Transport and Logistics solutions in the Northern Dimension area from the development perspective of the High North region

Prospects for establishing Russian-Norwegian port trade facilities in Northern Norway – from competition to cooperation

Alexei Bambulyak
Akvaplan-niva, Norway

23 October, 2012
Murmansk, Russia
Akvaplan-niva, Norway

- Research and consultancy company in marine and freshwater environment and aquaculture, established in 1984
- Company in the NIVA group - Norwegian Institute for Water Research
- Head-office in Fram Centre - Northern Centre for Climate and Environmental Research in Tromsø, Norway
- 60 employees from 14 countries (plus PhD and Master students)
- Representation offices in Island, France and Spain
- Daughter company Akvaplan-niva Barents in Murmansk, Russia (2006)
- Over 400 joint reports and 150 scientific papers with Russian partners
Akvaplan-niva's offices and international projects
Transport and logistic research projects
selected reports 2011-2012
Transport and logistic research projects
selected reports 2011-2012

Contents

- Cargo flow to Europe and the North
- Russian and International Trade with Raw Materials
  - Oil, gas, coal, metals, minerals, timber, fish, containers.
- Significance of the Northern Transport Hub
  - Strategies of EU, ND, Russia, Norway
  - Export cargoes from Russia
  - Russian Arctic port developments
  - Norwegian ports, plans and capacities
- Conclusions
Transport and logistic research projects
selected reports 2011-2012

Feasibility Study

Contents:
- Cargo turnover at NW-Russian ports
- Export from NW-Russian ports
- Freight on NSR
- Offshore petroleum development
- Fisheries
- Cruise

Simulation of consequences from future maritime traffic through the Barents Sea
Contents:

- Framework: Multilateral agreements
- Bilateral agreements and cooperation
- Maritime transport and monitoring
- Shipwrecks
- Fishing and surveillance
- Weather services in Norway-Russia
- Communications in the Barents Sea
- OSR Norway-Russia
- SAR Norway-Russia

Transport and logistic research projects
selected reports 2011-2012
New oil and gas province
Oil production in the Russian Barents Region

- Republic of Komi
- Nenets Autonomous District

2002 2003 2004 2005 2006 2007 2008 2009 2010 2011

million tons

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Oil and products export from Russia

![Graph showing the export of crude oil and oil products from Russia from 2000 to 2011. The y-axis represents the number of million tons, while the x-axis represents the years. The graph indicates a general trend of increasing export volume over the years, with crude oil exports being higher than oil products exports in most years.](https://www.akvaplan.niva.no)
Oil and gas shipping for export
Oil and gas terminals in the Western Barents Sea
Oil and gas transportation via the Barents Sea

- Russian oil and products
- Melkøya LNG
## Oil and gas shipment for export

<table>
<thead>
<tr>
<th>Sea</th>
<th>2002</th>
<th>2006</th>
<th>2010</th>
<th>2011</th>
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<td>20'</td>
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<tr>
<td>Tiksi</td>
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<td>130'</td>
<td>380'</td>
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<td>Dudinka</td>
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<td>20'</td>
<td>60'</td>
<td>100'</td>
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<td>Ob Bay</td>
<td>110'</td>
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<td>270'</td>
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<tr>
<td>Pechora Sea</td>
<td>200'</td>
<td>580'</td>
<td>7 500'</td>
<td>4 100'</td>
</tr>
<tr>
<td>Varandey</td>
<td>200'</td>
<td>500'</td>
<td>7 450'</td>
<td>4 050'</td>
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<tr>
<td>Kolguyev</td>
<td>120'</td>
<td>80'</td>
<td>50'</td>
<td>50'</td>
</tr>
<tr>
<td>White Sea</td>
<td>4 830'</td>
<td>7 860'</td>
<td>5 600'</td>
<td>5 700'</td>
</tr>
<tr>
<td>Arkhangelsk</td>
<td>1 930'</td>
<td>3 100'</td>
<td>1 200'</td>
<td>1 600'</td>
</tr>
<tr>
<td>Vitino</td>
<td>2 900'</td>
<td>4 760'</td>
<td>4 400'</td>
<td>4 100'</td>
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<tr>
<td>Barents Sea</td>
<td>--</td>
<td>2 230'</td>
<td>6 500'</td>
<td>6 300'</td>
</tr>
<tr>
<td>Murmansk</td>
<td>--</td>
<td>1 500'</td>
<td>1 100'</td>
<td>1 000'</td>
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<td>Mokhnat. Pakhta</td>
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<td>730'</td>
<td>1 200'</td>
<td>1 500'</td>
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<tr>
<td>Melkøya (LNG)</td>
<td>--</td>
<td>--</td>
<td>4 600'</td>
<td>3 800'</td>
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</table>
Russian oil and products export shares

