



ООО "Морское строительство и технологии"



Development of the Russian Sea Port Infrastructure.  
Automotive Logistics. Container Logistics in Russia.

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# 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



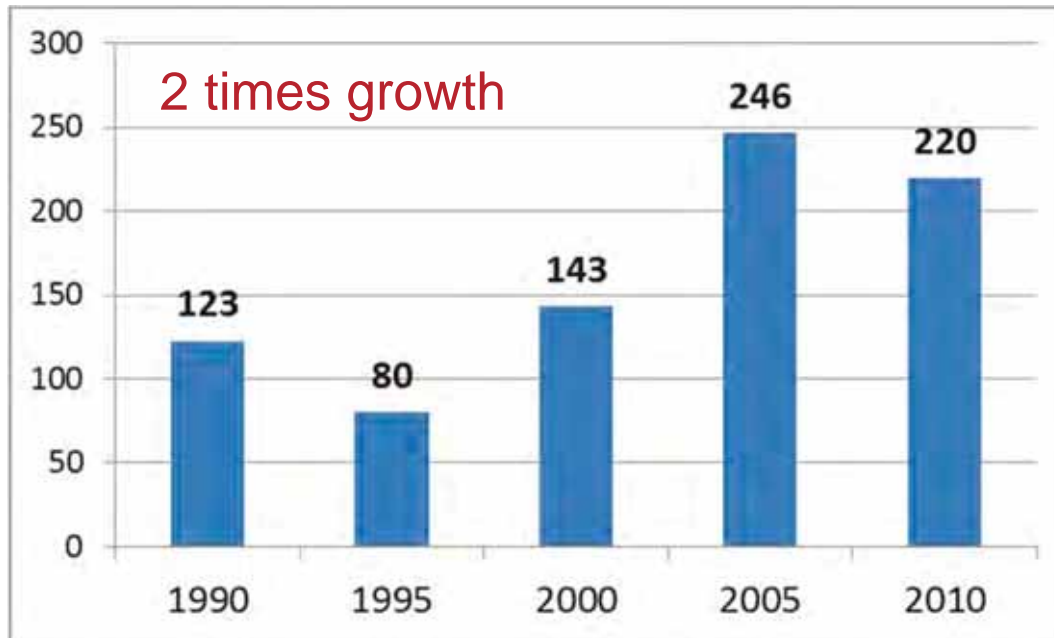
- ❖ **Supervision;**
- ❖ **General Design;**
- ❖ **Consulting and Engineering;**
- ❖ **Berths and Buildings Survey;**
- ❖ **Engineering Survey;**
- ❖ **Marketing Research, traffic forecasting;**
- ❖ **Logistic Strategy;**
- ❖ **Logistic Optimization;**
- ❖ **Feasibility Study**

## Plan

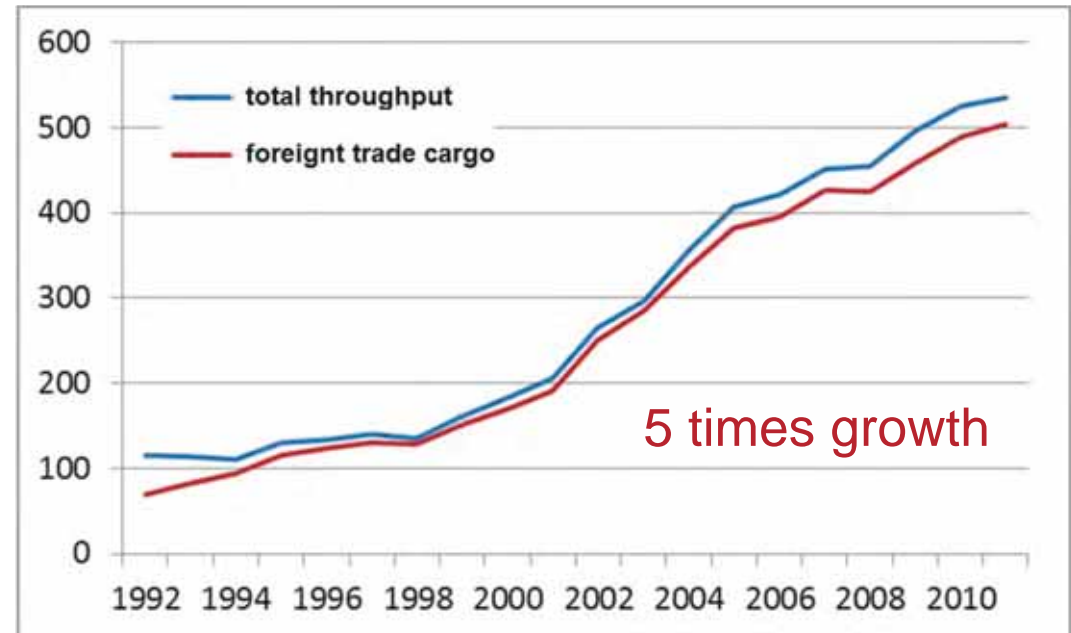
- Changes in Logistic and Infrastructure. Transformation of the Soviet Transport System
- «Renaissance» of Port Construction in 1990-2000. Growth Factors
- Review of Cargo Flows. Modal Split
- Russian Transport System Geography
- Baltic Sea. Throughput of the Baltic Sea Ports
  - *Main Development Projects 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



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



Dynamics of RAILWAY foreign trade cargo traffic to/from the Russian ports, mln. tons



Dynamics of the Russian ports throughput, mln. tons

**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....**

## «Renaissance» of Port Construction in 1990-2000. 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.

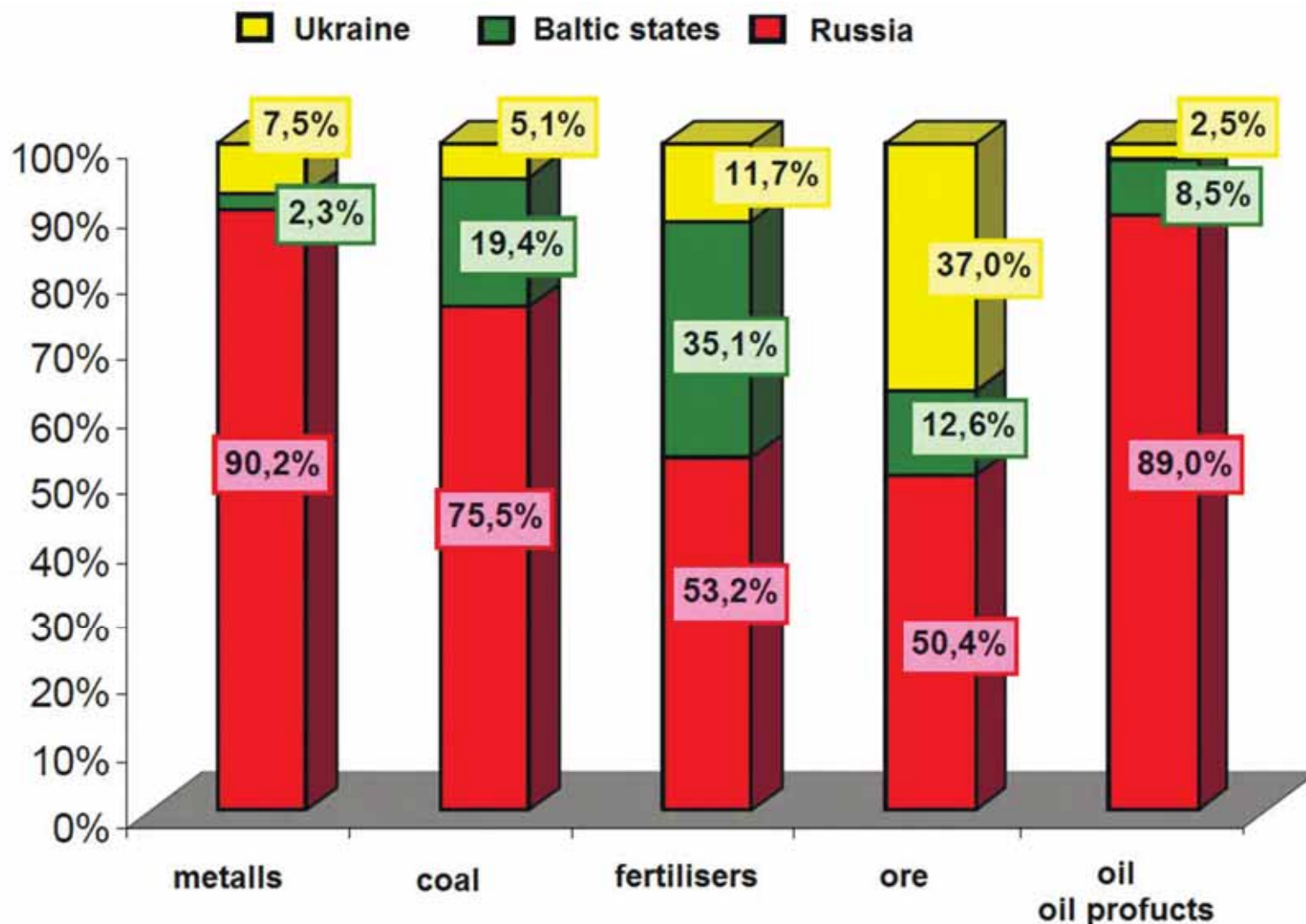
At the same time the growing foreign trade cargo flow gave stimulus for the growth of new terminals in Russia. New terminals have been built, existing terminals underwent reconstruction or have been “adjusted” for new cargo type.

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, Petrolport etc.), Novorossiysk (NUTEP, Novoroslesexport)
- Cars - St. Petersburg (Fishery Port, Third Stevedoring Company etc.)

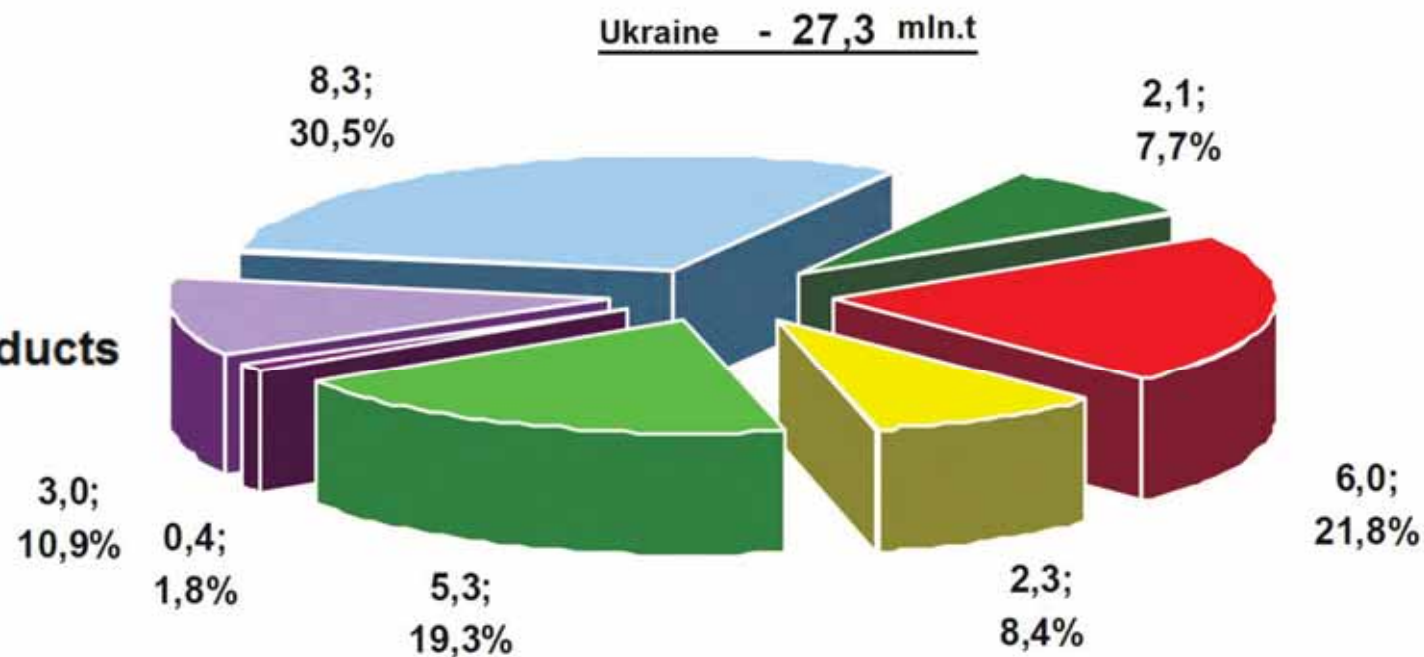
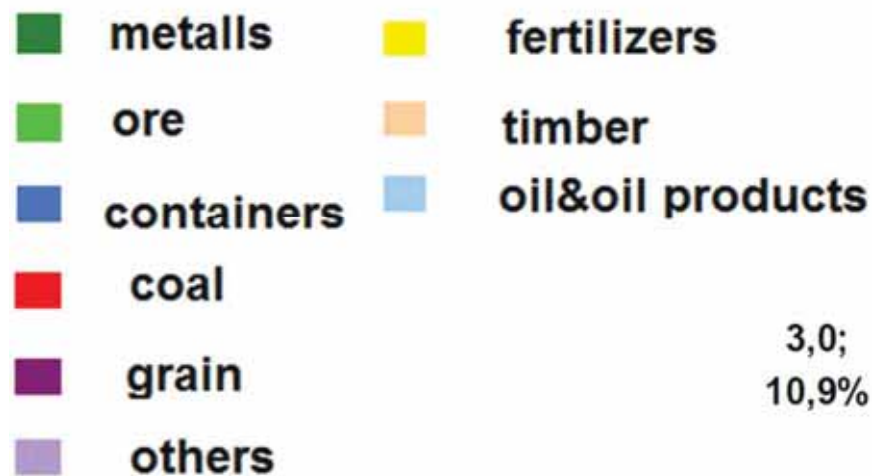
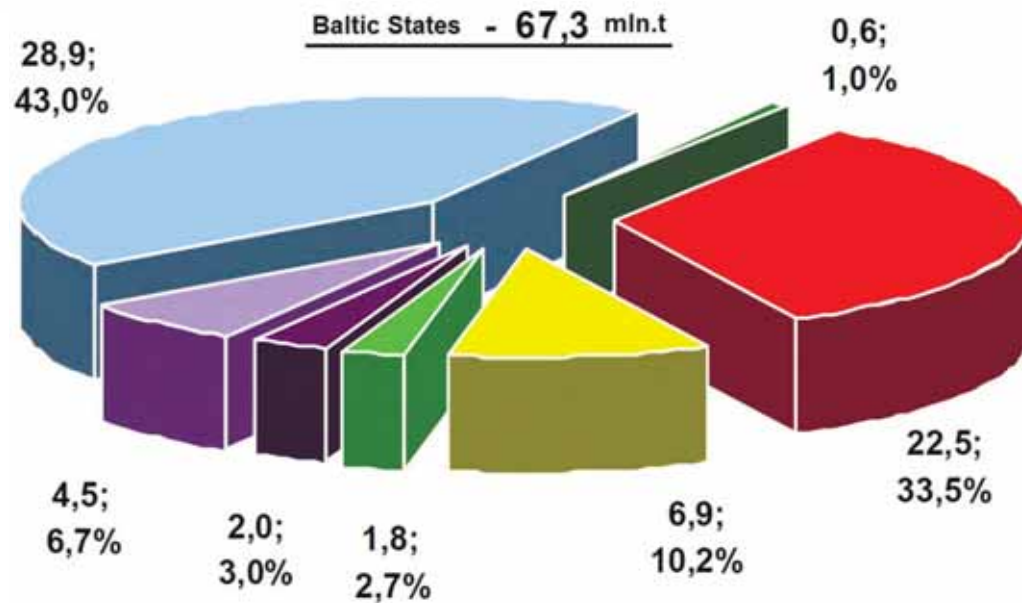
## Review of Cargo Flows

