8.3. Impacts	19
XV.8.4. Conclusion	19
XV.9. SULPHUR CONTENT OF MARINE FUELS	19
XV.9.1. Objective	19
XV.9.2. Achievement.....	19

XV.9.3.	<i>Impacts</i>	20
XV.9.4.	<i>Conclusion</i>	22
XV.10.	TRANSFER OF SHIP REGISTER	22
XV.10.1.	<i>Objective</i>	22
XV.10.2.	<i>Achievement</i>	22
XV.10.3.	<i>Impacts</i>	23
XV.10.4.	<i>Conclusion</i>	23
XV.11.	TRAINING OF SEAFARERS.....	23
XV.11.1.	<i>Objective</i>	23
XV.11.2.	<i>Achievement</i>	23
XV.11.3.	<i>Impacts</i>	23
XV.11.4.	<i>Conclusion</i>	24
XV.12.	PORT STATE CONTROLS.....	24
XV.12.1.	<i>Objective</i>	24
XV.12.2.	<i>Achievement</i>	24
XV.12.3.	<i>Impacts</i>	24
XV.12.4.	<i>Conclusion</i>	25
XV.13.	ELIMINATING BOTTLENECKS IN INLAND WATERWAY TRANSPORT.....	25
XV.13.1.	<i>Objective</i>	25
XV.13.2.	<i>Achievement</i>	25
XV.13.3.	<i>Impacts</i>	25
XV.13.4.	<i>Conclusion</i>	26
XV.14.	RIVER INFORMATION SYSTEM.....	26
XV.14.1.	<i>Objective</i>	26
XV.14.2.	<i>Achievement</i>	26
XV.14.3.	<i>Impacts</i>	27
XV.14.4.	<i>Conclusion</i>	28
XV.15.	GREATER HARMONISATION OF BOAT MASTERS' CERTIFICATES.....	28
XV.15.1.	<i>Objective</i>	28
XV.15.2.	<i>Achievement</i>	29
XV.15.3.	<i>Impacts</i>	29
XV.15.4.	<i>Conclusion</i>	29
XV.16.	SOCIAL LEGISLATION INLAND WATERWAY TRANSPORT	29
XV.16.1.	<i>Objective</i>	29
XV.16.2.	<i>Achievement</i>	29
XV.16.3.	<i>Impacts</i>	29
XV.17.	OTHER, AUTONOMOUS DEVELOPMENTS OF MARITIME SHIPPING.....	30
	BIBLIOGRAPHY	33

Tables

Table 1: SO ₂ and PM emissions (million ton) and monetized gains (million euro) for low sulphur policy scenarios	21
Table 2: Top 20 Merchant Fleet of the World Self-Propelled Ocean-going Vessels 1,000 Gross Tons and Greater As of July 1, 2004 (Tonnage in Thousands)	31

Figures

Figure 1: SO ₂ emissions in million tons for different scenarios in different years	21
Figure 2: Evolution in world container traffic forecast	30

ANNEX XV *Analysis of maritime and inland shipping policy*

Author:

Bruno Van Zeebroeck, TML (Belgium)

Griet De Ceuster, TML (Belgium)

This report describes for each of the maritime shipping measures that are part of the White Paper on European Transport Policy of 2001 its objective, the achievements up to now (2005), and the potential and impact of the measure.

There are 16 maritime and inland shipping measures in the White Paper:

27	Motorways of the seas
28	Port services liberalisation
29	Simplify sea and inland waterway custom formalities and linking up the players in the logistic chain
30	Ship and port facility security
31	European Maritime Safety Agency
32	Double-hull oil tankers
	Penal sanctions for ship source pollution
33	Oil pollution damage compensation fund
34	Transfer of ship register
35	Training of seafarers
36	Eliminating bottlenecks in inland waterway transport
37	River Information System
38	Greater harmonisation of boatmasters' certificates
39	Social legislation inland waterway transport
40	Port state controls
41	Sulphur content of marine fuels

The numbering of the measures is consistent with the other ASSESS report.

The last chapter also pays some attention to other, autonomous developments of the maritime sector.

XV.1. Motorways of the seas

XV.1.1. Objective

The objective of motorways of the seas is to make maritime transport more attractive. Corridors, i.e. “motorways of the sea”, will concentrate freight transport on a limited number of well performing ports that form a connection to inland modes. Especially corridors that provide a way around the bottlenecks in the Alps and the Pyrenees should get special attention. By concentrating transport on certain corridors, the viability of these routes is improved. Maritime transport via motorways of the seas will also become cheaper and will substitute a part of the transport chain that uses other transport modes.

XV.1.2. Achievements

Motorways of the seas was added as a priority project to the TEN-T projects (COM (2003) 564) and was adopted as such by the European Parliament. Member states investments in port infrastructure amounted

to 19.6 billion euro between 1996 and 2001. Expenditures between 2002 and 2010 are estimated to be 18.5 billion euro. (TEN Invest Final Report 2003 Planco Consulting GmbH)

XV.1.3. Potential

A comparative TEN-STAC study between road transport and short sea shipping based intermodal transport indicates a huge potential for the intermodal transport thanks to motorways of the sea. In 2020 7.6 million tons of goods could be attracted between Rotterdam and Bilbao and 9.1 million tons between Spain and Italy for example.

The cost of both transport modes was the only attraction criterion taken into account in the TEN-STAC study. To get a more precise view of the potential however, quality criteria such as the reliability of service, respect of time tables, port administrative and handling procedures should also be taken into account.

XV.1.4. Impacts

An important part of the freight traffic is expected to switch to motorways of the sea. The reasons are multiple:

- Thanks to port investments, time lost in ports for loading, unloading, etc. will be reduced.
- Transport times of maritime transport could be reduced. The present technology allows designing very fast vessels reaching speeds up to 70 km/h. At those speeds, long distance transport is faster at sea than on land. Even sensitive perishable goods can then be transported at sea. A drawback is that faster maritime transport goes at the cost of higher fuel consumption and therefore significantly higher costs and higher emissions. Furthermore, not all logistic chains need very fast maritime transport and high speed vessels will not be necessary in most cases. At their current costs, very fast vessels will stay marginal¹.
- With a more powerful and adapted port infrastructure (for example terminals being operated 24 hours, so that cycle times can increase), among other aspects, sea transport will become more reliable. In general, costs combined with a reliable service are more important than speeds.

As a consequence, congestion on the road network will decrease. Investing in motorways of the seas is probably cheaper than investing in land infrastructure to reduce overall congestion on the land based network. Measures in improving connecting inland infrastructures in ports have to be taken in order to accommodate increased transport flows².

Notwithstanding a direct decrease in congestion, the excess capacity left on the rail and the road network by the shifted goods will be taken by other freight and passenger transport. The *global growth in transport* will therefore in the end be larger than without the investments in motorways of the seas.

Polluting emissions will increase significantly with the motorways of the sea project. Modern vessels have significant higher emission than road freight transport per tonne-km for NO_x, SO₂ and PM, even with the application of the low sulphur directive³. This could be avoided relatively easily and in a cost effective

¹ See Deliverable 1.5 of SPIN HSV 5th FW programme project “www.spin.mettle.org”

² See project Realise “www.realise-sss.org”.