- Crude oil
- Gas condensate
- Heavy fuel oil
- Light oil products

2010

2011
Russian oil and products shipping destinations in 2010 and 2011
# Terminal capacities: 2002, 2011 and 2020

<table>
<thead>
<tr>
<th>Region</th>
<th>Capacity 2002</th>
<th>Capacity 2011</th>
<th>Pr. capacity 2020</th>
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<td>600’</td>
<td>15 000’</td>
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<td>Ob Bay</td>
<td>100’</td>
<td>100’</td>
<td>200’</td>
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<tr>
<td>Tambey (Yamal LNG)</td>
<td>--</td>
<td>--</td>
<td>5 000’</td>
</tr>
<tr>
<td><strong>Pechora Sea</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Varandey</td>
<td>1 700’</td>
<td>12 700’</td>
<td>23 000’</td>
</tr>
<tr>
<td>Prirazlomnoye</td>
<td>1 500’</td>
<td>12 500’</td>
<td>12 500’</td>
</tr>
<tr>
<td>Kolguyev</td>
<td>200’</td>
<td>200’</td>
<td>12 500’</td>
</tr>
<tr>
<td>Indiga (Pechora LNG)</td>
<td>--</td>
<td>--</td>
<td>2 600’</td>
</tr>
<tr>
<td><strong>White Sea</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Arkhangelsk</td>
<td>6 500’</td>
<td>14 500’</td>
<td>19 000’</td>
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<tr>
<td>Vitino</td>
<td>2 500’</td>
<td>4 500’</td>
<td>7 000’</td>
</tr>
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<td><strong>Barents Sea</strong></td>
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<tr>
<td>Teriberka (Shtokman LNG)</td>
<td>2 000’</td>
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<td>92 500’</td>
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<tr>
<td>Murmansk</td>
<td>2 000’</td>
<td>5 000’</td>
<td>7 500’</td>
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<tr>
<td>Mokhnotkina Pakhta</td>
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<td>2 500’</td>
<td>5 000’</td>
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<tr>
<td>Lavna</td>
<td>--</td>
<td>--</td>
<td>35 000’</td>
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<tr>
<td>Kirkenes</td>
<td>--</td>
<td>--</td>
<td>10 000’</td>
</tr>
<tr>
<td>Melkøya (Snøhvit LNG)</td>
<td>--</td>
<td>5 000’</td>
<td>5 000’</td>
</tr>
<tr>
<td>Goliat</td>
<td>--</td>
<td>--</td>
<td>5 000’</td>
</tr>
</tbody>
</table>
Hub ports in Norway

Stamnetthavner:

1 Borg, Øra
2 Moss
3 Oslo Sydhavna, Hjortnes-terminalen og Vippetangen
4 Drammen, Holmen
5 Tønsberg, Slagen
6 Larvik, Revet
7 Grenland, Brevikterminalen
8 Kristiansand, Kongsgård og Vestre havn
9 Egarsund, Kaupanes
10 Stavanger, Risavika
11 Karmsund, Husøy
12 Tysvær, Kårstø
13 Bergen, Dokken/Nøstet
14 Øygarden, Sture
15 Lindås og Austrheim, Mongstad

Sjøverts stamnett:

16 Flora, Flora havneterminal
17 Måløy
18 Ålesund, Flatholmen
19 Molde, Nyhamna
20 Kristiansund, Devoldholmen
21 Aure, Tjeldbergodden
22 Trondheim, Brattøra
23 Mo i Rana, Toraneset
24 Bodø, Bodøterminalen
25 Narvik, Fagernes
26 Harstad
27 Tromsø, Breivika
28 Alta
29 Hammerfest, Polarbase og Melkøya
30 Honningsvåg
31 Kirkenes, Kirkenes havn
# Main hub ports in Northern Norway