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



## Review of Cargo Flows

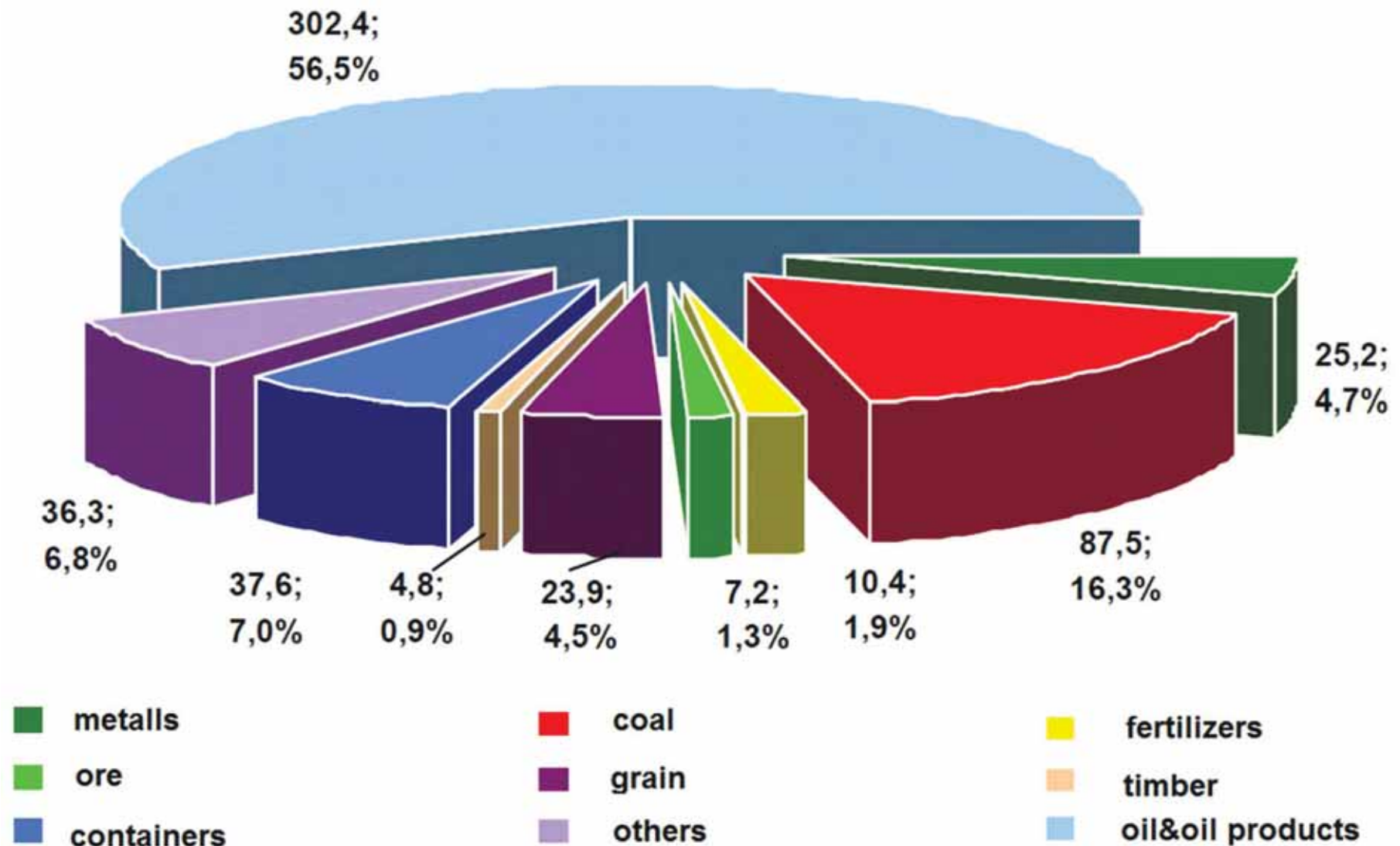
### *Transit of Russian foreign trade – split by type of cargo*



## Review of Cargo Flows

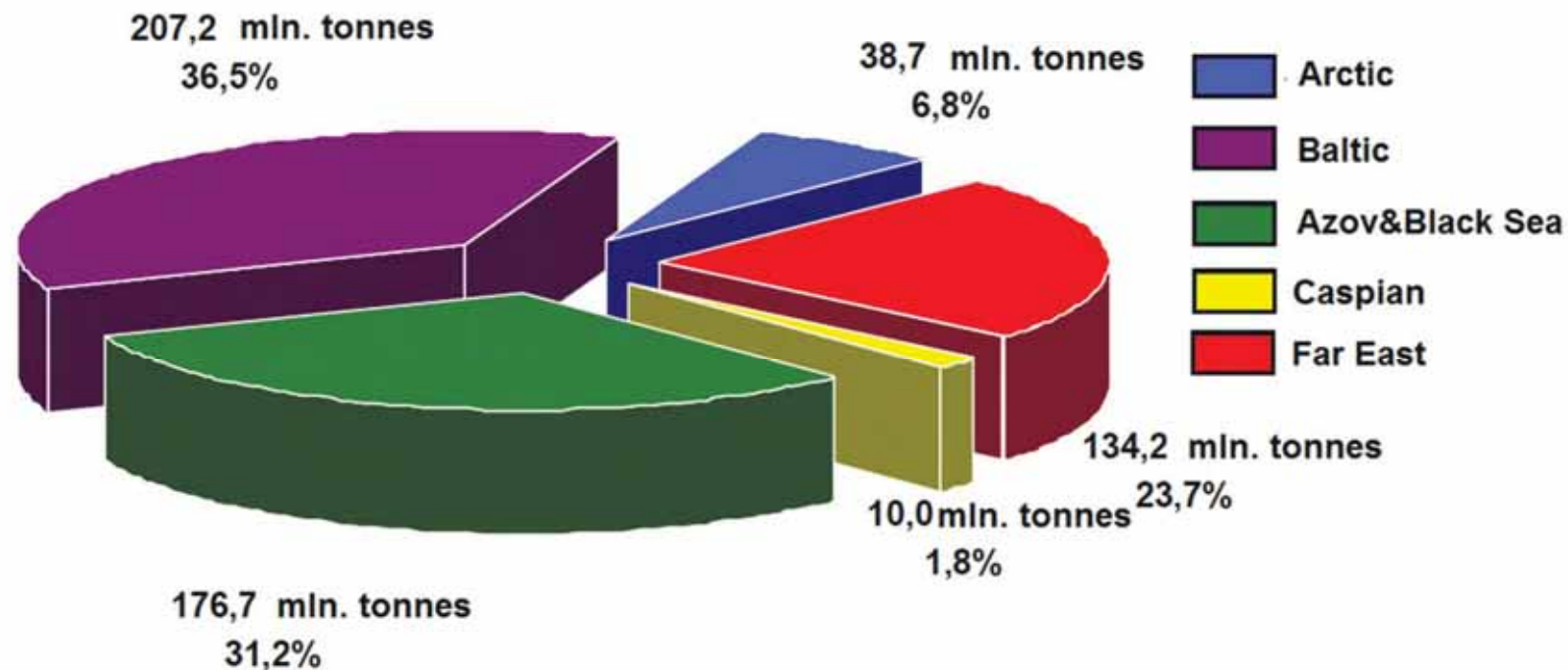
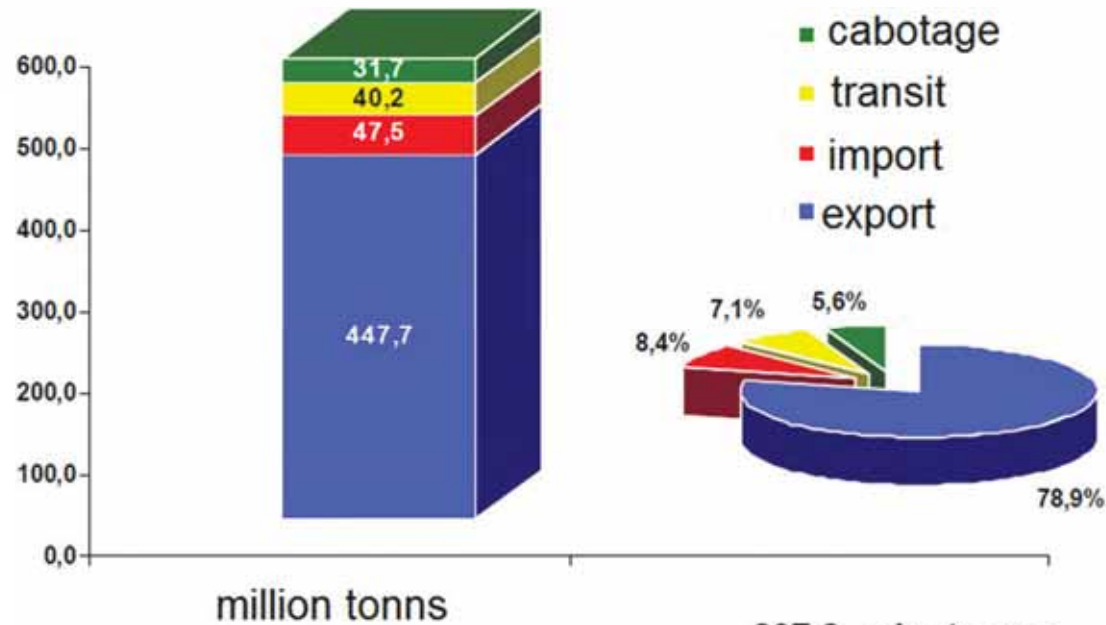
Structure of cargo flows by type of cargo in 2012