³ The conclusions of a study on different Italian motorways of the sea projects illustrates this (Molocchi,2005). It states that without supplementary environmental measures, these motorways of the sea projects bring only social losses. Especially NO_x and

way by setting minimum environmental criteria (emission and energy efficiency) for vessels using motorways of the sea.

Other crucial factors influencing the social performance of motorways of the seas are the loading factors of the ships, the energy efficiency of the ships, the choice of maritime lines in terms of population (intermodal transport should preferably not pass through populated areas), the degree of congestion in the alternative road corridor.

A further potential effect that has to be avoided is the introduction of unfair competition between ports due to the TEN-T subsidies for some ports.

Another point of attention is that all the links in the chain have to be improved to assure seamless maritime transport. In other words, if the potential capacity of one link in the chain increases because of innovation, the other links should also be adapted.

XV.1.5. Conclusion

The framework to realize motorways of the seas is in place. Also in the Marco Polo programme there is substantial attention for motorways of the sea. The potential of those motorways seems to be considerable.

In spite of this potential success story, attention should be paid to the indirect effects of the measure:

- The global increase in traffic volume due to a cheaper transport. Global transport volumes will increase faster with the motorways of the seas projects than without them.
- the global increase in maritime traffic on the corridors and an increase in traffic speed. Safety on the busy sea lanes could then become a problem.
- the relatively poor environmental performance of maritime transport should be addressed, by setting minimum environmental criteria, particularly for air pollutant emissions,
- the potential risk of introducing unfair competition between ports should be considered.

XV.2. Port services liberalisation

XV.2.1. Objective

The objective of this measure is to increase efficiency and quality of port services. Increased efficiency and quality will lead to more attractive maritime transport and enhance its competitive position compared to other modes.

SO₂ emissions should be addressed. On the other hand, technical and environmental potential of maritime transport is high, the benefit values of motorways of the seas could therefore be easily turned into high values.

Also the European research project “REALISE” concluded that the air emissions of SSS had to be addressed to make it a valuable “clean” alternative to other transport modes. SSS emission standards lag behind the very strict emission standards for road transport. The emission reductions in SSS can furthermore be reached at a low cost compared to emission reductions in land based sources.

XV.2.2. Achievement

At the European level, the directive on market access to port services has been rejected by the European Parliament in November 2003. A major reason for this rejection was the definition of self handling (allowing some operations on vessels to be carried out by a vessel's crew instead of dock workers). The Commission prepared a new proposal taking the numerous constructive amendments of the previous legislative process into account. The "Market access to port services" directive proposal has been finalised on 13th October and transmitted on the 14th October to the Parliament and the Council (COM 2004 654 final).

XV.2.3. Impacts

The liberalisation of port services will make the provision of port services more transparent, more efficient, and cheaper. More efficient flexible port services will facilitate the rapid turn around of ships in ports and thereby making more efficient use of the fleet of ships (giving a higher return on investment for short sea operators). This is vital to improve the performance of short sea shipping and will help in making it more attractive compared to other transport modes. Also, in connection with other modes, a flexible port service will help to increase the flexibility in the transport chain (thereby also reducing the need for high speed ships).

Liberalisation of port services will furthermore contribute to the creation of a more dynamic port environment providing for example supplementary services. The role of ports as transport network hubs could be improved. In this way supplementary freight quantities could be shifted from road or rail to the sea. Some advocates of port liberalisation even argue that there will be an increase in employment thanks to the increasing amount of freight shipped via ports.

Opponents on the other side argue that there will be important indirect costs because of lower employment levels and lower safety levels in ports. There is nevertheless no evidence that such indirect additional costs will be incurred.

XV.2.4. Conclusion

There is a clear desire to liberalise port services at the European Commission. However, due to the rejection of a compromise text by the European Parliament, a legislative framework is not in place yet. A new proposal has been prepared by the Commission taking numerous constructive amendments of the previous legislative process into account. The directive proposal has been transmitted to the Parliament and the Council in October 2004.

The approval and implementation of the directive would have a dynamic effect on ports and connecting inland modes in the transport chain. Supplementary freight will therefore be shifted from land modes to short sea shipping. Precise estimates on that effect of port services liberalisation are nevertheless difficult to provide.

XV.3. Simplified sea and inland waterway custom facilities

XV.3.1. Objective

The objective of the measure is to simplify the regulatory framework for maritime and inland waterway transport by encouraging, in particular, the creation of one-stop offices for administrative and customs formalities. This is one of the necessary conditions to develop a framework in which seamless short sea shipping transport becomes possible.

XV.3.2. Achievement

A guide to customs procedures for short sea shipping was presented by the Commission in April 2002. Consultations have been organised European wide and ended in April 2003. In response to this, the Commission presented a working document on the modalities and procedures of the *Authorised Regular Shipping Service*.

The Authorised Regular Shipping Service is a service authorised by the EU Customs to carry Community goods between two Member States with minimum formalities. Indeed, for Community goods, this service can be compared to a road bridge between two or more points in the Customs territory of the Community where there are no Customs checks on either end of the bridge. The status of Community goods carried on this service does not need to be proven more than is the case in road transport. For non-Community goods, this service can be applied to simplify transit procedures, such as using the service provider's own manifest.

As one of the first steps in *e-Customs*, some 3000 Customs offices in 22 countries have implemented the New Computerised Transit System (NCTS) since mid-2003. Under the current system, the procedure relating to transport under the single administrative document (SAD) is replaced by electronic messages. Additional functionalities are planned to be introduced into the NCTS in the future.

This measure can be situated in the context of the Commission's Communication on a simple and paperless e-environment for customs and trade, presented in July 2003. The Communication also suggests adjusting the Customs Code so that electronic declarations and messages become the rule and paper-based declarations the exception. Achieving this will, however, take some time, because the necessary data flows will have to be organised and compatible IT systems have to be set up.

XV.3.3. Impacts

The shippers' knowledge of procedures and regulation in trade via EU seaports will be improved thanks to the guide to customs procedures for short sea shipping. The measure contributes to a more smooth and efficient carrying out of the customs procedures, resulting in reduced waiting times, fewer errors and less annoyance for port customers. The measure will therefore indirectly contribute to the modal shift policy objective.

In some countries and on some links the effects of simplified custom facilities are already in place and well illustrated.

Before the implementation of this measure, cargo documentation (T1-documents) had to be presented as an original to the relevant Customs authorities when transporting containers on barges between the ports of Rotterdam and Antwerp (23,000 barges or 17 million tons in 2003). Now a pilot project has been introduced towards 'paperless sailing' that uses an electronic exchange of data between the relevant parties in the two ports and minimises the paperwork that has to be carried physically with the goods.

Sea-river vessels en route to/from German Rhine ports previously had to stop at a Dutch port to complete certain customs formalities even when they were only transiting Dutch territory. This was due to the fact that the Netherlands, in this case, constitutes the external border of the Community. The procedure involved delays and additional charges (e.g. port dues). The Dutch authorities have now introduced electronic reporting for licensed sea-river services to/from Duisburg. This reporting helps to avoid regular intermediate port calls at Dutch ports.

A down side of this measure could be that administrative and implementation costs form a barrier to some smaller operators, thereby increasing the scale of operations. Smaller ships might not be able to afford these costs.

