



NORTHERN MARITIME CORRIDOR

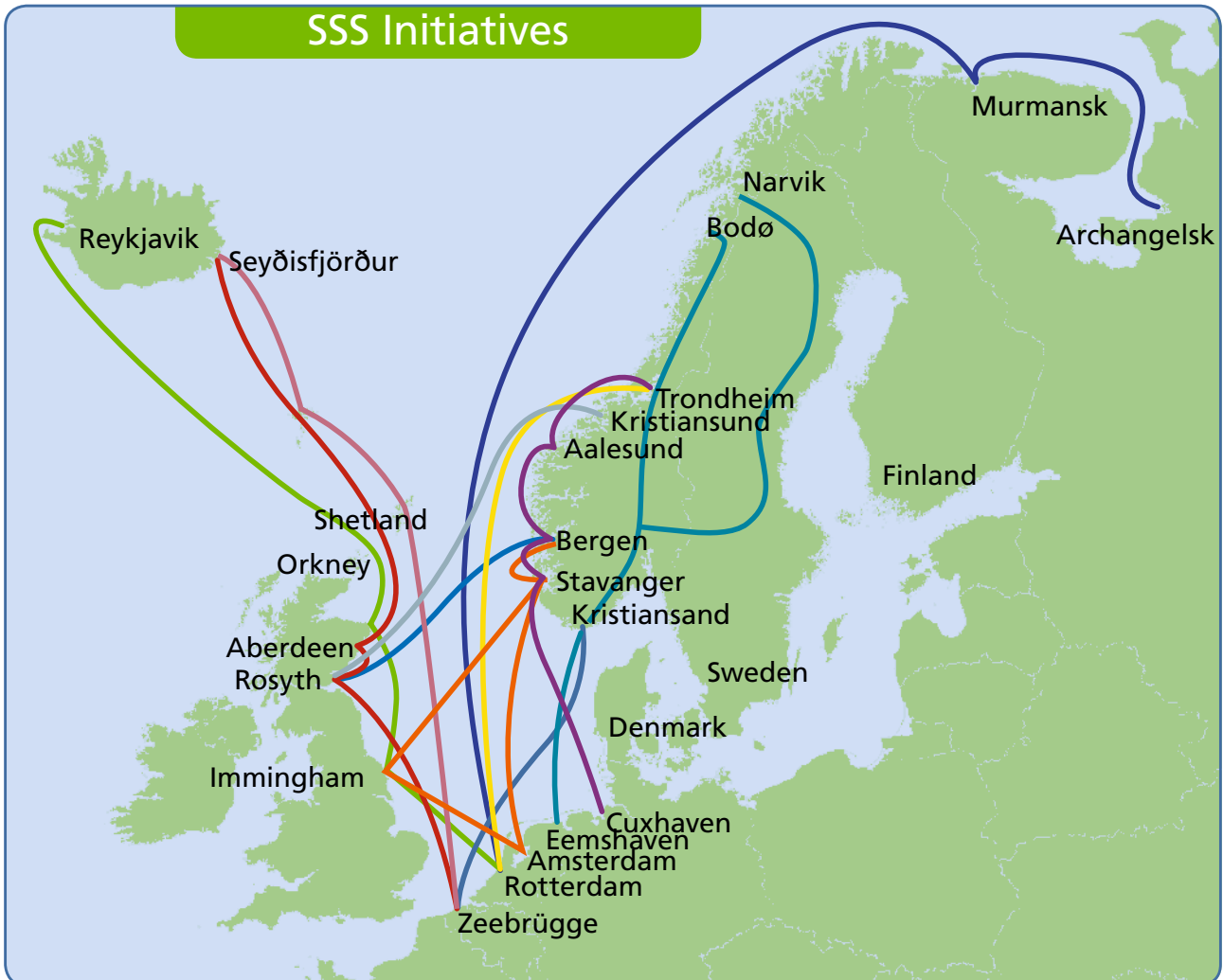
Project Summary Report

Activities, Results and Impacts



The project is co-funded by the European Union

SSS Initiatives



- Roro Relay Service
- North East Scotland Service Samskip
- Smyril Line Extended Service
- Roro Service – Norske Skog
- Mid-Norway Rosyth Service (MINORO)
- North Sea Bridge – Sea Cargo
- RoPax Cuxhaven – West Coast Norway - NorFerries
- Norway – Benelux Intermodal Service for Seafood
- Barents Sea Intermodal Service (BASIS)



Preamble

The Northern Maritime Corridor project is an Interreg IIIB project which started in June 2002 and is finalised in December 2005. A follow up project has been approved for the North Sea Region, and this new NMC project will be running up to June 2008.

The NMC project is a quite unique project in the sense that it is a project that is formally defined as two separate projects in North Sea Region and Northern Periphery Region, but has operated in all the 3 ½ years as one project. The lead partners, Rogaland County Council in the North Sea Region and the Executive Committee for Northern Norway in the Northern Periphery Region, has functioned as one project management.

The NMC project is also a quite unique Interreg IIIB project in terms of countries and regions involved. The project comprises 9 countries and 20 regions, including three regions in North West Russia.

The NMC project is primarily aiming at establishing and improving short sea shipping (SSS) services which in return will contribute to shifting cargo transport from road to sea as well as contribute to regional development.

The NMC project has taken a number of initiatives for SSS services, as well as initiatives in regard to transport within the petroleum sector and in respect to maritime safety. Studies and reports have been produced to support these initiatives.

This Project Summary Report is summing up the NMC work and is highlighting the results of the NMC project.

The Project Summary Report has been written by the two project managers, Ine Hilling and Olav Hauge, with the support of strand managers and regional project managers in the NMC project.

Stavanger/Bodø, 31.12.2005

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Introduction

The Northern Maritime Corridor (NMC) is a maritime transport concept focusing on the transportation of cargo within the North Sea Region and the Northern Periphery Region, connecting the North Sea basin with the Barents Sea and the North Atlantic.

The overall aim and vision of this NMC Inter-reg III B project is to develop efficient and sustainable maritime transport solutions connecting the coastal regions both bordering the North Sea and manufacturing industry in the North Sea basin with industrial development in the Barents region.

The main objective has been formulated as follows:

To establish new/improved short sea shipping services to shift cargo from road to sea.

The core approach can be summarised as follows:

- An arena for networking
- Key actors from both private and public sector
- Region to region cooperation

Regional Maritime Clusters

The regional maritime clusters were established in the beginning of the project as basis for project work on both regional and transnational level.

The input that members of regional clusters got from taking part in transnational working group meetings strengthened regional work, and regional work, have in a majority of partner regions been closely connected to

the transnational sub-projects for new and improved services that is presented in chapter 3.

The regional partners have presented their key achievements, and these can be summarised as follows:

- The established regional maritime clusters have in general been instrumental as a local arena for promoting SSS as well as for regional development. Some regional maritime clusters will likely continue even after the project period
- The cluster members have been connected to a broad international arena for SSS
- The cluster members have increased knowledge about SSS and the potential for moving cargo from road to sea
- The cargo flow analyses and market analyses have been valuable
- Most regional clusters have developed scenarios and strategies for developing SSS services
- Almost all regions have been involved in one or more concrete SSS initiatives, mostly in a region to region cooperation

The regional partners have also presented their follow up actions, and these can be summarised as follows:

- Almost all the previous partners in the NMC will be joining the NMC II as partner or with a cooperation agreement
- The partners will pursue the SSS initiatives relevant to them and pursue new SSS initiatives
- Many partners will continue the regional maritime cluster as a means of pursuing SSS initiatives and promoting the ports in the region
- Partners will use the reports, results and knowledge attained as input to national transportation plans

Promotion of Short Sea Shipping and Sea-food Transport

There has been taken a number of initiatives for new and improved SSS services. These initiatives have some times come from shipping companies and industries, which NMC has supported, and some times the initiatives have been taken by the NMC project with the involvement of private sector.



The initiatives are as follows:

Western corridor:

- **Roro Relay Service:** Linking three ropax services (Smyril Line, Northlink Ferries and Superfast Ferries) to provide a non-road through service from Iceland, Faeroe Islands, Shetland and Orkney to UK and Zeebrugge in Flanders. An initiative by NMC
- **North East Scotland Service Samskip:** Investigating the feasibility of an Aberdeenshire – Continent container service by ships from Iceland calling a harbour in North East Scotland. NMC responded to an initiative by Samskip
- **Smyril Line Extended Service:** Extending the route of the new large luxury ferry to a Continental port in order to attract cruise passengers and to deliver fresh fish more directly to the continental market. An initiative by NMC
- **Scapa Flow Container Transshipment Terminal:** Establishment of a transshipment terminal to relieve congested large ports on the

Continent. NMC responded to an initiative by Orkney Islands Council

Eastern corridor:

- **Roro Service Norske Skog:** An alliance of cargo owners, transport operators and terminals (with Norske Skog as the main partner) tendered a roro service from the Trondheim area to UK and the Continent. NMC responded to the initiative by Norske Skog
- **Mid-Norway – Rosyth Service (MINORO):** Establish a roro combined ropax ferry service between Trondheim/Kristiansund in Mid-Norway and Rosyth in Scotland, connecting to the present ropax service between Rosyth and Zeebrugge (Superfast Ferries). NMC responded to an initiative by a consortium of investors and ports
- **North Sea Bridge - Sea Cargo:** Improving the services of Sea Cargo across the North Sea with new roro ships and higher frequencies. NMC responded to an initiative by Sea Cargo
- **Ropax Cuxhaven – West Coast Norway – NorFerries:** Establish a new roro service, and eventually a ropax service, between Cuxhaven and Stavanger/Bergen/Ålesund/Trondheim. NMC responded to an initiative by NorFerries
- **Norway-Benelux Intermodal Service for Seafood:** Establish a new long haulage intermodal service from Nordland in Norway to the Continent, on railway from Narvik/Bodø to Oslo/Kristiansand, and with fast roro ship from Kristiansand to Eemshaven in the Netherlands. An NMC initiative
- **Barents Sea Intermodal Service (BASIS):** Prepare a study on the competitiveness of intermodal sea transport service through Barents region ports, as an additional gateway to North West Russia and Central Russia. An NMC initiative
- **Arctic Oil Transport:** Increase the transshipment of oil from Russia at Sullom Voe and Scapa Flow in Shetland and Orkney respectively. NMC responded to an initiative by Shetland and Orkney islands councils

General Initiatives:

- **Efficient Transport Chain (ETC):** Improve the efficiency of business processes for shipping companies, by specifications and tendering an ICT solution. An initiative by the NMC and the Shortsea Promotion centre of Norway. The purchasing of the ICT solution was afterwards made by three shipping companies on their own costs
- **Cryo Container- Use of New Cooling Technology:** Test of the GoCryo container with powerless freezing/cooling technology, using liquid CO₂ as refrigerant. NMC responded to an initiative by the Groningen cluster and Dink Ripmeester Logistics and Maritime Management Ltd
- **Door-to-door Webguide:** Development of a web-based Door-to-door Guide with an address-to-address look-up, listing of transport alternatives, description of each alternative and route maps. NMC responded to an initiative by the Shortsea Promotion Centre of Norway

In addition an environmental impact assessment has been made on two of the suggested new SSS services.

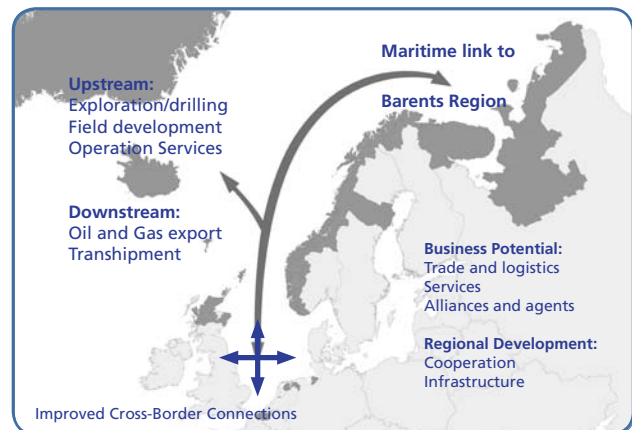
The study shows that the planned fast conventional ferry service (23 knots) between Mid – Norway and Rosyth has higher emissions compared to other means of transport. The planned fast conventional ferry service (28 knots) between Kristiansand and Eemshaven has also relatively high emissions.

If the service Kristiansand – Eemshaven is running at 18 knots it will have less emission than the base case (road transport via Oslo - Kiel). If the Mid-Norway and Rosyth service is running at a speed of 18 knots, the differences between the different routes are significantly reduced, and the differences between the Mid-Norway-Rosyth service and the base case becomes so small that it is not significant.

Transport in the Petroleum Sector

The Strand has pursued its objective by pursuing two topics:

- Cross border initiatives in the North Sea area
- Maritime link to the Barents region



Two different scenarios for the petroleum development in the North Sea have been looked at:

- **Scenario A: Rapid decrease** in production, and very limited new investments
- **Scenario B: Sustained development** for decades by new investments, new tax regime and improved technologies, and an investment level decreasing till about half of the present level within some 5 – 10 years, and then a much slower decrease

The scenarios for upstreams transport are seen to be as follows:

- **Scenario A: Fast decreased transport demand**
- **Scenario B: Sustained transport demand**

The two scenarios are quite different in terms of total volumes of petroleum related cargo. But the effect on the consolidation trend for the logistic suppliers will be much the same. The potential for attracting cargo from road to sea seems higher in the second scenario.

The Strand 4 has also commissioned a report on Development of Scenarios for the Barents Sea Area, the New European Petroleum Province. The scenarios discussed are the following:

1. Norway - Snøhvit Expansion
2. Norway - Finnmark East
3. North West Russian - Base Case
4. North West Russian - Offshore
5. Russian/Norwegian Barents Sea

The oil export from North West Russia is increasing tremendously, and the need for transshipment will increase drastically. The scenarios for transshipment are as follows:

- **Scenario A: Transshipment in the north.** Kirkenes/Murmansk takes most of the transshipment of the Russian oil to be shipped by larger tankers to Europe and in particular to the USA. This is much in case due to a rapid improvement in facilities and organisational conditions in North West Russia.
- **Scenario B: Major transshipment in the North Sea area.** Kirkenes/ Murmansk takes only a part of the transshipment of the Russian oil, while places like Sullom Voe and Flotta as well as ship-to-ship transfer at Scapa Flow, in Scotland takes a major part of the transshipment to large tankers. This is much in case due to a slow process of improvement in facilities and organisational conditions in the North West Russia.

A Sustainable Maritime Corridor

Maritime safety is a topic that is high on the international agenda. It became evident very early in the project that it was just as important to look at the safety in the corridor in light of the "Prestige" and other accidents that have taken place. This led NMC to look at what Risk Management Strategies (RMS) each country had in place and to see whether they could be harmonised throughout the corridor, as well as looking at where the gaps were in safety management that could be taken up by the relevant authorities and integrated into regulations.

A winding up report has been produced:

Safety and Sustainability in the Corridor, Key Findings and Recommendations. The recommendations are grouped in four:

1. Harmonisation of Risk Management Strategies
2. Routings and Safe Seaways
3. Safety Awareness and Decision Making
4. Petroleum Developments and Routing Problems

Achievements

The achievements by the regional maritime clusters are described above.

The most significant achievements on transnational level, corresponding with the main objective of the NMC project, are the initiatives taken in respect to new and improved SSS services. Some initiatives have come from companies (private sector initiative), while other initiatives have been taken by the project (public sector initiative), and some initiatives have been a combination of the two. The work on these initiatives has therefore implicitly developed methods for establishing new and improved SSS services.

Rough calculations show that a number of the SSS services the NMC project has contributed to develop, will rise above the minimum threshold for being eligible for Marco Polo support.

A network has been established between private sector institutions in Russia and NMC countries as well as between public sector institutions. Both in respect to establishing SSS services to Russia through North West Russian ports and the development of the petroleum sector in the Barents region, the NMC project may still provide an additional arena for networking of national and international importance.

On the policy level NMC has in particular worked to promote NMC as a "Motorway

of the Sea” in the Trans-European Network. On the 7th of December 2005 the EUs High Level Group presented their final report on the extension of the major Trans-European transport axes to the neighbouring countries and regions.

The Northern Maritime Corridor is now among EUs major transnational axes to neighbouring countries. This will without doubt be of great importance for the further development of this corridor.

In the report the NMC is defined as a continuation of the “Motorway of the Sea of Western Europe” and reaches from the North Sea to the Barents in the north. The work carried out by the NMC in this respect has therefore been successful.

The NMC project took the initiative to establish a new Interreg IIIB project called Safety at Sea. Safety at Sea have been approved and commenced both for the North Sea Region and the Northern Periphery Region.

The external evaluation team states in its final report that at the outset the NMC project could be regarded as a high risk project with regard to its ability to result in tangible impacts. However, the sum of impacts achieved by the NMC project at regional and transnational level seems in such a perspective quite impressive.

The external evaluation team also states that on the policy level the NMC project has generated many political decisions at regional level that promote SSS. The NMC is mentioned in four different Norwegian white papers and one green paper. Furthermore, the Norwegian government has mentioned NMC in their comments to two separate EU Commission consultations, and the NMC is mentioned in at least two EU documents.

The evaluation team states as the overall conclusion:

At the present moment, the overall level of impact achievement is more than satisfactory. If the majority of the SSS projects are

realised, the NMC project has then contributed to produce significant changes with regard to the short sea shipping situation in the corridor, which in sum allows concluding that the level of impact achievement would even be “very good”.

Lesson Learned

Some of the key lessons learned are as follows:

- Running the NMC project in parallel in two different Interreg programme areas has been much feasible and successful
- Transnational cooperation has been secured through transnational working groups, broad conferences and direct region-to-region cooperation in developing SSS services and in Business to Business (B2B) meetings
- The project organisation and transnational organisational structure has been complex and demanding, but the regional maritime clusters have been very instrumental for networking and project implementation on transnational level
- The focus on participation from the private and commercial sector has been decisive for pursuing the project aims
- The concept of the Northern Maritime Corridor seems to have been known within relevant institutions in the EU, CPMR, Interreg programmes and Russia
- The inter-ministerial reference group in Norway has been very instrumental for promoting NMC as part of the national and European transport network
- The cooperation with Shortsea Promotion Centres have been constructive, particularly with the Norwegian Shortsea Promotion Centre
- It is acknowledged that the level of knowledge on sea based transport and intermodal transport has been raised significantly among project participants
- The direct region to region cooperation has been instrumental for pursuing concrete SSS initiatives
- The cooperation between North West Russia and regions in NMC countries is promising, in particular in respect to the develop-



ments within the petroleum sector, but also in respect to container transport to Russia via Arctic Russian ports

Continuation of the NMC Project

The partners in the NMC North Sea Region decided in 2004 to apply for a follow up project, titled NMC II. The application was submitted in November 2004, and the project was approved in April 2005.

