



BMT Transport Solutions



SIR-C Swedish Intermodal Transport
Research Centre

Development of Swedish bases for decision-making and ranking of terminal solutions within the TEN and Motorways of the Sea (MOS) programmes

WP1 - Background and definition of “Motorways of the Sea”

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Contents:

1	SUMMARY	3
2	INTRODUCTION AND PURPOSE	4
3	EVOLUTION OF THE TERM “MOTORWAYS OF THE SEA”	5
3.1	OVERALL AIM OF EUROPEAN TRANSPORT POLICY	5
3.2	WHITE PAPER ON TRANSPORT 2001	6
3.3	PREPARATORY RESEARCH ON MOTORWAYS OF THE SEA (FROM 2003)	6
3.4	MOTORWAYS OF THE SEA AS PART OF TEN-T (2004).....	7
3.5	VADEMECUM (2005)	10
4	MOTORWAYS OF THE SEA IN PRACTISE (STATUS 2007)	12
4.1	JOINT CALLS BY MEMBER STATES	12
4.2	REQUIREMENTS FOR MOTORWAYS OF THE SEA PROJECTS WITHIN THE TEN-T PROGRAMME 12	
4.3	PERFORMANCE PARAMETERS OF MOTORWAYS OF THE SEA LINKS	13
5	CONCLUSIONS	15

1 Summary

The term “Motorways of the Sea” has been broadly used in a number of publications and presentations by EU officials, other policy representatives, the industry and the researchers’ community. While generally this term is used to emphasise the overall goals of European transport policy, including a rebalancing of modal split, improved cohesion and sustainable development through supporting the Short Sea Shipping sector, it has also developed into a concrete priority project within the TEN-T networks.

Nowadays being part of the TEN-T network programme has however limited the focus of the Motorways of the Sea to just being an infrastructure start-up aid for capital costs. This means that there is a clear discrepancy between all the policy goals associated with the Motorways of the Sea and the today’s focus on land infrastructure subsidies.

The Member states are asked to prepare joint Motorways of the Sea applications in a bi-national or transnational co-operation. Recently, Sweden and Germany’s Joint Call as well as the Joint Call in the North Sea region are under preparation in Northern Europe.

The definitions of Motorways of the Sea remain vague. Parameters and set-up of such links are not clearly defined. Also their geographical location is only vaguely described on the EU Commission’s maps.

Questionable is if the Motorways of the Sea initiative is able to fill the gap of the still undefined and undecided ranking of ports within the TEN-T network. While the TEN-T network consists of a well defined transnational network of road and rail links, neither intermodal terminals nor ports or port terminals have yet sufficiently been associated to these land networks.

There is a risk that the Motorways of the Sea projects will become a non harmonised bunch of single measures. They might improve the competitiveness of Short Sea Transport in the corridors concerned, but they will not form a coherent scheme of a consistent prioritised European transport network which includes the maritime transport. Without proper definitions of what a Motorways of the Sea is and is not, there is room for a different interpretation through the individual interest of the member states that apply for funding.

2 Introduction and purpose

The purpose of the report is to provide information about what the term “Motorways of the Sea” stands for and how it has developed.

The findings of this report are based on desk research. The report is meant as the introduction part for the MOS-Criteria study within the SIR-C framework.

BMT Transport Solutions GmbH (BMT-TS) has carried out the study based on existing in-house experiences and knowledge, and by using third party sources.

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The study was compiled by Ralf Fiedler.

3 Evolution of the term “Motorways of the Sea”

3.1 Overall aim of European transport policy

The overall aim of Europe's transport policy is to ensure that the range of policy choices are mutually reinforcing so that actions promoting competitiveness, economic growth, and economic and social cohesion do not conflict with the overall aim of fostering a sustainable development and of maintaining a healthy environment. The economic growth, the eastwards extension of the European Union, and the increasing globalisation of production have all contributed to a massive growth of European transport activities (more than 30% between 1995 and 2004).

This growth of transport activities has not been matched by an extension of the land-based transport infrastructure, leading to a decreasing transport service quality and a negative impact on European citizens' quality of life due to increasing congestion, accidents, noise and pollution. This development underlines the need for better integrated intermodal transport solutions as expressed in the Commission's transport White Paper of 2001¹. The political challenge is to steer the development towards a more sustainable transport system without undue interference with the market mechanism.