XV.3.4. Conclusion

Some measures to simplify custom facilities are underway. The measures can reduce the administrative paperwork and therefore improve competitiveness compared to other transport modes. Smaller operators may not be able to afford the costs, thereby potentially increasing the scale of operations.

XV.4. Security

XV.4.1. Objective

The main objective is to prevent maritime trade from terrorist attacks and to prevent the use of maritime trade as a vehicle for terrorist activities. The 11th September, 11th March and 7th July Al Qaeda attacks made the threat of terrorist attacks very clear.

Maritime transport is a relatively easy target for terrorist attacks. It has been for years a very open (vulnerable) transport mode. Maritime transport can be used in different ways by terrorists.

- The cargo itself can be dangerous. People and/or all kinds of weapons (conventional, nuclear, biological) can be smuggled for terrorist objectives.
- The vessels can be used as a weapon to launch an attack or to disrupt infrastructure by sinking it. As a consequence trade flows can be disrupted.
- People on the ships can be attacked
- Seafarer identities can also be used to cover the insertion of terrorist operatives.

XV.4.2. Achievement

The Council has adopted a Regulation (725/2004/EC) on enhancing ship and port facility security. This Regulation introduces and implements Community measures aimed at enhancing the security of ships used in international trade and domestic shipping and associated port facilities in the face of threats of intentional unlawful acts. The Regulation also provides a basis for the harmonised interpretation and implementation and Community monitoring of the special measures to enhance maritime security adopted

by the Diplomatic Conference of the IMO in December 2002. In particular this concerns the SOLAS (International Convention for the Safety of Life at Sea) and ISPS code (International Ship and Port Security Code). The above mentioned Regulation is confined to ships to and from port facilities which represent the ship/port interface. This is in conformance with the measures proposed in the White Paper on transport. Additional extra legislation on security within ports has been adopted (Proposal COM (2004) 393) by the Commission.

XV.4.3. Impacts

Improved security will be the major impact of the measures.

Compared to a do nothing scenario, significant extra costs will certainly be incurred. But these costs are many times smaller than the costs that terrorist attacks could cause. Terrorist attacks could disrupt for example part of the international trade system. An OECD estimate for the only US cost of a terrorist attack is 58 billion USD (OECD maritime committee 2003). The initial burden on ship operators due to safety measures is estimated at 1279 million USD and 730 million per year thereafter by the same study.

Furthermore, the implementation of the maritime measures has also benefits beyond the pure security area, like decreased insurance costs, fewer losses to theft, etc.. Furthermore, in an industry still largely dependent on paper and fax transmissions, it is not hard to see the room for savings resulting from more integrated IT systems. Also this could lead to faster implementation of new technologies such as RFID (Radio Frequency Identification) tags on shipments, this could lead to integration within the transport chain and thereby a stimulus for intermodal transport.

XV.4.4. Conclusion

Security measures have been implemented. This was necessary in the light of the threat of terrorist attacks. These measures are not without cost, but they also bring about benefits that go beyond their mitigating impacts on terrorism.

XV.5. Safety

XV.5.1. Objective

The enhancement of the overall maritime safety system in the Community is the main objective of this measure. This has to be achieved by determining safety standards for passenger ships in general and roll-on/roll-off (ro/ro) passenger ships in particular and by developing a genuine European maritime traffic management system (EMTMS).

XV.5.2. Achievement

The EMSA (*European Maritime Safety Agency*) was established in 2002 by Regulation 1406/2002/EC. In general terms the Agency will provide technical and scientific advice to the Commission in the field of maritime safety and prevention of pollution by ships. The Agency will develop new legislation, monitor its implementation and evaluate the effectiveness of the measure in place. The Agency will also cooperate with the Member States. New tasks (in particular the creation of an oil pollution response capability within

EMSA, as well as new training and security tasks) were assigned to the agency by Regulation 1644/2003/EC amending Regulation 1406/2002/EC.

The budget of the Agency is 4.500.000 EUR in 2003 and 12.600.000 EUR in 2004. An additional pollution response budget will be available.

With respect to safety *rules and standards for passenger ships*, in 2003 a Directive (2003/24/ EC) amending a previous Directive (98/18/EC) has been adopted as well as a specific Directive for ro/ro ships (Directive 2003/25/EC) on specific stability requirements for ro/ro passenger ships. An extra incentive on the safety of shipping is the expansion of the application of the International Safety Management code (ISM-code). The European Parliament fully adopted a draft regulation (COM (2003) 767) on the implementation of the ISM-code.

In 2002 a Directive (2002/59/EC) has come into force where the establishment of a *European traffic management system* is dictated. The purpose of this Directive is to establish in the Community a vessel traffic monitoring and information system, with a view to enhancing the safety and efficiency of maritime traffic, improving the response of authorities to incidents, accidents or potentially dangerous situations at sea, including search and rescue operations, and contributing to a better prevention and detection of pollution by ships. Provisions are made on: ship reporting and monitoring, notification of dangerous or polluting goods on board ships, and monitoring of hazardous ships and intervention in the event of incidents and accidents at sea.

XV.5.3. Impacts

Thanks to the Agency, the definition of new legislation at the EU level and the implementation of legislation in the member states will take less time. As a consequence, the policy response time to incidents will also reduce.

By improving safety standards and having better legislation, the number of accidents in maritime transport will be reduced, less oil will be spilled, less lives will be lost at sea, etc.

However the administrative and implementation costs could be a barrier to some smaller operators, thereby potentially increasing the scale of operations,

XV.5.4. Conclusion

White Paper measures concerning maritime safety have been realized, however quantified estimates on the precise impact of the implemented measures have not been made. On the other hand, smaller operators may not be able to afford the costs, thereby increasing scale of operations.

XV.6. Double-hull tankers

XV.6.1. Objective

The general objective is to reduce the negative impacts on the marine and coastal environment either through accidents by unsafe ships, causing massive pollution. This should be achieved by EC regulations for the accelerated phasing-in of double-hull or equivalent design for single-hull oil tankers.

XV.6.2. Achievement

One of the means to reach the above objective is the gradual elimination (phasing out) of the fleet of single-hull tankers and replacing these by double hull tankers. The action involves an accelerated phasing in of the double hull standards (MARPOL 73/78) and accompanying measures (e.g. financial incentives/disincentives).

In 2002 a Regulation (417/2002/EC) to gradually eliminate the single hull tankers was adopted. However, the PRESTIGE accident led the European Parliament and the Council to opt for a faster rate of phasing out of single hull tankers. This resulted in a new Regulation (1726/2003/EC amending regulation 417/2002/EC) on the accelerated phasing-in of double-hull or equivalent design for single-hull oil tankers. With this regulations, the single hull tankers will be phased out by 2010.

XV.6.3. Impacts

The measure will decrease potential accidents with huge environmental impacts. Double-hull oil tankers are considered to be less likely to cause oil spills. The external costs of oil spills and degradation of coastal areas are internalized to a certain extent. From a social welfare point of view, this is beneficial for society, as costs of maritime oil transport come closer to their social cost.

The fact that the fleet of single-hull tankers must be replaced at a faster rate is a considerable cost for the industry. Given the current state of the shipbuilding industry, it may be expected that the new ships will be built in Asia. This cost will be certainly in one way or another be put forward on the user. The extra cost for the transport industry will thus not be compensated by additional revenues for the European shipbuilders.

