Attachment of the BEATA Progress Report 2005

STBR – Sustainable Transport in the Barents Region

GENERAL SUMMARY REPORT

Sustainable Transport in the Barents Region

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STBR General Summary Report

Abstract
This report comprises the "STBR General Summary". The report has been written by STBR Secretariat in Liidea Ltd (Finland). Considerable input into the report has been taken from the numerous STBR sub-project reports and other deliverables.

STBR project was jointly funded by BSR INTERREG III B and 25 project partners from Sweden, Norway, Finland and Northwest Russia. The lead partner and project owner was County Administrative Board of Norrbotten, Luleå Sweden. The total project ran from early 2003 to the end of 2005 with a budget of 2.15 million euros.

During STBR, 16 sub-projects were carried out concerning issues related to road transport, aviation, rail, maritime and logistics. Some studies also focused on the more general perquisites of developing transport, like transport economics, evaluation and modelling. A wealth of information was accumulated and analysed on the characteristics and details of the Barents transportation system. The sub-projects and other sub-activities – their history, process and outcome - are presented in this report on an overview level. The complete reports and other deliverables are enclosed on a CD.

The two most important and beneficial STBR results possessing long term effects were 1) data collection and analysis products and 2) enhancing and building up the international networking - within and between authorities, stakeholders and experts.

It was concluded that STBR in a successful way worked towards all of its set objectives. The shared view of the Barents region's transport system present characteristics and needs – as well as its future strengths and potential – became more focused because of the project. STBR project successfully was able to strengthen co-operation and sustainable development in a way that the entire Barents Region has been positively affected. Regardless of this, many STBR sub-project conclusions still highlighted the need to continue the Barents transport co-operation on this level. The main STBR project also acknowledged this and concluded in recommending such a continuation.

Keywords
Sustainable transport, STBR, Barents, transport, BEATA

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FOREWORD

The Sustainable Transport in the Barents Region (STBR) project aims at strengthening the co-operation and sustainable development so that the whole Barents region is positively affected. The project is carried out under the auspices of the Barents Euro-Arctic Region (BEAR) Communications Group and the Steering Committee of the Barents Euro-Arctic Transport Area (BEATA). The project works in a close co-operation with the authorities and local industries of Norway, Sweden, Finland and Russia, so that the multinational needs of transport service improvements and developments are taken into account in the transport planning processes.

General objectives for the STBR project are to

- Strengthen the co-operation in transport planning throughout the Barents region;
- Increase the common understanding of the transport problems in the region;
- Help the decision makers, planners, authorities and companies to see the region as a single transport area;
- Promote sustainable development in the region.

These goals are achieved by improving the region-wide transport services and infrastructure by eliminating the effects of the borders and lacking infrastructure and by encouraging the authorities to plan the regions transport infrastructure and services jointly.

This report comprises the **"STBR General Summary"**. The report has been written by STBR Secretariat in Liidea Ltd (Finland). Considerable input into the report has been taken from the numerous STBR sub-project reports and other deliverables.

The work has been guided and supervised by STBR Steering Committee and STBR Management Group.

STBR Steering Committee

December 2005

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APPENDICES:

1. INTRODUCTION

Barents Region consists of 13 sub-regions in four countries. The regions are Finnmark, Nordland, and Tromsø in Norway; Norrbotten and Västerbotten in Sweden; Lapland, Oulu and Kainuu in Finland; Archangelsk (including Nenets), Murmansk, Karelia, and Komi in Russia. The Barents Region is a large, but peripheral area of 1.3 million square-km.

Barents Region is an area with rich natural resources and diversified economic structure. However, population and economic activities are located in a few central areas, which are wide apart and in general poorly connected with each other. The circumstances creates a situation for industries and businesses where markets are very far away, distances long and, most importantly, transport costs are high.

The region is also historically divided by national borders, which continue to support the concept of separate, national transport systems operating in parallel, as opposed to having only one interregional system in all the countries. This creates a strong isolating frontier effect. Additional transport bottlenecks are created at the borders, as the current national investment programs in transport do not match as it concerns the nature or timing of investments or other improvement measures at the borders.

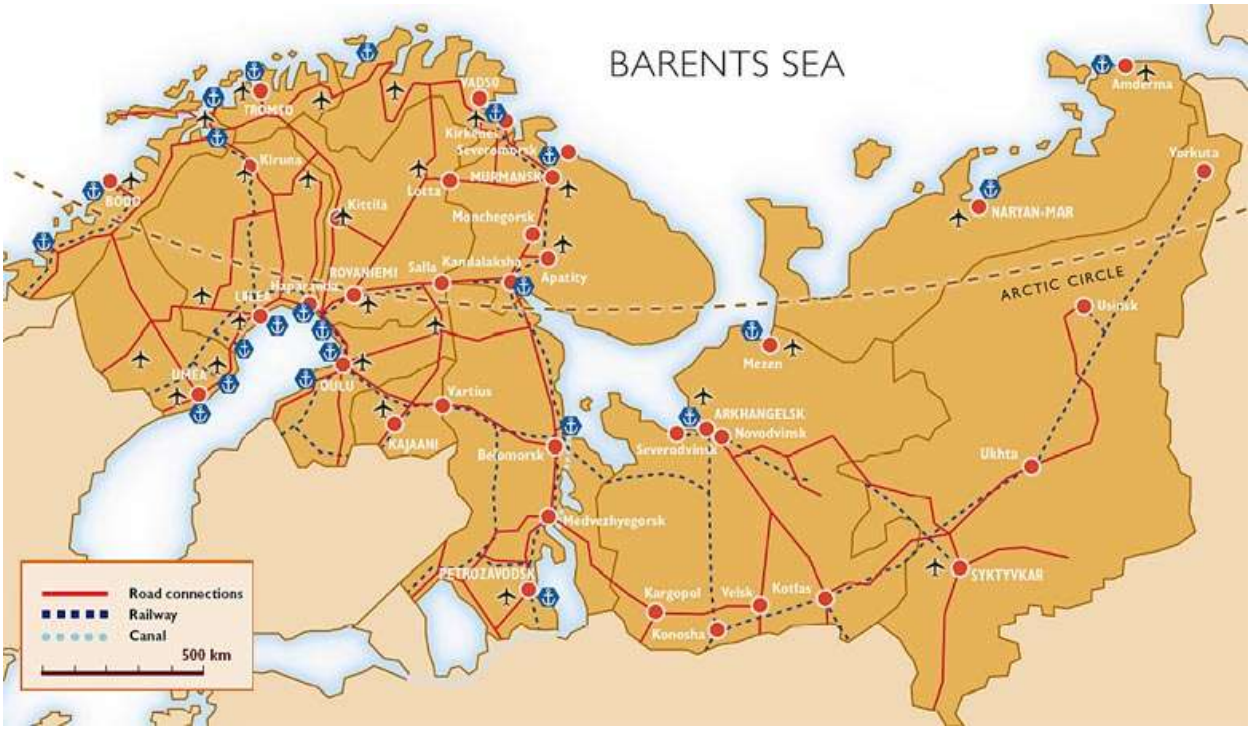

Figure 1.1 Barents region and its transport connections (source: www.barentsinfo.org)

Starting in the 1990's, there has been a considerable activity in creating co-operation frameworks in the Barents Region. The main forums that have emerged in this process are the BEAC (Barents Euro-Arctic Council) of the Foreign Ministries, the BEAR (Barents Regional Council) of the regional administrations, and the BEATA (Barents Euro-arctic Transport Area) between the Transport Ministries, including EU Directorate for Transport

and Energy (DG TREN), in the transport sector. All of them have already several years of successful existence.

During latest years, the co-operation between these forums has increased and developed well. The co-operation in different levels leaded to launching of STBR project. The Sustainable Transport in Barents Region (STBR) project started in the spring 2003 and ended in December 2005.

STBR project was jointly funded by BSR INTERREG III B and 25 project partners from Sweden, Norway, Finland and Northwest Russia. The lead partner and project owner was County Administrative Board of Norrbotten, Luleå Sweden. The total project budget was 2.15 million euros.

This summary report of STBR project has been prepared by STBR Secretariat (Mr. Petri Mononen and Ms. Kati Kiiskilä) and STBR Management Group (Mr. Bo-Erik Ekblom, Mr. Tuomo Palokangas and Mr. Per Munkerud). The purpose of the report is to give an overview of the project phases and its sub-projects and to summarise the conclusions achieved during the project. Also recommendations of the future work are presented.

The report begins with a description of STBR project objectives and an explanation of the structure of this report (chapter 2). This is followed by short summaries of sub-projects and their conclusions (chapter 3). In chapter 4 conclusions are drawn for the whole of STBR project. This is followed by recommendations for follow up.

The numerous sub-projects and other sub-activities – their history, process and outcome - are presented in this report on an overview level only. More detailed information can be found from the attached CD. All of the sub-project reports and databases are there as well as lots of other material produced during the STBR project.

(Please note that all of the abbreviations used in this report are explained in Appendix 1.)

2. OBJECTIVES, STRUCTURE AND PROCESS OF STBR

2.1 Objectives

The Sustainable Transport in the Barents Region (STBR) project aimed at strengthening transport co-operation and sustainable development in Barents Region. The aim of the project was to get the entire Barents Sea Region positively affected by enhancing the supply of region-wide transport infrastructure and services. The project worked in close co-operation with authorities and local industries in Norway, Sweden, Finland and Russia so that multinational needs of transport service and infrastructure improvements and development were taken into account.

General objectives for STBR project, as set out in the original BSR INTERREG IIIB application, were:

- to strengthen transport planning co-operation in Barents Sea Region
- to increase the common understanding of transport problems in the region
- to help decision makers, planners, authorities and companies to see the region as a single transport area
- to promote sustainable development in the region

In the beginning of the project these goals were envisaged to be achieved by improving region-wide transport infrastructure and services, by eliminating the effects of borders and lacking infrastructure, by treating region as a single transport area and by encouraging the authorities to plan the region's transport infrastructure and services jointly.

2.2 Organization and funding

STBR project was jointly funded by BSR INTERREG III B and 25 project partners from Sweden, Norway, Finland and Northwest Russia. The lead partner and project owner was County Administrative Board of Norrbotten, Luleå Sweden.

STBR project partners were:

- County Administrative Board of Norrbotten (Lead partner)
- County Administrative Board of Västerbotten
- Regional Council of Lapland
- Council of Oulu Region
- Regional Council of Kainuu
- Finnmark County Authority
- Nordland County Council
- County of Troms
- Archangelsk Regional Administration
- Murmansk Regional Administration
- Republic of Karelia, Ministry of Economics

- Swedish Ministry of Industry, Employment and Communications
- Finnish Ministry of Transport and Communications
- Norwegian Ministry of Transport and Communications
- Bothnian Arc Association
- Swedish National Road Administration, Northern Region
- Swedish National Rail, Northern Region
- Finnish Road Administration, Oulu District
- Finnish Road Administration, Lappi District
- Finnish Rail Administration
- Port of Oulu
- Barents Secretariat
- Norwegian Public Roads Administration, Northern Region
- Norwegian National Coastal Administration, 4th Region
- Norwegian National Coastal Administration, 5th Region

Representatives of project partners participated into STBR project implementation in numerous ways. In addition to providing funding for the project, they were involved in the work of producing and prioritising ideas for sub-projects and they often also offered their contacts, knowledge and various databases for use in the sub-projects. Many of the project partners also participated into steering group work of the sub-projects.

Practical issues concerning STBR project management and operation was handled by the STBR Management Group with the help of the STBR Secretariat. STBR Management group consisted of three persons: Mr. Bo-Erik Ekblom (County Administrative Board of Norrbotten), Mr. Tuomo Palokangas (Council of Oulu Region) and Mr. Per Munkerud (Nordland County Council). During the project period STBR Management group met 10 times in a physical meeting and additionally once in a teleconference.

STBR project and the work of Management Group were steered by STBR Steering Committee. The Communications Group of the BEAC (Barents Euro-Arctic Council) acted as STBR Steering Committee. Steering committee had 6 meetings during the project period, and consisted of the following members:

- Bo-Erik Ekblom, County Administrative Board of Norrbotten, Luleå
- Tuomo Palokangas, Council of Oulu Region, Oulu
- Per Munkerud, Nordland County Administration, Bodø
- Kjell Rosanoff, Ministry of Transport and Communications, Oslo
- Martti Miettinen, secretary of the BEATA Steering Committee, Helsinki
- Tom Mikalsen, Finnmark County Administration, Vadsø
- Mårten Edberg, County Administration of Västerbotten, Umeå
- Ingeborg Solberg, County of Tromsø, Tromsø
- Martti Juntunen, Regional Council of Kainuu, Kajaani
- Voitto Tiensuu, Regional Council of Lapland, Rovaniemi

BEATA (Barents Euro-arctic Transport Area) Steering committee acted as Advisory Board for STBR project and STBR Steering Committee. The STBR project organisation is illustrated in figure 2.1.

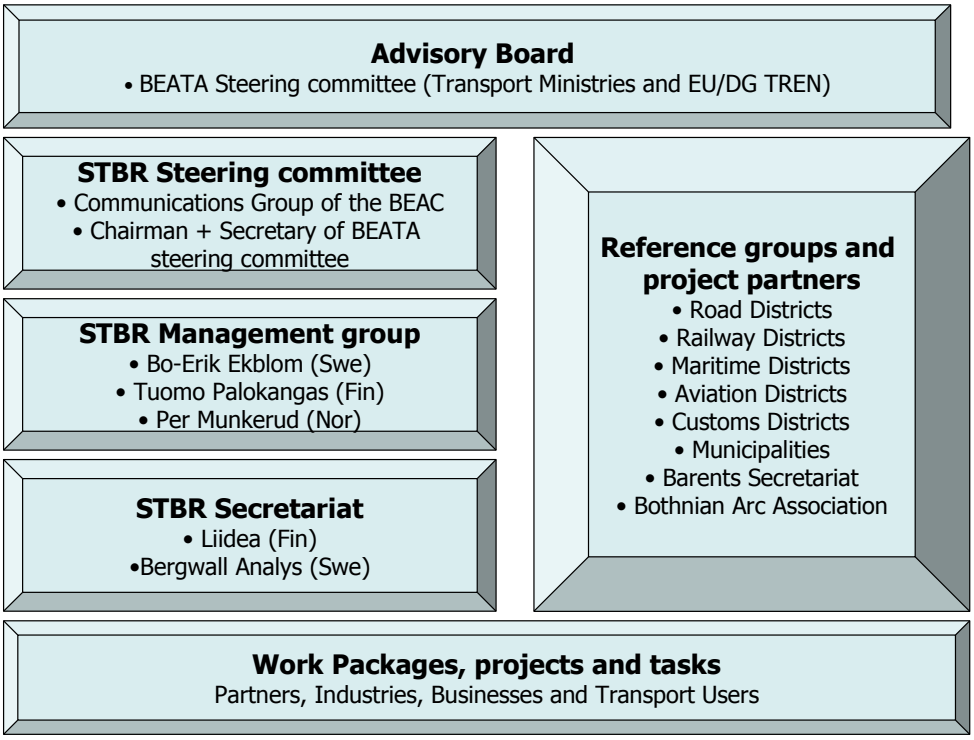

Figure 2.1 STBR Organisation

The STBR Secretariat was selected through public procurement in early summer 2003. The task was awarded to a consortium formed by Liidea Ltd (Oulu, Finland) and Bergwall Analys (Råneå, Sweden).

Each STBR sub-project had its own steering group or the work was steered in some other way. Steering process and organisation of each sub-project is presented in chapter 3 as a part of the project summary. STBR project was always represented in the sub-project steering groups as well were representatives from project's partnering organisations. In many sub-projects these steering groups were complemented with external expertise.

2.3 Work packages

STBR project lasted over 2.5 years and it consisted of several tasks and phases, which were divided into four work packages (WP). Those work packages were:

- WP1 – General studies
- WP2 – Specific projects in the Nordic Countries
- WP3 – Specific Projects concerning Russia
- WP4 – Investment program and follow-up.

The strategic focus of the **work package 1** was to summarise the characteristics of transport network and services, traffic flows, and improvement needs in the Barents Regions. Therefore the STBR project's first major sub-project involved region-wide data collection and analysis of the current situation of traffic flows, transport networks and

transport services in Barents Region. The analysis continued with identification of future improvement and development needs of the transport system.

