

MINISTRY OF TRANSPORT AND COMMUNICATIONS, FINLAND

Circumpolar Cooperation within the Arctic Council
Concerning
SUSTAINABLE TRANSPORTATION
IN THE ARCTIC REGIONS AND
THE DEVELOPMENT OF INFRASTRUCTURE

DRAFT 1

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1. Background

Sustainable development is taken to encompass ecological, social and economic considerations of a given development activity. Growth of traffic and construction of transportation infrastructure impact all these sectors heavily, but are also central to the economic well-being of circumpolar peoples and regions. Until now, the Arctic Council has addressed the region's economic development and transportation issues only marginally. The Finnish chair intends to bring the questions of sustainable transportation on the Council's agenda.

There is already a considerable volume of activity focused on transportation development in the Arctic area, albeit outside the Arctic Council framework. In Europe, one can mention INSROP and ARCDEV, which have provided valuable information of the Northern Sea Route (NSR). At present, there is the Barents Euro-Arctic Transport Area (BEATA) process underway as well as the proposed ARCOP, a follow up project of ARCDEV and INSROP. The EU/Tacis has supported transportation studies in North-West Russia. Similar projects and processes can also be found elsewhere. Particularly the ones in North America and Far East are essential for gaining full understanding of the activities (*to be identified!*).

This paper addresses transportation in all its modes: road, rail, sea, and air. In the Arctic, however, transportation development is highly intertwined with the development of energy resources, including pipelines, as well as telecommunications. They are presented here only in passing. At a later date, a workable scope of the transport-energy-telecom regime must be defined.

The Arctic Council has not yet been very vocal on the international arenas. Yet, the development of the Arctic is best advanced through international organizations and agreements. The Finnish chair intends to strengthen the role of the Arctic Council as the spokesman for the issues of the North and particularly of the Arctic.

2. Arctic Transportation System

2.1 Arctic Regions

The Arctic is not a very well-defined area as it concerns its southern boundaries. By one definition, the marine boundary of the Arctic is formed as the cool and diluted water of the Arctic Ocean meets the saltier and warmer waters of the southern oceans. That boundary ranges from 63° N – 72° N in the Canadian Archipelago and the Bering Strait up to 80° N in the Norwegian and Barents Seas. The land area of the Arctic is a collection of mixed regions, which are characterized with the proximity to the various seas and bays forming the Arctic Ocean and which share some of the common features such as very cold climate, sparse population and vast natural resources. Interaction between these regions is scarce.

In terms of regional economies and transportation systems the Arctic is composed of three or four distinct areas, which in a further analysis can be divided into even smaller zones. The four major regions, defined along the geographic and political boundaries, are the following:

1. Northern Scandinavia composed of the three Nordic countries (Finland, Norway and Sweden), which can also be termed as the EU Arctic. This is the smallest but the most

densely populated area of all, which is also the most touched and developed by man over the centuries.

2. The Russian Arctic covering both the European and Siberian parts of North Russia. The Russian North is a very vast area, where a relatively large population is concentrated in few, but very large, cities and towns located sparsely across the area, mostly in its western parts.
3. The North American Arctic, both northern Canada and Alaska, is also a vast area but the least populated of the three Arctic land masses.
4. The North Atlantic maritime area including Iceland and Greenland is the fourth area that must be included in the analysis. This area has, however, close ties with the Nordic countries, particularly Denmark and Norway.

Interaction between the first three areas is very limited, as the national (hence cultural and institutional) and economic ties invariably go north and south. As a consequence, also the transportation connections run north and south and are often only extensions of the main national transportation networks concentrated in more southern latitudes. East-West links are weak, excepting Scandinavia and the North Atlantic region, if they exist at all.

2.1.1 EU Arctic

In the EU part of the Arctic area (Sweden, Finland, and the non-EU member: Norway) the northern counties of the Nordic countries are typical peripheral areas that are struggling economically and in many parts losing gradually jobs, services and population. As a result, the governments are trying to implement forceful regional policies, which in all the countries are aimed at maintaining the northern regions socially and economically at par with the rest of the countries. In this respect, however, the hands of the EU governments are increasingly tied with the EU regulations concerning freedom of movement, competition and markets. Nevertheless, there are spots of more favorable developments and even successes, typically in university towns and in communities along the Norwegian coast.

