Morstroytechnology, LLC (MST for short)

Our engineering background contributes to the approach to logistic analysis. We focus on:

- **Pre-Design Research: Feasibility Study, Business Planning, Development Concepts etc.**
- **Engineering and Design:**
  - universal and dedicated port terminals (general cargo, container, dry bulk, liquid bulk etc.);
  - logistic centers and related infrastructure;
  - optimization of hydraulic constructions

- **Supervision;**
- **General Design;**
- **Consulting and Engineering;**
- **Berths and Buildings Survey;**
- **Engineering Survey;**
- **Marketing Research, traffic forecasting;**
- **Logistic Strategy;**
- **Logistic Optimization;**
- **Feasibility Study**

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Plan

- Changes in Logistic and Infrastructure. Transformation of the Soviet Transport System
- Review of Cargo Flows. Modal Split
- Russian Transport System Geography
- Baltic Sea. Throughput of the Baltic Sea Ports
  - Main Development Projects in the Inner Harbors of St. Petersburg
  - St. Petersburg Outer Ports Development Projects
  - Ports Ust-Luga, Vysotsk, Kaliningrad
- Russian Transport System Geography – Arctic. Throughput of the Arctic Ports
  - Murmansk Transport Node. Development of SCP Murmansk, Lavna, Sabetta
  - Terminal at Cape Kamenniy – Branch of Sabetta Port
- Black and Azov Seas. Ports’ Throughput
  - Ports Taman, Novorossiysk
- Caspian Sea. Ports’ Throughput
- Far Eastern Ports. Ports’ Throughput
  - Coal terminals at the Far East – Vostochny, Vanino, others
  - Oil and oil products terminals on the Far East of Russia
- Disproportion of Sea Port and Railway Infrastructure
- Russian Automotive Logistics Market
- Russian Container Market

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Long-period Changes in Logistic and Infrastructure. Transformation of the Soviet Transport System

It was not only the growth of cargo flows, but structural change of the whole transport system of former USSR / Russia … The infrastructure did not follow the market….

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Growth Factors

Growth factors:
- Export – oil, oil products, coal, fertilizers, ore
- Import – consumption goods – in containers, cars

Terminals for handling these cargo flows were located in Baltic states and the Ukraine. After the fall of the USSR all these terminals turned out to be outside of the Russian borders. Russia had to use foreign terminal for its foreign trade. At the same time the growing foreign trade cargo flow gave stimulus for the growth of new terminals in Russia. New terminals have ben built, existing terminals underwent reconstruction or have been “adjusted” for new cargo type.

Terminal built at the end of 1990 – 2000:
- Oil ports – Primorsk, Vysotsk.
- Coal – Ust-Luga (Rosterminalugol), development of Vysotsk port,
- Fertilizers – St. Petersburg (BBT), Vostochny (VUT)
- Containers - St. Petersburg (modernization of FCT, Petrolesport etc.), Novorossiysk (NUTEP, Novoroslesexport)
- Cars - St. Petersburg (Fishery Port, Third Stevedoring Company etc.)

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Review of Cargo Flows

Proportion of Russian foreign trade cargoes going through ports of Russia, Baltic states and Ukraine in 2012

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Review of Cargo Flows

Transit of Russian foreign trade – split by type of cargo
Review of Cargo Flows
Structure of cargo flows by type of cargo in 2012

Total Russian ports - 535.3 mln.t

- 302.4; 56.5%
- 36.3; 6.8%
- 37.6; 7.0%
- 4.8; 0.9%
- 23.9; 4.5%
- 7.2; 1.3%
- 10.4; 1.9%
- 87.5; 16.3%
- 25.2; 4.7%

- Metalls
- Ore
- Containers
- Coal
- Grain
- Others
- Fertilizers
- Timber
- Oil & Oil Products

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Review of Cargo Flows

- Cabotage: 31.7 million tonnes (31.2%)
- Transit: 40.2 million tonnes (40.2%)
- Import: 47.5 million tonnes (47.5%)
- Export: 447.1 million tonnes (447.1%)

