



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

WP3 – Selection of potential MOS
links

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1 Introduction and purpose

The purpose of the report is to select the potential Motorways of the Sea links between Sweden and other EU-member states that will be simulated in WP 5 regarding their potential impact onto the Swedish intermodal network.

The findings of this report are based on desk research. The report is part of 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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This part of the study was compiled by Ralf Fiedler.

2 Selection and settings of MOS links

If all links between the pre-selected ports (see WP 2 report) would be simulated, this would result in a matrix of 10 Swedish ports multiplied with 9 continental ports, meaning 90 links.

Individually simulated, each of these links would result in individual impacts onto the Swedish inland intermodal system. While for some links, the impacts would be quite similar, for others there might be a striking difference.

It is very difficult to define in advance, if the future scenarios are that e.g. only one MOS link, or two or maybe all MOS links will be implemented in the forecast year.

For the scope of this study to assess any impact of MOS links onto the Swedish terminal system proper and likely scenarios have to be defined.

As previous transport potential simulation studies indicate, the impacts of simulated links, which are close to each other (e.g. parallel links between ports of the same port region) have a comparable potential since they would serve the same hinterlands and would have the same transfer costs and comparable link costs. This is even more the case for links which attract volumes with a high average transport distance. The average transport distance between Sweden and Germany is app. 1.500 km. This means that on such long distance links a number of route and modal choices exist, which are of comparable distance and time dependent costs.

Some of the individual MOS links can be merged/ substituted by each other within the simulations.

2.1 Basic settings of Motorways of the sea link in the simulation

Motorways of the Sea can be both improvements of existing links as well as new short sea connections.

The basic settings of Motorways of the Sea links within the simulation are defined as follows;

- It can be either a truck ferry link (RoRo) and a container link (LoLo) in both directions.
- It has a frequency of one departure per day.
- The simulated MOS link has the same purchaser cost as the existing RoRo resp. LoLo links. (There are no subsidies on operations)
- The transfer costs in the ports are the same as for the existing links. (Despite that the MOS programme is the support for land based infrastructure of 20% to maybe 30%, it cannot be assumed that transfer between the transport modes gets any cheaper for the final customer because of that)
- For the RoRo MOS link the standard size vessel has 1.800 lane-metres
- For the LoLo MOS link a standard size vessel has 1000 TEU.
- The nautical distance between the ports determines the capacity on the MOS links, because different lengths require a different number of vessels to sustain a daily departure schedule.

2.2 Selection of links

Between the 6 Swedish ports and the 9 European ports and port regions different Short Sea traffic patterns already exist.

Generally, RoRo and LoLo services are quite different in terms of frequency and speed. In almost all cases RoRo service are much more frequent than LoLo, offering at least one departure per day.

By the nature of their linear port calling scheme, LoLo service are less frequent: Even on major routes the frequency might be in the range of 1 to 2 times per week.

So the assessment, if frequent and regular services already exist between the ports in question, has to be quite indicative;

The following frequency classes have been defined:

Table 1: Frequency classes

| Frequency per day per direction | Class |
|---------------------------------|------------|
| More than twice | Very dense |
| Once | dense |
| At least every second day | medium |
| Less than every second day | low |

Table 2: Density of existing Short Sea links between Swedish and European ports

| | Port Region West-Sweden | Port Region Skåne | Port Region Stockholm/Ö. Mellansverige | Port Region Blekinge |
|--|-------------------------|-------------------|--|----------------------|
| Port Region German Baltic Sea | very dense | very dense | low | low |
| Port Region German North Sea | medium | medium | medium | medium |
| Port Region Southern Finland | medium | low | very dense | low |
| Port Region Benelux | dense | low | low | low |
| Port Region Western UK | medium | low | low | low |
| Port Region Ireland and Northern Ireland | low | low | low | low |
| Port Region Jutland | very dense | low | medium | low |
| Tallinn | low | low | very dense | dense |
| Gdynia | medium | low | dense | very dense |

Table 3: Dominating type of Short Sea transport system where at least a medium frequency exists

| | Port Region West-Sweden | Port Region Skåne | Port Region Stockholm/Ö. Mellansverige | Port Region Blekinge |
|--|-------------------------|-------------------|--|----------------------|
| Port Region German Baltic Sea | RoRo | RoRo | | |
| Port Region German North Sea | LoLo | LoLo | LoLo | LoLo |
| Port Region Southern Finland | LoLo | LoLo | RoRo | |
| Port Region Benelux | RoRo/LoLo | | | |
| Port Region Western UK and Port Region Ireland and Northern Ireland (via UK) | LoLo | | | |
| Port Region Jutland | RoRo/LoLo | | LoLo | |
| Tallinn | | | RoRo | |
| Gdynia | LoLo | | RoRo/LoLo | RoRo |

For defining simulation scenarios it is advisable to neglect all those existing links, which have already a frequency of more than one departure per week (minimum requirement of a MOS link). An insertion of an MOS link there, e.g. between Trelleborg and the Port Region German Baltic Sea will not add much more volumes to that corridor, because the frequency there is already 14 departures/day.

3 Definition of Scenarios

The following scenarios are defined that will be tested regarding their impact onto the transport work in Sweden. Time horizon will be the year 2012.

3.1 Base Scenario 2012

This scenario will not include any additional or improved MOS links. It serves as the benchmark base scenario. The transport demand volume is the forecast 2012 demand matrix for unitisable cargo based on a BMT transport forecast. It excludes all bulk commodities.

3.2 Scenario Maximum MOS

In this scenario, the following MOS links (under the previously described settings) are inserted into the multi-modal network:

Table 4: MOS links for the Maximum MOS Scenario (marked with an x)

| | Port Region West-Sweden | Port Region Skåne | Port Region Stockholm/Ö. Mellansverige | Port Region Blekinge |
|--|-------------------------|-------------------|--|----------------------|
| Port Region German Baltic Sea | | | | X |
| Port Region German North Sea | | | | |
| Port Region Southern Finland | | | | |
| Port Region Benelux | | | | |
| Port Region Western UK and Port Region Ireland and Northern Ireland (via UK) | | X | | |
| Port Region Jutland | | | X | |
| Tallinn | X | | | |
| Gdynia | | X | | |

The selection follows two main considerations;

- a) Low frequencies today
- b) Reasonable geographic directions, meaning, with few exceptions only western Swedish regions are linked to western destination, while eastern Swedish regions are linked to Eastern destination, to avoid large detour factors in sea transport.

3.3 Realistic Scenarios MOS

In this Scenario, a limited number of MOS links is simulated. The selection of links will be based on the results of the simulation in the maximum MOS scenario.

3.4 Cohesion scenario MOS

Beside modal shift, cohesion is another important aspect for the MOS links. In the methodology chosen in this study, the selection of ports and links has been oriented towards traffic volumes and potential modal shift.

To be able also to provide an assessment on the cohesion aspect, the Swedish port region Botnia with the ports Luleå and Umeå is added to the simulation scheme.

Links from that region to the Port Region German Baltic Sea and Gdynia are simulated.

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