Total Russian ports - 535,3 mln.t



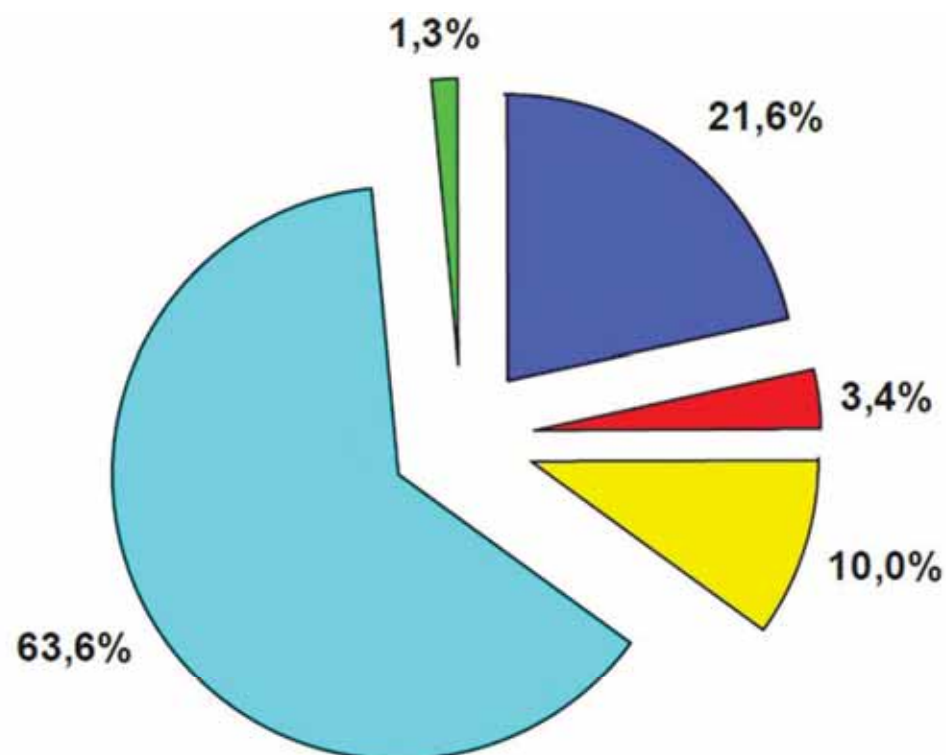


## Review of Cargo Flows

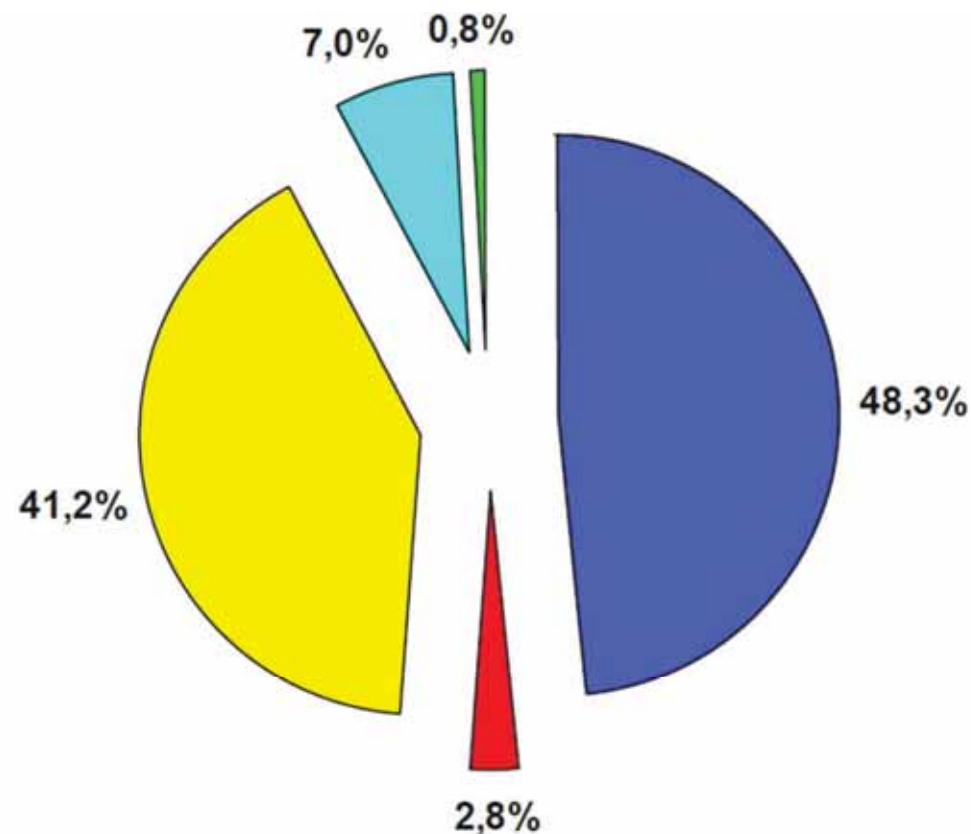


## Modal Split of Cargo Flows via Russian Ports

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

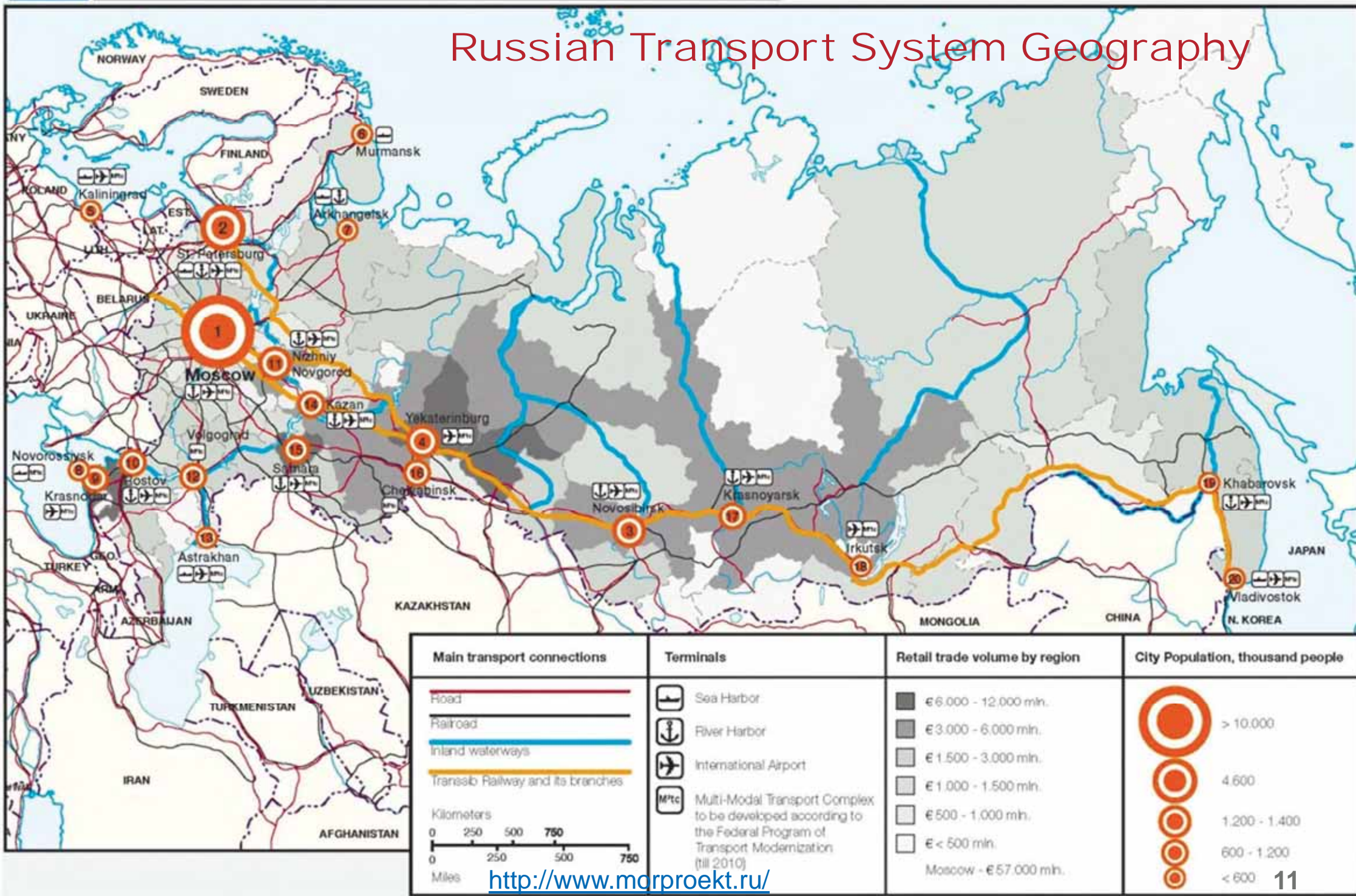


*Outgoing (from port to sea) cargo flows by transport mode*





# Russian Transport System Geography





## Russian Transport System Geography



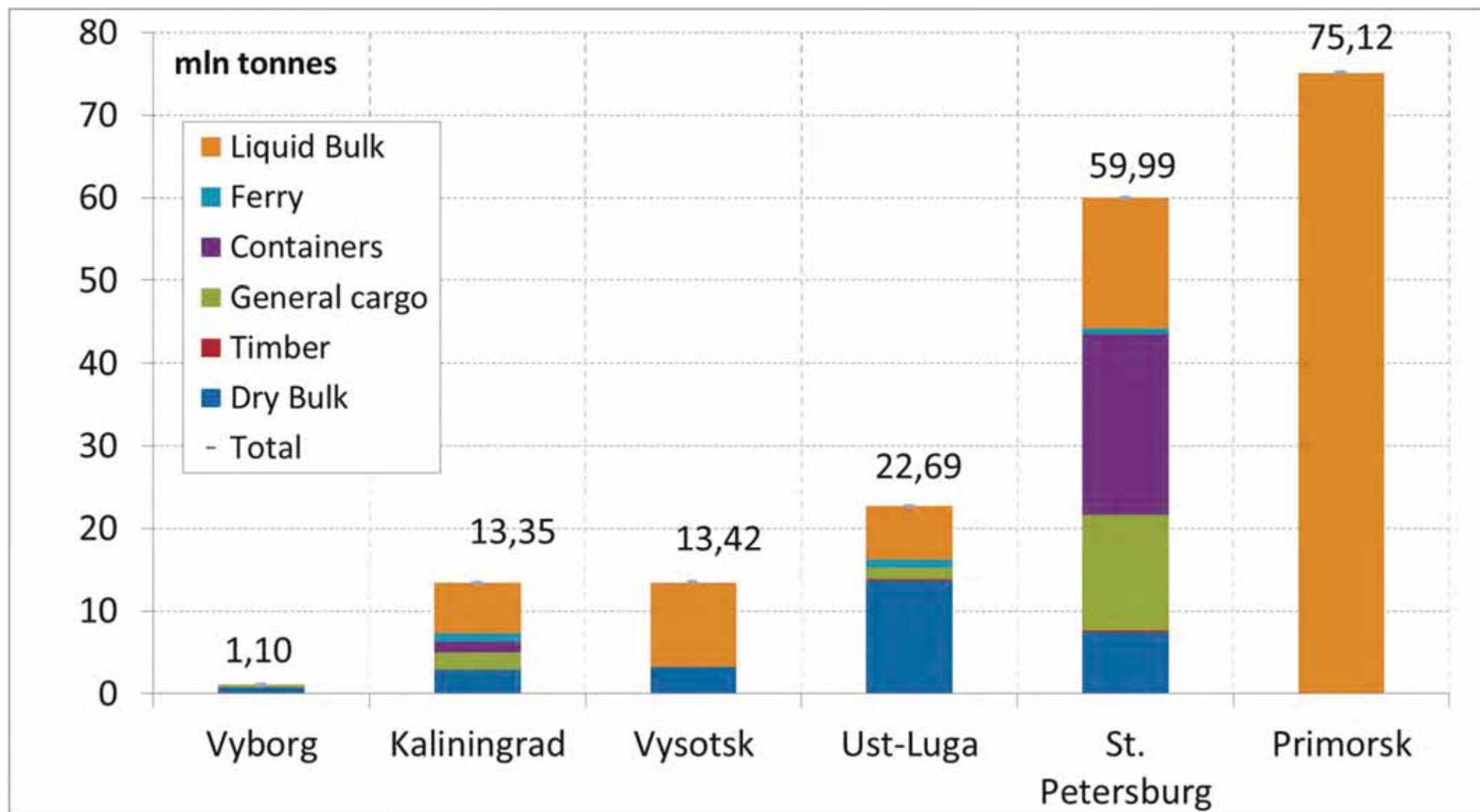


## Russian Transport System Geography – Baltic Sea



## Throughput of the Baltic Sea Ports

*Russian Ports of Baltic Sea in 2011, in mln tones*



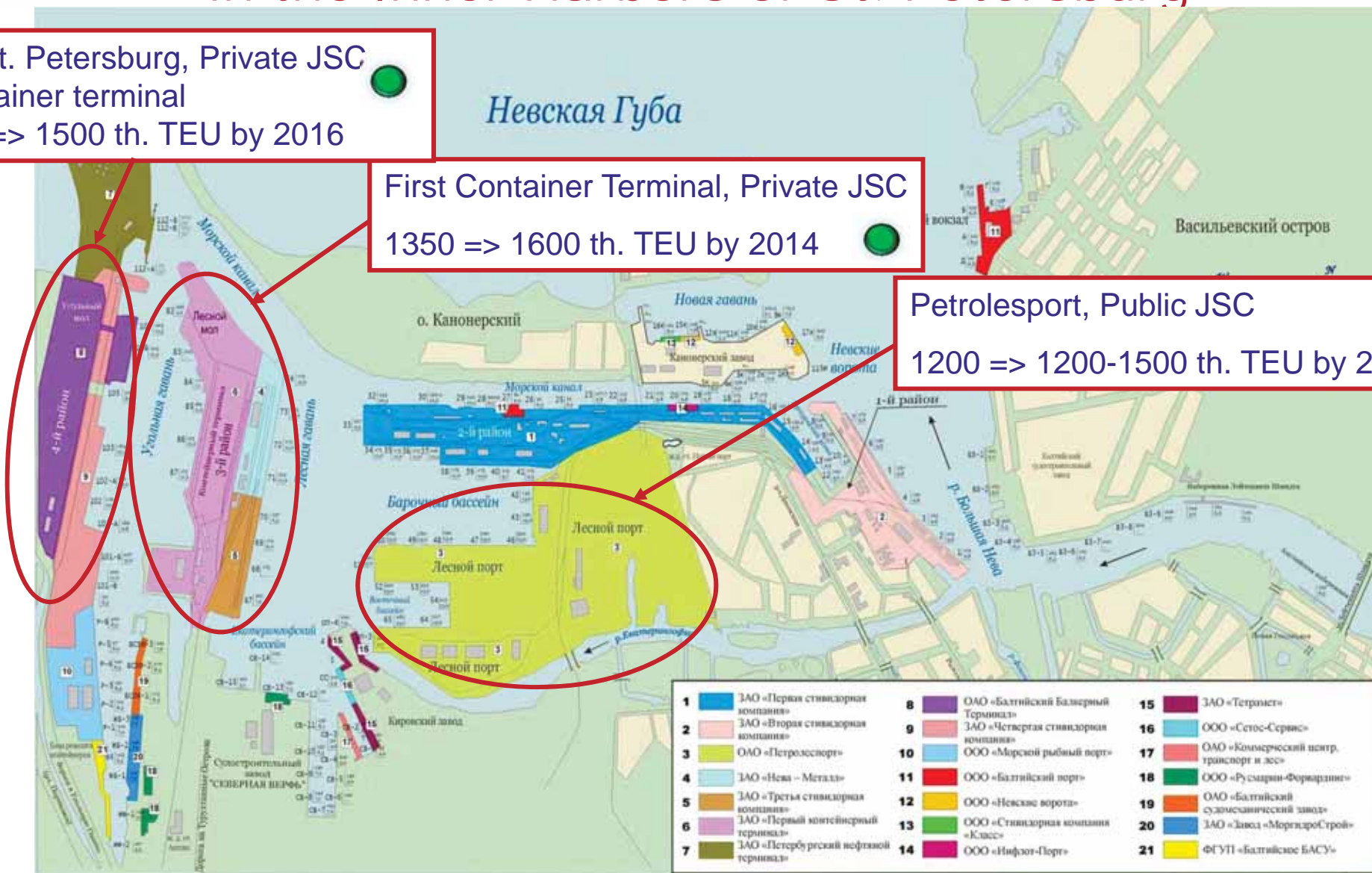


## Main Development Projects in the Inner Harbors of St. Petersburg

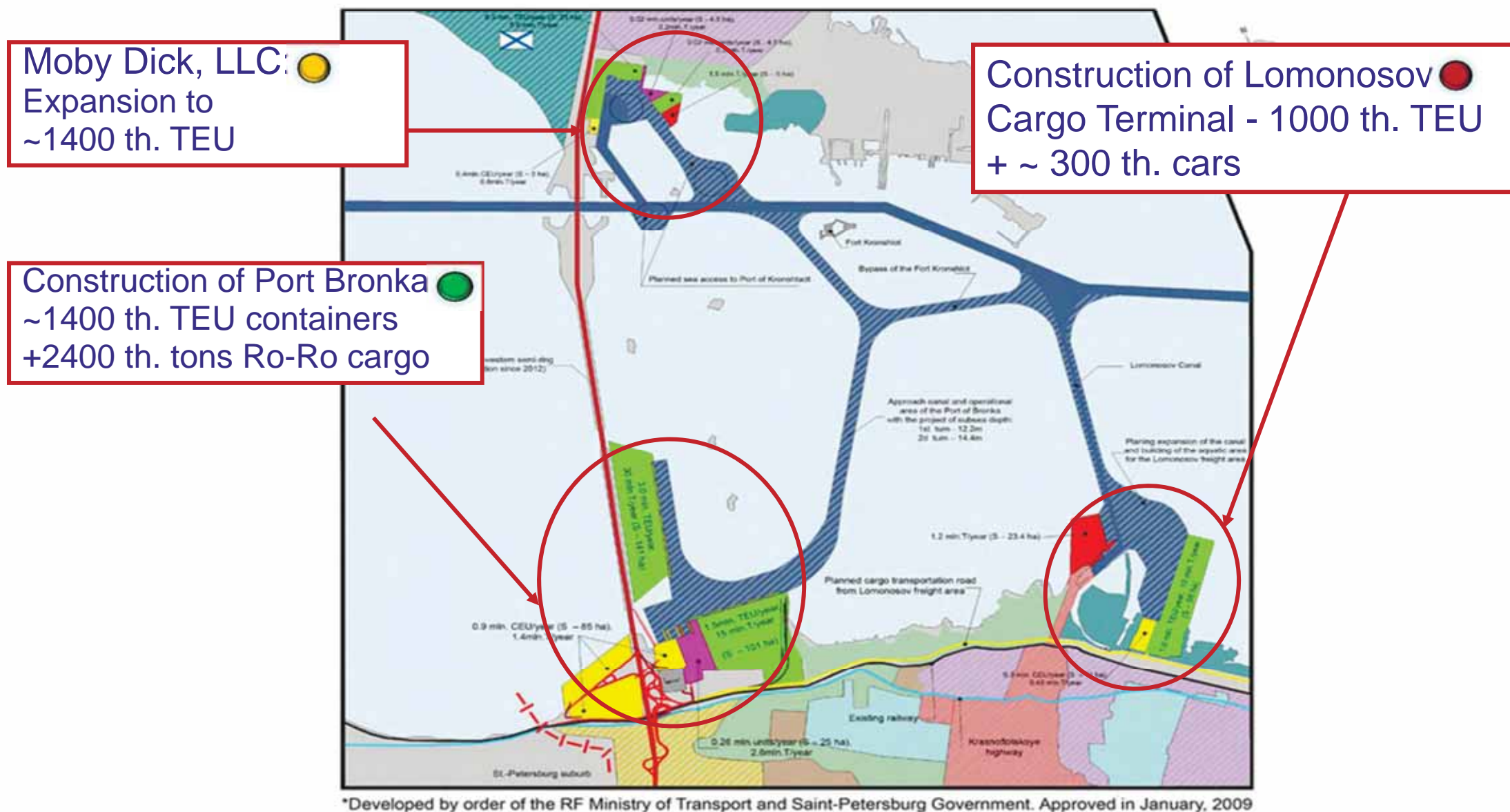
CT St. Petersburg, Private JSC  
Container terminal  
500 => 1500 th. TEU by 2016

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

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



# St. Petersburg Outer Ports Development Projects





## Port Ust-Luga

### Схема генерального плана Морского торгового порта Усть-Луга

#### ЭКСПЛИКАЦИЯ

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

- A** Административно-деловой центр  
**P** Ремонтно-строительная база  
 Железные дороги  
 Автодороги

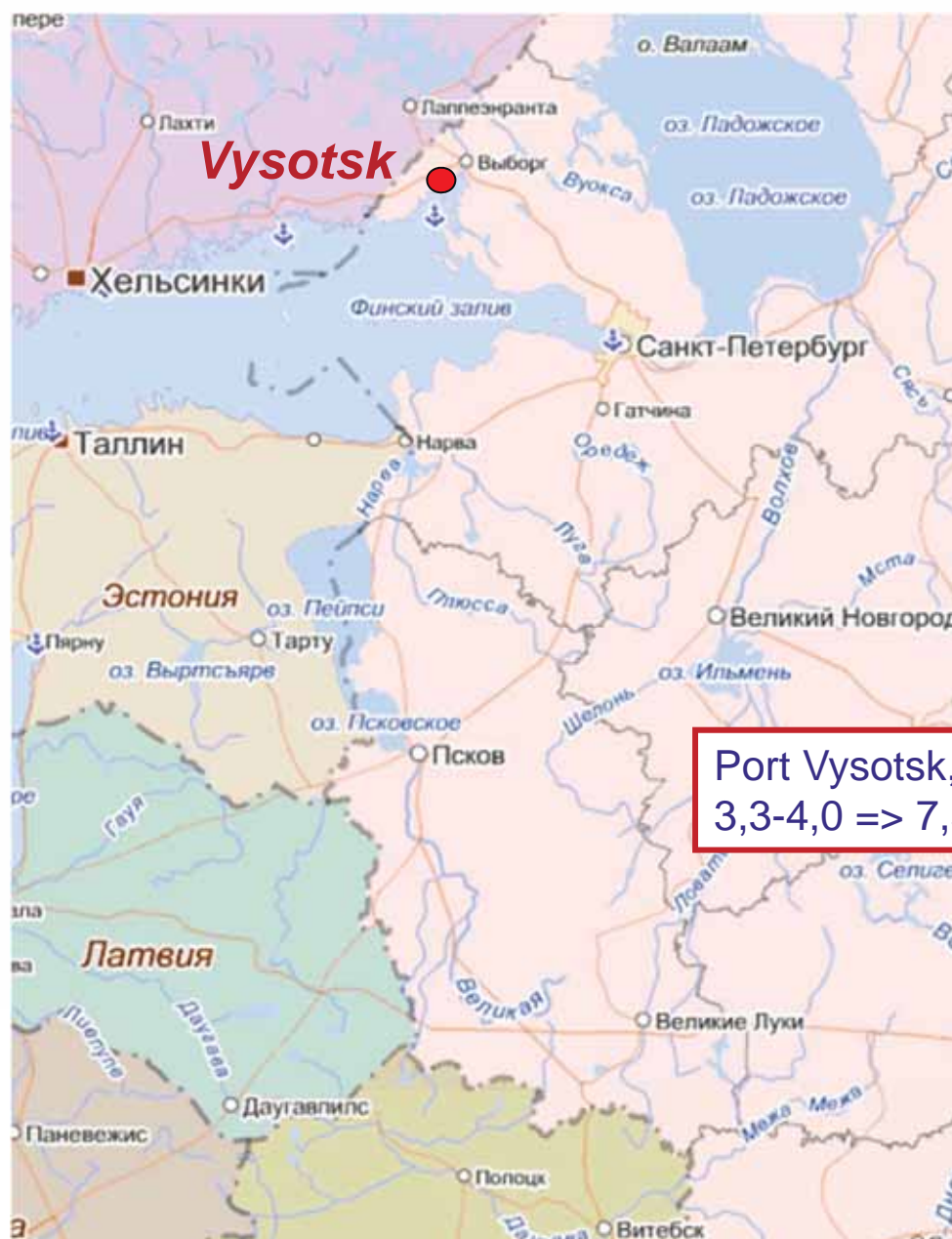
- 1** Энергоподстанция «ПОРТ» (1 очередь)  
**2** Энергоподстанция «ПОРТ» (2 очередь)  
**3** Энергоподстанция «СЕВЕР» (1 очередь)  
**4** Энергоподстанция «СЕВЕР» (2 очередь)