Total: 1234.5 million tonnes
Modal Split of Cargo Flows via Russian Ports

Incoming (from sea to port) cargo flows by transport mode

- Railway: 63.6%
- Motorways: 21.6%
- Inland waterways: 3.4%
- Sea: 1.3%

Outgoing (from port to sea) cargo flows by transport mode

- Pipeline: 48.3%
- Sea: 41.2%
- Motorways: 7.0%
- Inland waterways: 0.8%
- Railway: 2.8%

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Russian Transport System Geography

http://www.mgorproekt.ru/
Russian Transport System Geography

Area – 17 mln. sq.km

~ 8330 kilometers

Main Arctic ports

Baltic Sea

TransSiberian Railway

Black Sea

Caspian Sea

Main Far Eastern ports

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Russian Transport System Geography – Baltic Sea

- Riga
- Ventspils
- Kaliningrad
- Tallinn
- Helsinki
- Hamina-Kotka
- Vysotsk
- Vyborg
- Primorsk
- Ust-Luga
- St. Petersburg
- Moscow

http://www.morproekt.ru/
Throughput of the Baltic Sea Ports

Russian Ports of Baltic Sea in 2011, in mln tones

http://www.morproekt.ru/
Main Development Projects in the Inner Harbors of St. Petersburg

CT St. Petersburg, Private JSC
Container terminal
500 => 1500 th. TEU by 2016

First Container Terminal, Private JSC
1350 => 1600 th. TEU by 2014

Petrolesport, Public JSC
1200 => 1200-1500 th. TEU by 2014

http://www.morproekt.ru/
St. Petersburg Outer Ports Development Projects

Moby Dick, LLC:
Expansion to ~1400 th. TEU

Construction of Lomonosov Cargo Terminal - 1000 th. TEU + ~ 300 th. cars

Construction of Port Bronka
~1400 th. TEU containers +2400 th. tons Ro-Ro cargo

http://www.morproekt.ru/
Port Ust-Luga

Схема генерального плана
Морского торгового порта Усть-Луга

ЭКСПЛЯКАЦИЯ

1. Комплекс перергузки угля
2. Универсальный перегрузочный комплекс
3. Комплекс перергузки технической сеы
4. Терминал перевалки нефтепродуктов
5. Конечная точка БТС-2 - Нефтебаза «Усть-Луга»
6. Терминал перевалки нефти
7. Складской логистический центр
8. Многооплотный комплекс ЮГ-2
9. Автомобильно-железнодорожный паромный комплекс
10. Комплекс перегрузки контейнеров
11. Комплекс сжиженного газа
12. Комплекс перевалки стабильного газового конденсата
13. Металлургический терминал
14. Терминал минеральных удобрений
15. Терминал алюминия
16. Терминал глинозема
17. Комплексы генеральных и навалочных грузов
18. База портофлофта

http://www.morproekt.ru/
Port Vysotsk

Port development depends on construction of Losevo-Kamennogorsk railway line (due to be completed in 2013)

http://www.morproekt.ru/
Port Primorsk

Spezmornefteport Primorsk, oil terminal built in 2001
Capacity: 70 mln. tons oil, 8 mln. tons oil products

http://www.morproekt.ru/
Port Kaliningrad

Baltic Stevedoring Company, Public JSC container terminal
200 => 468 th. TEU by 2014

Soruzhestvo-Soya, Private JSC grain and vegetable oil terminal
2,5 => 5,5 mln. tons by 2014

http://www.morproekt.ru/
Russian Transport System Geography - Arctic

- Murmansk
- Kandalaksha
- Vitino
- Arkhangelsk
- St. Petersburg
- Varandei
- Sabetta

http://www.morproekt.ru/
Throughput of the Arctic Ports

Russian Ports of Arctic basin in 2011, in mln tones

http://www.morproekt.ru/
Murmansk Transport Node

The project includes:

**Murmansk Sea Commercial Port development:**
- Reconstruction of coal terminal - 9.6 mln. tons;
- Construction of container terminal - 1 mln. TEU;
- Logistic center;

**The western shore:**
- Coal terminal - 20 mln. tons;
- Oil terminal - 35 mln. tons;

**Port approaches:**
- Reconstruction of the main railway line Murmansk – St. Petersburg;
- Construction of the new 29-km railway line and new railway station between Murmashi and Lavna on the western shore of Kola bay;
- Construction of the motorways;
- Reconstruction of Murmansk airport.