For historic reasons the transportation systems of the Nordic countries are seen as integral parts of the national networks. Therefore, the network of roads, railways, seaports and airports is dense relative to the population, the quality of infrastructure is good and it is well-maintained. National/regional equality dictates that a bulk of the (public) transportation services are run on subsidies due to low passenger/freight flows.

In the Nordic countries the share of indigenous people is possibly the smallest and even they have largely been integrated in the economic and social fabric of each nation over the past centuries when the influx of more southern people has taken place. That is however not to say that there would not be conflicting interest, which affect particularly those adhering more to traditional livelihood.

The Nordic countries have one of the widest range of cross-border co-operation, which now increasingly includes also NW Russia. With the exception of Russia, transportation connections between the countries are good and crossing the borders is very easy.

2.1.2 Russian Arctic

The Russian northern regions are characterized by isolated centers of population built often on a single mineral field. This development has largely taken place during the Soviet times by

massive transfers of people to the northern mineral rich regions, partly forcefully and partly using considerable economic incentives. Invariably these towns have very large populations of several hundreds of thousands exceeding well the sizes of the cities and towns in other similar regions. Only a few major cities have a longer history of existence. Outside these urban centers, rural areas are nearly vacant, populated only sparsely by indigenous peoples and local native people has had little if any involvement in the described process.

Russian northern towns, relatively prosperous during the Soviet times, have suffered heavily from the economic decline of the 1990s. Many towns largely lost their economic bases, and at the same time lost all other preferential treatments including higher than average wages. Only a few oil producing regions have fared comparatively well, such as Tyumen in West Siberia. Also some more centrally located areas can do better. An example is Murmansk, which is managing due to the major seaport and production of goods (metals, minerals, fish) for the world market. Some others, such as Karelia and Archangelsk, are instead very stagnant and ranking low even among the other Russian regions. Many mining towns in Siberia are doing particularly poorly due to current difficulties in getting their produce to markets. Rapidly increasing cost of transportation has resulted in erosion of competitiveness and job opportunities in general.

The existing transportation infrastructure in the Russian North reflects the historic St. Petersburg / Moscow centered governance. This has later been reinforced by the Soviet style production system comprising in the North mostly the exploitation of its resources. An important development factor has been the needs of national defense. Today, transportation infrastructure does not meet adequately the demands of new market economy and changed patterns of trade. Much of the existing system of railways, seaports and airports is under-utilized and lacking maintenance. New investments are difficult to justify.

In some regions of the Russian North there still remains a high anticipation of the start of the natural resources extraction (oil, gas, minerals and timber). For this reason a specific feature in Russia is that transportation investments will be either rather light (in the absence of extensive resource exploration) or very heavy (if large scale exploration and production were to begin). The combination of these two factors makes the infrastructure investment decisions particularly difficult. There seems to be little room for gradual system development.

2.1.3 North American Arctic

Quotation from the report “Circumpolar Infrastructure: Strategies for International Cooperation; A proposal to the Arctic Council, September 2000”:

“(In Alaska..) the last century saw a vast increase in human activities in the Arctic driven mainly by technological capability and strategic/military, and economic/natural resource exploitation needs. A large influx of non-indigenous people to the region was accompanied by the development of infrastructure to provide access/transportation, to sustain the military/industrial activities and to support the required living conditions for the new populations. Thus, often with great urgency, an infrastructure was developed to suit particular needs of the time, without the necessary planning to achieve the best possible solutions, nor the integration of the existing Arctic native populations. To wit, urban centers only a few decades old have emerged as major hubs of human activity, while villages that sustained Arctic Natives for centuries or more have been abandoned. Furthermore, the existing infrastructure is reach-

ing the end of its useful life in many instances and is in dire need of costly maintenance or replacement.

National policies for the support of arctic infrastructure have shifted greatly, from high priority strategic/military spending to commercial investment in exploitation of natural resources. In either case, the magnitude, timing, and terms of investment are often beyond the control of the Arctic regional political and economical entities. Any return in taxes from the private sector to the regional entities can vary widely with world market prices for commodities.”