Within work package 1, following sub-projects and main activities were carried out:

- Study on Passenger Flows and Infrastructure
- Study on Freight Flows and Infrastructure
- Logistics in the Barents Region – Pre-study
- Regional Aviation in the Barents Region – Pre-study
- Compiling a document library/database of transport related publications concerning the Barents region

Work package 2 consisted of specific projects in the Nordic Countries. During those projects implementation of selected measures were done, which support the development of region wide transport networks. Both passenger and freight traffic were studied, as well as all modes of transport.

Specific projects in **work package 3** aimed at improving the Nordic Countries transport connections to/from Russia. In practise, the content of work package 3 was interrelated and synchronised into the content and substance in work package 2.

Within the work packages 2 and 3, following sub-projects were carried out:

- Evaluation Methods of Cross-border Transport Projects
- Road Transport Corridors in the Barents Region, including tasks:
    - International tourism roads
    - Heavy traffic safety
    - Transportation of dangerous goods
    - Terminals
    - Summary
- Barents Regional Aviation
- Barents Railway Network, including tasks:
    - Needs study
    - Case studies
- Logistics Theses
- Transport Models Development – Feasibility Study
- Barents Seaport Co-operation Forum Conference

Additionally, STBR contributed towards activities in Blue Highway and Barents Road. The STBR sub-project structure is illustrated in Figure 2.2.

During the last months of STBR project summary and follow-up plan were compiled. This task was done in **work package 4** by STBR Management Group and STBR Secretariat. Main results of the work are presented in this summary report.

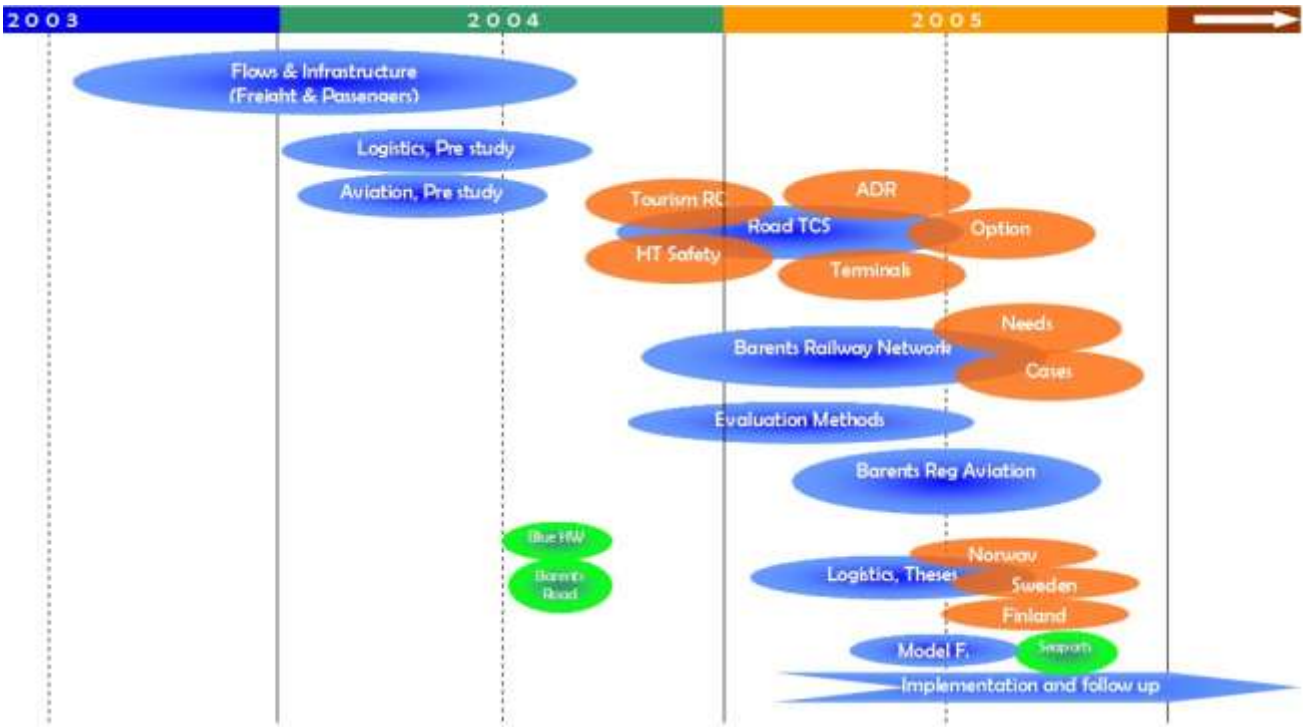

Figure 2.2 STBR sub-projects

2.4 Co-ordination of the Project

2.4.1 General

Practical issues concerning STBR project management and implementation was handled by the STBR Management Group and the STBR Secretariat. The STBR Secretariat consisted of:

- Liidea Ltd (Finland)
  - Petri Mononen, project manager
  - Kati Kiiskilä, project secretary
  - Vesa Verronen, expert
  - Tuomo Vesajoki, expert
  - Juha Hyvärinen, Russian liaison (sub-consultant of Liidea from Jaakko Pöyry Group, located in NW Russia)

- Bergwall Analys (Sweden)
  - Olof Bergwall, financial manager
  - Ann-Helen Bergwall, financial secretary

Under STBR Management group control and supervision, STBR Secretariat responsibilities included:

- Information activities (newsletters, web-site, seminars, contact database, etc.)
- Economical administration
- Financial reporting towards BSR INTERREG IIIB

- Activity and progress reporting towards BSR INTERREG IIIB
- Preparing calls for proposals for sub-projects
- Procuring sub-projects
- Contracting sub-projects
- Steering sub-projects

2.4.2 Information Distribution (newsletters, WWW, presentations, seminars, others)

Main forum to keeping up to date on the STBR project progress was provided by maintaining the actively updated STBR website: *www.barentsinfo.org/stbr*.

An Intranet service was at the disposal of the partners, management group members and steering committee members throughout the project implementation period.

In the beginning of the project an Information Plan was produced by the Secretariat. This document was written in order to set out some guidelines for the information spreading both in the main project and in the sub-projects. During the project implementation, the Information Plan was applied adaptively to serve each sub-project's purposes (i.e. not used as a strict obligatory document).

The Secretariat also provided the graphical outlook of the project. This included the logo, report covers, reporting guidance documents, templates for the reports, templates for newsletters, templates for brochures and templates for PowerPoint presentations.

An STBR contract database was collected by the Secretariat in the beginning of the project and further contacts were accumulated into the database during the entire project period. In the end of the project, the contact database consisted of nearly 500 individual contacts, mainly in Norway, Sweden, Finland and Russia but also some contacts in other European countries.

In the beginning of the STBR, a project Brochure was published both in English and Russian.

During the project five STBR Newsletters were published. These were:

- Newsletter 1, October 2003,
- Newsletter 2, May 2004,
- Newsletter 3, November 2004,
- Newsletter 4, May 2005 and
- Newsletter 5, December 2005

All Newsletters were published both in English and in Russian. The E-mailing list in the STBR Contacts Database was the main media for newsletter distribution but each time also small amounts of paper copies were printed and sent out to Steering Committee and Secretariat members to be handed out in various occasions.

During the STBR project two major result seminars (general seminars) were arranged:

- 23rd – 24th August 2004 in Rovaniemi

- 15th – 16th November 2005 in Luleå

The seminar programmes and the associated seminar presentations can be found from the attached CD.

STBR sub-projects arranged the following thematic seminars and workshops:

- "Evaluation Methods of Cross-border Transport Projects", Seminar, 23rd February 2005, Luleå
- "Railway Network, Workshops & Seminar" 8th – 10th March 2005, Kemi
- "Road Transport Corridors", Heavy Traffic Safety workshop, 17th March 2005, Rovaniemi
- "Regional Aviation", Seminar, 1st September 2005, Luleå
- "Barents Seaport Co-operation Forum", Start-up meeting, 25th – 26th October 2005, Luleå
- "Safe Driving and Road Safety", Seminar and demonstration, November 2005, Murmansk

In addition to the above, STBR project or parts of it were presented in the following seminars and/or workshops:

- "International Evaluation Methods Conference", December 2004, Copenhagen, Denmark
- Barents link –meeting/seminar, June 2005, Bruxelles, Belgium
- "InLoc Seminar", June 2005, Kemi, Finland
- "Fauske Mässan", June 2005, Fauske, Norway
- "Interact Conference on Transport, Communications and Accessibility", 21st – 22nd June 2005, Prague, Czech Republic
- "Logistik dagar", Seminar, 1st – 2nd September 2005, Luleå
- "International Transport Seminar", 18th – 19th October 2005, Haparanda-Tornio, Sweden/Finland
- Infrastructure seminar for North-Swedish MP's and MEP's, 7th October, Norrbotten Chamber of Commerce, Luleå, Sweden

STBR also appeared and was presented in the "EU Parliament magazine", issue 204, May 2005.

2.4.3 Co-operation between STBR and other relevant projects in the region

During STBR implementation, there were many joint activities with other relevant transport projects that were active inside Barents. These were **Barents 2010**, **N.E.W.**, **NMC**, **Kirkenes railport**, **Task Force on Barents Information and Data Cooperation, Barents Traffic Safety Forum** and **Utveckling av Nordkalottens Logistik**. The synchronisation, co-operation and exchange of knowledge happened mainly through arranging joint meetings and inviting the project representatives to seminars and workshops – as a speaker or as a guest. STBR had a more active synchronisation effort with the Barents 2010 project. The original strategic focus of Barents 2010 Work Package

5 (Transport) was to develop communications in the Barents region and identify missing links - physical as well as digital - in the transport infrastructure system. Early on it was agreed that Barents 2010 will concentrate more on the digital/ITS/ICT aspect of the transport sector, whereas STBR will focus on studying and analysing the physical transport environment and services. Barents 2010 WP5 leader Mr. Tuomo Palokangas was also a member of the STBR Management Group.

There are other instances where direct synchronisation and removal of overlap took place between STBR and other projects: One of the STBR Railway Network study's case studies, namely "*Forest Industry and Defective Timber Terminal Structure in Russian Part of the Barents Region"* originated from Utveckling av Nordkalottens Logistik project. The terms of reference for the *"Heavy Traffic Safety"* task under the Road Corridor study were composed in co-operation with Barents Traffic Safety Forum**.**

2.4.3 Economics

The two tabulations below (Tables 2.1 and 2.2) illustrate the financial structure of STBR. All numbers are in euros.

Table 2.1: STBR Funding.

PARTNER		Funding			
		Own share		Interreg III B funding	Total
1	County Administration of Norrbotten	25 728,39	75 %	77 185,18	102 913,58
2	County Administration of Västerbotten	25 728,39	75 %	77 185,18	102 913,58
3	Regional Council of Lapland	235 795,59	75 %	707 386,78	943 182,37
4	Council of Oulu Region	31 285,73	50 %	31 285,73	62 571,46
5	Regional Council of Kainuu	7 519,55	75 %	22 558,66	30 078,21
6	Finnmark County Authority	28 472,76	50 %	28 472,76	56 945,51
7	Nordland County Council	30 302,33	50 %	30 302,33	60 604,66
8	County of Troms	30 302,33	50 %	30 302,33	60 604,66
9	Archangelsk Regional Administration	0,00	0 %	0,00	0,00
10	Murmansk Regional Administration	0,00	0 %	0,00	0,00
11	Republic of Karelia, Ministry of Economics	0,00	0 %	0,00	0,00
12	Swedish Ministry of Industry, Employment and Communications	102 913,58	50 %	102 913,58	205 827,16
13	Finnish Ministry of Transport and Communications	0,00	50 %	0,00	0,00
14	Norwegian Ministry of Transport and Communications	102 913,58	50 %	102 913,58	205 827,16
15	Bothnian Arc Association	0,00	75 %	0,00	0,00
16	Swedish National Road Administration, Northern Region	25 728,39	75 %	77 185,18	102 913,58
17	Swedish National Rail, Northern Region	25 728,39	75 %	77 185,18	102 913,58
18	Finnish Road Adminstration, Oulu District	0,00	50 %	0,00	0,00
19	Finnish Road Adminstration, Lappi District	0,00	75 %	0,00	0,00
20	Finnish Rail Administration	0,00	50 %	0,00	0,00
21	Port of Oulu	0,00	50 %	0,00	0,00
22	Barents Secretariat	54 887,24	50 %	54 887,24	109 774,48
23	Norwegian Public Roads Administration, Region North	0,00	50 %	0,00	0,00
24	Norwegian National Coastal Administration, 4th Regional	0,00	50 %	0,00	0,00
25	Norwegian National Coastal Administration, 5th Regional	0,00	50 %	0,00	0,00
	TOTALS	**727 306,27**		**1 419 763,73**	**2 147 070,00**

Table 2.2: STBR Budget.

STBR Budget					
Budget line	WP1	WP2	WP3	WP4	Total budget €uro
1 Project co-ordination	90720,00	149220,00	92292,00	51697,00	383929,00
2 Personnel (incl OH)	1000,00	14910,00	11355,00	2541,00	29806,00
3 Meetings and dissemination	9612,00	22528,00	14036,00	3824,00	50000,00
4 Travel and accommodation	32680,00	76596,00	47723,00	13001,00	170000,00
5 External expertise and audit	310461,00	620695,00	506663,00	75516,00	1513335,00
6 Other	0,00	0,00	0,00	0,00	0,00
7 Small scale investments	0,00	0,00	0,00	0,00	0,00
TOTAL	**444473,00**	**883949,00**	**672069,00**	**146579,00**	**2147070,00**

3. SUB-PROJECTS

STBR sub-projects and other activities – their history, process and outcome - are presented in this chapter on an overview level only. The sub-chapters with the heading "*conclusions*" have been brought into this report from the associated study report trying not to intervene into the content. This has been done in order to preserve the associated expert working groups' findings as they were. More detailed information on an individual sub-project can be found from the attached CD. All of the sub-project reports and databases are there as well as lots of other material produced during the STBR project.

3.1 Flow and Infrastructure Studies

Name	Passenger and Freight Flows in the Barents Region
Objective	Defining the current status of passenger flows and inventory of associated infrastructure in the region
Consultants	Strafica Ltd (FIN), Infraplan (SWE), Sintef (NOR)
Project Manager	Mr. Paavo Moilanen (paavo.moilanen@strafica.fi)
Steering Responsibility	Mr. Per Eriksson, SNRA Mr. Martti Miettinen, BEATA Secretary Mr. Kari Himanen, Port of Oulu Ms. Anne Johansen, Avinor / Norway Mr. Petri Mononen, STBR Secretariat
Time Frame	12/2003 – 6/2004 (WP1)
Results / Deliverables	• Report: Passenger and Freight Flows in the Barents Region • STBR Networks, Flows and Services Database • 7 Activity reports
Dissemination	Presented at both STBR general seminars

3.1.1 Background

There are information and data available concerning transport infrastructure and passenger traffic flows in the Barents Region, but it is divided to several authorities and actors in different countries. It is important to collect the data to one database that can be used for different transport projects. The database might, in the future, also be updated by several authorities. It is necessary to collect information of all modes of traffic to be able to see the transport system in the entire region as one system.

The general objective for STBR project is to strengthen the co-operation in transport planning in the Barents region both between various administrations and also research-wise. Relevant and up-to-date information about the long-distance traffic characteristics is crucial for this purpose as the co-operation is supported by several policy studies. Therefore, a generally updateable and region-wide database would assist transport authorities to plan and develop the region's transport infrastructure and services jointly and more effectively. The flow and infrastructure studies aimed to fulfil this goal.

3.1.2 Objectives and process Description

The objective was to collect a region-wide updateable database that can be used by the authorities to plan and develop the region's transport infrastructure and services. The database was to consist of:

- Existing information on traffic flows between major locations (matrices and interview data);
- Presentation of the basic physical and logistic characteristics of transport networks (links and nodes);
- Socio-economic, operational and institutional data of the region (tabular data).

The main objectives of the database and its analysis in the study can be summarized as follows:

- To find out where the major (intercity) flows in the Barents region exist;
- To explain the characteristics and significance of the cross-border flows;
- To identify those trip types and commodity types that are relevant for the policy analysis;
- To present those flows that are significantly present in the demand structure (i.e. have enough trips and observations of them in the available data sets);
- To make conclusions supporting the identification of the problems and needs in the Barents region;
- To make recommendations for future work.

The main emphasis as a Barents-wide project was with the cross-border flows. Infrastructure information on links to/from Russia was to be combined also into the database from a separate parallel study for Russia.