Political initiatives to steer the modal shift are nothing new and have been carried out by the Commission and in a number of member states and also on regional levels long before the Motorways of the Sea initiative emerged. One example is the “Road-to-Sea” initiative by the German government from the late 90s.

The EU Commission has tried through a number of programmes to influence the modal split towards more sustainable transport modes. The range of measures includes support for RTD –projects within the framework programmes, support of operations through programmes like PACT² and Marco Polo³, the financial support for infrastructure through the TEN-T programme and promotion initiatives like the Short Sea Shipping Promotion Centres.

However, it is recognised that the EU transport policy has so far achieved only a limited success regarding its aim of stimulating the growth of intermodal transport. While short sea shipping has roughly grown at the same rate as overall transport activities, the growth of rail and inland waterways transport, for example, has been at a lesser rate, which means a relative loss of market share.

In general all political initiatives to influence the modal split are reasoned by the following goals:

- Minimise the negative effects of transport
- Reduce emissions
- Increase efficiency
- Improve cohesion

¹ http://ec.europa.eu/transport/white_paper/index_en.htm

² http://ec.europa.eu/transport/marcopolo/pact/index_en.htm

³ http://ec.europa.eu/transport/marcopolo/2/index_en.htm

3.2 White Paper on Transport 2001

For the first time in a public document by the Commission the term “Motorways of the Sea” was used in the White Paper on Transport in the fall of 2001. Such “Motorways of the Sea” should become a “real competitive alternative to land transport.”⁴

*Intra-Community maritime transport and inland waterway transport are two key components of intermodality which must provide a means of coping with the growing congestion of road and rail infrastructure and of tackling air pollution. Up until now these two modes have been underused, even though the Community has huge potential (35 000 km of coastline and hundreds of sea and river ports) and virtually unlimited transport capacity. The way to revive them is to build **motorways of the sea** and offer efficient, simplified services. To help to establish this trans-European shipping network, priority should be given at national level to ports which have good connections to the inland network, particularly along the Atlantic and Mediterranean coasts, and which could form part of an authentic logistics chain.*⁵

In the White Paper the Motorways of the Sea were connected to the Trans-European network (TEN-T). TEN-T however is dedicated to infrastructure – not to operations.

3.3 Preparatory research on Motorways of the Sea (from 2003)

The EU Commission has financed and co-financed a number of research and consulting studies to investigate the likely potential for Motorways of the Sea and overall transport trends in maritime transport in the Union.

These studies include the Baltic Maritime Outlook⁶, a transport demand potential assessments by BMT Transport Solutions GmbH in two phases, a study about Portugal (PORTMOS) as well as one for the Atlantic Arc and the Eastern Mediterranean.⁷ Also a number of projects within the EU Intereg programme researched maritime transport related areas.⁸

⁴ COM(2001) 370 WHITE PAPER - European transport policy for 2010: time to decide, Brussels, 12.9.2001

⁵ Some of the statements written in the White Paper are possibly disputable, such as capacity restrictions do apply for Short Sea transport also (available frequency of services, port handling capacities, capacities of fairways, capacity of hinterland links.) Also the emission balance of maritime transport is not per se better than of land transport modes

⁶

http://ec.europa.eu/transport/intermodality/motorways_sea/doc/potential/2006_03_baltic_maritime_outlook.pdf

⁷ http://ec.europa.eu/transport/intermodality/motorways_sea/doc/potential/2006_05_good_flows.pdf

⁸

http://ec.europa.eu/transport/intermodality/motorways_sea/doc/projects/2006_06_09_inventaire_intereg.pdf

3.4 Motorways of the sea as part of Ten-T (2004)

In many publications, also from the Commission, the term “Motorways of the Sea” is closely associated to terms like “intermodal maritime-based logistics chains” and “integrated transport chain”⁹.