http://www.morproekt.ru/
Development of Sea Commercial Port Murmansk, Public JSC

I Phase

- Minimal throughput
- Larger depths

II Phase

- Extension of port area
- Larger depths
- Dedicated coal complex

OR

- Capacity growth of the 1st cargo district from 6,4 to 12,9 mln. tons (coal)

- Cargo throughput growth: Up to 29 mln. tons
- Current throughput: 15,7 mln. tons (2012)

http://www.morproekt.ru/
Sea Commercial Port Lavna, LLC

- Investors – Kuzbassrazrezugol and SDS (Sibirskiy Delovoy Soyuz)
- Engineering surveys completed, water area and hydraulic structures have been designed
- Detailed design in progress
- Construction to be started at 2013

Terminal characteristics:

- **1st phase** – 6 mln. tons – end of 2015
- **2nd phase** – 12 mln. tons – 2018
- **3rd phase** – 18 mln. tons – 2022

- The project includes construction of 40-km railway line from Vykhodnoy station to the new coal terminal Lavna, and railway bridge over Kola bay
- Depth at berth – 20 m
- Vessels size 150 000 DWT

http://www.morproekt.ru/
Port Sabetta

Planned capacity:
- LNG - 16 mln. tons
- Gas condensate - 1,35 mln. tons

Possible extension up to:
- LNG - 25 mln. tons
- Gas condensate – 2,2 mln. tons
- Oil – 3,5 mln. tons

Project implementation period:
Auxiliary facilities 2012–2013, Main objects by 2016

The main characteristics of the new port
Approach channel length – 6 km
Approach channel width – 420 m
Dredging of sea area and approach channel – 25 mln m³
Berths for construction materials cargo – 1430 m
Berths for gas tankers – 804 m
Port area – 59 ha
Port Sabetta - visualization

http://www.morproekt.ru/
Terminal at Cape Kamenny – Branch of Sabetta Port

Gazpromneft-Razvitie, LLC
Oil terminal, 0.5 mln tons capacity by 2014
Design works have been started, public consultations
Tower-type terminal, 3.5 km from shore line
Oil extraction by 2020 is planned to grow up to 9 mln. tones

http://www.morproekt.ru/
Throughput of the Black and Azov Seas Ports

Russian Ports of Black Sea in 2011, in mln tones

The largest port in Russia

http://www.morproekt.ru/

- Vessels – up to 150 000 DWT
- Railway approaches development:
  - 40 mln. t – 1 stage
  - 52 mln. t – full development
- Motorways development – additionally 18 mln.t
### Potential Investors of Port Taman

<table>
<thead>
<tr>
<th>Company</th>
<th>Cargo</th>
<th>Handling volume, mln tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global Ports Investments PLC</td>
<td>Containers</td>
<td>10</td>
</tr>
<tr>
<td>Eurochem</td>
<td>Fertilizers</td>
<td>10</td>
</tr>
<tr>
<td>United Grain Company</td>
<td>Grain</td>
<td>6,4</td>
</tr>
<tr>
<td>UCL Port B.V.</td>
<td>Coal, metals, container</td>
<td>27,4</td>
</tr>
<tr>
<td>Metalloinvest</td>
<td>Ore &amp; concentrates</td>
<td>15</td>
</tr>
<tr>
<td>SUEK</td>
<td>Coal</td>
<td>12</td>
</tr>
<tr>
<td>National Container Company</td>
<td>Containers</td>
<td>7</td>
</tr>
<tr>
<td>RUSAL, Public JSC</td>
<td>Metals</td>
<td>3</td>
</tr>
<tr>
<td>Gazprom Export, LLC</td>
<td>Sulphur</td>
<td>3</td>
</tr>
<tr>
<td><strong>Итого:</strong></td>
<td></td>
<td><strong>93,8</strong></td>
</tr>
</tbody>
</table>

http://www.morproekt.ru/
Port Taman - Visualization

http://www.morproekt.ru/
Port Novorossiysk

NUTEP, Public JSC, container terminal
350 => 600 th. TEU by 2015 г.

NSCP, Public JSC, container terminal
170 => 700 th. TEU by 2018 г. (or later)

Novoroslesexport, Public JSC, container terminal
350 => 500 th. TEU by 2014 г.