The study also examined the socio-economic, operational and institutional characteristics of the region and its transport networks, considered briefly the possible future developments and made conclusions about the flows and their possible impacts on the policy needs.

Separate exercise in order to retrieve Russian data

Finnish Ministry of Transport and Communications funded a parallel data collection exercise in North-West Russia. This exercise has been reported and the report can be found on the attached CD.

3.1.3 Conclusions

Both passenger and freight flows are generally thin in the Barents region, they are mostly north south directed and get ever thinner from the habited coastlines towards the inland (Malmbanan is an important exception). The present socio-economic trends in the Barents region will probably still decrease the flows in the sparsely populated inland areas and near the borders.

Passenger flows in the Barents region are mostly domestic ones directed north-south and concentrate in the Bothnian and Atlantic coastline. Flows get thinner towards the less inhabited areas. The traffic is usually significantly lower at the borders due to barrier effects, e.g. geographical/cultural reasons and lack of services. Freight in the Barents region consists of individual large flows of raw materials or products between certain large industrial sites and relatively small and scattered flows elsewhere.

Also the cross-border road freight transports differ between borders in the survey. The traffic over Russian border is regular (but not voluminous) timber transport and shorter than over the other borders. Between Finland and Sweden the share of daily transports is high with a wide mix of commodities. The road freight traffic between Sweden and Norway is relatively infrequent according to the surveys.

There is sufficient capacity in general and the connectivity of the networks is in most cases adequate as well. The problems are more related to maintaining the services for the low volume connections, which are required mostly for equity and social reasons.

Although in general the trends do not indicate thicker future flows, there is reason to believe that the demand in the region could change both in nature and volume in many places, especially if the constraints at borders can be reduced and the hidden demand is released. One example is presented in Figure 3.1.

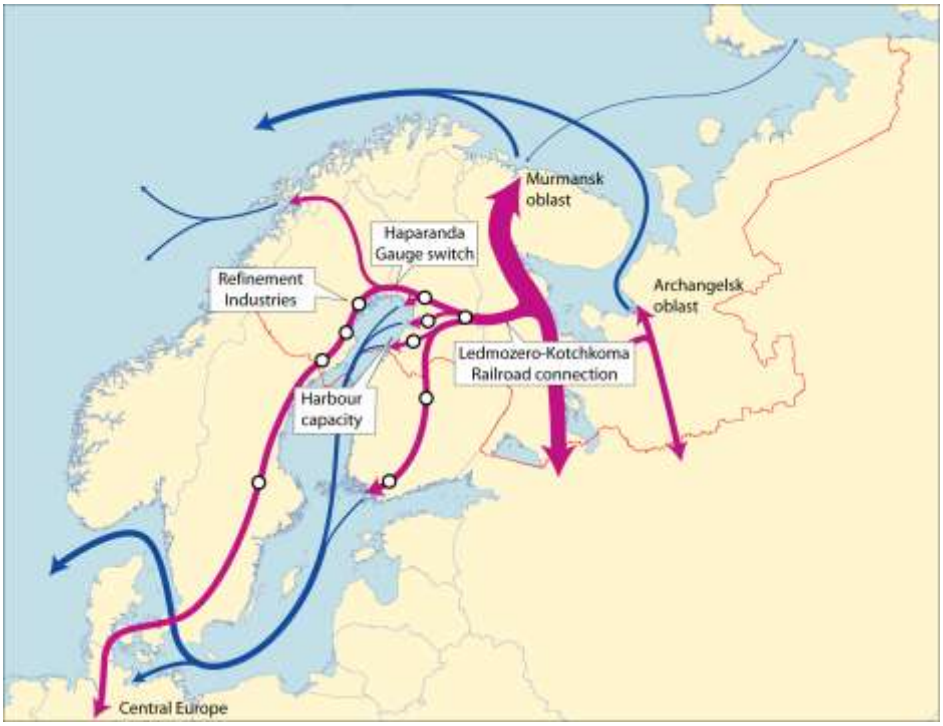

Figure 3.1: Illustration of potential flows with a working Ledmozero-Kotchkoma railroad link

Cross-border flows are currently significantly lower than domestic flows except for the Tornio-Haparanda. This general pattern is largely due to natural tendency for travel demand within domestic borders and the tradition of low trade over them and also due to lack of connections and operational problems. Transport policy should follow the

developments in the economic and social interaction in the region. Thus Tornio river valley could already benefit from better co-operation concerning the common public transport services. Also new special local infrastructure and service needs might arise calling for policy support.

Different borders have different flow characteristics that should be taken into account when the co-operation about border-crossing infrastructure, services and institutional issues is planned. The worst problem decreasing interaction across borders is likely to be the lack of direct air connections and services within Barents. So far the existing, very low but growing demand is only partly served by chartered aeroplanes at high cost.

This study concluded that due to the lack of existing observed national o/d matrices for different trip types, either new (large-scale) surveys has to be conducted or the more detailed trip matrices have to be synthesized if needed from the National Transport Surveys. The analysis of the NTS data clearly shows how it is difficult to find out about the long distance trips in a one-day survey. The national transport surveys of Finland that were analysed seem to show that the Barents area do not present patterns of transport demand with significantly different modal share. This may enable the data to be used in a model to estimate the flows by type.

3.1.4 Recommendations to Partners and National Transport Agencies

While the study collected all available data into an updateable database it could not achieve its final goal of creating a fully usable description of flows in the region due to the lack and quality of sources. Therefore the amending and updating of the data (described in the report) would be needed in order to create accurate matrices of the current demand. A proper modelling system would be required to explain e.g. the modal changes and changes in transport demand e.g. due to the economic development of the region. A range of external and general policy scenarios could be also determined to support analysis of possible future needs. Nevertheless, the existing database can be used to help implement an accessible and updateable service e.g. through Internet.

Freight flows proved very difficult to be analysed in this project. The following examples would – in an event-driven way – significantly change the conditions for the need for better freight modelling in Barents:

- Ongoing efforts in Norway to develop “motorway by the sea”-services to transport fresh fish. Such a solution would significantly change the basis of modelling freight.
- The studies and efforts to establish special transport corridor from China through Kazakhstan, Russia, Finland and Sweden with fast trains to Narvik with efficient intermodal handling of containers for shipping to the east cost of United States.

For the infrastructures this study has checked the demand estimations of the existing freight models (SAMGODS, PING/NEMO/FRISBEE) and concluded that as their emphasis seems to be to analyse the complexities of freight operations and price structures, their description of the geographic structure is inevitably more schematic especially in Barents. Therefore, the data collected in this study will contribute to the future development of models in the Barents region, if such development will later

materialise. A clear weakness is the lack of data on logistic issues and the ability to model such relations.

3.2 Barents Regional Aviation – Pre-study

Name	Pre-study – Barents Regional Aviation
Objective	Defining the development focuses and further study needs in regional aviation network and services of the region
Consultants	Projektitkonsultit Infra Ltd (FIN) and WSP Samhällsbyggnad (SWE)
Project Manager	Mr. Ari Tuutti (ari.tuutti@proko.fi)
Steering Responsibility	STBR Management group, via Secretariat
Time Frame	4/2004 – 6/2004 (WP2&3)
Results / Deliverables	Report: Pre-study – Barents Regional Aviation
Dissemination	Presented at Rovaniemi General seminar

3.2.1 Background

Each country in the Barents Sea Region has a well-developed national aviation network. However, today there are only few cross-border flight connections in the region. Therefore, it can be concluded that a well-developed network of flight connections between the countries is almost missing. Flight corridors should be developed in the North that are capable of attracting business or tourism trip makers. Some of this traffic at the present is using different modes of transport or does not take place at all because of lacking or insufficient level of flight services.

The main population centres in the region are the cities of Oulu, Rovaniemi, Luleå, Umeå, Bodø, Tromsø, Archangelsk and Murmansk. The existing routes of Luleå – Archangelsk (via Rovaniemi & Murmansk) and Tromsø – Murmansk are examples of important existing links in the Barents co-operation. Today, in many occasions travellers are forced to use costly and time consuming routes via St. Petersburg, Oslo, Stockholm or Helsinki.

Additionally, there are some signals of some level of existing suppressed traffic demand in the area in regard to tourism travel needs. Tourism business operators feel that far more flight trips to the whole area would be made if the supply would be available. Ideally the two major demand types – business and tourism – will support each other: either of those alone may not suffice to justify new services to be opened but as combined they might.

3.2.2 Objectives and Process Description

The aim in the Barents Regional Aviation pre-study was to give an overview of present situation of aviation in the Barents Region and also some proposals for further studies. The work was to be conducted by collecting and listing development needs, plans and information of recent reports and studies concerning aviation in the Barents region. Based on these results, a description of earlier aims for aviation was to be gathered separately for freight, business and tourism. The demand and services for rapid air freight services were also to be looked into.

The literary survey was supplemented with thematic interviews. Approximately 30 interviews in total were carried out in four countries (Norway, Sweden, Finland and Russia) by sending a questionnaire in advance and making personal interviews with major operators and actors.

After analysing the data, a list of conclusions and suggestions were prepared and divided into three categories;

1) Priority projects/routes for further investigation,
2) Other reasonable projects/routes for further investigation and
3) Far future projects.

3.2.3 Conclusions

Project revealed many ideas on how to develop air transport in the Barents region. However, resources allocated for development are limited and therefore ideas should be prioritised and efforts concentrated. Also many of the proposals support the general development of the air transport in the region, but not directly the development of cross-border lines.

Some major conclusions of the project were:

1. The network of airports covers the area densely enough.
2. Infrastructure is ready for higher level of use for years, capacity exists (few lengthening of runways may be needed).
3. One route rises up when concerns development in all four countries: Tromsø-Luleå-Oulu-Russia (Murmansk/Arkangelsk/Petrozavodsk)
4. At the low density areas like Barents region, all marketing analyses and development plans should be done together with surface connections networks in order to create alternatives and services. When a client valuates a goodness of airline connections, the most important factors are frequency and reliability (punctual and long term service).
5. An organisation/company, which combines all air transport services into one, is needed as a realistic tool to create airline connections by organising demand for airlines. Nowadays airlines consider themselves as carriers, not developers.

The aviation pre-study also gave some input into on how to construct the following major aviation project carried out in STBR work-package 2. The more comprehensive aviation study was to aim at finding the best and easiest ways to integrate the currently isolated aviation networks between the Barents Region countries.

3.3 The Logistics System in the Barents Region – Pre-study

Name	Pre-study - The Logistics System in the Barents Region
Objective	Defining the development focuses and further study needs in logistics system of the region
Consultants	EP-Logistics Ltd (FIN) and Arrigo Consultants AB (SWE)
Project Manager	Mr. Björn Winqvist (bjorn.winqvist@ep-logistics.fi)
Steering Responsibility	STBR Management group, via STBR Secretariat
Time Frame	4/2004 – 6/2004 (WP2)
Results / Deliverables	Report: Pre-study – The Logistics System in the Barents Region
Dissemination	Presented at Rovaniemi General seminar

3.3.2 Background, Objectives and Process Description

The aim of the pre-study was to form a short description of current state of logistic system in Barents region, and to suggest how analysis and process should be continued in order to form a shared future vision of logistics in Barents Region. Literary review was used as a research method.

Focus in this pre-study was to try to find answers to the following questions:

- What are the most important factors to be studied and improved, if the aim is to advance logistics system in the Barents Region, and how this should be done?
- Since freight terminals are important nodes in a logistics chain from producers to customers, the terminals and their functionalities might deserve attention.
- Could a terminal study or equivalent be "scaled up" to cover the whole Barents Region and how should it be done?
- How a shared vision of logistics system in Barents Region could be formed and what actors should be involved in the process? How this study or process could help increase co-operation between main actors in the area?

The pre-study gave an overview of present situation of freight logistics in the Barents Region and also gave some proposals for further studies. The study attempted to mirror the views of the main logistics actors, commercial and industrial enterprises and logistics service providers. The approach was qualitative not quantitative. Several typical logistics systems were presented as cases.

3.3.3 Conclusions

The Barents region is sparsely populated, having less than four inhabitants per square-km. The region has a strong heavy industry base located at the coastal areas and at often remote extraction sites. The industry base is very export oriented supplying European and overseas customers with raw materials and intermediate products.

Intra regional trade between the four countries Norway, Sweden, Finland and Russia is very limited. In all countries the Barents area relies heavily on national logistics networks

for the supply of consumer goods and supplies. The present infrastructure is quite satisfactory and not very well utilized in relation to the freight market.

A shift in development focus from modal infrastructure to the efficient use of existing infrastructure is advocated. Innovative solutions for providing time and cost efficient service to enterprises and the population in the Region are required.

The development of an international transhipment terminal at Narvik or Murmansk is considered to be a promising idea. Other recommendations cover port co-operation in the Bothnian Arc and the development of a distribution/collection route-network for the region.

3.4 Model Feasibility

Name	Feasibility Study for a Barents Transport Flow Model /Database
Objective	Defining whether proper arguments for further developing transport models in the Barents region exist.
Consultants	Luleå Technical University
Project Manager	Mr. Glenn Berggård (glenn.berggard@ltu.se)
Steering Responsibility	SNRA, Mr. Per Eriksson
Time Frame	2/2005 – 10/2005
Results / Deliverables	Working paper: Pre-study for a Barents Transport Flow Model/Database
Dissemination	-

3.4.1 Background

Cross-border transport is not properly included in the different national Transport Flow Models and Databases in the Barents region. Therefore the relative importance of these international flows may be neglected when calculating the flows on each national transport network.

In project appraisals in the region the benefits from these international flows will be underestimated and the relative importance of the investments in the transport networks in the Barents Region will be held back compared to other investments in each country. Therefore databases and modelling tools may need to be developed.

3.4.2 Objectives and Process Description

The objective for this study was to look into the development needs of the above mentioned transport flow models and databases. The project was conducted as a desk job research by Mr. Glenn Berggård in Luleå Technical University.

3.4.3 Conclusions

The specific conditions in the Barents Region call for instance specific transport flow analysis. There is a need for development of a Barents transport flow model and database. Such database can initially be established as an Internet based portal with access to already existing data. The development of specific Barents region data and development of specific analysis tools should be financed by EU and participating authorities.

The feasibility study report includes suggestions for development of a Barents transport models / databases in the forms of "Barents Transport Analysis Tool (BTAT)" and "Barents Transport Database (BTD)". The report also lists tentative ideas for the development organisation and financing.

3.4.4 Recommendations to Partners and National Transport Agencies

The final report document (working paper) from this sub-project may be used in partnering organisations as a reference source when planning next steps in either Barents transport database or Barents transport model development. All of the conclusions and recommendations in the report cannot be adopted and accepted as such by the STBR Steering committee due to inconclusive evidence.

Additionally, in regard to developing models and/or databases, the future activity and developments around *"Task Force on Barents Information and Data Co-operation"* is recommended to be followed closely. Technical solutions for producing databases and making them accessible (for viewing or even for updating) over the Internet, have been developed or will be developed elsewhere. This needs to be kept in mind in order to avoid unnecessary overlap and a waste of resources. Such work should rely for example on (1) the BarentsGIT project, which has completed a digital map of the entire region, (2) "Euroroads" co-operation, which has just defined the basic road data formats for Europe, and (3) recent work on road databases by the national road administrations.

3.5 Road Transport Corridors in the Barents Region

Name	Road Transport Corridors in the Barents Region
Objective	To study and evaluate road transport corridors in the Barents Region
Consultants	Plaana Ltd (Finland), Ramboll Group (Finland, Sweden, Norway), Oy Viisikko-Femman Ab (Finland), ADC Ltd (Russia)
Project Manager	Ms. Aini Sarkkinen (aini.sarkkinen@plaana.fi)
Steering Responsibility	Steering group: Mr. Krister Palo, SNRA Mr. Stig Carlsson, SNRA Mr. Eilif Mathisen, NPRA Mr. Jorma Leskinen FNRA Mr. Petri Mononen, STBR Secretariat, Ms. Kati Kiiskilä, STBR Secretariat, (Mr. Timo Perälä, Plaana Ltd, acted as secretary at the meetings.)
Time Frame	9/2004 – 9/2005
Results / Deliverables	Reports: - International Tourism Roads in the Barents Region - Heavy Traffic Safety and Transport of Dangerous Goods - Terminal Study in the Barents Region - Future Trends of the Barents Region (report from the option task)
Dissemination	Workshop on HT safety, Rovaniemi March 2005 "Fauske Mässan", Fauske June 2005 STBR general seminar, Luleå November 2005

3.5.1 International tourism roads

3.5.1.1 Background and Objectives

International tourism is a growing industry in the Barents Region. It is important to provide it with good conditions for sustainable development. Tourism road studies and surveys in Barents Region have mostly been done from regional or national point of view. However, in this STBR sub-project the main target of interest was developing or supporting international border crossing connectivity for tourism. Particularly horizontal (road) connections within the Barents Region needed to be looked into and developed. Tourism has been acknowledged as an important source of income in many parts of the Barents Region. The International Tourism Road Study had two main objectives:

1. To make a proposal of development measures of the road infrastructure in order to promote international tourism in the Barents Region between countries
2. To study possibilities for launching international tourism corridors/roads in the Barents Region

3.5.1.2 Conclusions

Tourists in the Barents Region are mostly domestic. Getting more international tourists from outside the Barents countries is a challenge. Another big challenge is to level off the differences between the peak seasons. Russia is a potential tourism destination of the future as its tourism and traffic infrastructure improves. Russian citizens are also a potential group of travellers.