- ★ Действующие комплексы  
 ★ Планируемые к вводу в 2012 году





## Port Vysotsk

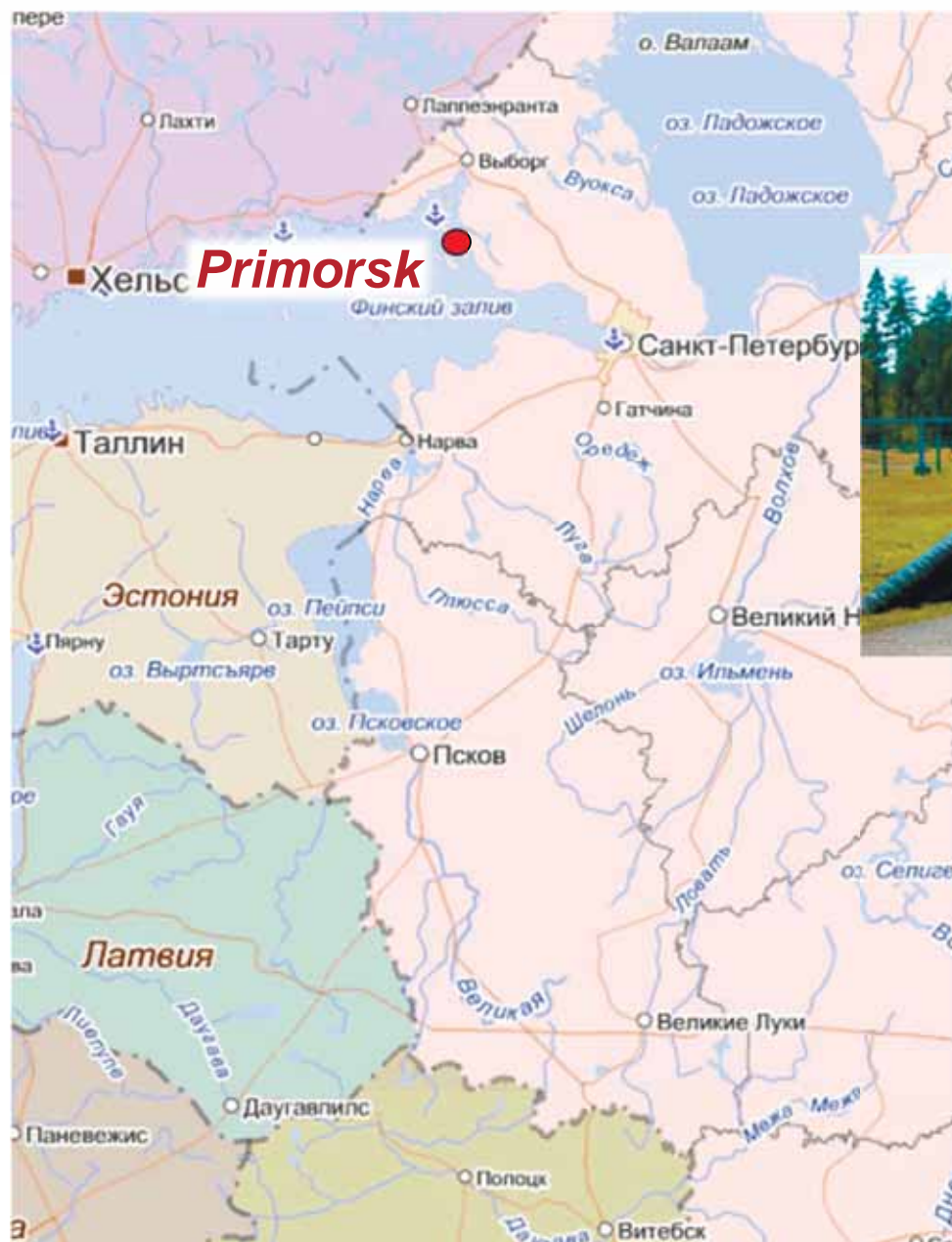


Port Vysotsk, LLC Coal terminal  
3,3-4,0 => 7,5 mln.tons by ~2014

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



## Port Primorsk



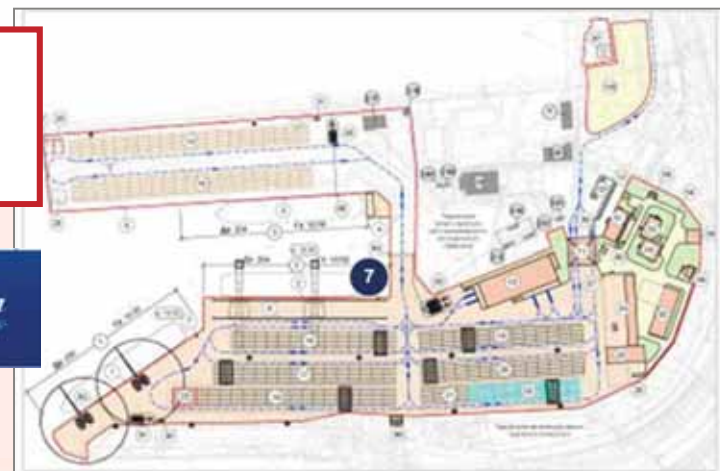
Spezmornefteport Primorsk,  
oil terminal built in 2001  
Capacity: 70 mln. tons oil,  
8 mln. tons oil products





# 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

## Существующие мощности

- 1 - Морской терминал
- 2 - Складской терминал
- 3 - Производственный комплекс
- 4 - Хранилище тугоплавких и растительных масел

## Перспектива (2012-13)

- 5 - Силоша, вместимость 160 000 т
- 6 - Складские мощности 184 000 т
- 7 - Хранилище растительных масел 30 600 м<sup>3</sup>
- 8 - Производственный комплекс
- 9 - Причал №5, глубина 10,5 м
- 10 - Причал №8,9, глубина 10,5 м



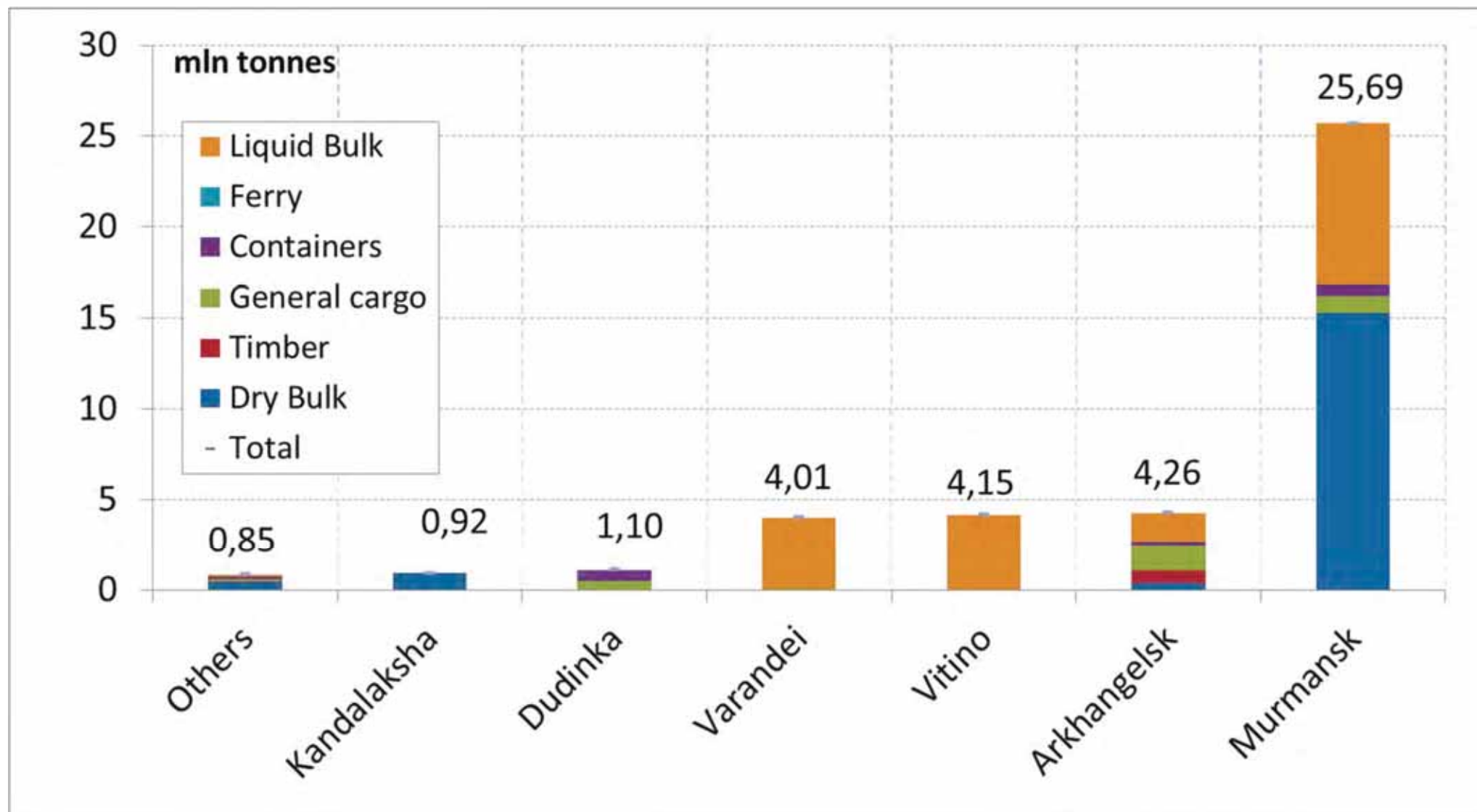


# Russian Transport System Geography - Arctic



## Throughput of the Arctic Ports

*Russian Ports of Arctic basin in 2011, in mln tones*



## 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;

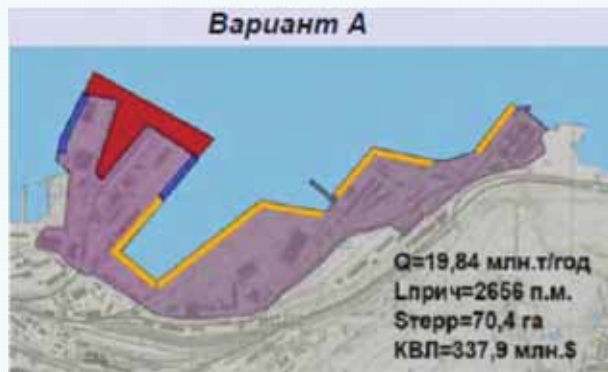
### **Port approaches:**

- 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.



# Development of Sea Commercial Port Murmansk, Public JSC

## I Phase



Minimal throughput  
Larger depths

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

## II Phase



Extension of port area  
Larger depths  
Dedicated coal complex

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

OR

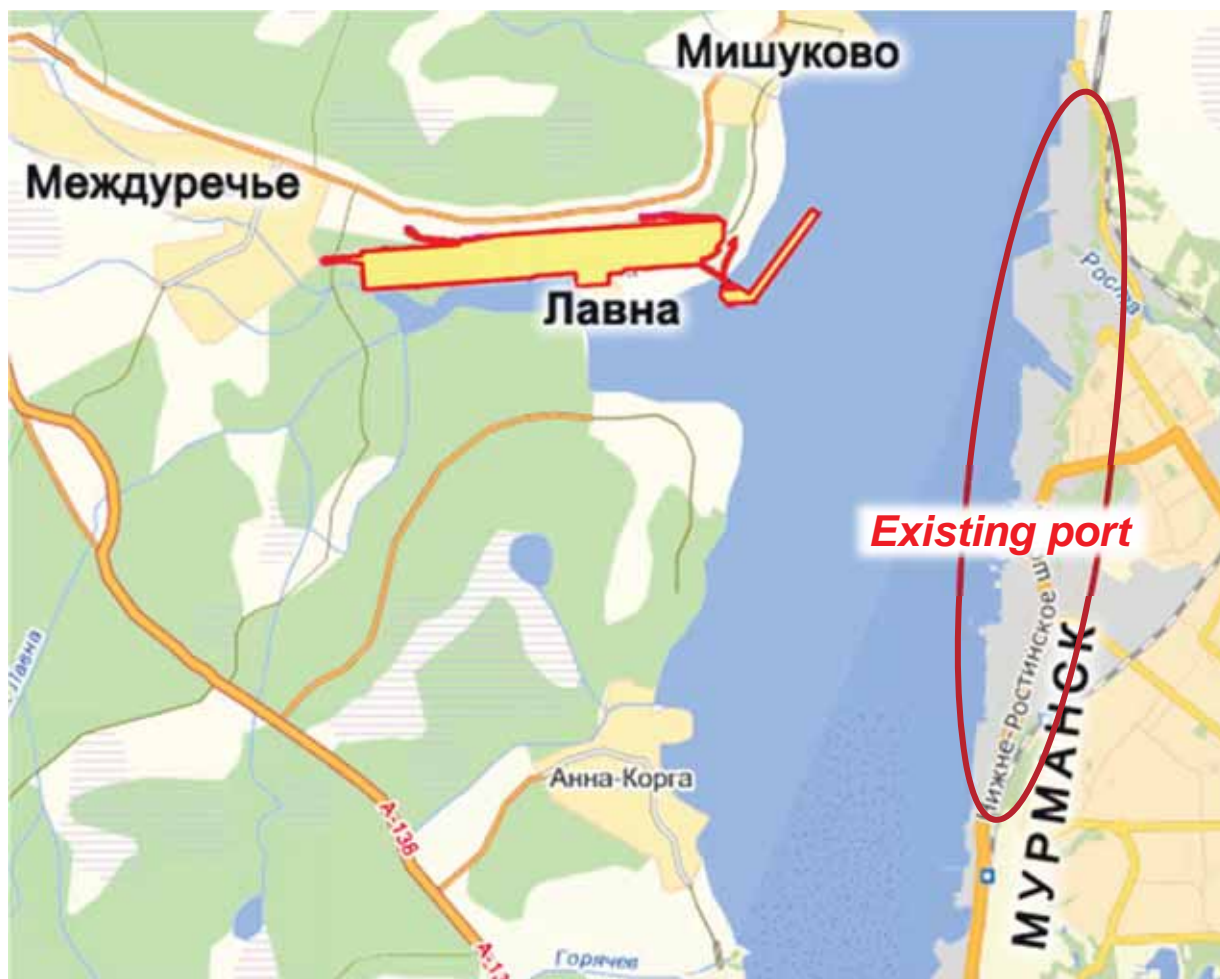


Within existing area  
Larger depths  
Coal – universal technology (В)  
Coal - dedicated complex (Г)



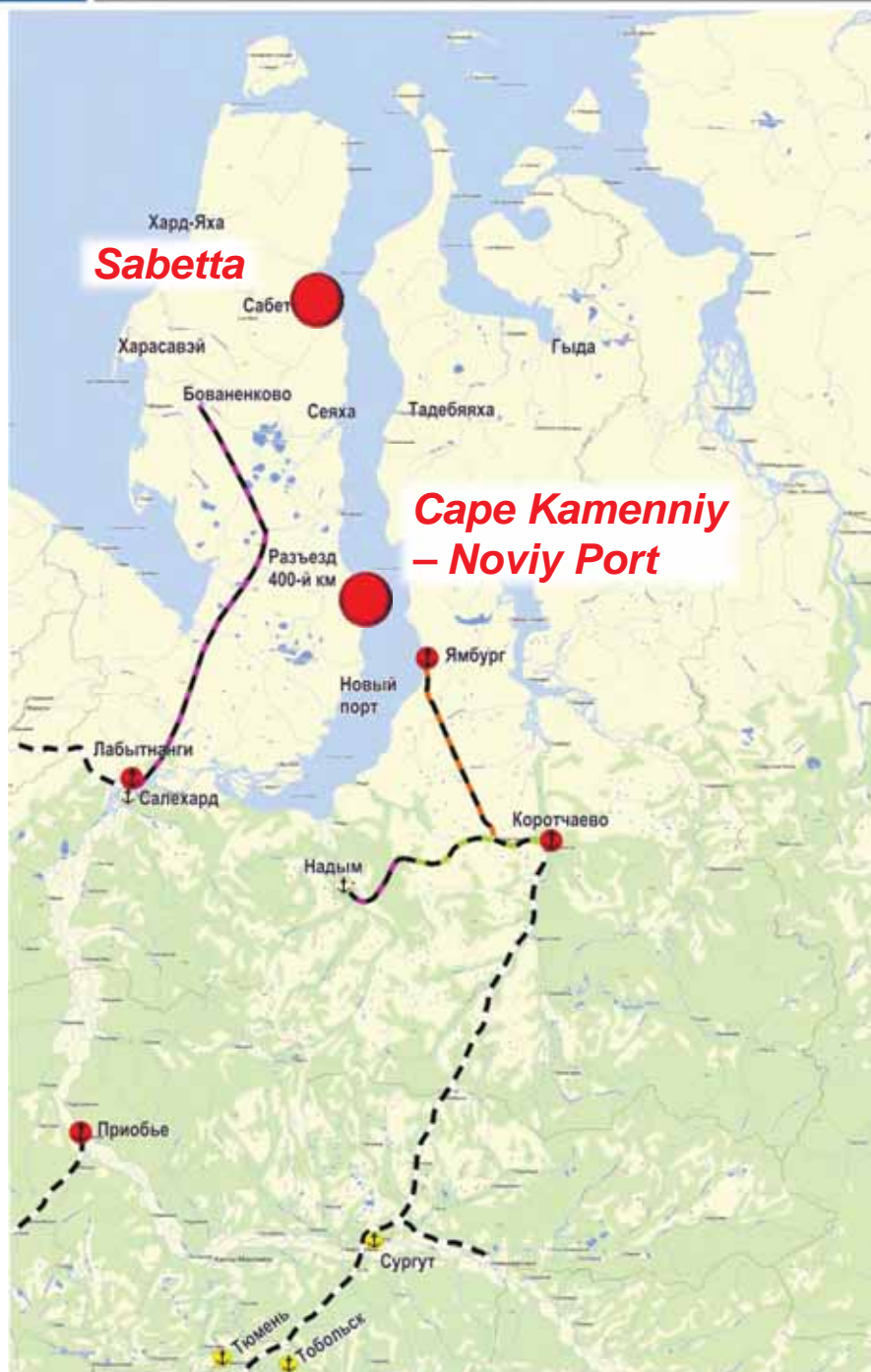
## Sea Commercial Port Lavna, LLC

- 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:*

- 1<sup>st</sup> phase – 6 mln. tons – end of 2015
- 2<sup>nd</sup> phase – 12 mln. tons – 2018
- 3<sup>rd</sup> 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



