



Ecotraffic
RESEARCH & DEVELOPMENT AB



Rapport 3/2001

Measures and actions in regional policies for energy saving

A report from Phase 3 of the European Commission
SAVE -project XVII/4.1031/Z/97-229:
“Energy saving in transport of goods – a pilot project in rural natural resource
based industries”

By
Otto Andersen¹, Ulla Suutari², Hans Hjortsberg³, Kyrre Groven¹ and Eivind Brendehaug¹

¹Western Norway Research Institute

²VTT - Finland

³Ecotraffic R&D AB - Sweden

WNRI Report

Title: Measures and actions in regional policies for energy saving.	Report number: 3/2001
	Date: March 2001
	Grading: Open
Project title: Energy saving in transport of goods – a pilot project in rural natural resource based industries.	Number of pages: 79
Researchers: Otto Andersen, Kyrre Groven, Eivind Brendehaug, Ulla Suutari, Hans Hjortsberg, Antti Permala, Bengt Sävbark and Karl G. Høyer	Project responsible: Karl G. Høyer
Financed by: European Commission DG XVII	Subject heading: energy saving, goods transport, measures and actions
Summary: <p>This report presents the results from a pilot action project on energy saving in transport of goods in three Nordic countries. The main object of the project is to develop and implement actions, strategies and measures for improved energy efficiency in transport of goods. The project uses 3 cases of natural resource based industries, one from each of the three Nordic countries Norway, Sweden and Finland. The cases are fish export in Norway, wood (paper) export in Finland and agricultural products (mainly grain) in Sweden. One company each in Norway and Finland and two companies in Sweden are selected and pilot actions are carried out in each of the companies.</p> <p>The project constitutes 3 main phases: 1) Basic analytic activities, 2) Pilot actions in 3 “case”-companies and 3) Actions and measures in regional policies. This report presents the results from phase 3 of the project. This phase has included an analysis of measures and actions in regional policies for energy saving in the goods transport in the 3 Nordic countries. Actors important for mode change from road to rail and sea have been identified. The actors which have been considered to be the most important relating to this mode change have each been interviewed at two occasions. Actors are selected from within the regional and local political/administrative system and transport companies. The results from the interviews indicate that the co-ordination between the actors operating in the goods transport field has improvement potentials. Lack of co-ordination between the actors appears to be a barrier to the mode change from today’s road based transport to increased use of rail and sea transport. The implementation of local and regional transport plans requires a high degree of co-ordination between the involved actors. National transport planning does not reflect the energy saving potential from road to rail/sea mode change and increased transmodal transport. The protection of free market principles, without internalising the external costs in the prices for different transport modes, appears to be a barrier to forming national policies for facilitating these energy saving mode changes.</p> <p>Environmental labelling of goods transport appears to only have limited effect today, but could be an important factor in the future.</p>	
Other publications from the project :	
ISBN nr: 82-428-0196-7 ISSN nr: 0803-4354	Price : NOK 200,-, SEK 200,- FIM 140,-

Preface

This report presents the results of a pilot action project under the European Commission DG XVII –programme Specific Actions for Vigorous Energy Efficiency (SAVE). The content of the report is the sole responsibility of the publishers, and it does not in any way represent the views of the Commission or its services.

The main object of the project is to develop and implement actions, strategies and measures for improved energy efficiency in transport of goods.

The report contains the results from the third phase of the project. This phase has consisted of analysis of measures and actions in regional policies for energy saving from increased road to rail/sea-based transport and increased use of intermodal transport.

The report is edited and partly written by researcher Otto Andersen at Western Norway Research Institute, who also has been responsible for co-ordinating the project. The report is based on contributions from several other researchers both at Western Norway Research Institute and the two partners Ecotraffic R&D and VTT. Each contribution is however based on comments and suggestions by all three partners.

Several people within the transport sector have contributed to the content of the report, and we are most thankful for all their help.

Sogndal, March, 2001
Karl G. Høyer

Contents

1. INTRODUCTION AND BACKGROUND OF THE PROJECT	3
2. METHODOLOGY	5
3. THE ACTORS	7
3.1. MØRE OG ROMSDAL COUNTY ADMINISTRATION	9
3.2. ÅLESUND CITY ADMINISTRATION.....	9
3.3. NORWEGIAN DIRECTORATE FOR MARITIME AFFAIRS	9
3.4. ÅLESUND REGIONAL DEVELOPMENT ASSOCIATION	9
3.5. NSB GOODS	9
3.6. MARINTEK.....	10
3.7. NORWEGIAN SHIPOWNERS' ASSOCIATION.....	10
3.8. FINNISH NATIONAL ROAD ADMINISTRATION (FINNRA).....	10
3.9. REGIONAL COUNCIL OF KYMENLAAKSO.....	10
3.10. TRANSFENNICA	11
3.11. THE CONFEDERATION OF FINNISH INDUSTRY AND EMPLOYERS.....	11
3.12. THE FINNISH RAILWAYS (VR)	11
3.13. THE PORT OF KOTKA	11
3.14. THE COUNTY OF ADMINISTRATIVE BOARD IN STOCKHOLM (CABS)	11
3.15. ASG AB	11
3.16. THE SWEDISH NATIONAL MARITIME ADMINISTRATION (NMA).....	11
3.17. FEDERATION OF SWEDISH FARMERS (LRF).....	12
3.18. RAIL COMBI	12
3.19. ODAL.....	12
4. MEASURES AND ACTIONS FOR MODE TRANSFER	13
4.1. GENERAL MEASURES AND ACTIONS FOR MODE TRANSFER	13
4.1.1. <i>EC Regional and Structural funds</i>	13
4.1.2. <i>National, Regional and Local Transport Plans</i>	20
4.1.3. <i>Involvement of organisations and other actors</i>	32
4.1.4. <i>Economic measures</i>	34
4.1.5. <i>Eco-labelling and environmental strategies</i>	35
4.1.6. <i>Co-operation and co-ordination of the actors</i>	38
4.1.7. <i>Harmonising of standards and regulations</i>	42
4.2. SPECIFIC MEASURES AND ACTIONS FOR ROAD TO RAIL TRANSFER	43
4.2.1. <i>Rail transport infrastructure improvement</i>	44
4.2.2. <i>Increasing frequency of rail departs</i>	49
4.2.3. <i>Adjusting delivery volumes to suit rail sizes</i>	49
4.2.4. <i>Co-operation between actors</i>	49
4.2.5. <i>Information about rail transport</i>	50
4.3. SPECIFIC MEASURES AND ACTIONS FOR ROAD TO SEA TRANSFER	50
4.3.1. <i>Shipping lines as agents for carrying out mode change</i>	50
4.3.2. <i>Research and Development activities in transport mode change</i>	50
4.3.3. <i>The Norwegian government's role in stimulating mode change</i>	52
4.3.4. <i>Sea transport infrastructure improvement</i>	52
4.3.5. <i>Port operations</i>	63
4.3.6. <i>Increasing frequency of departs</i>	64
4.3.7. <i>Adjusting delivery volumes to suit ship sizes</i>	64
4.3.8. <i>Cooperation between actors in sea transport</i>	64
4.3.9. <i>Information on sea transport</i>	66
5. CONCLUSIONS AND RECOMMENDATIONS	67
6. REFERENCES.....	71
6.1. PRINTED SOURCES.....	71
6.2. INTERNET.....	71

6.3. PERSONAL COMMUNICATION	72
7. APPENDIX 1: INTERVIEW GUIDE - THE FIRST INTERVIEW	73
8. APPENDIX 2: INTERVIEW GUIDE - THE SECOND INTERVIEW	77

List of Figures

Figure 1 Objective Programme 2 Regions 2000-2006	60
--	----

Summary

The project "Energy saving in transport of goods - a pilot project in rural natural resource based industries" is carried out with financing from the SAVE II-program in the European Commission DG XVII.

The main object of the project is to develop and implement actions, strategies and measures for improved energy efficiency in transport of goods.

The project uses 3 cases of natural resource based industries, one from each of the three Nordic countries Norway, Sweden and Finland. The cases are fish export in Norway, wood (paper) export in Finland and agricultural products (mainly grain) in Sweden. One company each in Norway and Finland and two companies in Sweden are selected and pilot actions are carried out in each of the companies.

The project constitutes 3 main phases: 1) Basic analytic activities, 2) Pilot actions in 3 "case"-companies and 3) Actions and measures in regional policies. This report presents the results from phase 3 of the project. This phase has included an analysis of measures and actions in regional policies for energy saving in the goods transport in the 3 Nordic countries. Actors important for mode change from today's road based transport to using more transport by rail and sea have been identified in all three countries. The actors which have been considered to be the most important relating to this mode change have each been interviewed at two occasions. Actors are selected both from within the regional and local political/administrative system and from within transport companies.

The results from the interviews indicate first of all that actors operating in the goods transport field are not co-ordinated well enough in their activities. A well functioning system of co-ordinated actors representing different transport modes is essential for improved mode change from road to rail /sea and for increased use of transmodal transport solutions. Lack of coordination between the actors appears to be a barrier to the mode change from today's road based transport to increased use of rail and sea transport.

The implementation of local and regional transport plans which could facilitate the desired mode changes also requires a high degree of co-ordination between the involved actors. This appears not to be case today. National transport planning appear not to have taken into account the energy saving potential from road to rail/sea mode change and increased transmodal transport. The protection of free market principles, without internalising the external costs in the prices for different transport modes, appears to be a barrier to forming national policies for facilitating these energy saving mode changes.

Environmental labeling of goods transport appears to only have limited effect today, but could be an important factor in the future. It would be an advantage if the eco-label system were internationally harmonised, so that the guidelines are equal for neighbouring countries. Eco-labelling of transport is also a way which the consumers' opinion can affect the choice of the mode of transport.

1. Introduction and background of the project

Transport accounts for a large share of total energy use both in the Nordic countries and in the European Community as a whole. It is the societal sector which has been subject to the largest percentage increase in energy use the last twenty years. While other sectors generally have stabilised or reduced their energy use the later years, it has continued to increase both in transport of passengers and goods. The increase in road transport, in transport volume (tonnekm) as well as energy use, has been particularly large. Much of this transport has a low load factor and generally has much lower energy efficiency than rail and sea transport. Traditionally sea transport has been of particular importance in the transportation of goods to and from the Nordic countries, and has been performed with high load factors and energy efficiency. The last couple of decades this form of transport has however lost much of its former importance. Rail transport has at the same time generally not increased in the volume of transported goods. The result has been a lowering of energy efficiency in total in the transport of goods.

Natural resource based production has always been a major segment of the industrial structures of the Nordic countries. This has also in general been the case in other rural regions within the European Community. Transportation of goods to and from these industries similarly accounts for large shares of the total transport volumes. This constitutes a background for the project “Energy saving in transport of goods – a pilot project in rural natural resource based industries” and the choice of project “cases” for actual implementation of pilot actions. All “cases” are transport in connection to rural natural resource based industries in the 3 Nordic countries Finland, Norway and Sweden.

One objective of this project has been to generate knowledge from the 3 “cases” that can be transferred to other forms of transport of goods both in relation to export and import. This implies that the project includes an analytical part on opportunities and potentials for improved energy efficiency in industrial transport of goods in general. The intention has been to establish a basis for continued actions after the project period has ended.

The main objectives of the project has been:

- To develop and implement actions, strategies and measures for improved energy efficiency in transport of goods.
- To gain knowledge of the conditions and effects of such actions, strategies and measures through pilot actions in 3 different rural, natural resource based industries.
- To analyse the conditions for transferring this knowledge to other forms of transport of goods with the intention of establishing a basis for continued actions after the project has ended.

The project constitutes 3 main phases:

1. Basic analytic activities
2. Pilot actions in 3 “case”-companies (company level). This phase includes an evaluation of the effects of the pilot actions
3. Actions and measures in regional policies (policy level).

This report presents the results from phase 3 of the project.

2. Methodology

Phase 3 of the project has constituted of ten main tasks:

1. Preliminary identification of the actors (All 3 partners). This included an exchange of the results obtained.
2. Preparation of guide for first interview round (WNRI)
3. Identification of key informants in each actor (All 3 partners)
4. Send out the questions for the first interview round to the informants (All 3 partners)
5. Carry out first round of interviews by phone and e-mail (All 3 partners)
6. Preparation of guide for second interview round (WNRI)
7. Send out the questions for the second interview round to the informants (All 3 partners)
8. Carry out second round of interviews (All 3 partners)
9. Summing up the results (All 3 partners)
10. Write final report from Phase 3 (WNRI)

The interview guides used for the first and second interview round are enclosed as Attachment 1 and 2 respectively.

The results from the first interview round formed the basis for the questions, which was asked during the second round of interviews. The report covers the results from the cases in Norway, Finland and Sweden. The focus has been on finding common issues among the tree countries.

In order to identify the measures and actions on regional level, the interviews have been supplemented with a study of relevant literature. The choice of literature and informants for interviews are based information from persons in different societal levels (national, regional and local).

In the report the result from the literature research, the choice of the informants and the result from the interviews with the informants is accounted for. The first description of the literature in the area will serve as a background and also to some extent clarify the role of different agents in the field of transportation mode change. The approach of a thorough literature review was mainly used for the Swedish conditions.

Some of the studied literature is on EC level and on national level (including national strategies and aims etc.). This is relevant since the measures and actions on a regional level often is the result of breaking down national measures, actions and principles. The structuring of the measures and actions has been guided by the question of what they (the measures and actions) are directed towards. Expressed in another way; where the measures and actions could have an affect. The main structuring thereby is a differentiation between 3 types of measures and actions:

- 1) General for road to rail/sea transfer
- 2) Specific for road to rail transfer
- 3) Specific for road to sea transfer

3. The actors

In this document, the term “actor” is used for the agents active in the field of transport mode change. This include both public and private actors.

A list of all interviewed actors, the name of the informants and their position is shown in Table 1.

Table 1 The interviewed actors

Actor	Interviewed person	Position
Møre og Romsdal county administration, Dept. of Communication	Jan Stavik	Consultant
Ålesund city administration, Dept. of planning	Odd Humblen	Head of Ålesund Port
	Kjell Sandli	Head of Planning and Budgeting department
Directorate for Maritime Affairs	Harald Tronstad	Head of Regional Coastal Administration, NW Norway
Ålesund regional development association	Magne Gjørtz	Consultant
Norwegian State Railways (NSB), Goods division	Kjell Owrehagen	Director of traffic in market division, responsibility for combined transport
	Knut Brunstad	Director of products in marked division
	Marit Thorsen	Director of the Information Service
MARINTEK, Division of Machinery and Technical Operations (counting 80 people)	Atle Minsaas	Research Manager – Logistics Group
	Kjell Olav Skjølsvik	Senior researcher machine group. Environmental aspects of sea transport (Emissions from combustion processes)
Norwegian Shipowners' Association	Johnny Tollefsen	Section head, the association's expert in intermodal transport
Finnish National Road Administration (Finnra), Central administration	Raimo Tapio	Deputy Director
Regional Council of Kymenlaakso	Ari Pietarinen	Project Engineer
Transfennica, Managing Director's Headquarters	Anna-Leena Puolanne	Project Manager
The Confederation of Finnish Industry and Employers	Maire Kaartama	Specialist advisor, logistics and transport policy
The Finnish Railways (VR)	Kari Hassinen	Goods Transport Manager
The Port of Kotka	Dirk Bequart	Marketing Director
The county of administrative board in Stockholm (CABS), Unit for sustainable society development, Dept. for environment and planning	Björn Fallström	Investigator in communications
	Ola Carlsson	Assistant to communications investigator
ASG, Executive staff, environment	Magnus Swahn	Environmental manager
Swedish National Maritime Administration, Staff industry and shipping policy	Lars Vieweg	Department director
Federation of Swedish farmers (LRF), Section for economical and political rules	Sven Hogfors	Energy-, transport- and climate policy expert
Rail Combi/SJ	Thore Johansson	Managing director
ODAL, North region	Olle Johansson	Region manager

A description of the field of work for the actors is given below:

3.1. Møre og Romsdal county administration

The case company Waagan Transport is located in Møre og Romsdal county. The county is one of the largest fish exporting counties in Norway. Møre og Romsdal county administration is involved in facilitating the access to sea transport of goods from Norway to the European continent. This is carried out by improving the sea transport and the coupling between sea and land based transport.

3.2. Ålesund city administration

Ålesund city is located in Møre og Romsdal county. Ålesund is a large fish exporting city. The harbour in Ålesund is a central point of for road/sea mode transfer, but there is no railway connection to the city.

3.3. Norwegian Directorate for Maritime Affairs

The Norwegian Directorate of Maritime Affairs is a subordinate agency under the Norwegian Ministry of Trade and Industry. The Directorate is the competent Norwegian authority for maritime affairs.

3.4. Ålesund regional development association

Ålesund regional development association (ÅRDA) is owned by the 6 municipalities Giske, Haram, Skodje, Sula, Ørskog and Ålesund. The main activities for ÅRDA are co-operative and development within the areas municipal services and regional industrial development. The interviewed informant was from the section for municipal production, where the main activity is to initiate and carry out inter-municipal co-operation and efficiency efforts.

3.5. NSB Goods

NSB Goods has an interest in transferring goods both from road and sea. It is mainly the goods that is transported over long distances that attracts the strongest interest.

NSB Goods offers the different transport products:

- “CombiXpress” (combined/intermodal transport)
- “Vognlast” (goods transport in single carriages)
- System trains (complete trains between two customers)
- Express goods (similar to the express mail system for parcels)

The “Vognlast” product has been and still is the most common form for goods transport by rail. With this system, single carriages are transported between two customers. This form of goods transport is primarily intended for industrial needs. In order for the “Vognlast” to function efficiently, large volumes are required to be transported between customers who each have side tracks at their disposal.

Combined transport (CombiXpress) is a product that was introduced by NSB Goods in 1997. It implies standardised transports in fixed carriages going in routes between specified terminals. The customers buy fixed space in the trains through long-term contracts, or rent

from day-to-day if the transport needs are variable. CombiXpress is used for various types of load carriers (semi-trailer / swap body¹ / sea container), with the common property that they are liftable (so-called ‘Huckepack’), and thereby suited for transfer between different modes of transport.

3.6. MARINTEK

MARINTEK is a research company in the SINTEF Group, and delivers marine technology research and development services. The business areas include:

- Shipping
- Shipbuilding
- Offshore Marine Industry
- Marine Industry

3.7. Norwegian Shipowners’ Association

The Norwegian Shipowners' Association is the employers' organisation for ocean-going shipping and companies involved in floating and movable offshore activities. The informant from the Norwegian Shipowners’ Association has intermodal transport as expertise. Transfer of goods from road to sea, and intermodality, are integrated activities of the association.

3.8. Finnish National Road Administration (Finnra)

The Finnish National Road Administration maintains public roads and provides for safe and convenient travelling in Finland.

3.9. Regional Council of Kymenlaakso

The regional Council of Kymenlaakso² is composed of 13 towns and municipalities. It is a joint authority responsible for regional development and planning. The duties of the Council are based on the Regional Development Act and Building Act.

Together with various bodies and organisations, the Regional Council of Kymenlaakso establishes a development strategy for Kymenlaakso. Regional development programmes are drawn up on the basis of this strategy. The development strategy together with regional programmes compose the development plan for Kymenlaakso. The Regional Council is also the regional operator for the European Union’s structural funds (Regional Council of Kymenlaakso www-pages 30.12.1999).

Finland’s Regional Councils are joint municipal authorities operating according to the principles of local self-government. The Councils operate as the authorities for regional development and as units for regional planning and looking after regional interests (The association of Finnish local and regional authorities www-pages 30.12.1999).

¹ Swap body look like an ordinary container, but is equipped for inter-modal transport, i.e. can be lifted with fork truck or by the use of trucks with grip arms (“bandlift”).

² Kymenlaakso is a region of some 200,000 people in the south-easternmost Finland

3.10. Transfennica

Transfennica is a shipping company with fast scheduled liner services between the main European trading ports and Finland. It is owned by forest industry companies.

3.11. The Confederation of Finnish Industry and Employers

The Confederation of Finnish Industry and Employers (TT) safeguards the interests of companies in manufacturing, construction, transport and other service sectors related to industry. The Confederation represents its members in business and industrial, economic, trade and social policy.

3.12. The Finnish Railways (VR)

VR Ltd, together with its subsidiaries, handles and develops railway traffic and related transport operations. VR Cargo is the rail freight division of the Finnish Railways VR Ltd. VR Cargo's most important customers are the forest, chemical and engineering industries.

3.13. The Port of Kotka

The Port of Kotka is a general port with service capacities along with facilities for the loading and unloading, as well as the intermediate storage, of almost any type of goods. The Port of Kotka has specialised in serving the Finnish wood-processing industry as an export port for finished products and as an import channel for raw materials (The Port of Kotka www-pages 3.1.2000).

3.14. The county of administrative board in Stockholm (CABS)

The counties of administrative boards are co-ordinators on regional level of governmental interests with connection to communications. They are regional co-ordinators of planning of different transport modes. This role as co-ordinators has been more increased during the 90-ties. The role as co-ordinators does also include co-ordination of infrastructure and traffic with settlements, environment and regional development etc. In the planning has lately economical and physical planning been more integrated.