Reasons to choose Barents as a holiday destination are nature, Nordic way of life and Lappish culture. Sweden and Finland have a strong market position in the winter. In Norway the tourism market position focuses on summer. In the Russian parts of the Barents Region there is considerable growth potential in nature tourism, scientific tourism, water activity tourism, conference tourism and to some extent in cultural tourism as well. More efforts are needed in Russian tourism development as far as quality and development are concerned in destination tourism, city breaks and touring.

The standard of the road network rarely poses any severe problems in reaching the main tourism destinations in the Barents Region. In Russia the entire road infrastructure needs upgrading in order to meet Nordic standards. In Russia many potential tourism destinations are also inaccessible by road. The growth of tourism is hampered by the Russian road infrastructure.

Road-based tourism growth is highly dependent on a good road network. There is a risk that if the degeneration of roads is allowed to continue, the lower standard of roads will decrease tourism growth in the future. Also, for example, in Norway ferries cause traffic bottlenecks during the peak tourism season and border formalities and their unexpected changes in Russia cause delays and hamper tourism growth. International cross-border public transport connections should be developed and car rental services also need to become more international. All the Russian transfer connections need to be developed.

The current vertical international tourism flows between countries are weak. Most of the border-crossing trips are short shopping or commuting trips just across the border. Border formalities and procedures on the Russian border slow down the tourist flows. In order to get more international public transport services, more demand is needed. This is to be achieved by cross-border marketing and co-operation. Offering and promoting experiences in different countries and surroundings will increase the value of the whole region as a tourism destination.

Based on future tourism trends, day trips, ring routes and long routes (see Figure 3.2) were observed in this study for road based tourism development. The day trip concept would enable short breaks from tourism destinations and would respond to an already existing demand. On the part of Road Administrations developing day trips would require a co-operator role. The main focus is on different services in and between destinations. The concepts of ring routes and long routes could be an answer to the demand of new travelling trends. These service packages could provide new user groups to the road-based international tourism in the Barents Region. The role of the Road Administrations could be participating in route definition and defining the needs for the road network requirements.

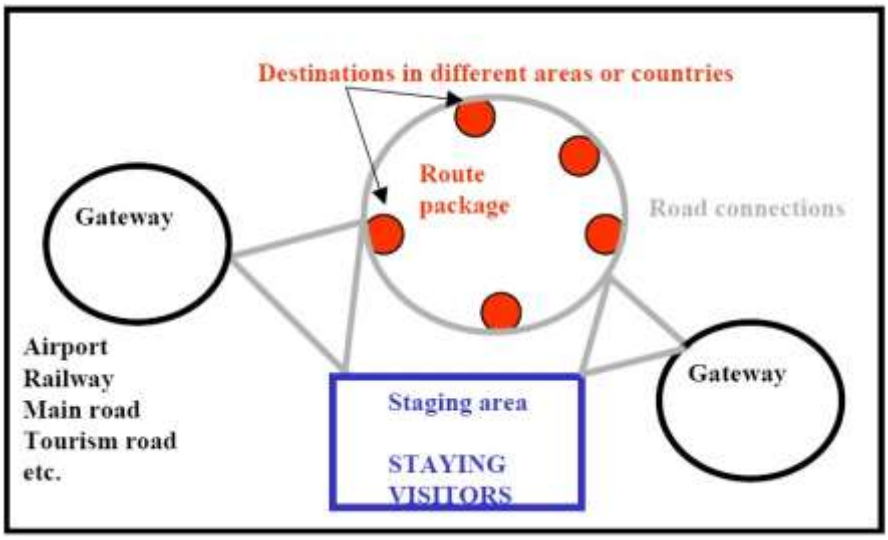

Figure 3.2: Illustration of ring route and long route concepts

It does not seem wise to start defining official international tourism roads with common criteria and mixing them up with official national tourism roads. However, there is still a need and a demand for creating international cross-border tourism roads. The right level of international tourism road definition is the marketing level. Even though common criteria for tourism roads cannot be defined, a common name or logo can encourage tourists to continue their journey to the other side of the border. The delegates of each country's official tourism roads should get together and discuss how to proceed in international tourism road development. The representatives of tourism boards should also be involved in the meeting. International tourism roads do have potential; road-based tours are growing in importance in Europe, and 80% of all the existing package tours are related to nature, which is the key tourism element in the Barents Region.

3.5.2 Heavy Traffic Safety

3.5.2.1 Background

The common problem in counties of Barents Region is the combination of large surface area, few bigger cities and long distances between the cities. Long distances, heavy reliance on road transport and long winter causes problems in road traffic safety. Traffic safety of heavy traffic is a problem in all Nordic countries, but it is emphasized especially in Northern parts of the countries. There are also problems with surcharge loading. The heavy traffic and surcharge loads are the biggest cause to deterioration of the road network and the sustainability of the roads are threatened.

The accidents involving heavy traffic are over-represented, when studying all road traffic accidents. To be able to decrease the amount and impacts of traffic accidents of heavy traffic, it is important to make sure that heavy traffic vehicles are technically in good condition and the amount of load on trucks is within the allowed limits. This could be assured by controlling vehicles. Overloading of vehicles also causes damage to road structures, so there are also other reasons to control vehicle loads in addition to road safety. This point of view needed also to be part of the study.

3.5.2.2 Objectives and Process Description

The aim of the project was to improve the quality and the coverage of heavy vehicle control on the roads. Another important aspect was to improve the knowledge and competence of drivers and transport companies.

First task of the project was to study goods transport flows in Barents region and traffic accident statistics, from traffic control point of view. Regional Road Administrations in Finland, Sweden and Norway provided database of road traffic accidents to project's use. The information of current state of heavy vehicle control was to be collected. Also available information of possible control point locations was provided for this study – for example information found in national road information databases. Available data was to be analyzed in systematic ways. Optimised solution for heavy traffic control places and frequency was to be presented. Resource constrains were advised to be taken into account. Also recommendation of how the situation could be improved was to be presented. Especially Russian border and the share of Russian vehicles was important to be taken into account.

3.5.2.3 Conclusions

Long distances, heavy reliance on road transport and long winters cause problems in road traffic safety. Between the years 1999–2003, on average 64 persons were killed annually in heavy traffic accidents in the Barents Region. Furthermore, the average number of persons injured each year during the same period of time was 484. About 10% of the vehicle kilometres are driven by lorries, but about 20-30% of the persons killed in road accidents are killed in accidents with lorries. Foreign drivers are more commonly involved in heavy traffic accidents in Sweden (15%), in Norway (9%) and in Finland (2%). In all the countries, head-to-head accidents are the most common heavy traffic accidents leading to death.

More than half of the serious heavy traffic accidents take place during the winter months (from November to March). In Norway and Russia the worst month during the years 1999-2003 was March, in Sweden February and in Finland January. The heavy vehicle accident risk is about 1.6–1.7 times higher in wintertime than in summertime in the Barents Region (the accident risk of heavy vehicles is about 1.4 and that of all vehicles 1.1 times higher in wintertime than in summertime in the countries as a whole).

The police and Road Authorities control heavy vehicles on roads. EU member states have to perform driving and rest time control of 1% of driver days. The weight and condition of the vehicle is also checked. Overloading is a big problem. As a consequence of overloading, it is estimated that the lifetime on the roads is 25% less than without the overloading problem.

In the Barents Region, the aim of traffic safety is to decrease continually the number of deaths on roads despite an increasing traffic volume. In order to achieve the national aims and the common goals for the region, co-operation between the authorities in the different Barents Countries has to be developed. Traffic safety on roads will be increased by a high standard of control on the roads, homogenized between the different countries, good winter maintenance and sufficient information to the drivers.

3.5.3 Transport of Dangerous Goods

3.5.3.1 Background, Objectives and Process Description

Dangerous goods are transported on roads, railroads, air, and ships in, out and within the Barents region. In this study the focus was only dangerous goods transported on roads. An accident with these transports involved can have big consequences for environment and health. Nationally the authorities have better understanding of the situation but when it comes to the whole Barents Region, the authorities that are responsible for rescuing do not have good overall picture of transports of dangerous goods. Therefore it is difficult to make analysis of the risks connected to dangerous goods transports and be able to plan the rescue work correctly. The aim of the project was to increase the understanding in this issue. The study can be seen as an in-depth study continuing from the STBR Freight Study results. The task was to highlight the following themes:

- Identification of consumers and producers of dangerous goods
- Type of goods that are transported
- Quantity of different dangerous goods (currently and in the future)
- Modes
- Routes
- Rules and legislation in different countries
- Risks (environment, health, accidents)

Collaboration with authorities in different countries was needed in order to clarify the differences between the methods used today.

3.5.3.2 Conclusions

The largest group of dangerous goods in road transport are inflammable liquids. They cover over 50% of dangerous goods transported. Petroleum products are transported to the Barents Region by sea. From oil depots located on the coast petroleum products are distributed by road and rail to various customers (industry, gas stations, houses). The largest road transport flows of dangerous goods are located along shores and from harbours to lager cities.

Each year an average 5 to 10 dangerous goods road transport accidents occur in the Nordic part of the Barents Region. In the Barents Region there is at least a satisfactory state of readiness in case of a dangerous goods transport accident. The risk areas are mainly found along the main road and railroad network, and are thus known. The main concerns are linked to dangerous goods transport routes through built-up areas and ground water areas.

Education on dangerous goods transport accidents and co-operation with industrial sites is seen important. There is co-operation over the borders in rescue situations. Dangerous goods transportation accidents can have various types of impacts on the environment, on the public and on the society. The impacts depend greatly on the properties of the chemicals or substances involved.

When an accident occurs, the behaviour of harmful substances is to a great extent controlled by the soil, ground water and surface water conditions. The risk classification of traffic areas is based on the environmental conditions in the traffic areas and in their vicinity. The classification is made on the basis of the soil, bedrock, ground water and surface water conditions near the traffic area. The purpose of the risk classification is to provide important information about the conditions at the scene of the accident and in its surroundings. This information makes it easier to predict the behaviour of harmful substances. The protection measures can be focused on the right location right from the beginning, avoiding unnecessary delays. Risk classification could be considered for the main roads of the Barents Region where significant amounts of dangerous goods are transported. The most important requirement would be the co-operation of local authorities and experts in different fields.

By combining risk classification, development of telematics, mobile data transfer and GPS positioning of transports, an integrated risk management, emergency and transport information system could be developed: in an accident situation the emergency response centre is in immediate possession of the exact location of the accident, details of the vehicle, the goods being transported, the risk class of the area and the rescue actions required. Such a system would minimize the impacts of dangerous goods transport accidents on the environment, the public and society.

3.5.4 Terminals

3.5.4.1 Background, Objectives and Process Description

Freight terminals and distribution centres are very important nodes in a logistic chain from producers to consumers. The knowledge of functions and their importance are not enough known on a strategic and planning level today; their capacity and type of goods and carrier type is not very well known. Handling costs and transfer time divided on different commodities are missing in the statistics. This is also a fact regarding warehousing. Lack of information makes planning and developing of logistics difficult. (More accurately put, the difficulty arises from *lack of access to information*, since all the information is in existence at the hands of the private sector, namely the producers and the logistics service providers.) However, environmental and safe freight transports with as low transport costs as possible are necessary for a sustainable and sound development in the Barents Region.

The aim of the project was to study functionality of freight terminals, distribution centres and warehouses in the Barents Region, and to collect information concerning terminal activities.

3.5.4.2 Conclusions

Findings concerning strategic issues indicate that economic activities with in the Barents Region are increasing. All main industries of the region are increasing their production volumes. Transit traffic has huge potentials. Barents infrastructure will become more intimately linked with the Russian market and also with China. Russia is seen not only as a source of natural resources, but also as one of the fastest growing markets. Naturally, these affects supply chains. Intermodality is a clear trend, trailers and containers are more

often transported via railroad network, and some industries are introducing totally new load units.

The international co-operation of the Barents region has paid remarkable attention on regions infrastructure and traffic, especially East-West corridors. Sufficient infrastructure is, of course, needed but the regional development could emphasize more East-West business networks within the Barents region. Main industries of the region have started East-West co-operation. However, the business networks are still in developing phase. New East-West supply chains require of course infrastructure but also high class logistics services in all counties of the region. Industries are not always able to find proper logistics service providers for East-West business activities. Regional developers could offer their assistance and support logistics and business networking over the borders. This would increase economic co-operation between the countries. Active role in the business networking process could also provide valuable information concerning emerging corridors to the regional planners. This information could be used as an input in the regional planning process.

The outcome from the survey technique used in this work was successful, but the content did not reach the original aim. This kind of data is hard to get and other methods must be used instead of direct collection from terminals. Terminals consider that this kind of data is strictly confidential and is a vital part of their customer relations. It also seems that in many cases terminals do not keep this detailed data at all. The obvious conclusion is that collection of extensive terminal data must be collected and analysed through other cannels or methods

The strategic portion of the study was originally intended to support and explain the content of an extensive terminal database. The terminal database was expected to be the primary tool for regional planners. The results of the study are essentially different. It seems that the knowledge of strategic issues can give much more input to the regional planning process. Detailed figures of terminals are more single examples which can support strategic knowledge.

3.5.5 Option Task

3.5.5.1 Objectives and Process Description

The aim of the task was to study and evaluate road transport corridors in the Barents Region from multidimensional point of view. Both existing road corridors and potential road corridors are identified in the study area. However, only road corridors which are possible to be formed with limited amount of new road construction (less than 100 km new road), were to be studied.

Results of the freight and passenger flow studies (WP1) and earlier road transport corridor projects were mainly used as a research material. Therefore the main function of this "Option task" was summarizing the whole road corridor subject.. The importance of different road corridors from the point of view of passenger and freight transport was to be analysed and evaluated. Some future trends in transport and traffic flows were to be studied in order to determine the potential importance of different corridors in the future.

Time scope for the future studies was 10-20 years. The option task included the production of following items:

1) Summary report for the entire Road Transport Corridor project
2) Presentation material for the Fauske exhibition ("Fauske Mässan", June 2005)
3) Report "Future trends of the Barents region"

3.5.6 Recommendations to Partners and National Transport Agencies

Tourism roads

When it comes to the extent and coverage of the road network and technical quality of the associated infrastructure, the Road Administrations are doing what they can with the funding they are provided with. The money goes mainly to the maintenance of the existing road network. New road connections have not been included in the future programs – and on a large scale, are unlikely to be included either. What the Road Administrations can do to promote tourism can basically be restricted to three main things: 1) to provide information and guidance (information about road conditions, traffic volumes, speed limits, road side services, weather conditions, border crossings and border formalities) by using conventional information distribution channels combined with increasingly using ITS, 2) to provide good and safe road connections to the tourism destinations throughout the year and 3) develop the international co-operation of Road Administrations, local authorities and tourism industry further.

The first two points are already included in the national programs of the Road Administrations and are quite well taken care of nationally. On the same token it needs to be acknowledged that in particular, technologies and practices concerning provision of information and guidance are subject to considerable change in the near future due to development of ITS and transport telematics. Nevertheless, tourism should also be taken more into account in the strategies and plans of the northern Road Administrations. The significance of the tourism industry is growing and this should also be observed at strategic level. Some proposals and ideas for smaller concrete short term development measures are listed in the Road Corridors Summary report.