## 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

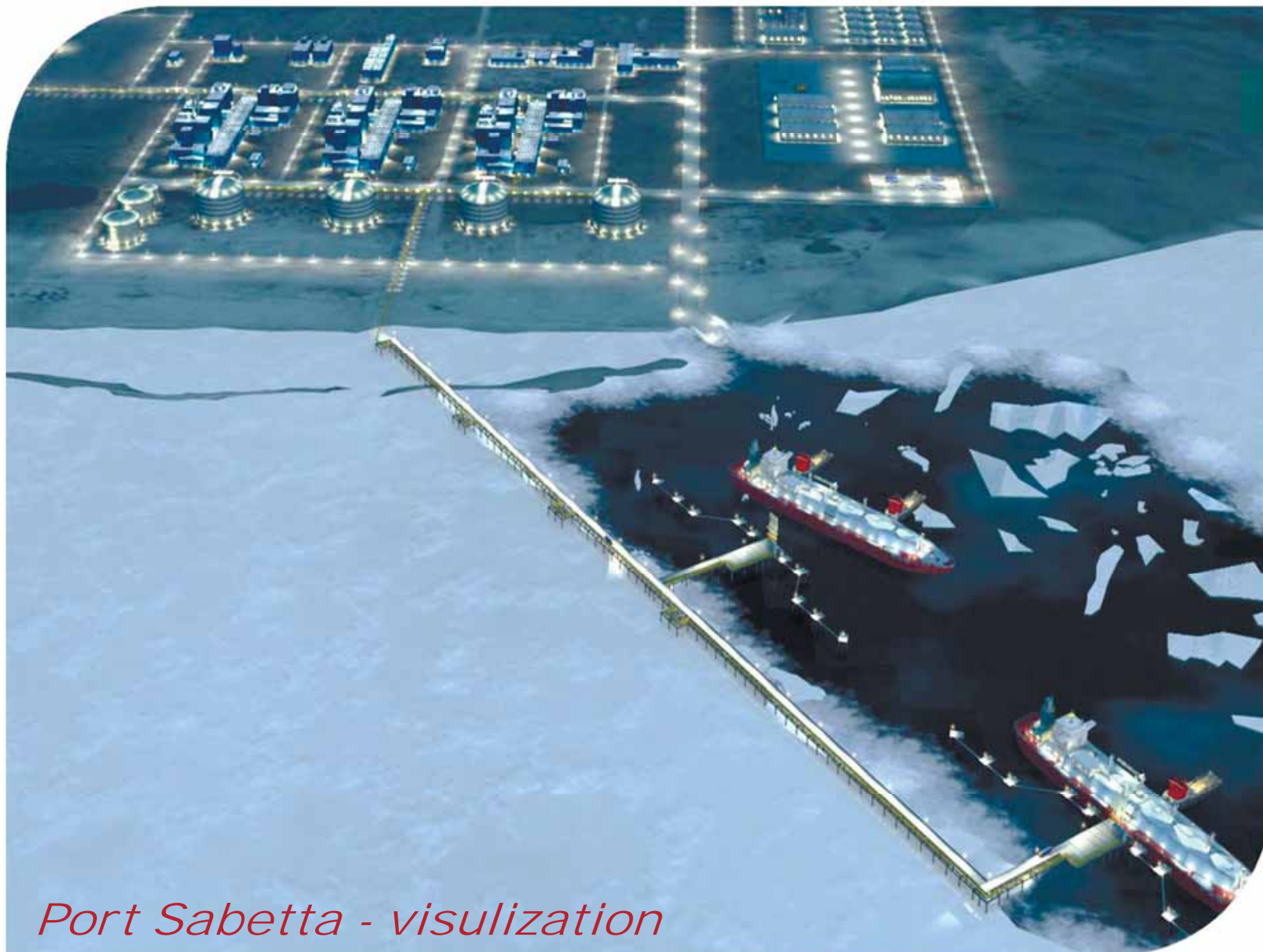
Dredging of sea area and approach channel – 25 mln m<sup>3</sup>

Berths for construction materials cargo – 1430 m

Berths for gas tankers – 804 m

Port area – 59 ha





*Port Sabetta - visulization*

## Terminal at Cape Kamenny – Branch of Sabetta Port

*Oil field Noviy Port*



*Tower-type terminal – example: De-Kastri*



*Tower-type terminal – example: Varandei*



**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

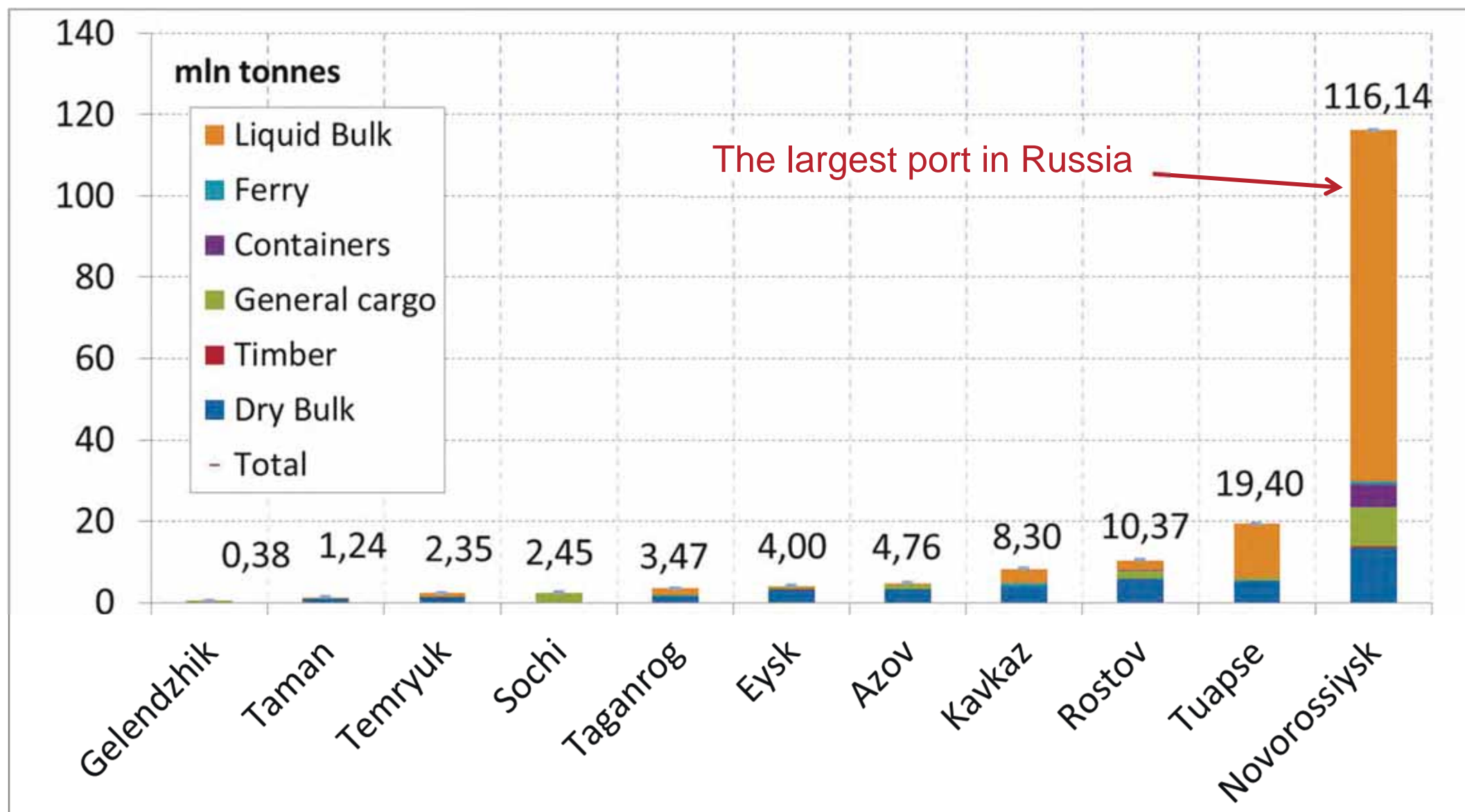


# Russian Transport System Geography – Black and Azov Seas




# Throughput of the Black and Azov Seas Ports

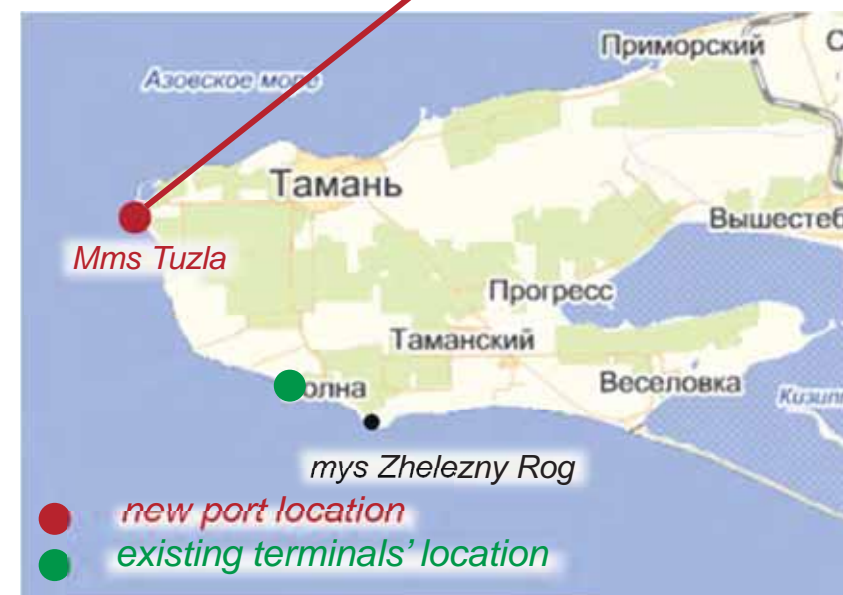
*Russian Ports of Black Sea in 2011, in mln tones*













# Port Taman

- Federal Target Program «Development of the Russian Transport System (2010-2015)
  - 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
- 
- An aerial photograph of a port or industrial area. The image shows a large body of water on the left, with a curved shoreline. The land area is divided into several colored zones: a large purple area, a green area, and a yellow/orange area. There are also some smaller blue and red areas. The map includes a scale bar and a north arrow in the top left corner.



## Potential Investors of Port Taman

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



## Port Taman - Vizualization



## Port Novorossiysk

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



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



NUTEP, Public JSC  
Container terminal  
350 => 600 th. TEU by 2015 r.

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



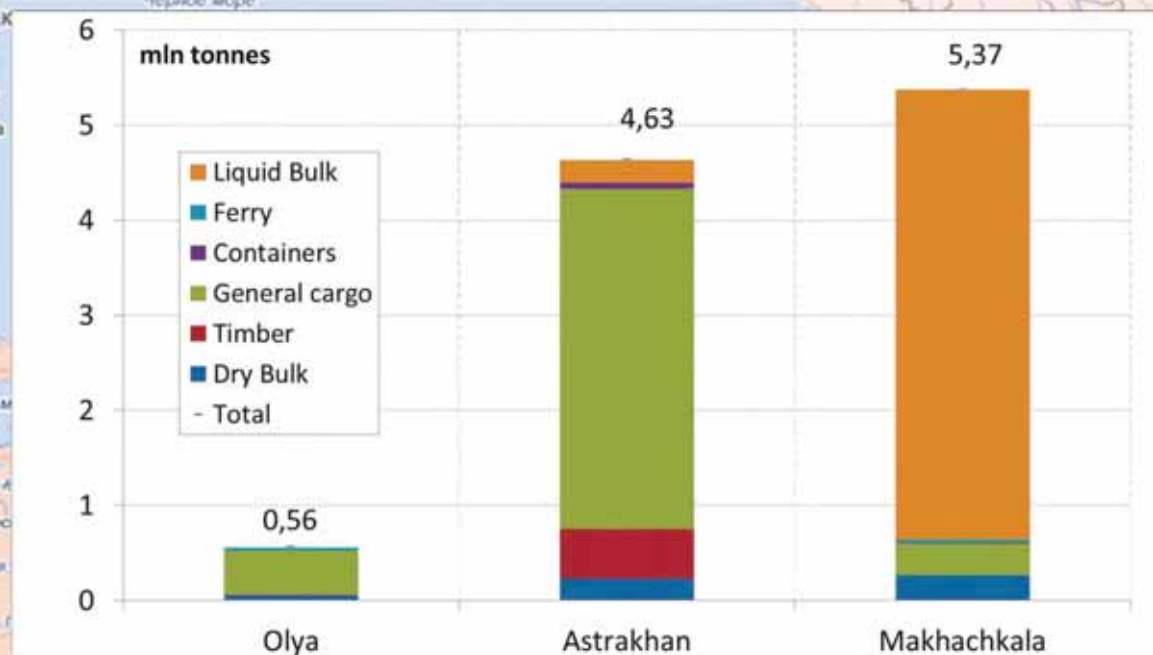
NSCP, Public JSC, construction of dry  
bulk terminal (fertilizer/coal/ore)  
Capacity 12 mln t by 2016 (or later)