The NMC II project is focusing on a two-folded aim:

- *Integrate the NMC as a Motorways of the Sea in the TEN-T network*
- *Move cargo from road to sea*

The NMC project has been focusing on the Northern Maritime Corridor as a sea corridor. In the continuation the NMC will be presented as an important link in a European and global transport network. This implies a focus on connecting the NMC to other east – west corridors, and a focus on important

hubs for these corridors.

The new partners in NMC II are The Flemish Nautical Authority, Port of Antwerp, Esbjerg Port Authority and Danish Logistic Centres. Application is made for Humber Forum, City of Hamburg and City of Dordrecht to become partners.

The NMC II will have six work packages, one overall coordinating work package and five thematic work packages, as follows:

- **Work Package A:**
Motorway of the Northern Seas
- **Work Package B:**
NMC as a MOS within the TEN-T Network
- **Work Package C:**
Market Communication and New SSS Services
- **Work Package D:**
Technological Development and ICT Tools
- **Work Package E:**
Polycentric Port Scenarios and Framework Conditions
- **Work Package F:**
Petroleum Sector Transport



1.1 Project Vision and Objectives

The Northern Maritime Corridor (NMC) is a maritime transport concept focusing on the transportation of cargo within the North Sea Region and the Northern Periphery Region, connecting the North Sea basin with the Barents Sea and the Northern Atlantic Ocean. In this way the maritime dimension in international trade is strengthened, developing co-operation between maritime regions and creating business relations in the area.

The overall aim and vision of this NMC Interreg IIIB project is to develop efficient and sustainable maritime transport solutions connecting the coastal regions both bordering the North Sea and manufacturing industry in the North Sea basin with industrial development in the Barents region.

The project addresses major challenges in coastal regions regarding efficient and sustainable freight transport. The NMC project is a tool to promote balanced and sustainable development in the northern coastal regions. The project covers both the Northern Periphery Interreg IIIB and the North Sea Interreg IIIB areas, and has also be linked to regional development outside these areas, i.e. Russia. Partners represent, amongst others, regional authorities, ports, shipping companies, transporters and major industries.

The guidelines from the Commission constitute a transnational platform for all Interreg IIIB programmes in Europe. The document puts a strong focus on effective and sustainable transport, intermodal shifts from road haulage to rail and sea transport, and increased integration between maritime and insular regions. Maritime safety and risk management strategies are also regarded as an important transnational issue. Meas-

ures developed in respect to these priorities should be related to Community policies like The Northern Dimension, TEN and ESDP.

Based on this, the main objective has been formulated as follows:

To establish new/improved short sea shipping services to shift cargo from road to sea.

The core approach can be summarised as follows:

- An arena for networking
- Key actors from both private and public sectors
- Region – to – region cooperation

In accordance with this, the NMC Project Description states that the direct outcomes from the NMC-project will, amongst others, be tailor-made strategies and action plans developed and agreed upon by established and well-functioning regional maritime clusters, regarding:

- Promoting Short Sea Shipping and setting up new services in the corridor
- New concepts for seafood transport and logistics both within and between regions
- Maritime transport concepts in the petroleum sector investigating the present situation in the North Sea and future possibilities in the Barents region
- Implementing and harmonising risk management strategies to secure the sustainability and safety of the Northern Maritime Corridor

In addition, the Project description states that there will be established international networks connecting the regional clusters, as well as business relations between commercial organisations located in different regions.

These direct results from the NMC project will aim to achieve overall long-term impacts, such as:

- Improvement of the efficiency of intermodal systems connecting sea – road, sea – rail and sea – inland waterways at all levels, thereby improving the competitiveness of the coastal industries
- Transference of goods from truck to ship, thereby reduce congestion on road systems in Europe and emissions
- Contribute to regional development in the north – connecting the vast natural reserves in the Northern Periphery Area and Russia with the North Sea Region

1.2 Project Partners



The project partners in the NMC North Sea have been:

- Rogaland County Council, Lead Partner
- Aberdeenshire County Council
- Province of West-Vlaanderen
- Port of Amsterdam
- Groningen Seaports
- City of Cuxhaven
- Vest-Agder County Council
- Hordaland County Council
- Sogn og Fjordane County Council
- Møre og Romsdal County Council
- Sør-Trøndelag County Council

Defined associated partners have been:

- Statoil, Norway
- NorSea Group, Norway
- West Link (ports of Stavanger, Egersund and Hanstholm)
- Institute for Shipping and Logistics (ISL), Bremen, Germany

The project partners in the NMC Northern Periphery have been:

- Executive Committee for Northern Norway, Lead Partner
- Highlands and Islands Enterprise, Scotland (comprising Orkney Islands and Shetland Islands)
- North Atlantic Cooperation Organisation (NORA, comprising Faeroe Islands, Iceland and Greenland)
- Kommunförbundet Västerbotten
- The Barents Secretariat
- Nord-Trøndelag County Council
- Nordland County Council
- Troms County Council
- Finnmark County Council

Defined associated partners have been:

- Murmansk County Council
- Arkhangelsk County Council
- Nenets County Council

1.3 Project Organisation and Modes of Work

The project activities have been carried out through six different strands:

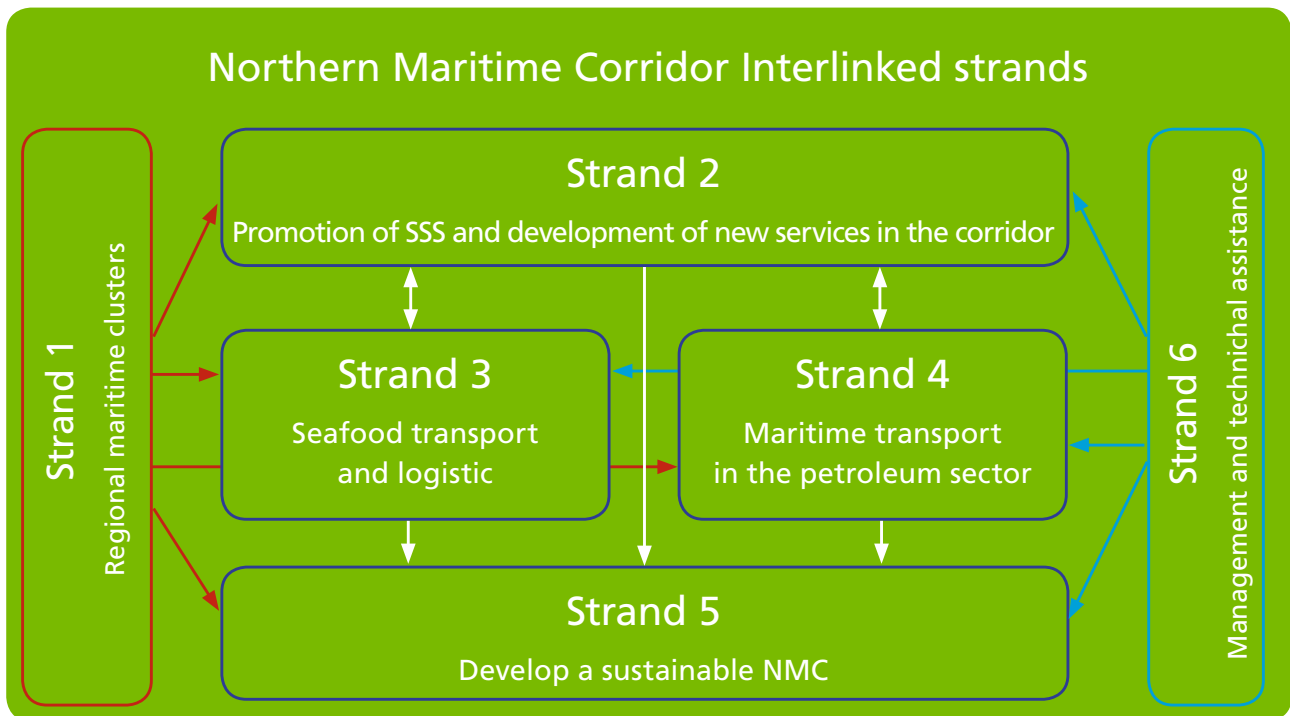
1. Regional maritime clusters
2. Promotion of short sea shipping and development of new services in the corridor
3. Seafood transport and logistics
4. Maritime transport in the petroleum sector

5. Development of a sustainable maritime corridor
6. Management and technical assistance

The Strand 1 and Strand 6 are the supervisory strands while the other four strands are the thematic strands. The regional maritime clusters have prepared the ground for trans-

national cooperation through studies and region-to-region initiatives. For the four thematic strands transnational working groups have been functioning, headed by strand managers.

The strands are interrelated as illustrated in the diagram below:



The Strand 2 Promotion of SSS Services and Development of New Services in the Corridor, is the overriding strand, focusing on the expected main result of the project, namely new and improved SSS services. The Strand 3 and Strand 4 are focusing at specific topics that are of particular interest to the partners. The Strand 5 is focusing on maritime safety and risk management strategies, something which came high on the international agenda after the Prestige accident, right at the start-up of the NMC project.

1.4 Project Implementation

In line with the core approach, the project has emphasised to function as an arena for networking by every year arranging an international NMC conference with 100 – 150 participants from all countries and regions. In

addition, the individual strands have arranged workshops every year.

In each of the regions the regional maritime cluster has convened meetings, discussing present situation, SWOT analysis and scenarios for future SSS services.

Several regions have also conducted region-to-region meetings where the project partners have met with potential business partners.

During the course of the project, the Strand 2 and Strand 3 have merged, acknowledging that the solutions for the seafood transport is much interlinked with the SSS services in general, searching for common solutions.

2 Regional Maritime Clusters



2.1 Partnership

The regional maritime clusters were established in the beginning of the project as basis for project work on both regional and transnational level. The idea was that work in the regional clusters should give input to the transnational work in a bottom-up process. The time it took for all regions to establish a cluster and to finalise the regional studies was, however, underestimated and the transnational work therefore took place more in parallel and with input both ways.

The input that members of regional clusters got from taking part in transnational working group meetings did in fact strengthen regional work. Regional work has in a majority of partner regions been closely connected to the transnational sub-projects for new and improved services that is presented in chapter 3. The transnational activities provided a comprehensive and global understanding of challenges, possible strategies, and ways of implementing actions that could address these challenges.

The regional maritime clusters typically consist of the regional ports, terminal operators and public authorities. In addition shipping lines, transporters and cargo owners have taken part in the work to a varying extent in the different regions. Through the implementation of the project it has become evident that for most of the partner regions the clusters consists of a permanent 3 to 8 members that are the ones committed to the project. This core group has taken initiatives to organise activities regionally and represents the clusters at transnational events and meetings. In addition the clusters have a varying number of less active members that have participated in one or more of the project meetings. The size of these more

informal networks counts up to 60 persons in at least a couple of the regions.

In some regions the involvement of key actors has had to be ensured by forming sub-clusters in either smaller geographical areas or on specific themes, in some cases by individual contact, or even to tailor the project to specific challenges faced by the region in question. One example of the latter is that some regions have focused mainly on the feeding of cargo by road or rail from production sites in their region to relevant hubports in other regions, because direct sea services from their region have been unrealistic in the short and medium term.

Only one partner region, Sogn og Fjordane County, has reported that it was impossible to build really working clusters because of the region's small and scattered population and poor internal communications. This region therefore developed an alternative mode of operation.

In another special case two regions, Nord-Trøndelag and Sør-Trøndelag, have formed a common cluster.

2.2 Key Work Carried Out

The frequency of meetings has in general been between 2 - 4 per year. In addition comes participation in trans-national NMC events and meetings. The meetings are an arena for business-to-business networking. The cluster meetings are in the form of workshops or seminars. The discussion at regional cluster meetings has given input to the regional studies and strategies.

Most of the regions have hosted a transnational NMC conferences or B2B events sometime during the project.

The maritime clusters have in many cases functioned as a partner for discussion for national authorities. Among the Norwegian partners several have given input to the National Transport Plan. Two of the regions have also delivered papers as responses to public hearings in the EU.

In a few regions the maritime cluster has been an arena for discussing regional port cooperation. This includes both joining different port districts and the developing of intermodal transport through improving cargo balance, and implementing more cost efficient solutions.

The partner region without a functioning cluster, has in particular focused on the production of statistics and bringing these forward to the other partner regions as well as national authorities.

Region to region cooperation is another aspect of the maritime clusters. The partner region West-Vlaanderen has in particular been active seeking cooperation with regions both in the western and eastern part of the corridor, including Russia.

Genuine business to business cooperation has also been achieved between some of the regions. Companies in the NORA region and West-Vlaanderen have already established business cooperation regarding seafood export to the continent.

Representatives from maritime clusters have in many cases held presentations of the NMC project at conferences, meetings and universities/colleges.

Last, but not least the maritime clusters have been active in developing new or improved SSS services.

The maritime clusters have mainly followed the recommended programme for regional reports which consists of the following reports:

1. Description of existing short sea shipping
2. Description of existing seafood transportation

3. The potential related to short sea shipping
4. The potential related to seafood transport
5. SWOT analysis and suggestions for new services
6. Action plan

2.3 Key Achievements

This is what the regions has reported as their most important achievements and follow up actions:

2.3.1 Cuxhaven

Key achievements

- Establishing and running the local maritime cluster as a permanent institution for maritime business in the region, which will be operated also after the official end of the NMC Project
- Direct contacts between local maritime cluster members Cuxhaven and NorFerries about establishing a new ro-ro ferry connection between Stavanger, Bergen, Ålesund, Trondheim and Cuxhaven
- Direct contacts between private companies out of the NMC Project regions used for exchange of know-how, experience and assisting each other in projects and plans of short sea shipping and fish transport/logistics
- Study on the potential for a ro-ro ferry connection between Cuxhaven and Norway with a special focus on seafood truck transport, which created part of the basis for the project of Cuxhaven and NorFerries
- Increased awareness of the role of combination of freight and passenger transport service within the North Sea region
- Increased awareness and recognition of the role of private sectors within a EU-project. Projects can only be brought to a success if the involvement and active work of the private sector plays a main role

Follow up actions

- Follow up of the Cuxhaven – Norway ro-ro service project together with the regional maritime cluster in Cuxhaven and partners in Norway (NorFerries)

- Running the regional maritime cluster in Cuxhaven over the official NMC project period
- Using the regional maritime cluster as a platform for regular meetings, exchange of experience and for developing further activities within the Ports of Cuxhaven
- Promoting the Ports of Cuxhaven as an ideal hub for sea and intermodal transport chains in the North Sea and Baltic Sea regions
- Analysing the NMC Project on a local and trans-national basis
- Strengthen the contacts made in the project. Especially deepen the contacts made between the private economy sectors
- Developing the Ports of Cuxhaven in its roles as the main roro Port on the German North Sea coast.

2.3.2 Groningen

Key achievements

- Establishment of the regional maritime cluster, the network will continue beyond the project period as an important arena for discussions on maritime and intermodal transport in the region
- Stakeholders are more aware of the need for strategic co-operation
- More knowledge of goods flows for the North Sea region
- Increased awareness of the role and potential of Eemshaven as a hub for seafood exports and as a strategically located port for routes between the North Sea and Baltic Sea, and the role of Eemshaven in the Norway – Benelux Intermodal Service for Seafood project

Follow up actions

- Participation in NMC II, involving cluster members in relevant work packages
- Systematic study of findings and recommendations from the NMC project
- Follow up of the Norway-Benelux project, including talks with Kristiansand and work-

- ing together with potential ship operators
- Promotion of the role of the port of Eemshaven as an attractive continental hub for sea- and intermodal transport routes in the North Sea and Baltic Sea region
- Assisting the Norway-Benelux project for the Marco Polo application
- Assisting the Norway-Benelux project for a Motorway of the Sea application
- Follow up on the Cryo container project

2.3.3 Amsterdam

Key achievements

- Valuable research, not just the NEA report, but also the more action plan-supported research.
- Strong network within the project
- Additional call for Sea Cargo in Amsterdam. Qualitatively a better and more frequent connection with the West Coast of Norway. Quantitatively, more cargo from road to water, which will increase in the new ship buildings, which can carry more cargo.

Follow up

- Participation in NMC II, including a more active role in work package C, Business and Communication
- Explore more opportunities and continued activity in the work package on Motorways of the Seas.

2.3.4 West-Vlaanderen

Key achievements

- Established regional maritime cluster
- Establishment of new and growing trade links and related transport-links in the western corridor
- More awareness for modal shift amongst transporters and cargo owners
- Development of local, regional and international networks
- Identification of opportunities for intermo-

dal transport development

- Better understanding of transport policy and port organisation in Norway (cost analysis/strategy/ oligarchic organisation of distribution and transport)
- Better understanding of future developments of the energy-sector in Northern Norway
- Increased awareness of the role and the potential of the ports of Zeebrugge, Oostende and Gent in the field of distribution of food and seafood, and energy-sector related products, considering their geographical position within the Western European market

Follow up actions

- A core group of the Regional maritime cluster is taken up in the expanded Flemish regional group within NMC II, involving public authorities and all Flemish port authorities
- A permanent maritime club, organised by the Chamber of Commerce of West-Vlaanderen, the cargo owners, the port authorities, the transport-related companies and the public authorities, will be developed
- Strengthening the western seafood trade and transport corridor (Iceland-Faeroe-Shetland-Scotland) and investigating the possibilities to connect better to Northern Norway
- Follow up of the identified potential transport corridors/services:
 - Smyril/line
 - Samskip
 - Norway-Benelux Intermodal Service for Seafood
 - Minoro
 - Roro Relay
- Strengthening of the local networking, including diverse partners
- Definition of strategy for value added logistics by Provincie West-Vlaanderen, and strengthening the link between research on logistics, transport and private actors in order to guarantee further development of value added logistics
- Participation within NMC II within Flemish regional cluster
- Follow up and strengthening of regio-

nal and transnational B2B contacts and networking

- Networking with other Interreg IIIB transport-projects (Provincie West-Vlaanderen and ports)
- Promotion of the role of the ports of Zeebrugge and Oostende as gateways from and to the Western European consumer market, relating the North Sea, the Baltic Sea and the Channel area
- Further implementation of intermodality within transport development
- Analysis of European transport policy within the framework of NMC II
- Follow up of Marco Polo, linked to the outcome of NMC actions
- Strengthening the position of the ports in the field of seafood distribution
- Strengthening the logistic cooperation with Northern Norway and the Baltic sea
- Follow up of the development of the organisation of gas-transport related to the new developments in the Barents Sea and Russia.