In any future project, the corridor approach should be broadened to include also transport needs of industries and businesses in the analysis. Assessments of selected real cases should be carried out so that proposals for harmonising the development and operational standards can be compiled. An example corridor in each country is here proposed for the assessment: Narvik-Haparanda, Tornio-Salla-Kandalaskha-Murmansk, and Murmansk-Kirkenes. The project should be specifically designed to support the EU Commission's further work on the main transport axes between the EU and its new neighbours ("Networks for Peace and Development", Report from the High Level Group chaired by Loyola de Palacio, November 2005).

Heavy traffic safety

In the Barents region, co-operation has been carried out among the Road administration for several years. Currently this co-operation is seeking for correct action methods. The Barents traffic safety forum work is recommended to be continued and further enhanced.

A high standard of control on roads, which is homogenised between the different countries, good winter maintenance and enough information to the drivers will increase the traffic safety on roads. Here is a summary of measures that would help improve heavy traffic safety in the Barents region:

- Developing heavy vehicle control on the roads (homogenisation of regulations, inspection methods and penalties)
- Improvement of information to heavy vehicle drivers (guide book, implementing telematics and mobile services to give accurate information to drivers)
- Planning a teaching program for drivers. This could be a joint course in economical and safe driving for all the Barents countries.
- Including traffic safety in the quality systems of transport companies
- Keeping up a good maintenance standard

One of the findings was that traffic accidents involving heavy vehicles in the Barents region were overrepresented during winter and extreme weather conditions, if you compare it to other parts of the Nordic Countries. A recommendation for further work therefore is a sub-project focusing on (a) analysing and (b) recommending measures for safer heavy goods vehicle transport by finding out why the risk is higher in the Barents region in comparison to the countries as a whole. To this end, deeper studies into accident reports and other information (such as weather reports, maintenance standards, traffic flows etc.) should be made.

Transport of dangerous goods

Dangerous goods transport improvement measures in the Barents Region are recommended to include: 1) Applying dangerous goods risk classification to the Barents Region – at least on the part of the road network that has the greatest volumes of dangerous goods transport on them, and 2) development of transport telematics, mobile data transfer solutions and GPS positioning of dangerous goods.

Terminals

The need for carrying on updating and completing the terminal database from time to time using other methods (other then an Internet survey) is to be considered. Before going on with such an activity; the justification needs to be evaluated based on what the concrete usage, function and benefits of the enhanced database would be in comparison to the associated cost of updating.

Other

In STBR, a pre-study on Barents road data and modelling was carried out (chapter 3.4), which outlined a system for exchanging Barents road data and information among the road authorities and for dissemination to other stakeholders. Parallel to this the Task Force on Barents Data and Information under the Barents Euro-Arctic Council recommended similar measures. The recommended activity should intend to make the existing internal road databases of Norway, Sweden and Finland accessible over the Internet to all the road authorities, as well as with some restrictions also to other interested parties. The work

should rely on (1) the BarentsGIT project, which has completed a digital map of the entire region, (2) "Euroroads" co-operation, which has just defined the basic road data formats for Europe, and (3) recent work on road databases by the national road administrations. Russian road data should be incorporated, as it becomes available. Russia does not yet have a digital road database, which could be used readily in the way described above.

3.6 Barents Railroad Network

Name	Barents Railroad Network Study
Objective (in a one sentence)	To make an overview on different aspects of possibilities to develop a continuous or partial railroad path in east-west direction between the Norwegian Atlantic coast and North-West Russia.
Consultants	Infraplan Ab (SWE)
Project Manager	Mr. Stellan Lundberg, stellan@infraplan.se
Steering Responsibility	Steering Group: *Nordic Rail administrations:* Mr. Yngve Andreassen, Norway Mr. Mikael Eriksson, Sweden Mr. Kari Konsin, Finland *Regions, industry & others:* Mr. Bo-Erik Ekblom, Norrbotten Mr. Mårten Edberg, Västerbotten Ms. Kristina Falk, Norrbotniabanan Mr. Ragnar Krogstad, Futurum / Utvikling i Narvik regionen Mr. Jonas Lundstrom, Norrbotten Chamber of commerce ; Mr. Timo Rautajoki, Lapland Chamber of commerce Mr. Thomas Nordmark, LKAB Mr. Morgen Yngvesson, SCA Mr. Martti Miettinen, BEATA Mr. Petri Mononen, STBR Secretariat
Time Frame	12/2004 – 9/2005 (WP2&3)
Results / Deliverables	Reports: - Barents Railway Network Needs Study - Barents Railway Network – Analysis, visions and strategies – Case studies I, II, III and IV
Dissemination	- Workshop in Kemi, March 2005 - Presented in Bruxelles June 2005 - Haparanda seminar, October 2005 - Barents link in Luleå NCCI 7th October - STBR Final Seminar 16th November 2005, Luleå

3.6.1 Background

STBR has as one of its goals to develop the possibilities for an increased border crossing co-operation within the Barents region. An increased industrial co-operation in sectors as

forestry, mining/mineral and energy would strengthen the regions international competitiveness and economical growth. Crucial for this co-operation is an effective transportation structure to make it possibly for heavy goods, equipment and manufactured products. An efficient railroad that connects different parts of the Barents region is in this perspective of special interest.

The railroad-project N.E.W. (The Northern East-West freight corridor) deals with the possibilities to develop the railroad-path from the Pacific Ocean to the Norwegian coast of the Atlantic Ocean. This goes well together with the interests of the Barents region. That's why there was a need to make a closer survey on what potentials and possibilities there are to develop that project – in regard to the part of the project that is within the Barents region or within areas bordering to the Barents region. The INTERREG IIIB supported activity concerning the "Northern Maritime Corridor" has also its connection to the passage that was to be discussed.

3.6.2 Objectives and Process Description

The project consisted of two main phases: 1) Needs study and 2) Case studies.

Several improvements are currently being carried out and planned in the field of railway freight transports in the Barents region. The development is much due to the activities of several, often partly EU-financed, projects and co-operation platforms, aimed for regional development. Because of lack of common knowledge and mutual strategies, the activities have been partly unco-ordinated, although there are many common interests.

Barents railway network needs study was aimed at fulfilling two tasks:

Task 1: To structure the information collected in previous studies concerning railway freight transports in the Barents region into a good basis for analysis with primary focus on freight transport conditions, and furthermore to use the structured information for a profound analysis on the possibilities to create a continuous railway corridor for the Barents region. The analysis is used to priorities coming actions and suggest case studies.

Task 2: To integrate the large number of projects and co-operation platforms dealing with the railroad network of the Barents Region in order to avoid future double work, in connection to arrangement of a workshop.

The possibility to create a continuous railway corridor through the Barents region consists of two main components, being industrial flows (demand) and infrastructural and administrative conditions (supply). The extensive material and discussions in this study show a great interest in an inter-connecting railroad system in the Barents Region with a well functioning east-western main corridor.

The aim with the four case studies was to address the needs identified in the Needs study:

- The need for more information for analysis on the regional function of the whole Barents region, especially data on the Russian part of the region (Case study I).

- The need for more information for analysis on Russian views on the infrastructural and administrative bottlenecks for railway transports from/to the Russian part of the Barents region (Case study II)
- The need for more information for analysis on the deficient timber terminal structure of the Russian part of the region (Case study III).
- The need for strategies especially on how to stimulate flows on existing railway network between the Russian and Nordic parts of the region (Case study II).
- The need to investigate how the deficient railway timber terminal structure of the Russian part of the region should be addressed (Case study III).
- The need for a target picture or vision on long term for the railway network and transports on railways in the whole Barents region, as well as a prioritised action plan based on all previous studies of the Barents Railroad Network project (Case study IV).

3.6.3 Conclusions

3.6.3.1 Needs Study

Flows can be divided three groups: Flows between areas focused in different processing stages, e.g. from raw material and primary industry oriented areas to areas with a high degree of processing; Transit flows from and to Russia/Central Asia/China; and export flows from the Nordic parts of the Barents Region to Russian parts. The most of the potential and existing flows east west or west-east goes through Ledmozero-Kochkoma, Haparanda-Tornio and the Haparanda line.

To take care of flow potentials it is important to increase the exchange between the different parts within the Barents Region, resulting in improved regional cohesion and living conditions and strengthen the motives to develop especially the east-west, but also the north-south railways, and the border-crossing connections in the north.

Mentioned three types of potential flows are hampered by different types of bottlenecks and missing links. The most common denominators are the Ledmozero - Kochkoma link not being ready for commercial use, the lack of automatic gauge switching systems in Haparanda - Tornio and the present railway tariff system in Russia.

For transports between the raw material rich regions in the Russian part of Barents and the parts with a high share of refinement industry there are a larger number of administrative and infrastructural barriers, making transports either impossible or very expensive along a continuous railway corridor. This is especially evident for railway flows from Russia to northern Sweden, for which the distances are long and there is a difference in track gauge.

The focus of actions in the short run should be on studies focused on the Russian side of the Barents region. Furthermore, actions simplifying railway transports between different processing stages in the Barents Region and transit transport from NW Russia to the Bothnian ports should be prioritized. Other potentials and their barriers still need to be considered and be included in the long-term vision.

An in-depth study of one of the most urgent bottlenecks, and their possible solutions is also relevant. Since the increase of timber flows to industry in northern Sweden and Finland is the most likely volume increase within the Barents Region (aside from transit flows) and because the terminal network on the Russian side is fairly unknown to the Nordic parties, it is proposed to study the timber terminal structure in the Russian part of the Barents.

The analysis of knowledge gaps also shows that there is a lack of comprehensive picture of how the Barents Region works today through interplay between the different parts with special actions to improve the knowledge level about the Russian parts.

This study has shown a multitude of perspectives on the development of the Barents Region Railway system. There is a need for a target picture for development of the Barents Region railway system. The vision would be connected to an action plan, based on the priorities made in this study.

Task 2 has worked as an integrator between several projects, studies and co-operation platforms. The activities performed in the Needs Study and in connection to the Case study Workshop in Kemi in March 2005, have increased the level of awareness of activities concerning the East-West railway connections in the Barents region, and also improved the personal contacts between the different projects. The Needs study documentation also gives a good, structured overview of what has been previously studied. Thus, co-ordination between on-going and previous projects and activities has been enhanced, and double work can more easily be avoided.

3.6.3.2 Case studies

Regional function analysis

The regional function of the different regions within the Barents Region is of great importance to obtain and maintain central EU objectives: sustainable regions, sustainable industry and regional cohesion. The regional function is to a great extent dependent on the function of the transport system. Thus there are mutually strengthening motives to improve the railway infrastructure.

The population development is quite good in several of the administrative centres but is a serious problem in parts of the periphery. Higher education is strategically important to achieve a sustainable industry with higher refinement levels. The economic structure is to a great amount built on important raw material. The labour markets are diverse and well-functioning in the administrative centres and their close surroundings, but many imbalances are obvious in the peripheral parts, which harms the conditions for raw material based industry.

The railway standard is developing in particular within Sweden, but also in Finland and Russia. Upgradings are needed, Belomorsk – Obozerskaya to improve the connections from/to Archangelsk and Komi. A missing link, the lacking Belkomur railway, is a barrier for economic interaction between Komi and Archangelsk – Finland –Sweden– Norway and an additional missing link between Syktyvkar and Perm is a barrier for more long distant interaction and even intercontinental interaction Asia-northern Europe – America.

Russian Views on Infrastructural and Administrative Barriers for Transports

The finalisation of the Ledmozero – Kochkoma line is insecure. The tariff policy in Russia still directs Russian exports and transit to Russian ports, and increases competitiveness of goods from areas close to ports. The effects of homogenised tariffs together with other changes are hard to foresee. The development of Russian railways and ports is very fast. However, export volumes are growing, and, the outcome of the developments of tariff policy, transport volumes and export infrastructure is hard to foresee. The Belkomur railway will, when built, stimulate new railway transports within Barents Region, as well as transit transports.

Wagon and locomotive availability is a problem for both domestic Russian transports and for border – crossing transports. Russian Railways aims to increase the portion of private (operator)-owned wagons, and private operators aim to increase their rolling stock. A solution for wagon availability for border-crossing transports would be to use foreign wagons in Russia.

In the short to medium term, most efforts should be directed to the support of existing interests for railway transports:

- Timber from Russia to northern Finland/Sweden, e.g. through feasibility calculation and co-operation for trial transports.
- Transit flows from Russia via Gulf of Bothnia through marketing, when Ledmozero –Kochkoma is finalised.
- N.E.W. corridor freight flows on existing railways as a step towards the short-cut via the Belkomur railway, and keeping the next step on the agenda.
- Trial transports with wagons with sideways adjustable wheels across both the border crossings of Haparanda/Tornio and Kivijärvi/Vartius.

Forest Industry and Defective Timber Terminal Structure in Russian Part of the Barents Region

There is an increased interest from Nordic companies to import Russian timber, and a preliminary interest for railway timber transports along the Barents link. Timber transports are expected to be an important demand basis for the Barents Link corridor. However, defective timber terminal structure is one of the important bottlenecks for increased timber railway transports. The needs of timber terminals are large in the areas where Nordic operating is extensive or has potential. Companies need to make investments in terminals themselves which may be expensive. The number and location of timber terminals to construct or reconstruct depends on a cost efficiency comparison with the use of road transport. The conditions under which companies are ready to invest in terminals are not clearly known.

Long-term Target Picture and Prioritized Action Plan for Freight Transports

The aim was to develop a long-term target picture for the railway network in the Barents Region as a whole, and a priority action plan in the short and long term towards the target

picture. The target picture and action plan is based on experience and information collected in the initial Needs Study and in the preceding case studies.

3.6.4 Recommendations to Partners and National Transport Agencies

It is recommended, that in the future the achieved contacts and co-operation are continuously maintained between projects and co-operation platforms involved in or connected to the Barents co-operation, i.e. STBR, Barents 2010, BEATA, Barents Link and North Bothnia Line. The same applies also to projects and co-operation platforms not directly involved in - or restricted to - the Barents co-operation. These are: the logistics delegation that was initiated by projects North Link and Oulu-Karelia-Archangelsk-Komi Development and transport, Archangelsk corridor, Developing Logistics of the North Calotte, N.E.W., Salla-Kandalaksha and Kirkenes Railport.

The presented target picture is divided in **flow increases** in the short/long term and **infrastructure and administrative improvements** in the short/long term. These targets are very much connected, as the flows are dependent on the improvements and vice versa. Two scopes of vision are presented, short-term (2015) and long-term (2025).

The flow target picture includes:

- significant cross-border volumes of raw material on railway within the Barents Region
- transit flows through the ports of the Gulf of Bothnia and in the N.E.W. corridor
- complementary cross-border flows of refined products from west to east in the long term

Actions to stimulate the flows are:

- supporting the existing railway flows and planned trial transports, e.g. of timber transports in the N.E.W. corridor
- supporting the continued development of the 600 km shortcut corridor to enable N.E.W. corridor transports through the Barents Link and (in the long term) on its missing link the Belkomur Railway
- stimulation and development of complementary transports of refined products from the Nordic to the Russian part of the Barents region in co-operation with concerned industries and through information activities

The target picture for infrastructural and administrative improvements includes:

- a continuous functional railway corridor connecting existing and improved national railway networks
- effective terminal functions in important nodes
- improved availability of appropriate rolling stock
- simple border formalities between Russia and Finland
- homogenous railway tariffs in the Russian part of the Barents region

Short-term measures to reach the target picture are:

- increased co-operation with N.E.W. corridor parties regarding common interests
- support of completion of national construction works (e.g. the Haparanda line and the Ledmozero- Kochkoma line)

- regular discussions with decision makers in Russia concerning improvements within Russia, e.g. the Ledmozero-Kochkoma completion, tariff homogenisation, and Kivijärvi terminal improvement and reconstruction
- technical development of equipment, train cars, and trial/regular transport with gauge switch systems Finland-Sweden-Norway, Russian-produced and Finnish-owned rolling stock and the Haparanda-Tornio terminal
- identification of Nordic, EU and N.E.W. projects further contributing to realising the two sections of the Belkomur railway

Long term measures to help reach the presented target picture are:

- Inclusion of the Salla-Kandalaksha construction in the Barents co-operation discussions
- Presentation of arguments for 25 to 30 tonne axle loads on the entire Barents Link
- Development of multifunctional rolling stock with gauge switch technology for the entire Barents Link Russia-Finland-Sweden-Norway

In 2004, the EU Commission set up a High Level Group, chaired by Loyola de Palacio, for identifying the major trans-European transport axes between the EU and its neighbouring countries and regions. In November 2005, the Group produced its final report "Networks for Peace and Development", in which, among others, the Northern Axis was defined. The Northern Axis includes the multimodal connection Narvik-Haparanda/Tornio-Vartius/Kivijarvi-(St.Petersburg) located it in the Barents Region; that is the N.E.W. Railway Corridor/Barents Link. Furthermore, the Group recommends to the EU Commission and the Member States that all Action Plans under the European Neighbourhood Policy should reflect the Group's recommendations.