To give an exact quantified impact of the measure is very difficult. The number of oil spills with and without the measure is difficult to predict and also the impact on the maritime transport price is difficult to evaluate.

XV.6.4. Conclusion

Legislation on double hull tankers has been introduced. There will be a positive effect on accidental oil tanker spills though the precise (quantified) effect of the measure is difficult to estimate. On the other hand, maritime tanker transport can be expected to become more expensive.

XV.7. Penal sanction for ship source pollution

XV.7.1. Objective

The general objective is to reduce the negative impacts on the marine and coastal environment through accidents by unsafe ships, causing massive pollution. or through intent or negligent behaviour resulting in discharges from ships.

XV.7.2. Achievement

One of the means to reach the above objective is the introduction of penal sanctions for those responsible for causing oil spills or other ship-source type pollution.

A proposal (COM (2003) 92) has been adopted by the Commission. The proposal consists of two important measures. Firstly, it incorporates the applicable international discharge rules for ship-source pollution into Community law and regulates the enforcement of these rules in detail. This part of the proposal includes certain important new features, notably the inclusion of violations that have taken place in the high seas (sea areas beyond the jurisdiction of any State). Secondly, the proposed Directive establishes that violations of the discharge rules shall be criminal offences and provides guidance on the nature of the penalties to be awarded. The proposed Directive has been approved by the EP on 23.02.05. It should be effectively applied and enforced in the whole of the EU approximately by March 2007.

XV.7.3. Impacts

Deliberate pollution by vessels is difficult to combat but the introduction of penal sanctions will discourage ships to pollute the seas with illegal discharge. The impact of the measure will nevertheless depend to a large extent on the effectiveness of the detection systems put in place.

XV.7.4. Conclusion

Next to the introduction of double hull tankers, the introduction of penal sanctions for those responsible for causing oil spills or other ship-source type pollution will reduce the negative impacts on the maritime and coastal environment. It is nearly impossible to quantify the effect of this measure in the future. Furthermore the effect of the measure will depend on the effectiveness of the detection systems. This may require advanced ship surveillance and detection systems.

XV.8. Oil pollution damage compensation fund

XV.8.1. Objective

The objective of this measure is to introduce a compensation system for victims of marine pollution. This is a clear example of the 'the polluter pays' principle and means an internalization of external costs.

The money for the fund will be supplied by the oil industry, the tanker users. In this way there a rebalancing between the responsibilities of shipping companies and the oil industry.

XV.8.2. Achievement

Decision (2004/246/EC) authorises the Member States to sign, ratify or accede to, in the interest of the European community, the protocol of 2003 to the international convention, on the Establishment of an International fund for compensation for Oil Pollution Damage. This protocol of 2003 is known as the Supplementary Fund Protocol. It provides further compensation up to an overall total of 869 EUR (protocol mentions £ 600 million) in the event that the costs of damage arising from an accident exceed the compensation available under the Liability and Fund Conventions. Previous limits were between 5.8 and 104 million EUR (protocol mentions £4 million and £72 million) depending on the tonnage of the ship.

XV.8.3. Impacts

Precise quantified figures on impacts cannot be given here, only some qualitative statements can be made.

The impact on the Community budget will be zero. The compensation fund is financed by tanker transport users.

It is expected that less oil spills will take place as efforts will be done to avoid them – the price of oil spills will rise drastically. As a consequence the transport costs for maritime tanker transport will also increase. The magnitude of the rise in costs and the effects on the maritime sector will depend on the number of countries signing the protocol.

XV.8.4. Conclusion

Together with the double-hull oil tankers, the penal sanctions for ship source pollution, the oil damage compensation fund will decrease the risk of major oil spills. Maritime tanker transport costs will increase as a consequence of the internalization of the external costs.

XV.9. Sulphur content of marine fuels

XV.9.1. Objective

The objective of this measure is to reduce the impact of ship emissions on local air quality and acidification through the reduction of the sulphur contents of marine fuels used in the European Union (EU). The reason for this is that ships emissions of SO₂ per tonne-km are very high. On current trends, the EU policy of promoting modal shift to waterborne transport is likely to increase overall emissions from the transport sector⁴, thereby increasing external costs to health and the environment, unless it is accompanied by significant improvements in ship emissions performance. If nothing were done, ship emissions would equate to 75% of SO₂ emissions from all land based sources in EU in 2010⁵. What speaks in favour of this measure is that the cost of abating emissions from sea going vessels is low compared to reducing land based emissions.

XV.9.2. Achievement

A new directive 2005/33 on sulphur in marine fuel was published on 22 July 2005, which limits sulphur content in fuels used by seagoing and inland ships. The main achievements of the directive are:

- A 1.5% sulphur limit for fuels used by all ships in the Baltic Sea, from August 2006, and the North Sea and the English Channel, from August 2007;
- The same 1.5% sulphur limit for fuels used by passenger vessels on regular services to or from EU ports, from August 2006;

⁴ The emissions per tonne-km of road transport (EUROIV-EUROV 40 ton heavy duty vehicles) are 50 times lower for SO₂, 2.5 times lower for NO_x and at least 3 times lower for PM compared to maritime transport.

⁵ Communication from the commission to the European Parliament and the council – A European strategy to reduce atmospheric emissions from sea going ships (COM 2002/0595)

- A 0.1 % sulphur limit on fuel used by inland vessels, and by seagoing ships at berth in EU ports, from 1 January 2010.

The Parliament has negotiated a stronger review in 2008, requiring the Commission to consider a second-phase limit of 0.5%. Further sulphur reductions will be also subject of future negotiations with the International Maritime Organization (IMO). The Parliament also tightened requirements on the availability of low sulphur fuel and the use of abatement technology, and introduced an incentive for ships in port to plug in to clean shore-side electricity.

Actually 2.7% S fuel is generally used.

XV.9.3. Impacts

The directive will have significant human health benefits by reducing the incidence of asthma, bronchitis and heart failure, particularly in populated port areas. The measure will also have significant environmental benefits in terms of reducing acid rain.

With the maritime module of the TREMOVE model⁶, we assessed the impact of the directive in 2010 and 2020. Also the impact of the second phase limit of 0.5% sulphur has been assessed. The table below shows the reduction in *physical emissions* at sea and in port. Relative emissions represents the basecase emissions compared to the base case. Port emissions consist of emissions at berth and emissions during manoeuvring. The 0.1%S limit is not applied to manoeuvring emissions. The increase in the base case emissions is due to the increase in maritime traffic.

The emission reductions are also expressed in *monetary units*. The advantage of a monetization is that differences in effects and impacts of emissions, dependant on the place where emissions take place can be accounted for. Emissions in coastal seas, in port (near to populated areas) or in deep sea will be monetized differently.

The monetary values are taken from the Cost Benefit Analysis of the Commission's Clean Air for Europe programme (CAFE). A disadvantage of the monetized values are the large uncertainties they contain. Therefore, an upper and a lower value are given here based on higher and lower estimates of the Cost Benefit Analysis.