*The creation of Motorways of the Sea does not disregard the fact that hundreds and hundreds of regular Short Sea Shipping links already exist in Europe. Nevertheless, what these Motorways of the Sea can offer, is a comprehensive framework for cooperation between public and private parties to create high-quality door-to-door transport links, with Short Sea Shipping in the key role. Motorways of the Sea also offer an excellent opportunity to better link logistics with infrastructure.*¹⁰

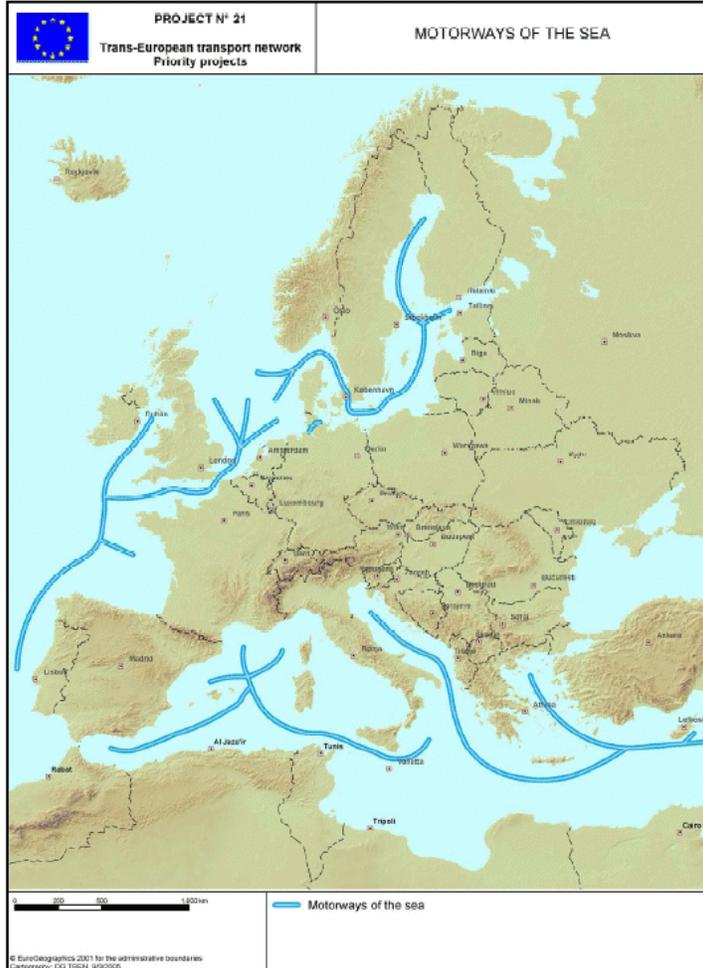
The Motorways of the Sea are however one of the 30 priority axes and projects of the TEN-T programme since the 2004 revision of the guidelines for the Trans-European Transport Networks (TEN-T). It included the development of four roughly defined Motorways of the Sea corridors as one of 30 priority projects, which will receive the largest parts of EU funding under TEN-T.

1. Railway axis Berlin–Verona/Milan–Bologna–Naples–Messina–Palermo
2. High-speed railway axis Paris–Brussels–Cologne–Amsterdam–London
3. High-speed railway axis of south-west Europe
4. High-speed railway axis east
5. Betuwe line
6. Railway axis Lyons–Trieste–Divaca/ Koper–Divaca–Ljubljana–Budapest – Ukrainian border
7. Motorway axis Igoumenitsa/Patras–Athens–Sofia–Budapest
8. Multimodal axis Portugal/Spain–rest of Europe
9. Railway axis Cork–Dublin–Belfast–Stranraer
10. Malpensa airport
11. Øresund fixed link
12. Nordic triangle railway/road axis
13. United Kingdom/Ireland/Benelux road axis
14. West coast main line
15. Galileo
16. Freight railway axis Sines/Algeciras–Madrid–Paris
17. Railway axis Paris–Strasbourg–Stuttgart–Vienna–Bratislava
18. Rhine/Meuse–Main–Danube inland waterway axis
19. High-speed rail interoperability on the Iberian peninsula
20. Fehmarn belt railway axis
21. Motorways of the sea
22. Railway axis Athens–Sofia–Budapest–Vienna–Prague– Nuremberg/Dresden
23. Railway axis Gdansk–Warsaw–Brno/Bratislava–Vienna
24. Railway axis Lyons/Genoa–Basle–Duisburg–Rotterdam/Antwerp
25. Motorway axis Gdansk–Brno/Bratislava–Vienna
26. Railway/road axis Ireland/United Kingdom/continental Europe
27. ‘Rail Baltica’ axis Warsaw–Kaunas–Riga–Tallinn–Helsinki
28. ‘Eurocaprail’ on the Brussels–Luxembourg–Strasbourg railway axis
29. Railway axis of the Ionian/Adriatic intermodal corridor
30. Inland waterway Seine–Scheldt