2.3.5 Aberdeenshire

Key achievements

- The raising of awareness to industry and politicians that shipping is an option to remove freight from the road
- Strengthening the profile of freight in the drafting of the Local Authorities transport plans.
- Greater awareness of the market place and the potential traffic available
- Cross border issues assessed and inconsistencies of attitudes to open trade identified
- Maritime Safety given a high profile

Follow up action

- Participation in NMC II, involving regional maritime cluster members in relevant work packages
- Systematic study of findings and recommendations from the NMC project
- Norwegian protectionism to be further addressed at all levels
- Future meetings and events of the regional

maritime cluster, with emphasis on the needs of small and medium sized enterprises for efficient maritime and intermodal transport services

2.3.6 Scottish Highlands and Islands

Key achievements

- 3 active sub-clusters were established, one in the Highlands region, one in Orkney and one in Shetland. The three sub-clusters contributed to development of a regional SWOT analysis and helped to prioritise short sea shipping action plans
- For Shetland the Roro Relay sub project has identified opportunities for transshipment as well as some of the problems and challenges with achieving this
- There has been limited progress with the Scapa Flow container terminal project due to NMC activity. However, the benefits of this project have been highlighted in various NMC activities, including submission by Highlands and Islands regional partners to the European Commission TEN-T Consultation
- Related to the Roro Relay action, a ferry fleet efficiency study has produced recommendations which could improve the level of freight and passenger services provided, with significant cost benefits
- Work on the Highland Intermodal Terminal project has evaluated the market for a new terminal and provided recommendations regarding how this might be achieved
- Increased knowledge about the North Sea cargo flows from the NEA statistics has fed into some of the other short sea shipping actions
- The Arctic Oil Transport study highlighted the potential role that Scottish oil terminals at Sullom Voe, Scapa Flow and Cromarty Firth can have in the Barents Sea petroleum sector developments

Follow up actions

- Follow up of the Roro Relay project, there will be continued dialogue with the relevant roro operators to see if this action

might be taken further forward
Follow up of the Scapa Flow project, this is now being taken forward to planning stage by Orkney Islands Council and Highlands and Islands Enterprise, combined with a more focussed marketing strategy

- Continued work on regional fleet efficiency, this will take place within the overall HITRANS/Scottish Executive review of all ferry services in Scotland
- Marketing towards Russian oil companies on Scottish transshipment, this has now been left with the terminal operators to pursue, with public bodies monitoring the situation
- Follow up of the Highland Intermodal Terminal project, this rests with Cromarty Firth Port Authority and will need to fit in with other development plans for local port facilities at Nigg and Invergordon
- Two of the clusters Orkney and Shetland will participate in the NMC II project as sub-partners of Aberdeenshire. Cromarty Firth Port Authority and Ross and Cromarty Enterprise, and Highland Council may also decide to participate. Highlands and Islands Enterprise will participate in view of regional interests in projects such as the Scapa Flow Container Transshipment Terminal proposal

2.3.7 NORA (Iceland, Greenland and Faeroe Islands)

Key achievements

- Established international networks and cooperation
- Created the foundation for actual business to business cooperation with other NMC regions
- Preparation and realization of the Safety at Sea project in the Northern Peiphery programme area
- Improved sea cargo transport connections in the region

Follow up actions

- Maintenance of established network between primary transport actors and other

cluster members of NMC

- Pursue a focused interest together with the West Nordic authorities on common efforts of efficient and sustainable sea transport
- Considering further participation in NMC II
- Participate in the Safety at Sea project

2.3.8 Vest-Agder

Key achievements

- Establishment of the regional maritime cluster as a permanent body for maritime and intermodal transport in the region
- Increased awareness on the part of the stakeholders on the need for cross-sectorial co-operation and strategic and long-term orientation
- That the Port of Kristiansand obtained status as a national port in 2004 on the basis of input and lobbying from the regional maritime cluster
- Studies on goods flows through the Agder region and a SWOT analysis on the Port of Kristiansand
- Increased awareness of the potential of Kristiansand Port as a hub for seafood exports and as a strategically located port for routes like the Norway – Benelux Intermodal Service for Seafood
- Direct talks between Groningen Sea Ports, a ship operator and the Port of Kristiansand about the possibility of establishing a new fast sea service between the two ports

Follow up action

- Participation in NMC II, involving the regional maritime cluster members in relevant work packages
- Systematic study of findings and recommendations from the NMC project
- Follow up of the Norway–Benelux project, including talks with Groningen and potential ship operators
- Promotion of the role of Kristiansand Port as an attractive hub for sea- and intermodal transport routes in the North Sea and Baltic Sea region
- The regional maritime cluster will also function as a reference group in relation

to other related projects such as Remarcc, NTN and InterBaltic.

- Future meetings and events of the cluster, with emphasis on the needs of small and medium sized enterprises for efficient maritime and intermodal transport services

2.3.9 Rogaland

Key achievements

- Increased regional awareness and focus on the development of short sea shipping
- Studies on goods flows through the Rogaland region were carried out. In addition the more overall situation for sea bound transport in the county of Rogaland was analysed
- Increased focus on the role and the potential Risavika port in Stavanger might have as a hub for unitised cargo

Follow up action

- Rogaland County Council will continue as lead partner in NMC II
- The petroleum related cluster will continue

2.3.10 Hordaland

Key achievements

- Established a regional maritime cluster that actively has promoted short sea shipping
- Two NMC pilot projects are likely to increase short sea freight volumes to and from Hordaland
- The regional maritime cluster has given the county council an arena for regional development

Follow up actions

- Separate project that looks at the effects of the CO₂ emissions tax on short sea shipping
- Separate project on the potential of establishing ro-ro feeder services based on natural gas
- Participation in the NMC II project
- Use NMC II as an arena for improved cooperation between the regional harbours

2.3.11 Sogn og Fjordane

Key achievements

- Brought forward important statistics
- Promoted that a decentralised harbour system with small total cost of transportation is preferable to a few sea lines that concentrate only on some few harbours. It is important to look at the cost from door-to-door not only at the cost from Rotterdam to the first harbour in Norway.
- Promoted that oil consumption increase by three to four times when a ship is speeded from 13 knots to 20 knots. It is important to be aware of the fact that fast ships are not preferred from an environmental perspective
- Increased the understanding of the transport situation in Sogn og Fjordane, in Norway and in Europe
- Collected important information on the transport situation of twenty firms in the county. The firms reported that sea transport is mostly functioning well

Follow up actions

- Follow up the information work towards road planners and people working with the National Transport Plan. This includes statistical information and information about sea transportation

2.3.12 Møre og Romsdal

Key Achievements

- Establishments of better contact between Møre og Romsdal County Council and the local industry through the establishment of the regional maritime cluster
- Strong contribution to the establishment of a new port company (Molde and Romsdal Interkommunale Havneselskap) consisting of 7 municipalities
- Development of the MINORO concept, connecting Mid Norway with Scotland/UK
- Establishment of a local business group (Møregruppen) to keep up the work with the establishment of a new ferry service

between Mid Norway and Rosyth (MINORO)

- Contribution to the establishment of the ferry connection between Cuxhaven and Ålesund
- Through the participation in NMC key players in the county have developed a better understanding of the cargo flows to/from and within Møre og Romsdal

Follow up actions

- Support the further work and the establishment of the two international ferry services to/from Møre og Romsdal
- Develop a better feeder service to/from international ferry services along the coastline
- Participate in the NMC II – Motorways of the Northern Seas
- Work with the development of other SSS services to/from Mid Norway

2.3.13 Sør-Trøndelag

Key achievements

- Choice of sea carrier (DFDS / Lys Line) for a new SSS service
- Choice of harbours in mainland Europe and UK
- Establishing of an intermodal harbour in Skogn
- Intermodal transport system established in 2004 between Skogn, Rotterdam and Tilbury (later Immingham)
- Increased amount of intermodal, northbound commercial cargo being carried (100 TEU/week), for several cargo owners

Follow up actions:

- Continually focus on the import (northbound) direction, as this still carries less cargo than the southbound
- Participating in the NMC II

2.3.14 Nord-Trøndelag

Key Achievements

- Supporting the Future Logistic Solutions for the Central Mid-Nordic project. The newspaper factory, Norske Skog in Skogn, has for a long time used sea transport for export of paper products to international markets. A shift to container transport was planned in order to prevent disadvantages of bulk transport and to get a more flexible transport system. Norske Skog and other companies therefore initiated in 2001 The Cargo Owner Alliance. The objective is to have a complete ro-ro transport in 2009. The Cargo Owner Alliance is also connected to the Interreg IIIB project North East Cargo Link
- Intermodal transport is important in order to increase sea transport. Improving regional roads and railroads is a helpful way to make better conditions for intermodal transport. Consequently it will promote the main objective, environmentally sustainable sea transport
- Contributing to cost efficient transport solutions and organisation in ports. Seven municipals in Nord-Trøndelag established in 2004 one joined port district. Trondheim port wants to develop their port as a modern terminal and part of this plan is cooperation with other terminals in order to get a better balance in the cargo flows.
- Contributions as partner in the Norway-Benelux Intermodal Service for Seafood sub-project

Follow up actions:

- Take care of the contacts established by the cluster in order to develop short sea shipping
- Work for better transport direction balance for sea transport, which means more northbound cargo
- Work for further development of cost efficient terminals for different cargo
- Work for improved regional roads and railroads in order to improve conditions for intermodal transport
- Follow up the ongoing Interreg IIIB project North East Cargo Link

- Continue the work for intermodal transport of seafood products (Norway – Benelux project)

2.3.15 Nordland

Key Achievements

- Establishments of better contact between Nordland County Council and the local industry through the establishment of the Nordland Regional Maritime Cluster
- Development of Norway-Benelux Intermodal Service for Seafood – a transport concept for transport of fresh seafood from Nordland via Kristiansand and Zeebrugge/Eemshaven to European markets
- Through the participation in NMC key players in the county have developed a better understanding of the cargo flows to and from Nordland
- Established strong networks to other regions and other partners in Norway and abroad
- Sea transport and intermodal transport more on the agenda in the county

Follow up actions

- Further developing and implementing of the Norway-Benelux Intermodal Service for Seafood
- Develop better feeder services for seafood from producers to railway hubs and other logistic centres
- Function as link between NMC II – Motorways of the Northern Seas – and the Baltic Sea area and the project InterBaltic
- Work with the development of other intermodal SSS services to/from Nordland

2.3.16 Troms

Key achievements

- Established a regional maritime cluster
- Charted the potential in Troms for transferring goods from wheel to keel
- Worked out strategies to increase transport of goods by sea transportation in the regional transportation plan
- Established and participated in regional

and international networks

- Network based on maritime safety between the county councils in the Northern Periphery

Follow up actions

- Investigating potential for a long distance fast ferry from northern Norway to the European Continent and/or North West Russia (Langruteprojektet)
- New technology in fast ferries
- Establish regional transport cluster in Troms
- Participation in NMC II to utilize the established networks
- Participation in the Safety at Sea project

2.3.17 Finnmark

Key achievements

- Established regional maritime cluster
- Increased awareness of the challenges and opportunities related to seafood transportation
- Increased understanding of the fact that sea borne transport of fresh seafood directly from Finnmark is unrealistic in the short and medium term
- The establishment of international contacts that can help Finnmark implement the concept of "World Port Kirkenes"

Follow up actions

- Measures to promote Kirkenes as an international transport hub including supporting the building of a new railway line to the Russian border connecting the Kirkenes harbour to the Russian railway system
- Measures in the seafood sector which can form a basis for a modal shift in the long run like steady deliveries of fresh seafood all through the year, increased adaptation of the production to the demands of the consumer markets, increased export to the emerging Russian markets and increased cooperation between cargo owners to be able to change the transporters solutions

and terms

- Actions in connections with the transnational sub-project Norway Benelux Intermodal Service for Seafood, especially ensure that road infrastructure for feeding to relevant hubs are improved
- Participation in the spin off project Safety at Sea

2.3.18 Västerbotten

Key achievements.

- Established regional cluster
- Charted the potential in Västerbotten for transferring goods in a east-west direction
- Worked out strategies to increase transport of goods in an east-west corridor
- Established and participated in regional and international networks
- Transport solution for metal scrap from Mo i Rana to Lycksele and Skelleftehamn. Planned volume of 26 thousand ton annually
- Contributing to the development of logistic solutions for a new plastic plant in Lycksele for markets in northern Norway and Iceland
- Contributing to development of logistic solution for fresh fish from the county of Nordland to Västerbotten
- Contributing to the development of logistic solution for heating pellets from Skellefteå to markets in Norway
- Coordinate the transport need of different cargo owners so that one neutral non-competitive actor, on the axis between the county of Västerbotten and the Norwegian coast, can execute traffic

Follow up actions

- Investigating potential for haulage from Northern Sweden- Northern Norway to the European Continent and/or North West Russia
- Systematic study of findings and recommendations from NMC project
- Considering further participation in NMC II to utilize the established networks

transshipment of cargo and passengers taking place in Lerwick, Shetland. Connections with Superfast are not so easy as this involves road transport of goods between the ports of Aberdeen and Rosyth, whereas it would be far more attractive if the cargo (and passengers) could be transferred at the same port, and that would preferably be Rosyth as this is where Superfast Ferries provides its daily service to Zeebrugge from. Another key problem relates to the schedules of the three lines which do not always integrate well.



3.2.3 Achievements

Further achievements have been problematic due to changing circumstances for all three lines. Smyril Line has undergone a painful financial restructuring and appears to be working more closely with Fjord Line now on joint initiatives including the service between Bergen and Hanstholm. Northlink had to request further subsidy from the Scottish Executive with the result that Northern Isles ferry services were again put out to tender, and there will consequently be a new operator in place from April 2006. Meanwhile Superfast Ferries from November 2005 reduced its Rosyth-Zeebrugge service temporarily to every two days using one ship.



3.2.4 Follow up actions

At the regional level, earlier Roro Relay work prompted Highlands and Islands to undertake a separate study on Roro Relay. The emphasis of this study altered to also investigate the efficiency of the present Northlink fleet, which consists of two small ropax and two small roro ferries.

The study established that considerable cost savings can be made by moving to a larger ropax solution comprising just two ships. The report has been put to the Scottish Executive for consideration.

Unfortunately it appears that long-term commitments have been made to utilise the present two small ropax vessels, however, it is nevertheless evident that a far better solution would be a move towards a two large ropax ship solution. The latter would also offer scope and sufficient extra capacity to extend the present service on to Rosyth, thereby eventually making the Roro Relay concept a reality.

Whether or not this actually happens depends very much on the approach of government as the Northern Isles ferry service is heavily regulated with regard to specification. However the NMC work has highlighted what could be done and where service enhancements, service innovation and cost savings can be made.

3.3 North East Scotland Service Samskip



3.3.1 Background for the initiative

This initiative was led by Aberdeenshire Council in cooperation with other NMC regions. The concept involves a direct container service between an Aberdeenshire port and the continent.

3.3.2 Development of the service

Aberdeenshire commissioned a study to investigate the feasibility of an Aberdeenshire-Continent container service. The study found that the local market in Aberdeenshire was fairly substantial but there were some suggestions that it might not be big enough to support a direct service.

3.3.3 Achievements

Aberdeenshire followed the study up by securing interest from Samskip to consider starting the service. A seminar was organised at which all local shippers and transport entities were invited to attend, with Samskip outlining what it could do. However a service has not yet started. This may be due to Samskip's attention being drawn to various acquisitions it has been involved in as the European short sea container industry has restructured during the last year or so.



3.3.4 Follow up actions

Aberdeenshire Council are following up this initiative. Another possible option is for international trade to/from Aberdeenshire to be moved via the Roro Relay initiative (Shet-

land-Orkney-Aberdeen-Rosyth). This would give Aberdeenshire a daily service to Rosyth and hence also daily to Zeebrugge and EU markets, entirely avoiding long-distance road transport. However such an initiative would probably require bigger ropax vessels than current Northlink ships, although this fits in well with the findings of the Highlands and Islands NMC Roro Relay study recommending a shift towards using two larger ropax ships.

3.4 Smyril Line Extended Service

3.4.1 Background for the initiative

Faeroe-based Smyril Line operates a ropax ferry service between Iceland, Faeroe, Shetland and Norway and Denmark. A large new luxury ferry was introduced in 2003 capable of carrying almost 1,500 passengers as well as cars and trailers/containers. At the instigation of Smyril Line shareholders in Shetland, the NMC project team carried out a 'Viking Cruise Study'. This study, by Ocean Shipping Consultants, showed that there was a large and growing demand for cruises in the North Atlantic area.

However, the market is mainly the UK and Germany, plus France and the Benelux countries. As Smyril's only continental port call is in North Denmark (Hanstholm), this market is not being penetrated to any significant extent. That is, no cruise passenger is likely to travel all the way to Hantsholm to take a cruise, most cruises start in the southern North Sea area close to large populations and hub airports. There is therefore a need for Smyril to extend its service down to a Benelux port to access these markets, as well as to take advantage of fly-cruise opportunities.

Coincidentally, the 'Seafood Transport Study' also carried out by the NMC Project, found that most of the fresh seafood was produced in the North Atlantic area served by Smyril Line, but that the demand for these products was essentially the same markets as for the cruise trade – UK, Germany, France and Benelux.