(Need info from Canada!)

2.2 Arctic transportation system

The Arctic transportation system relies on all the modes of transport: sea, air, road, rail and pipelines, but in very different ways and proportions than in more densely populated areas. With the exception of a limited number of high volume, special purpose transportation connections, the flows of freight and passengers are generally low and present constant problems to the viability of existing services and particularly the feasibility of new investments.

Only few seaports in the Arctic feature high transportation volumes in comparison with more southern areas. They include Murmansk in Russia, Narvik in Scandinavia and Valdez in Alaska. These ports are used almost solely for shipping of raw materials to main production and consumption centers and are connected with their hinterlands, often only a single mine or oil field, with a heavy rail connection or a pipeline. There are also smaller ports, typically in Scandinavia, which provide more variable port services, including passenger service and fishing ports, but they are more local in nature and volumes are low.

Railways are very few besides the special purpose ones feeding to the few seaports. Only in NW Russia the railways are still the dominant transportation mode and the backbone of the entire transportation system.

Road networks are sparse and can be found mainly in more populated areas. Roads cater generally to local needs and are not used much for inter-regional transport, except in Scandinavia. Outside Scandinavia good roads are few. High standard motorways are located only in the vicinity of few urban centers.

Air transportation is very important for the Arctic region due to long distances between the destinations. This is particularly true in North America as other modes are few. The Arctic aviation has, however, three very distinct operation environments:

1. Local air services within the region.
2. National services connecting the northern population centers with national centers.
3. Intercontinental flights that actually only traverse the Arctic.

Traditionally Russia had depended heavily on air transport, but the extensive local and national air services have considerably declined in the 1990s. In Scandinavia the good road network reduces the need for local air service, but at the national level airlines are indispensable. International flights in the region are very few due to low passenger volumes.

Intercontinental flights, carrying cargo particularly, are growing fast and seeking new routes. The Arctic is in the cross-roads of the three major economic areas of the world: the EU,

North America and Japan. The shortest air routes between them run over the Arctic, which put pressure on air space as well as create need for expanding air traffic control facilities on land. The development and application of global satellite navigation systems is also called for, such as the GPS and the EU:s GALILEO systems.

Pipelines are common and an important means of transportation in the Arctic regions. However, pipelines are in some sense similar to intercontinental flights, as they only traverse the area connecting the oil and natural gas fields with centers of consumption outside the region.

2.3 The dependency of the Arctic from other regions

A specific feature of the Arctic transportation systems is that they can be seen functionally as parts of each national system, which are mainly located outside the Arctic areas. In a wider context also other linkages are easy to point out:

- From the transportation operations point of view the EU Arctic, the Baltic Sea area and the North Sea can be seen as a more or less connected transportation market.
- The Russian Arctic in the European part displays similar dependencies. The development of the oil ports in the Baltic Sea and pipelines from the North of Russia to Baltic Sea only strengthen these functional ties in the coming years.
- *Siberia...*
- *North America...*

3. Needs and Challenges

The Arctic cannot be protected fully from the current developments taking place globally. A variety of changes ranging from the rapidly evolving patterns of international trade to information society to warming of climate underpin the more direct driving forces that cause traffic either to grow or to decline. In areas where the need of a wider access or pressures of personal and goods movements increase, the need to post limits and mitigate impacts also grow stronger. The challenge is in creating a proper framework for identifying and evaluating the trade-offs in a rational way often in politically and emotionally charged situations.

3.1 Global changes

Global changes will not leave the Arctic untouched in spite of its relative remoteness. On the contrary, the climate change will be the most pronounced in the northern latitudes of the globe and is assumed to raise the annual average temperatures by several degrees. Whether this will impact transportation in the region is unclear, but certainly it will create problems for the existing infrastructure, particularly in areas of permafrost. Considerable rebuilding of transportation facilities will eventually be needed.

Strong demand for energy in Europe and the US seems to notch up gradually the world market prices to the levels that extraction of crude oil and natural gas becomes attractive also in the less hospitable climates of the Arctic. In the next decade or so, this is likely to be the single most forceful factor shaping transportation and its infrastructure in the Arctic.