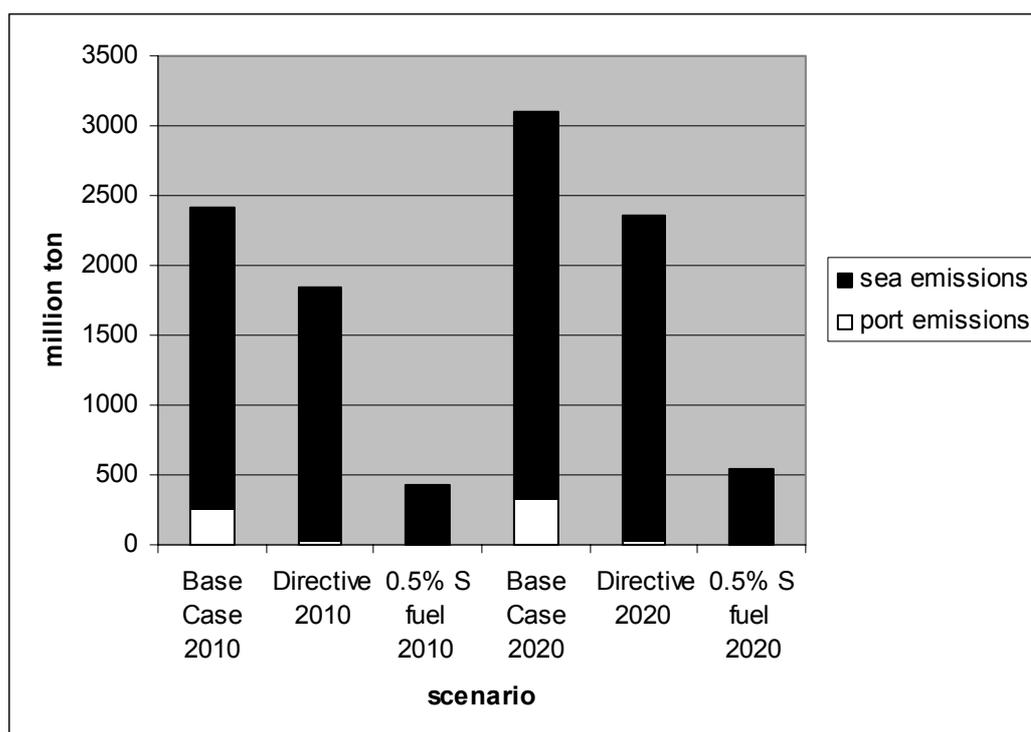
⁶ More information on the TREMOVE model can be found on the TREMOVE website : www.tremove.org. For the simulations for the assess project, the base line was adapted. The low sulphur directive was not modeled within the ASSESS base case but in other simulations done by TML for the DG ENV of the Commission.

Table 1: SO₂ and PM emissions (million ton) and monetized gains (million euro) for low sulphur policy scenarios

		Base Case 2000	Base Case 2010	Directive 2010	0.5% S fuel 2010	Base Case 2020	Directive 2020	0.5% S fuel 2020
SO ₂	absolute emissions	1879	2412	1840	422	3101	2363	543
	relative reduction			24%	82%		24%	82%
	monetized gain range			1072-3054	2341-6671		1379-3929	3008-8573
	port emissions	202	258	24	13	331	30	17
	relative reduction			91%	95%		91%	95%
	sea emissions	1677	2154	1817	409	2770	2333	526
	relative reduction			16%	81%		16%	81%
PM	absolute emissions	218	280	250	213	359	321	213
	relative reduction			11%	24%		11%	41%
	monetized gain range			197-562	256-729		253-721	328-936
	port emissions	22	28	12	12	35	15	15
	relative reduction			57%	58%		57%	58%
	sea emissions	196	252	238	202	324	305	259
	relative reduction			6%	20%		6%	20%

Figure 1 is the graphical presentation of the absolute emissions presented in Table 1 for SO₂.

Figure 1: SO₂ emissions in million tons for different scenarios in different years



The TREMOVE results show that, thanks to the directive, an important reduction in port emissions can be achieved in 2010 and 2020. If the Commission wants to go beyond the directive and impose 0.5% S fuel, there is still an enormous potential for emission reductions. It should be noted, however, that in spite of a reduction in SO₂ emissions by the 0.5% S fuel policy three times that of the directive policy, the monetized gains are only double. This is due to the fact that port emissions have a bigger negative impact on human health than sea emissions.

N.B. The reductions in PM emissions are relatively less impressive, especially for the 0.5% S fuel. This is due to a conservative estimate in the reduction of PM emissions as a consequence from the switch from 2.7% S fuel to 0.5% S fuel.

XV.9.4. Conclusion

A reduction in SO₂ emissions by maritime vessels will clearly be achieved thanks to the marine fuel sulphur directive 2005/33 published on 22 July 2005. The reductions achieved by the directive will be more than 90% for port emissions and around 25% for overall European emissions, taking into account projected growth in shipping. By strengthening the directive in the future, there is significant potential for further emission reductions.

The new directive concerns only the reduction of sulphur content of the fuels, and therefore emissions of sulphur dioxide and particulate matter. From an environmental and health point of view it is also necessary to reduce ship emissions of nitrogen oxides (NO_x) which are now also higher per tonne/km than other transport modes, and currently on course to exceed NO_x from all land-based sources combined by 2020. Ships can also achieve NO_x reduction in a very cost effective way compared to reductions from land based sources. As a consequence, economic impacts will therefore be only marginal compared to the cost of measures to attain a similar emission reduction in land-based sources.

Finally, reducing CO₂ emissions from shipping is another important issue, that has not yet been addressed.

On current trends, the EU policy of promoting modal shift to waterborne transport is likely to increase overall emissions from the transport sector⁷, thereby increasing external costs to health and the environment, unless it is accompanied by significant improvements in ship emissions performance.

XV.10. Transfer of ship register

XV.10.1. Objective

The aim of this measure is to encourage the reflagging of the greatest possible number of ships to Community registers, based on the best practices developed in social and fiscal matters. Measures on tonnage based taxation and the revision of the guidelines on state aid to maritime transport were proposed in 2002.

Having more EU flagged ships means that the EU gets more influence to determine measures concerning safety and protection of the marine environment with respect to ships. The reason is that safety and marine environment regulations are for a great deal set by flag states. The consequence is that the European shipping environment will get safer and have more respect for the marine environment.

XV.10.2. Achievement

A Regulation (789/2004/EC repealing Regulation 613/91/EEC) on the transfer of cargo and passenger ships between registers within the Community which had the full support of the industry has been adopted. The purpose of this Regulation is to eliminate technical barriers and to reduce the costs and ad-

⁷ The emissions per tonne-km of road transport (EUROIV-EUROV 40 ton heavy duty vehicles) are 50 times lower for SO₂, 2.5 times lower for NO_x and at least 3 times lower for PM compared to maritime transport.

ministrative procedures involved in a change of register within the Community. The Regulation states that the Member State of the losing register shall provide the Member State with the receiving register, or make available all relevant information on the ship, in particular, on her condition and equipment, to the recognized organisation acting on its behalf.

The tonnage-based taxation system should promote the reflagging of as many ships as possible to Community registers due to the fact that under this system, ship owners pay a tax based on the tonnage they operate, regardless of the actual earnings of the business. However, until now the Commission has made no proposal on this subject.