The counties of administrative boards are responsible for some of the planning of investments in roads, railways and to give permits for goods traffic, establish traffic regulations, also for sea traffic etc. They are also in charge of the structural funds for example the economical contributions to the agriculture industry.

3.15. ASG AB

ASG is a large transport- and logistic company and is also one of Sweden's case companies in this SAVE-project.

3.16. The Swedish National Maritime Administration (NMA)

The National Maritime Administration is responsible for the safety and the navigability of the shipping in Sweden etc. The National Maritime Administration should according to the

government participate actively in the national and *regional* planning of infrastructure. Especially concerning the relationship between the infrastructure of the sea transport and the infrastructure of the land transport (Proposition 1997/98:56, p. 129).

The NMA's should also facilitate the prerequisite for planning between different transport modes.

3.17. Federation of Swedish farmers (LRF)

The Federation of Swedish farmers (LRF) is the interest and industry organisation for Swedish farmers, forest owners and the agricultural co-operative movement. LRF's task is to create the conditions for efficient, market oriented and competitive companies. By advancing the economic interest of farmers and developing rural communities, the conditions are also created for promoting and satisfying social and cultural interests.

3.18. Rail Combi

Rail Combi is part of the Swedish State railways cargo group and is working as a subcontractor to the haulage contractors. The business concept of Rail Combi is to increase the quality and efficiency on the combination of trains and lorries. The company is marketing, producing and developing combined transports with detachable load carriers, e.g. trailers and containers.

3.19. ODAL

ODAL is a trade and industry company which is owned by about 25 600 farmers in the middle region of Sweden and is also one of Sweden's case companies.

4. Measures and actions for mode transfer

From the data material collected in the two interview rounds the measures and actions has have been divided into three main categories. They are:

- General measures and actions for mode transfer
- Specific measures and actions for road to rail transfer
- Specific measures and actions for road to sea transfer

4.1. General measures and actions for mode transfer

The general measures and actions for mode transfer from road to rail and sea has been structured into 6 main categories:

- 1) EC Regional and Structural funds
- 2) National, Regional and Local Transport Plans
- 3) Areal planning
- 4) Economic measures
- 5) Eco-labelling and environmental strategies
- 6) Co-operation

4.1.1. EC Regional and Structural funds

EC regional and structural funds are being incorporated to a large extent into national and regional plans. This is carried out in an effort to reduce the bureaucracy associated with these type of funding systems. Regional Councils co-ordinates the money from EC structural funds. They also implement and co-ordinates local projects which support the regional development programme and strategies.

In this section we describe the EC structural funds and give examples of their use from Finland, and then from Sweden. Norway also participates in programmes funded by EC structural funds, such as the Interreg-programme.

The Interreg programmes are one of EC's means of supporting regional development through the community's regional and structural funds. The main aim of Interreg II is the following formulation (CORDIS database, 2000):

“Assisting both internal and external border areas of the European Union in overcoming the special development problems arising from their relative isolation within national economies and within the Union as a whole; to complete selected energy networks and to link them to wider European networks; to promote the creation and development of networks of cooperation across internal borders and, where relevant, the linking of these networks to wider Community networks in the context of the Single Market; to assist the adjustment of external border areas to their new role as border areas of a single integrated market; to respond to new opportunities for cooperation with third countries in external border areas of the European Union”.

The use of the EC regional and structural funds in Norway

None of the six informants in Norway had any opinion on the importance of EC funds as an instrument to achieve increased mode change from road to sea and rail, and improved direct sea-rail connections. They did not express any opinion of the relevancy of their institution to influence the EC funds or not.

The use of Interreg III A, B and C programmes in Norway

The informant from Ålesund city administration consider the Interreg programmes to be important as a measure to achieve increased mode change from road to sea and rail and improved direct sea-rail connections. It was also expressed an interest for the institution to take part in such programmes.

Møre og Romsdal county has taken part in Interreg-programmes, and it is relevant for the institution to continue this activity also in the coming years. The institution also takes part in the Nordic Transport political Network (NTN).

The Norwegian National Coastal Administration (not the Regional) is working with EC programmes, specifically Interreg. The informant considers this work to be important, but the responsibility for this activity is placed outside the informants field of work.

The informant from NSB Goods was not involved in either Interreg programmes or other ways of distributing EC's structural funds. NSB is however following closely EC's efforts to establish transport corridors through Europe, and the informant is of the opinion that it would be useful for NSB to investigate how the Structural funds could be utilised in this field of work.

Norwegian Shipowners' Association is funding research and development through grants for research and development, among others to MARINTEK and Norwegian School of Economics and Business Administration. Norwegian Shipowners' Association also participates in Interreg programmes.

MARINTEK conducts research and development in logistics. This type of research often includes full scale demonstration of new technological solutions. The informant from MARINTEK is of the opinion that EC should spend R&D resources at demonstrating new and promising solutions in this field, even though this might constitute a conflict with the free competition principle of the Union.

The use of the EC regional and structural funds in Finland

EC funds are regarded as an important instrument only if the focus of the funded projects is right. The funding on regional level is found as an important action. On the other hand, there is concern that the funding harms the competition at the goods transport market. In addition, it is mentioned that the supporting of the mode change by EC funds must not be neutralised by road transport promoting EC incentives.

The possibilities to influence EC funding varies among interviewed bodies. Transfennica has a possibility to indirectly influence, for example through the Ministry of Transport and Communications in Finland, as well as through different organisations in the branch. The

Regional council of Kymenlaakso has more direct possibility to influence than the other actors, since the regional development strategy is prepared by them. In addition, the Regional council can affect through:

- focusing the development projects
- the tasks of secretariat
- own projects
- statements

One way to influence is also by launching projects, which the EC can fund, and take care that their focus and scope promote the mode change.

There are in Finland relatively few projects funded by EC regional and structural funds in the field of transport and its infrastructure. Some examples are however the road to the port of Kotka Hietanen and the transport system in the port of Mussalo (Kotka).

At the Finnish Ministry of the Interior, regional development and its coordination are the responsibility of the Department for Regional Development. Regional discrepancies in the level of development are addressed through national regional policies and the EC regional and structural policies applicable to Finland.

Both local and central government are responsible for regional development. Regional Councils set up by the municipalities act as regional development authorities and are responsible for drawing up programmes for their areas jointly with other regional bodies (Finnish Ministry of the Interior WWW-pages 24.2.2000).

The use of Interreg III A, B and C programmes in Finland

The Interreg programmes are seen as an important measure by some informants. Some others were not aware of these Interreg programmes, so they didn't have an opinion. The informant at Finnra finds the Interreg programmes as important on programme level but thinks that currently ongoing projects are not essential when the transfer of goods transport from road to rail and sea is regarded. Regional council of Kymenlaakso is the co-ordinator of Interreg programmes (as well as other regional councils). Thus the Regional Council of Kymenlaakso regards Interreg programmes as a significant factor when the development of mode change is in question.

Other measures and types of funding which are considered to be important, and are connected to funding through the Interreg programmes, are:

- national private funding
- state funding
- development banks
- co-operation and co-operative projects with various actors

The Interreg II A programme for the Coastal Zone of South Finland includes projects in which also the Regional Council of Kymenlaakso is involved, e.g. such common projects of

Finnish and Estonian regions as the so-called 3+3 projects. A project for small and medium size enterprises (SMEs) called Business Opportunities for Development includes partners from four countries, Finland, Estonia, Sweden and Russia. A special tourism project in the frameworks of the so-called 3+3 projects is called Blue Corridor.

Interreg II C programme including projects of the Regional Council of Kymenlaakso:

- E18 project
- PSSD (Planning System for Sustainable Development)spatial planning project.
- Balticom project

The Common Secretariat of the Interreg II C programme for the Baltic Sea Region is working in Rostock, Germany (Regional council of Kymenlaakso WWW-pages 24.2.2000). EC regional and structural policies are implemented in Finland through the following regional objective programmes:

- 6: development of regions with an extremely low population density
- 2: converting the regions seriously affected by industrial decline
- 5b: development and structural adjustment of rural areas

and through the following objective programmes which can be implemented in the whole country:

- 3: combating long-term employment and facilitating the integration into working life of young people
- 4: facilitating the adaptation of workers to industrial changes
- 5a: facilitating the development and structural adjustment of rural areas

Objectives 6, 2 and 5b cover 53,6 per cent of the country's total population. Between 1995 and 1999 Finland received approximately ECU 1.7 billion from the Structural Funds. About one half of these funds are directed at regional objectives. The objective 6 region receives around on third of the total support.

In order to qualify for EC assistance, each Member State must submit development programmes following jointly agreed strategies to the European Commission. The Commission assesses these plans and compiles a Single Programming Document (SPD) for each of them which specifies maximum amounts of EC support. About 90 per cent of the entire Structural Funds' budget is used to finance Objective programmes.

The EC funding that Finland receives is entered in the State Budget. Shares of funding from the Structural Funds are written into the income and expenditure items of the responsible ministries on a fund-by-fund basis as shown in the following table:

Ministry of the Interior	European Regional Development Fund (ERDF)
Ministry of Labour	European Social Fund (ESF)
Ministry of Agriculture and Forestry	European Agricultural Guidance and Guarantee Fund, Guarantee Section (EAGGF-G)
	Financial Instrument for Fisheries Guidance (FIFG)

Financial support from the EC must always be matched by some degree of national funding.

This is the concern of the ministries, local authorities, companies and other private-sector sources. The ministries responsible for the Structural Funds also allocate the EC funding to these ministries (Finnish Ministry of the Interior WWW-pages 24.2.2000).

In just under five years, over 20,000 projects have been implemented in Finland with financing from the EC's regional objective programmes. Definitive figures on the number of enterprises set up with the support will only be available when the projects have been completed. Preliminary estimates indicate that the projects have helped to set up over 3000 enterprises, and they have contributed to creating or safeguarding almost 35,000 jobs.

By the end of 1998, project funding totalled almost FIM 17 billion, FIM 3.6 billion of which came from the EC structural funds.

Finland's experiences from the first structural fund period are positive. The new programmes to be implemented in 2000-2006 and increased resources mean new opportunities for regional development (Finnish Ministry of the Interior WWW-pages 24.2.2000).

The most important transportation projects in 1998-2002 from the Kymenlaakso Development Programme are:

(The projects typed in bold are the most important ones)

- **Improving the road E18 (Highway 7)**
- **The Highway 6, improvements from Koskenkylä to Kouvola**
- Railway from Kotka/Hamina - Kouvola to the Russian border (Vainikkala), construction of traffic interchanges
- **The Ports of Kotka and Hamina, increases in capacity and entry roads**
- **Riihimäki-Kouvola-Vainikkala rail, speeding up the passenger traffic**
- Locks of Kimola and Voikkaa
- Highway 12
- Highway 15
- **Expansion of air freight operations in Utti**
- **Logistic centre for railway traffic in Kouvola**
- Highway 26

Funding of the Development Programme of Kymenlaakso:

The Development strategy as well as funding plan is divided into three priorities. They are:

- Priority I: Development of know-how required by information society.
- Priority II: Development of international production and service centre.
- Priority III: Development of community structure, environment and culture.

Most transportation projects are included in Priority III. Funding of Priority III is presented in *Table 2*.

Table 2 Priority III Funding in 1999 (Source: Regional Council of Kymenlaakso 1997).

Priority III total (Development of community structure, environment and culture) in 1999 (Million FIM)	
<i>State</i>	111,4
<i>EC</i>	44,1
<i>Municipalities</i>	90
<i>Private</i>	5
<i>Total</i>	250,5

Objective Programme 2 funding for time period 2000-2006 is 1 725 FIM / inhabitant (873 €) which makes approximately 155 Million FIM (22 Million FIM per year) for the Objective 2 region in Kymenlaakso (Tarja Arajärvi, Ministry of Interior, 28.2.2000). Objective 2 Region in Kymenlaakso has 89 600 inhabitants.

The use of the EC regional and structural funds in Sweden

Sweden has no authority which co-ordinates all the EC's aims and policies in the transport sector. The different authorities (for example the traffic administrations and the counties of administrative boards' etc.) are handling the policies affecting their area.

Regarding the structural funds, some counties have the responsibility for funds in different targeted areas (or aims, for example geographic aims 5 and 6). There is also a structural fund delegation in each county of administrative board. The terms are about to change and the program documents for the target areas. New program documents for the period 2000-2006 is presented shortly.

The program documents are put together by the local politicians and trade and industry, based on the guiding principles from the EC. The preliminary versions have indicated interest in infrastructure issues and the development of sustainable transport systems. One of the intermediate goals in the programs target 1-area (North region of Sweden) is development of 10-12 new transport infrastructure projects. Also research projects are desired.

An example of an identified problem is that the standard of the railway tracks has to be increased to be able to develop the potential of goods transport in the region. This will also increase flexibility and the larger load capacity of new goods trains. There are also need for more rational handling of the goods in the ports, according to the preliminary program documents.

The informant at ASG considers that EC funding is interesting as long as they attack and solve the actual problems. ASG is not focusing on influencing the EC, but on optimising their business activity based on the present conditions. The influencing of EC is handled by lobbying organisations that ASG is working together with.

The informant at NMA regards that EC funds are important instruments, but considers that they are not in a position to influence the EC funding. NMA are, however, interested in participating in different EC projects.

The informant at ODAL considers that EC funds are only interesting if they finance the improving of tracks, fairways or roads. ODAL is not trying to influence the EC in any direction.

EC funds are important and could be used, e.g. to finance costly new ideas according to Rail Combi's informant. This can be necessary for e.g. railway infrastructure projects. Rail Combi is not lobbying directly against EC but sometimes gets documents for consideration. The reason for not lobbying more is because Rail Combi considers it too costly in relation to the experience of found results.

CABS regards EC funds as important and considers that it would be possible for CABS to influence EC, but considers that issues of this kind is too costly today. The organisation of the structural funds are not much different from how many other EC programmes are organised, according to CABS. Much of the obstacles to improve the infrastructure and benefit combined transport can be found in the process to seek the funding and how to interpret EC's intentions and criteria's for how to write a successful proposal. It can also be a problem to co-ordinate many different partners and making everyone do their share. The CABS are themselves involved in an Interreg II-project and considers it difficult to unite the actors involved in the project. A possible way to benefit the building of more infrastructures and minimise bureaucracy is if more of the responsibility for the payments etc. is moved to local departments.

LRF stated that EC funds that improve railway and sea infrastructure are important. In Sweden there is now also an ongoing investigation, that is concerning Public Private Partnership (PPP). PPP is a way to finance investments before the capital is found. This means that the capital is collected from e.g. the governmental budget during the coming 20 years. A disadvantage with PPP is that there is not much room for other investments the coming 20 years. So it is difficult according to the informant to decide the best way to finance infrastructure. LRF tries to influence EC and other funding institutions to put more effort into improving the roads in rural areas.

New structural fund-program documents for the period 2000-2006 will be presented shortly. These plans could offer insights into potential mode change opportunities. The bureaucracy and the proposal procedures associated with these plans are however complicated, and a simplification is desirable.

The use of Interreg III A, B and C programmes in Sweden

ASG's informant has no experience of these specific programmes but generally thinks that the problem is more concerning the adjustment to customer requirements. ASG has worked with other EC programmes but considers that the effect of these has been limited in the area mentioned. It could be interesting not only to identify the problems in this area but also to solve the problems, for instance to try more to change the negative attitudes towards sea and rail transport among buyers of transport services.

It could also be interesting if the cranes used in intermodal transport could receive some kind of support or external financing, since these cranes are so expensive and still crucial for intermodal transport, especially on shorter distances. This support could be from both national and international sources.

NMA considers the EC Interreg III A, B and C programmes as important and has participated in several projects in these programmes. It can also be interesting for NMA to participate in developing and implementing these programmes further.

The informant at ODAL has not been in contact with these programmes but regards that programmes of this kind should not be necessary. Other measures and types of funding are not either very interesting. More important are structural decisions regarding infrastructure.

The informant at Rail Combi has not been in contact with these programs but considers that it could be interesting to participate in developing and implementing these programmes further. However, Rail Combi is often a co-proposer and not co-ordinator in programmes of these kinds and this will probably also be the trend in the future. It is considered important to receive support to be able to try new ideas, for example, regarding intermodal transport. It was also expressed the importance of the programmes being outlined so that the actions in the programmes are controlled in order to be implemented properly.

The informant at CABS considers these programmes as important and the programmes are also relevant for CABS to be involved in and implement further. CABS is today involved in Interreg programmes. The programmes should, however, according to the informant be more stringent on what should be done and focus on improving e.g. the infrastructure. Other important funding is, e.g. the funding from KFB and NUTEK.

The informant at LRF stated that these programmes are probably important but the informant has had marginal experience of these programmes. LRF has contacts with different programmes and has also contacts in the EC, Brussels. The important thing for the Swedish government and also the EU is to improve and modernise the railway and sea infrastructure via programmes or other measures.

4.1.2. National, Regional and Local Transport Plans

In this section the measures and actions in the form of transport plans are presented. First the national transport plans in the three countries are considered, then the regional and local transport plans.

National transport planning in Norway

The national political goals for transport, as e.g. the Norwegian national transport plan, is not well enough realised through active prioritising and public measures and actions. This is particularly the case for sea transport, according to the Norwegian Shipowners' Association.

Ålesund city administration stated national transport planning as important in order to achieve increased mode change from road to sea/rail and improved direct sea-rail connections. It is of high relevancy for the institution to influence national transport planning in this direction. This is already done in the form of written documents and verbal argumentation. This is an issue where local politicians have contact with members and groups of the Parliament, Government and central politician organisations.

Møre og Romsdal county also consider national transport planning as important. It is the opinion of this actor that sea transport should be treated as the other transport sectors (rail and road), and obtain financing as them. So far, the Ministry of Fishery has had the responsibility of sea transport. According to the informant at Møre og Romsdal county, a better solution would be if this responsibility was transferred to the Ministry of Communication. The very limited economic support to sea transport is mainly used for improving fishery harbours, and not node points for road and sea transport of goods. This situation is hurting sea transport and intermodal transport.

The Regional Coastal Administration stated that national transport planning is very important in order to achieve increased mode change from road to sea and rail and improved direct sea-rail connections. The informant is however not content with the implementation of the national policies by local politicians and institutions. These actors were described as mainly self-centred. The informant pointed to a lack of understanding for the efficiency of the various transport modes and the corresponding infrastructure in a region. It is considered highly relevant for the Regional Coastal Administration to influence the national transport planning in this direction. The process of national transport planning is considered a good start, but the most important aspect is the implementation of the plan. The institution participates in this planning process, in co-operation with harbours administrations and regional road administrations. Participating in regional and local planning processes, and giving comments to ended plans, are also important ways of influencing road to rail/sea mode change and increased use of intermodal transport solutions.

For NSB Goods is national transport planning highly important as a mean to improve the conditions for intermodal transport and modal shift from road to rail. The last national transport plan represents a breakthrough for a policy aiming at larger market shares for intermodal road/rail transport. It has resulted in larger grants for extending railway line profiles (tunnels, power transmission lines). NSB Goods is working closely with politicians, bureaucracy and pressure groups in order to influence the contents of the national transport plan.

Also Norwegian Shipowners' Association is making much effort in lobbying in connection with the national transport plan. The informant from this actor is however of the opinion that the national transport plan actually is an *infrastructure* plan more than a *transport* plan. Instead of setting premises for how society's transport needs should be met, NTP focuses on building roads. In that way national transport planning is biased, and only to a limited extent prepares for intermodal transport.

The informant from MARINTEK points to the national transport plan as being an important tool for outlining the intermodal transport policy. Traditionally, the national transport plan has focused on road transport, but there has been signs of a new orientation towards somewhat more intermodal transport friendly choices. Nevertheless, the most important actors in this policy field are still forceful spokespersons for road transport. MARINTEK contributes with specialist reports as background for outlining national transport plans in Norway.

Norwegian national political guidelines

The informant from Ålesund city administration is of the opinion that national political guidelines for co-ordinated land-use and transport planning is needed, but this is not sufficient to achieve increased mode change from road to sea and rail and improved direct sea-rail

connections. It is however relevant for the institution to further influence the national political guidelines in this direction.

The informant from Møre og Romsdal county did not express any opinions regarding how often the guidelines are used in the planning processes. The informant was of the opinion that the guidelines for national transport planning was not very relevant for the planning for sea ports, since most harbours are located within cities.

The Regional Coastal Administration stated that the national guidelines for increased mode change from road to sea and rail and improved direct sea-rail connections are very important. They were characterised as actually playing a central role. This actor argued for strategies and measures to reach the goals in the national transport plan.

The informant from NSB Goods expressed that – apart from the national transport plan – national political guidelines in the transport field have limited effect. There are no guaranties that such guidelines are being followed when it comes to concrete decisions at local or regional levels regarding area use or budget priorities.

Norwegian Shipowners' Association is, for principal reasons, sceptical to governmental guidelines and regulations of this kind, but admits that a political decision to encourage environmental friendly transport, demands some regulations. In this perspective, there is a need for comprehensive solutions in transport policies, which also include national political guidelines for co-ordinated land-use and transport planning.

The informant from MARINTEK pointed to what is already said regarding the need for political understanding for intermodal transports and spatial demands related to harbour activities.