⁹ Commission’s web-site over Motorways of the Sea

¹⁰ Arnaud Revel, DG Tren, European Commission, Presentation in Stockholm 21.04.05

Figure 1: Motorways of the Sea as a TEN-T priority project



Article 12a of the TEN-T programme formulates three main objectives for the sea motorways projects:

- freight flow concentration on sea-based logistical routes;
- increasing cohesion;
- reducing road congestion through modal shift.

Funding for Ten-T projects is in maximum 20% from Ten-T means. Studies can be financed with a maximum 50%. The EU Commission has recently issued a proposal to increase the maximum subsidy level up to 30%.

Four roughly defined locations of Motorways of the Sea have been defined:

- Motorway of the Baltic Sea (linking the Baltic Sea Member States with Member States in Central and Western Europe, including the route through the North Sea/Baltic Sea canal);
- Motorway of the Sea of western Europe (leading from Portugal and Spain via the Atlantic Arc to the North Sea and the Irish Sea);
- Motorway of the Sea of south-east Europe (connecting the Adriatic Sea to the Ionian Sea and the Eastern Mediterranean, including Cyprus);
- Motorway of the Sea of south-west Europe (western Mediterranean, connecting Spain, France, Italy and including Malta and linking with the Motorway of the Sea of south-east Europe and including links to the Black Sea).

3.5 Vademecum (2005)

A Vademecum¹¹ was issued in conjunction with the launch of the 2005 call for the selection procedure. Its aim was to explain and inform about the requirements for applying for funding for Motorways of the Sea projects within the meaning of Article 12a TEN-T Guidelines.³ It also lays down the necessary information to be submitted, which will allow the Commission to evaluate such projects. This document was for guidance and information only. However, the Vademecum does not restrict the term “Motorways of the Sea projects” to Ten-T (see table hereunder). According to the Vademecum, MOS projects might receive funding from different sources, from Ten-T programmes, Marco Polo, ERDF, Cohesion fund and state aid.

Table 1: Funding possibilities for Motorways of the sea projects according to the Vademecum

	TEN-T Guidelines	Marco Polo	ERDF	INTERREG	Cohesion fund	State Aid
Applicant	Member State	Companies	MS/Regions	MS/Regions	Member States	Companies
Funding focuses on	Infrastructure Start-up aid for capital costs	Start-up aid for services and “ancillary” infrastructures	Large-scale infrastructure and related equipments	Large-scale infrastructure and related equipments	Large-scale infrastructure (more than 10 million EUR) + related studies;	Infrastructure Equipment Services
Objective of programme	Modal shift – cohesion	Modal shift	Regional development	Cross border, trans-national and interregional cooperation	Cohesion between MS with the help of actions in transport and environment	Development of short sea shipping and intermodal transport
Funding intensity	max. 20% for projects; 50% for studies	Up to 35%	Up to 85% in ultraperipheral regions; 80% in cohesion MS; 75% in Obj. 1 regions; 50% in Obj. 2 regions	Up to 85% in ultraperipheral regions; up to 75% in Obj. 1 regions; 50% in the other regions	Up to 80% of public costs (85% for ultraperipheral regions); up to 100% for studies	30% for services and 10% for transshipment equipment External cost differential
Duration	Until 2010 – 2 years for start up	Max. 4 years	No formal limit, in practice 2 years	No formal limit, in practice 2 years	No formal limit	Max.3 years
Further information	http://europa.eu.int/comm/ten/index_en.html ;	http://europa.eu.int/comm/transport/marcopolo/index_en.htm	http://europa.eu.int/comm/regional_policy/funds/prord/prod_en.htm ;	http://europa.eu.int/comm/regional_policy/interreg3/index_en.htm ;	http://europa.eu.int/comm/regional_policy/funds/procf/cf_en.htm	http://europa.eu.int/comm/transport/intermodality/state-aid/index_en.htm

¹¹

http://ec.europa.eu/transport/intermodality/motorways_sea/doc/2005_03_21_projects_call2005_en.pdf

Given these many possibilities for financing it has however to be taken into account, that the term Motorways of the Sea has only found its entrance into the TEN-T programme as a dedicated measure. Any project might call itself a Motorway of the Sea project, in that sense this expression will however be rather a buzzword and not a defined measure within a programme.