Novorossiysk Grain Terminal, Public JSC,
6 => 8 mln. T by 2014

NSCP, Public JSC, construction of dry
bulk terminal (fertilizer/coal/ore)
Capacity 12 mln t by 2016 (or later)

http://www.morproekt.ru/
Russian Transport System Geography – Caspian Sea

Russian Ports of Caspian basin in 2011, in mln tones

- Astrakhan
- Olya
- Makhachkala

http://www.morproekt.ru/
Russian Transport System Geography – Far Eastern Ports

http://www.morproekt.ru/
Throughput of the Far Eastern Ports

Russian Ports of Far Eastern basin in 2011, in mln tones

http://www.morproekt.ru/
Coal terminals - Vostochny

Terminal development depends on railway approaches capacity

Universal Production and Handling Complex North (Sever) Capacity 12-20 mln tons

Eastern Ural Terminal (VUT), LLC Conversion to new cargo (coal)

Vostochny Port, Public JSC, 3rd phase of coal terminal

SC Maly Port, LLC Reconstruction

Eastern Stevedoring Company, LLC coal handling at berths 5-6

http://www.morproekt.ru/
Coal Terminals - Vanino

- **Port Mechel – Vanino, LLC**
  Construction
  Capacity 5-15-25 mln tons
  Vessel size up to 163000 DWT

- **Sakhatrans, LLC (Gunvor)**
  Construction
  Capacity 12-20 mln tons
  Design in progress
  Included in Federal Target Programme

- **Dalvostokugol, Public JSC**
  Extension from 12 to 18 mln tons
  Equipment modernization

- **Existing terminal**
  Vanino SCP, Public JSC
  Handles 1,7 mln tones annually
  Vessels 20000 DWT

Terminal development depends on railway approaches capacity

http://www.morproekt.ru/
Other Coal Terminals Projects in the Far East

**Posyet**
Commercial Port Posyet, Public JSC plans to expend capacity by 2,5-5,0 mln tons by 2013-2015. A new berth for panamax vessels should be built. The technology should be changed to dedicated one. Terminal throughput should grow up to 9 mln tons, and 14 mln tons are possible in the future.

**Bolshoy Kamen (near Vladivostok)**
SDS holding - terminal might be built in Sukhodol bay, the project is under development.

**Location not defined**
Federal State Unitary Enterprise VO Zarubezhugol plans to built coal terminal with 20 mln tons capacity in the Far East. Exact location is not identified yet, but it might be port Vostochny, Zarubino or Sukhodol bay. The idea of the terminal is that at the moment some small coal producers don’t have access to port terminals, which are most often controlled by the large producers (their competitors). The new terminal should provide equal access for all the parties.

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Oil and oil products terminals on the Far East of Russia

Vanino
Oil products terminal
Far Eastern Vanino Port, LLC
Capacity 0.9 mln tons

Soviet Gavan (Sovgavan)
Special Economic Zone Sovgavan
Bunkering terminals
Gavanbunker, Private JSC – 1 mln tons
Marinbusiness, LLC – 1 mln tons

Vladivostok
Bunkering complex
VMTP, Public JSC
Capacity 1.5 mln tons

ALREADY BUILT

Nakhodka
Eastern Oil-Chemical Company (Rosneft)
Capacity 11.1 mln tons
(Promorskiy Oil Refinery)

Kozmino
Extension of oil terminal
SMNP Kozmino, LLC (Transneft) from 15 to 30 mln tons capacity

ALREADY BUILT

http://www.morproekt.ru/
Sakhalin Ports

Complex Prigorodnoye
LNG plant and terminal
Capacity - 9,6 mln. tons LNG
10 mln tons of oil

http://www.morproekt.ru/
Disproportion of sea port and railway infrastructure

Railway lines capacity at the approaches to Far Eastern ports is almost exhausted. Development plans of the Russian Railways lag behind the expansion plans of the terminal infrastructure. Action plans of the Russian Railways can help the situation only partially. Construction of the new terminals is hindered by railway limitations. Investments required for railway development are incompatibly higher than capital costs of the port terminals.