Again, a key weakness for Smyril Line related to its continental port call being a very considerable distance from these major markets. The results of this research therefore indicated a potentially very significant demand for a weekly cruise and fresh seafood ropax ferry service between Iceland/Faeroe/Shetland and a Benelux seaport.

3.4.2 Development of the service

Due to severe financial difficulties and the restructuring of the company, Smyril was unable to consider the extended service option further at this point. This is sad as the company has a high 'cruise' quality ship at its disposal. In addition, while the company now has non-Faeroe and non-Danish shareholders, the strategic focus is still to provide a ferry service between Faeroe and Denmark. This traditional focus represents a barrier to exploiting cruise and seafood transport potential identified in the NMC studies.



3.4.3 Achievements

The NMC studies and related initiatives highlighted the potential for Smyril to develop its business further in a pragmatic way. The option to provide an extended service to a Benelux port still remains, and it is possible that the line and its shareholders could move in this direction at some point in the future unless someone else does it first!



3.4.4 Follow up actions

Shetland Islands Council via its Development Trust is a major shareholder in Smyril. Shetland will participate in NMC II and will look to further enhance Smyril Line's service wherever possible. This initiative therefore needs to be considered under NMC II as a still realisable short sea shipping service development.

3.5 Scapa Flow Container Transshipment Terminal

3.5.1 Background for the initiative

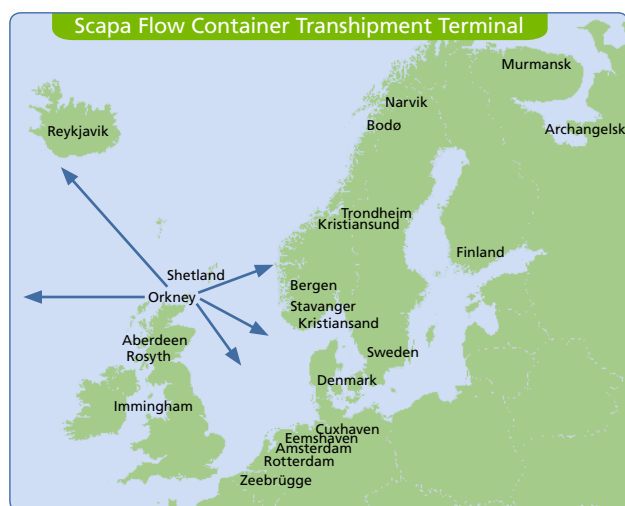
Transshipment is the fastest growing sector of the container port market. Larger ships are constantly being introduced and these ships are less suited to multiport schedules, with lines reducing the number of direct port calls and hence relying more on transshipment. Serious port congestion in northern Europe and in the UK, added to constant increases in traffic growth, has resulted in ongoing demand for new container port capacity.

However, many of the established major ports have found it very difficult to add further capacity due to environmental constraints, lack of space, local traffic congestion, insufficient water depth, and as a result excessive investment requirements. Moving transshipment traffic via a natural deep water island terminal such as Scapa Flow in Orkney therefore results in significant environmental benefits, as well as reducing average feeder and mainline steaming distances so reducing emissions and safety risks, as well as avoiding local land transport congestion by using sea-sea connections.

This concept also fits well global trends to develop deep-water island transshipment hubs and associated Free Trade and Logistics Zones located close to ocean trade routes and able to minimize overall shipping costs substantially. The Orkney harbour authority is currently developing a strategy to take the project forward.

3.5.2 Development of the service

Independent research has been undertaken on a range of issues connected with this development. This includes studies looking into the economics of transshipment, engineering and site issues, environmental impacts, and employment and trade impacts. The Orkney Harbour Authority is now developing its strategy further into the next stage which will include planning, promotion and financing of the new terminal.



3.5.3 Achievements

Through the NMC project it was possible to highlight the significance of a Scapa Flow Container Transshipment Terminal to a range of actors within the NMC areas, as far as Iceland and North West Russia. This was important as the terminal would aim to target feeder traffic to and from these areas, as well as feeder markets in the UK, Ireland, Baltic and Scandinavia. In addition, a response was submitted to the European Commission in its TEN-T Consultation, illustrating how the Scapa Flow development would contribute to a sustainable transport network for the EU and neighbouring countries.



3.5.4 Follow up actions

Orkney Islands Council is continuing its participation through NMC II with the aim of furthering the development of Scapa Flow as a major container transshipment terminal for northern Europe. The Council believe this initiative has major implications for all NMC regions.

3.6 Roro Service – Norske Skog

3.6.1 Background for the Service

The project Future Logistic Solutions for the Central Nordic Region was initiated and owned by the cargo owners in the Central Nordic Region. The project aimed to organise and optimise the infrastructure and transport solutions that create value-added activities for the Central Nordic Region. The project owners realised that they were dependent of an effective transport corridor to secure that business and production can be maintained and further developed. Then cooperation in logistic solutions was strongly necessary.

Demands for logistic solutions were fulfilled by co-operations to utilise transport corridors in Norway, Scandinavia and Europe. In an alliance with cargo owners, transport operators, intermodal terminals and politicians, the project identified and suggested the best future transport system to and from the Central Nordic Region.

3.6.2 Development of the Service

The cargo owners in the Central Nordic Region are in today's situation losing competitive power compared to the industry that is closer to the European Market.

To be able to deliver their products to the European market, the cargo owners are dependent on fast and competitive transport systems with high frequency.

The project Future Logistic Solutions for the Central Nordic Region will create the basis for one shared logistic solution for the cargo owners in the region. In an alliance they focus on utilising the large-scale advantage. The benefits will be increased frequencies, reduced lead times and reduced cost throughout the production chain. The target cost reduction is at least 20 %.



3.6.3 Achievements

Organising and optimising infrastructure and transport solutions that creates value added activities for the Central Nordic Region.

A central element in the process was the "Trondheimsfjorden harbour" project.

The harbour project focused on:

- Developing the new intermodal port in the fjord of Trondheim
- Improving road conditions

- Improving railway track and conditions on the Meråkerbanen.

Through the following activities:

- Identify cargo flow in and out of the region, and transport requirements on modality, frequency and lead times through meetings with cargo owners
- Be a partner in the Interreg projects "Grensehindre", NMC and NECLA
- Contact meetings with ports in Trondheimsfjorden
- Contact meetings with chambers of commerce in the region
- Contact meetings with transport operators within rail, road and sea
- Contact with consultants on development of intermodal transport solutions to and from the region
- Identify and suggest best future transport system to and from the Central Nordic Region

Based on this process the project developed a tender and DFDS Lys-Line was selected as an operator of the service with the container vessels:

- MS Lys-Bris – 16 kn. – 3200 tons cargo
- MS Nornews Leader – 14 kn. – 3700 tons paper



The first roro vessel will be set in as soon as possible and at the latest in January 2008.

NMC has supported the roro project with NOK 300,000.

3.6.4 Follow up actions

From a NMC point of view this project is finished and no further follow up actions are planned for.

3.7 Mid-Norway Rosyth Service (MINORO)

3.7.1 Background for the initiative

The aim of the proposed study is to establish a roro combined ropax ferry service between Trondheim/Kristiansund in Mid-Norway and Rosyth in Scotland/UK.



The new North Sea link will move cargo from road to sea and offer substantial savings in the transport work (ton-km) for the exporters and importers. This aspect is in line with official EU policy towards securing a sustainable and environmental friendly growth within the European Economic Area.

The new ferry service will connect “Fjord Norway” with the “Scottish Highlands”, which both is ranked as top European tourist destinations and the passenger potential seems to be substantial for this new service.

The service will be connected to the existing Superfast service between Rosyth and Zeebrugge and the new service will therefore represent a sea based corridor from Mid-Norway to the continent in addition to the new service connecting Mid-Norway and UK.

The intended service would be based on a two or three day weekly schedule at each port.

Mid-Norway does not benefit from any international ferry connections today, and the proposed ferry service will be a boost to

the local trading and tourist environment. A number of new jobs will be created in form of direct and indirect employment pertaining to harbor activities, catering and booking services. The same positive development is expected to take place in Scotland.

In this concept-outline the channel ports and ferry services is a fundamental part of the Norway-Continental route logistics. Choosing Rosyth in Scotland as the UK port Mid-Norway have the possibility to reach the Continent by a two-leg sea system involving the MINORO Line and the existing Superfast Ferries. Still there will be an alternative to drive from Scotland to southern England on the motorways for ferry to Spain or France.



The unit load freight vessels serving Mid-Norway just now are designated lolo containerships or conventional lolo-based containerships (carrying containers on deck) or equipped with side ramps for truck-to-truck pallet handling. This is the present and most dominant situation within Norwegian sea transport. The only roro-service offered so far in the Mid-Norway region is Sea Cargo's Trondheim-Kristiansund-Molde-Ålesund-Bergen-Stavanger-Aberdeen connection (M/V Aberdeen) once a week. This traditional transport concept has not the built in efficiency in sailing time and port service routines as a modern ferry service can offer, nor is it designed to carry passengers.

3.7.2 Development of the Service

The business idea of the service is to improve the accessibility to UK/Ireland and to France/Iberia for the industry (processing, pulp, tourism, etc.) from Mid-Norway. An additional effect is the possibility to attract

import cargo directly to these parts of Norway instead of using Gothenburg/Oslo as cumbersome gateways. The establishment of the envisaged waterborne transport system will be beneficial for safety and the environment as cargo is moved from road to sea.

The main promoters behind this initiative is Møregruppen / Newtronline, together with Trondheim Municipality, Port of Trondheim, Kristiansund Municipality, Port of Kristiansund and Nordmøre, Scottish Enterprise, Forth Ports Plc, Destination Kristiansund/ Nordmøre and Visit Scotland.



3.7.3 Achievements

There has been established good contact between different key players on Scottish, Norwegian and Belgium side. Since this concept will influence cargo transport to/from Norway, Scotland and Belgium it is important for the partners to get this project up and running.

So far the promoters have been in close dialogue with Attica Enterprises, who are the company who owns and operates the Superfast Ferries. The main reason for this contact is the fact that Superfast Ferries will be the preferred operator of this service. With this operator it will be possible to develop a service from Mid-Norway with a all way through service from Mid-Norway to Zeebrugge where the schedules, tickets and fare are synchronised. It is during this work developed a concept description of the service, which include a detailed description of the service, a market analysis, and a cash flow analysis for the suggested service.

3.7.4 Follow up actions

So far it has been impossible for Attica to come to a conclusion regarding their involvement in this project and the next step of this project will therefore be to plan and run an open tender process in order to get an operator for this described service.

This tender process will be a joint project between:

- Møregruppen/Møre and Romsdal County Council
- Forth Ports/Scottish enterprise
- Port of Zeebrugge

The first step of the tender process will be to coordinate and develop a comprehensive market analysis to cover the potential in the cargo flows between the three countries.

The next step will then be to develop a tender document and run a competition between interested operators.

After an operator is selected there will be a NMC responsibility to take this project through a Marco Polo application and hopefully this project will receive Marco Polo support.

3.8 North Sea Bridge – Sea Cargo

3.8.1 Background for the Service

The North Sea Bridge project was designed in order to develop a new transport bridge between the West Coast of Norway to/from the Continent and to/from East Coast of UK.

The objective was to:

Connect coastal areas of the North Sea, by creating a fast, reliable and safe transport corridor between west coast of Norway, UK and the Continent – using modern ships, providing high frequency with sufficient capacity for all types of unitized cargo.

The project will provide the market with

a completely new product – offering the industry, trucking companies, shippers and receivers a transport option not available today.

The idea behind the project is to develop a system that is competitive with alternative modes of transport (road transportation), enabling shifting of cargo from road to sea. This can only be achieved by offering an alternative “bridge” with shorter (or equal) lead-time combined with competitive prices.

3.8.2 Development of the Service

The system will be developed and implemented based on the present activities of Sea Cargo, but the system is meant to introduce a completely new offer to the market, a high frequency system with short lead-time for all types of unitised cargo with special focus on containers, trailers and other roro units.



The project was based on minimum two new modern roro ships, both running two weekly services between:

1. The West Coast of Norway (Bergen, Haugesund, Karmøy and Stavanger)
2. The Continent (an efficient and flexible port in the Antwerpen-Rotterdam-Amsterdam range)
3. UK (a non-tidal port in the Newcastle-Immingham range)

A third ship is subject to cargo volumes and frequency requirements.

The project should be based on use of modern roro ships, with capacities and speed to accommodate the following criteria:

- Speed of min. 18-18,5 knots, enabling to connect all ports in less than 22 hours
- Capacity for min. 100 trailers and 100 40” containers per voyage, giving a total weekly capacity of min. 720 trailers and 600 40” containers
- Manoeuvring and cargo handling facilities to ensure short port turnaround

The schedule and sailing system should provide the market with:

- Minimum 2 sailings per week directly to/from the Continent
- Minimum 2 sailings per week directly to/from the UK
- Transit time of maximum 24 hours to/from the Continent
- Transit time of maximum 22 hours to/from the UK
- A total trailer capacity of minimum 72.000 trailers/units per year

3.8.3 Achievements

The NMC support to this project was defined in a Memorandum of Understanding of December 2003. The financial support from NMC was used for a cargo flow analysis to support further decisions to be made by Sea Cargo.

Rogaland Research Institute was chosen for this market research and the total commitment for NMC was NOK 350.000.

The findings and the conclusions were grossly in line with the anticipations and the hypotheses which Sea Cargo based the initial project on. The cargo flow analysis, however, formed a good basis for Sea Cargo management when obtaining their Board of Director’s approval to go for the project.

As from 2005 Sea Cargo has introduced a new and additional roro ship to their existing service, increasing the direct sailing to/from UK and the Continent from two to three sailings a week and increasing capacity on the route by 400,000 tonnes a year. The new ship has been in service since January 2005, and will run between hub ports on the West Coast of Norway, Amsterdam and Immingham.

This substantial increase in services and capacity as from January of next year (2006) will only be the start of the project, which will be completed with the introduction of three new purpose built ships in 2007.

The project, implementation and daily running will be taken care of by Sea Cargo. Sea Cargo is a fully operational unit, able to cover all parts of a liner business including administrative, financial, operational and commercial services.

Sea Cargo has finished the negotiation of the construction contracts for the new build-ings, and the vessels are contracted for delivery by the end of 2006 / early 2007.

The new vessels will be modern roro/mp ships with speeds up to 20 knots, and will replace the existing tonnage. The new system will serve the market with a service and frequency not available today. This includes a transit time of less than 20 hrs to/from both UK and the Continent, which will compete with road transport and ferry links through Denmark. For example a trailer operator will save more than 800 km of driving by using the link into and out of Amsterdam.



3.8.4 Follow up actions

From a NMC point of view this project is finished and there will be no further follow up actions.

3.9 Ropax Cuxhaven – West Coast Norway - NorFerries

3.9.1 Background for the service

The shipping company Kystrederiet Arendal made contact with the NMC project at an early stage of the project as participants in a cluster meeting in Stavanger. The shipping company had made some assessments of possible new ropax services between Germany – Sweden – Norway. The main idea was to bring tourists from the Continent to the West Coast of Norway supplemented with cargo both ways.

A memorandum of understanding was signed between NMC and Kystrederiet Arendal.

The NMC maritime cluster in Cuxhaven had on general terms started a study on cargo flows between the Continent and Norway with a specific focus on potential cargo flows between Cuxhaven and the west coast of Norway. In addition the NMC had made a market research in respect to western Norway in relation to the Sea Cargo project.

3.9.2 Development of the Service

The initial idea was to start a service in a triangle between Cuxhaven–Gothenburg–Stavanger. Their own assessments supported by the information provided in the NMC studies changed the plans. The further work concentrated on a connection between Cuxhaven and the West Coast of Norway.

The studies also pointed out the potential cargo related to fresh fish, which in turn put a focus on speed and regularity. The idea of a fast ropax ferry came into the concept, with a service speed of 28 knots.

The owners of Kystrederiet Arendal, being convinced of the potential of a new ropax

service, established a new ferry company in 2004, named NorFerries. NorFerries made direct contact with the relevant ports, and made a specific management contract with Cuxport.

NorFerries developed alternative sailings plans, and came to the conclusion that two ships could call Stavanger, Bergen and Ålesund, and eventually also Trondheim, making two round trips a week for both ships. NorFerries worked on hiring and contracting ships. In parallel market research was done by NMC in all the four cities.

Eventually NorFerries concluded that the fresh fish market had such a high potential that in October 2005 NorFerries announced that they will start a service with hired conventional ro-ro ships in 1st quarter 2006, making three return sailings every week to all cities. In addition they will contract two new fast ropax ships with service speed of 28 knots, and these ships will make four round trips per week.



3.9.3 Achievements

This project is an example of NMC supporting a shipping company in their decision-making. An initial idea of a service between Cuxhaven and West Coast of Norway was further developed in cooperation between NMC and NorFerries, where NMC had two major contributions:

- Access to relevant market studies and conducting a tailor made market assessment in

the four regions involved in western Norway

- Access to the network of NMC that provided contact with key persons for NorFerries

The process has also proved that based on a step by step process the concept has been changed and that the basis for the decision making for hiring and contracting ships has been strengthened. At the outset the tourist potential was the economic basis for the service, while eventually the fresh fish cargo potential became the economic basis for the service.



3.9.4 Follow up Actions

Since NorFerries has made their decision to establish a ro-ro service with hired ro-ro ships and contracting new fast ropax ships, the NMC may, to the extent desirable, contribute to marketing the new service through the NMC network and channels.

3.10 Norway – Benelux Intermodal Service for Seafood

3.10.1 Background for the initiative

The Norway - Benelux Intermodal Service for Seafood study was conducted in order to facilitate more efficient, environmental friendly and competitive transport for the Norwegian seafood sector to customers at the Continent. The study indicates an economic potential in establishing a new intermodal corridor by means of rail and sea.

The core idea in the project is to establish a

new corridor from the port of Kristiansand to a port in Holland or in Belgium. Seaborne cargo in the corridor will give a significant reduction of the truck traffic in Denmark and Germany.