In order to meet this recommendation it is necessary to identify and specify the characteristics and other features of the Corridor more in detail so that the up-coming negotiations between the EU and Russia, as well as among the partners in the Barents Region, will be based on adequate information and common understanding of the railway's upgrading needs. A thorough assessment of and a proposal for upgrading and harmonising railway standards and practices throughout the connection form the main content should be produced.

Also, a project should be stated with the goal of investigating, testing and evaluating transport options and an operation model for direct transport of timber on railway between NW Russia and the Nordic Countries, namely Finland and Sweden. For that purpose a test train should be set-up jointly between representatives of wood industry, railway wagon owners, railway authorities, and the potential STBR II project.

3.7 Barents Regional Aviation

Name	Barents Regional Aviation
Objective (in a one sentence)	A system approach on the whole Barents region aviation network including the NW Russia.
Consultants	Inregia AB (SWE), WSP Civils (SWE), The Institute of Transport Economics (NOR), WSP-LT Consultants (FIN), RDIRDT (RUS)
Project Manager	Mr. Lennart Fridén (lennart.friden@inregia.se)
Steering Responsibility	Mr. Lars Karbin, Luleå airport Mr. Svein Brathen, Molde University College Mr. Pekka Mäntynen, Oulu airport Mr. Martti Miettinen, BEATA Mr. Petri Mononen, STBR Secretariat
Time Frame	4/2005 – 8/2005
Results / Deliverables	Reports: - Barents Regional Aviation – Background Studies - Barents Regional Aviation – Conclusions and Recommendations
Dissemination	- project seminar in Luleå 1st September 2005

3.7.1 Background

The STBR project has as one of its goals to develop the possibilities for an increased border crossing co-operation within the Barents region. Each country in the Barents Region has a well-developed national aviation network. However, today there are only few cross-border flight connections in the region. Therefore, it can be concluded that a well-developed network of flight connections between the countries is practically missing.

In many quarters a wish has been voiced that flight corridors need to be developed in the North, which are capable of attracting business or tourism trip makers. At present, it is believed that some of this traffic is using different modes of transport or does not take place at all, because of lacking or insufficient flight services. For example, businessmen and other travellers today are forced to use costly and time consuming routes via St. Petersburg and Oslo, Stockholm or Helsinki in order to reach destinations in the very North of neighbouring countries. Also, there are some signs of existing suppressed traffic demand in the area as regards tourism travel. Tourism business operators feel that far more flight trips to the region could be made if adequate flight services were available.

A regional air connection between Luleå and Tromsø via Kiruna has been opened to traffic October 2004 providing an important example for the aviation co-operation in the Barents Region. This route is based on a marketing test within Interreg IIIA aiming at finding out whether there is a chance to establish commercial traffic in the future. The marketing test will end late 2006.

Other existing routes are those between Luleå and Archangelsk via Rovaniemi and Murmansk, and between Tromsø and Murmansk. Examples of flight connections, considered necessary by some parties, but which have not yet been developed, include the

routes Luleå-Oulu-Kajaani-Kostamuksha-Archangelsk and Bodø-Hemavan-Umeå-Vaasa-Joensuu-Petrozavodsk.

Ideally the two demand types – business and tourism – will support each other. Either one of those alone may not be sufficient to justify the opening of new services or maintaining the existing ones. In addition to the passenger demand, air freight services can provide revenue for some routes.

The Nordic Countries, as well as Russia, have developed and support each their own aviation networks with the main, and often the only, hub located in the national capitals. As the routes are connected with the capital city hub only, routing of all traffic between the countries takes place through these hubs.

It is quite conceivable that a similar linking of national networks could be achieved also in the North, namely between the main northern population, business and administrative centres of each country. Furthermore, it is increasingly important that an air traffic network develops in the geographically large Barents region so that the total accessibility within the region is improved. Naturally the Barents network must be coupled with the national air traffic networks either through direct flights or schedule integration.

3.7.2 Objectives and Process Description

The study aimed at taking a system approach on the whole Barents region aviation network including the NW Russia. Even if the project was described as a study, it needed to be made in dialogue with potential carriers and aviation authorities in each country. As results, the project expected proposals aiding in maintaining or enhancing the existing services, particularly Luleå-Archangelsk (via Rovaniemi and Murmansk) and Tromsø-Murmansk. Another focus was to look into whether there is potential opening any new air connections in the region.

The aviation project relied on analysing the following aspects of the Barents aviation market:

- Demand for air transport was at the very core of the project and was analyzed from different angles
- Supply of air transport was another core component. Supply by airlines and airports were examined and airline costs were calculated with the aid of a cost model.
- Institutional settings and main actors were the third core component of the project. Laws, rules and regulations give the prerequisites for the interaction between demand and supply. Main actors are those who have an interest and capacity to enhance cross-border aviation in the region.

These three core problems were treated as separate chapters in a report titled "*STBR Aviation – Background studies".* As a fourth chapter of that report, specific information about Russia was included. This was justified firstly by the size of the Russian market, secondly by the specific conditions that distinguish this country from the other three. The purpose of the background studies was to give more detailed information about the three core problems and the Russian perspectives. The Russian part of the study was funded

with a separate budget provided jointly by Norwegian Ministry of Transport and Communications, Finnish Ministry of Transport and Communications and County Administrative Board of Norrbotten.

3.7.3 Conclusions

Low demand

Demand for cross-border air connection is fairly low. Russians dominate the routes to/from Russia. Two thirds of the passengers are Russian citizens. Two thirds of the trips to/from Russia are related to work. On the Russian routes very few trips have connections to industries directly related to natural resources. Instead there are many other branches of industries represented, as well as activities in the public sector, such as education and health care. Many passengers are frequent flyers. Around 40 percent of the passengers on the Russian routes claim they have done a similar trip during the last 12 months. The composition of current flows is illustrated in Figure 3.3.

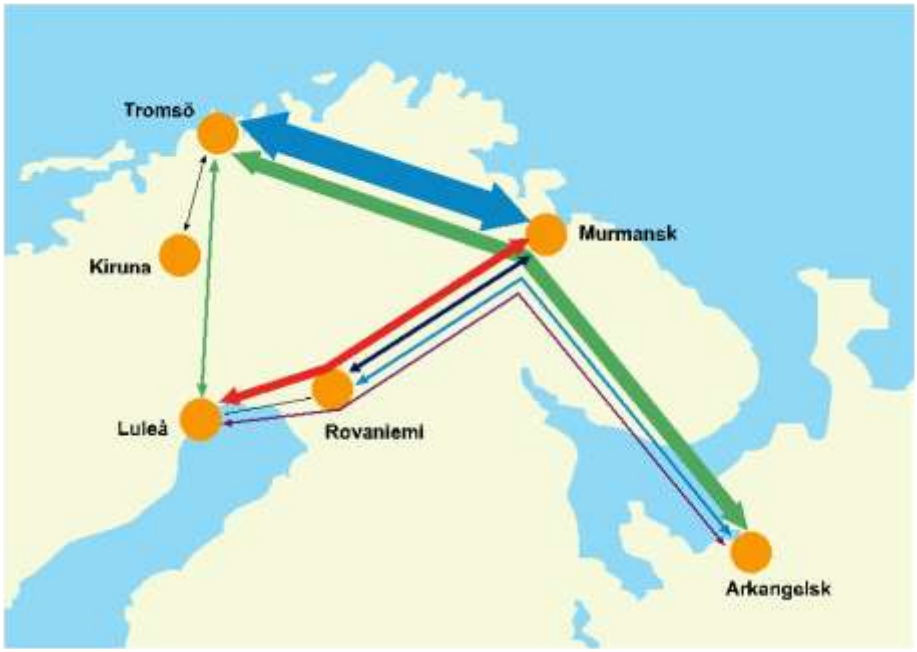

Figure 3.3: Passenger flows on cross-border aviation routes in the Barents Region in 2004

As in other remote regions, demand for cross-border air connections in the BSR is very low. Analyses with a cost model show that the level of demand is significantly lower than what is needed for commercial routes. Ways to increase demand have been discussed but have not given positive results:

- Low cost carriers can give low prices - and higher demand - but at certain conditions that are not fulfilled in the BSR. High load factors (passengers per flight) and utilisation rate of aircraft (air-borne hours) require a demand basis much bigger than the one available in the BSR.

- Chained routes could add more passengers, but would at the same time add to costs and as a consequence give more expensive tickets. Therefore the end result would probably not mean more passengers.
- Tourism and airfreight have been mentioned as possible ways to increase demand. But, the expected increase in tourism will probably have very low effects on scheduled flights going between the four countries in BSR. Neither is airfreight a potential demand that could give a marked aid to airline economies.
- Scenarios for the future development of population and the economy are ambiguous. On the one hand the Russian economy in BSR is expected to have a dramatic growth. On the other hand population is supposed to decrease significantly. Since Russia is dominating on the demand side the economic growth may have positive effects on cross-border aviation. However, this is only in the long run and does not solve the present problems.

According to the cost model and the parameters applied in it, Tromsø-Murmansk-Archangelsk-route is the only profitable cross-border connection in the Barents region. The annual number of passengers flying between Luleå and the two airports in Russia has decreased by about 50 per cent since the turn of the century. The interviews with actors did not show a pronounced demand for new routes. It was stated that it is more important to maintain the existing ones.

PSO solutions

Since there is no "market solution" some sort of subsidies is needed in order to secure a sustainable supply of cross-border flights. This is a common solution for domestic flights in some remote regions in Europe. Some of the present cross-border flights in BSR are already subsidised. The Tromsø-Murmansk route is profitable, whereas the Luleå-Archangelsk route gives a loss. This means that the latter route is subsidised by the (Russian) airline company. In this case one of the four Barents countries – Russia – bears the whole subsidy cost for the route. If a sustainable solution is to be obtained it is necessary to find some sort of Barents PSO-system sharing benefits as well as costs between the Nordic countries and Russia.

Public service obligations exist for domestic routes in the Nordic countries. EU-rules and national rules regulate such subventions. However, no examples of subsidies for routes going *between* EU-countries exist. The Barents problem is even more complicated involving a country standing outside EU/EEA. Therefore special arrangements have to be provided in order to create a PSO-solution for BSR cross-border routes. There are – at least – two problems involved here. The first one is the judicial question of how to find a solution that complies with national and international (EU) laws. This is a problem that has to be solved in co-operation not only with the BSR countries but also with representatives of the EU. The second problem concerns the distribution of costs for the subsidies between the four countries. There are considerable difficulties involved in calculations of costs and benefits of international transport routes. These problems are both principal and practical and require some further research

Modernisation needs

Supply of aircraft and airport facilities are sufficient as regards the Nordic countries. As shown by tenders to PSO-routes, Nordic airlines show a good willingness to fly remote routes. The airports in the Nordic countries have modern equipment. In Russia the situation is different: There is a significant shortage of modern aircraft in Russia, which is partly due to heavy duties on carriers imported from other countries. There are also severe deficiencies in modern equipment on Russian airports, which has repercussions for the international traffic.

Substituting Russian airlines with Nordic airlines on the routes going to Tromsø and Luleå would mean considerably higher costs and subsidies. If on the other hand the two Russian airports do not get enough resources to modernise, the two routes may have to be shut down. Therefore the situation on the Russian side is crucial for the future of cross-border flights in BSR.

In prioritizing investment resources between airlines and between airports it seems reasonable that Russian federal authorities take account of the expected benefits. But if that is the only criteria, it does not seem probable that the Barents Region will get high priority.

3.7.4 Recommendations to Partners and National Transport Agencies

In a future effort to maintain the existing lines the following questions should be given priority:

Demand

There is reason to make some further investigations in order to catch potential additions to demand:

1) The interviews with Russian firms in Murmansk and Archangelsk indicate a potential demand in some types of firms and among other actors. It may be worthwhile to make personal interviews with some of these as a first step of a possible market study followed by direct marketing.
2) It is important to get a more thorough knowledge of the passengers going with the Luleå-Tromsø line. A short survey is going on but it does not give very much information about the structure of demand. A survey similar to the one used in the STBR Aviation project is preferable. The results from such a survey could be compared with the market study that was made in 2003, indicating a rather high level of demand. This new survey would start as soon as possible and be followed by marketing efforts to selected segments of potential demand
3) Surveys and interviews have shown that the transport demand is quite thin for each activity. Therefore on a local level all these pieces of demand should be co-ordinated taking advantage of an "information platform" that pools together transport needs and supply (events, schedules, capacity etc.).
4) The Russians expect a very rapid increase in the production of natural resources. It could be of interest to investigate the impact of this growth on other sectors of the

economy and the possible consequences for cross-border aviation demand. This may be a gradually increasing potential demand for cross-border aviation.

Subsidy solutions

A sustainable solution for cross-border BSR flights requires some sort of subsidies, probably for a rather long period. Therefore the following two questions should be investigated in more detail:

1) How to create a subsidy arrangement able to handle international routes and non EU/EEA countries. This requires an investigation of the judicial problems to be overcome.
2) How to make an analysis of costs and benefits for international transport routes. Such calculations are important in order to find economic solutions that can be accepted by the participating countries and at the same time comply with EU rules

Supply

The shortages of modern aircraft may be a threat to the two existing Russian routes. There is also a risk that the two airports do not get the financial means to make the necessary investment in order to remain international airports. The Russian routes constitute the backbone of the present BSR cross-border air connections. Therefore the survival of these routes is strategic for the future of BSR aviation. Under the present circumstances it can be recommended to get into contacts with Russian authorities in order to discuss the future of these two routes. These discussions could be initiated in the very short run in one of the Barents networks.

Other

After the completion of the aviation sub-project, a Swedish airline operator Nordkalottflyg has applied for traffic permits in order to open up regular traffic between Luleå-Murmansk via Oulu. Even though the aviation sub-project did not end up recommending any new services, the analytical cost models may underestimate the effect where a provision of new supply some suppressed demand is being either released or new demand is being generated. Without contradicting the sub-project findings, it is here acknowledged that the only absolutely sure way of finding out the actual demand and profitability of a route is by trying the service in practise. Therefore, the recommendation from STBR is that the mentioned application – and any initiatives alike – should be supported where possible. Practical measures could include: 1) Creation of a working group between aviation administrations, airport officials, flight operators and tourism companies 2) Launching a program of marketing measures, particularly among travel agencies and 3) Finding methods for subsidies for launching the service, such as discounts on airport fees.

3.8 Cross Border Evaluation Methods

Name	Evaluation methods of cross-border transport projects in the Barents Region
Objective (in a one sentence)	To investigate the needs and possibilities to develop methods to be used in the evaluation of cross-border transport projects in the Barents Region
Consultants	Inregia AB (SWE), WSP policy and Research Unit (UK), WSP-LT Consultants (FIN)
Project Manager	Mr. Joakim Johansson (joakim.johansson@inregia.se)
Steering Responsibility	Mr. Per Eriksson, SNRA Mr. Eilif Matthisen, NPRA Mr. Bo-Erik Ekblom, Norrbotten Mr. Martti Miettinen, BEATA Mr. Petri Mononen, STBR Secretariat
Time Frame	10/2004 – 2/2005
Results / Deliverables	Report: STBR – Evaluation methods of cross-border transport projects in the Barents Region
Dissemination	Project seminar February 2005 Luleå STBR general seminar, November 2005 Luleå

3.8.1 Background

STBR project has as one of its aims the helping of decision makers, planners, authorities and companies to see the Barents Region as a single transport area. One way to achieve this particular goal would be to plan and implement convergent transport corridors and routes in the region. STBR project is particularly interested in developing international horizontal connections and adversing the effect of borders. All modes of transport (road, rail, air and sea) are in the interest area of STBR project and this study.

When cross-border transport projects are planned, impacts of the project should be evaluated concerning the whole area of impact. Often impacts, both positive and negative, are multinational. Particularly, when cross boarder transport infrastructure projects are planned and their impacts are evaluated, evaluation methods and principals should be similar in different countries in the Barents Region, or at least the differences should be well-known.