The catch words of the 1990's have been globalization, opening of all possible markets to competition and entry of the information society. Globalization, aided by new computer technology, is driving the companies to seek efficiency and competitive edge. In this process

speed and cheap access are increasingly important, as companies resort more and more to outsourcing in the global scale. The more efficient management of supply chain with the use of computers and the Internet is amplifying this process, as it reallocates goods flows based mainly on cost and time considerations of the entire production process – not only on each individual transportation phase. Distances become often immaterial in these decisions. One consequence is that goods transportation is increasing and logistics is becoming more and more important, but most implications of these developments are still poorly understood.

Rapidly evolving e-commerce, be it business-to-business or business-to-consumer, is linked with the above developments. The result of these changes can be seen as shifts between shipment sizes, selection of routes and transportation modes. Clear beneficiaries are polar air routes between North America, Europe, and Far East, which are attracting considerable interest. The first agreements to equip and open up new and much shorter flight corridors across Canada and Russia have already been reached.

3.2 Driving forces

Global changes are the root of two categories of forces, external and internal, that have distinctly different rationale for transportation and transportation investments in the Arctic. The needs coming from outside the area are by far the strongest. External factors are typically deriving from the development of either new natural resource deposits or new transportation routes. Owners and beneficiaries of the projects come from more populated areas well outside the Arctic areas. The driving forces of transportation development can be broadly classified as follows:

1. Exploration and extraction of natural resources, particularly crude oil and natural gas, which invariably necessitates accessing virgin areas and eventually result in heavy construction of transportation facilities.
2. Transiting the region by air, namely polar flights, which are currently subject to intense negotiations between the governments.
3. Transiting the region by sea, such as the Northern Sea Route from the Barents Sea to the Bering Strait, or the use of Hudson Bay seaports (Churchill) for trade between North America and Europe are the types of projects that are now being explored.
4. Major new land connections (road and rail) in east-west direction. Currently there are modest projects underway between the Nordic countries and Russia. Large scale projects, such as rail connection across the Bering Strait between Russia and Alaska, have recently been proposed but are likely to be realized only in a very distant future.
5. Emergence of large scale tourism in some regions, such as increasing of cruising activity in the Arctic waters or spreading of ski resorts in Lapland of the Nordic countries.

Internal forces for transportation development are more subdued; for one, as none of the regions is facing a strong population growth, rather in many areas a decline is evident. The forces are nevertheless there:

1. Changes of lifestyle and increase of living standard.
2. Commercialization of traditional food production; fish farming in Norway and reindeer herding in other Nordic countries which will depend increasingly on fast and reliable transportation connections to their southern markets.
3. More extensive and efficient utilization of existing natural resources, such as timber harvesting which has necessitated the building of extensive networks of forestry roads in previously inaccessible areas.

4. Regional policies which try to guarantee equal services even in the most remote areas of the countries.

3.3 Non-transportation issues

In addition to questions of transportation and transportation infrastructure, there are several administrative and institutional factors that strongly influence future trends in transportation in the Arctic. The two most difficult issues that frequently are cropping up are the following:

- Customs procedures have grown into a considerable problem, which hinder the regular transportation of goods and people particularly between the EU and Russian Arctic areas.
- Subsidies are subject to constant debate when preparing northern transportation policies at least in the Nordic countries and possibly in Russia. This is an issue concerning all the modes of transportation. An example is local air services in the Nordic countries, which are scarce within the region. Locally the solution is considered to lie in national subsidies, which however is contrary to the current EU regulations.

3.4 Sustainable transport

Transportation and transportation system development have always been striving to achieve certain, rather simple goals, which get their justification mostly in economic terms. Today, speed and cheap access are the most prominent goals laying the basis for ensuing greater benefits: economic growth, employment and structural adjustments of industries as well as geographic regions. Increasingly, also other, "softer" values are being considered in the process such as social cohesion, cultural ties and political development.