3.10.2 Development of the service

The development of this new service is heavily depending on the transport companies/ logistic partners, the seafood industry, rail operators and a potential sealiners to run the ro-ro service between Kristiansand Seaport and Eemshaven or Zeebrugge Seaports. During 2005 there has been several meetings and interviews with key actors in all involved sectors.

It has been vital to make a reliable forecast, describing potential cargo, transport time and cost savings using this new route. A new corridor has to be competitive, reliable as well as there cannot be technical constraints in the logistic hubs, blocking the alternative.



3.10.3 Achievements

During the project period it has been focused on:

- Clarify the terms for a new intermodal transport corridor from Northern Norway to Benelux, based on existing relevant carriers and efficient feeding systems
- Based on analysis of potential volumes both ways encourage the logistic compa-

nies to develop a new service in collaboration with ship and rail operators

- Identify a commercial operator who is willing to establish a fast ro-ro service between Kristiansand Seaport and/or Eemshaven or Zeebrugge Seaports.
- Assist in developing a Marco Polo application

The latest study demonstrated that there is potential cargo in a north/south direction that can be transported in the suggested alternative route from Northern Norway, passing the logistic hub in Oslo heading for Kristiansand and finally a ro-ro service to Benelux. Southbound cargo alone represents 160.000 trailers annually, and with a stipulated market share of 20% for the new service over 30.000 trailers are expected to be removed from European roads.

If we add northbound cargo with an equal high potential, the number is doubled. The cargo is mainly seafood and consumer goods and is currently being transported by road in the existing corridors from Oslo to Denmark and Germany and vice versa. There is already more than 90.000 tons of fresh/salted and frozen fish transported on the existing rail-links from the north as a basis for the new service.



3.10.4 Follow up actions

At the regional level, it is recommended that the counties Nordland, Nord-Trøndelag and Vest Agder as well as Groningen Seaports continue to support the project.

The Executive Committee for Northern Norway will continue to coordinate some of the

work in 2006 and 2007, though in a more general way.

A key activity in 2006 is to support a named commercial actor who is willing to establish a fast ro-ro service in the suggested corridor.

Another vital task is to secure that the nationally owned railway infrastructure is given the necessary budgets to operate and develop an even better framework for logistic partners willing to give priority to intermodal services.

Third, it is also important to keep a dialog with the largest logistic companies pointing out that the Kristiansand alternative could be of strategic interest.

3.11 Barents Sea Intermodal Service (BASIS)

3.11.1 Background for the initiative

NMC seminars and meetings held in North West Russia helped to establish the understanding for this particular area to improve its transport connections with North European markets. It also enabled the key actors involved to consider the potential opportunity that exists for the ports of Murmansk and Arkhangelsk, and possibly Kirkenes, to offer a route into the Russian interior as an alternative to heavily congested and expensive Baltic Sea gateway ports such as St. Petersburg.

3.11.2 Development of the service

NMC BASIS studies were undertaken by the CNIIMF research institute in St. Petersburg and Ocean Shipping Consultants to assess the competitiveness of the alternative intermodal sea transport route. The studies was also linked with the need to improve port services and infrastructure in the Barents Sea area.

3.11.3 Achievements

Results of this research were presented to a wide range of key decision makers, including

container lines and terminal operators, at a seminar held in Amsterdam in June 2005. The research indicated that there was a potential for lines to reduce container transport costs by using the Barents Sea option as opposed to the Baltic Sea. The study recommended that a moderate sized container terminal be developed in Murmansk as the best option. International container terminal operators/ investors are likely to be interested in such a development, which might best be taken forward via a standard terminal concession arrangement.



3.11.4 Follow up actions

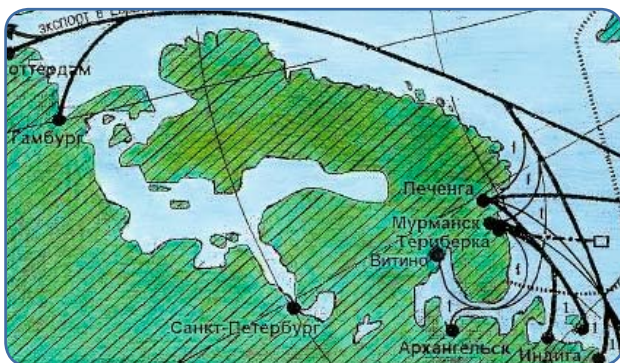
This important initiative is rather held back at the moment by the lack of participation of Russian actors, ports and government bodies in particular. The BASIS initiative has demonstrated that this could be a very positive development and an attractive commercial opportunity, so the momentum should not be lost and hopefully a way may be found to continue this work through NMC II. The BASIS initiative would have important implications for the economy of North West Russia in particular, as well as reducing pressure on the already constrained Baltic Sea routes.

3.12 Arctic Oil Transport

3.12.1 Background for the initiative

Early consideration of the Barents Sea petroleum sector developments highlighted the impending significant challenges that will need to be faced in terms of transport

requirements. In a Scottish context, the major oil terminals at Sullom Voe and Scapa Flow were very interested to establish what, if any, potential role they might have in this evolving market. Highlands and Islands Regional Partners therefore commissioned an 'Arctic Oil Transport' study. The study by Ocean Shipping Consultants found that, for certain ship sizes, transshipment of Arctic oil via Scapa Flow and Sullom Voe could save costs. It was also a positive alternative from a safety and environmental viewpoint given the long-standing experience of these established harbours in respect to ship-to-ship oil transshipment.



3.12.2 Development of the service

Various actors from Orkney and Shetland contributed to NMC seminars and discussions with a particular focus on the Russian market. Presentations were made and contacts obtained. The NMC held a major conference in Shetland with oil transport as the main theme.



3.12.3 Achievements

The Scottish island oil transfer ports are already handling Russian oil from the Bal-

tic Sea and are therefore ready and able to handle oil from the Barents Sea as well. The Arctic Oil initiative helped to inform industry actors of the current state of play, expected developments, and forecast traffic flows, as well as making contact with the key companies and representatives involved.

3.12.4 Follow up actions

The development of Arctic oil will constitute an important area of interest for both Shetland and Orkney in NMC II. There is therefore a need to maintain awareness of oil sector developments in the Barents Sea region.

3.13 Efficient Transport Chain (ETC)

3.13.1 Background

Intermodal transport involves many parties in a transport chain. Transport administration costs are high and the customer services can be improved. Many shippers demand electronic integration with their customers. In Norway, Takecargo is an electronic portal for transport buyers.

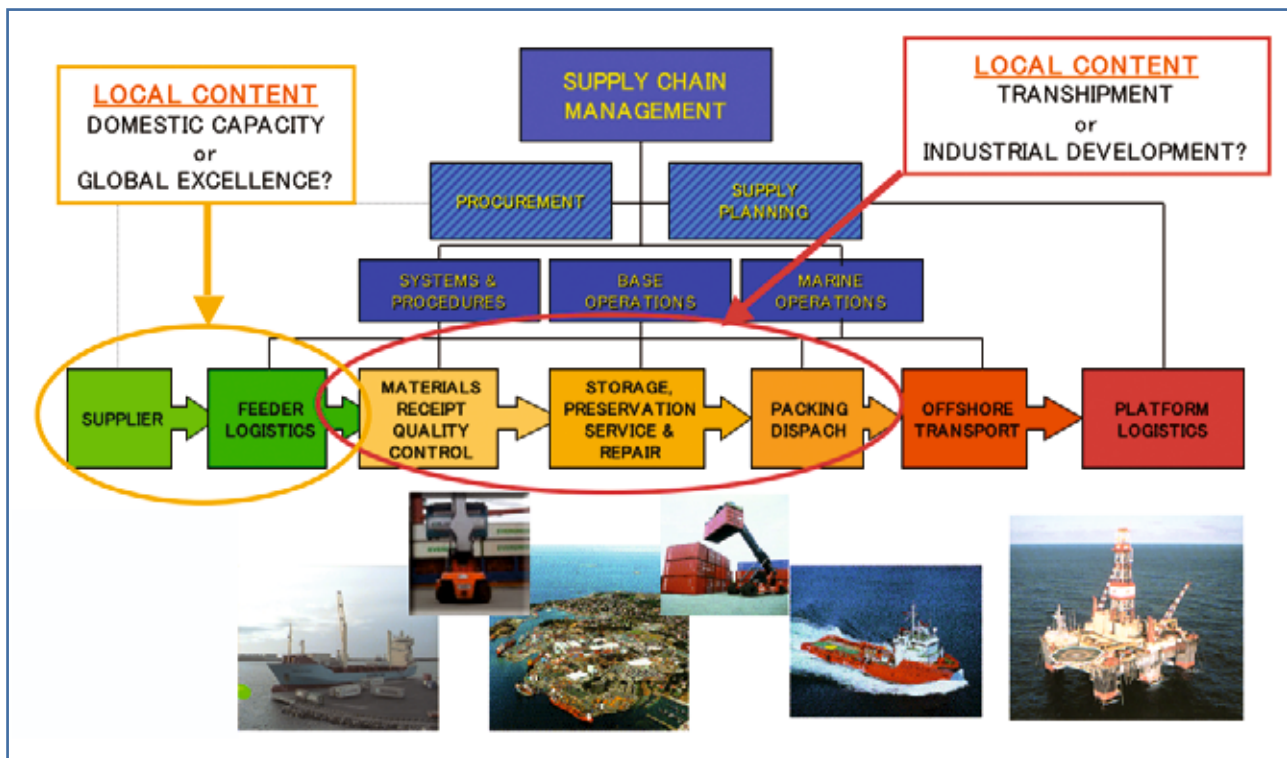
On this background, four shipping lines (Baltic Line, Color Line, NCL, Sea Cargo) joined the project actively. The objective was to improve the efficiency of the shipping line, as part of the transport chain. The targeted efficiency gain is 10-20% of the total cost over a period of five years.

3.13.2 Development

The ETC project development focused on defining: 1) Current Practice, 2) Current IT Solutions, 3) Best Practice, 4) Required IT Solutions and 5) Implementation of new Business Processes.

3.13.3 Achievements

Best Practice was defined in detail for 29 main business processes of a shipping line, and its customers, agents, and transport partners in the transport chain. The work included road haulage. A requirement speci-



fictionation was prepared for IT solutions to support Best Practice. A supplier was selected among 11 contenders.

The work will lead to the following operational achievements:

- No more retyping of data and input errors
- Immediate access to up-to-date information for all parties in the transport chain, including the customers
- Automation of business processes

3.13.4 Follow up actions

During 2005 the shipping lines have implemented the IT solutions and the Best Practice business processes.

In NMC II, one of the work packages focus on defining message standards. The objective is to improve the exchange of data in a short sea transport chain.

3.14 Cryo Container – Use of new Cooling Technology

3.14.1 Background

The Groningen cluster, on the initiative of

Dink Ripmeester Logistics and Maritime Management Ltd., introduced the Cryo concept in reefer logistics to the NMC project. In short this freezing/cooling concept can be described as follows:

- No plug-in during transport and suitable to be carried by all modes of transport able to carry dry cargo containers
- Does not need any electricity resources
- Environmental friendly
- Recycled carbon-dioxide as refrigerant
- No need for temperature monitoring
- Freezing up to – 50 degrees Celsius
- Proven technology

The Cryo Container has been used in USA for some years, and it is ISO certified. It is an insulated ocean freight container with an internal CO₂ bunker that is “charging” with liquid CO₂ to keep the cargo frozen for up to 30 shipping days.

The system can be recharged to extend the shipping period beyond 30 days without opening the cargo door. The patented CO₂ bunker system is passive, requires no external power, monitoring or special terminal handling.



There is nothing “new” about using CO₂ as a refrigerant. It has been used in manufacturing, transportation and in the food industry for decades.

3.14.2 Development of the Service

This sub-project was designed in order to test the innovative way of Cryo technology under real conditions. The implementation of the sub-project was based on the existing 40’ Cryo container. The approach was to test the mode of action and the practical use of this system within the international container trades.

The static test was designed as follows:

- Loading frozen cargo
- Charging with CO₂
- Read the temperature after loading and when unloading after 20 – 25 days

The static test was carried out in August 2005 and was monitored by an external consultant, SGS Nederland B.V. The container was loaded with frozen French fries.

Five different packages were measured. The results of the testing showed that the temperature after 22 days was in fact reduced from around 16 degrees Celsius till around 35 degrees Celsius. There were not observed any damage to the food.

3.14.3 Achievements

The sub-project has so far proven that the Cryo concept has met the static test with a very satisfactory result.

This static test will be a basis for convincing a cargo owner and forwarder to cooperate in a transport test.

3.14.4 Follow up Actions

The follow up actions will be:

- Select a route for testing, tentatively the project is looking for transporting frozen fish from Northern Norway to the Continent
- Contact and agree with a frozen fish exporter and a forwarder to be involved in the transport test
- Find a supplier of CO₂
- Define the route for the transport
- Carry out the transport test and monitor the test
- Prepare a test report

Assuming a successful test, the result will be disseminated widely through the NMC network as well as the network for the involved parties like the Short Sea Shipping Promotion Centres.

3.15 Door-to-door Guide

3.15.1 Background

It can be time consuming and complicated to find the best door-to-door solution. The simplest alternative is most often to order a truck. In many cases this is not the most cost efficient alternative.

NMC therefore decided to develop a web-based Door-to-door Guide that makes it simple to search for and evaluate alternative intermodal transport solutions. This was done in co-operation with the Shortsea Shipping Promotion Centre of Norway, who already had a website with port-to-port schedules for shipping lines and was able to maintain the new service in the long term.

3.15.2 Development

A Door-to-door Guide has been developed, including:

- Address-to-address look-up
- Listing of alternatives
- Detailed description of each alternative
- Route maps

The guide also includes transshipments between services and between different lines. This increases the number of interesting alternatives.



3.15.3 Achievements

The Door-to-door Guide was launched successfully in September 2005. It was well received among the shippers and others. Many shipping lines have made their contributions and see the guide as an important information service for their own customers.

The time it takes to find and evaluate a shipping alternative has decreased significantly, making it easier to book seaborne transportation.

3.15.4 Follow up actions

The Door-to-door Guide will be maintained and developed further by Shortsea Shipping Promotion Centre of Norway. Other Shortsea Promotion Centers in other countries will follow up the idea. The plan is to make a Door-to-door Guide for all of Europe.

Access to the Door-to-door Guide on: www.shortseashipping.no/d2d/doortodoor.aspx

3.16 Environmental Impact Analysis

3.16.1 Background

The study is an input to the environmental issues of establishing new short sea shipping services. The objective of the study is to compare different cargo routes with different means of transport, and different technologies (different speeds).

Environmental impacts that are included in the study are divided into two parts namely, 1) energy consumption measured in KW/h and 2) emissions to air that is a direct result of the energy consumption. The emissions to air that are included are carbon dioxide (CO₂) emissions, carbon monoxide (CO), nitrogen oxides (NO_x) emissions, sulphur (SO₂) emissions and particles (PM). To study the environmental impact on different inter-modal transport chains the report compares the two NMC initiated services MINORO and Norway – Benelux Intermodal Service for Seafood, with the existing truck based service.

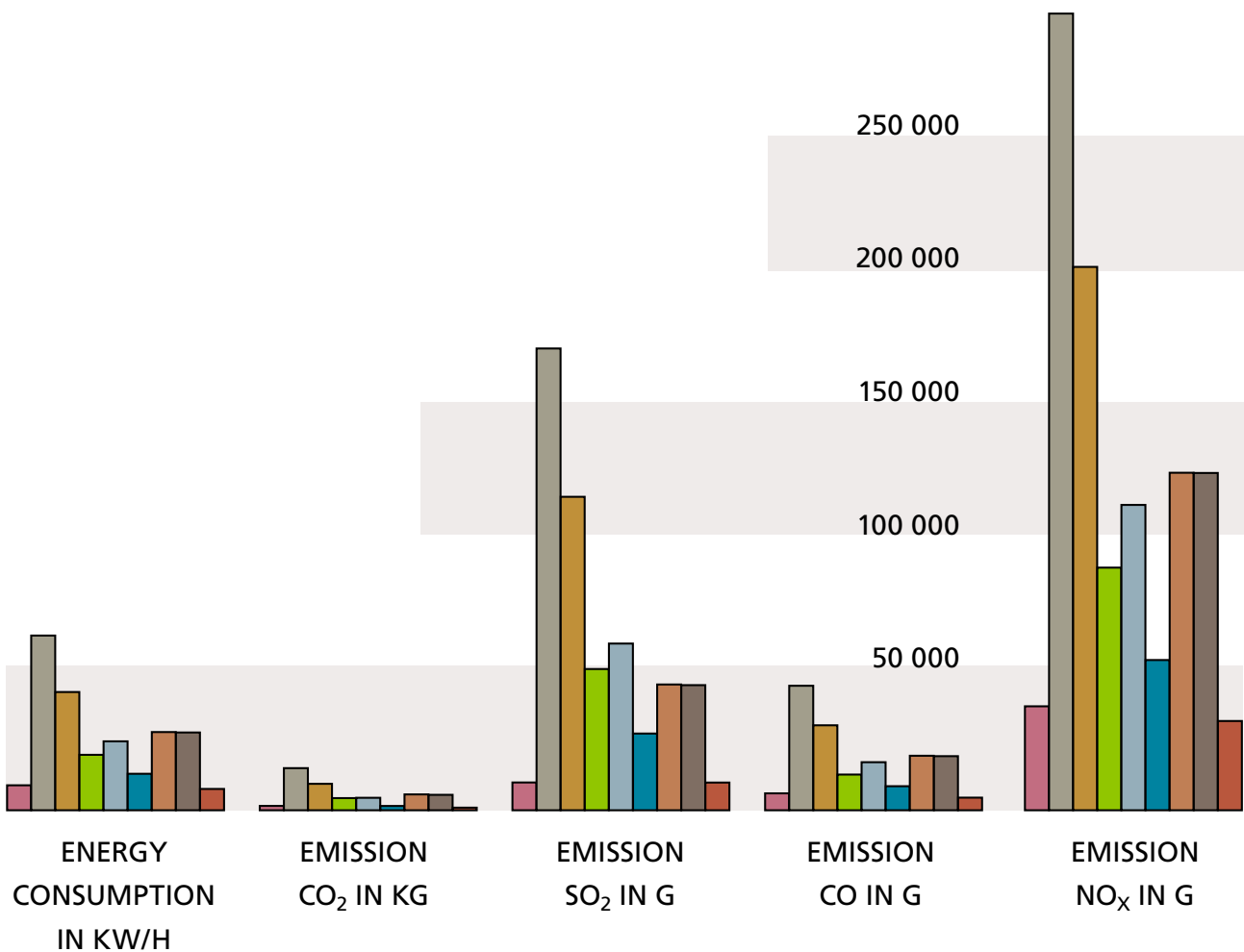
3.16.2 Results

The planned fast conventional ferry service (23 knots) between Mid – Norway and Rosyth have higher emissions compared to other means of transport. The planned fast conventional ferry service (28 knots) between Kristiansand and Eemshaven has also relatively high emissions.