<table>
<thead>
<tr>
<th>Indicator, in mln tons</th>
<th>Directions</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Vanino-Sovgavan</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Vostochny-Nakhodka</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Posyet-Zarubino</td>
<td></td>
</tr>
<tr>
<td>Railway capacity at port approaches growth by 2020</td>
<td>39,7</td>
<td>22,7</td>
</tr>
<tr>
<td>Growth of port terminals capacity</td>
<td>67,0-77,0</td>
<td>29,0-60,0</td>
</tr>
</tbody>
</table>

According to the Strategy of sea ports’ infrastructure in the RF till 2030 the capacity of dry bulk terminals on the Far East of Russia should grow by 102,5 mln tons by 2020.
Railway approaches to sea ports on the main routes have limited capacity

About 30% of the main railway lines (75% of cargo flows) have limited capacity (are congested)

Railway approaches to Far Eastern ports

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Russian Automotive Logistics Market

Russian market of light vehicles in 1998-2011
Automotive logistics – port terminals in Russia - Baltic Sea

St. Petersburg

- Terminal “Novaya Gavan”
  1st stage – 250 th. CEU
  To be extended

- Terminal “Yug-2”
  Capacity – 500 th. CEU
  PCC & PCTC

- Terminal “3rd Stevedoring Company”
  Capacity – 80 th. CEU

Total St. Petersburg
~ 430 th. CEU + 0,8 mln. t Ro-Ro

Ust-Luga

- Terminal “Perstiko”
  Capacity – 0,8 mln. T Ro-Ro cargo

- Terminal “Sea Fishery Port”
  Capacity – 160 th. CEU (estimation)

Total Ust-Luga
~ 0,75 mln. CEU

+ Terminal in Bronka
  Capacity – 260 th. units
  To be built

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Automotive logistics – port terminals in Russia - Black Sea

Automobile port handling in the Black Sea is on demand, but there is no dedicated professional terminals in Russia yet.

- **Autoterminal Black Sea**
  - Capacity – 200 th. CEU

- **+ Kavkaz Port Ro-Ro Terminal**
  - Capacity – ~50 th. CEU
  - To be built

- **Ilyichevsk Sea Port Terminal**
  - Capacity – ~150 th. CEU

- **Odessa Sea Port Terminal**
  - Capacity – ~n/a th. CEU

- **Novorossiysk Sea Port**
  - Capacity – ~30-90 th. CEU
  - Might be expended to 250 th. CEU

- **Novorossiysk**

- **Odessa**

- **Sevastopol**

- **Kavkaz**

- **Ilyichevsk**

- **Black Sea**

- **Bosphorus Straits**

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Automotive logistics – port terminals in Russia – Far East

Total Far East
~ 0.45 mln. CEU (estimation)

Total Vladivostok
~ 0.385 mln. CEU

Vladivostok Automobile Terminal
Capacity – 185 th. CEU

Vladivostok Fishery Port
Capacity – 200 th. CEU

Terminal Zarubino
Capacity – approx. 40 th. CEU

Nakhodka Fishery Port
Capacity – not available

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Russian Container Market

World Container Market – total port container handling

http://www.morproekt.ru/
Russian Container Market

**Russian Container Market:**

*total port container handling in mln. TEU*
*foreign trade cargo only, through ports of Russia, Ukraine, Baltic states*

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![Diagram showing the container market trend from 1995 to 2011](http://www.morproekt.ru/)

- **Arctic**
- **Baltic Sea - Finland**
- **Baltic Sea - Baltic states**
- **Baltic Sea - Russia**
- **Black Sea - Ukraine**
- **Black Sea - Russia**
- **Far East**
- **Total mln. TEU**
Russian Container Market

Container flows by direction

Container flows by basin

http://www.morproekt.ru/
Container cargo flows

Main container ports in Russia in 2012, in th. TEU

- Novorossiysk: 634.7 (2011), 652.8 (2012)

Percentage changes:
- St. Petersburg: 106.7%
- Kaliningrad: 116.7%
- Novorossiysk: 102.5%
- Vladivostok: 115.3%
- Vostochny: 117.1%
- Sakhalin: 107.6%
- Others: 116.9%

http://www.morproekt.ru/
Благодарю за внимание!

Телефон:+7 812 333 13 10
Факс: +7 812 333 13 11
e-mail: mct@morproekt.ru
www.morproekt.ru