Sustainable development, and in case of transportation – sustainable transportation, is a phrase that encompasses several of these new values including conservation, efficiency, choice, and community. Perhaps the most significant recent evolution has been the departure from an assumption that the consumption of natural and social environment is the source of economic growth. This is gradually being replaced with the notion that the conservation of the environment could actually also constitute a strategy for economic development. The concept of sustainable development strives to bring the previously opposite views of development under a unified evaluation framework. Needless to say that this will increase complexity, as a larger set of considerations must be accounted for in a balanced way, such as:

- Economic and financial considerations, which mostly are the factors driving the process.
- Environmental and ecological impacts of any given action
- Social and distributional consequences of projects or policies that are effected either consciously or unconsciously

Within the EU a resolution has been prepared for integrating the environment with transportation policy, where sustainable transportation based on the OECD definition has been defined as one that:

- allows the basic access and development needs of individuals, companies and societies to be met safely and in a manner consistent with human and ecosystem health, and promotes equity within and between successive generations;
- is affordable, operates fairly and efficiently, offers choice of transport mode, and supports a competitive economy, as well as balanced regional development;

- limits emissions and waste within the planet's ability to absorb them, uses renewable resources at or below their rates of generation, and, uses non-renewable resources at or below the rates of development of renewable substitutes while minimizing the impact on the use of land and the generation of noise.

3.5 Problem statement

Most parties seem to agree that the intrusion of traffic and new infrastructure in the Arctic must be seen in the context of sustainable transport. To this end, the objectives of sustainable arctic transportation flow naturally from the background description above suggesting that the Arctic Council, particularly its working groups addressing transportation issues, take up measures and promote practices which:

- pay particular attention to environmental concerns, be it locally, regionally or globally;
- promote the development, dissemination and use of sound and environmentally friendly practices of design, construction and operation of arctic transportation facilities, and
- in the end, will guarantee the perpetual use of the transportation system and services in a sustainable way.

At the moment, however, there is no tested model for carrying out a sustainability analysis in the sense depicted above; nor have we any good understanding of the changing patterns and needs of transportation in a more global sense, excepting perhaps regionally limited projects and communities.

The second problem is that, excepting a few major natural resource haulages, practically all volumes of transported people and goods are very modest, hardly providing economic justification for new investments. Public transportation development, and even maintaining existing services, must frequently be based on considerations which are political in nature.

Here we are faced with a traditional transportation planning dilemma, albeit with opposing views frequently wide apart. On one hand, the measures to improve transportation services and infrastructure in the Arctic clearly coincide with the Arctic Council objectives, as they support economic, social and cultural well-being of the region. But at the same time, these measures will invariably pose a threat to the Arctic nature and the way of life. Lastly, finding financing for (public) transportation projects more often than not is difficult.

4. Goals and objectives

There are a few key documents which outline the policies as well as measures proposed and implemented by the countries and other entities in the region. Extracts concerning the Arctic transportation are presented in the following paragraphs.

4.1 The EU Commission on Northern Dimension

At the request of the Helsinki European Council, December 1999, the EU Commission was invited to prepare an Action Plan for the Northern Dimension. In February 2000, a working document was produced for “Action Plan for the Northern Dimension in the external and

cross-border policies of the European Union 2000-2003". In June 2000, the Action Plan was endorsed by the Feira European Council. The Action Plan contains the following:

Situation. A number of factors are unique to the region: demands of winter transportation (use of ice-breakers, expensive road maintenance etc.), long EU external frontiers and associated customs procedures, and the proximity of the Arctic and sub-Arctic areas which means high logistics costs to industry. TACIS, ISPA, INTERREG and the TEN-transportation budget, provide support for feasibility, environmental and financial studies and for infrastructure at border crossings on EU territory. They also co-finance investments with the EIB and IFIs.

Objectives. The development of the region's transportation infrastructure and services is central to the development of the economy in general. The overarching objective is to promote the development of a multi-modal transportation system improving connections within the region and with neighboring EU States. This includes development of Trans-European transportation networks (TEN) on EU territory, the extension of the TENs towards the acceding countries (TINA network) and the implementation of Pan-European Transport Corridors and Areas in adjacent countries, including the Barents Euro-Arctic Transport Area.