National transport planning in Finland

In Finland there appears to be a lack of policies and strategies for mode changes at a national level. However, in their transport policy The Ministry of Transport and communications requests additional funding for infrastructure and maritime transport (The Ministry of Transport and Communications Finland [www-pages 26.6.2000](http://www-pages.26.6.2000)):

"At the end of 1998, the Ministry of Transport and Communications prepared an operating strategy and financial plan that includes the Ministry's proposal for expenditure ceiling for the administrative sector. According to that the total funding for the administrative sector in 2000 would be FIM 7.66 billion (EURO 1.29 billion) and would then by 2003 be reduced to approximately FIM 7.25 billion (EURO 1.22 billion). The operating strategy and financial plan also includes another proposal according to which the level of funding would be higher. The most significant supplements the Ministry will request comprise additional funding for transport infrastructure and for maintaining the competitiveness of maritime transport. It is the view of the Ministry of Transport and Communications that at least the present level of funding for public transport be maintained."

The national transport planning in Finland is however considered very important by almost all interviewed actors in Finland. It is considered relevant for all the interviewed actors to

influence national transport planning, but the measures vary. Transfennica (like other transport companies) can affect transport planning mainly by lobbying for issues they consider important. Finnra can influence directly through own decision in national transport planning. It has the following measures, among others, to affect:

- co-operation
- own planning (yearly etc.)
- implementation of plans

The Regional Council of Kymenlaakso has the following possibilities to influence:

- development strategy of transport in Kymenlaakso
- transport system planning of Kymenlaakso
- co-operation with other regional councils of southern Finland

The Port of Kotka can influence national transport planning with the help of membership in strategic planning groups on national level. Within the Confederation of Finnish Industry and Employers (TT) influencing the national transport planning is considered difficult, since it is not an easy task to find actors who could participate in this activity. In addition, the fair competition in the transport sector could be considered as a barrier for this activity.

Finnish national political guidelines

Informants at the shipping company Transfennica as well as at Finnish National Road administration regards national political guidelines as an important measure, and they both think that it is relevant activity of their bodies to influence the national political guidelines. The regional council of Kymenlaakso is in position to influence the national political guideline with the help of the development strategy of Kymenlaakso. Another opinion expressed was that the market factors have to play the most significant role. The informant at the Port of Kotka was of the opinion that the market factors can be influenced by the national political guidelines but they shouldn't be dictated. In addition, the informant at TT pointed out that lack of national guidelines do not have an effect on weaknesses in co-operation between different modes of transport. The nodes of the transport system covering all modes of transport are required in transport of goods in general, and some this sort of nodes is already existing.

National transport planning in Sweden

In Sweden the government's plans for the transport sector in the following years are e.g. described in the government proposition "1997/98:56". This proposition includes transport policies to reach a sustainable development in the transport sector. A proposal for aims and strategies etc. on governmental level, which is relevant on regional level, is also partly described in this proposition. The environmental aims are divided in overall, intermediate aims and part aims. The overall and intermediate aims are indicating the level of long term ambition. The part aims are corresponding to suitable steps towards the long-term aims.

The overall Swedish transport policy aim is to ensure a providing of welfare economical efficient and long-term sustainable transports for the citizens and the trade and industry. Intermediate long-term aims are:

- An accessible transport system
- A high transport quality
- A safe traffic
- A good environment
- A positive regional development

No separate aims on efficiency are set since efficiency is considered to be in-built in the overall aim. Regarding a good environment the following part aims, relevant to the transport sector, has for example been set:

- The CO₂ -emissions from transports should year 2010 have been stabilised at 1990:s year's level.
- The NO_x -emissions from transports should by year 2005 at least have been reduced by 40% compared to 1995:s year's level.
- The Sulphur -emissions from transports should by year 2005 at least have been reduced by 15% compared to 1995:s year's level.
- The emissions of VOC from transports should by year 2005 at least have been reduced by 60% compared to 1995:s year's level.

In another Swedish government proposition (1996/97:53), about infrastructure for future transports, the following intermediate aims for a period to 2007 was for example set:

- The number of occasions of disturbance on the most affected railway distances should be diminished with at least 50%.
- The highest lawful axletree load shall be increased from 22,5 ton to 25 tons on railway distances with extensive system transports.
- The load profile on the relevant railway distances (those with 25 tons) shall be increased.

The acceptance of the proposition has also led to the acceptance of some new principals in how to deal with transport of goods. The aims and strategies etc. has in many cases been delegated to different public authorities and bodies to develop them further, in some cases to break down aims and in other to set aims based on some overall principles.

The latest overall Swedish environmental aims were accepted by the parliament 29 April 1999 (described in prop. 1997/98:145). 15 aims have been set. Some of them have connections to environmental problems associated to the transport sector. One such aim is "limited climate change". The actions in this area are focused on stabilisation of the CO₂ concentration in the atmosphere at 550 ppm.

The Swedish parliament has also decided that the emissions from fossil sources should by the year 2000 be stabilized at 1990 year's level and subsequently diminish. An example of possible action to reach this target is "Support to benefit energy efficiency".

The Swedish government has set up an "Environmental target committee". The committee shall in June 2000 present it's proposals for intermediate aims and strategies to reach the relevant environmental aims. The report from the environmental target committee shall form the basis for the coming environmental proposition from the government.

The Swedish government considers a welfare economical pricing to be a fundamental mean of control. If this can't accomplish the desired effects, then other means of control should be

used. The government considers the following to be among the main means of control:

- Economical (pricing of transports, principles for allocation of means, subsidies of traffic)
- Regulations & information
- Research and development
- Aim control of the national transport administrations
- Negotiations and agreements

The Swedish government regards planning mainly to aim at, co-ordinate and give priority to actions within infrastructure and actions within the transport system in a perspective including all transport modes. A priority is also to strengthen the connection between the investment plans in infrastructure and the traffic associated with the infrastructure. More influence of the planning process for infrastructure has been assigned to the counties of administrative boards and the regional self-government bodies. The idea in for example railway transport is that investments should be done based on welfare economical circumstances.

The Swedish government has also initiated a goods transport delegation, which is attached to the government. The delegation has the task to follow the development in the goods transport area and give propositions to the government. The delegation should also develop a good transport strategy, which includes all transport modes, analyse issues regarding development for combined railway traffic and make the transport system more efficient and ecologically sustainable. The government also want's to elucidate the governmental role.

There has been a Swedish State subsidy since 1971 on transports of goods in some parts of the country, of regional policy reasons. This subsidy has concerned road and rail transports. Today there is a proposal to extend this to also include sea transports of goods. In May 1999, the government gave SIKa, CAA, SNRA, National Maritime Administration and the National Rail Administration the mission to accomplish national strategic analysis. The mission has been compiled in a report (publicised in November 1999), called SAMPLAN report (1992:2) "Strategic analysis- Final report of the governmental assignment about the direction of the infrastructure planning for the period 2002-2011". The strategies are concerning the focus and the planning of infrastructure for the period 2002-2011. In the analysis (which SIKa has co-ordinated) also opinions has been included from counties of administrative boards, regional self-government bodies, the Environmental Protection Agency, the Board of Housing, Building and Planning, the National heritage board and the National Board for Industrial and Technical Development. The task has mainly been to analyse 12 strategic areas and 3 alternative directions. Frames and overall directions for the national and regional plans are determined, mainly regarding roads and railroads (tax financed). The 3 main directions that have been analysed are 1) Focus on Regional development, 2) Welfare economics and 3) Traffic safety and environment. The report/analysis has stated that it is difficult to reach all aims. Since the financial frames are fixed, a prioritisation of aims and strategies is necessary. The report is mainly to be used as a basis for the coming governmental proposition, which is expected in March 2000 and does not give specific proposals for strategies but a background of the effect of different strategies.

ASG consider national transport planning as one of the factors which are not very important for them in order to transport more goods with the transport modes rail and sea. More important is the demand from customers regardless of the nationality of the delivery locations. However, the national planning is more important for some transport modes like the railway

since the planning and financing of the infrastructure is crucial and costly and also to some extent underdeveloped.

The influence on national transport planning is carried out through lobbying which is handled by “the Swedish International Freight Association”. Large organisations like ASG, SJ and BTL also have the possibility to affect the government’s propositions since propositions, often are sent to these organisations for consideration.

NMA consider this as important and NMA is participating in national transport planning together with the other National Administrations in respective area and SIKÅ. However, the informant regards that the rail is more prioritised than sea transport and considers that the effort in the sea area could be more focused in certain areas. One could, for example, focus on that the harbours in Gothenburg and Trelleborg, which are important hubs in Sweden, are functioning well. One example is that NMA has a project that is aiming at improving the fairways around Gothenburg.

ODAL informed that national transport planning is not one of the prioritised areas to influence for ODAL. that national transport planning is not so important for ODAL and that they operate based on given conditions. However, ODAL points out that the building of fairways, railway tracks and roads are important and that national transport planning is important in that aspect. It would be valuable if some of the fairways could be improved so that larger ships could be used. ODAL tries to affect the transport planning by lobbying against, e.g., NMA.

National transport planning is important according to the informant at Rail Combi, especially in order to be able to co-ordinate between different transport modes. Rail Combi has tried to influence national transport planning, e.g. via newsletters that has been distributed to some members of the parliament in Sweden but the results has unfortunately been of marginal importance according to Rail Combi.

The informant at CABS considers national transport planning as important and that this is a relevant area for CABS to be involved in. CABS affects the planning by making infrastructure plans and CABS also comment documents that they get for consideration and initiate investigations of different kinds.

LRF consider that a well functioning system should be a mix between the national transport planning and the free market economy. The informant regarded that they influence the national transport planning today by being part of the reference group for the coming transport infrastructure proposition from the government.

Swedish national political guidelines

The informant at ASG considered that national political guidelines are important. The national guidelines must, however, also harmonise with the guidelines from EC. ASG also wants to affect these guidelines via lobbying.

The informant at NMA regarded this as an important area concerning, for example, guidelines for infrastructure planning. It is also an area in which NMA works together with the other National Administrations in respective area and with SIKÅ.

The informant at ODAL stated that national political guidelines could be important if they led to better infrastructure in e.g. the fairways. However, the informant considers that there is a lack of economical resources in ODAL to more actively influence these guidelines today other than via lobbying organisations.

Rail Combi considers national political guidelines as important. The guidelines have, for example, importance for the systems for fees and costs in the transport sector. It is also important that these guidelines are harmonised with the guidelines of the surrounding countries. It is relevant for Rail Combi to influence the guidelines but they feel that their possibilities to influence them at the moment are relatively small.

CABS consider national political guidelines as important and regard influencing them as relevant activities for them to take part in. The guidelines can e.g. be influenced by their work with regional planning.

The informant at LRF regards that national political guidelines are important and it is relevant for LRF to influence national political guidelines. However LRF is not willing to give preference to railway or sea transport at the expense of road transport unless railway or sea transport can be proved to be as good and the present market conditions is changed in the applications where road transport is used today.

Regional and local transport planning in Norway

Improved co-ordination of the port-, road-and rail structure is possible through the preparation of county plans for transport in Møre- og Romsdal county. The regional Transport Plan for this county include issues such as:

- Port structure
- Linkages
- Route initiatives

Land-use planning both within the municipalities and counties are important measures in creating the foundations for intermodal transport and the increased use of sea- and rail transport. Other actors in addition to the municipalities, such as the Directorate of Coastal Affairs in Norway, and the county administrations have an influence on the municipal Land-use plans. They have the possibility of making comments to the plans during the planning process. The Ministry of Environment is the supervisory authority for all Land-use planning in Norway. It appears that the opportunity to make comments to Land-use plans is under-utilised in Møre- og Romsdal county administration, while it is often used by the Directorate of Coastal Affairs regarding planning processes in Ålesund municipality.

The informant from Ålesund city administration considers rail as of little interest for the industry in Ålesund. As an instrument, land use planning will not favour transferral of goods to sea transport. It is a potential instrument to increase road transport, but used in a right way land use planning could stimulate sea transport and connection between road and sea.

Ålesund city administration has an interest in using land use planning as an instrument to stimulate conversion to sea transport of goods. This could be done by land reservation for harbour (and harbour facilities) and connecting roads in formal land use plans. The community have the opportunity to start such plan work themselves, or to support others.

The informant in Møre og Romsdal county administration stated that land use planning is important to improve the connection between road and sea, especially in the town Ålesund. The connection between rail and road is good enough, and intermodal transport connection between rail and sea is of little interest for the county.

Møre og Romsdal county administration takes part in land use planning by making a transport plan as a part of the total county plan. The philosophy in the transport plan is to give some signals to the local planning, but not to do the planning work. The communities have the leading role in the land use planning process. The county administration could invite to a co-operation, not give orders. The part of the county administration is also to involve other actors as national authorities and the transport users in the process.

On direct question about the county administration possibilities to stop local land use plans in conflict with the county plan the answer was positive. When the county transport plan is finished the administration has this opportunity.

The informant from the Regional Coastal Administration stated very clearly land use planning as important in order to achieve increased mode change from road to sea and rail and improved direct sea-rail connections. The Administration could take part in this in two ways: 1) Giving support to land use planning work in small communities with little capacity and competence. 2) In bigger community they have to stimulate understanding that intermodal transport (especially road and sea) need land to be developed.

For NSB Freight area planning is of great importance for location of goods terminals. Trondheim goods terminal, in the third largest city of Norway, is an example of current interest. The existing terminal is too small to serve an expected increase in transport volumes. The terminal is situated by the harbour, and in order to give optimal conditions for intermodal transport in the future, NSB Freight wants the terminal to be extended. Local area conflicts have occurred, and resulted in a long lasting political fight between two alternatives: Extending at today's location, or moving the terminal to a location separated from the sea. If the last alternative is chosen, this will be an severe obstacle for development of intermodal transport between sea and rail. Area planning is carried out within the framework of the local democracy, which tends to work slowly. In this particular case, the time factor might be a major threat to the possibilities of developing effective intermodal solutions.

Norwegian Shipowners' Association is aware of the central role of area planning in harbour development. In their opinion Oslo Harbour, the biggest transport harbour in Norway, is about to lose it's importance due to municipal area planning. National authorities should have superior responsibility for the development of big harbours, as such harbours are serving a surrounding country which extends the host city.

The informant from MARINTEK also uses the plans for moving the rail goods terminal in Trondheim as an example of the impact area planning may have upon the conditions for intermodal transport. Space in the harbour area is a prerequisite of developing a successful link between sea and rail. Long distance between rail freight terminal and the sea will inevitably lead to increased road freight volumes, at the expense of sea and rail.

Old harbours in the inner cities are often less efficient because of poor road connections. Also new harbours are often designed without sufficient attention have been paid to the total

communication system. In this respect there is a lack of understanding among many planners and politicians for the spatial needs of intermodal transport.

Regional and local transport planning in Finland

In Finland land use planning is considered an important action almost by all informants. Interviewed bodies, especially Finnra and Regional Council of Kymenlaakso, find it important to take part in land-use planning work. For Transfennica (shipping company) it is relevant to participate in land-use planning related to e.g. new ports and enlargement of the old ones. There are various measures which can be used in planning. Finnra is of the opinion that the most important way to act is co-operation, both at regional and national levels. For Transfennica (as for other private companies as well) the most important way to affect is to negotiate with other participators, for example with the port administration and port operators (partners who own the land and the infrastructure). As a regional public body which is responsible for the land use planning in Kymenlaakso, the Regional Council of Kymenlaakso has also many other possibilities to affect land-use planning. In addition to the actual land-use planning the most important measures are:

- other planning in the region
- negotiations with different authorities
- participating in the traffic infrastructure planning
- traffic strategy for the Kymenlaakso region
- separate development projects

The development policy depends very much on the accepted utilization policy for land areas and on regional planning. For example, reservations for railroad and road areas promote the development policy selected. The Regional Council co-ordinates the interest related to the use of land areas between different districts and also ensures that environmental aspects are being considered (The Regional Council of Kymenlaakso [www-pages](#)).

The Port of Kotka sees the land-use planning as important, as well. It can take part in it by investing in the construction of a multi-modal terminal and rail infrastructure in the port terminal area. TT considers the land-use planning a less useful measure, at least when the local land-use planning is in question, since the transport mode change is not a local problem, except for the combined terminals for different modes of transport.

Regional and local transport planning in Sweden

Some relevant results from the report/analysis regarding the Swedish regional level are now accounted for. An overall Swedish aim on the regional level is:

The transport system shall promote a positive regional development by equalising the differences in development possibilities in different parts of the country and also to counteract disadvantages due to long transport distances.

At the moment, no part-aims for regional development exists. The regional policy aim in transport policy is delimited to concern development or support in the transport system in certain vulnerable regions. The government considers that it presently is difficult to establish comprehensive part aims for the transport policy contribution to the regional development, due to lack of knowledge about the connections between regional political effects and the

methods of analysis presently used. The importance to develop the knowledge about these connections and the connections between investments in infrastructure and regional development and establish better indicators and measures, which can be the basis for part aims in this area, is emphasised by the Swedish government (SIKA report, 1999:3).

Some of the problems that the counties of administrative boards have experienced have been compiled in the SAMPLAN report (1999:2). According to the report, some counties consider that the railroads are less used for goods transport e.g. due to lack of maintenance, which affects the accessibility. Crowding etc. between person- and goods traffic and shortcoming in carrying capacity on roads and railroads is also by some counties regarded as a problem. In the north part of Sweden, the development of a heavy traffic net for the railroads is considered important.

Some counties have stressed absence of co-operation between the different actors of the transport system. The structure with terminals is regarded as undeveloped or non-existent in some areas. In some regions goods transport by road is the only alternative (SAMPLAN report, 1999:2).

A regional strategic analysis will be initiated on initiative from the government. The mission goes to the counties of administrative board and other regional self-government bodies, established in some counties (Proposition 1997/98:56, p. 91).

The counties of administrative board have a role to co-ordinate and anchor the “county plan” for regional transport infrastructure. Support is given to planning by the SNRA and the Swedish National Rail Administration. SIKA has the responsibility to see if the “county plans” has corresponded to the demands of the government and parliament and to suggest improvements in the prerequisites and planning of the counties of administrative board.

The main purpose of the regional strategic analysis is to break down the national aims to regional aims and priorities adjusted for regional prerequisites and needs. The counties also generate regional action plan for the railways within each county. These actors will also have the possibility to take actions to reach the preliminary direction for the development, which has previously been analysed.

No strategies or part aims is set in the transport sector on regional level, but in general the counties expect that the expansion of fast train connections will decrease the transport time for goods. In the SIKA-report “1999:3” it is also emphasised that the co-ordination between the transport modes could be an important factor to reach the intermediate aim of regional development.

In another SIKA-report (SIKA, 1999, “The direction of regional development”) some opinions from the counties is described. Improvement of the capacity of roads and railways are suggestions that many counties mention as ways to improve the terms for goods transport. The counties do not generally consider investments in infrastructure as important as the maintenance and operation. The will to invest in infrastructure is increased with a larger budget, especially concerning railway traffic. The counties propose that they will receive the possibility to finance the ports and fairways. Better train operation is also an important area.

The Swedish aims on reducing the number of killed and wounded in traffic has transferred some funds from the railway to the road sector (due to the larger amount of killed and

wounded in this sector). Also the increase/decrease in passenger transport on rail is affecting the goods transport on rail since these, in great extent, is going on the same tracks as the passenger transport.

The counties are also noting that other activities than investments in road and rail infrastructure are important for achieving a satisfying regional development. Many of these activities are however beyond the present regulations for the counties of administrative board.

Another important factor is an increased co-operation between the different actors of the goods transport system. The logistic system and the connection between different transport modes are considered important. Several counties also mention the importance of developing the infrastructure around the ports. For this purpose they want funds from the government. Financing of port investments is today a matter for the local interested parties and the municipality. However the ports can be important for the whole region and should accordingly be treated as a regional matter (i.e. the counties wants to be able to use regional funds). The size and construction of the fairway charges is also pointed out as a problem. In another report, about the new aims in the transport sector (SIKA 2000:1), the work group of the project (Swedish National Rail Administration, NMA, SNRA and the counties etc.) has proposed that more studies should be made about the regional aspects of goods transports, in development projects.

ASG's perspective on the long term is to affect the conditions but their main focus is not on land-use planning. ASG can only influence indirectly e.g. point out for decision-makers that certain routes have problems of different kinds. Since land-use planning is not among their main business areas the interest to take part in such work is limited.

NMA does not consider land-use planning as very important and it is not something that NMA puts much effort in and take part into since it is not in their main business area.

The informant at ODAL is not convinced that sea and rail transport is better than road transport other than maybe in some specific areas. However if one is convinced that sea and rail transport is desirable, then land-use planning could be interesting according to the informant. If it is shown that positive results can be accomplished, then ODAL is interested to take part in such work (e.g. try to influence the localisation of railway tracks), however, this is not proven to be the case today. If ODAL wants to affect land-use planning then they take direct contact with the person in charge. ODAL has no specific departments presently dealing with external issues of this kind.

The informant at Rail Combi considers land-use planning as important. In Sweden has e.g. the railway tracks been located in the centre of the communities, which is not always that efficient. Therefore, land-use planning is important to be able to create an efficient transport system not least between different transport modes. Rail Combi takes part in such work mostly via lobbying and the informant also regards that the planning of land-use and infrastructure is functioning better today. The lobbying can be addressed to for example the Swedish National Rail Administrations or different municipalities.