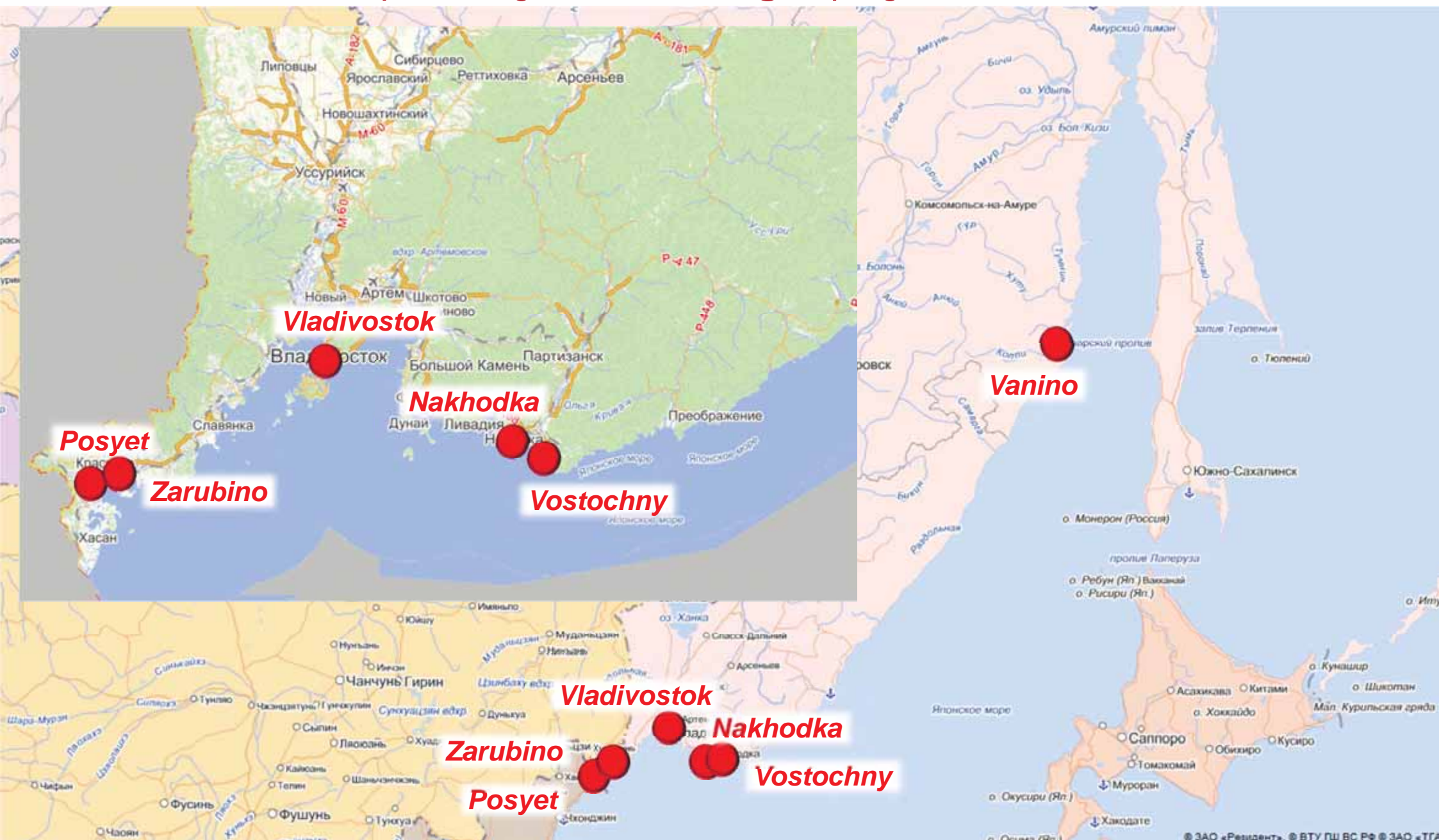


# Russian Transport System Geography – Caspian Sea

*Russian Ports of Caspian basin in 2011, in mln tones*



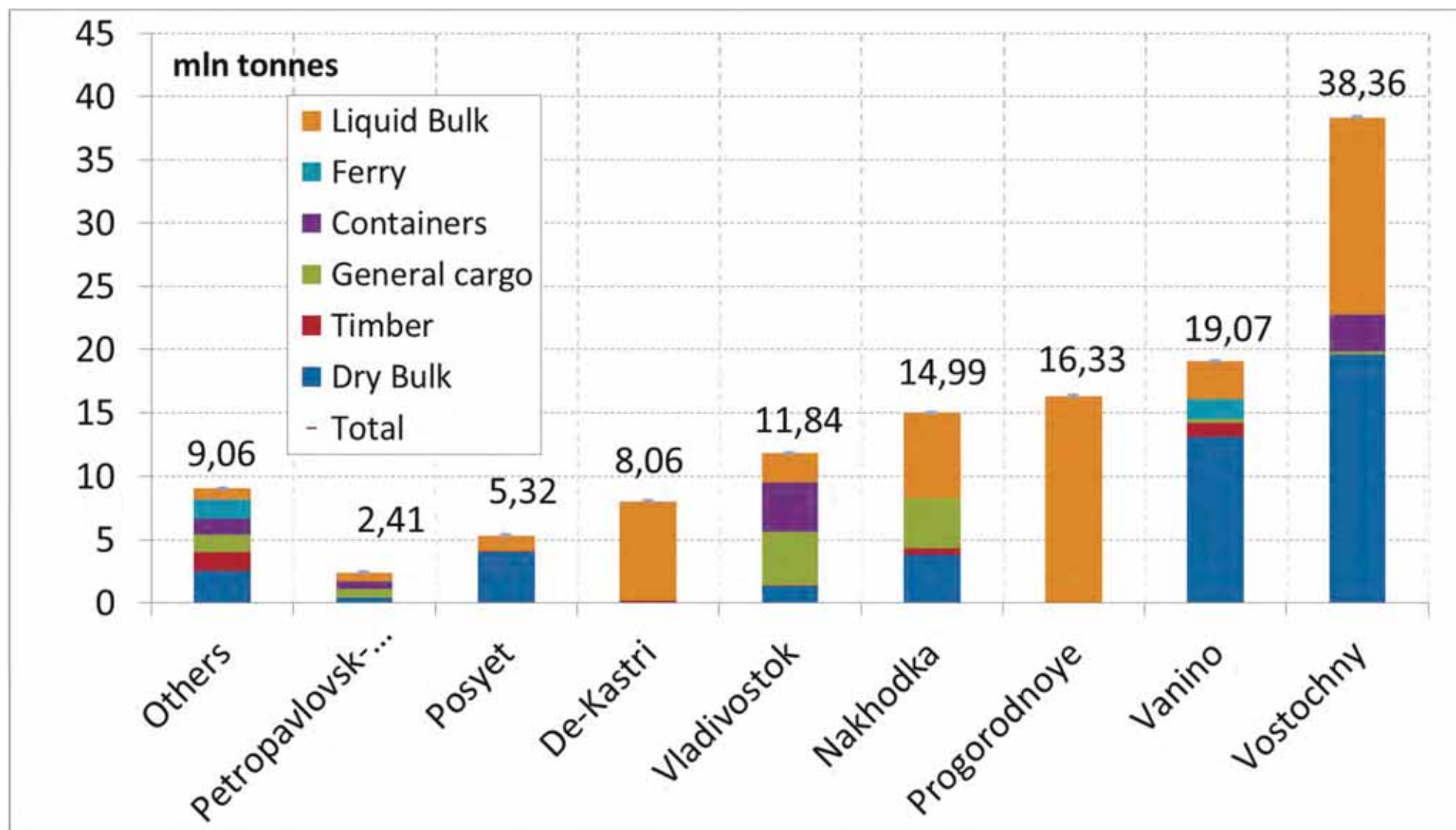
# Russian Transport System Geography – Far Eastern Ports



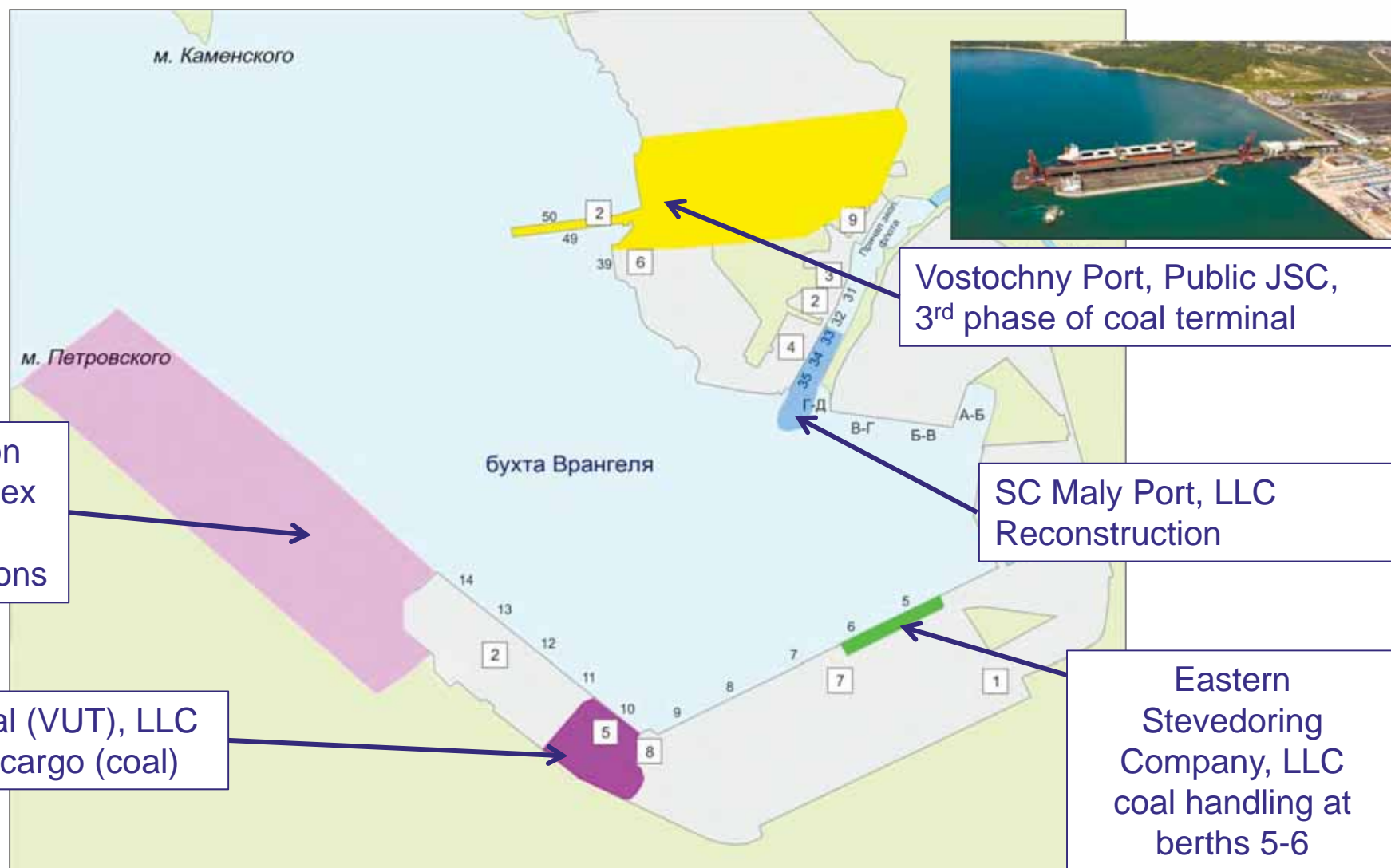


## Throughput of the Far Eastern Ports

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



## Coal terminals - Vostochny



**Terminal development depends on railway approaches capacity**



## Coal Terminals - Vanino



### Port Mechel – Vanino, LLC

Construction

Capacity 5-15-25 mln tons  
(2014-2017-2020)

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**

## Other Coal Terminals Projects in the Far East



### **Posyet**

Commercial Port Posyet, Public JSC plans to expand 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)***

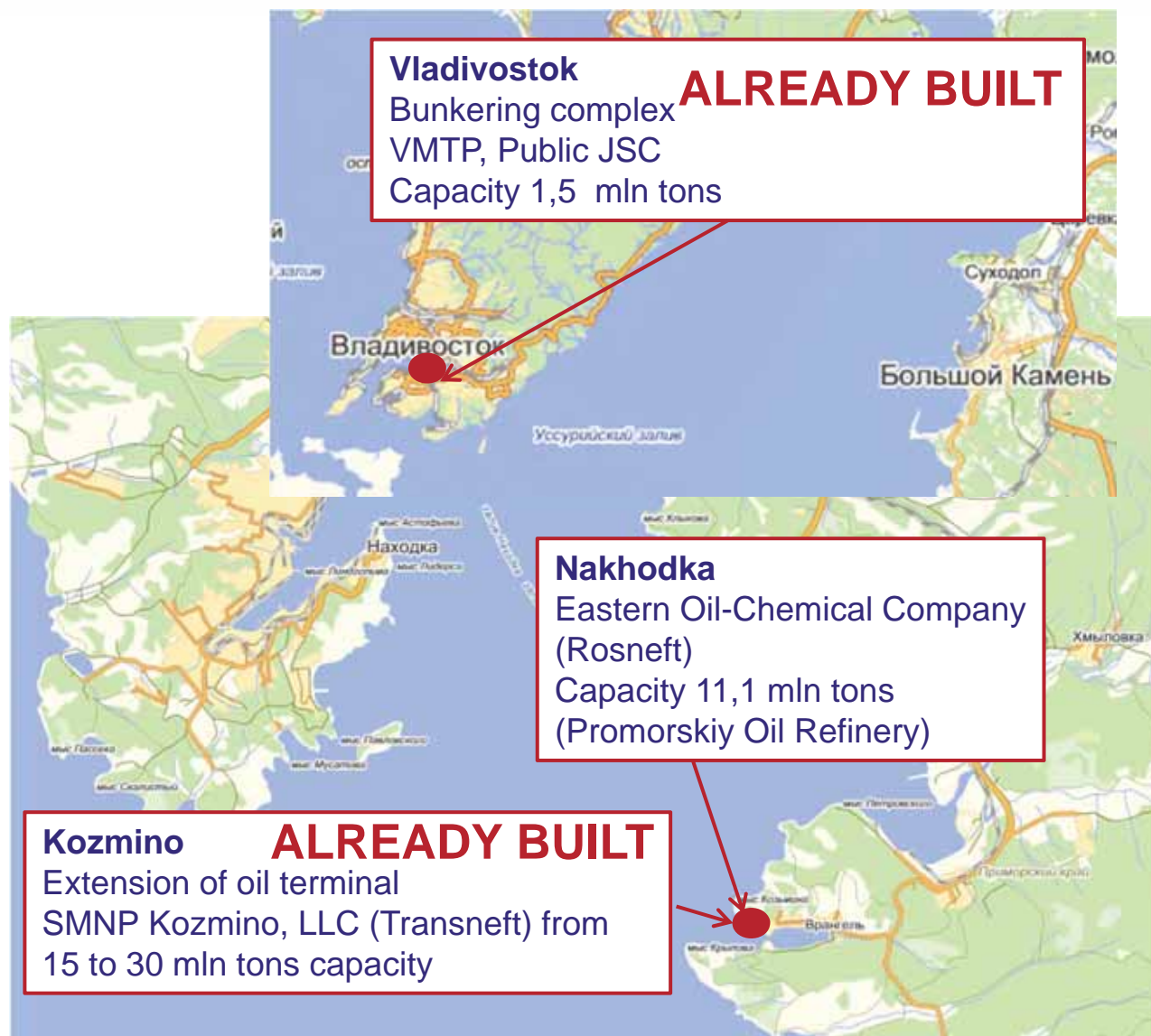
SDS holding - terminal might be built in Sukhodol bay, the project is under development.

### ***Location not defined***

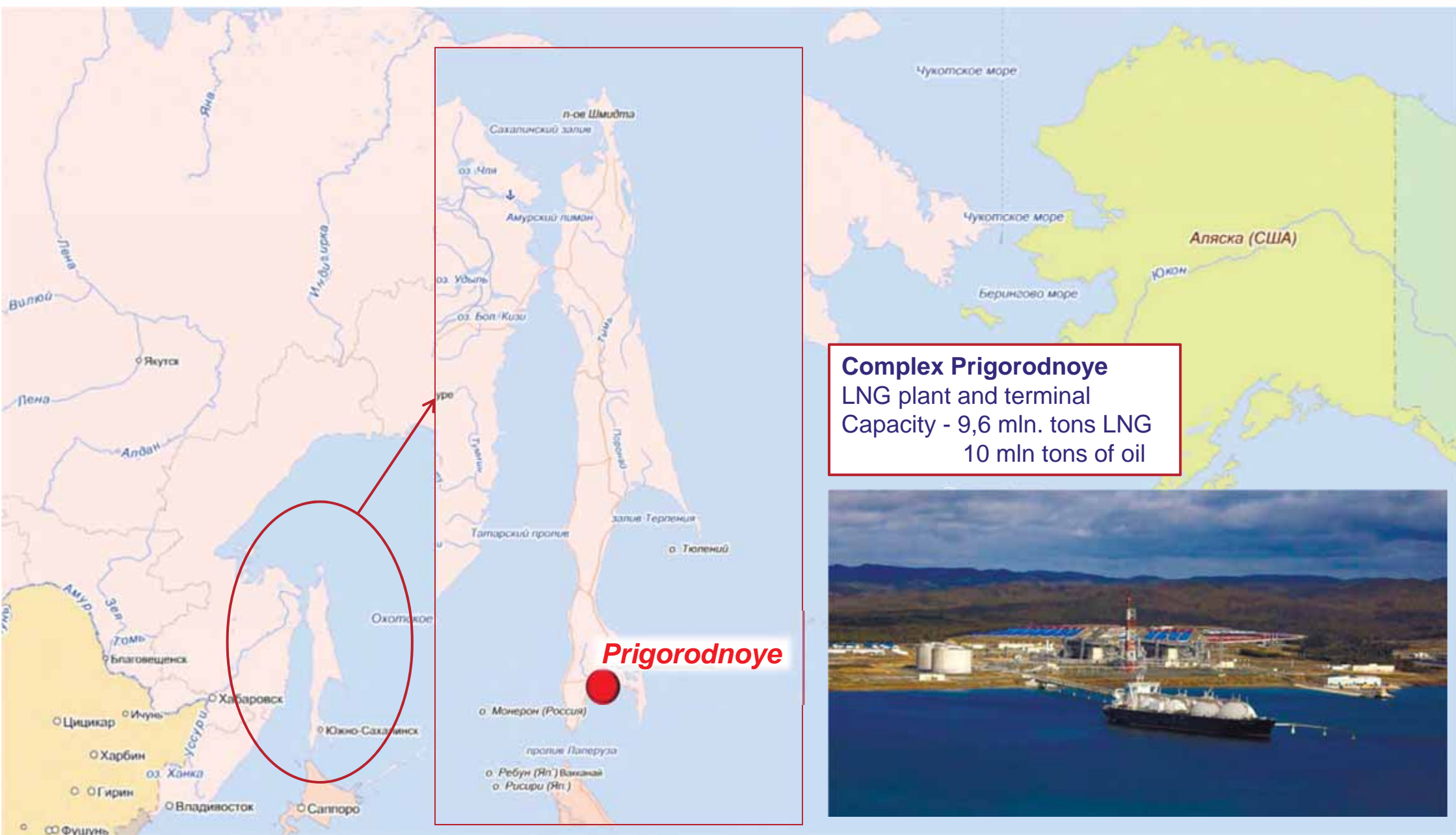
Federal State Unitary Enterprise VO Zarubezhugol plans to build coal terminal with 20 mln tons capacity in the Far East. Exact location is not identified yet, but it might be port Vostochny, Zarubino or Sukhodol bay. The idea of the terminal is that at the moment some small coal producers don't have 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.