4 Motorways of the sea in practise (status 2007)

In point 4 of Article 12a of the TEN-T guidelines (see Annex 1) it is stated, that any aid from the EU requires first the member states to organise a tendering process to pre-select potential candidates for EU support.

Some countries have already jointly carried out such tendering processes; some are currently in the process of doing so.

4.1 Joint calls by Member states

- Joint call of Germany and Finland (2006)
- Joint call of Germany and Sweden (2006/2007)
- Joint call of France and Spain (2007)
- Joint call for Motorways of the Sea project proposals in the North Sea region (2007), Participating countries: Netherlands, Belgium, Denmark, Germany, Sweden, UK and Norway (supporting role)

The latter calls are meant to be the predatory work of the member states before the EU Commission call in December is launched.

What happens within these calls is that ports in at least two member states join together to build an application for a Motorway of the Sea link. These applications may include more actors than just the ports. Within the first call between Finland and Germany, however the case was that competing ports (e.g. Rostock-Turku and Lübeck-Hanko) issued competing applications. That proves the difficulties in achieving a coherent selection of ports in a fiercely competing environment.

4.2 Requirements for Motorways of the Sea projects within the TEN-T programme

The following infrastructure is eligible for support:

- Infrastructure for direct land access and sea access to ports
- Port infrastructure
- IT-based systems for logistics and traffic management
- Facilities for icebreaking and dredging
- Feasibility studies about the above issues

Requirements for Motorways of the Sea projects are defined as

- Common European interest
- Participation by a minimum of two EU member states
- Included ports should be TEN-T Sea Ports Category A
- Public-Private-Partnership welcome
- The aid should not lead to distortions of competition

4.3 Performance parameters of Motorways of the Sea links

Quality criteria or performance parameters for the Motorways of the Sea are not clearly defined in any official EU paper. E.g. frequency and quality as such is often quoted as being an important factor for improving existing links or creating new links, however a proper definition of a minimum standard is not provided.

Frequency

Official papers speak of “high frequency”, without defining it further. Informally, however a frequency of at least one departure per day has been often used in studies to estimate the potential for MOS links.

Speed

Concerning the speed also no clear definition is available. The Commission, however has expressed its concerns about the poor environmental balances of high speed vessels.

Capacity

There are no indications in the official documents about any capacity requirements of a Motorway of the Sea link. Since one goal of this initiative is the concentration of cargo flow in order to be able to supply high frequencies, capacities of the services/vessels should be large.