If the service Kristiansand – Eemshaven is running at 18 knots it will have less emission than the base case (transport via Oslo-Kiel). This is both with Norwegian and Danish electricity mix (including coal power etc.). If the Mid – Norway and Rosyth services are running at a speed of 18 knots, the differences between the different routes are significantly reduced, and the differences between the two routes that goes via Rosyth and the base case becomes so small that it is not significant.

New and strict emission targets for road transport were put into place last year and even stricter targets are coming. As can be seen in the report, emissions from the fast conventional ro-ro fleet to day cannot compete with emissions from road in the multi modal transport chains investigated. New regulation for shipping for sulphur content in fuel and NO_x emissions will reduce the future shipping emissions.

It is believed that the new regulations for the shipping industry will help, but it will take time. The average age of the ropax and ro-ro fleet is 3-5 times larger than the average age for the long distance HGV fleet in Norway. Another factor that also counts in disfavour of the short sea shipping, with respect to the environment, is to increase the speed. With the present technologies increased speed results in substantial increases in the energy consumption and the emissions.



- Trondheim - Oslo - Kiel (18 knots) - Boulogne (Base case)
- Trondheim - Kristiansund - Rosyth - Zeebrugge (29-23 knots) Boulogne
- Trondheim - Kristiansund - Rosyth - Zeebrugge (23-23 knots) Boulogne
- Trondheim - Kristiansund - Rosyth - Zeebrugge (18-18 knots) Boulogne
- Trondheim - Kristiansund - Rosyth (23 knots) - Dover - Calais alais (18 knots) Boulogne
- Trondheim - Kristiansund - Rosyth (18 knots) - Dover - Calais alais (18 knots) Boulogne
- Trondheim - Kristiansund - Eemshaven (28 knots) - Boulogne Norwegian el
- Trondheim - Kristiansund - Eemshaven (28 knots) - Boulogne Danish el
- Trondheim - Kristiansund - Eemshaven (18 knots) - Boulogne Norwegian el

4 Transport in the Petroleum Sector



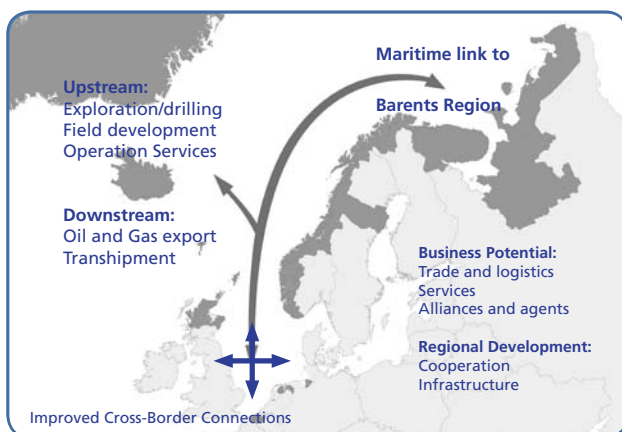
4.1 Overview of Initiatives in the Petroleum Sector

The objective of this strand in the NMC project has been formulated as follows:

The main objective of this strand of the NMC project is to create a strategy on how to transfer petroleum-related freight volumes from “wheel to keel”. Hence, a detailed objective of the NMC project with reference to the exploitation of oil and gas resources in the North is to develop an action plan that promotes efficient, safe and environmentally friendly transportation, involving actors in the transportation sector as well as in oil-related industries.

The Strand has pursued the objective by separating the work in two topics:

- Cross border initiatives in the North Sea area
- Maritime link to the Barents region



The Strand 4 has prepared a set of reports as basis for the work. However, the main mode of working in this strand has been to arrange workshops as part of the NMC conferences and separate meetings. The objective of this has been two-folded:

- To establish an arena for networking between the industry and the government and between companies and institutions in the NMC countries
- To discuss professional issues and solutions in respect to petroleum development and development of transport and logistics

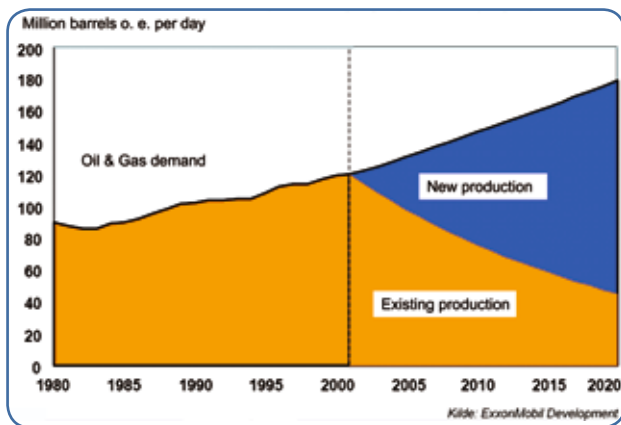
A large bulk of the work has been geared at the Barents Sea development and the networking with Russian industry and government, both at regional level and at central level.

4.2 Cross Border Initiatives in the North Sea Area

At an initial stage the NMC project commissioned two studies, one on base to base transport and one on maritime transport in the UK and cross border logistics.

The reports show that there is a potential for shifting cargo from road to sea, but to succeed in this respect the frequency and regularity of sailings have to be improved, and the framework conditions for road versus sea have to be changed in favour of sea transport.

The Strand 4 has arranged a number of workshops discussing cross border issues. The North Sea is a mature petroleum province and the production is steadily decreasing. However, new technologies and changes in oil company structure as well as consolidation and higher efficiency in logistics, will likely make smaller fields and satellite fields commercial.



Two different scenarios have been looked at:

- **Scenario A: Rapid decrease** in production, and very limited new investments
- **Scenario B: Sustained development** for decades by new investments, new tax regime and improved technologies, and an investment level decreasing till about half of the present level within some 5 – 10 years, and then a much slower decrease

These two scenarios implies substantial differences in investment and long term production level in the North Sea.

These scenarios for petroleum development have been used as basis for indicating possible concepts for sea transport in the North Sea.

Upstreams Transport

The scenarios for upstreams transport is related to the feeder transport to ports and supply bases, and do not include the base – field transport.

The scenarios for upstreams transport are seen to be as follows:

- **Scenario A: Fast decreased transport demand.** The oil companies are outsourcing the logistic services and are quite indifferent to specific transport requirements. The concern for optimisation in the feeder transport part of the chain is low. The consolidation among the logistic suppliers is coming rapidly, fewer bases and hubs, and

fewer actors with a pan-European angle to the business.

- **Scenario B: Sustained transport demand.** The oil companies are outsourcing the logistics services, but are more conscious in defining requirements that secures cost savings and value for money. There will be an increase in transport related to field development and prolonged production. But also in this scenario the consolidation among the logistic suppliers will go quite rapidly in order to secure costs savings and being competitive in servicing the oil companies. There will be a reduced number of supply bases eventually. The framework conditions will be improved so that supply to any field can be made from any base in the North Sea. This will on the one hand decrease the SSS cargo across the North sea, but the reduced number of bases and likely some specialisation of bases will imply the opposite effect. Improved SSS services will happen anyway due to increased containerisation, and the base-to-base concept will be revived and bring cargo from truck to ship.

The two scenarios are quite different in terms of total volumes of petroleum related cargo. But the effect on the consolidation trend for the logistic suppliers will be much the same. The potential for attracting cargo from road to sea seems higher in the second scenario.

Downstreams Transport

The downstreams transport in respect to the production in the North Sea is decreasing, and transshipment will therefore be less extensive. However, the oil export from North West Russia is steadily increasing, and this may imply transshipment in places like Shetland and Orkney.

4.3 Maritime Link to the Barents Region

Downstreams Transport

An initial study about petroleum related transport in the Barents Sea was commissioned. The report mainly covers sea transport related to shipping oil, oil-products and gas from the area of interest to the markets for refining and storage, i.e. downstream related transport activity. This transport is mainly going from the Barents Sea area.

The Strand 4 has also commissioned a report on Development of Scenarios for the Barents Sea Area, The New European Petroleum Province.

Sea transport in the Barents Sea area is rapidly increasing, and the last months alone exceeds expected growth rate. Combined with the enormous petroleum reserves in the area this indicates a clear trend. The restrictions in Bosphorus and Danish straits, together with market mechanisms and the competitiveness of maritime transport, works in the same direction.



To be ready to deal with worst-case scenarios is necessary due to environmental, social and economical consequences of a ship accident in this vulnerable area.

From an industrial and business point of view it is necessary to prepare and to be ready with some basic structures, but avoid making excessive investments until economic conditions allow for it.

The Norwegian Parliament has recently opened up for all-year-round petroleum activity in the Barents Sea from 2004/2005. The intention is to identify areas for possible major discoveries and to become a proactive industrial player in the Barents Sea. Further, the Snøhvit LNG plant is under construction and will be put in operation in 2006.

Russia's strategy to increase petroleum production puts more and more emphasis on the Barents Sea resources. Russia has made discoveries in fields like Timan - Pechora, Shtokman and Yamal. And there has also been a major increase in Russian crude oil export from the Barents Sea the last few years.

The scenarios discussed in the report are the following:

1. Norway - Snøhvit Expansion
2. Norway - Finnmark East
3. North West Russian - Base Case
4. North West Russian - Offshore
5. Russian/Norwegian Barents Sea

The oil export from North West Russia is increasing tremendously, and the need for transshipment will increase drastically.

A question is to what extent the transshipment will happen in the North Sea region or in the north (Finnmark/Murmansk). A study prepared by Ocean Shipping Company indicates that transshipment to large vessels (300,000 dwt) in the North Sea Region can be price competitive to transshipment in the north.

The scenarios depicted are therefore as follows:

- **Scenario A: Transshipment in the north.** Kirkenes/Murmansk takes most of the transshipment of the Russian oil to be shipped by larger tankers to Europe and in particular to USA. This is much due to a rapid improvement in facilities and organisational

conditions in the North West Russia.

- **Scenario B: Major transshipment in the North Sea area.** Kirkenes/ Murmansk takes only a part of the transshipment of the Russian oil, while places like Sullom Voe and Flotta as well as ship-to-ship transfer at Scapa Flow, in Scotland, takes a major part of the transshipment to large tankers. This is much due to a slow process of improvement in facilities and organisational conditions in the North West Russia.

Upstreams Transport

Cargo related to supplying the exploration activity, development of fields, construction and production activities (upstream transport) is mainly being shipped from other parts of the world to the Barents area. Upstream transport is connected to supply bases and covers equipment of all kinds.

The Strand 4 has made a number of fact finding missions to Russia, including Moscow, Murmansk, Archangelsk and Nenets. In return, to a number of the workshops in the NMC countries Russian delegates have participated. In 2005 the networking with Russia has gained momentum.

4.4 Follow up Actions

The Strand 4 activities have in respect to networking between NMC countries and Russia made impressive steps forward during 2005, the last year of the NMC project. The participation by the private sector in the NMC events has also been increasing.

Therefore, the activities of the Strand 4 will be pursued in the NMC II project. A separate work package on Petroleum Sector Transport are planned for.



Photo: StatOil



5.1 Overview of Initiatives on Maritime Safety

Maritime safety is a topic that is high on the international agenda. Many organisations and governmental bodies are dealing with it. Maritime safety is basically the responsibility of national authorities and is dealt with by international organisations through conventions, agreements, guidelines and recommendations that are influencing and improving it. However, maritime accidents will have an impact on both regional and local levels. Oil spills can seriously affect the nature and economic activities in coastal areas.



The recent accidents in the NMC area have demonstrated that Short Sea Shipping as well as other shipping services still has some challenges regarding safety and sustainability. Strand 5 of the project concentrated on the safety and sustainability of the expected increase in traffic with the new routes, faster traffic and the predicted petroleum development of the Barents region.

The work in Strand 5 was originally focused on the sustainability of the potential new services that were expected to be the outcome of the main work of the NMC.

However, it became evident very early on that it was just as important to look at the

safety in the corridor in light of the “Prestige” and other accidents that have taken place. This led Strand 5 to look at what Risk Management Strategies (RMS) each country had in place and to see whether they could be harmonised throughout the corridor, as well as looking at where the gaps were in safety management that could be taken up by the relevant authorities and implemented into regulations.

The Strand has arranged a number of workshops, and several reports have been produced on risk management strategies:

- Current Risk Management Strategies in the NMC Area
- Assessment of Risk Management Issues
- The Overview of Responsibilities in Respect to Risk Management
- Comparison of Risk Management Strategies and Issues between Russia and the Other NMC Countries.

A winding up report has been produced: Safety and Sustainability in the Corridor, Key Findings and Recommendations.

5.2 Recommendations

The recommendations are grouped in four:

1. Harmonisation of Risk Management Strategies
2. Routings and Safe Seaways
3. Safety Awareness and Decision Making
4. Petroleum Developments and Routing Problems

Harmonisation of Risk Management Strategies

- Strategies to raise ships standards
- Strategies to regulate and encourage high quality shipping
- Strategies to regulate traffic patterns, traffic monitoring and emergency response
- Strategies for harmonisation between countries
- Risk Management Modelling (Types of vessel, Future changes, Different countries needs)

Routings and Safe Seaways

International Recommendations:

- Improve aids to navigation
- Standardise system interfaces
- Use electronic systems only in combination with traditional seamanship
- Increase use of separate lanes to avoid collision
- Standardise vessel safety checks
- Places of refuge
- Vulnerable areas
- Cruise liners

National Recommendations:

- Improve scenarios for traffic development
- Increase use of VTS/AIS information

Regional Recommendations:

- Promote transponders onboard fishing vessels

Safety Awareness and Decision Making

International Recommendations:

- Promote Short Sea Shipping:
- Develop coherent policies
- Standardise and centralise regulatory bodies
- Develop arenas for discussing sea safety

National Recommendations:

- Increase the use of rewards for responsible

shipping companies

- Keep maritime safety high on political agenda
- Improve port state control

Regional Recommendations:

- Involve regional government in law implementation
- Investment to implement change

Petroleum Developments and Routing Problems

International Recommendations:

- Aids to navigation
- Reduction in vessels sailing under flags of convenience
- Separate lane development

National Recommendations:

- Tugboat availability and training
- Observance of 12 nm limit
- Monitoring of lightering operations
- Enforcement of port state regulations

5.3 Follow up Actions

The NMC project realised quite soon that the project through the Strand 5 could only go a small step within the field of maritime safety. Therefore, the NMC took steps to initiate a new Interreg IIIB project with the Norwegian Coastal Administration as the lead partner. The "Safety at Sea project" was launched in September 2004.

The NMC project has therefore defined the follow up actions of Strand 5 to happen through the Safety at Sea project. The NMC has been represented at many of their workshops, and the winding up report has been presented.

The winding up report has also been presented at other conferences, like at a CPMR conference and a Maritime Safety Umbrella Operation conference.

6 Achievements



6.1 Envisaged Project Outcome

The envisaged direct outcomes from the NMC-project were:

- Establishing regional maritime clusters and international networks, connecting the regional clusters as well as business relations between commercial organisations located in different regions
- Promoting Short Sea Shipping and setting up new services in the corridor
- New concepts for seafood transport and logistics both within and between regions
- Maritime transport concepts in the petroleum sector investigating the present situation in the North Sea and future possibilities in the Barents region
- Implementing and harmonising risk management strategies to secure the sustainability and safety of the Northern Maritime Corridor

6.2 Achievements for Regional Maritime Clusters

The achievements experienced by the regional partners themselves are presented in Chapter 2. The achievements can be summarised as follows:

- The established regional maritime clusters have in general been instrumental as a local arena for promoting SSS as well as for regional development. Some regional maritime clusters will likely continue even after the project period
- The cluster members have been connected to a broad international arena for SSS
- The cluster members have increased knowledge about SSS and the potential for moving cargo from road to sea
- The cargo flow analyses and market analy-

ses have been valuable

- Most regional clusters have developed scenarios and strategies for developing SSS services
- Almost all regions have been involved in one or more concrete SSS initiatives, mostly in a region-to-region cooperation

6.3 Achievements on Short Sea Shipping and Seafood Transport

The most significant achievements on transnational level, corresponding with the main objective of the NMC project, are the initiatives taken in respect to new and improved SSS services. Some initiatives have come from companies (private sector initiative), while other initiatives have been taken by the project (public sector initiative), and some initiatives have been a combination of the two. The work on these initiatives has therefore implicitly developed methods for establishing new and improved SSS services, in essence being as follows:

Private sector initiative:

- A shipping company takes a SSS initiative
- The NMC project is approached for support
- The NMC project contributes with cargo flow analysis on general level and/or market analysis on detailed level
- Decision by shipping company to establish a new or improved SSS service
- The NMC project, if relevant, assists with a Marco Polo application
- The shipping company establishes the new service

Public sector initiative:

- The NMC project takes a SSS initiative
- The NMC project analyses cargo flows on a general level

- The NMC project is contacting relevant institutions for cooperation, like cargo owners, and is establishing a group to pursue the initiative
- The group develops a concept for a new or improved service
- The group makes a market analysis on detailed level
- The group approaches relevant transport companies like ship owners and rail companies, by two options

1. By direct contact with a transport company or group of transport companies for developing the new service
2. By specifying the new SSS service and then tendering

- The group is, if relevant, assisting with a Marco Polo application
- The transport company establishes the new service



Rough calculations show that a number of the SSS services the NMC project has contributed to develop, will rise above the minimum threshold for being eligible for Marco Polo support.