The informant at CABS considers land-use planning as important and it is of interest for CABS to take part in land-use planning. CABS is working with land-use planning by developing different plans e.g. a plan for investments in transport infrastructure in the county. They also get the municipal plans for infrastructure for consideration. CABS also perform

investigations and reports in different areas, which is presented for important actors in the transport sector.

The informant at LRF considers that in their business area, road transport is indispensable and land-use planning is not that important to influence at the moment. But it is of course important to plan the land-use to save land from unnecessary exploitation. For export with e.g. boat land-use planning could also be important. LRF regarded that it is interesting for their organisation to take part in land-use planning, for example, by commenting different infrastructure propositions and also to influence decision-makers earlier in the process.

4.1.3. Involvement of organisations and other actors

Ålesund city administration tries to get national harbour status for Ålesund. This is a decision that the government makes, and they therefore need an active involvement from the national authorities. They also ask for a more active policy-making and actions from the National Road Authorities to develop better connection between road and sea transport.

Møre og Romsdal county is trying to involve all relevant actors, both from the authorities in all sectors and all levels to private companies. They want to involve more actors to co-operate. The administration also co-operates with other county administrations to improve harbour development, and they are working at EC regional level (Interreg).

Møre og Romsdal county consider these actors to be relevant:

- Ålesund harbour authorities and Ålesund city administration
- The regional development office
- Regional Coastal Administration
- National Road Administration
- The co-operating council for west and south Norway
- The regional council for northern-Norway
- Ministry of Regional Development
- Ministry of Communication
- Politicians in regional and national government.
- Nor-cargo
- Sunnmøre Goods
- Confederation of Norwegian Business and Industry
- Nordic Transport-political Network.

The Regional Coastal Administration stated that the users of the infrastructure have to be involved more than today both in the national and the regional transport planning. All kind of transport-companies is relevant in these issues.

NSB Freight has in recent years focused on co-operation with other actors with interests in intermodal transport:

- Truck transport companies
- The Norwegian Truck Owner's Organisation

- Two environmentalist organisations
- Jernbaneforum (lobby organisation for rail interests)
- Customers

NSB Freight is of the opinion that there is no need to include actors which have not been included before, but there is a certain potential for extending existing contacts.

NSB Freight consider themselves and truck transport companies to have mutual interests in developing intermodal transport chains. Therefore the contact between the rail and truck companies should be deepened out.

Collaboration with customers in order to improve the conditions for intermodal transport is important for NSB Freight. This can be done by localising customers and rail terminals close to each other, if possible.

Our informant from Norwegian Shipowners' Association points at the fact that the responsibility for sea transport is spread between numerous public actors. From his point of view, too many public authorities are involved in regulation of sea transport and by that way also intermodal transport. First priority for Norwegian Shipowners' Association is to move the responsibility for sea transport from the Ministry of Fisheries to Ministry of Transport, where all other transport modes belong. By doing this, the conditions for a forceful intermodal transport policy should be drastically improved.

There is no need for including more private actors in the effort for boosting intermodal transport.

MARINTEK also calls attention to the fact that a vast number of companies, organisations and other actors are involved in facilitating intermodal transport. Therefore there is no need for additional actors to be included.

Other actors and informants in Norway, which was suggested included:

- Jan Tore Pedersen, jantp@online.no, tel. 6493 0735, project co-ordinator for IPSI, earlier employed in Kværner. Currently independent consultant in Drøbak with close personal connections in DG VII. Much used by MARINTEK.

In Finland the interviewed actors expressed the opinion that there could be many other actors involved. It is important to get the whole transport chain represented, from consignor to consignee. It was also expressed that the transport companies' perspectives must be taken into consideration. Relevant actors to participate are:

- industry/trade
- shipping companies, the Finnish Railways, trucking companies
- freight forwarders
- constructors of means of transport

In addition, it was expressed that the road administration and regional councils should participate more than what is the case at present.

The informant in the Regional Council of Kymenlaakso pointed to the Ministry of Transport and Communications and Finnish Maritime Administration as important bodies.

UPM-Kymmene Seaways was also seen as an essential body to interview.

In Sweden ASG consider that the most important issue for rail transport on both national and international level is to offer a sufficient quality of the railway transports/solutions. Lobbying has been used frequently previously for convincing different actors of the quality of the transports, but now it is important to also prove the quality in reality. The most important actor is considered to be the customer.

NMA stated that they consider that the most important actors and organisations are already involved today and that the most important issue for NMA is to have an influence on the political decisions.

ODAL considers that the involved actors today are the relevant ones, no further involvement is necessary. ODAL stated that the important issues are to make the railway and sea transport cheaper and more interesting for the customers.

Rail Combi states that it is desirable to include as many actors as possible especially those with interest in railway traffic. The road traffic has already many spokesmen. Rail Combi suggested that the Swedish National Road Administration (SNRA) actively could take more responsibility for the planning of an increase in intermodal transports.

CABS regards that it is important to involve more organisations, e.g. the Swedish Association of Green Motorists, since these are well-informed about transport economy and regional matters. Another important actor is the Swedish Society for Nature Conservation although the informant thinks that their perspective can sometimes get too narrow.

LRF regards that it could be important to involve more actors, although no specific new actors were mentioned.

Bo Wallin, section chief, responsible for traffic political issues at the Swedish Ministry for Industry, Employment and Communications was also pointed to as important to get involved.

4.1.4. Economic measures

In Møre og Romsdal the Ålesund regional Development Association (In Norw. “Ålesundregionen Utviklingsselskap”) points to the possibility of making mode changes by changing the factors important for transport mode choice. The most important factors are considered to be price, time and service. In their economy calculations, these factors are important in addition to the capital investments in facilities, port structures and terminals. The traffic situation on the European continent is in addition a factor. By changing the framework for their choice e.g. through fees, taxes and traffic restrictions, desired mode changes can be encouraged.

The Regional Coastal Administration in Norway consider economic measures as important. Prices and dues in the transport sector are considered to be related to society costs from different transport modes.

Finnish Railways (VR) has been using economic measures for investing in terminals in Helsinki and Turku. An appropriate intermodal terminal is also needed in Oulu, but there is no financier for this yet. Infrastructure supporting intermodal transport and transferring transport of goods from road to rail and sea also needs to be developed and improved. All essential nodes should have an appropriate terminal where transferring of containers, swap-bodies etc. from one mode of transport to another can be performed efficiently. Both local and national support and financing is necessary to facilitate this. Logistics centres generate new services and thus improve locally employment. This is the reason municipalities also should be interested in supporting them. The gross margin in intermodal transport appears to be too low for private intermodal operators to build terminals. Therefore, the business based financing of new terminals appears to be highly improbable. Consequently, the support of policies and economic measures is needed to build a comprehensive terminal system.

The results from the interviews in Sweden points to a potential for mode-transfer from road to sea and rail. Many actors are interested, but however only if economically feasible.

The Swedish NMA regards that the traffic policy rules could have been more neutral from a competitive point of view regarding charging and cost responsibility etc. What the NMA can affect, being a governmental authority is the traffic policy rules e.g. the fees for infrastructure. They consider that Sweden could have the same principles for the pricing of traffic regardless of transport mode. For example has air and sea traffic in Sweden requirements on full coverage of costs for the infrastructure through fees on the users of the infrastructure. Both the National Maritime Administration and the Swedish Civil Aviation Administration are state owned companies and must cover all its costs. On the other hand the Swedish National Road Administration and the Swedish National Rail Administration are also state owned companies but are financed via the taxes. This is of course affecting the costs for different transport modes.

Intermodal transports and transferring of goods from road to rail and sea transport is considered to be on the edges of NMA's business area. However the NMA considers that the traffic policy rules also affects intermodal transports since the choice of the cost of different transport modes is determined by these rules. The market has to get the right price signals. For example, if a railroad from the northern part of Sweden to the West Coast is built, and some wood is going to be transported by this mode, the full cost for the infrastructure is not paid. In addition is there financial support given from the government for this transport. This makes railway a more interesting alternative than transporting the wood by sea along the East Coast. Charge for external effects is important and the NMA points out that in other parts of Europe this is the working method (with similar charging systems for all transport modes).

According to the Swedish NMA, the transfer of goods to more energy-efficient modes is a central issue for the forwarding agents and the transporting companies, who acts based on market conditions.

4.1.5. Eco-labelling and environmental strategies

It appears, particularly from the interviews in Sweden and Finland, that the increased use of eco-labelling in transport creates incentives for mode transfers from road to sea and rail. The

importance of having an environmentally sound logistic chain appears to be increasing. In Norway the interviews revealed a more reserved attitude towards this aspect.

The informant from Ålesund city administration does not consider eco-labelling of transport as important to achieve increased mode change from road to sea. Consumer interest of eco-labelling is considered of little importance. This interest is not large enough to influence the transport sector. It is not considered relevant for Ålesund city administration to take part in developing such a system. If this could be done as apart of the system of “environmental lighthouse”, which the institution already takes part in, it could however be relevant.

Møre og Romsdal county consider it difficult to state that eco-labelling is an efficient measure for achieving increased mode change from road to sea. It was expressed a willingness to try out a system of eco-labelling of transport, but if the costs for this are high, a serious assessment should be carried out before implementing such a system.

The Norwegian Regional Coastal Administration stated that eco-labelling is important as a mean to achieve increased mode change from road to sea and rail and improved direct sea-rail connections. Such a system will make the advantages from sea transport visible. It is also relevant for the institution to take part in a work of developing eco-labelling of transport. Other factors, such as safety and availability, was however stated as being equally important.

The informant in NSB Goods had doubts about that the Norwegian market is ready for the implementing of eco-labelling of transport. The argument that rail has the advantage over road transport of environmental reasons, was expressed as being important just to a minor group of NSB Goods’ customers. Rather than eco-labelling, NSB Freight rather consider Environmental Management Systems (ISO 14000) or similar standards, as a potential strategy to achieve increased mode change from road to rail.

According to Norwegian Shipowners’ Association there would be no drawback to eco-label sea transport, but there would hardly be an important advantage connected to eco-labelling either. If sea transport obtained such a label, other transport means would most likely follow up with their own labels. Hence the effects might neutralise each other.

Norwegian Shipowners’ Association is aiming at environmental differentiated charges. For instance should ships with tanks for catching hazardous waste be favoured with less harbour dues (i.e. not have to pay harbour dues for ‘environmental tonnage’).

MARINTEK expressed that the environmental profile of transport is becoming more and more in focus by transport buyers, especially abroad. In addition to emissions, factors such as noise and risk should be emphasised in this regard. Eco-labelling in this case is legitimate if sea transport is performed with high efficiency (that is with good logistics). Otherwise high emissions per ton cargo might be the result.

A manifestation of the growing importance in Finland of having an environmentally sound logistic chain can be found in the Kymenlaakso Regional Council’s strategy, which is derived from environmental principles, and aims at privileging rail and sea transport. Projects, like decreasing a number of bottlenecks and reducing other weaknesses, are focused on greening of the whole logistic chain.

The paper industry, which is this SAVE-project’s case in Finland, is an industrial sector

which could take advantage of a green image of transport by rail and sea. This could have influence on the strategic company choices for transport mode in this sector. Paper industry however has two different classes of transports connected to it:

- The transport of big rolls: they are not so well suited for container (for unitised) transports
- The sheets: they are suited extremely well for container transports

Thus, a significant part of exported paper isn't well suited for intermodal transport like containers. Nonetheless, the number of container transports is still increasing in the case company UPM-Kymmene.

The friendliness to environment appears to have become a competitive factor. Environmentally sound transport chains will increasingly be rather a reality than a benefit in a business environment. But energy saving and other environmental issues are not the most important things for customers yet. Nevertheless, customers are increasingly showing interest in environmental friendliness of the transport chain of the products they've bought. Thus, the freight forwarders are pressured to take to whole transport chain into consideration. The significance of such criteria will probably increase in future. Energy saving and reduction of the use of fossil fuels are important from an environmental point of view. There is however a need for more research in developing tools for measuring and comparing different modes of transport as well as whole logistic chains.

The examination point of view must however always be kept in mind. Is a logistic chain examined for the country or origin or from the whole export transport chain's point of view, and is it examined for example from the point of view of the costs, environment or damages?

The possibility of future demands going in the direction of environmental certification of goods according to a cradle to grave principle might be a way of obtaining desired mode change.

A system for eco-labelling is considered important by most of the interviewed actors in Finland. The possibilities for developing such a system are however viewed as difficult. The Regional Council has the possibility of participating in developing an eco-labelling system, but only at the level of the region's transport system. A transport company has also many possibilities to take part in developing eco-labelling, but there are no general measures present aiding in this task. The main problem with eco-labelling systems, from the Finnish point of view, is the difference between Finnish export transports and Central European ones. An eco-labelling system has to be fair in order so that geographic location would not be of large significance. The transport of Finnish export products (as well as Nordic products in general) to e.g. the Central European market requires more transport kilometres than the products manufactured in Central Europe. The TT views that when the eco-labelling system is developed, it is essential to participate in this work, in order to ensure that the different national characteristics are taken into consideration.

In addition to eco-labelling of transport, the existing environmental standards (e.g. ISO 14001) are considered to be a part of the basic policy of the companies in Finland.

In Sweden it is evident from the interviews that if more actors could demand transports or label their own transports with the label "Good Environmental Choice" from SSNC, as a part of their environmental work, the actors can point out their environmental achievements to the

customers before they discuss the price so that this knowledge will influence the customer's decision.

Rail Combi consider that in the future probably more companies will demand that their transports will be marked as "Good Environmental Choice" and that this can be included in the companies transport policies. Rail Combi also regards that it is important that the customers become aware of the environmental problems so that it is natural for the customers to buy environmentally friendly products. If the eco-labelling system documented how the product has been transported, the customers could more actively choose products, which have been transported in an environmentally friendly way.

Even though Rail Combi has the eco-label "Good environmental choice" for some of their transports, they have not experienced any greater demand for these transports. However, the company has not used the label as much in their marketing yet. On the other hand, many foreign transporting companies have old lorries and it would be of value to have an international eco-labelling system for different transport modes, which compete with each other. It is relevant for Rail Combi to take part in the development of such a new eco-labelling system, for example by sharing the experiences which Rail Combi has gained, and work in the direction of making the system as uniform as possible.

The informant at ASG considered that eco-labelling is very important. ASG believes that it is important to establish a number of criteria's that should be fulfilled to be able to classify a transport as an eco-labelled transport. To make the classification based on the transport mode is not desirable according to the informant. ASG can not directly develop such system but can take part and influence decision-makers. This has also previously been done.

NMA stated that eco-labelling of transports could be important to create debate and opinion. NMA could, for example, contribute with some materials as input in the eco-labelling process but it is not relevant for them to more directly take part in developing such a system.

The informant at ODAL also pointed out that it would be difficult to establish a system that is neutral and does not favour specific transport modes. The environmental level of a transport also changes when the load factor changes and this happens all the time for transporting companies. It is not today a relevant activity for ODAL to take part in developing eco-labelling systems according to the informant.

CABS regard eco-labelling as important and consider it as a relevant activity for them to take part in. CABS could, for example, initiate and/or finance pilot projects.

LRF regard eco-labelling as important and it is also a relevant field of work for LRF to take part in developing such a system for the transport sector. LRF could participate by offering their services.

4.1.6. Co-operation and co-ordination of the actors

Many of the interviewed actors consider that an increased co-operation between the different actors of the goods transport system is important. The logistic systems and the connection between different transport modes require good cooperation.

“Ålesund Havne- og Transportforum” was established by Ålesund city administration to improve the co-ordination between the different actors, and is a forum for regional actors both from export companies, transport companies and local and regional authorities. The forum is a network stimulating information and co-ordination between the participants. Other purposes is to take part in development of Ålesund harbour, give input to political and administrative institutions and contribute to improve the competitiveness of harbour and transport businesses in the community. The work was however started only recently, and only limited results are obtained so far.

Møre og Romsdal county administration consider that there is a large potential in improving co-ordination of the transport chain, but many actors make this difficult. The most important task is considered to develop transportation centres. In addition to land use planning, is co-operation important to develop necessarily facilities such as terminals, logistic- and goods handling systems. Well functioning co-operation across organisations and companies is needed. New organisation models could also be relevant for this.

The Regional Coastal Administration stated that co-ordination along the whole transport chains is very important in order to achieve increased mode change from road to sea and rail and improved direct sea-rail connections. The administration is taking part in such work, e.g. the transport plan work in Møre og Romsdal county and other communication authorities. In Trondheim however, the location planning of a new rail goods terminal appears to go in wrong direction, without connection to the sea.

Potential candidates which were pointed out to lead the co-ordination work in Norway, are the Regional Road Administration and the Regional Coastal Administration.

NSB Goods’ largest customers are transport agencies / forwarding agents. In addition, there are several small customers operating as independent actors. These tradesmen and industry companies would have benefited from co-operating in order to handle larger transport volumes.

Improved intermodal transport services could have been obtained if truck companies to a larger extent realised that they have common interests with NSB Goods in combining truck and rail transport.

From the Norwegian Shipowners’ Association’s point of view, co-ordination between all various actors in the transport field is important, especially considering today’s outsourcing trends. In Norway most buyers of transport services are aware of ship as an important transport mode. Not so in continental Europe, where most shippers only think in terms of road transport. The need for improved co-ordination in order to strengthen intermodal (sea) transport is therefore more pronounced in Europe than in northern Scandinavia.

MARINTEK’s view on efficient transport chains is that they demand closely integrated alliances between the different links. A steady and efficient flow of goods is an imperative in all logistics. This can only be obtained by commercial partners seeking each other based on mutual dependence and interest. Good information technologies are useful tools in this process.

Enhancing the co-operation between actors is also an important strategy at Finnra. Even

though the particular intermodal and rail/sea transport strategies are absent, the co-operation strategy can have impact on improving access to rail and ports. If there was a body that would be responsible for the entire transport chain, it would be easier to optimise it on the whole.

In Finland, the co-ordination and co-operation is seen as an important measure within the public bodies, especially the co-ordination at the system level. The Ministry of Transport and Communications in Finland should have the leading co-ordinator's role. In private sector the co-operation can be more problematic, since the question of competitors and business secrets may arise quite quickly. However, the private companies could participate in co-ordination as well, if the leading co-ordinator is some impartial organisation. Also the railway operators are considered to have a significant role in co-ordination. The public bodies find the co-ordination of the whole transport chain important as well, at least at the system level. The problems for private companies are the same as in previous question. Often the obstacle for co-operation is the fact that companies do not want to reveal their business plans etc. to the competitors. An impartial organisation as a co-ordinator could make the participation in that kind of work more attractive.

The possibility of improvement in intermodal transports by facilitating better co-operation between different actors also appears to be relevant in Sweden. This would be a challenge for both the government and the other involved actors. For example one suggestion is to create more incentives for discussions and create more meeting arenas such as seminars and conferences.

The counties of administrative boards in Sweden have a challenge to improve the co-ordination of the infrastructure, traffic, regional development, planning of investments in roads, railways, establish better traffic regulations, also for sea traffic.

Co-ordination between the actors in the transport sector is important according to ASG. The co-ordination between the Swedish National Rail Administration and the Swedish State Railways is crucial for the possibility to transport more goods on rail. It is also important to ensure that goods transport is not under-prioritised compared to passenger transport.

ASG also pointed out that informing themselves on the conditions in other countries in Europe and the conditions at different operators, is a way that ASG could participate in more co-ordination between actors. This knowledge has the potential to give ASG ideas of how to better organise the transports, which also benefits the customers regarding rail and sea transports. The organisation, which was pointed out to have the lead co-ordinating role for this work, is the Swedish National Rail Administration. Co-ordination in the whole transport chain including reloading and controlling all the links in a transport chain is regarded as a substantial problem by ASG. It is also, as previously mentioned, important for ASG and railway/sea operators to provide better reliability and quality of the rail- and sea transports so that these transports can be as a good an alternative as lorry transports. The problem is often that the railway or sea transports can not correspond to the requirements of the customers (e.g. a fast delivery). The informant at NMA considered co-ordination important in every way, also in the whole transport chain. NMA takes part in such co-ordination and has the potential to participate more in the infrastructure planning of the transport sector including harbours and railways etc. The infrastructure is considered particularly important for the intermodal transports. More co-ordination is necessary between NMA, the SNRA, the Swedish National Rail Administration, the CAA and SIKÅ (Swedish Institute for Transport and

Communications Analysis). SIKA was also pointed to as a potential co-ordinator, and is actually carrying out aspects of this task relatively well today.

The informant at NMA commented that maybe the use of new Internet technology could improve the co-ordination between the actors in transport chains. Applications could be to use Internet technology to be able to increase the load factors and to minimise empty return trips.

The co-ordination in the transport chain is considered important by ODAL. ODAL however wants to handle the co-ordination between relevant actors themselves and the informant is of the opinion that functioning of the co-ordination is satisfactory today at ODAL.