<table>
<thead>
<tr>
<th>Ports</th>
<th>Sailing depth (m)</th>
<th>Traffic development (loaded/offloaded tons)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>28</td>
<td>20</td>
</tr>
<tr>
<td>Mo i Rana</td>
<td>+</td>
<td>2004: 3 648 194 2010: 3 438 173</td>
</tr>
<tr>
<td>Bodø</td>
<td>+</td>
<td>2004: 661 157 2010: 827 645</td>
</tr>
<tr>
<td>Narvik</td>
<td>+</td>
<td>2004: 15 568 790 2010: 17 583 344</td>
</tr>
<tr>
<td>Tromsø</td>
<td>+</td>
<td>2004: 767 082 2010: 1 181 763</td>
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<tr>
<td>Alta</td>
<td>+</td>
<td>2004: 701 000 2010: 600 000</td>
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<tr>
<td>Hammerfest</td>
<td>+</td>
<td>2004: 535 131 2010: 10 212 835</td>
</tr>
<tr>
<td>Honningsvåg</td>
<td>+</td>
<td>2004: 204 832 2010: 102 600</td>
</tr>
<tr>
<td>Kirkenes</td>
<td>+</td>
<td>2004: 94 842 2010: 1 662 169</td>
</tr>
</tbody>
</table>
Port connecting infrastructure
Port connecting infrastructure
Port connecting infrastructure
Existing and planned Barents Sea terminals

Melkøya LNG © Statoil

Goliat oil field © ENI Norge

Nordoil caverns © Nordoil

Terminal in Kvalsund © Kvalsund kommune
Port of Kirkenes development prospects

![Map of Kirkenes port development prospects](image)

**Mullige adkomstveger (k-planens areaal):**
- K-planens areaal
- Alternative løsninger

**Nye arealer fra k-planens areaal:**
- Forslag fra k-planens areaal

**Andre "nye" arealer:**
- Mulig - samsvar med rapportens sentrale premisser
- Mulig - andre områder som kan være av interesse

(1 da = 1000 m²)
The port of Kirkenes

Pulkenes - Kirkenes Maritime Industrial Park

KILA - Kirkenes Industrial Logistic Area

© Storvik Consult

© Coast Center Base

© Tschudi Kirkenes
Port of Kirkenes development prospects

Norterminal in Gamnesbukt

Norterminal facilities design

Norterminal oil storage

Norterminal project figures

• Storage 0.7-1.0 mln tons of oil
• Tankers up to 300 000 dwt
• 150-300 port calls per year
• Annual capacity 10-20 mln tons
• Construction 2014-2016
• Costs up to 2 bln NOK (€270 mln)
Key elements for creation of international maritime trading hub(s) in North Norway to deal cargoes brought from the Russian North and delivered via the Northern Sea Route:

- Good geographical location towards the market.
- Good intermodal hubs – port infrastructure with adequate space and connected transport infrastructure.
- Customs free areas for transit, transshipment and repacking.
- Regulations that allow goods to be transported through hinterland to market outside Norway as transit goods, without being subject for taxations and fees.
- General trading environment that attracts international trading companies.
- Access to skilled labor.
The idea of creating a maritime trading facility in North Norway should be focused on transshipment and/or repacking based on one of the following models:

1. **Local perspective:**
   Facilities doing international trade of raw materials and other cargoes on location.

2. **Regional perspective:**
   Storing and transshipping facilities based on international trading from other location in Norway or from abroad.

3. **International perspective:**
   Developing one or more north Norwegian ports to transshipment and storage hubs in cooperation with international port operators, cargo owners and/or forwarders.
Developing ports in Finnmark as transshipment and distribution hubs for international maritime transport through the Barents Sea

- Pre-project owned by Maritime Forum Nord -> main project Barents 2020 with lead Finnmark county administration;
- Focus on four ports in Finnmark and relevant (competitive) processes at other ports in North Norway and Northwest Russia;
- Forecasting future development of export and direction of Russian raw materials from Arctic;
- Forecasting development of eastbound maritime transport through the Barents Sea;
- Consider different mechanisms for win-win business cooperation between Norwegian maritime players and Russian/international cargo owners, shipping companies, ports and traders;
- Implementation of processes to establish cooperation and actions.

We invite you for cooperation
World Transportation Patterns

Surface Transportation Patterns
- Areas within 20 miles (32 km) of roads, railroads, or inland waterways

Ocean Shipping from Major Ports
- Width of line in proportion to tonnage of cargo carried:
  - 5 – 10 million metric tons
  - 10 – 20 million metric tons
  - 20 – 100 million metric tons
  - 100 – 200 million metric tons
  - 200 – 300 million metric tons
  - 300 – 400 million metric tons
  - 400 million metric tons or more
  - Passenger steamship lines