Cooperation with Russia in the transportation sector is also envisaged under the PCA (Art. 70), and in Articles 39.3 and 40 on 'Cross-border supply of services'. TACIS assistance will focus on the maintenance of available freight infrastructure and the improvement of its productivity with particular emphasis on the Trans-European Networks and inter-modal transport.

Actions. Priority areas of action concern:

- Further development of guidelines for the TEN, including the special investment project "Nordic Triangle" and its extension to the EEA and the Northern Sea route.
- Planning and construction of Pan-European Transport Corridors and Areas in particular corridors I, IX and the Barents Euro-Arctic Transport Area (BEATA), each with a steering committee and action plan. The Commission is actively involved in this work.
- The elimination of bottlenecks at border crossings, the improvement of safety record in all transportation modes and the harmonization of transportation legislation and regulations on the basis of international agreements.
- In the framework of the Accession Partnerships initiatives aim to improve transportation planning in the border regions (e.g. links between public transportation systems). Also foreseen are joint feasibility studies for the modernization of existing infrastructure (e.g. border crossings, port facilities, connecting roads of regional importance), and improvements and innovations in transport-related services (e.g. common telecom and translation facilities for small and medium-sized transportation operators).

4.2 Russia's EU strategy 2000-2010

In October 1999, Russia issued its own strategy of the Russia-EU relations for 2000-2010. The strategy is based on the Partnership and Cooperation Agreement (PCA) of 1994 and does not explicitly deal with the issues of Arctic transportation. Nevertheless, the strategy mentions Northern Dimension as a possible framework for regional and cross-border cooperation. In the Russian view, the Northern Dimension should not only be focused on exploitation of natural resources, but also contribute to the development of the regions of NW Russia.

In the strategy Russia promises to assist the EU in finding solutions for Europe's long-term fuel and raw material supply problems, among other things, by integrating Russia's transportation, pipeline, power and telecommunications networks with those of the EU. The strategy mentions projects such as the Yamal – Western Europe gas pipeline and its branches to Scandinavia, and the Pan-European transport corridors. The broader focus is on the Euro-Asian transport corridors, particularly how to link the Trans-Siberian transportation corridor (railway) with the EU supported transportation corridors no 1, 2 and 9.

The strategy recommends the EU companies to start large investment projects for developing oil and gas fields and energy transportation systems in Russia. The EU Tacis program is expected to support foreign investments and the participation of the EIB in Russia is particularly hoped for.

For the economic benefit of Russia it is found necessary to cooperate in drafting transportation policies, adopting new technologies in transportation, approximating legal frameworks and simplifying border formalities.

4.3 The Northern Dimension of Canada's Foreign Policy

In June 2000, Canada announced its new northern policy specifically aimed at circumpolar affairs: "The Northern Dimension of Canada's Foreign Policy (NDFP). The rationale for the renewed Policy flows from the fact that the circumpolar world including the northern territories and peoples of Canada, Russia, the United States, the Nordic countries and the vast waters in between was a long front line in the Cold War. Now the front line is facing the challenges and opportunities brought on by new trends and developments. Mostly the challenges are seen to take the shape of trans-boundary environmental threats.

The NDFP of Canada is framed by three principles: meeting the commitments and taking a leadership role, establishing partnerships within and beyond governments, and engaging in a dialogue with Canadians. These objectives will be pursued through four priority areas for action over the next several years:

- Strengthening and promoting the central place of the Arctic Council in circumpolar relations and policy coordination.
- Helping to establish a University of the Arctic.
- Assisting Russia in addressing its northern challenges.
- Developing sustainable economic opportunities and trade across the circumpolar region.

The issues of Arctic transportation are addressed in the last item above, as the development of economic opportunities will require, among other things, the following:

- Discussions with the Arctic Council regarding the expansion of circumpolar transportation infrastructures and reduction of transportation costs. The Policy singles out the following project proposals:
 - Arctic bridge
 - Polar air routes
 - Intra-Arctic shipping
- The inclusion of a northern trade dimension in future Team Canada missions.
- The launching of talks with the Arctic Council partners to facilitate trade and investment flows in the circumpolar region.