The project has been geared at supporting initiatives taken by the private sector, provided that the direct output from the NMC support (like market analyses etc.) are openly available, for instance on the NMC website. One example is the sub-project on Efficient Transport Chain where three shipping companies at the end has improved their business processes by ICT tools, and a testing of new containers (Cryo Container) that can keep freezing temperature by CO₂ gas and hence without electricity connection.

The project has also pursued the line of thinking that initiatives taken exclusively by two or more regions are welcomed. The NMC project is not a consensus project where all partners have to agree and participate in all initiatives. The project slogan has been: Cooperation and competition at the same time!

6.4 Achievements within Petroleum Sector Transport

The cooperation between the counties of Murmansk, Archangelsk and Nenets, and regions in NMC countries like Norway and Scotland is, as mentioned above, very promising. A network has been established between private sector institutions in Russia and NMC countries as well as between public sector institutions.

Both in respect to establishing SSS services to Russia through North West Russian ports and the development of the petroleum sector in the Barents region, may the NMC project still provide an additional arena for networking of national and international importance.

6.5 Achievements within Maritime Safety

The NMC project prioritised the Strand 5 on development of a sustainable corridor, with emphasis on risk management strategies. This strand became particularly important because of the Prestige accident that happened when the project started. The maritime safety issue was a main topic at the international NMC conference in Kirkenes April 2003. Representatives of the Ministry of Transport in Moscow and the Ministry of Fisheries and Coastal Affairs in Norway met at the conference and that in turn triggered a closer cooperation between Norway and Russia on maritime safety in the Barents region.

The NMC project acknowledged, however, it's limitation both resource wise and competence wise, and took therefore initiative to establish a new Interreg IIIB project called Safety at Sea. Projects on Safety at Sea have

been approved and commenced both for the North Sea Region and the Northern Periphery Region.

6.6 Other Achievements – policy level

The European Commission defined in 2004 four “Motorways of the Sea” as an important element of the Trans-European Network – Transport (TEN-T).

These sea motorways will be linking EU countries together as well as linking EU countries to neighbouring countries and to trans-ocean routes.

None of the defined motorways of the sea included however the Northern Maritime Corridor. The NMC therefore developed a promotion strategy and appointed a task force for promoting NMC as a MOS.

The NMC strategy has been:

In the short term perspective that NMC initiatives need to be linked to the presently defined motorways of the sea like Motorway of the Baltic Sea and Motorway of the Sea of Western Europe.

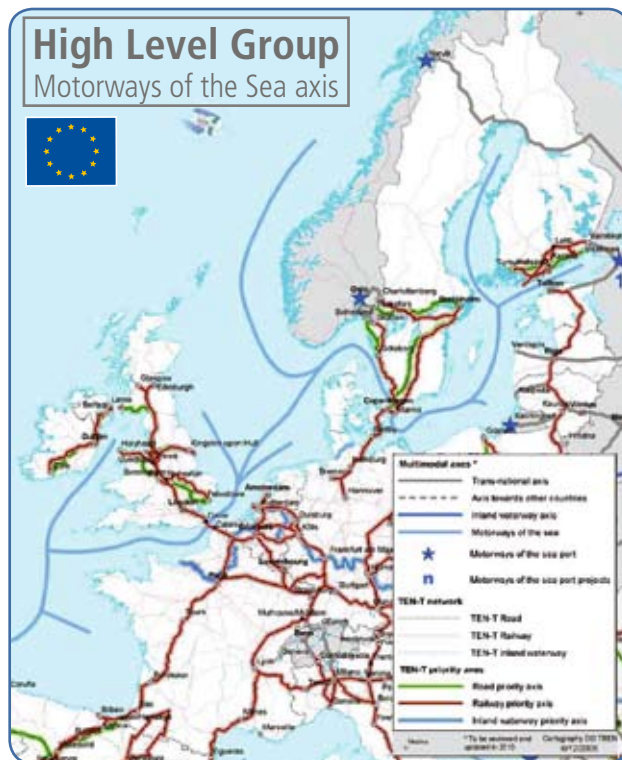
In the longer term NMC need to be defined as a separate fifth motorway of the sea, as the “Motorway of the Northern Seas”.

In promoting the MOS, the following activities have been carried out:

- Comments to consultations on MOS Guidelines, on extension of the TEN-T to the neighbouring countries and regions and on the revision of the White Paper on European Transport Policy
- Meetings with representatives from DG TREN
- Preparation of a contact list for lobbying
- Continuous update on developments concerning TEN-T, MOS and Marco Polo
- Prepared a Letter of Introduction and a Power Point-presentation

Through the work of the NMC task force the NMC has achieved increased awareness and understanding of the case for NMC as a MOS among decision makers and potential cooperation partners.

On the 7th of December 2005 the EUs High Level Group presented their final report on the extension of the major trans-European transport axes to the neighbouring countries and regions.



The Northern Maritime Corridor is now among EUs major transnational axes to neighbouring countries. This will without doubt be of great importance for the further development of this corridor.

In the report the NMC is defined as a continuation of the “Motorway of the Sea of Western Europe” and reaches from the North Sea to the Barents in the north.

This is exactly in line with NMC’s comments to the High Level Group. The work carried out by the NMC in this respect has therefore been successful.

Continued work to get started on by the NMC 2 project will firstly be to strengthen

the position of the northernmost part of the corridor with an extension of the line on the TEN-T map all the way to Murmansk and/or Arkhangelsk in North West Russia, secondly to define NMC as a separate motorway of the sea, the "Motorway of the Northern Seas".

6.7 Overall Conclusions from the External Evaluation Team

The evaluation team states in its final report that at the outset the NMC project was seen as a high risk project with regard to its ability to result in tangible impacts. However, the sum of impacts achieved by the NMC project at regional and transnational level seems in such perspective quite impressive.

For Strand 1 the evaluation team states:

- The overall majority of regional partners have managed to establish and maintain a regional maritime cluster
- The regional maritime clusters have constituted an essential arena for discussions and cooperation
- The huge international network the regional clusters form a part of, having attained an updated knowledge regarding SSS, will likely be sustainable beyond the project period

For Strand 2 and 3 the evaluation team states:

- The NMC project can not document impacts like an immediate increased freight volumes on competitive maritime solutions, However, the NMC project has initiated a number of sub-projects that in a medium term perspective are likely to achieve the above mentioned impacts
- Conceptualising the NMC-line of action for establishing new/improved services

For Strand 4 the evaluation team states:

- The Strand 4 has partly reached the initial expected impact which was to the develop-

ment of a petroleum transportation system in the NMC that has transferred cargo volumes from road to sea.

- The Strand 4 has, however, succeeded in providing a framework for shaping a consistent transport chain for petroleum development in the Barents region and an arena and network for exchanging ideas and concepts for such transport solutions

For the Strand 5 the evaluation team states:

- Strand 5 has partly reached the initially expected impacts, which was an improved awareness and preparedness in respect to safety in the Northern maritime Corridor. This is mainly due to the fact that maritime safety is a national and international responsibility and not a regional responsibility
- Strand 5 has, however, created an informal network and an arena for maritime safety issues that has generated a practical result of cooperation between Russia and Norway.
- The Interreg IIIB project Safety at Sea constitute an important spin off from Strand 5

The evaluation team also states that on the policy level the NMC project has generated many political decisions at regional level that promotes SSS. The NMC is mentioned in four different Norwegian white papers and one green paper. Furthermore, the Norwegian government has mentioned NMC in comments to two separate consultation papers from EU Commission, and that the NMC is mentioned in at least two EU documents.

The evaluation team states as the overall conclusion:

At the present moment, the overall level of impact achievement is more than satisfactory. If the majority of the SSS projects are realised, the NMC project has then contributed to produce significant changes with regard to the short sea shipping situation in the corridor, which in sum allows concluding that the level of impact achievement would even be "very good".



7.1 Organisational Structure

The NMC project is formally two projects in two separate interreg programmes, the North Sea Programme and the Northern Periphery Programme. The projects were run back to back and has indeed been considered as one project. This is much due to persistently conducting all transnational meetings, workshops and conferences as common events. The only separate meeting has been parts of the International Management Group meetings, discussing financial and other internal reporting.

The accounting and auditing have in the NMC project (apart from one partner) been carried out by the Lead Partners. This arrangement has been efficient, and seems recommendable, particularly when common costs take a substantial part of the budget.

7.2 Transnational Cooperation

Transnational cooperation has been secured through transnational strands with working groups consisting of representatives from the partner regions. Transnationality has also been secured through semi annual conferences with broad participation from all the partner regions. In addition, region to region cooperation in developing SSS services, as well as B2B meetings, have been convened.

An important aspect of the transnational cooperation has been the combination of regional activities and transnational activities. The regional activities have added value to the project by feeding into the transnational activities with regional reports and with persons participating in transnational working groups and workshops.

The project organisation and transnational

structure has been perceived as complex and demanding for the participants. On the other hand, the broad participation in regional maritime clusters (including both private and public sector) has been extremely important and in reality a premise for efficient networking on transnational level. This region to region cooperation has been decisive for a number of the SSS initiatives taken in the NMC project.

The core approach of the project has been to create an arena for networking where key actors in the field of sea based transportation can meet. Counting participants in the regional maritime clusters, more than 2/3 of the participating entities were private sector and commercial entities.

The project has combined a bottom up and a top down approach. As mentioned above, the input and participation from regional level has been important for transnational activities. In particular B2B approach has been pursued. B2B activities is to a large extent seen by the private sector as their main means of achieving added benefits from the project, i.e. to meet potential business partners in other countries and regions. This activity could have been pursued even more strongly by the NMC project.

7.3 Project Design

The project has been comprehensive in terms of geographical outreach, number of countries and partners, and themes and activities.

The split in four thematic strands were instrumental at the outset, but eventually Strand 2 on Promotion of SSS services and Strand 3 on Seafood transport and logistics, were merged into one working group. It was acknowledged that the SSS solutions for

seafood transport had to be combined with general SSS solutions pursued in Strand 2.

7.4 Project Progress and Deliverables

The project progress has been much dependent on the Regional Project Managers, the Strand Managers and the staff of the Lead Partners besides consultants. The partners in the maritime clusters have contributed in meetings and workshops, but to a limited extent produced working papers and other professional input. It is also observed that those regions engaging a person specifically for the project work have been able to fulfil project requirements. Unless the project work is felt as directly important and interesting to the institution, the project work will often not be given priority to the level expected.

The main goal of the project has been to promote SSS services and therefore the priority has been to support and pursue SSS initiatives. This has been depended on regional initiatives as well as corresponding initiatives by actors in the private sector, in particular shipping companies. Hence, the perceived benefit from participating in the NMC project differs greatly between the various regions and between various participants. This is, however, in accordance with the approach of creating an arena for networking where the initiative by individual partners is the most decisive factor for achievements and benefits.

The NMC project has also made great efforts to make the concept of the Northern Maritime Corridor well known, i.e. brand building. In particular after the concept of "Motorways of the Sea" was introduced by the EU Commission, the NMC project has been active in promoting NMC as the fifth Motorway of the Sea in Europe. Through comments to consultation papers and meetings with DG TREN, it can be concluded that the NMC is gradually being well known in relevant bodies like DG TREN, DG REGION, CPMR and Interreg programmes.

The relationship with Russia and the counties in North West Russia has developed through the project period. The networking both between private sector and between public sector in Russia and in NMC-countries have established a level of cooperation that is significant and appreciated. The petroleum development in the Barents region is much in focus, but also general transport links to North West Russia and NMC as the western link to the Northern Sea Route in Russia, is a common perspective of great interest.

The cooperation with Russia has been particularly extensive in Strand 4 and partly in Strand 5. The participation by Russians has in comparison been less active in Strand 2 and 3.

7.5 Communication and Dissemination

The NMC project has established its own website from the very beginning and has issued in average three newsletters per year. Two brochures have been produced. The number of articles in newspapers and magazines has been somewhat lower than envisaged.

The project acknowledges in arrears that the flow of information could have been more strongly pursued. The number of newsletters could have been higher, the website could have been more interactive as a means of project internal communication, and the project could have been more active towards the media.

The cooperation with other Interreg project or other similar projects has been limited. Hence, the synergy effects are limited, apart from having presented the NMC project at some conferences and vice versa.

However, the cooperation with the Shortsea Promotion Centre in Norway has been close and beneficial to both parties. In particular to mention is that two sub-projects have been carried out successfully together, concerning efficiency in business processes for shipping companies and a door-to-door guide on internet. The close cooperation

with a body that is much more permanent than an Interreg project is extremely valuable in securing longer term impacts of the NMC project.

In Norway an inter-ministerial reference group has been established to support the NMC project. This has given a much appreciated basis for communication and dialogue between the project and ministries at national level. This is a major reason for NMC to have been mentioned in four different white papers and that NMC has been mentioned in Norwegian comments to EU consultation papers regarding transport issues.

7.6 Participation and Involvement

As mentioned above, the core approach of the NMC project has been to create an arena for networking. The means for this have been transnational meetings, workshops, international NMC conferences, missions to Russia as well as B2B meetings.

To involve shipping companies and ports have been rather easy. To involve important industries and forwarders have been rather difficult. Only within the petroleum sector the involvement of the industry has eventually been satisfactory and gained momentum the last year.

One reason for the lack of involvement by the industry is the trend to outsource the logistic services, and hence the industry leaves to 3rd parties to take logistic decisions. The lack of involvement by the forwarders may be due to limited expectations for benefits from participation in the NMC project as well as the competition within the sector.

It has also been a challenge to involve the political level in the regions and to reach relevant bodies on the national level. This may be due to the fact that the Project Description did not accentuate this to any extent. The focus has been on the private sector as the main decision makers in respect to establishing and improving SSS services.

However, in order for NMC initiatives to suc-

ceed and to make impacts, the support of politicians and national level authorities is important. This is especially important as to initiatives related to the European Transport Network and development of the petroleum sector in the Barents region.

7.7 Reports and Working Papers

A number of reports have been prepared, partly by the regions and partly by transnational strands. The reports have been accessible on the NMC website.

Within the project some partners have commented on too much "paper produced", while others have seen the need to put things in writing in order to get an overview and to convey knowledge and messages.

In many regions the work on the reports have been rewarding, raising the level of competence and creating a basis for other initiatives and projects. However, it is assessed as a shortcoming that the project may not have managed to bring about synergy effects between the reports of the regions to the extent possible, or utilised fully the reports in promoting SSS services.

7.8 Conferences, Workshops and Meetings

The core idea being to create an arena for networking, the multitude of venues for networking has been a priority. The range of venues from smaller meetings to international NMC conferences, have been instrumental as well as the B2B meetings initiated by the regions themselves and the missions to Russia.

The events have taken heed of the fact that an arena for networking must be coincidental by nature. New relations are often initiated at venues where people are not knowing in advance those they are meeting. In this sense the NMC arena has been a venue for wide range networking.

The focus has been on creating an arena for private sector and commercial sector

since these are the true decision makers in respect to SSS. However, the mix of private sector and public sector has been particularly important for the networking between NMC countries and Russia.

7.9 Data and Market Analyses

As most cargo related projects have experienced, the transport statistics on national level are very poor and fragmented. All regions have struggled with data.

On transnational level the NEA report has given an overall picture of the cargo flows within Europe now and in the future. These data has been useful, but for particular SSS initiatives more detailed analyses have had to be prepared.

The assessment in arrear is that more efforts could have been made to utilise and consolidate data produced by the regional partners as a basis for SSS initiatives. But still detailed market assessments will be needed for decision making on SSS initiatives.

It is also an assessment that cargo flow analyses on an overall level should be produced by overriding bodies like the CPMR, because presently many projects are doing overlapping work.

7.10 Competence Building

The comprehensiveness of the NMC project implies that the project has contained a wide spectrum of competence. This competence have in particular been instrumental at regional level in making regional assessments and in sending representatives to various working groups, workshops and B2B meetings.

It is acknowledged by the NMC partners that the level of knowledge of sea based and intermodal transport has been raised significantly for many of the participants. The move away from thinking in terms of port-to-port, to thinking in terms of door-to-door by the sea transport operators, is also significant. It is observed that supply chain man-

agement could be more developed among shipping companies and ports.

An issue being raised is the use of external experts and consultants. In terms of producing material in time and to the quality expected, external assistance is justifiable. But in respect to competence building within the bodies participating in the NMC, it would have been beneficial if more work had been carried out by the participants themselves.

7.11 Summing-up Lesson Learned

The lesson learned can be summed up as follows:

- Running the NMC project in parallel in two different Interreg programme areas have been much feasible and successful
- Transnational cooperation has been secured through transnational working groups, broad conferences and direct region to region cooperation in developing SSS services and in B2B meetings
- The regional activities have added value to the NMC project by feeding into the transnational activities with regional reports and participation in transnational events.
- The project organisation and transnational organisational structure has been complex and demanding, but the regional maritime clusters have been very instrumental for networking and project implementation on transnational level
- The focus on participation from the private and commercial sector has been decisive for pursuing the project aims
- Splitting short sea shipping services into several strands has not been instrumental in the longer run. The SSS services have to serve several types of cargo to be competitive
- To secure progress in the project the partners have to dedicate staff to the project or assign ample time and resources to staff members
- The main goal of the project, to contribute to new and improved SSS services, has been achieved. However, within some regional maritime clusters some of the participants may not feel that the project has given

benefits to them

- The concept of the Northern Maritime Corridor seems to have been known within relevant institutions in the EU, CPMR, Interreg programmes and Russia.
- The relationship with North West Russia has gradually been developed and is now very promising
- The inter-ministerial reference group in Norway has been very instrumental for promoting NMC as part of the national and European transport network
- The flow of information within the NMC project could have been more extensive and more interactive
- The cooperation with other Interreg projects have not been to the level of bringing substantial synergy effects
- The cooperation with Shortsea Promotion Centres have been constructive, particularly with the Norwegian Shortsea Promotion Centre
- Even though a focus has been on participation by the private sector, the participation has been somewhat more limited than expected, in particular from the industry and forwarders
- The involvement of political level in the regions and the national level governmental bodies, have been limited. This is partly due to the fact that this was not emphasised in the project description. However, the importance of political support and cooperation with the national level have been acknowledged as important
- The NMC project has produced a number of valuable reports, but may not have managed to utilise the reports to the extent possible
- The strategy to convene venues like international NMC conferences, workshops, meetings, B2B meetings and fact finding missions have been instrumental for facilitating networking
- The regions have struggled with finding good statistics for their analyses, since cargo data on national level are poor and fragmented. Overall cargo flow data should be prepared by an overriding institution like CPMR. However, in any case supplementary market analyses are required for assessing new and improved SSS services
- It is acknowledged that the level of knowledge on sea based transport and intermodal transport has been raised significantly among project participants
- The use of external competence and capacity has been justifiable, but in respect to competence building the partners may have benefited more from the project if more work had been carried out by themselves
- The most significant achievements of the project has been the initiatives taken to establish new and improved SSS services. The cooperation with the private sector has been decisive
- The direct region-to-region cooperation has been instrumental for pursuing concrete SSS initiatives
- The cooperation between North West Russia and regions in NMC countries is promising, in particular in respect to the developments within the petroleum sector, but also in respect to container transport to Russia via North West Russian ports.
- The NMC project has facilitated a closer cooperation between Russia and Norway in respect to maritime safety in the Barents region as well as initiating a new Interreg IIIB project on Safety at Sea for the North Sea Region and the Northern Periphery Region

8 Continuation of the NMC Project



8.1 Approved NMC II

The partners in the NMC North Sea Region decided in 2004 to apply for a follow up project, titled NMC II. The application was submitted in November 2004, and the project was approved in April 2005. The partners were the same as in the NMC project, apart from Cuxhaven who decided not to continue. However, two Danish partners joined the NMC II, Port of Esbjerg and the Association of Danish Transport Centres in Aalborg.