XV.10.3. Impacts

The transfer of ship register will be facilitated. This new flexibility will improve the operating conditions and competitive positions of European shipping. The impact on the Community budget will be zero.

Maritime traffic will become safer and less damaging for the maritime environment through a greater impact of EU regulation on a greater number of EU flagged ships.

Remark that also the accession of Malta and Cyprus to the EU had a big influence on the number of ships under EU-flag.

XV.10.4. Conclusion

Thanks to the regulation the transfer of ship registers will be facilitated. Legislation on a tonnage based taxation for the EC could improve the transferability between registers.

The measure may also have a positive impact on the competitiveness of this mode of transport (easier market access, lower prices) and ensure a better compliance with environmental protection and safety requirements.

XV.11. Training of seafarers

XV.11.1. Objective

The measure aims at more uniformity and clarity on the minimum training standards for personnel. Security and safety on ships should be improved. Also the Community wide recognition of personnel from labour-supplying third countries is part of the objective. .

XV.11.2. Achievement

Directive (2003/103/EC amending Directive 2001/25/EC and directive 2002/84/EC) on the minimum level of training of seafarers has been adopted. The adoption of the directive will realize the above mentioned objectives.

XV.11.3. Impacts

Precise quantified figures on impacts cannot be given here, only some qualitative statements can be made.

Seafarers in the Community will respond to the same minimum training standards all over the Community. This will enhance maritime safety, prevent loss of human lives and maritime pollution.

There is also little doubt that the introduction of a system of community-wide recognition of labour supplying third countries removes much duplication and red tape, which will benefit the market and will improve the exchangeability of non-EU seafaring personnel in the dynamic market. Given the frequently occurring shortages of personnel in some market segments, this measure should improve the working of the internal EU-sea market as well.

The measure will have a modest impact on the Community budget. The involved actions will be implemented by EMSA assigned personnel (a staff of 7 in a first phase), but member states will save costs.

XV.11.4. Conclusion

Minimum training standards for sea farers have been realised. This will have certainly a positive impact on the labour market of seafarers and on the maritime safety and maritime pollution..

XV.12. Port state controls

XV.12.1. Objective

The aim is to improve safety at sea by identifying, by means of a tight control system in ports, ships that do not meet the elementary safety requirements.

XV.12.2. Achievement

Legislative implementation took place by adopting Directive 2001/106/EC. This Directive amends Directive 95/21/EC concerning the enforcement (with respect to ships using Community ports and sailing in the waters under the jurisdiction of the Member States) of international standards for ship safety, pollution prevention and shipboard living and working conditions (port State control). Entry into force of the member states' legislation had to take place before July 2003.

XV.12.3. Impacts

Costs of maritime transport will be increased due to adaptation costs of:

- the inspection authorities to the new enforcement concept.
- the shipping industry to the reinforcement of ports control.

The investments necessary to adapt are not known in total and will differ depending on the size of ports and ships.

The improvement of fleet safety standards and the reduction of accident risks will be significant.

XV.12.4. Conclusion

Legislative implementation took place and this measure will achieve a significant improvement of fleet safety standards. On the other hand, it will also raise costs for the maritime sector as external costs are internalized.

XV.13. Eliminating bottlenecks in inland waterway transport

XV.13.1. Objective

This measure aims to improve the situation of inland waterway transport (IWT), through eliminating bottlenecks, establishing links to rivers and installing transshipment equipment.

Apart from some bottlenecks, inland waterway transport still has a large excess capacity. Eliminating bottlenecks can help to attract extra traffic to fill this free capacity.

XV.13.2. Achievement

The final outcome of the revised guidelines (Decision 884/2004 amending Decision 692/96/EC) with respect to inland waterways transport is more ambitious than the initial Commission proposal of 2001. More inland waterway projects have been included.

The defined priority projects due to start before 2010 in the TEN regarding inland waterways, are the following:

Rhine/Meuse-Main-Danube inland waterway axis

- Rhine-Meuse (2019) with the lock of Lanaye as cross-border section;
- Vilshofen-Straubing (2013);
- Wien-Bratislava (2015) cross-border section;
- Palkovicovo-Mohács (2014);
- Bottlenecks in Romania and Bulgaria (2011).

Inland waterway Seine-Scheldt

- Navigability improvements Deulemont-Gent (2012-2014-2016);
- Compiègne-Cambrai (2012-2014-2016).

XV.13.3. Impacts

Precise quantified figures on impacts cannot be given here, only some qualitative statements can be made.

It is clear that thanks to these investments inland waterway transport will become cheaper and faster especially for larger vessels. As a consequence new inland waterway traffic will be attracted and modal shift to inland waterway transport will be facilitated.

Although a direct decrease in congestion in other transport modes can be expected, the excess capacity on the rail and the road network (by the shift of goods to IWT), is likely to be taken up by other freight and passenger transport.

The execution of the inland waterways TEN projects will have a considerable impact on the Community budget. 4.403 MEURO have been budgeted in total, with still very important expenditures after 2010.

To avoid negative environmental consequences from a modal shift to inland waterways, environmental standards of inland navigation should be tightened.

XV.13.4. Conclusion

The European Commission will spend significant amounts of money to eliminate bottlenecks on inland waterways. Inland waterway transport will become more attractive in that way and the measure will most probably contribute to a modal shift to inland waterways. An induced effect of the modal shift will most probably be an attraction of new freight and passenger traffic on the excess road capacity. To avoid negative environmental consequences of an increase in inland waterway transport, also environmental standards for inland navigation should be adapted.

XV.14. River information System

XV.14.1. Objective

The White Paper prescribes “the installing of highly efficient navigational aid and communication systems on the inland waterway network”. This RIS (River Information System) should transform inland waterway transport into a transparent, reliable, flexible and easy-to-access transport mode. Together with cost-effective and environmentally-friendly logistics operations, the development of RIS should make inland waterway transport more attractive.

It is important to make all the existing national or regional information system compatible with each other.

XV.14.2. Achievement

The RIS is a part of the IWT-measures proposed as new TEN-projects, which were adopted in April 2004. The amended TEN regulation now states that “the network shall also include the traffic management infrastructure”. The measure is now the object of a Commission proposal (COM (2004)392) for a directive of the European Parliament and the Council on harmonized River Traffic Information Services on inland waterways in the Community. The proposed Directive aims at a Europe-wide framework for the implementation of the RIS concept in order to ensure compatibility and interoperability between current and new RIS systems at European level and to achieve effective interaction between different information services on waterways. It lays down the obligation for Member States to take the necessary measures to implement River Information Services, sets the principles for their development and defines the specific obligations of the Member States as regards the provision of data necessary for the execution of the voyage, the provision of electronic navigational charts and of notices to skippers, as well as the capability of the competent authorities to receive electronic ship reports on the vessel and cargo.

The Directive does not oblige private users, boat masters and ship operators to install the equipment necessary for participating in RIS. However, Member States must take appropriate measures to encourage users and vessels to comply with the reporting procedures and equipment requirements implied by the Directive.

XV.14.3. Impacts

Precise quantified figures on impacts cannot be given here, but some qualitative statements on impacts are made below.