## Oil and oil products terminals on the Far East of Russia



# Sakhalin Ports





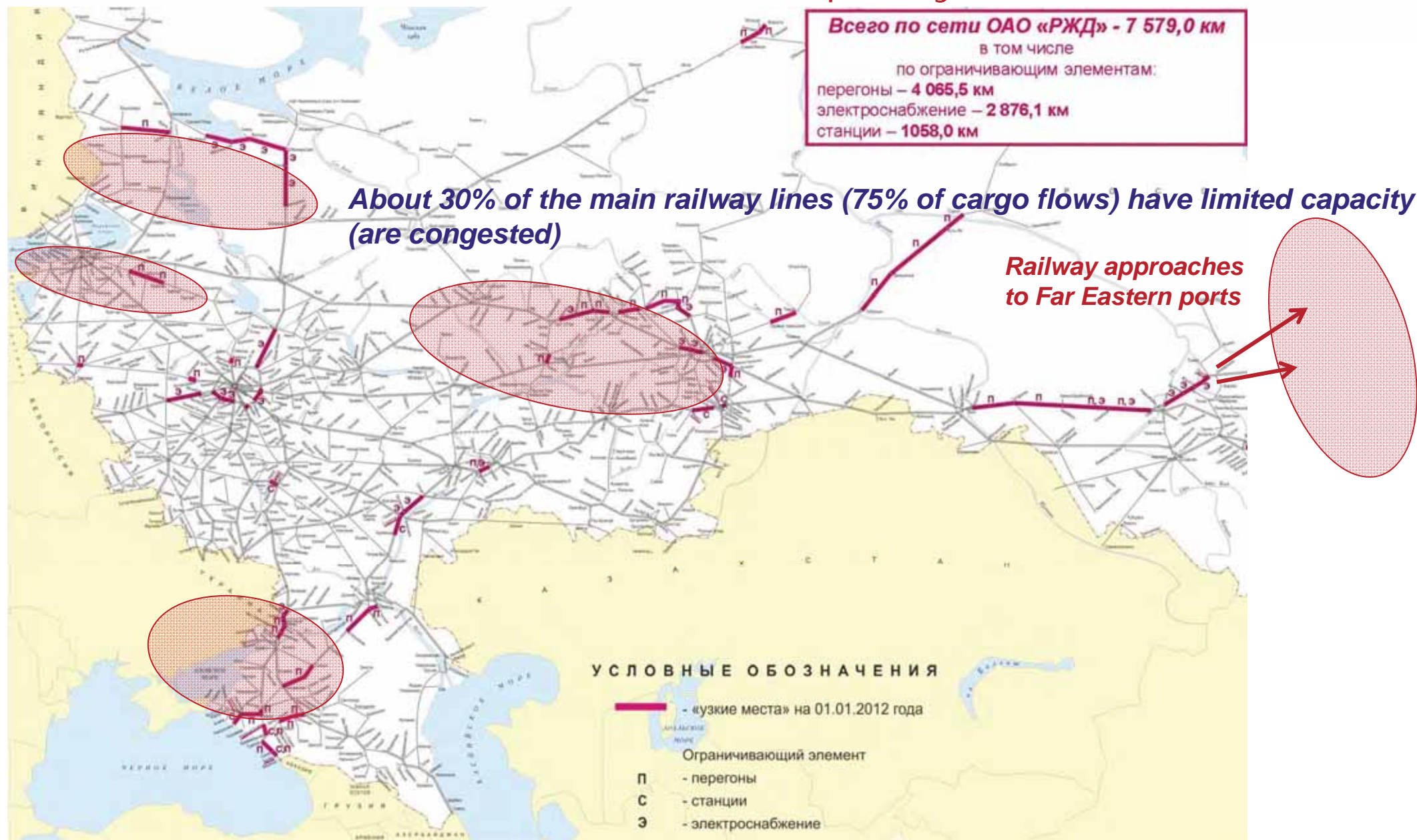
## Disproportion of sea port and railway infrastructure

*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.*

Indicator, in mln tons	Directions			Total
	Vanino-Sovgavan	Vostochny - Nakhodka	Posyet-Zarubino	
Railway capacity at port approaches growth by 2020	39,7	22,7	4,2	<b>66,6</b>
Growth of port terminals capacity	67,0-77,0	29,0-60,0	8,0-15,0	<b>104-152</b>

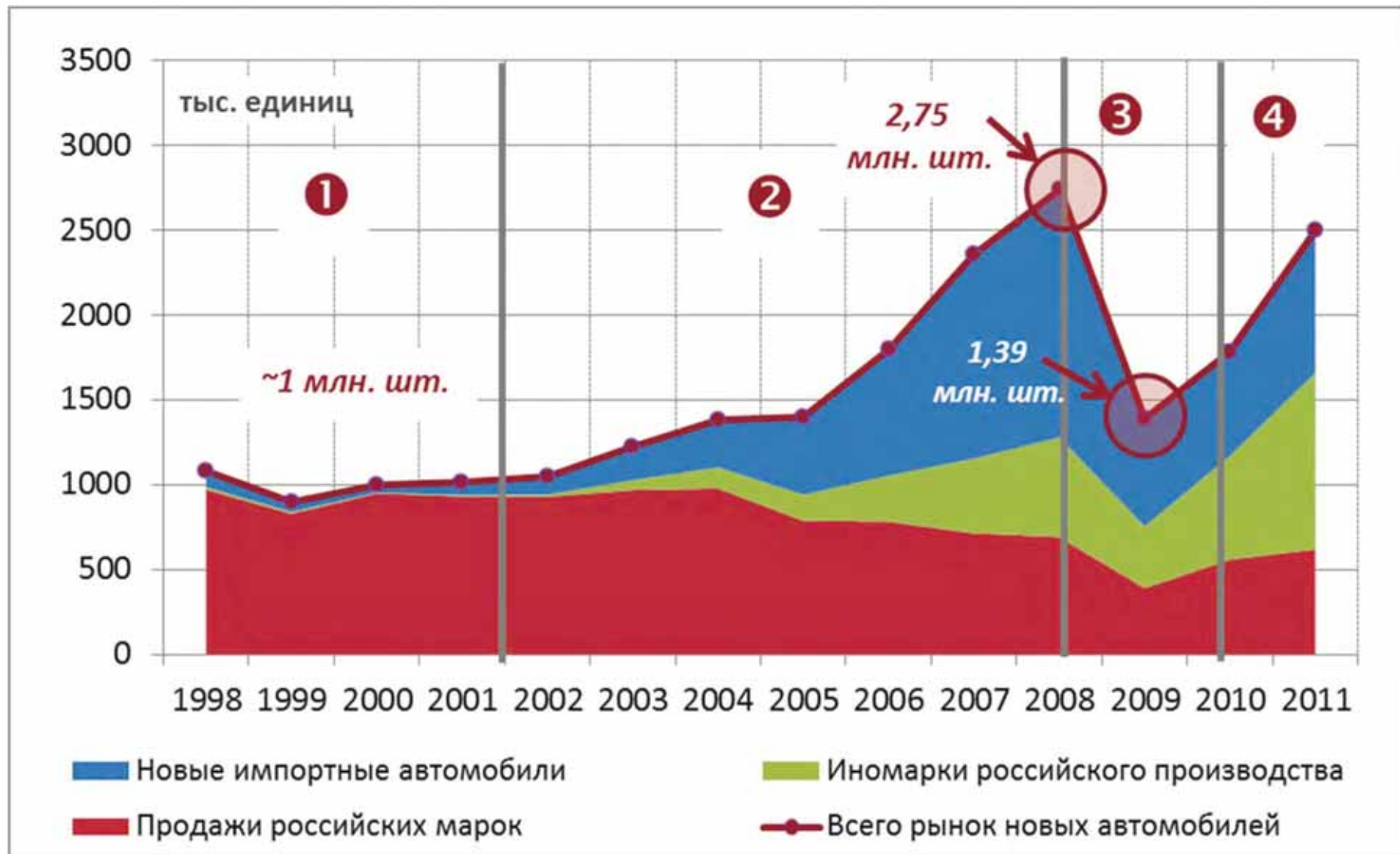
**According to the Strategy of sea ports' infrastructure in the RF till 2030 the capacity of dry bulk terminals on the Far East of Russia should grow by 102,5 mln tons by 2020.**

## Railway approaches to sea ports on the main routes have limited capacity



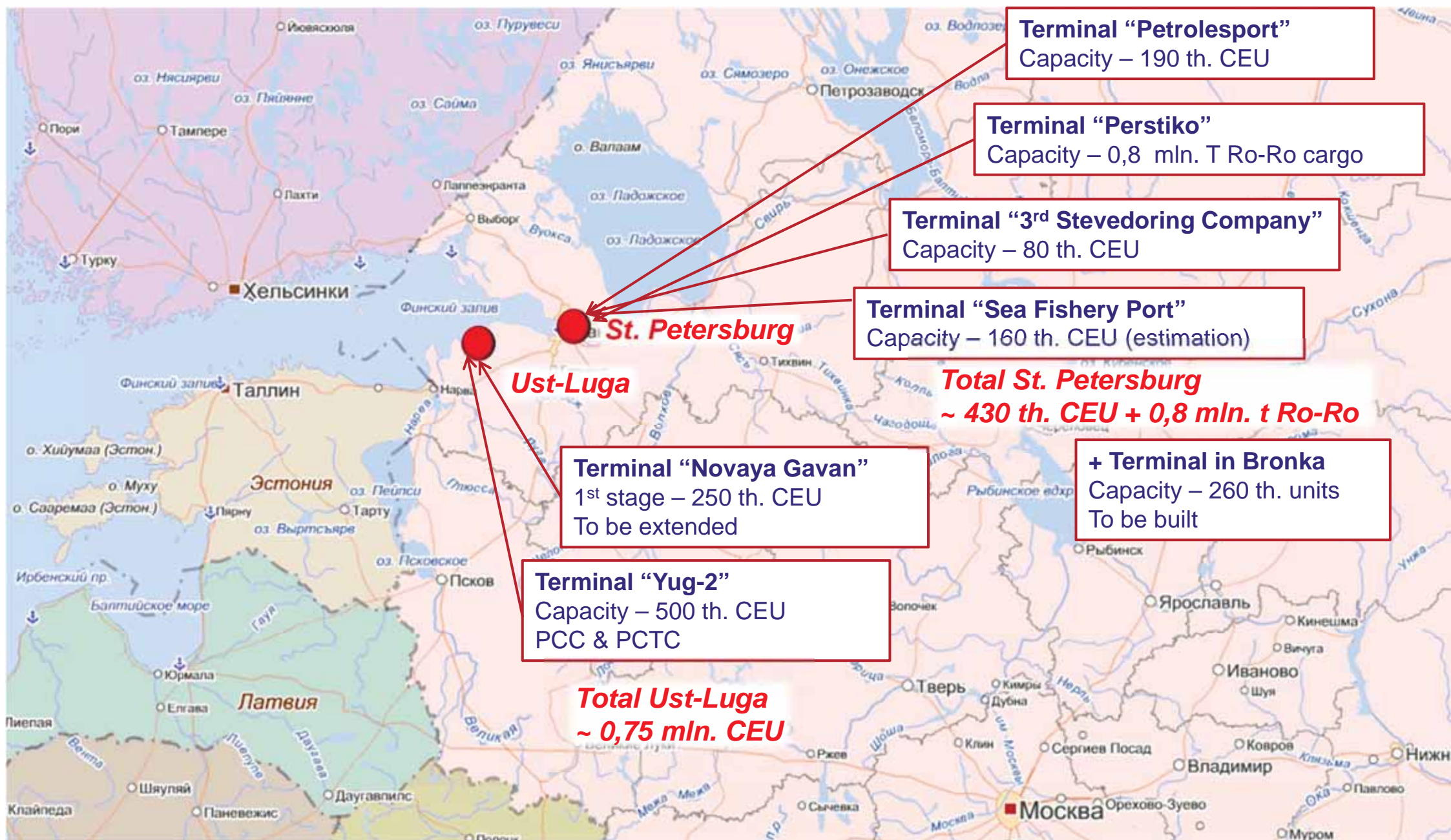


## Russian Automotive Logistics Market



**Russian market of light vehicles in 1998-2011**

# Automotive logistics – port terminals in Russia - Baltic Sea





## Automotive logistics – port terminals in Russia - Black Sea



**Automobile port handling in the Black Sea is on demand, but there 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