- The investigation of potential of eco-tourism, in co-operation with territorial governments.

Canada allocates CAD 10 million over the next five years for the implementation of the NDPF.

4.4 The Northern Europe Initiative of the US

In August 2000, President Clinton signed an act “Cross-Border Cooperation and Environmental Safety in Northern Europe Act of 2000”, which will allocate at least four million dollars in FY 2001 for projects of the Northern Europe Initiative (NEI). The NEI is primarily directed at the three Baltic States focusing on projects which emphasize the protection of the environment. The risks of nuclear waste in the Murmansk area of Russia are particularly singled out. The Act mentions the Northern Dimension of the EU as the primary form of cooperation which is then supplemented by the NEI.

5. Activities underway

International activity in Arctic transportation has largely taken place in the European and Russian northern areas. Many of these initiatives are politically driven, which include the Northern Dimension, the Barents Euro-Arctic Council and the Regional Council. Some have a more open orientation towards resource exploration and extraction. These forums have more or less fixed organizational arrangements in the form of rotating chairmanships, rotating/permanent secretariats and limited memberships.

More specific international co-operation for developing transportation and transportation infrastructure in the European and Russian Arctic areas is composed of the following:

- Barents Euro-Arctic Transport Area (BEATA) is an EU initiated joint effort between Norway, Sweden, Finland and Russia focusing on improving road, rail, airport and seaport infrastructure in the region. The BEATA co-operation was established in 1997. The BEATA backbone network for transportation was defined in 1999.
- ARCDEV, an EU sponsored project, and INSROP, a joint Norwegian, Russian and Japanese project, carried out scientific studies in the Northeast passage in the 1990s.
- The new ARCOP is intended to follow up on ARCDEV and INSROP projects. ARCOP will be an EU sponsored research project for exploring the issues and possibilities of waterborne transportation operations in the "Northern Sea Route".

There has been a considerable volume of activity and co-operation in developing east-west transportation links on land (road and rail) at the Russian border with Norway and Finland. Concrete results are not extensive so far: a couple of border crossings and some new (gravel) roads. Nevertheless, these improvements, while less costly and glamorous, are important for the regional coherence, trade and cultural exchange.

In addition, there are local activities to develop ground infrastructure servicing international polar air routes. A particular effort is focused on cargo flights which might utilize the not congested northern and arctic airspace and establish air cargo hubs in the region for further intercontinental haulage and distribution. A recent example of this is the Luleå airport in Sweden.

In the European Arctic there are also other major projects that impact the EU as well as Russian Arctic areas. The main projects are:

- The Baltic Pipeline System from the Pechora Region (Russia) to the Gulf of Finland (Baltic Sea), which is currently being studied by large western and Russian oil and energy companies.
- The proposed natural gas pipeline from the Russian sector of the Barents Sea to Central Europe, which is likely to be constructed only when the demand for energy in Europe will justify it.
- Transportation infrastructure development programs in the Baltic Sea area, such as the construction of the new Primorsk oil port near St. Petersburg, will influence freight flows and routes to/from northern Russia.

North American projects and programs...

6. New needs

There are no comprehensive forecasts of traffic demand in the Arctic region, on which any rational policies or program/project decisions can be based. What can, however, be said is that the future development of the transportation infrastructure in the Arctic areas depends, first of all, on the exploration and extraction of natural resources, which is always taking place in a very large scale. Other developments of transportation that touch the region heavily will be transit needs both by air and sea, as well as tourism, which each have quite different impacts.

In the Barents Sea Region, transportation connections are believed to develop within the following frameworks:

- Northern Sea Route, which is likely to be used increasingly in its western stretch.
- New land connections (roads and railways) between northern Scandinavia and Russia (BEATA)
- Baltic Pipeline Project connecting the oil production regions in the Northern Russia with a port in the Gulf of Finland.
- The proposed natural gas pipeline from the Barents Sea (Russian sector) to Central Europe probably through Karelia and along the Baltic Sea bottom.
- The increase of air traffic, particularly intercontinental flights, over the polar region.
- Regional air service, which presently barely exists due to low passenger volumes and high costs.