Co-ordination in the whole transport chain is an important issue according to the informant at Rail Combi. The informant at Rail Combi stated that it is important with better co-ordination, even though they co-ordinate and co-operate rather well with other companies and that the most suitable transport mode often is used for the actual distance and type of goods. Between the Swedish Road Administration and the Swedish Rail Administration there are however possibilities for improved co-operation. On the governmental level there is a lack of co-ordination and control at the moment. It is important that the roads are planned also in relation to the rail and harbours so that intermodal transport could be of interest. Rail Combi also wanted to take part in co-ordination especially regarding intermodal transports. The kind of institution that should have the lead co-ordinating role is unclear. It is possible that a new governmental authority could be the solution or if SIKA could be given a more extended activity in this area. Forwarding agents has probably a better possibility to co-ordinate the whole transport chain than Rail Combi. Rail Combi wants to take part in more co-ordination but is presently more functioning as a subcontractor for their part of the transport chain.

CABS regarded it important with better co-ordination between the actors. It is also of interest for CABS to take part in more co-ordination. CABS suggested that the different national transport administrations together with CABS could take a common co-ordinating responsibility. SIKA could possibly also be used as a complement for example to conduct investigations. The informant at CABS considered co-ordination in the whole transport chain as important. CABS are involved in co-ordination and thinks that it for example, is important with more co-ordination. For example, it is important to establish more intermodal transport centres. CABS could have a role to investigate the background for such an establishment and CABS could e.g. also financially support local initiatives.

LRF commented that co-ordination is important and that LRF is interested in taking part in more co-ordination. It was also expressed that organisations representing different transport modes should take more responsibility for the co-ordination according to the informant. The informant at LRF considers that co-ordinating can be problematic and regards e.g. that the co-ordination with SJ has been difficult historically. It is also important for smaller hauliers to co-ordinate their transports to be able to compete with larger forwarding agents. Organisations representing different categories of business like wood industry, slaughter industry and the grain & milk industry could take more responsibility for the co-ordination. LRF is also interested to take part in more co-ordination.

4.1.7. Harmonising of standards and regulations

Ålesund city administration, Møre og Romsdal county administration and The Regional Coastal Administration consider it important to harmonise standards and regulations as a mean to achieve increased mode change from road to sea and rail and improved direct sea-rail connections. Particularly the container standardisation is considered important for making the sea transport more effective. Møre og Romsdal county administration has brought this issue into the Nordic Transport-political Network and central authorities in Norway.

For NSB goods, harmonising of rail infrastructure throughout Europe is the most important initiative in this field. Differing standards for rails, gauge (narrow/wide), signal systems are hindrances for effective flow of rail goods. Rail transport is also restrained by old fashioned rules on operation of railways. In a way there is a struggle between two systems: The administration of traditional goods wagons (characterised by low speed, many stops, frequently re-combinations of train sets) and express goods (carried by huckepack/swap bodies in high speed between main destinations, with relatively few stops).

Norwegian Shipowners' Association expressed that harmonising of standards between the transport modes is of vital interest. To achieve increased use of intermodal transports, one single consignment note should follow the goods from sender to receiver. Today different rules and forms for road, rail and sea transport is complicating the establishing of intermodal transport chains. For sea transport, the bureaucracy is particularly problematic. This can be illustrated by an example: If a Swedish ship with a Swedish captain sails from England to Oslo, the captain will have to fill in 20 different forms from when he arrives until he can leave.

Transport of dangerous goods is another example: Differential treatment between transport modes regarding reporting and precautionary measures, forces hazardous goods from sea over to cheaper road transport. In stead of transporting dangerous goods in open sea, such transport is done by trucks on roads with heavy traffic passing through densely populated areas.

Sea transport will meet new challenges as the result of the introduction of the Schengen Agreement. The Schengen Implementation Agreement (SIA) has so far been signed by 13 of the 15 current EC member states, as well as Iceland and Norway. This agreement on police co-operation and abolition of EC internal border-controls, means that harbours in the future will represent the strongly guarded outer border of the Schengen area, while land borders gradually will be built down as administrative obstacles for transport. This process emphasises the need for harmonising regulations between transport modes in order to achieve increased mode change.

MARINTEK expressed that today's different rules for different transport modes is a barrier for mode shift from road (and rail) to sea. Sea transport faces general obstacles regarding customs clearance. In this field there is a need for harmonising on the rules. Transport of dangerous goods is another example: The international regulations for sea transport of hazardous waste (International Maritime Dangerous Good Code, IMDG), is far more rigid than the corresponding regulations for road transport (ADR) and rail transport (RID).

In Finland, the harmonisation of standards and regulations is considered very important among the interviewed actors. The informant from Finnra is however of the opinion that the standards are not essential regarding transport mode change. TT participates in developing

and harmonising standards, particularly in projects which concern the measuring of service level in transport chains. The Port of Kotka views the harmonisation of railway operations as being of greatest importance. All actors did find it important to participate in developing the harmonisation of regulations and standards.

In Sweden, the informant at ASG regards that standards are important, and is of the opinion that it is possible today to work with the present standards and regulations. It is also possible, according to the informant, that some stakeholders in this business could use the discussion about harmonisation as an excuse for not making more effort themselves. ASG has historically worked on influencing the development of standards, but only to a limited extent.

NMA consider that it is important to harmonise safety and environmental standards and regulations. NMA is co-operation with the other Nordic countries in trying to harmonise other standards, such as safety regulations.

ODAL consider that it is important to develop harmonised standards in some areas, for example, the width of tracks in different countries. Also the taxation of the transport sector in different countries should be more harmonised.

Rail Combi consider the harmonisation of standards important, and that the lack of standardisation is a problem today. For example load carriers are seldom adapted for more than one transport mode, which makes intermodal transports more difficult and less effective. Rail Combi tries to influence inspecting authorities to develop better standards and the informant also considers that inspecting authorities generally could take the responsibility for more harmonisation of standards.

The informant at CABS considers it important to harmonise standards and regulations and regards that this is a relevant work area for CABS, to some extent, to be involved in. One example is when deciding the design of charges for different County Public Transport Authorities.

The informant at LRF regards that more harmonisation of standards and regulations is important. The profile of the wagons in railway transport is a potential area for standardisation. LRF is participating in a group that is discussing standardisation where LRF are declaring their special requirements. However, harmonisation is probably more of an issue for organisations representing different types of business or larger companies.

4.2. Specific measures and actions for road to rail transfer

This chapter contains material on measures and actions to encourage transfer of goods from road to rail. From the interviews in Norway it appears to be few political measures aiming at this mode change. Of the measures, which exist, almost all apply only within the rail companies themselves.

Rail has a disadvantage relative to road for short distances, and are only rarely an option for distances <300 km. The low flexibility of rail is a problem in this regard. Organisational problems, which can e.g. reduce the possibility to efficiently control the choice of transport

mode, also exist due to “outsourcing”. This is the situation for the Swedish case-company ASG.

Other identified actors and knowledge sources for rail transport have been identified during the interviews and literature search, and include:

- Combi-Verkehr (Germany): Similar to NSB CombiXpress
- Hupac (Switzerland): Handles much goods transport between North Germany and Italy.
- SweCombi (Sweden): One of the most proactive in new goods transport solutions in Skandinavia. Collaborates with NSB, currently as a customer, but a more close collaboration in the future is possible.
- UIRR (International Union of Combined Road-Rail Transport Companies) has strong position in the EC system and national governments in order to lay the foundations for more combined goods transport.
- Staffan Tornfors on the Swedish Forest Industries Federation in Stockholm. Works full time with co-operation matters.
- Per-Åke Arvidsson on SkogForsk, Uppsala. Works together with Swedish Forest Industries Federation and LRF in many projects, trying to affect the Swedish transport policies.
- NUTEK
- KTH’s railway group, Oskar Fröjd
- KFB (Kommunikationsforskningsberedningen)
- Nordic Rail Group
- HEMKÖP’s reports about results from pilot actions made by forwarding companies. Example is the report from pilot actions with light-combi transports, which also has been documented by researchers at Chalmers University of Technology.
- The Swedish Society for Nature Conservation (SSNC)
- Companies like Electrolux, ICA etc.
- Environmental reports from SJ
- Literature about “Good Environmental Choice” from SSNC.

The measures and actions for road to rail transfer is grouped into five main categories. They are:

- 1) Rail transport infrastructure improvement
- 2) Increasing frequency of rail departs
- 3) Adjusting delivery volumes to suit rail sizes
- 4) Co-operation between actors
- 5) Information on rail transport

4.2.1. Rail transport infrastructure improvement

The growth in person transport by rail is problematic for the goods transport. Particularly the increase in high-speed passenger trains causes problems for the increase in goods transport. These trains often get first priority in order to utilise the high speed. Goods trains will have to wait, on order to let the faster passenger trains pass. A growth in goods transport by rail will thereby face increasing capacity problems on the European rail network.

In order to increase the capacity of the rail transport corridors there are major changes to be made, and many measures that can be used. The actions and measures that the interviews identified to be important have been categorised in six types:

- 1) Enlarging tunnels
- 2) Separate rail for goods transport
- 3) New bridges
- 4) New trains
- 5) Mode transfer points/terminal improvements
- 6) Other measures and actions for rail goods transport

Enlarging tunnels

The transport of semi-trailers on train demands larger space than traditional “vognlast” and system trains. This implies that some tunnels need to be enlarged to facilitate this type of combined transport. In Norway as of February 2000 it is only the rail lines Oslo–Trondheim and Oslo–Stavanger where the tunnels are large enough. In August 2000 Raumabanen (Dombås – Åndalsnes) will also be ready for such transport. Further plans include the opening of parts of Nordlandsbanen (Trondheim-Bodø) before the end of 2000 for this type of transport. More long-term plans exist for Oslo-Bergen, but this requires much work due to the many tunnels on this route. It is the responsibility of The Norwegian National Rail Administration to carry out these changes in the rail infrastructure.

Separate rail for goods transport

The increased use of rail for goods transport will also require more sections with double tracks where trains can meet or pass each other. It is a strategy in NSB Goods to put pressure on The Norwegian National Rail Administration to speed up the construction of such rail lines. The length of trains must not exceed the length of the double track sections. In many cases, particularly for trains carrying parcel goods, are short double track sections barriers to the full utilisation of the locomotive power.

During the years 1994-1997 many bottle-necks in rail transport have been eliminated in Finland. The construction of a double track between the segment of Inkeroinen-Juurikorpi, has in addition to removing level junctions, other improvements of the railway, arrangements of the customs and border crossing station of Vaalimaa, improved the rail system.

As mentioned earlier, is the conflict between person- and goods traffic becoming a problem. Many counties in Sweden expect that the expansion of fast train connections will decrease the transport time for goods. Double tracks will be necessary in large sections of the rail system, in order to meet the demand for faster passenger trains. In the north part of Sweden, the development of a separate heavy traffic net for the railroads is considered important.

The Swedish State Railways (SJ) and the National Rail Administration have high costs for the infrastructure e.g. side-tracks. The cost for the maintenance seems to be the problem. SJ is accordingly to a great extent removing these tracks. Further negotiations to maintain the side-tracks is in many cases necessary to secure sufficient infrastructure for further use of the rail mode for grain transport in Sweden. However, the question of who is going to pay the cost for the tracks is a problem in most cases.

New bridges

The two new bridge projects, Fehmarn Belt and Øresund, can have large impacts on the possibilities for transferring of goods from road to rail. Both could make rail transport a more attractive mode choice.

New trains

2-stories rail wagons for transport of containers and semi-trailers are necessary for the increased use of rail as the preferred transport mode in the future. The investments in new trains are the responsibility of rail companies.

New and more powerful locomotives will also be necessary to increase the length of trains, which thereby can carry more goods. This is particularly the case for bulk transports.

Axle load limits both for current rail lines and carriages will have to be higher in the future. A large part of the carriages being used today in Norway are old and often modified equipment. Two-axle container-carriages today has a maximum load capacity of 29 tonne. They can carry two containers. Brewery-containers are often in the 18-19 tonne weight range. A two-axle carriage can thereby only take one brewery-container, and the rest of the available space can not be utilised due to the problem of uneven weight distribution. New types of equipment and compatible load limits are necessary to improve the energy-efficiency of the rail mode, and thereby make it a more attractive transport mode.

Private companies like Transfennica have no political measures, but as an example of block train tells (below), it is possible for a private company to achieve real changes in the logistic chain.

An example from Finland where co-operation between actors has shown to be essential is when Transfennica participated in developing a block train from Antwerp to Italy in the early 90's. Bureaucratic railway administrations proved to be a problem, and it took nearly two years to overcome the various bureaucratic obstacles. The situation may be better nowadays, but it is likely that it still need improvements. Nevertheless, once the project had been accepted, the technical phase of making it operational ran very smoothly. The concept of the block train is the following one: Railway companies are offering their services for bringing the wagons rented by the principal from A to B. A result of this cooperation has been the investments by Transfennica in documentation and information management in order to run the systems smoothly.

- The Finnish Railways (VR) has also objectives concerning block trains and the development of the Russian traffic (container block trains from the ports of Finland mainly to Moscow). Since Finland has identical rail gauge as Russia, reloading at the border is unnecessary. The goal is also to get trailers transported on the same train.
- Containers via the Trans-Siberian Railway to Nakhodka Vostochny, the container port of the Far East. Use of this concept will be increased and made more efficient.

From a shipping company's point of view, intermodal transport is regarded as essential. This is the background for Transfennica's large investments in containers.

In Sweden an improvement in the grain transport by train would be that SJ could start offer grain wagons themselves. Today these are rented from other countries.

For goods transfer by rail to be a long-term option it is necessary that today's distances by diesel trains will be replaced by trains driven by electricity produced from renewable sources of energy (hydropower, wind power and solar power).

Mode transfer points/terminal improvements

The terminals in the cities often have a central location, often in areas with high road traffic density. This often results in less than optimal efficiency of the goods transfer. Traffic jams and long wait periods before and after the loading is common. NSB Goods has the following strategies regarding this:

- Channelling of the transport to avoid the peak rush hours
- Relocation and consolidation of the goods terminals.

A transition into using combined transports will require different and more area demanding terminal infrastructure than the handling of traditional goods transport by train required. This will include dedicated fork-lifts with larger capacity than currently in use. The informants from NSB Goods are of the opinion that it will take many years to build up the combined transport system KombiXpress to a profitable level. This is necessary before further investments can be made in new equipment, both carriages and terminal infrastructure.

NSB Goods is planning the further expansion of the central rail terminal for goods in Oslo, the Alnabru terminal. The Ministry of Transport and Communications supports the plans, and area is available, but there is a growing potential for conflicts with local residents.

The logistic centre for railway traffic in Kouvola, Finland is an example of a project undertaken by a regional county in order to improve the infrastructure for rail transport of goods.

For ODAL and the agriculture industry, it appears to be difficult to transfer much more goods from road to rail, especially if the transport is to be loaded on rail directly at the silos. A possibility is to load first on a lorry and then on railway. The average distances are however probably too small, about 70-100 km, according to previous energy analysis. Rail Combi indicated that below 100 km there is no real chance to compete with road transport. The longer the distance, the more cost efficient is rail transport. A rule of thumb in ASG has been that a transport over 300 km can be suitable for rail transport. The informant at ASG is nevertheless doubtful if this distance is the correct one. LRF indicated that 150 km could be a reasonable distance to transfer to rail from road. It could be less if rational reloading stations exist.

Rail companies have the sole responsibility for the operations of the rail terminals in Norway and Sweden. An example from Finland where this is not the case is found in Kymenlaakso, where the regional council is supporting the building of a railway logistics centre.

In Sweden there are today two big passages for rail transport from the inland to the coast. One passage is located around Sundsvall. The other one goes from Dalarna down to Gävle. For the railroad to compete economically there should probably be at least 150 miles from the forest

to the industry. When reloading everything has to be rational, no one should have to wait and no extra trucks should have to go there for the reloading (they should be stationed there all the time).

LRF's comment on intermodality is that it generally is very expensive to reload. A reload can cost the same as a transport of 50-100 km or even more. A lorry, which has a full load, takes at least 0,5 hour to unload (if the driver does it himself with a crane). It is also common that the drivers have to wait at the reloading stations. If a certain type of big cranes is used the reloading can go much faster. On the other hand these cranes are very costly. No revolutionary new technical development is expected so it seems difficult to make this process much cheaper.

Other measures and actions for rail goods transport

According to the decision of the Ministry of Transport and Communications in Finland, general plans for aligning railways will be made for the sections between Kerava-Lahti and Lahti-Mikkeli. The section Kerava-Lahti is the first to be developed. The speed level in the rail traffic to St. Petersburg will be increased as a result of this. In its decision, the Ministry also proposed that if the community structure seems to change a great deal in south-east Finland, or if the transit traffic to Russia grows considerably, the coastal railway alternative may still become the preferred choice.

Concerning the improvement on infrastructure in Swedish railways, LRF suggests trying more with unattended stations (especially when dealing with wood products). Another problem area for the railway is that side-tracks have more often been removed than invested in. The removing of tracks seems to be a cost matter for SJ and the National Rail Administration.

ODAL has historically only used rail to a small extent. The incitements to use more rail transport have been small. SJ hasn't offered tracks but has rather removed tracks unless ODAL has paid for them to stay. The new necessary rail infrastructure has not been built regarding goods transports. Of the about 80 silos in ODAL only 5 have railway tracks to them. If ODAL hadn't financed the tracks close to these 5 silos, they would not have any tracks left. One main problem is that there must also be tracks to the customers. There is an option of using intermodal transport due to the lack of tracks to the customers, but this implies extra reloading costs.

Rail Combi makes together with other companies in this sector a list every year of what they think is important to invest in. The Swedish National Rail Administration then receives this list and allocates the governmental funding.

An important measure for the EC is to enjoin the member states to reduce the differences in transport systems (width of track, electricity system, harmonise load profiles, bureaucracy and rules etc) and make it possible to use the transport mode (e.g. the same train) throughout the whole Europe. These differences in national systems for transport constitute thereby barriers for the increase in rail transport in Europe.

4.2.2. Increasing frequency of rail departs

Combined transports implies a streamlining of the goods transport, where faster and more frequent departures are needed. This will be a challenge for all rail operators, where timelines are critical. The demand for increased frequency of departs has for example resulted in that the CombiXpress – trains has fixed departure times and carriages.

4.2.3. Adjusting delivery volumes to suit rail sizes

In order to facilitate a transfer of goods transport from road to more energy efficient rail it is necessary that goods volumes and carriage types are compatible. The railway companies must be able to offer the right carriages for the type of goods to be transported. Measures to facilitate this are viewed as crucial among many of the informants.

4.2.4. Co-operation between actors

Today, there are many public actors within the transport sectors, but their area of activity and responsibility are not well co-ordinated. The work carried out within the transport area has been, and still is very much separated into individual sectors. An example of this from Norway is the separation of responsibilities between rail and trains. The Norwegian National Rail Administration (Jernbaneverket) is responsible for the rail infrastructure while Norwegian State Railways (NSB) is responsible for freight operations and rolling stock (locomotives and carriages).

Good co-operation between goods and the passenger transport is necessary for an efficient transition to increased use of goods transport by rail. The routes for goods transport must be harmonised with the passenger routes. Low flexibility in the goods transport can partly be due to the limited possibility for making changes in the routes schedule. In Norway changes can normally only be made when the routes for person transport are revised, which is twice a year. Additionally, the changes in the route schedules have to be submitted six months in advance. This low flexibility is a challenge for increased goods transport by rail. Co-operation between the different actors is important in order to harmonise the routes and thereby facilitate the desired mode changes.

The lack of co-operation between the different rail operators is also a problem pointed to by ASG. Transport with all modes (road, rail and sea) in the same transport has not met ASG's requirement in most cases, other than perhaps in some special cases for example like when a bridge is involved (like over Öresund).

Another example of the difficulties associated with cooperation is the negotiations between LRF and SJ about prices for goods transports etc. During the years these negotiations have not led to any major breakthroughs. ODAL has also negotiated with SJ on several occasions. About 10 years ago this led to some transferral of goods to rail. This co-operation is however ended. Negotiations about side-tracks is also an initiative. The sharing of the costs between the different actors is however a major barrier.

4.2.5. Information about rail transport

More information about rail transport to the customers is important to make this mode a more likely choice. Rail Combi e.g. has on their web-site a possibility for the customers to calculate the effect on the environment with different transport modes. The potential customers can free of charge decide their environmental profile. This service is used frequently. A similar database for transports in Norway will be available on the NSB Web pages shortly.

The Port of Kotka has in addition to being a major sea harbour also the function of promoting intermodal and rail transport.

4.3. Specific measures and actions for road to sea transfer

As pointed to in the report from the Nordic Transportpolitical Network (NTN) in the InterregIIc-programme does the “simple interconnections” and “loose couplings” give sea transport an advantage compared to other modes of goods transport (Hansen et al, 2000). The number of operators and the risks can be held down compared to rail in many cases. For example is white goods transported from Greece to Sweden by boat because the risk, for e.g. loss of goods, is reduced compared to land (road) transportation.

From the interviews in Norway the sea transport can be characterized as having many measures and plans associated with it, but few decisions are made regarding changes. The measures are characterised by:

- Being linked to public planning systems
- Being linked to land-use planning
- Being linked to public economic measures
- Having many involved actors (also private) in the planning processes
- Being related to the European Spatial Development Planning (ESDP) system, where sustainable development criteria have high priorities. There is a separate ESDP report for each EC country.