Thanks to an improved navigation aid and communication system, inland navigation shall become a more attractive mode of transport to use (safer, more efficient, faster, more transparency due to tracking and tracing, etc.). Therefore, a modal shift is expected on corridors where the navigation aid and or communication systems are significantly improved.

Again (as mentioned in section XV.14.3 on IWT), although a direct decrease in congestion in other transport modes can be expected, the excess capacity on the rail and the road network is likely to be taken up by other freight and passenger transport.

RIS will contribute in different ways in making inland navigation a more attractive way of transportation.

It will increase IWT efficiency and as a consequence the competitiveness of inland navigation.

- RIS provides up-to-date information that can be used to plan voyages and calculate more reliable time schedules. Based on the current and expected positioning data of the various vessels that are under way in the network, lock/bridge/terminal operators can calculate and communicate the Required Times of Arrival (RTA) to the individual skippers. While approaching the lock/terminal, the skipper can decide to adjust his cruising speed (more homogeneous travel speeds), which in the end results in a reduction of waiting times at locks and terminals.
- RIS enables real-time monitoring of the inland navigation fleet and of changing fairway conditions en route. This allows improved fleet management, optimized deployment of personnel and fleet based on up-to-date information, as well as more detailed trip planning and draught management based on up-to-date information on fairway conditions. Real-time information is provided that can be used to load ships according to the current navigational conditions.
- RIS provides information interfaces with all supply chain members as well as with other transport modes. These interfaces, which eliminate fractures in the information chain, permit the integration of inland waterway transport into the intermodal supply chain.

It will enable the infrastructure operator to optimise the use of the infrastructure.

- Terminal and lock operators are capable of producing better planning of terminal resources through receipt of Estimated Times of Arrival (ETA) and additional information (e.g. stowage plans, vessels dimensions) of approaching vessels. This can be translated into an efficiency gain, allowing a pro-active approach towards terminal or lock activities scheduling. For infrastructure managers this brings better utilisation rates, while for skippers this means shorter waiting times and an optimised chain of processes for the entire voyage.

It permits the automated collection of statistical and customs data without paper work.

Traditionally, data collection is connected with paper work, which is time-consuming and prone to data errors. RIS makes the automatic collection of required data possible in an efficient way, ultimately resulting in lower public expenditure for administrative and statistical reporting tasks. This will benefit in particular the waterway authorities in charge of strategic planning and monitoring duties. Statistics can be made available in different formats such as general traffic data, cargo statistics, vessel statistics, lock statistics, accident statistics, and port/transshipment statistics.

It will reduce the number of incidents/accidents

With the introduction of RIS, skippers are offered up-to-date and complete overviews of traffic situations. This allows them to take well-informed navigational decisions, which is expected to consequently lead to a reduction of incidents and injuries/fatalities. Moreover, RIS allows for detailed monitoring of dangerous goods transports, thus helping prevent shipping accidents or allowing more timely responses in the event of accidents and potential environmental calamities.

It could reduce exhaust gas emissions

RIS could lead to a reduction of fuel consumption as a consequence of better voyage planning and more reliable time scheduling.

To evaluate the total emission reduction, it is important to have an idea on the induced effects, i.e. the effects on the freight and passenger traffic that is expected to replace the freight transport that shifted to inland waterway transport.

It is recommended that the measure, as foreseen, is not actively enforced. The enforcement of taking on costly equipment could constitute a barrier to entry for smaller ships. Notably on smaller sized canals, where smaller ships are sailing, this could be harmful.

XV.14.4. Conclusion

The introduction of a RIS can represent one of the most substantial changes in the sector to date. The framework is nearly ready. The challenge is now to make it work in practice and to harmonize the different existing national or regional systems.

XV.15. Greater harmonisation of boat masters' certificates

XV.15.1. Objective

The measure aims to set uniform, minimal standards for professional capabilities for personnel sailing with ships in the inland waterway network. This attempt is similar (on a much smaller scale) to the attempt to harmonize driving licenses in road transport. Furthermore, the situation in inland waterways transport differs in the sense that until very recently practically no official requirements were needed for people to sail vessels in some countries.

XV.15.2. Achievement

Nothing has been realized up to now. After having consulted with business representatives it was decided that the envisaged harmonisation was not needed at the moment. It was decided to drop attempts to implement this measure in legislation. Therefore, it never came to the announced initiative and no legislation was proposed.

XV.15.3. Impacts

As the directive on the harmonization of boatmasters' certificates has been dropped, no specific impacts can be expected.

If implemented, the benefits of the measure would in any case be modest. At present the cost to get the certificates is low. The impacts on price levels would be very small. Furthermore, the exchangeability nowadays is already pretty high and in most countries, no certificates are necessary to sail a vessel

XV.15.4. Conclusion

For the moment, the harmonization of boatmasters' certificates has been dropped after consultation of business representatives. The impact of such a harmonization would have been very marginal in any case.

XV.16. Social legislation inland waterway transport

XV.16.1. Objective

The objective pursued by this measure is the harmonisation of social conditions in particular navigation and resting times and crew composition in inland navigation. This again has the twofold objective to contribute to more equal competition within the inland navigation industry as well as contributing towards higher safety levels in the industry.

XV.16.2. Achievement

There is no legislation yet available on this measure.

XV.16.3. Impacts

Costs to introduce a harmonization in social legislation could be relatively high. The travel costs of inland waterway vessels could then increase and inland waterways could lose customers. The introduction of a 48 hours working week for example needs a registration, monitoring and enforcement system to be able to deal with owner operators. Furthermore, due to the shortage in labour force, wages could increase if a 48-hour working week is introduced. Also, to attract new labour force, wages will need to be increased.

Furthermore, the impact of the measure on safety conditions will probably be nearly negligible as only 0.4% to 0.7% of the vessels have an accident related to labour times and fatigue (according to figures in the Netherlands).

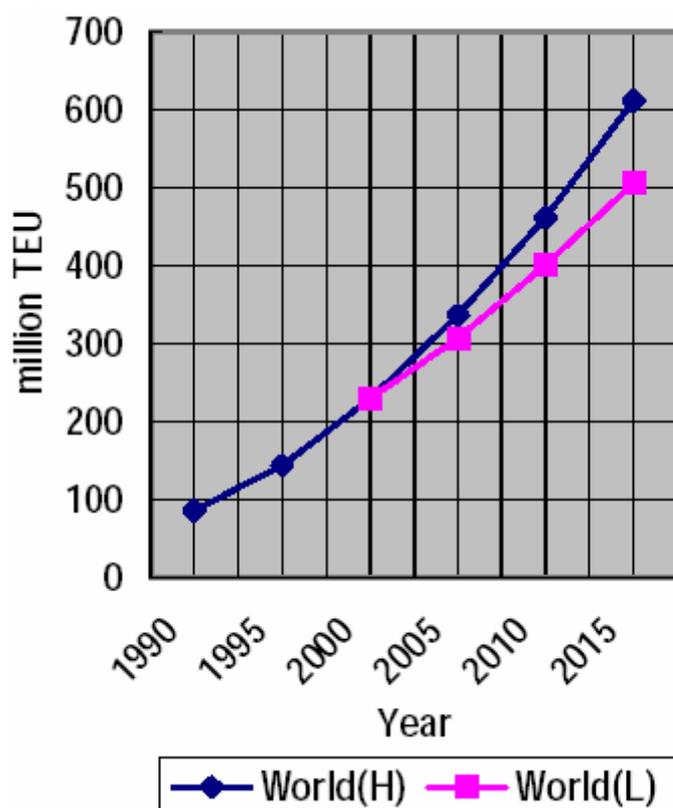
Conclusion

No legislative initiative has been taken at the Commission to harmonize social legislation in inland waterway transport. Further initiatives seem difficult to take as there is clearly no unequivocal support for the legislation. The shortage on the labour market is one of the reasons for this lack of support.