Related, non-infrastructure problems are the customs procedures and the administration of the Northern Sea Route. In maritime transportation also the vessel fleet and icebreaker services will need strengthening. Constant focus on improvements in these areas are needed.

Non-European projects in the arctic transportation development must also be considered, such as:

- Exploration activities in the sea area between Greenland and Spitsbergen.
- Exploration and future development of oil and gas fields off the North Alaskan coast.

Other North American projects...

7. Possible ways forward

The intrusion of traffic and new infrastructure in the Arctic must be seen both in local, regional and global contexts. The Arctic Council, particularly its working groups addressing transportation issues, has taken the task to explore measures and promote practices of sustainable transportation. This cannot be realized without cooperation at several levels cutting across regions and states, as well as different industries and disciplines.

Cooperation in the development of Arctic infrastructure can take several forms. The nature of the partners will largely define the areas of interest as well as the speed that any progress can be made. Typically the most advanced and co-operation ready partners can be found in the Arctic technology research and development area representing both the industry as well as academia. The technology sector has already a long record of completed projects, studies and joint seminars. More are planned. Typical projects in this category are ARCDEV and the new ARCOP.

The cooperation between the governments, and the public sector in general, has been slow to start. In recent years, some progress has been made and new forums created, such as the Arctic Council, Northern Forum and the more specifically transportation oriented project BEATA between the Nordic countries and Russia.

The third arena which often is not counted in relates to sustainable development, the core issue of the Arctic Council. The Council is making an effort to promote and bring the interest groups, particularly the natives of the Arctic, in dialogue with “hard” project promoters and owners. Undoubtedly there are long ways to go before these relations are well established.

The development of the Arctic infrastructure, be it transportation, energy or telecommunications, will undoubtedly need the participation of all the above three parties: industry and technology developers, government regulators and participation by the people. Eventually the three sectors must be included in some, yet undefined ratios, in the broader framework of Arctic infrastructure development.

The Institute of the North at Alaska Pacific University has proposed setting up a task force (Circumpolar Infrastructure Task Force, CITF) to be established for 12-18 months. The task force would draw up a report addressing issues such as:

- Overview of existing Arctic infrastructure
- Pertinent international agreements
- Trends and developments
- Recommendations for areas that are ripe and promising for international cooperation

The task force is proposed to have a wider scope, not only transportation, and have a substantial participation from the research community as well as industry. The work is proposed to be done under the supervision of Senior Arctic Officials (SAO) and Sustainable Development Work Group (SDWG).

The Finnish Ministry of Transport and Communications’ has also prepared a work agenda for addressing the issues of transportation under the Arctic Council. The core idea of the work agenda is to start a process between the Member governments of the Arctic Council, permanent participants and selected experts in order to:

- verify the need and interest for such a cooperation, particularly between the governments, in the transportation sector
- identify possible areas and ways of cooperation
- produce an Action Plan, if so decided

The steps to be taken in 2001 will be presented in the attached timetable (Appendix).

The entire process is estimated to take between 6-12 months.

**Circumpolar Cooperation within the Arctic Council Concerning
SUSTAINABLE TRANSPORTATION IN THE ARCTIC REGIONS
AND THE DEVELOPMENT OF INFRASTRUCTURE**

PROPOSED TIMETABLE FOR THE PREPARATIONS IN 2001

March:

- Preparation and delivery of the outline paper (1st DRAFT) to the members of the Arctic Council and selected experts

April – May:

- Comments from the other Arctic Council members
- Contacts between the Finnish Ministry of Transport and Communications and the Arctic Council members (contact persons in transport)

May 31:

- Updating the outline paper (2nd DRAFT)
- Distribution of the 2nd DRAFT to the Arctic Council members

June 12-13:

- SAO meeting in Rovaniemi, Finland
- Briefing the SAO

September 26-27:

- Meeting of governmental transportation experts of Arctic Council in connection with BEATA meeting in Haparanda/Tornio, Sweden/Finland

October 15:

- Final Outline Paper
- Producing the Plan of Action, if so decided

November 5-7:

- SAO meeting in Espoo, Finland
- Presentation of Final Outline Paper (including the Action Plan)
- Deciding the ways forward