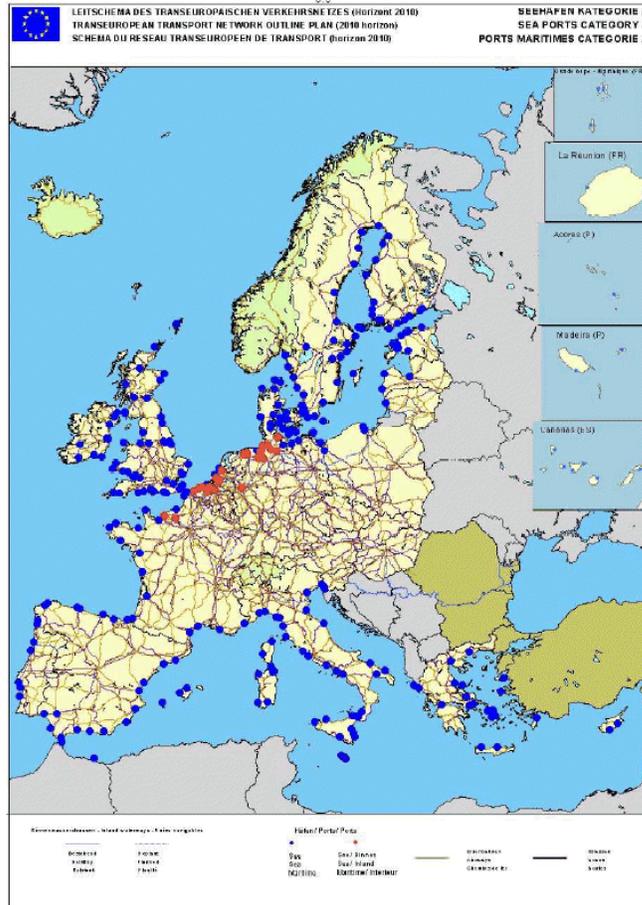
LoLo or RoRo

There is no indication in the official documents, if a Motorway of the Sea should be LoLo or RoRo. In some presentations the Commission raises concerns about the freight density on RoRo vessels, however both transport systems can be Motorways of the Sea.

Dimension of ports

It is clearly stated that ports should be TEN-T ports of the A classification, meaning they have an annual volume of 1,5 million tonnes (this volume is not defined if it is unitised cargo or not)

Figure 2: TEN-T Ports category A (2003)



5 Conclusions

The term “Motorways of the Sea” has been broadly used in a number of publications and presentations. While this term is generally used to emphasise the overall goals of European transport policy, including a rebalancing of modal split, improved cohesion and sustainable development, it has also developed into a concrete issue of the TEN-T networks. This evolution of the concept leads to consequences which disclose problematic inconsistencies within the programme.

- Vessel investments and operations excluded

Since this initiative has been grouped into the TEN-T programme, the operation and the investment costs of vessels are excluded from the funding. This means that the core element of a maritime chain is not part of the programme. However, any proposal for a MOS link must reasonably include an operator who is providing that core element of the maritime chain. Proposals without any shipping lines expressing their participation or support do not have a chance of receiving support.

- Port and hinterland infrastructure focus

Even though the concept of the Motorways of the Sea is often understood as a platform for further cooperation in areas of wider benefit, however in reality it is restricted to port and hinterland infrastructure.

- Co-operation of port regions

The port-to-port projects are in the process of being identified and developed (Member States initiatives). The vision of the Commission to possibly have a co-operation of whole port regions within one country neglects the fierce competition between ports. Often competing links close to each other are proposed by different applicants.

- Co-operation of member states

The Motorways of the Sea concept supports the co-operation on maritime policies and infrastructure planning between EU member states. Even though member states might favour different ports to link their own ports with, they have to agree on a common finding in the end. However, it is unclear how many MOS projects one member state can apply for with the Commission. Some countries, e.g. Sweden, Germany and Denmark are present in different calls (Baltic Sea and North Sea).

- Freight flow concentration may distort of competition

According to Article 12a TEN-T one of the three main goals of the Motorways of the Sea is a concentration of freight flows. This concentration might be necessary to be able to supply high frequent services. However, a concentration of freight flows means less competition in the market. There is a clear contradiction that any financial support by the EU Commission must not lead to a distortion of competition.

The conclusion is, that there is a clear discrepancy between all the policy goals associated with the Motorways of the Sea and the limited focus on infrastructure subsidies. Important elements of Motorways of the Sea, the sea transport itself, meaning the vessel infrastructure and its operation is not part of the funding scheme. The thesis seems to be, that through investment into port and hinterland infrastructure one could at least support the existence of intermodal door-to-door maritime transport chains.

The Motorways of the Sea initiative does not seem to be able to fill the gap of the yet undefined and undecided ranking of ports within the TEN-T network. While the TEN-T network consists of a well defined transnational network of road and rail links, neither intermodal terminals nor ports or port terminals have sufficiently been associated to these land network corridors.

There is a risk that the Motorways of the Sea projects will become a non harmonised bunch of isolated measures. They might improve the competitiveness of Short Sea Transport in the corridors concerned, but they will not form a coherent scheme of a consistent prioritised European transport network which includes the maritime transport. While proper definitions are missing, Motorways of the Sea will be interpreted differently through the individual interest of the member states applying for funding.