The vision of the NMC II project remains the same as in the NMC project:

The Northern Maritime Corridor:

- a means of efficient, safe and sustainable transportation,
- connecting coastal areas and
- enhancing regional development in the North Sea Region and the Northern Periphery Area

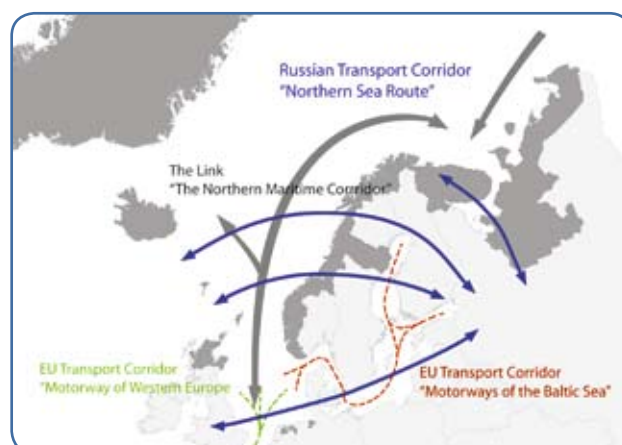
The NMC II project is focusing on a two-folded aim:

- Integrate the NMC as a Motorways of the Sea in the TEN-T network
- Move cargo from road to sea, i.e. pursue NMC initiatives and new initiatives

This implies that the NMC II is accentuating both with a policy level aim and a concrete SSS services aim.

The NMC project has been focusing on the Northern Maritime Corridor as a sea corridor. In the continuation the NMC will be presented as an important link in an European and global transport network. This implies

a focus on connecting the NMC to other east-west corridors, and a focus on important hubs for these corridors. The map below illustrates the NMC as part of an European and global network.



A parallel project in the Northern Periphery was not applied for. However, all the previous partners in the NMC Northern Periphery have expressed a great interest in pursuing the cooperation with the NMC II project. Cooperation agreements are therefore being established.

The total budget for the NMC II application is EUR 2,16 mill. The project period is from June 2005 till June 2008.

8.2 Application for NMC II Expanded

When the NMC II application was developed in 2004, the Interreg IIIB North Sea Programme secretariat encouraged the NMC project to have partners from all the North Sea countries. That was not feasible due to time constraint, but the NMC II project have since worked on an expansion of the NMC II project.

Therefore an application for a "NMC II Expanded" project was submitted in November

2005. A decision on the application is expected in March 2006.

The budget for the NMC II Expanded is EUR 1.02 mill, and hence the total budget for the entire NMC II, provided the NMC II Expanded application is approved, will be EUR 3.18 mill.

The project period applied for is up to June 2008.

8.3 Project Partners and Cooperating Entities

The NMC II will have the following partners (new partners in NMC II are written in italic):

- Consortium of Norwegian institutions:
 - Rogaland County Council
 - Vest-Agder County Council
 - Hordaland County Council
 - Sogn og Fjordane County Council
 - Møre og Romsdal County Council
 - Sør-Trøndelag County Council
 - Troms County Council
 - Barents Secretariat
- Consortium of Flemish institutions:
 - *The Flemish Nautical Authority*
 - Province of West Vlaanderen
 - Province of Oost Vlaanderen
 - Port of Zeebrugge
 - Port of Oostende
 - Port of Ghent
 - *Port of Antwerp*
- Aberdeenshire County Council:
 - Orkney Islands Council
- Amsterdam Port Authority:
 - *City of Dordrecht*
- Groningen Seaports
- *Esbjerg Port Authority*
- *TDF – Danish Logistics Centres*
- *Humber Forum:*
 - *Hull City Council*
 - *Association of British Ports*
- *PD Port Services*
- *DFDS Tor Line*
- *Nor-Cargo UK*
- *Sea Cargo UK*
- *Ragged Edge Consulting*
- *City of Hamburg:*
 - *Technical University of Hamburg-Harburg*

Out of the previous NMC Northern Periphery partners, Orkney Islands Council, Troms County Council and the Barents Secretariat in Kirkenes, have joined the NMC II Expanded application as sub-partners to Aberdeenshire County Council and the Norwegian consortium respectively.

For the other Northern Periphery partners Cooperation Agreements will be signed. The agreement is already signed with the Executive Committee of Northern Norway, comprising also Nord-Trøndelag County Council and Nordland County Council. In addition steps have been taken to make similar agreements with Kommunförbundet Västerbotten, Highlands and Islands Enterprise and NORA (Faeroe Islands, Iceland and Greenland)

8.4 Work Packages

The NMC II will have six work packages (WP), one overall coordinating work package and five thematic work packages, as illustrated in the diagram on page 58.

8.4.1 WP A: Motorway of the Northern Seas (MOS)

The project will comprise one overall work package, the WP A: Motorway of the Northern Seas, which constitutes a continuation and expansion of the NMC partnership. The main objective is to tie the results of the other work packages together into the framework of NMC as a Motorway of the Sea in the TEN-T network. An objective is also to prepare a concept for an Interreg project that is pursuing the objectives of the NMC project, which can form the basis for an application in the next programme period.

Work Package A: Motorway of the Northern Seas

Work Package B:

NMC as a MOS within the TEN-T Network

Work Package C:

Market Communication and New SSS Services

Work Package D:

Technological Development and ICT Tools

Work Package E:

Polycentric Port Scenarios and Framework Conditions

Work Package F:

Petroleum Sector Transport

8.4.2 WP B: NMC as a MOS within the TEN-T network

This WP will compile the general requirements to MOSs as part of continuous intermodal transport chains (rail, road and MOS) as well as linking NMC to the Motorway of the Baltic Sea and Motorway of the Sea of Western Europe. The WP will create a strategic plan for developing the NMC with regard to SSS services, as well as connections to ports/terminals and linkage to rail and road. The strategic plan will also cover feeding services by rail and road in intermodal transportation chains. The work package will comprise work to stimulate political interventions. The WP B will also analyse the potentials of modal shift. The strategic plan will be brought forward into action plans for developing MOS and services in MOS.

8.4.3 WP C: Market Communication and New SSS Services

This WP is, as mentioned above, a direct follow up of the initiatives taken by the present NMC partners in implementing and enhancing the initiatives taken in the present NMC. WP C will therefore be implemented by the present NMC partners.

As in the NMC, the representatives from the private sector, i.e. transporters, shipping lines and key cargo owners in each partner

region, will be crucial players in implementing the work package together with port authorities and other relevant institutions. The WP will focus on communication with the transportation market and facilitating business networks. This WP will continue to pursue the development of new intermodal SSS services. Through the NMC valuable learning has been gained in establishing new SSS routes. This learning, related both to company driven and government driven establishment of new routes, will be compiled and systematised, and then brought into a report on best practice.

8.4.4 WP D: Technological Development and ICT Tools

This WP aims at increasing the use of suitable and compatible information systems/applications with transport users, operators and carriers, including ships and ports. A major part of this work will be to promote interoperable information systems and common standards for electronic transmission of relevant data. The NMC has initiated a process with actors involved in SSS to improve their business process efficiency by utilizing ICT to a greater extent. This WP will pursue that initiative to make the applications compatible with and to the extent possible, also integrated with, systems of other actors in the intermodal chain of transport. This WP will also monitor interesting technological

development for SSS and facilitate the information to SSS initiatives. The WP will pursue innovative transport solutions and systems that bring added value to countries and regions, also by strengthening MOS projects.

8.4.5 WP E: Polycentric Port Scenarios and Framework Conditions for SSS

This WP will develop scenarios for future container transport that is expected to grow tremendously in the coming years. Congested ports and hinterland access may demand a polycentric port structure relevant to MOS. This WP will also study the framework conditions for sea based and intermodal transport in the North Sea countries, with a particular emphasis on fees and other conditions that are disfavoured sea based and intermodal transport. The WP will provide recommendations on harmonisation, to be sent to national transportation authorities, DG TREN etc.

8.4.6 WP F: Petroleum Sector Transport

The WP F will maintain and develop the networking that now has been developed between governmental bodies as well as private sector companies in North West Russia and NMC countries. The NMC II will also maintain relationships to central government and companies in Moscow. The WP F will, based on review of studies and plans within the petroleum sector in the Barents region and the North Sea region, develop concepts for a transport system that is relevant to the petroleum development and operations. Furthermore, funding programmes relevant for Russia (like TACIS) will be studied and recommendations given on how intermodal projects, including investments, can be pursued.

Appendix 1

Acronyms

SSS	Short Sea Shipping
B2B	Business to Business
EIA	Environmental Impact Assessment
WP	Work Package
TEN-T	Trans European Transport Networks
ESDP	European Sustainable Development Programme
SWOT	Strengths Weaknesses Opportunities Threats
MOS	Motorway of the Sea
BASIS	Barents Sea Intermodal Service
MINORO	Mid Norway – Rosyth
HGV	Heavy Goods Vehicle
RMS	Risk Managements Strategies
DG TREN	Directorate-General Energy and Transport
ICT	Information / Communication Technology
Roro ship	Roll on - roll off ship
RoPax ship	Combined roll on - roll off and passenger ship
Lolo ship	Lift off - lift on ship
MP ship	Multipurpose ship

Appendix 2

Regional Reports

R-HIE-01	Description of Regional Situation of Short Sea shipping-Scottish Highlands and Islands
R-HIE-02	Current Regional Seafood Distribution Systems-Scottish Highlands and Islands
R-HIE-03	Scenario Development and Evaluation of Existing Short Sea Shipping Services - Scottish Highlands and Islands
R-HIE-04	Future Options for Northern Isles Ferry Services-Scottish Highlands and Islands
R-KOM-01	Transport Corridors and SWOT Analysis - Västerbotten
R-KOM-02	Final Report and Action Plan - Västerbotten
R-NORA-01	Description of the Regional Situation of Short Sea Shipping - NORA
R-NORA-02	Description of Existing Transport Solutions for Seafood - NORA
R-NORA-03	Regional Assessment of Potential of Goods, Demand for Short Sea Shipping and Important Constraints and Potentials in Seafood Transportation and Logistics - NORA
R-NORA-04	SWOT Analysis SSS - NORA
R-NORA-05	Final Report and Action Plan - NORA
R-NTR-01	Final Report and Action plan - Nord Trøndelag
R-NOR-01	Description of Regional Situation of Short Sea shipping - Nordland
R-NOR-02	Description of Existing Transport Solutions for Seafood - Nordland
R-NOR-03	Regional Assessment of Potential of Goods and Demand for Short Sea Shipping - Nordland
R-NOR-04	Regional assessment of important constraints and potentials in seafood transportation and logistics - Nordland
R-NOR-05	Seafood Feedertransport to Intermodal Hubs - Nordland

Regional Reports (cont...)

R-NOR-06	Report from Closing Conference - Nordland
R-NOR-07	Final Report and Action Plan - Nordland
R-TRO-01	Description of the Regional Situation of Short Sea Shipping - Troms
R-TRO-02	Description of Existing Solutions in the Transportation of Seafood - Troms
R-TRO-03	Regional Assessment of the Potential and the demand for Short Sea Shipping - Troms
R-TRO-04	Assessment of Important Constraints and Potentials in Seafood Transportation and Logistics - Troms
R-TRO-05	SWOT and Route Suggestions - Troms
R-TRO-06	Final Report and Action Plan - Troms
R-FIN-01	Description of the Regional Situation of Short Sea Shipping - Finnmark
R-FIN-02	Description of Existing Transport Solutions for Seafood - Finnmark
R-FIN-03	Assessment of Important Constraints and Potentials in Seafood Transportation and Logistics - Finnmark
R-FIN-04	Assesment of Potential of Goods and Demand for Short Sea Shipping - Finnmark
R-FIN-05	Final Rport and Action Plan - Finnmark
R-ABE-01	Regional Report on the Current Situation of Short Sea Shipping - Aberdeenshire
R-ABE-02	Description of Existing Transport Solutions for Seafood - Aberdeenshire
R-ABE-03	Current Seafood Distribution System in North East Scotland - Aberdeenshire
R-ABE-04	Promotion of Short Sea Shipping and Developent of Routes in the North Sea Region to and from North East Region of Scotland - Aberdeen
R-AMS-01	Regional Description - Amsterdam
R-CUX-01	Regional Situation on Short Sea Shipping and Seafood Transportation and Logistics - Cuxhaven
R-CUX-02	Analysis of the Potential for a Roro Ferry Connection Between the Ports of Cuxhaven and Bergen with a Special Focus on Seafood Truck Transport - Cuxhaven
R-CUX-03	Regional Analysis and Suggestions for New Services - Cuxhaven
R-GRO-01	Short Sea Shipping in the Northern Netherlands - Groningen
R-GRO-02	Existing Solutions for Transport of Seafood in the Northern Netherlands - Groningen
R-GRO-03	Regional Assessment and Evaluation of Short Sea Shipping Services - Groningen
R-GRO-04	SWOT Analysis for Short Sea Shipping
R-HRD-01	The Regional Situation for Short Sea Shipping - Hordaland
R-HRD-02	Seafood Transport and Logistics - Hordaland
R-HRD-03	Goods Potential and Demand for Short Sea Shipping - Hordaland
R-MRO-01	Description of Regional Situation for Short Sea Shipping - Møre og Romsdal
R-MRO-02	Description of Existing Transport Solutions for Seafood - Møre og Romsdal
R-MRO-03	Regional Assessment of Potential of Goods and Demand for Short Sea Shipping - Møre og Romsdal
R-MRO-04	SWOT Analysis- Møre og Romsdal
R-SFJ-01	Regional Work Plan - Sogn og Fjordane
R-SFJ-02	Statistics and Analysis - The Transport Situation - Sogn og Fjordane
R-SFJ-03	Goods from Land to Sea - Sogn og Fjordane
R-ROG-01	Regional Situation on Short Sea Shipping and Seafood Transport and Logistics - Rogaland
R-ROG-02	Regional Potential for Short Sea Shipping - Rogaland
R-ROG-03	SWOT Analysis - Rogaland
R-WVL-01	Regional Situation for Short Sea Shipping and Seafood in the Counties of West-Vlaanderen and Oost-Vlaanderen
R-WVL-02	Integrated NMC Report West. and Oost Vlaanderen
R-WVL-03	Constraints and Potentials in Seafood Transport and Logistics - West-Vlaanderen

Appendix 3

Transnational Reports

Strand 2

- 2-01 Data deliveries for the Northern Maritime Corridor
- 2-02 Further Breakdown of Transport Flow Information for the NMC
- 2-03 Viking Cruise Intinerary Study
- 2-04 Providing a Roro Relay service
- 2-05 Barents Sea Intermodal Service -Sea Transport Development in the North West of Russia
- 2-06 Barents Sea Intermodal Service- Baltic Sea Market study and Barents Sea Port study
- 2-07 Roro Service Norske Skog
- 2-08 Cryo container static test
- 2-09 Efficient Transport Chain project
- 2-10 Environmental Impacts of Intermodal Transport
- 2-11 A Practical Business Case and Market Survey for Samskip to develop a new schedule incorporating ports in Scotland

Strand 3

- 3-01 A Review of the disposition and trends in seafood distribution and Synopsis of Regional Reports
- 3-02 Analysis of the Market for Shift from Truck to Ship or Intermodal Solutions
- 3-03 Norway-Benelux Intermodal Service for Seafood

Strand 4

- 4-01 Description of Petroleum Related Transport in the Barents Sea
- 4-02 Description of Base-to-Base Transport
- 4-03 Russian Fact Finding Mission Main Objectives and Results
- 4-04 Russian Fact Finding Mission Day to Day Report
- 4-05 The Official Strategy of Russia for development of the Oil and Gas Sector in North-West Russia for the period till 2020
- 4-06 Description of Cross Border logistics UK-Norway
- 4-07 Arctic Transportation System of Export of Oil from the North-West Russia
- 4-08 Maritime Transport in the Petroleum Sector
- 4-09 Brief Sum up Report

Strand 5

- 5-01 Description of Risk Management Strategies
- 5-02 Assessment of Risk Management Issues
- 5-03 Overview Over Responsibilities in Respect to Risk Management
- 5-04 Risk Management Strategies and Issues for Russia
- 5-05 Safety and Sustainability in the Corridor-Key Findings and Recommendations

Strand 6

- 6-01 Annual Evaluation Report 2003 The Intensity and Quality of the NMC-Project Partnership
- 6-02 Annual Evaluation Report 2004 Outputs and Results Achieved under the NMC-project by mid-2004
- 6-03 Ongoing Evaluation 1st Progress Report 2004/2005
- 6-04 Annual Evaluation Report 2005 Impacts Achieved by the NMC-project and Future Perspectives Beyond the year 2006



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