Methods for evaluation of cross-border projects are not thoroughly developed. Problems with what kind of values of travel time savings, vehicle costs, traffic safety risks and environmental effects to use, are examples of inconsistencies. Prioritization of projects with same funding source (for example EU) is not an easy task when common rules and values and methods are lacking.

3.8.2 Objectives and Process Description

The main purpose of the cross-border evaluation methods study was to investigate the needs and possibilities to develop methods to be used in the evaluation of cross-border transport projects in the Barents Region. The study was also to give recommendations on

what type of transport project impacts to include in the evaluations and how to measure and evaluate these impacts.

The Nordic countries have a national perspective and consequently they may underestimate the cross-border traffic impacts of main cross-border projects in the Barents. The transport policies in the Nordic countries and the EU put emphasis on efficiency but also on aspects such as regional development, accessibility and equity. In principle it should be possible to prioritize a project if it contributes to increased accessibility or equity, even if its calculated profitability falls short of that of other projects. The practical problem, however, is that aspects such as accessibility or equity are often difficult to measure and value, and may therefore not receive the weight they deserve in the evaluation process.

One problem addressed in this work was how to handle the fact that the different countries in the EU have different traditions regarding planning and evaluation of transport projects. Another problem was how to handle the fact that existing transport demand forecasting models are nationally based and not consistent with one another.

One of the main issues to resolve when developing a harmonized evaluation framework for the Barents Region was to find ways to handle the current inconsistencies between the evaluation methods currently applied by the countries in the Barents.

Estimating the impacts on traffic flows is necessary in order to make an overall evaluation of a project. Developing an evaluation method for cross-border projects in the Barents Region thus involves developing a method for estimating the projects' impacts on traffic flows.

Forecast models are not always necessary when estimating a project's impacts on traffic flows. One way is to carry out market surveys of main market players in the Barents region, in order to map the needs and obstacles in the transport system and to map the technical quality/condition and capacity in the defined transport network compared to present transport flows. This is a relatively simple method to implement and should be chosen for the Barents Region at least in the short run.

In the long run, the ambition could be to synchronize national forecast models, with the purpose to make possible an aggregation of national models to a European forecast modelling system.

3.8.3 Conclusions

Transport projects should be evaluated according to their ability to contribute to the achievement of sustainable economic and social development in the region. It must be possible to compare projects in one part of the region with projects in other parts. A common evaluation framework should be applied only if the particular transport project to be evaluated is cross-border and/or jointly funded by the countries involved.

The evaluation method developed should:

- Be consistent with the wider societal objectives of the Barents Region

- Take into consideration the balance between local, regional, national and international interests
- Take particular consideration to the objectives of the nations/organizations funding the projects
- Be consistent with the official evaluation methods used by the countries belonging to the region
- Relate to similar ongoing work on project evaluation methods in the EU
- Pay particular attention to issues specific to the Barents Region
- Be practically oriented but rely on a strong theoretical foundation

Sustainable economic and social development can be broken down into subsidiary goals that are expressed in the following terms: Efficiency, Reliability, Accessibility, Traffic safety, Environment and Equity. The method should take explicit consideration to the need for a balance between regional, national and EU interests in the projects. The potential conflict between the regional, national and EU interests, when evaluating a cross-border Barents projects, lies with the funding of the projects.

Forecasting the traffic impacts is a prerequisite when evaluating the project's impacts and the project's overall profitability. Different types of evaluation frameworks can be used when making an overall assessment of a transport project. The most common ones are Cost benefit analysis (CBA), Multi criteria analysis (MCA), Quantitative measures (QM) or Qualitative assessments (QA).

The impacts included in overall project appraisal are: construction costs, disruption from construction, system operating and maintenance costs, passenger transport savings, user charges and revenues, vehicle operating costs, freight user benefits, safety impacts, noise, air pollution, and climate change.

3.8.4 Recommendations to Partners and National Transport Agencies

Several inconsistencies exist between the Nordic countries with regards to the variables involved in methods aiming at evaluating transport projects. Handling these inconsistencies is important in order to make a common evaluation of any cross-border transport project. In the short run each country should continue to apply its own practices, but with improved documentation to increase transparency and to better highlight current inconsistencies. The long run ambition should be to develop common definitions and units of measurements. A European database should also be developed. No Barents-specific parameter values are needed. There is, however, a need to harmonize the parameter values used by the different countries at the national level. Recommendations of principles to apply and sets of values to use will be put forth by EU HEATCO project that completes in 2006.

3.9 Logistics Theses

Name	Logistics Theses
Objective (in a one sentence)	ICT use in Barents LSPs
Consultants	University of Oulu (FIN), Luleå Technical University (SWE), Narvik University College (NOR)
Project Manager	Ms. Heli Kilpala (heli.kilpala@oulu.fi)
Steering Responsibility	STBR MG via Mr. Petri Mononen, STBR Secretariat
Time Frame	4/2005 – 9/2005
Results / Deliverables	Report: An Analysis of the ICT Use in the Barents Region: Research Findings from the Logistics Service Provider and the Forest Industries
Dissemination	”Logistik dagar”, 1st – 2nd September 2005, Luleå

3.9.1 Background

Efficient logistics is a major determinant in the competitiveness of the companies in the Barents region because the companies' customers are typically far away from the region. At the same time, the region is characterized by traditional, heavy industries. The previous research conducted in the STBR project have called for the need to establish LSP (Logistics Service Providers) networks to guarantee the quality of the services offered in the region.

The research so far has largely focused on the large LSPs. Beyond a few major industries the business sector in the Barents region is characterized by a large number of small and medium-sized enterprises in both the logistics and transport sector as well as the clientele. The current research findings regarding the development of logistics practices are thus not particularly useful in the Barents region. Among the research topics, there was a need to fill a research gap by investigating the adoption of information and communication technologies in the small and medium-sized LSPs to better understand the competitive position of these firms.

3.9.2 Objectives and Process Description

The purpose of the research was to provide answers to the following research questions:

- What is the LSP sector like in the Barents region (the types of companies that operate in the region, trends in the industry development, etc.)?
- What are the prevailing co-operation practices in the LSP industry?
- What is the current status of the implementation of Information and Communication Technologies (ICT) in the LSP industry? What are considered as motivators (and, respectively, barriers) in ICT investments? What are the perceived benefits of ICT investments?

Secondly, this research was aimed at increasing knowledge on the supply chain management in the Barents region. In the context of the study, the following questions were studied:

- What are the current co-operation practices in the Russian forest industry supply chains?
- What is the current status of the ICT implementation in the Russian forest industry supply chains?

The research report is divided into three chapters. The Finnish chapter covers Northern Finland and North-West Russia, the Swedish chapter covers Northern Sweden and the Norwegian chapter Northern Norway. The research group organized co-operating meetings and seminars and developed a common working-template for conducting the research in each chapter. Two different approaches are applied: survey (LSP sector) and interviews (general and qualitative interview on Russian forest industry).

A theoretical framework used in the study considers the different factors that have an impact in a company's ICT implementation. The four main factors that have an impact in the level of ICT implementation are the types of logistics services (transportation, warehousing, value-adding services), the size of a company, the number and type of industries served by a company, and the technological development and policy on ICT.

The proposed framework provides a structured way to explore various research questions related to perception on ICT implementation in the logistics industry. One may want to learn on the possible differences in large and small companies regarding the ICT implementation or whether the industry (industries) served by a LSP is an important driver for ICT implementation.

The main focus in this study was on the co-operation practices and the ICT implementation in the LSP and the forest industries. The results are based on a survey of all together 368 LSPs in Finland, Norway, and Sweden and 9 qualitative interviews with companies in (or associated to) the forest industry in the North-west part of Russia.

3.9.3 Conclusions

The survey results among the LSPs in Finland and Sweden are similar in most aspects regarding the overall development, co-operation practices and ICT implementation status. The LSPs surveyed in Norway differ in some regards. Firstly, intermodal transportation was a more common practice among the surveyed LSPs in Norway. Secondly, the Norwegian data showed a higher overall ICT implementation status (it is, of course, important to note the limited number of companies participating in the survey where generalizations may not be possible). In all three countries, the LSP sector is typified of a large number of small and medium-sized LSPs where companies typically own less than ten vehicles. There are typically very few large players on the Scandinavian markets.

The results indicate that majority of the LSPs are familiar with computer technology and have some ICT tools available. Yet not all LSPs have the Internet connection and there are even companies that do not have a plan to move to the Internet-age. The electronic data interchange (EDI) implementation is in a very incipience stage in Finland and Sweden, whereas 40% of the surveyed LSPs had EDI in use (here, again, some bias may be caused due to the fact that only the Norwegian survey data included large companies). Route planning tools were also more common among the surveyed LSPs in Norway. The GPS technology implementation made an interesting exception: among the generally less

"technology-oriented" LSPs in Finland the GPS systems were more common. In further analysis of the data, it is of interest to further analyze the ICT implementation status and the underlying drivers for ICT implementation.

Yet, the ICT implementation is only one of the challenges facing the LSPs. One of the critical near-term challenges is the aging of the drivers. Large numbers of drivers are close to the retirement age in the Barents region. At the same time, truck-driving is not among the most popular occupations among the today's young. It is expected that numerous small and medium-sized companies in the LSP sector are go out the market when the current owners retire and when there is no new generation continuing their work. Secondly, the current situation in the world economy has increased the oil price to its peak. This is a great challenge for the LSPs, particularly the small and medium-sized ones that reported the difficulty in adding index claims in their contracts. The increasing fuel price was the most reported barrier for sustainable development in the LSP business in Finland and in Norway. Similarly, the most often reported barrier for sustainable development of the LSP business in Sweden was the increasing fuel price along with high taxes. A closer investigation of the survey data obtained for this study is needed to provide further suggestions on the competitive means (capabilities) of the LSPs in the Barents region.

The interviews with the company representatives in the Russian forest sector indicate that the ICT implementation is in a very incipience stage in the sector. Several major barriers for ICT investments are found: Firstly, there is a shortage of computer skills, which largely prevents the use of computerized tools. Availability and knowledge of basic tools such as MS Office are not commonplace in smaller companies in North-Western Russia. Secondly, the common infrastructure for ICT is not up-to-date and thus prevents a widespread use of the tools (e.g. the GSM phones often only work in the city areas). Thirdly, the administrative requirements do not support shifting to for example electronic documents (while "paper and a stamp are needed"). It is concluded that the research framework should in fact be supplemented with additional dimensions of "general business environment" and "cultural issues". However, companies in the Russian forest industry showed interest developing their informational capabilities. The first priority was placed on developing the company's internal planning tools for accounting and other functions.

Lastly, three topical suggestions were identified for further research in ICT that are of particular interest to the practitioners and researchers in the Barents region:

1) ICT (Information and Communication technologies) in service innovations

2) The role of ICT in enhancing the sustainable development of remote communities impact on transportation

3) Supply chain integration using the modern ICT

3.9.4 Recommendations to Partners and National Transport Agencies

The proposed research topics above do not all fall in the direct focus or mandate of STBR co-operation. However, the finding that "small LSPs could benefit considerably if they would receive some sort of help in implementing modern ICT tools" is a potential topic to be looked at in any future work under the STBR concept or in any other Barents Region transport development initiative.

3.10 Barents Seaport Co-operation Forum

Name	Barents Seaport Co-operation Forum (BSCF)
Objective (in a one sentence)	Arranging a start-up conference for Barents ports
Consultants	STBR Secretariat
Project Manager	Mr. Petri Mononen (petri.mononen@liidea.fi)
Steering Responsibility	STBR Secretariat
Time Frame	25th – 26th October 2005
Results / Deliverables	Working Group + co-ordinator appointed in the start-up conference
Dissemination	Articles in "Kuriren", "NSD", "Dagens Industri", Presentation at STBR Final Seminar

3.10.1 Background and Objective

In earlier visits between some Barents ports the need for establishing a forum for co-operation between the Barents area seaports had been suggested. The background for the identified need and for the initiative of BSCF had been in the often similar challenges and questions that all of the seaports in the region are facing. One common nominator of the questions many times is the sub arctic climate. A total of around 20 ports in the region have to take into consideration challenges like:

- Winter maintenance issues, including ice breaking in some of the ports
- Safety and security issues at the sea and in seaports (both seaside and landside operation)
- EU –regulations, EU –projects and EU –programs
- Specific technical applications and solutions in harbour operations in a cold climate
- Education of seaport personnel
- Environmental issues

The STBR project stated the following hypothesis:

By uniting their forces the Barents ports would considerably improve their situation in communication with the European Union and in marketing towards central Europe, North-America and the rest of the world. The Barents Seaport Co-operation would have a potential to be an important link and an international actor in promoting common interests in seaport operation and maritime transport.

The idea within the hypothesis was not about uniting Barents ports' businesses but more about extracting the synergies form their individual accumulations of know-how. The fact that genuine competition exists between many of the ports was acknowledged all the time but was not seen as an obstacle in the envisaged format and scope of a co-operation forum.

A port association or forum could also take some initiative in co-ordinating research and development projects and studies aiming at further enhancing the networking within the Barents region ports, transport companies, forwarders and producers. By default, BSCF activity will not be competing or conflicting with the work of any national port associations but rather completing that work. One form of the activity could be arranging meetings for port engineers, transport authorities, port directors, specialists, regional authorities and decision makers to discuss Barents Region ports' challenges and business potential in the maritime transport sector.

The name "Barents Seaport Co-operation Forum (BSCF)" was meant to act as a working title – deciding the final name for the co-operation was to be left to the co-operation forum itself.

3.10.2 Process Description

The STBR contribution into helping this forum to be established was to arrange a start-up seminar/meeting. The plan was to afterwards analyse the seminar results which analysis was then to tell whether there would exist a genuine demand among the Barents ports for having this kind of forum.

The seminar took place in Luleå 25th – 26th October 2005. Over 30 delegates attended the proceedings, 15 of whom were directly representing various Barents region ports from all of the associated countries of Norway, Sweden, Finland and Russia. The seminar day of 26th October consisted of a morning of presentations from various Barents ports and other experts followed by an afternoon of discussing and deciding on the next steps.

Considerable amount of help in the practical organising of the event was received from Norrbotten Chamber of Commerce, more specifically from Mr. Rolf Höglund there. Travel and accommodation costs for delegates coming from the Russian Federation were covered by the STBR project.

The main objective of the seminar/meeting had been to set up a seaport forum for the Barents region. The seminar was successful in this.

3.10.3 Conclusions

The seminar succeeded in its objectives and let into a decision to set up a working group for practical preparations of the Barents Seaport Forum, such as drafting its by-laws, work agenda and enlisting the Forum members. During afternoon of 26th October, the following members were elected in the Barents Port Association Working Group:

- Mr Halvar Pettersen, (Port director, Port of Tromsø)
- Mr Leif Åberg, (Port director, Port of Luleå)
- Mr Kari Himanen, (Port director, Port of Oulu)
- Mr Nikolay Chernyakov, (Port director, Commercial Port of Murmansk)
- Mr Rolf Höglund, (Norrbotten Chamber of Commerce, elected as a secretary who will assist the working group in co-ordinating all practical matters)

3.10.4 Recommendations to Partners and National Transport Agencies

It was agreed that the next meeting will be held in Murmansk, December 14th, 2005. It was also noted that the STBR phase II application has a strong focus on maritime issues, among others. The suggested Work Package 2 there will include resources for supporting port co-operation. Therefore in the future – provided that the STBR Phase II application is approved by the INTERREG IIIB Neighbourhood Programme – the partners and other transport agencies are strongly recommended to continue assisting the building up of the Barents Port Association during years 2006-2007.

3.11 Other STBR Activities and Contributions

3.11.1 Blue Highway

The International Blue Highway Association contacted STBR project in order to apply for some financial assistance. In its 9th meeting, the STBR Management Group decided to grant a sum of 16 700 €. The grant for Blue Highway was for a pre-study on the subject of "Development Program for Tourism Along the Blue Highway". The pre-study was done by "Geokultur i Umeå AB" with Ms. Karin Eriksson as project manager.

3.11.2 Barents Road

The Barents Road contacted STBR project in order to apply for some financial assistance. In its 9th meeting, the STBR Management Group decided to grant a sum of 16 700 €. The grant for Barents road was for a) producing a promotional CD/DVD and b) for arranging a tourism related seminar connected to a previously set exhibition in Fauske, Norway June 2005. The seminar was arranged with co-ordination to both Blue Highway Association and to STBR Tourism road corridor project.