4.3.1. Shipping lines as agents for carrying out mode change

The shipping lines are in general positive to intermodal transport / the expansion of sea-based goods transport systems in Europe. In Norway the most important shipping lines in this respect are SeaTrans, DFDS, NorCargo and LysLine.

4.3.2. Research and Development activities in transport mode change

Apart for the activities at MARINTEK, maritime research in Norway is carried out at

Norwegian School of Economics and Business Administration in Bergen, and at Møreforskning Molde. Both apply a macroeconomic approach. Agderforskning is in addition carrying out modelling research for maritime goods transport.

The Norwegian Shipowners' Association claims that the general competence of sea transport in Norway is weak. This gives the politicians a rather weak decision base in the area. One problem is that researchers with background from land-based transport research have used statistics in a way that is damaging for the sea transport (again according to Norwegian Shipowners' Association).

The Near-coast traffic programme (Nærskipsfartprogrammet) was initiated by Norwegian Shipowners' Association. This programme has not quite fulfilled its expectations. It is primarily the largest shipping companies who appreciate the use of the this programme.

Annik Magerholm Fet at Møreforskning Ålesund³ is collaborating with Det Norske Veritas regarding development of tools for Life Cycle Analysis (LCA) of sea transport. This research is on-going, with remaining work being on the methods, data gathering and system definitions. The tool is not ready to be used yet. Preliminary results indicate that 80 % of the emissions are from the use-phase of the ships.

The Institute of Transport Economics (TØI) in Norway has carried out research on sensitivity-analyses for transfer of goods between transport modes. This work has been done as input into the National Transport Plan. The question asked was how much the price for one transport mode must increase in order to facilitate transfer to another transport mode (e.g. land to sea). The conclusion was that the elasticity between the various modes is small. TØI did however not recommend that the results from these analysis could be used in decision making. This is symptomatic for the field's knowledge status of today: Large gaps on the basic level exists (modal comparisons and sensitivities).

MARINTEK's partners

MARINTEK has several partners which might have an interest in influencing the mode change from road to sea. They are:

- TU Delft (Delft University of Technology / De Technische Universiteit Delft) in Netherland works with development of sea transport concepts.
- Fraunhofer-Gesellschaft, largest technological R&D company in Germany, with strong competence within IT. 8-9000 employees, main office in Munich. MARINTEK's primary contact is "Fraunhofer Institut Informations- und Datenverarbeitung" (IITB), situated in Karlsruhe (<http://www.iitb.fhg.de/>).
- Hamworthy KSE (formerly Kværner, now with British owners). MARINTEK collaborates with the division in Göteborg. Hamworthy KSE AB, Kämpegatan 3, SE-411 04 Göteborg, Sweden, Tlf. +46-31-725 79 00, Fax: +46-31-725 78 00, E-mail: goteborginfo@hamworthykse.com, Internett: www.hamworthykse.com. Hamworthy KSE was the co-ordinator for the IPSI-project.

³ Fet, Annik Magerholm (1997): *Miljøledelse i livsløpsperspektiv - et bransjeprogram i skipsindustrien, Hovedrapport*. Rapport Å9708. Møreforskning Ålesund.

4.3.3. The Norwegian government's role in stimulating mode change

The Norwegian Parliament / Ministry of Transport and Communications is favouring land based transport. This happens e.g. through subsidies to lorry transport. Due to Norway's membership in the European Economic Area (EEA) direct governmental aid to transport companies is not longer allowed. In real life these transactions occur in the form of various measures connected to development of industry, production of particular types of goods etc. This is administered closer to the end-user, as part of the frame support to the counties, with regional differences. It is not an easy task to estimate how large amounts are transferred to land transport in this manner.

Ålesund city administration stated it important with higher national priority of harbours. The economic support from the state have to be more focused to harbour with a great potential of traffic or a clear potential for development. The aim has be some harbour with competitiveness. Today the support is not focused well enough to aid in harbour improvements.

The measures and actions for road to sea transfer are divided in 6 main categories. They are:

- 1) Sea transport infrastructure improvement
- 2) Port operations
- 3) Increasing frequency of departs
- 4) Adjusting delivery volumes to suit ship sizes
- 5) Cooperation between actors in sea transport
- 6) Information on sea transport

4.3.4. Sea transport infrastructure improvement

The infrastructure of sea transport is traditionally considered to be the ports, fairways (waterway transport corridors) and the service necessary to be able to use the fairways. Municipalities generally own the ports and take out fees from the users.

The measures and actions associated with sea transport infrastructure improvements has been categorised in 4 main groups. They are:

- 1) Port improvements
- 2) Waterway transport corridor improvements
- 3) Ship improvements
- 4) Improvements in port access

Port improvements

Measures and actions regarding port improvements can be divided into the following four categories:

- 1) General port improvements
- 2) Increasing efficiency in ports
- 3) Harbour dues
- 4) Simpler documentation

General port improvements

The National Transport Plan in Norway includes issues as the establishment of National Ports and National Node Points. Ålesund city has in addition an urban port plan which specifies port improvements.

Ålesund municipality has a goal of transferring goods from road to sea due to the fact that it is suggested in the National Transport plan (NTP) that Ålesund should be a national node point port. In the NTP it is stressed that inter-municipal port co-operation is important in the Ålesund region. The municipality has responded to this by starting the planning of a new section of the port. The municipal council has agreed to develop a new plan for the port in preparation for the selection of the port to achieve node point status. This new Harbour Plan is important as a measure for future port improvements. There is a political goal in the municipal council to obtain the status of a national harbour for Ålesund.

A modern port has large area requirements. Ålesund county has in the most recent years emphasised area planning for intermodal transport. This is done both through preparation of a port plan to be finished mid-2000, and through the expansion of the port. A new port section for handling containers were completed in 1994. This has more recently been expanded, and a new port section is added to the south of Ålesund. In addition, a new port section is being planned on the north side of the city (Flatholmen, with an area of approx. 20 hectare). This section has access through a road tunnel. Planned functions in this section include handling of containers, fish port, and possibly roll-on/roll-off operations. The road to the area is financed through co-operation between the municipality and private actors. This road facilitates additional new roads to an industrial area and the new port section, avoiding conflicts with a residential area.

The development of the port structure can be controlled by a new law regulating ports. Through this new port regulation the authorities will have an improved possibility for control of the way the ports expand. By establishing a status for the ports, as suggested in the National Transport Plan, the strategies can be managed and measures controlled both horizontally and vertically in the public sector. Ports can obtain the status of national ports, node point ports and regional ports. The status of the port determines what type of public investment support are given for infrastructure development and port access systems. Having a status as a regional port and node point port opens up national public financing support channels. The status of national port strengthen the basis for such support.

The development of efficient node points with easy transfer to other transport modes is important in order to make intermodality an attractive choice. Sufficient area for service functions and managing containers are important. Terminals, distribution functions, storage areas for cooling and freezing of goods, and other support functions are essential.

These node point functions must have competitive prices in Ålesund, compared to e.g. the prices in the Oslo region. Today, much of the goods to and from Møre- og Romsdal is transported via Oslo port.

The Directorate for Coastal Affairs in Norway points to a future situation where there will be increasingly severe restrictions on the lorry transport, and that the sea transport will have to carry more of the goods.

Examples of port improvements in Finland were given in section 2.1 on EC Regional and Structural Funds. Some of the ports have been financed through projects in the Interreg II A-programme for the Coastal zone of South Finland. These improvements include the increases in capacity and entry roads associated with the Ports of Kotka and Hamina.

The Port of Kotka builds and maintains the infrastructure at the port. The most important issue for them is the adequate infrastructure needed by customers. Basis for the strategy and aims are customer needs. In the long run, it is a company (e.g. paper mill), who decides, how the goods are transported. The Port of Kotka promotes intermodal transport, and as a first port in Baltic Sea area, it will become a member of EIA (European Intermodal Association) from 27th January 2000.

The principle in developing the railways in Finland is the improvement of present tracks. Being the rail traffic centre of Kymenlaakso and eastern Finland, the terminal operations of Kouvola and road networks have to be developed further. The ports of the region will be developed as a part of the gateway-strategy (Regional Council of Kymenlaakso, 1997).

Kymenlaakso is an international production and service centre whose main aim is to develop as a logistics service centre. Logistics centre includes the whole region of Kymenlaakso and consists of existing ports, terminals, and all logistics companies. In the future, resources will be increasingly focused on integrated logistic chain. One way of integrated logistical thinking is "Straightway", which is an office for information supply on the possibilities offered by Southeast Finland as Value-Added Logistics Services Centre for the transit traffic to and from Russia, the Baltic States, Scandinavia and for the domestic traffic in Finland. It provides information and guidance to foreign companies that are interested in finding the right logistics partner or the most optimal industrial plant location in Southeast Finland (Straightway www-pages 29.12.99). StraightWay can be seen as a virtual logistics centre.

The National Maritime Administration in Sweden needs to improve the infrastructure of the sea transport and the infrastructure of the land transport. The NMA could also possibly better facilitate the prerequisites for planning between different transport modes. Likewise, the NMA could also affect the traffic policies, such as regarding the fees for infrastructure.

Increasing efficiency in ports

The ports need to increase the efficiency if increasing volumes of goods shall be transported by sea. The opening hours of the ports must be flexible enough to facilitate the need for loading and unloading operations. The lack of sufficiently long port opening hours is according to Norwegian Shipowners' Association a main barrier for sea transport today. Likewise are "old-fashioned" regulations of rights to perform work in ports an example of a barrier lowering the flexibility of the public ports' function as node points for handling of goods transport.

The transport companies can not afford to leave the goods overnight and wait for the harbour to open next day if the transport arrives after closing hours. Many types of transport, not the least inter-modal, will require ports to be open at night.

Old agreements between workers' organisations and employers appears to be problematic for the shipping companies. Examples of this are found in agreements between The Norwegian

Confederation of Trade Unions and The Ship Agencies' Association in Oslo (In Norw. "Dampskipsekspeditørenes forening"), affiliated with The Confederation of Norwegian Business and Industry. Modern ships with on-board equipment for loading can only to a small extent utilise this, due to the fact that it is the port workers who according to the regulations shall perform the loading and unloading. Similar regulations also prevail in Sweden to a large extent. For transports by lorries with crane in many cases the lorry driver has to pay the port owners for work that is actually performed by the lorry driver. Another example is in timber transport by self-loading boats. When the timber boat needs to unload and leave, many harbours require notice long time in advance. This causes problems for the shipping company, since exact time for call at port is difficult to estimate (this is e.g. weather- dependent). The examples above indicate that the regulations regarding rights to perform work can damage the developments towards more automated loading and unloading, since the transport companies hesitate to invest in equipment that they will not be able to use. This reduces the competitiveness of sea transport compared to road-based transport of goods. In contrast to this has the lorry transports grown up since the 1970s without many of the rigid systems and "old-fashioned" attitudes which are prevalent in sea-transport.

One example however of an action in the direction of increasing the efficiency in the ports is found in Ålesund municipality, where a recently established common forum for port and goods co-ordinate the most important actors in the port. The actors participating are the port authorities, goods handlers, port operations, and shippers. Ålesund Port- and Transportforum was established in the first half of 2000 after a proposal from larger private actors wanting a forum for discussing shared interests and questions with the municipality administration. This forum might evolve into having common steering and control functions co-ordinating and possibly improving the efficiency of port operations without reducing the healthy competition between the actors. The need for a co-ordinating actor for the terminal and port operations might be under-prioritised in the National transport Plan.

New technological solutions can strengthen the competitiveness of the sea transport. Particularly E-logistics is pointed out as an interesting potential. E-logistics might make it easier for small and medium sized companies to utilise the potentials of combined transports.

Reducing loading/unloading time and simplified booking routines for inter-modal transports are viewed as the most important actions to facilitate transfer of goods from road to sea transport.

Weak logistics in the ports result in long loading/unloading periods and high costs. This is reducing the competitiveness of the sea transport compared to transport on road. Through automatic systems for loading and unloading, a reduction in the time spent in the harbour could be possible. However, such automated systems require high volumes of goods in order to be cost-efficient.

MARINTEK has through the EC DGVII -project IPSI (Improved Port-Ship Interface) evaluated automatic systems for efficient loading of roll-on/roll-off -ships. This has been done in order to assess the possibility of reducing the duration of the stays at port. Through this system, it is according to MARINTEK, possible to compete with road- based systems quite well. Kværner and many other large industrial companies participate as partners in this research project. The concept consists of a network of central terminals ("hubs") connected to "feeder" networks. It would however not be possible in Norway to build many such hubs, and the coastline of Norway would be part of a feeder-network. The main issue in the IPSI project

is to utilise the same ship technology for both the hub- and the feeder-networks, such that the automated technology easily could be adapted to the type of goods.

The booking system is more complicated for intermodal than for lorry-based transports. Through IT-based systems for booking and document exchange in transport chains, an important barrier to intermodal transport might be removed. MARINTEK currently works on developing such IT-systems. This is financed by the EC and national Norwegian authorities. EC (particularly the directorate for Transport, DGVII) has large funding of research projects aimed at solving the problems of booking intermodal transports. Beginning in 2000 a new EC project named IP (Intermodal Portal) is carrying this research further.

The intermodality regarding grain transport in Sweden is efficient in areas where dedicated plants in the port exist. One example is when the grain goes directly from silos in pipelines to boats. These would be easier to handle than for intermodal systems in the forest industry, where lifting with cranes and forklifts are the prevalent loading operations. The costs are however critical for the possibility to create special pipelines etc.

Too many actors involved in running the ports can cause confusion of who is responsible. An example of this is in Sweden, where The National Maritime Administration and the ports are responsible for the total infrastructure of the shipping. In some cases the NMA does fund the cost for investments, buoying and maintenance while in other cases this is done by the ports. Even if the ports are responsible for the costs, the NMA receives charges for the traffic in these fairways. This is considered to be causing twisted competition. A possible improvement would be if the responsibility was on the NMA, to keep the fairways, then the NMA could choose to buy the service from other sources, like ports (Ports of Sweden et al., www.shsf.se/sjoremi.htm).

Harbour dues

The lowering of harbour dues is pointed out by Norwegian Shipowners' Association as one of the most important actions to improve land/sea intermodality. This association claims that the reason for the low competitiveness of the sea transport is found in the high port dues. In comparison, both road and rail transport have subsidised infrastructures: The lorry transport pay less than half of the costs for the road infrastructure. According to the Norwegian Shipowners' Association there is a cross-subsidising between private car users and lorries. This is because the private cars pay an unreasonably high part of road costs compared to what lorry transport pay, when the road wear is considered.

For a typical goods transport by sea from Norway to continental Europe, is the total of the harbour dues in both ends, similar to the costs for the transport itself. To a certain degree is this a result of "milking", and the maintenance of an excessive infrastructure. The ports have been owned by the counties for the last 10 years. All cities by the coast, except from Oslo, have a desire of large ports. The costs for boats in the harbours become unnecessary high due to investments in and maintenance of e.g. large storage buildings. These buildings are not longer necessary because the transported goods now is more of a transit-type. The boats sometimes have to pay for port sections which are of mostly historical value. The counties are in other words too ambitious on behalf of themselves regarding port infrastructure, again according Norwegian Shipowners' Association (Bodø is given as one example on this).

Norwegian Shipowners' Association does not take a definite stand in the question of how harbour dues should be designed. Given an aim to develop effective intermodal transport solutions at sea, the administration of harbour dues is considered as a crucial question. This is because roll-on/roll-off ferries – the only vessel type truly designed for intermodal transport – are discriminated by the measurement system in use. Today's harbour charges are based upon the 'New international tonnage measurement system' which was approved in 1969, and gradually implemented between 1982 and 1994. This measurement system is based upon the principle that harbour dues are related to the hold volume (tonnage capacity below the deck). These rules made sense at the time they were decided in the 1960's, but ship technology has changed a lot since then. Partly as a result of the new international tonnage measurement system, cargo boats today are carrying much of their cargo in containers placed on deck (in many cases as much as 50-75 %). Harbour dues are not paid for this tonnage. In contrast to this, roll-on/roll-off ferries carry all their cargo below deck, and will therefore have to pay two or three times higher harbour dues compared to their competitors.

Public ports in large cities operate with large profit margins. The income for Oslo port for example in 1999 was 200 mill. NOK. The expenditures were only 100 mill. NOK, resulting in approx. 100 % earnings (no depreciation). If the ports instead of operating with such high profits would lower the harbour dues, then sea transport would be more competitive compared to road based transport.

Ålesund city administration uses the harbour dues to develop the harbour, especially to build new sections of the harbour. They also get investment financing from the state, but this is little compared with the total costs. Reduction in the harbour dues trying to increase the harbour use (sea transport) could therefore be in conflict with harbour improvement (capacity and facilities). A solution could be increase financing from the state or other incomes (parking fee is an important income for some harbours).

Møre og Romsdal county consider that optimal pricing of harbour dues is important, but the informant had not competence in this issue to answer more exactly. From his point of view the most important is to develop the main volume transport mode (sea). There are none railway to Ålesund. 90 percentage of the export from the county is transported on sea and 10 percentage on road. Less than 1 percentage is transported on rail.

The Regional Coastal Administration stated that the income from harbour dues had to be used to develop the harbour. The dues are the basis for investments in the harbour infrastructure.

MARINTEK's main focus in this respect is to develop competitive sea transport systems. Charges are political issues beyond MARINTEK's field of activity.

Harbour dues may represent a substantial share of shipping costs when calling municipal harbours. As private harbours not are covered by international payment rules, cargo is shipped to private harbours to a growing extent. In addition to this, private harbours are not covered by the ILO Dock Work Convention, which set limitations on modern harbour services. All in all this makes public harbours less attractive for intermodal use.

High harbour dues for shipping companies are not being followed up with corresponding charges for truck companies operating in the same harbours.

In Finland, the opinion by the actors are that if it is implemented correctly, the system of harbour dues might be a good system for stimulating sea transport. The market should however be allowed to function "freely". The present harbour and pilotage dues system has transferred transit traffic from Finland to other Baltic countries. There is need for changes in harbour dues, but the principles of doing it must be considered very carefully. The general traffic pricing principles could be used as a basis. From the shipping company's point of view the harbour dues are too high and they should be reduced as well as pilotage dues. It is important to create an explicit and transparent harbour dues system which internalises the external costs. It is also seen as an essential issue that the basis for the harbour dues is in the wholeness, not only in the single transport performance. According to the TT the harbour due system can't be utilised to strengthen direct sea-rail systems.

The Port of Kotka does not consider the harbour dues an important measure, either, since the bottleneck in sea-rail connections is not related to harbour problems. The main factor in the success of road and the mistrust in rail (or rail-sea) lays in the inefficiency on co-operation and incompatibility between the national rail organisations in trans-border rail operations. The problem should be discussed on the rail side. Harbour dues only count for a small percentage in the total logistics cost, but they are major income for the harbour. Without harbour dues no investments are possible.

The ports in Sweden (also mostly owned by municipalities) have also been increasing their charges and fees. This is a contributing factor to the situation that makes sea transports below about 100 km uninteresting from an economical point of view.

The informant at ASG stated that harbour dues could have an effect when wanting to stimulate e.g. the environmental friendly shipping companies. However the possibility to influence shipping companies that are well adjusted to intermodal transport between rail and sea transport are more uncertain. The informant pointed out that it of course could be possible to stimulate, e.g. ships that can load both lorries and trains and to solve this in a functional manner, but how it should be organised in reality is more difficult to answer.

The informant at NMA considered that harbour dues are very important. The harbour dues could be more adjusted to the market conditions. Today many of the harbours have a similarity to municipal authorities with fixed dues. If there were more competition in this sector, the harbour dues could be more adjusted to free market conditions.

ODAL regards harbour dues as very important. ODAL remarked that the municipal harbour companies are charging high harbour dues. However, the informant considered it reasonable to charge a harbour due, although lower. But how they should be changed and the financing of lower harbour dues is unclear. The fact that they are so high could depend upon, e.g. that some harbour companies are inefficient or in a monopoly position. The informant stated that at least halved harbour dues are necessary for the sea transport to be really interesting.

The important factor according to Rail Combi is that the harbour dues do not lead to advantages or disadvantages for any transport mode. It is important that the harbour dues are fair and that it is not the level of the dues that decide the choice of transport modes, but the suitability. Rail Combi also stated that a reasonable level has been found in road and rail transport and that it now is time to find that level for sea transport. Today the harbour dues are probably too high and it is questionable if the harbours in the south of Sweden should help financing ice breaking in the northern regions of Sweden.

The informant at CABS considered harbour dues as important and it is probably necessary to change the harbour dues. If the government would change the way that they tax goods, the level of harbour dues could also be changed. This change could be part of a governmental harbour strategy, which is missing in Sweden today. A strategy is important to control the flow of goods to and from the harbours and also to co-ordinate the flows from sea transport with of other transport modes.

The informant at LRF considered that harbour dues could be important. A suggestion is that the government should subsidise the harbour dues so that these could be reduced. The financing could for example be taken from the governmental budget and not from the other transport modes (e.g. via different charges/fees).