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

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

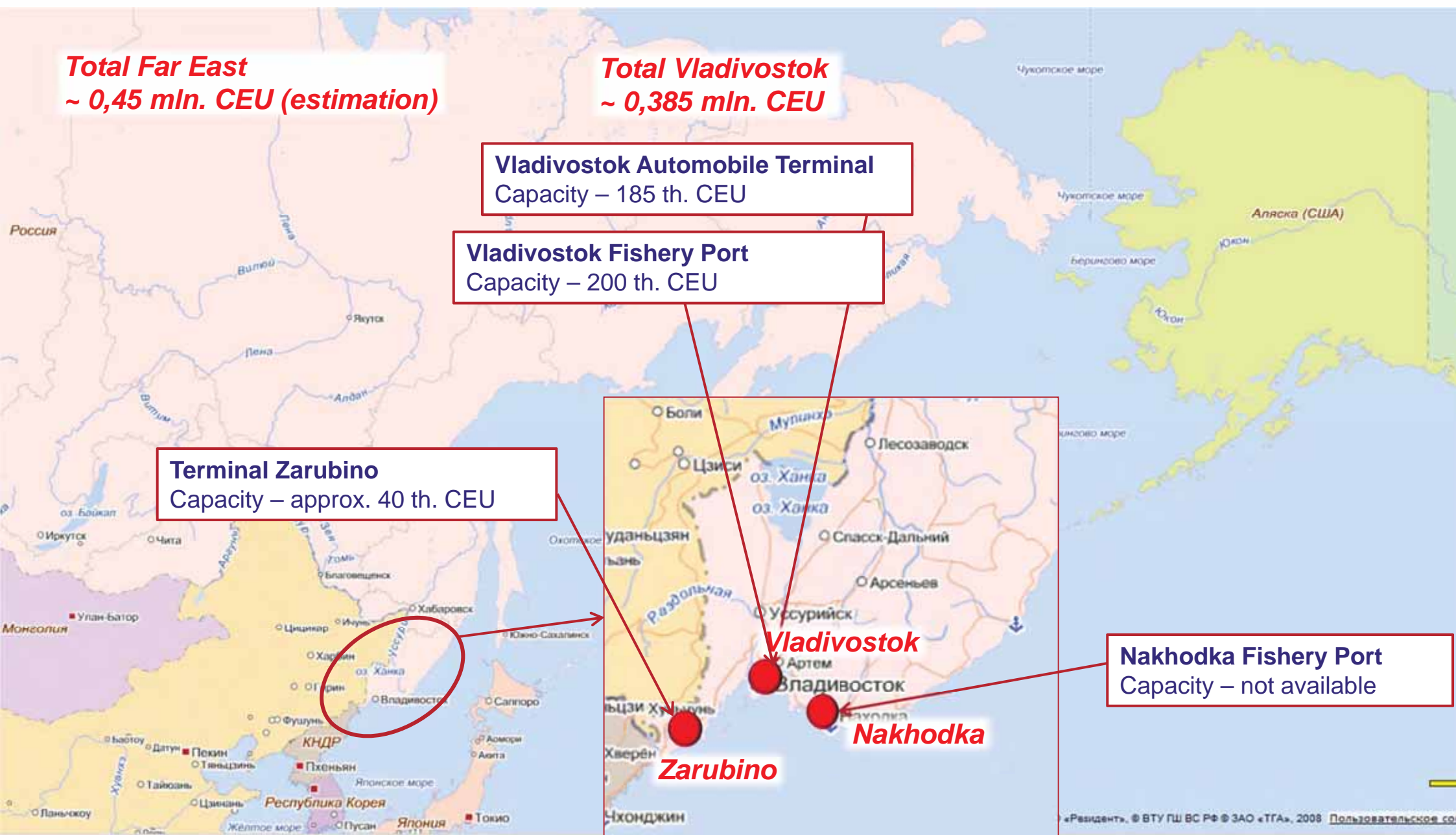


**Sevastopol**

**Black Sea**

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

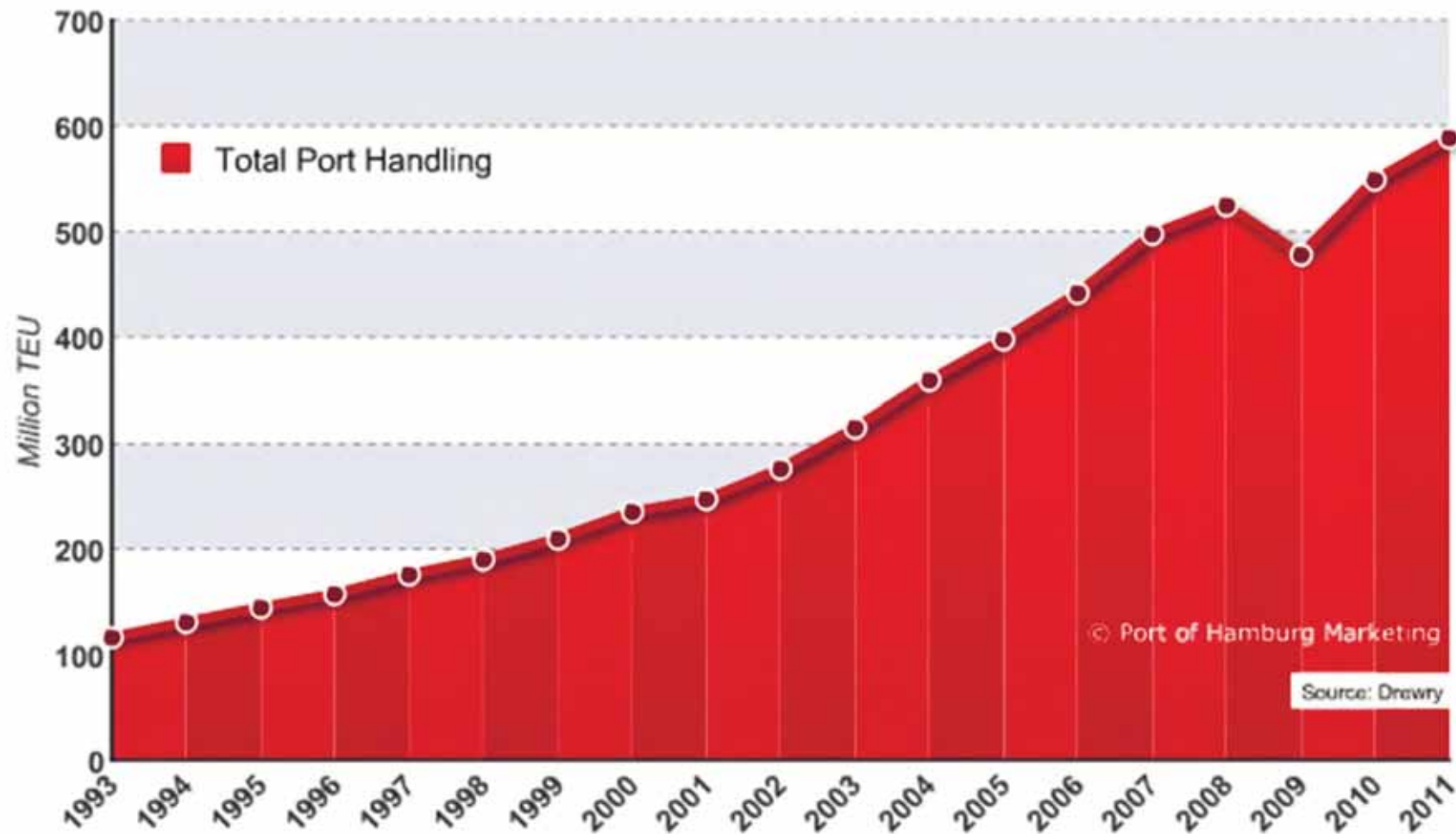
## Automotive logistics – port terminals in Russia – Far East





## Russian Container Market

### *World Container Market – total port container handling*

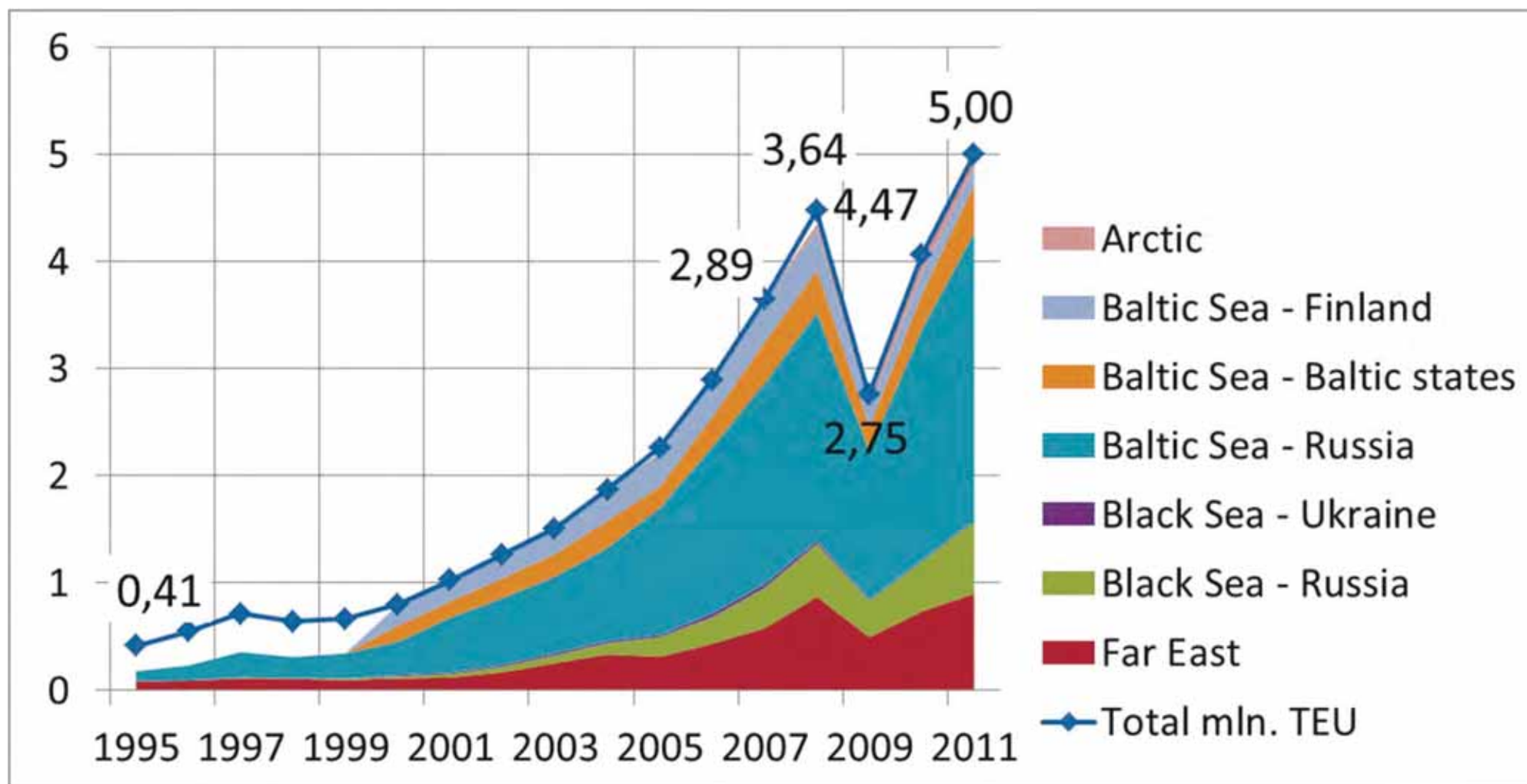


## Russian Container Market

### *Russian Container Market:*

*total port container handling in mln. TEU*

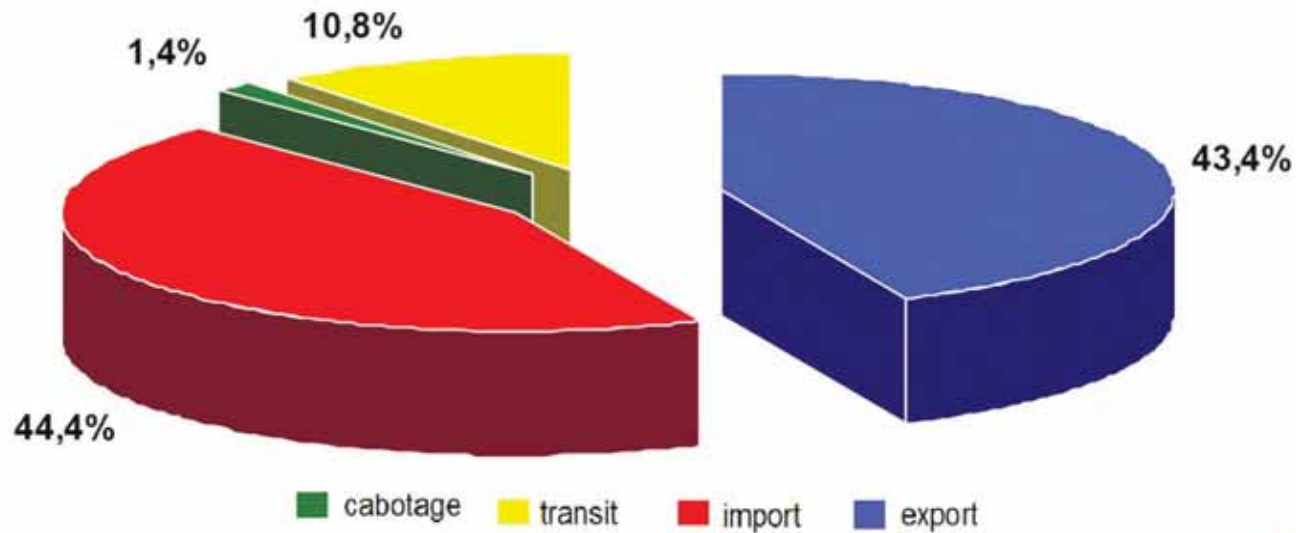
*(foreign trade cargo only, through ports of Russia, Ukraine, Baltic states)*



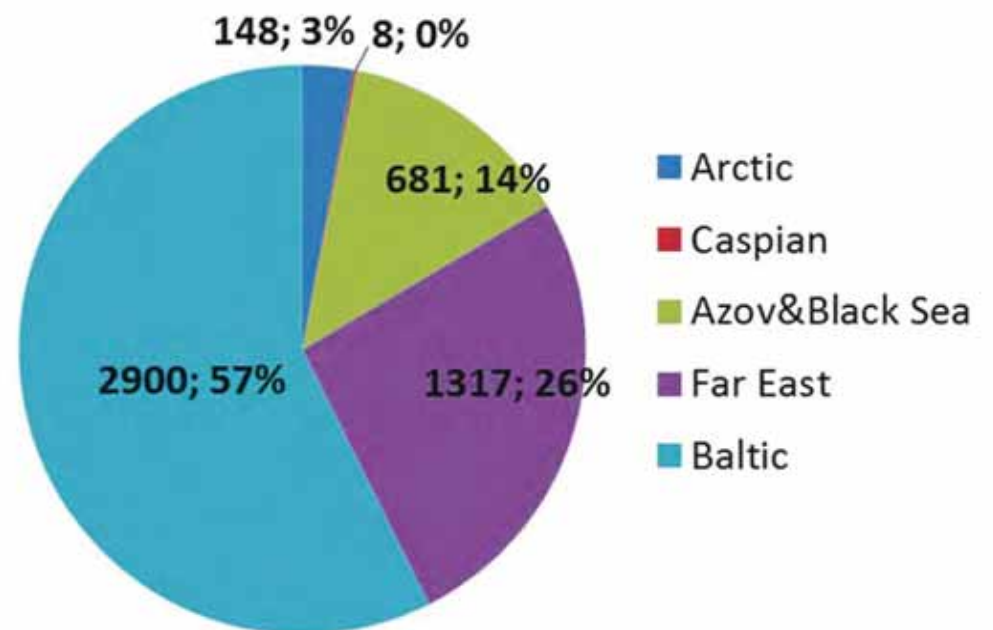


## Russian Container Market

### Container flows by direction

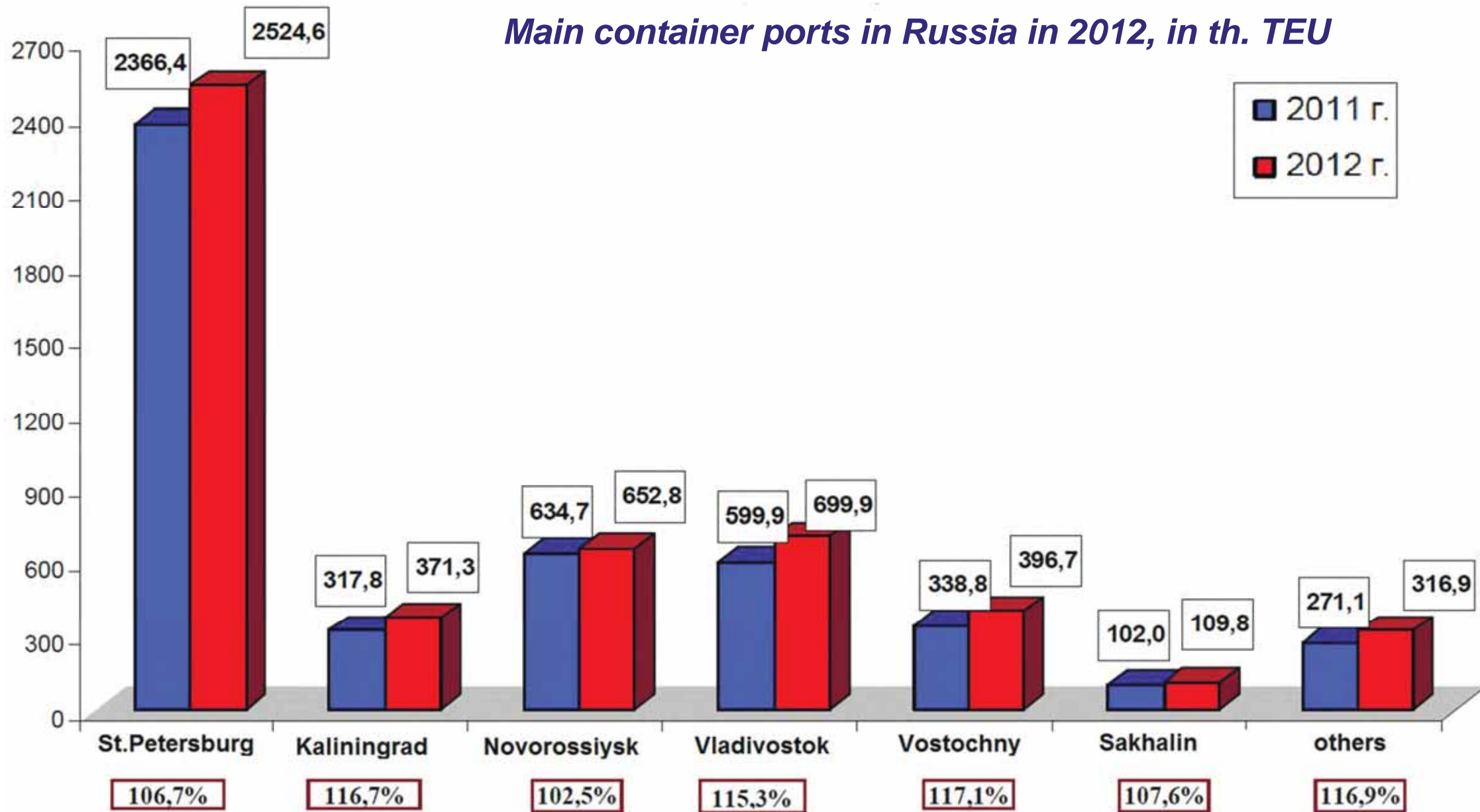


### Container flows by basin



## Container cargo flows

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







# Благодарю за внимание!

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