4. GENERAL CONCLUSIONS AND RECOMMENDATIONS

4.1 Main Findings

4.1.1 Working Towards Project Objectives: the Achievements

In the very early stage of the process – i.e. during the original funding application - the general STBR objectives were outlined as follows:

- **Strengthen transport planning cooperation in Barents Region**
- **Increase the common understanding of transport challenges in the region**
- **Help decision makers, planners, authorities and companies to see the region as a single transport area**
- **Promote sustainable development in the region**

In order to evaluate whether the project implementation has been successful or not, the main results of the project need to be compared to the intended goal. Setting the achievements side by side with these original objectives, an estimate can be made on how well the activity has worked toward its set goals.

All of the actors have had the chance – or even have had to practise their skills in co-operating across the borders. This has applied to all of the involved parties: partnering authorities, other key stakeholders and the expert community, i.e. researchers and consultancies. The required communication process has been consciously and consistently supported and encouraged by the main project – especially in building up various steering organisations for the sub-projects and in running these sub-projects from the start-up to the completion.

The communication and dialogue involved has been carried out using all available means, the most important ones being physical face-to-face meetings, teleconferencing and email. As a concrete result form all of this, many individuals in the professional organisations feel more confident and interact more naturally in conducting cross-border projects.

It can be therefore concluded, that numerous obstacles have been reduced or even removed when it comes to strengthening transport planning co-operation or encouraging the authorities to plan the region's transport infrastructure and services jointly.

In addition to the co-operation activities also other, more tangible achievements can easily be recognised having come out of the STBR implementation. As it very clearly is shown in chapter 3 of this report, many sub-projects have been started and completed inside STBR. Within those projects, a wealth of general research, literary surveys, interviews, questionnaires, workshops, seminars and field trips have been carried out. As results, extensive databases have been compiled and reports written. All this means that a sizeable bulk of information has been accumulated, analysed and published concerning the characteristics and details of the Barents transportation system – information that was not

at the disposal of various actors before STBR. This bedrock of information will in the future provide a good new knowledge base for the next steps of planning improvements. In doing that, STBR has been successful in producing many vital perquisites, the basic building blocks needed in the future work in Barents transport development.

It can also be said, that the shared view of the Barents region's transport system present needs and strengths – as well as its future strengths and potential – became more focused as a result of STBR project implementation.

Based on the above observations, it can be concluded that **STBR has in a successful way worked towards all of its set objectives**. STBR project was therefore successful in strengthening co-operation and sustainable development in a way that whole Barents Region has been positively affected.

The outcome of STBR has been summarised into the box below:

STBR worked successfully towards all of its set objectives

STBR was successful in producing many vital perquisites, the basic building blocks for the future work in Barents transport development.

Building up the multi-national networks – within and between authorities, stakeholders, experts – is a time consuming task but on the same token is highly beneficial.

The common understanding, knowledge and know-how concerning Barents transport characteristics, needs and strengths have been improved.

STBR initiatives were brought forward on high level. STBR results have been used and are being used by various partners as a tool for justifying their development ambitions and strategies.

Many sub-project results did identify the need to continue the Barents transport co-operation also on this level.

4.1.2 Valuable Lessons Learned During the Process

The STBR partners together with the members of the management group and the steering group learned a lot during the process of implementing STBR. All of the observations and education was not necessarily connected to the STBR substance focus of transport issues, but rather to the more general project management. This chapter has not at all been written to say that any of the below mentioned facts would have come as a surprise or could not have been foreseen by the project. The intention here is just to underline these special characteristics of any project like STBR. Therefore, especially addressing the following

issues well in advance and in an effective way will help enhance the fluency, output and quality of any future (transport) co-operation activities in the Barents region:

i) **General inertia in running a sizeable international project:** In an international project, many things take generally more time than in local or regional projects that take place within one single nation. This applies likewise to matching appropriate dates for meetings, workshops or seminars as well as to various types of commenting rounds that are required in order to set up sub-projects, steer them and finalise their reports and other deliverables. Particularly in this respect it holds true that looking ahead three years may seem a lot but in hindsight it is a short period of time.

ii) **International consultant consortia's internal coordination:** This is in some ways a kindred lesson to the inertia effect mentioned above. Although lots of robust and high quality results were produced in the various sub-projects, consultants and their project managers tend to either underestimate or be unaware of this inertia affecting into the sub-project management.

iii) **International consortia's capabilities to produce homogenous substance:** When several experts locating in more than one country are aiming at producing a joint study or research, there are some things that need to be monitored closely by whoever is responsible for steering the work. Geographic distance often limits the number of physical meetings, i.e. meeting face to face together with the entire research group during a project. This is further accentuated by the comparably scarce transport service network in the north - aviation or other. Even though teleconferencing and videoconferencing technologies have been developing with a fast pace, physical meetings in order to co-ordinate and brainstorm remain still important. Lack of physical meetings together with the above mentioned inertia effect may occasionally result in an inhomogeneous end product. Therefore, it needs to be proactively ensured that a potential synergy effect does not turn into a disergy effect, where the result turns out to be less than the sum of its parts.

iv) **Getting funding commitment from Russia may be difficult.** STBR promoted some Tacis initiatives, that is, projects inside NW Russia that were aimed at connecting with the other ongoing or starting STBR sub-projects in the Nordic countries. The reception and attitude at first was generally very positive in Russia but when the time came to officially commit into the required co-financing share, then the previous enthusiasm tended to fade rapidly.

v) **Activating more comprehensive partner participation:** This applied to both Russian and Nordic partners. Although generally, all of the partners had a very positive approach to STBR activity, only some of the partnering organisations were very active in participating and helping in the various steering responsibilities. In future co-operation this is recommended to be paid special attention to.

vi) **How to get concrete results?:** Occasionally the question "what are the concrete results going to be in STBR?" was asked. The answer to this is complex. Firstly, the definition of what is perceived as being "concrete" varies depending on who you ask. Some results that from a transport ministry's point of view are perfectly concrete might seem totally abstract to qualify as a result

at all for a region. Secondly, the possibility and means to answering to a strong call for concrete, tangible results is by default somewhat limited and constrained through the nature and rules of the program funding in question. One could argue that the funding structure should have been considerably different from the start if physical development measures of transport infrastructure or new transport services or equivalent were expected as end products resulting directly from the project.

vii) **Limited use of funds in non-EU countries:** This proved out to be a slightly problematic feature of the program funding because in order to the project results to have enough leverage and credibility, also Russia needed to be included in the studies' and sub-projects' research. This obstacle was however successfully overcome in STBR by means of gathering additional funding for hiring Russian expertise whenever needed.

4.2 Outcome

The two most important STBR results concerning developing sustainable transport within the Barents Region are **data collection** and **networking**:

1) Data collection and analysis:

- Interviews, questionnaires, workshops, seminars, general research, literary surveys, field trips, etc. have been carried out. Based on this work, extensive databases have been compiled and reports written – and these products have also been made publicly available.
- That means that a wealth of information has been accumulated, analysed and published on the characteristics and details of the Barents transportation system – information that the actors did not have at their disposal before STBR.
- As a result, the common understanding, knowledge and know-how concerning Barents transport characteristics, needs and strengths have been improved.
- This bedrock of information will also in the future provide a good knowledge base for the next steps of planning improvements.

2) Networking – learning by co-operating

- The actors have practised their skills in co-operating across the borders – this applies both to authorities and experts. This process has been supported and encouraged by the main project – especially in building up various steering organisations for the sub-projects.
- The communication has been carried out by using all available means - most importantly through physical face-to-face meetings, but also through teleconferencing and email.
- As a result, many individuals and groups inside the professional organisations feel and interact more naturally in conducting cross-border projects.
- Hence: many obstacles have been reduced or even removed when it comes to "strengthening transport planning co-operation" and "encouraging the authorities to plan the region's transport infrastructure and services jointly".

The best concrete example of this network building effect within STBR is the "Barents Seaport Co-operation Forum" that led into the founding of Barents Port Association. STBR acted in the role of a strong catalyst and activator during the start-up process.

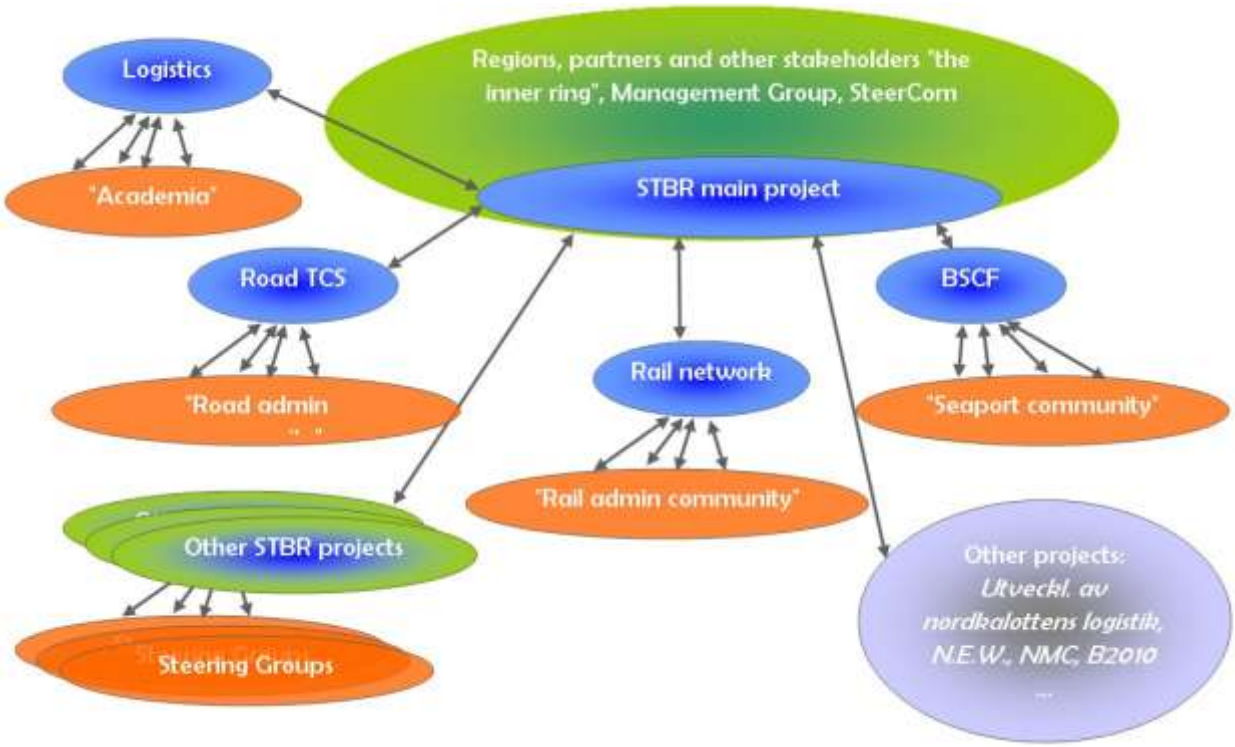

Figure 4.1 Hands-on networking through sub-projects and other STBR activity.

Another relevant real-life example of this is the active and fruitful co-operation between University of Oulu, Luleå Technical University and Narvik University College, that

sprung solely from their personnel and students working together in the STBR Logistics Theses sub-project.

Also, a contact database of around 500 contact persons was collected during the STBR project.

4.2 Recommendations

Most of the detailed recommendations for concrete future work and development measures are listed in chapter 3 under each relevant sub-project. In this chapter, more general recommendations arising from or during STBR, are presented. The modal focuses in STBR conclusions and recommendations are summarised as follows:

RAIL:

In the future, the focus will shift more strongly on an east-west corridor. Supporting the development and use of such a corridor should be on the agenda of the future Barents co-operation and should also reflect into national decision making.

ROAD:

There is generally enough capacity in the road infrastructure including the terminal network. Still, there is strong potential for joint projects and plans inside tourism, bus services, traffic safety, etc. Focus should shift more to developing the user-friendliness, accessibility and applicability of services – which as such generally aren't directly under the jurisdiction of the road administrations. This fact obviously calls for a wider range of participants in the dialogue leading to development design. Preferably, the development design should start from the road users' point of perspective. Another example of potential activity is the unification of the road data and it being made accessible over the Internet.

MARITIME:

Future work should concentrate on encouraging and establishing further co-operation activity within the maritime sector. This includes – but does not have to be limited to – supporting the Barents Port Association's future development.

AVIATION:

Focus should be concentrated on maintaining the existing cross-border services. Regularity and reliability of the service supply are key issues in securing a constant and developing demand. An unreliable service has a considerable negative effect on trip makers' willingness to book flights on such a service. New service and route initiatives are also to be supported at the same time acknowledging that the strongest driver for starting new services should be a sustainable profitability and the business potential of a service.

LOGISTICS:

"Big players can and will act on their own". Real-life examples of this mechanism in action in the Barents region are the LKAB's strong involvement in their rail transport operation and more recently, the implementation of Stora-Enso's SECU system. The implications of this observation are complex but need to be taken into account. It could be argued that the presence of heavy industry helps the public authorities in maintaining and

even upgrading the existing transport infrastructure in the Barents region. Another angle of approach would be that from the heavy industry's point of view, having to construct their own transport systems may be seen as a hindrance to business and therefore an argument un-supportive towards further enhancements of their operations in the north.

INTEGRATED TRANSPORT SYSTEM VIEW:

Many of the individual projects inside STBR collected visions and ambitions concentrating mainly into one single transport mode. In some ways the realisation of these ambitions can include synergy effects: increasing rail transports may also mean extra transports for seaports along the associated rail transport corridor. In other instances the ambitions can be exclusive, counterproductive and even competitive: shifting transport modes can mean less transport for one mode and more transport for the other. At the moment the system view of the Barents transports is missing: what would the different scenarios mean for the whole system including all modes? What would be the optimal set-up of the transport system and what would be the strategy for obtaining this or the individual steps towards this? It is recommended that in the future this system view needs to be formulated and looked into more closely. In the Barents region this applies to the logistics and heavy goods transports in particular.

SUSTAINABILITY:

In developing integrated transport system analysis and national/international strategies, the above mentioned shifts of transport modes and changes in transport volumes need to be considered also from their sustainability aspect. When it comes to the issue of "increased transports through the Barents region", there are at least three different scopes to be kept in mind: 1) In the form of a shift from the congested networks of the southern parts of the involved countries or central Europe, increased transports through Barents strongly support the concepts of economic and environmental sustainability on national and EU levels. 2) As such, increased transport volumes would enhance the economical activity and therefore give a boost to the livelihood and social sustainability of the north. 3) The high volumes of goods transport flows help in justifying and financing (i.e. the sustaining) of the transport infrastructure in the Barents region. Without heavy transports, the needs for maintenance and upgrading would diminish which in turn would also decrease the level of service of the transport infrastructure for the people living in the region.

OTHER RECOMMENDED FUTURE ACTIVITY:

Many sub-project results did identify the need to continue the Barents transport co-operation also on this level. It also became apparent, that many of the ideas that were born and cultivated during STBR implementation could potentially be developed into a more concrete direction with further input. The basic data-collection and analysis has been carried out on an adequate level already, but still a lot of potential added value emerging from continuing the co-operation can be foreseen. It is therefore the recommendation of the STBR project, that a second phase of STBR should be launched.

APPENDIX 1: List of acronyms and abbreviations used in this report:

BEAC	Barents Euro-Arctic Council
BEAR	Barents Regional Council
BEATA	Barents Euro-Arctic Transport Area
BPA	Barents Port Association
BSR	Baltic Sea Region
CD	Compact Disk
DG TREN	Directorate General of Transport and Energy
EDI	Electronic Data Interchange
EU	European Union
FIN	Finland
FNRA	Finnish National Road Administration
HT	Heavy Traffic
ICT	Information and Communication Technology
IT	Information Technology
ITS	Intelligent Transport Systems and Services
LSP	Logistics Service Provider
MEP	Member of European Parliament
MG	Management Group
MP	Member of Parliament
N.E.W.	Northern East-West freight corridor
NMC	Northern Maritime Corridor
NOR	Norway
NPRA	Norwegian Public Road Administration
NW Russia	North-West Russia (Archangelsk, Nenets, Murmansk, Karelia, and Komi)
RUS	Russia
SC	Steering Committee
SECU	Stora Enso Container Unit
SNRA	Swedish National Road Administration
STBR	Sustainable Transport in the Barents Region
SWE	Sweden
WP	Work Package