Annex 1

Article 12a of the TEN-T guidelines (highlighting of text segments by the author)

Article 12a

Motorways of the sea

1. The trans-European network of motorways of the sea is intended to concentrate flows of freight on sea-based logistical routes in such a way as to improve existing maritime links or to establish new viable, regular and frequent maritime links for the transport of goods between Member States so as to reduce road congestion and/or improve access to peripheral and island regions and States. Motorways of the sea should not exclude the combined transport of persons and goods, provided that freight is predominant.

2. The trans-European network of motorways of the sea shall consist of facilities and infrastructure concerning at least two ports in two different Member States. The facilities and infrastructure shall include elements, in at least one Member State, such as the port facilities, electronic logistics management systems, safety and security and administrative and customs procedures, as well as infrastructure for direct land and sea access, including ways of ensuring year-round navigability, in particular the availability of facilities for dredging and ice breakers for winter access.

3. Waterways or canals, as identified in Annex I, which link two European motorways of the sea, or two sections thereof, and make a substantial contribution to shortening sea routes, increasing efficiency and saving shipping time shall form part of the trans-European network of motorways of the sea.

4. The projects of common interest of the trans-European network of motorways of the sea shall be proposed by at least two Member States and shall be geared to actual needs. The projects proposed shall in general involve both the public and private sectors in accordance with procedures which, before aid granted from the national budgets can be supplemented, if necessary, by aid from the Community, provide for a tendering process in one of the following forms:

(a) a public call for tenders organised jointly by the Member States concerned, intended to establish new links from the category A port, as defined in Article 12(2), which they select in advance within each sea area, as referred to in project No 21 in Annex III;

(b) in so far as the location of the ports is comparable, a public call for tenders organised jointly by the Member States concerned and targeting consortia bringing together at least shipping companies and ports located in one of the sea areas, as referred to in project No 21 in Annex III.

5. The projects of common interest of the trans-European network of motorways of the sea:

– shall focus on the facilities and infrastructure which make up the network of motorways of the sea,

– may include, without prejudice to Articles 87 and 88 of the Treaty, start-up aid if, as a result of the tendering process referred to in paragraph 4, public support is deemed necessary for the financial viability of the project. Start-up aid shall be limited to two years and shall be granted only in support of duly justified capital costs. The aid may not exceed the minimum estimated amount required to start up the links concerned.

The aid may not lead to distortions of competition in the relevant markets contrary to the common interest,

– may also include activities which have wider benefits and are not linked to specific ports, such as making available facilities for ice-breaking and dredging operations, as well as information systems, including traffic management and electronic reporting systems.

6. The Commission shall, within three years, submit to the Committee referred to in Article 18 an initial list of specific projects of common interest, thereby putting the concept of the motorways of the sea into concrete form. This list shall also be communicated to the European Parliament.

7. The projects of common interest of the trans-European network of motorways of the sea shall be submitted to the Commission for approval.

References

Bundesministerium für Verkehr, Bau und Stadtentwicklung (2006) Mitteilung über eine Aufforderung zur Einreichung von Vorschlägen für Meeresautobahn-Vorhaben im Ostseeraum

Department for Transport (2007) Notification of a Joint Call for proposals for Motorways of the Sea projects in the North Sea Region, London

European Commission (1990) Towards Trans-European Networks: for a community action plan, Brussels, Dec 10th (COM(90), final).

European Commission (2001) WHITE PAPER "European transport policy for 2010 : time to decide", Brussels

European Commission (2007) The MARCO POLO II Programme; http://ec.europa.eu/transport/marcopolo/2/index_en.htm

European Commission Inventory INTERREG (2000-2006) of maritime and logistics projects, Brussels

European Commission (2005) Vademecum - issued in conjunction with the call for proposals TEN-T 2005, Brussels

European Commission (2005) Article 12a of the TEN-T guidelines, Brussels

Fiedler, R., Cardebring, P. W., Poersch, R. and Fischer, D. (2006) Desk study on goods flows in Europe for a pre-definition of Motorways of the Sea (MOS), BMT Transport Solutions GmbH, Hamburg.

Revel, A., (2005) DG Tren, European Commission, Presentation in Stockholm 21.04.05

SAI Institute of Shipping Analysis, BMT Transport Solutions GmbH, Centre for Maritime Studies, (2005) Baltic Maritime Outlook Gothenburg, Hamburg, Turku