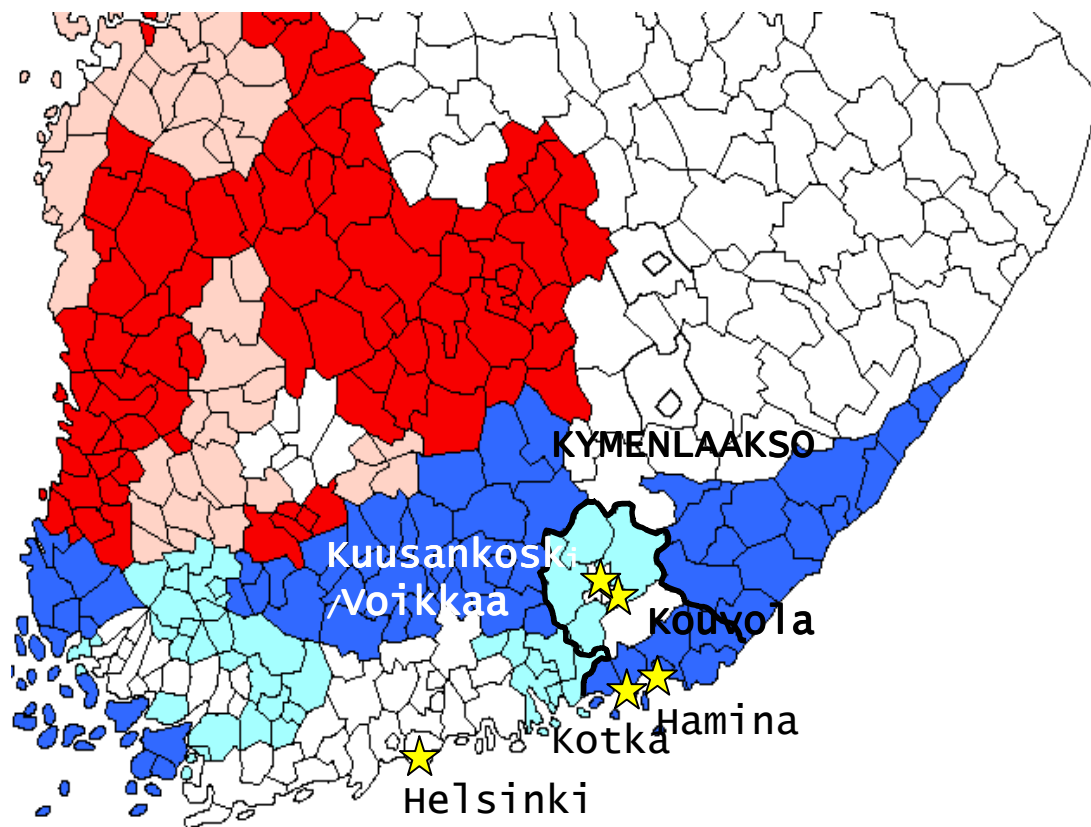
Simpler documentation

Also the simplification of routines for documentation handling is necessary in order to increase intermodal transport. Today, there are extensive documentation requested in transport operations. Intermodal transports introduces at least one extra link in the transport chain, often resulting in more documentation work. Non-compatible regulations and many different types of documentation demands can be a contributing factor to the choice of road transport door to door, in order to avoid the extra documentation work.

Waterway transport corridor improvements

In Kymenlaakso Regional Council there are many examples of planning to improve waterway transport corridors. This region includes the important export port of Kotka. EC Structural funding is directed to this region through the Objective Programme 2 Regions 2000-2006. A map indicating the location of the regions in this programme is shown in Figure 1.

Figure 1 Objective Programme 2 Regions 2000-2006



There has been much discussion concerning the Finnish inland waterways. The rent agreement of the Russian part of the Saimaa canal will expire in 2013 and now the new alternatives to continue the inland waterway transport are discussed. The main solutions for the future are:

- the reconstruction of the Saimaa canal to enable year-round operating,
- building of new canals via Mäntyharju and the river Kymijoki and
- the abandonment of the canal transport.

All the alternatives have their supporters. The main participants in the discussion have been the authorities and the canal activists. The used arguments are related to the environmental values, the transport policy of the EC and the shortage in the cargo in the existing canal (Suomen Vesitieyhdistys, 2000).

Regional Council of Kymenlaakso's strategy for the waterborne traffic has been the for the building of the Kymijoki canal. According to them, the canal would secure the transport of wood by water (from the whole of district of Lake Päijänne and from Central Finland) to the mills.

River Kymijoki Canal wouldn't only function as a transport route for industry in Kymenlaakso and the entire Lake Päijänne basin. It would also improve the transport linkage of the region with continental Europe and the interior of Russia. Building a canal at Kimola and a lock at Voikkaa is justified now, as the transports of wood required by the vigorous wood processing industry need such transport routes, and the broad Päijänne boating area could be extended into northern Kymenlaakso (Regional Council of Kymenlaakso, 1997).

Finnish Maritime Administration has supervised and Regional Council of Southern Savo has financed a project which dealt with the development of the year-round inland navigation. The project was financed by the EC's Baltic Sea 2C Interreg -program. The research was carried out by VTT Communities and Infrastructure and Kvaerner Masa-Yards (Nokelainen et al. 2000) The aim of the project was to examine the functionality and the costs of the new transport system suitable for the outlined Kymijoki-Mäntyharju canal. A capacity of the outlined canal is bigger than the capacity of the existent Saimaa canal and it will be operated year-round. In the project it was also attached an alternative to operate the Saimaa canal year-round. The functionality and costs were compared to the basic system in which all the cargo is transported by road or rail to the Finnish export ports in wintertime. In the research, five transport systems were compared:

- actual existing system,
- feeder transport system through the outlined Kymijoki-Mäntyharju canal,
- DAS⁴-cargo vessel system through the outlined Kymijoki-Mäntyharju canal,
- feeder transport system through the existent Saimaa canal, and
- DAS-cargo vessel system through the existent Saimaa canal.

The transport events were the annual export transports of the mills of StoraEnso in the district of Lake Saimaa. The annual tonnage was 2,5 million tonnes. As a result of the comparison, the costs of DAS-cargo vessel systems were lowest. The index number was 66 in the case of Kymijoki-Mäntyharju canal and 83 in the case of Saimaa when the costs of actual system were assigned 100. The costs of the infrastructure were not included in the comparison. (Nokelainen et al. 2000)

The different canal alternatives were examined by The Ministry of Transport and Communications Finland in the spring 2000. The working group estimated that the construction of the Kymijoki-Mäntyharju canal would cost approximately 8,4 milliard FIM. The costs of the changing the Saimaa canal for the year-round usage would amount approximately to 130 million FIM. The widening of the Saimaa canal so that it would be suitable for larger vessels would cost approximately 1,4 milliard FIM. The Finnish Government decided in 13.12.2000 that the construction of the new Kymijoki-Mäntyharju canal is not economical, and the planning of the new canal is abandoned. (Ministry of Transport and Communications Finland www-pages 19.2.2001)

Møre og Romsdal county administration has stated a goal of establishing daily departures for transport of goods by ship to the European continent. A route to England via Kristiansund is an additional goal.

In order to facilitate increased transport volumes by sea, it might be necessary to remove rocks, skerries, banks and shallows to improve the sea transport corridors. The largest potential project of this type in Norway is a ship tunnel through the peninsula Stadlandet.

Ålesund municipality points out that more resources are needed for development of new navigation infrastructure for the sea transport corridors. Sections of the coast today are lacking sufficient marking, resulting in high accident risk.

⁴ DAS=Double Acting Ship: the vessels are optimised for moving forwards in open water and backwards in heavy ice conditions.

The Directorate for Coastal Affairs in Norway is emphasising the importance of developing a good pilot service with sufficient pilot boats if the sea transport is to increase. The Nordic pilot services have been evaluated, and the Norwegian service scored highest. Maintenance of the high level will however become increasingly important.

Inland waterway transport should be reconsidered thoroughly. It is a special challenge for Nordic climate conditions, with particular significance for Finland. At the moment, a triple transport system⁵ is maintained. Nevertheless, all inland waterways are not in use during wintertime, which causes problems for other transport modes. Rail and road transport companies have to be able to provide the transports that can't be performed by water in winter. Consequently, some road and rail transport companies have excess capacity the part of year when all three modes are in use. A definition of policy should be made on the question of how much domestic transport is planned for waterways, and how much is planned for round-the-year modes.

Regarding sea transport in Sweden, there have been discussions about constructing more canals for example between the two lakes Siljan and Mälaren. However, there has been only slow progress in this work, with no construction yet.

An improvement option for sea transport in Sweden could be to take away NMA's demand for extra pilots on certain types of transport. ODAL views this demand as an unnecessary cost for ships which have been going in the same fairways for 20 years.

Ship improvements

New technological solutions can strengthen the competitiveness of the sea transport. New high speed ships for goods transport are emerging. The AkerMaritim "base to base-transport" from Kristiansund to the European continent with a speed of 25 knot is an example of this. One consequence of these ships is that a new marking system is required along many segments of the sea transport corridors. These ships are however much less energy efficient than slower-moving ships.

In Finland, Kværner Masa Yards has developed a new DAS tank/container vessel especially for inland waterway transport. Double Acting -principle enables the year-round transport in inland waterways.

Improvements in port access

Large area of access, with good connections to the ports is necessary for increased transport of goods by sea. This is pointed out by Norwegian Shipowners' Association as one of the most necessary actions to improve inter-modality. The road systems connecting the ports with the access area can be a barrier to the increased use of the ports. The lack of good connections of roads can cause access problems to and from the boats. It is evident that the road owners are not supporting increased investing in an infrastructure favouring the use of use of ports and sea transport. Through down-prioritising of the ports they are supporting their own mode of transport.

Within Ålesund municipality there are various opinions about the historical development of

⁵ Air transport of goods isn't taken into account because of its low transport volumes

Ålesund harbour. There are questions about the impact of having a large port within the city. Maybe a location farther away from the centre of the city would have been a better location for an expansive port. This could have reduced the conflicts between residential areas and the port. It also could have resulted in a more efficient port, with less dispersal of the various services. The location near the centre of the city is probably not the most optimal regarding the road transport that a modern port generates.

The Directorate for Coastal Affairs points to the likelihood that if Ålesund obtains a status as a node point port or national port, this would also strengthen other surrounding municipalities. They will be more willing to use Ålesund port. This might also result in a higher priority in the surrounding municipalities for port access road improvements.

In the region of Kymenlaakso, Finland, port access improvement projects include:

- Improving the road E18 (Highway 7)
- The Highway 6, improvements from Koskenkylä to Kouvola
- Railway from Kotka/Hamina - Kouvola to the Russian border (Vainikkala), construction of traffic interchanges

Finnra has a role in port access improvements through their responsibility for constructing an adequate road network, with prioritisation of the roads into ports. Co-operation with other authorities as well as with private bodies in transport sector is seen by Finnra as the most important aim and measure, particularly for terminal projects which are mostly co-financed.

Several counties in Sweden also mention the importance of developing the infrastructure around the ports. For this purpose they want funds from the government. Financing of port investments is today a matter for the local interested parties and the municipality. However, the ports can be important for the whole region and so should accordingly be treated as a regional matter (i.e. the counties want to be able to use regional financing of the ports).

4.3.5. Port operations

The ports and the terminal operators in the ports are important actors regarding transfer of goods transport from road to sea. In order for the sea transport to be an attractive alternative, the ports and the port operations must be organised well to be able serve its functions. The terminal operators (goods handlers/exporters) have influence on the choice of transport mode. The port operators are often private firms renting infrastructure from the port owners, and their income is from the goods forwarding. They have an interest in making the transport costs high, as this will increase their income. This might lead the terminal operators to support sending the goods by road instead of using cheaper sea transport. However, in many cases lorry transport might be cheaper, and then one would expect that sea transport is the preferred mode choice among the port operators. At least this appears to be the case in Norway. In Finland, the port operators in export ports handle the rail and road cargo basically in the same way. It appears that in Finland the port operators actually prefer road transport to rail or sea transport.

4.3.6. Increasing frequency of departs

More frequent boat departs are important for the increased use of this transport mode. Frequent departs and good regularity is viewed as necessary conditions for the transfer to sea transport.

Sea-based transport systems can not compete with road transport in Norway for small volumes of goods. The small volumes result in low frequency of departs. Daily departures are necessary in order to compete with road transport. MARINTEK currently investigates how pooling of industrial goods can give better conditions for increasing the frequency.

The shipping companies are currently establishing sea-bases for goods transport along the coast of Norway. Currently approx. 100 lorries operate between the bases (“across the fjords”). From Stavanger the lorry routes today often go to Eastern Norway and north through the Gudbrandsdalen valley. MARINTEK is collaborating with Statoil and Hydro in assessing the possibilities of improving the whole base-to-base transport system. It is well documented that a sea-based system with daily departures from Stavanger in the south to Kristiansund in the north will compete well with road-based systems both regarding price and time. MARINTEK has co-ordinated the shipping companies and the heavy industry (Hydro Agri/Aluminium, Elkem and Norske Skog) in order to increase the volumes of goods for this transport. Fish transport could theoretically also be included in this system.

4.3.7. Adjusting delivery volumes to suit ship sizes

Sea transport is, as previously pointed out, a transport form which requires relatively large volumes of goods per carrying unit. Both the Møre og Romsdal county administration, directorate of coastal affairs, and the Ålesund municipality therefore has a strategy to facilitate larger volumes of goods through intermodal transport.

This however require co-ordinated development of port- and road infrastructure. Many of the informants in Norway commented that the ports with node point status should have a large area of access, with good connections to the main road system. Specifically the road and ferry- connections with Ålesund needs improvement and bottle-necks in the main road systems need to be removed.

4.3.8. Cooperation between actors in sea transport

The different actors in sea transport are not well co-ordinated. Some of the actors important for this transport mode in Norway are:

- Directorate of Coastal Affairs, with its regional departments. This directorate sorts under the Ministry of Fisheries and is responsible for the infrastructure for sea transport.
- Port authorities have the responsibility of port operations and are formally organised as a part of the municipal administration, but administer their own funds (income in the form of port dues) according to directions given by the national authorities.

- Directorate of Maritime Affairs sorts under Ministry of Trade and Industry and is responsible for health, environment and safety in sea transport.
- The municipal administration has the responsibility for area planning, but only within the frames of the Ministry of Environment.

In order for Ålesund harbour to obtain the status of a node point, it will be necessary to establish a well-functioning cooperation between the municipal administration, transport companies and shipping companies. Ålesund municipality has as a strategy to develop the foundations for a close cooperation between goods- and port actors and shippers. The Directorate for Coastal Affairs has co-operated with each actor in this harbour for many years, but the internal cooperation between the different sectors of the port has been weak. This is true both for public, private and semi-private actors (owners of private sections of the port, shippers and transport companies). Instead of loading all the goods in one location at the port, the ships now often have to load from up to three different locations at the Ålesund port. In other words, an efficient common terminal operation is missing. The background for this situation is partly of competitive origin, weak cooperation over long time, and a piece by piece expansion of the harbour. A new collaborative unit is formed by the municipality: “Ålesund Port- and Transportforum”. This is done in order to obtain a common co-ordination between the various actors in the port.

The strategy for the Directorate of Coastal Affairs in Norway is to strengthen its planning division to be able to participate more actively in the municipalities’ area planning. The strategy also includes strengthening the more superior area planning, on county, regional and national level. A reorganisation process within the Directorate aims at specialising the various regional divisions. Both actions aims at improving the co-ordination with the other national and regional actors in the transport sector.

Another example where the co-operation between actors is important is in connection with ship design. Improvements in this field can only be facilitated through a close co-operation between the ship designers and the Directorate for Coastal Affairs. It is in particular regarding the knowledge of the sea transport corridors that close collaboration between ship designers and the Directorate for Coastal Affairs is important.

Collaboration between shippers and shipowner’s associations has an improvement potential. Ålesund city administration points out that there only has been limited co-operation between the Directorate for Coastal Affairs, County administration, shippers and shipowner’s associations. For Ålesund city administration it is a relevant field of work to take part in co-operation to achieve increased mode change from road to sea. Møre og Romsdal county administration is a candidate for leading this work, but the informant is of the opinion that the regional section of the National Road Administration would be more suitable. They are one of the most important actor in land-based transport and could fulfil such a role if they really want to stimulate a transferral of goods transport from road to sea.

Conflicts of interests might exist between a municipality which obtains the status of having a national harbour and the functions the port is intended to have. One possible model could be a separation between the responsibility for structure and the operations.

The competition between the two large ports Ålesund and Kristiansund in county Møre og Romsdal might be a problem regarding the selection of status as a national port. The county

administration has to prioritise between the two ports, which could be problematic for historical reasons.

In Finland the necessity of co-operation between the following authorities from different transport sectors were identified:

- Finnish Rail Administration (RHK)
- Finnish Maritime Administration
- Ports
- Regional Councils
- CAA Finland (The Finnish Aviation Authority, Ilmailulaitos)
- Ministry of Transport and Communication

Without the co-operation of the various authorities it is not able to gain any improvements towards desired mode change. At a ministry level it is possible to affect aims and strategies. The policy on intermodal transport and transferring the transport of goods from road to rail and sea should according to the Finnish actors be determined at a national level.

4.3.9. Information on sea transport

From the point of view of Ålesund municipality, more information and marketing of sea transport is necessary. This includes more and better information on the various forms of sea transport along the Norwegian coast and to the European continent. The advantages of sea transport are not well known among the public.

Norwegian Shipowners' Association has as one of their tasks to make information on sea transport available to the general public. The environmental aspects of this transport mode are included in this work.

5. Conclusions and recommendations

From the interviews and the literature studies, we have made the following conclusions and recommendations regarding goods transfer from road to rail and sea, which are summarised below.

A majority of the informants consider land-use planning as an important issue for increased mode change from road to sea and rail and improved direct sea-rail connections. Many of the actors also take an active part in this activity. Some of the private companies, like ASG and ODAL in Sweden, mainly focus on optimising their business activity based on the present market conditions, although they often point out e.g. planning problems directly for decision-makers etc. The involvement of actors in the land-use planning process is considered important by most of the informants. For the shipping company, for example, it is relevant to participate in land-use planning related to e.g. new ports and enlargement of the old ones. It is considered important to involve other organisations, institutions and actors than those usually participating today, in order to achieve increased mode change from road to sea and rail. Particularly, it is important to get the whole transport chain represented, from consignor to consignee. Planning is important e.g. to co-ordinate the infrastructure between different transport modes. The opportunity to make comments to the municipal area plans appears however to be an under-utilised possibility in Møre og Romsdal county administration. Another potential action, which was pointed out as important, is effecting the counties of administrative boards to improve the co-ordination of the infrastructure, regional development, planning of investments in roads, railways and sea transport. The regional county transport plans, such as the county transport plan for Møre og Romsdal, are important measures which could be used to obtain the desired mode change. Port plans, such as the port plan for Ålesund city, also represent important measures in this regard.

Harbour dues are regarded as very important by many of the informants. The dues are considered to be too high and a request is a lower due and a harbour due that is more adjusted to free market competition. In addition, it is seen as important to create an explicit and transparent harbour dues system which internalises the external costs. It is also found as an important issue that the basis for the harbour dues is in the wholeness, not only in single transport performance. A reduction in the harbour dues, as a measure for increased harbour use could however represent a conflict with harbour improvement, as the harbour dues are used for these improvements. A reduction in the harbour dues, as a measure for increased harbour use, could however be in conflict with harbour improvement, because the dues are used for the harbour improvements.

Given an aim to develop effective intermodal transport solutions at sea, the administration of the harbour dues is a crucial question. This is because ro-ro ferries – the only vessel type truly designed for intermodal transport – are discriminated by the measurement system in use. Today's harbour charges are based upon the 'New international tonnage measurement system' which was approved in 1969, and gradually implemented between 1982 and 1994. This measurement system is based upon the principle that harbour dues are related to the hold volume (tonnage capacity below the deck). These rules made sense at the time they were decided in the 1960's, but ship technology has changed a lot since then. Partly as a result of the new international tonnage measurement system, cargo boats today are carrying much of their cargo in containers placed on deck (in many cases as much as 50-75 %). Harbour dues are not paid for this tonnage. In contrast to this, ro-ro ferries carry all their cargo below deck,

and will therefore have to pay two or three times higher harbour dues compared to their competitors.

It is considered by most actors that good co-ordination between various public and private bodies in the transport sector is important to achieve increased mode change from road to sea and rail and improved direct sea-rail connections. Today the co-ordination has improvement potentials. For instance are the many actors in sea transport often a source for confusion of responsibilities. The responsibility for this transport is spread between numerous public actors. A change in today's responsibilities between the actors could be beneficial. For instance is the first priority for Norwegian Shipowners' Association to move the responsibility for sea transport from the Ministry of Fisheries to Ministry of Transport, where all other transport modes belong. By doing this, the conditions for a forceful intermodal transport policy could be drastically improved. A majority of the actors also consider co-ordination between the actors and co-ordination in the whole transport chain as important. Better co-ordination between SNRA and the Swedish National Rail Administration and the Swedish State Railways is mentioned. As lead co-ordination organisation in Sweden is SIKÅ and the Swedish National Rail Administration suggested. More use of Internet technology is pointed out as a tool for better co-ordination in the whole transport chain. Other examples of how the co-operation in the transport chain this could be done is through creating incentives for discussions and meeting possibilities (e.g. seminars). The co-ordination and co-operation are seen as an important measure particularly within the public bodies, focusing on the co-ordination at the system level. In private sector the co-operation can be more problematic, because of the competitive situation between different actors.