XV.17. Other, autonomous developments of maritime shipping

Maritime European trade will become more important by 2020. The European models SCENES and REMOVE take an annual growth of 2.5% into account. This means that by 2020, there will be 65% more maritime transport than in the year 2000⁸. The major part of European maritime transport is SSS (short sea shipping)⁹. It accounts for 63% of European seaborne transport¹⁰, this means more than 1.6 billion tonnes of transported goods.

Figure 2: Evolution in world container traffic forecast



⁸ The growth in global maritime trade is expected to be much more prominent. The Office of naval intelligence and the US coast guard intelligence coordination center foresee a tripling in maritime world trade between 2000 and 2020. The ECSA (European community ship owners association) forecasts an annually growth of 4.3% between 2000 and 2006. A continued growth of 4.3% until 2020 means that the 2020 volume will reach 2.3 times the 2000 volume. The growth is especially born by the further integration in the world economy of far-east and south-east countries like China and India

⁹ Short Sea Shipping deals with the transport of goods between an EU-port on the one hand and ports situated in geographical Europe, on the Mediterranean and on the Black Sea.

¹⁰ These are EU15 figures based on EUROSTAT, statistics in focus (February 2005)

The most explosive growth in maritime transport will be in the container shipping industry. This is illustrated by Figure 2 (IAPH, 2002) for world wide maritime container transport for a high growth and a low growth scenario. An explosive growth in container transport can also be observed in SSS container transport in EU15 from Eurostat statistics. Between 2000 and 2003, SSS container transport grew with an average annual growth of 10,5%. If such an annual growth continues until 2020, the 2020 volumes will be six times the 2000 volumes. On the other hand, container transport only accounted for 10% of total European SSS traffic in 2003. If actual growth rates persists however, the container share in SSS will account for more than 40 % of SSS in 2020.

The trend will be towards larger ships carrying more containers in the container shipping industry especially on the global sea routes. The volume of cargo and size of ships will require ports to expand their infrastructure and deepen their channels to remain competitive.¹¹

Another interesting development concerning maritime transport is the doubling of the European fleet with the accession of Malta and Cyprus. Especially concerning the number of ships, the impact is tremendous. This means that in the future Europe will be an important player in the world maritime fleet.

Table 2 illustrates this. The European Union member countries are indicated in bold. Number and tonnage are given for different ship categories.

Table 2: Top 20 Merchant Fleet of the World Self-Propelled Ocean-going Vessels 1,000 Gross Tons and Greater As of July 1, 2004 (Tonnage in Thousands)

Flag of Registry	Tanker		Dry Bulk		Full Container		Other**		Total	
	No.	DWT	No.	DWT	No.	DWT	No.	DWT	No.	DWT
Panama*	1,134	58,382	1,503	94,482	587	20,803	1,598	13,497	4,822	187,164
Liberia*	572	46,084	311	18,876	398	13,818	196	3,043	1,477	81,821
Greece	301	32,032	295	19,781	43	2,116	91	513	730	54,442
Bahamas*	249	26,362	183	10,085	70	2,042	477	5,024	979	43,513
Hong Kong*	124	9,864	402	23,775	91	3,086	116	2,119	733	38,844
Malta*	243	14,841	445	19,011	57	1,296	427	3,651	1,172	38,798
Singapore	445	19,834	134	10,187	177	4,616	130	2,206	886	36,843
Cyprus	142	7,070	396	20,684	120	3,286	317	3,245	975	34,285
Marshall Islands*	231	24,606	80	5,480	78	1,734	67	1,449	456	33,269
China	300	5,088	351	12,499	130	2,683	776	6,220	1,557	26,490
Norway (NIS)*	285	13,000	77	6,963	4	80	209	3,165	575	23,207
United States	104	5,618	20	837	84	3,257	204	3,322	412	13,035
Japan	233	5,940	140	4,628	13	469	169	833	555	11,871
India	118	7,549	88	3,401	7	131	73	282	286	11,363
Isle of Man*	136	7,623	23	2,175	14	238	73	568	246	10,604
United Kingdom	87	2,078	16	1,527	135	5,580	140	1,185	378	10,369
Italy	235	5,300	36	2,613	19	640	148	1,644	438	10,197
Korea (South)	160	1,783	105	6,139	58	892	207	1,048	530	9,861
Denmark (DIS)	76	3,648	2	76	81	4,984	85	325	244	9,034
Iran	34	6,096	40	1,773	10	285	39	673	123	8,827
Top 20 Flag	5,209	302,798	4,647	264,994	2,176	72,034	5,542	54,010	17,574	693,837
All Other	2,295	50,402	1,212	45,094	921	21,170	6,973	38,084	11,461	154,749
Grand Total	7,504	353,200	5,859	310,088	3,097	93,204	12,515	92,094	29,035	848,586

Source: Lloyd's Register Fairplay

¹¹ The energy needs of a ship increase faster with increasing speed than for heavy duty vehicles or trains. A first measure to improve the environmental performance of maritime transport has been taken with the low sulphur directive (see further in this annex, chapter XV.9).

Bibliography

- Commission staff working paper, Extended impact assessment of the proposal amending the amended proposal for a decision amending Decision No 1692/96/EC on the Trans-European transport network (COM(2003)564, October 2003)
- Commission staff working paper, Annex to the Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions on Short Sea Shipping, (COM(2004)453final, July 2004)
- Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions on Short Sea Shipping, (COM(2004)875final, July 2004)
- Communication from the Commission to the European Parliament and the Council – A European strategy to reduce atmospheric emissions from sea going ships (COM 2002/0595)
- EC DGTREN, the trans-European transport network: new guidelines and financial rules, October 2003
- EUROSTAT, Statistics in focus Transport, Short Sea Shipping 2000-2003, February 2005
- ISIS, Identification of indicators to assess the Implementation of the White Paper on European Transport Policy, September 2004
- Molocchi A (Friends of the Earth), Evidence on the environmental costs and benefits of the Italian Motorways of the Sea, April 2005
- OECD Maritime Transport Committee, Security in Maritime Transport: Risk factors and economic impact, July 2003
- Office of naval intelligence and US coast guard intelligence coordination center, Threats and challenges to maritime security 2020, March 1999.
- REALISE Thematic Network under the Competitive and Sustainable Growth Programme, WP3 environmental impact analysis, January 2005
- Satoshi Inoue (IAPH), Maritime Transport Committee, OECD, Port as Indispensable Partner of Maritime Transport, July 2002
- Spin-HSV, 5 th FW programme project, deliverables 1.5 and 5.5, (www.spin.mettle.org), January 2005
- TEN Invest, Final Report, Planco Consulting GmbH, 2003