One particularly promising example of co-ordinating effort is seen in "Ålesund Havne- og Transportforum", which was established by Ålesund city administration to improve the co-ordination between the different actors. It is a forum for regional actors both from export companies, transport companies and local and regional authorities. The forum is a network stimulating information and co-ordination between the participants. Other purposes is to take part in development of Ålesund harbour, give input to political and administrative institutions and contribute to improve the competitiveness of harbour and transport businesses in the community.

Many of the informants consider Eco-labelling as important but many also point out that it is important that the Eco-label is fair between the transport modes. The significance of environmentally sound logistic chain is increasing. More actors could demand transports or label their own transports with the eco-labels based on cradle-to-grave assessments as a part of their environmental work. The actors can point out their environmental work to the customers before they discuss the price so that this is included in the customer's decision. Of the many informants which consider eco-labelling as important, many also point out that it is important that the eco-label is fair between the transport modes. It could also be an advantage if the eco-label system is internationally harmonised, that is that the guidelines are equal for neighbouring countries. A system for Eco-labelling is considered an important measure in general, but the measures to develop and affect that kind of systems are seen as difficult. Eco-labelling of transport is also a way which the consumers' opinion can affect the choice of the mode of transport.

National transport planning is considered important particularly by the governmental associated actors. The issue of national political guidelines however also raises more contradictory opinions. On the one hand, they are seen as important, but on the other hand, the

effect of market factors shouldn't be restricted. Most of the informants also consider national political guidelines important. The national transport plans are however not well enough realised through active prioritisation of public measures and actions. The Swedish goods transport delegation is in the process of developing a national transport strategy, which includes all transport modes, analyse issues regarding development for combined railway traffic and come with suggestions to make the transport system more efficient and ecologically sustainable. Suggestions will also be carried out how the government and other authorities role can be improved and clarified. There appears however to be a lack of policies and strategies at a national level to facilitate goods transfer from road to rail and sea. There are few public measures for road to rail transfer, while there are many public measures for road to sea transfer. In Sweden, a governmental strategy for the establishment of superior reloading stations between sea and rail transport, is required.

Many of the interviewed informants have not been in contact with the Interreg III A, B and C programmes or other EC funds. However, many of the informants think that the programmes and funds could be efficient for realising new ideas and financing expensive projects and transport infrastructure. New EC structural fund-program documents for the period 2000-2006 is presented shortly and could be important for the transport mode changes from road to rail and sea. It will be important that researchers and actors in Norway, Finland and Sweden and take part in implementing and evaluating the use of these funds. The bureaucracy and the proposal procedures connected to the use of these funds has however a potential for simplification. A possible way to benefit the building of more infrastructures and minimise bureaucracy is if more of the responsibility for the payments etc. is moved to local instances. If EU could disburse their money via a regional plan or via national plans, this would be favourable for the regional infrastructure. Today there is a possibility to use EU's funds for part financing of infrastructure that is involved in the county plans. In Finland the regional council of Kymenlaakso is the co-ordinator of Interreg programmes (as well as other regional councils), and finds them as a good measure to promote increased mode change from road to rail and sea. EC-funds are regarded as an important instrument but only if the focus of the funded projects is right.

Harmonisation of standards and regulations are regarded important by a majority of the informants. Examples of areas that should be harmonised are load carriers and profiles, taxation in the transport sector, width of railway tracks, safety and environmental regulations. The international regulations for sea transport of hazardous waste (International Maritime Dangerous Good Code, IMDG), is far more rigid than the corresponding regulations for road transport (ADR) and rail transport (RID). A general comment is also that it would be an advantage to have an international harmonisation. Many of the informants, e.g. Rail Combi, points to EU's role in diminishing the risk for loosing goods, by reducing differences between countries and thereby the stops when transporting goods through Europe. EU could enjoin the members to reduce the differences in transport systems (width of track, electricity system, harmonise load profiles, bureaucracy and rules etc) and make it possible to go by the same transport mode (e.g. the same train) throughout the whole Europe.

The counties might receive a possibility to finance ports. The counties might also receive a larger budget to make more investments in the rail and sea sector. It is also a possibility that the plan can help the deployment of some big terminals in Sweden from which the transports can be better organised and also get the train operation to function better.

Another potential action, which was pointed out as important, is to affect the National Maritime Administration to improve the infrastructure of the sea transport and the infrastructure of the land transport. The National Maritime Administration should also better facilitate the prerequisites for planning between different transport modes. What the National Maritime Administration also can affect, being a governmental authority, is the transport policy rules, e.g. the fees for infrastructure.

More information to the customers is important. Rail Combi e.g. has on their web-site a possibility for the customers to calculate the effect on the environment with different transport modes. NSB has a similar database for Norway. The potential customers can free of charge decide their environmental profile.

A general impression after interviewing the informants is that there is an interest to participate in co-ordination, planning etc. and to influence decision-makers but it is also often considered to expensive and time-consuming to do so. It also seems that many of the informants are anxious that the rail and sea transport could obtain an efficiency and cost situation so that sea and rail transport could compete with road transport on their on qualifications. The bureaucracy could also be reduced generally in the transport sector.

6. References

6.1. Printed sources

- Hansen, C. J., K.G. Høyer and E. Tengström (2000): Nordisk transport i framtiden. Krav til Bærekraft og effektivitet. Rapport fra et delprosjekt under Nordic Transportpolitical Network (NTN), INTERREG-IIC, Aalborg Universitet, Danmark. Vestlandsforskning, Sogndal, Norge.
- Nokelainen A., Salmi P. and Suojanen R-A. (2000). Ympäri vuotisten sisävesikuljetusten kehittäminen (The Development of the Year-round Inland Navigation). VTT Communities and Infrastructure. Research Report 532/2000 (in Finnish).
- Proposition (1996/97:53), Infrastructure direction for future transports (in Swedish).
- Proposition (1997/98:145) Swedish environmental aims- Environmental policy for a sustainable Sweden (in Swedish).
- Proposition (1997/98:56) Transport policies to reach a sustainable development in the transport sector (in Swedish).
- Regional Council of Kymenlaakso (1997): Development Programme for Kymenlaakso 1998-2008. Publications, A:31. 30 p.
- SAMPLAN Report (1999:2) Strategic analysis, Final report of the governmental assignment about the direction of the infrastructure planning for the period 2002-2011 (in Swedish).
- SIKA (1999) The direction of regional development - accounting for the counties strategic analysis- Basic data report for SAMPLAN 1992:2, Stockholm (in Swedish).
- SIKA (1999:1) Evaluation of the regional infrastructure planning 1998-2007 (in Swedish).
- SIKA (1999:2) The counties of administrative boards need for resources for regional transport planning (in Swedish).
- SIKA (1999:3) The transport political aims - follow-up, Spring 1999- intermediate report of governmental assignment, Stockholm (in Swedish).
- SIKA (2000:1) Further development of the transport political aims, (in Swedish).
- Suomen Vesitietoyhdistys (2000). "Vesitiet" magazine, May 2000, Finnish waterway association, (in Finnish).

6.2. Internet

- CORDIS database, 2000: http://dbs.cordis.lu/cordis-cgi/srchidadb?ACTION=D&SESSION=277982000-6-8&DOC=1&TBL=EN_PROG&RCN=EN_RCN:504&CALLER=PROGLINK), 08.6.2000
- Finnish Ministry of the Interior WWW-pages. <http://www.intermin.fi/eng/regional/index.html>, 24.2.2000.
- <http://www.riksdagen.se/debatt/propositioner/index.asp>
- http://www.naring.regeringen.se/propositioner_mm/rapporter/mall1_norr.pdf
- http://www.naring.regeringen.se/propositioner_mm/rapporter/mall1_mellan.pdf
- <http://www.shsf.se/sjoremi.htm>
- <http://www.sika-institute.se>

Regional Council of Kymenlaakso www-pages. <http://www.kymenlaakso.fi/prime/fubg606.htm>, 30.12.1999.
Straightway www-pages. <http://www.straightway.fi>, 29.12.99.
The Ministry of Transport and Communications Finland www-pages <http://www.mintc.fi/www/sivut/english/default.html>, 26.6.2000.
The Ministry of Transport and Communications Finland www-pages (in Finnish), <http://www.mintc.fi/www/index.html>, 19.2.2001
The Association of Finnish Local and Regional Authorities. <http://www.kuntaliitto.fi/indexeng.htm>, 30.12.1999.
The Port of Kotka www-pages. <http://port.kotka.fi/indexe.html>, 3.1.2000.
The Regional Council of Kymenlaakso www-pages , Nov. 2000, <http://www.kymenlaakso.fi/>

6.3. Personal communication

Arajärvi, Tarja, Finnish Ministry of Interior. 28.2.2000
Becquart, Dirk, The Port of Kotka, Oct. 2000
Essle, Bo, NUTEK, Dec. 2000
Fallström, Björn, CABS, Sept. 2000
Hogfors, Sven, LRF, Oct. 2000
Johansson, Olle, ODAL, Sept. 2000
Johansson, Thore, Rail Combi, Sept. 2000
Källström, David, NUTEK, Feb. 2000
Kkaartama, Maire, The Confederation of Finnish Industry and Employers (TT), Oct. 2000
Mattson, Mats, Rederi AB Uman, Jan. 2000
Pietarinen Ari, Regional Council of Finland, Sept. 2000
Puolanne, Anna-Leena, Transfennica, Sept. 2000
Swahn, Magnus, ASG AB, Sept. 2000
Tapio, Raimo, Finnish National Road Administration (Finnra), Sept. 2000
Vieweg, Lars, NMA, Sept. 2000

7. Appendix 1: INTERVIEW GUIDE - the first interview

Background

This is a guide for carrying out Step 1 in Phase 3 of the project "Energy saving in transport of goods – a pilot project in rural natural resource based industries" In this phase informants will be used to obtain information on possible regional measures and actions in policies. The informants and their institutions should be related to the individual cases in the three countries.

Phase 3 consists four steps:

Step 1

The proposed guide is for this step, which is the first interview round. After carrying out the interviews, each of the three partners makes a short written report summarising the findings.

Step 2

To develop proposals on measures and actions. This will be in the form of making a written document, which will be a collective task co-ordinated by WNRI. The proposals will cover all the 3 cases, focusing on common issues among them.

Step 3

The second interview with the same informants. A new separate interview guide will be made for this. The goal of this step is to obtain responses to the proposals. All three partners will write a report from this step.

Step 4

Produce the final recommendations based on the proposals from us and the responses from the informants obtained through the interviews. This constitute the final task of phase 3, and is a gain a collective task co-ordinated by WNRI.

Purpose of this interview round

The main purpose of the interviews is to acquire knowledge of policy measures important for energy efficiency in the transport of goods. This applies both to public and other policy measures which may contribute to: 1) The transfer of goods from road to sea and rail, and 2) increased use of intermodal transport. The interviews should also identify literature and key written documents on these subjects.

Method

We plan to use a direct approach during the interviews. This implies that the informants will know the purpose of the interview before it starts. This interview guide will aid the interview process so that all subjects will be covered in the course of the interview. As the main purpose of the interview is to acquire knowledge from the informant, follow-up questions for further clarification should be used where appropriate. It is not necessary to follow this interview guide strictly, but it is important to cover all the main subjects (the superior questions in bold type). The informants should receive the questions in advance, and the interview should be carried out according to the main structure shown in the interview guide.

Interview appointment

After identifying possible informants, interview appointments are made by telephone. Time and form of the interview is then agreed upon. In addition, there will be a short briefing on the project, the purpose, and problem issues, as well as making an agreement with the informants that the interviews can be recorded on tape. It is important at this stage to let the informant know that he/she will be given a tape print-out, and that the tapes will be destroyed when the project has been concluded.

As the information sought is not sensitive, there should not be a need for raising the question of anonymity in connection with the interview appointment. If the informant however raises the question and wants anonymity, an agreement can be made where the informant can demand anonymity after reading the tape print-out from the interview.

How the interview is to be carried out

The informant should be given the main questions (in bold type) from the interview guide on e-mail, and the answers should be returned in the same way. Then a formal interview has to be conducted either by telephone or physical meeting. The idea behind this is to obtain the type of information which only emerges orally. The interview is used to discuss the written answers and ask follow-up questions based on the interview guide.

There should not be any pressure on the informant to give written answers first. If the informant for various reasons does not wish to give written answers, we will proceed by making an arrangement for oral interview where the main questions will be asked first, and then raising the follow-up questions if needed. It is important to create a relaxed atmosphere around the interviews.

Introduction

At the stage of the actual interview, it is important that the interviewer makes an introduction to clarify the framework for the interview:

- Refer to the interview appointment, and find out whether the informant has been given the chance to read the questions. This only applies if no written answers are available!
- Repeat the purpose of the study
- Clarify if there is no objection to using a tape/cassette recorder. Tell the informant that a tape print-out of the interview will be sent for approval, and that the tape will be deleted when the project is terminated.

Subjects and questions

1. On the informant

1.1. What is your full name?

1.2. What is your position?

1.3 Which section of your company / institution are you working in?

2. Opening: What could have been done?

2.1. What could have been done to transfer more goods transport from road to rail and sea?

2.2. What could have been done to increase the use of intermodal transport combining road, sea or rail?

2.3. What could have been done to improve the infrastructure for such transport?

3. The field of knowledge

3.1. Do you know what other institutions and businesses are important in terms of policy measures for transferring goods from road to sea/rail?

3.2. Do you know any central persons in such institutions or businesses?

3.3. What publications found in your institution and elsewhere are central on this subject?

4. Aims

4.1. What aims for transferring goods transport from road transport to sea and rail transport can be found in your institution?

4.1.1. What aims for intermodal transport combining road, sea or rail are found?

4.1.2. What aims for infrastructure supporting such transport are found?

5. Strategies

5.1. What strategies for transferring goods transport from road transport to sea and rail transport can be found in your institution?

5.1.1. What strategies for intermodal transport combining road, sea or rail are found?

5.1.2. What strategies for infrastructure supporting such transport are found?

6. Measures

6.1. What policy measures for transferring goods from road to sea and rail can be found in your institution?

6.1.1. What policy measures for increased use of intermodal transport combining road, sea and rail are found in your institution?

6.1.2. What policy measures for improving the infrastructure for such transport are found?

6.2. Are there other central policy measures that apply to other institutions on these subjects?

6.2.1. For transferring goods transport from road to sea and rail?

6.2.2. For increased use of intermodal transport combining road, sea and rail?

6.2.3. For improving the infrastructure for such transport?

7. Actions and initiatives

7.1. What is done for transferring goods transport from road to sea and rail in your institution, and what results can be seen from this work?

7.1.1. What is done to increase the use of intermodal transport combining road, sea or rail in your institution, and what results can be seen from this work?

7.1.2. What is done to improve the infrastructure for such transport, and what results can be seen from this work?

7.2. What problems have occurred in the work with transferring goods from road to sea and rail?

7.2.1. What problems have occurred when trying to increase the use of intermodal transport combining road, sea or rail?

7.2.2. What problems have occurred when trying to improve the infrastructure for such transport?

8. Advantages and disadvantages for businesses and the society

8.1. What advantages and disadvantages will businesses have from increased use of sea and rail transport?

8.1.1. What advantages and disadvantages can you see that the fishing / grain / paper industries will have by increased use of sea and/or rail transport?

8.2. What advantages and disadvantages can you see that the society will have by increased use of sea and/or rail transport?

8. Appendix 2: INTERVIEW GUIDE - the second interview

Background

This is a guide for carrying out Step VII and VIII in Phase 3 of the project "Energy saving in transport of goods – a pilot project in rural natural resource based industries" according to the structure:

- I. Preliminary identification of the actors (All 3 partners). This included an exchange of the results obtained.
- II. Preparation of guide for first interview round (WNRI)
- III. Identification of key informants in each actor (All 3 partners)
- IV. Send out the questions for the first interview round to the informants (All 3 partners)
- V. Carry out first round of interviews by phone and e-mail (All 3 partners)
- VI. Preparation of guide for second interview round (WNRI)
- VII. Send out the questions for the second interview round to the informants (All 3 partners)
- VIII. Carry out second round of interviews (All 3 partners)
- IX. Summing up the results (All 3 partners)
- X. Write final report from Phase 3 (WNRI)

Method for this interview round

The interviews should be simple and focused. We use the same method as in the first interview:

- The informants will know the purpose of the interview before it starts
- It is not necessary to follow this interview guide strictly, but it is important to cover all the main subjects (the superior questions in bold type). All the informants should receive the same questions, and the interview should be carried out according to the main structure in the guide. If some of the questions is not relevant for some of the informants, this can be indicated by answering "n.a." (not applicable).

It is important to distinguish between measures actors may *decide* and measures actors only may *influence*, directly or indirectly. It is also important to distinguish between actors own decisions and decisions made by other actors. There are 5 different categories of ways by which actors can interact with measures/policies:

- 1) Actors may decide directly through own decisions
- 2) Actors may influence directly through own decisions
- 3) Actors may influence indirectly through own decisions
- 4) Actors may act/influence/recommend other actors, public bodies, businesses etc.
- 5) Actors may act/influence/recommend government bodies at higher levels (e.g. EC)

For category 1 and 2 the actors are part of the structure where the means/policy is formed/implemented. For category 3,4 and 5 actors are in the position to influence the forming/implementation of measures/policies. Before the interview you may use time to think through this related to your interview object. During the interview you must have this structure in mind, and give follow up questions to be able to structure the answers into this kind of

understanding.

How the interview is to be carried out

The informant should be given the main questions (in bold type) from the interview guide on e-mail, and the answers should be returned in the same way. Alternatively can a combination of telephone and e-mail, or only by telephone, be used. There should not be any pressure on the informant to give written answers first. If the informant for various reasons do not wish to give written answers, one can make an arrangement for oral interview. It is important to create a relaxed atmosphere around the interviews.

Only short answers are expected for “why/why not” or “how/what” questions.

Interview appointment

Interview appointments are made by telephone. You have to repeat, in a short briefing, the purpose of the project and problem issues. If you want to recorded the interviews you have to make an agreement with the informants at this time. It is important at this stage to let the informant know that he/she will be given a tape print-out, and that the tapes will be destroyed when the project has been concluded.

Questions to be answered:

A . Regional/local level

1. Do you consider land-use planning to be important in order to achieve increased mode change from road to sea and rail and improved direct sea-rail connections?
 - 1.1. If not, why?
 - 1.2. Is it of interest to your organisation to take part in such work?
 - 1.3. How can you take part in this?

2. Do you consider it important to involve organisations, institutions and actors other than those usually participating today, to achieve increased mode change from road to sea and rail and improved direct sea-rail connections?
 - 2.1. If not, why?
 - 2.2. Can you identify relevant actors?

3. Do you consider it important to utilise the system of harbour dues to stimulate sea transport and to strengthen direct sea-rail connections?
 - 3.1. If not, why?
 - 3.2. Is it necessary to change the harbour dues to obtain this?
 - 3.3. What type of changes would this be?

4. Is it important with better co-ordination between the actors in the transport sector to achieve increased mode change from road to sea and rail and improved direct sea-rail connections?
 - 4.1. If not, why?
 - 4.2. Is it of interest to your organisation to take part in such co-ordination?
 - 4.3. Which institution do you think could have the lead co-ordinating role?

5. Is it important with co-ordinating efforts along the whole transport chains (supply chain management) to achieve increased mode change from road to sea and rail and improved direct sea-rail connections?

5.1. If not, why?

5.2. Is it of interest to your organisation to take part in such work?

B . National/international level

6. Do you consider it important to have a system for Eco-labelling of transport as a mean to achieve increased mode change from road to sea and rail and improved direct sea-rail connections?

6.1. If not, why?

6.2. Is it a relevant activity of your institution to take part in developing such a system?

6.3. How can you take part in this?

7. Is national transport planning important to achieve increased mode change from road to sea and rail and improved direct sea-rail connections?

7.1. If not, why.

7.2. Is it a relevant activity of your institution to influence national transport planning in this direction?

7.3. How can your institution influence this aspect of national transport planning?

8. Do you think national political guidelines are important for co-ordinated land-use and transport planning, as means to achieve increased mode change from road to sea and rail and improved direct sea-rail connections?

8.1. If not, why?

8.2. Is it a relevant activity of your institution to influence the national political guidelines?

9. Do you consider the EC Interreg III A, B and C programmes to be important measures to achieve increased mode change from road to sea and rail and improved direct sea-rail connections?

9.1. If not, why?

9.2. Is it relevant for your institution to participate in developing and implementing these programmes further?

9.3. Are there other measures and types of funding that you consider important in this regard?

10. Do you think EC funds are important instruments to achieve increased mode change from road to sea and rail and improved direct sea-rail connections?

10.1 . If not, why?

10.2 . Is your institution in a position to influence the EC funding in this direction?

11. Do you consider it important to harmonise standards and regulations as a mean to achieve increased mode change from road to sea and rail and improved direct sea-rail connections?

11.1. If not, why?

11.2. Is it a relevant activity for your institution to participate in developing such standards?

12. Can you think of other issues and measures of importance in achieving increased mode change from road to sea and rail and improved direct sea-rail connections?