

ECONOMY OF RUSSIA

LECTURE 8: Transport and Urban Infrastructure

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Plan

- Russian administrative division;
- Transport infrastructure;
- Urban infrastructure;
- Discussion questions

Russia

Territorial entities of the Russian Federation (субъекты РФ) – 83 (республика, область, край, автономная область, автономный округ, город федерального значения)

- **the number of cities – 1 113 (in 2010)**
- **the number of villages – 153 125 (in 2010)**

There were 294000 of villages in Russia in 1959

In 2010 Russian population census showed that permanent population was absent in 19 439 villages.

Discuss the Following Question:

What are the differences between the terms **“municipal unit”** (municipal entity) and **“populated place”** (populated locality, community, population center)?
Give examples of municipal units and populated localities / settlements.

Transport trends and challenges in the Russian Federation





TRANSPORT SYSTEM OF RUSSIA (On the beginning of 2011):

- ▶ The length of railways - **85.6** thousand km including electrified - **44.0** thousand km (**51.4%**)
- ▶ The length of public roads – **793** thousand km, including hard surface – **647** thousand km (**81.6%**)
- ▶ Inland waterways - **102** thousand km, including waterways with guaranteed dimensions - **48** thousand km (**47.1%**)
- ▶ The operational length of subway routes - **472** thousand km
- ▶ The operational length of tram lines - **2.6** thousand km

QUALITY OF TRANSPORT RELATED INFRASTRUCTURE

Rank	Country
26	China
45	Brazil
55	India
96	Niger
97	Russian Federation
98	Moldova

Source: World Bank, 2013

Table 1. Transport infrastructure networks scale comparison, 2009

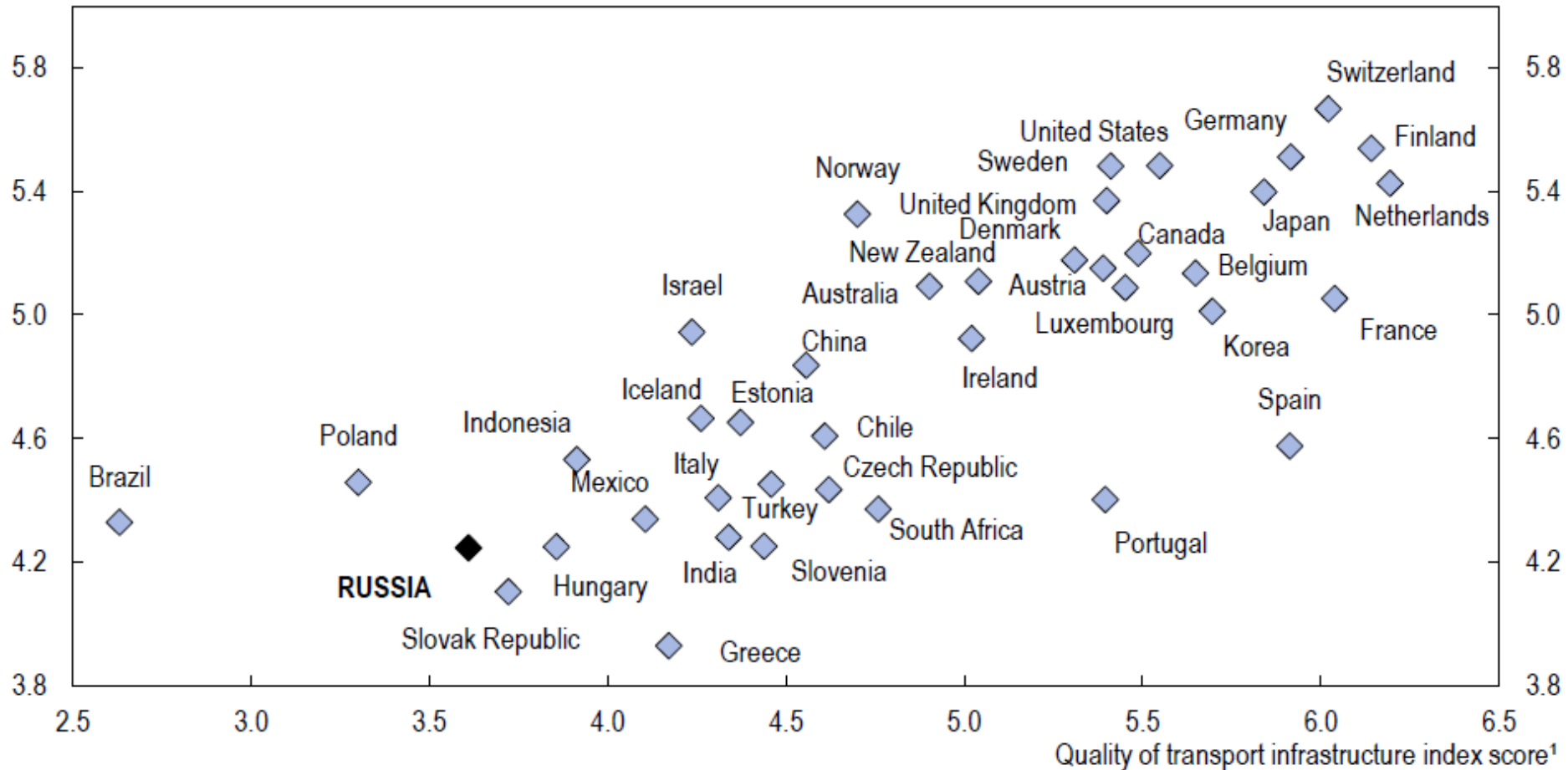
Thousand km

	EU27	USA	CHINA	RUSSIA
Roads	5 000	4 400	3 056	776
Railways	212	202	86	86
Inland waterways	41	41	117	102

Source: European Commission, *EU Transport in Figures, Statistical Pocketbook, 2012*.

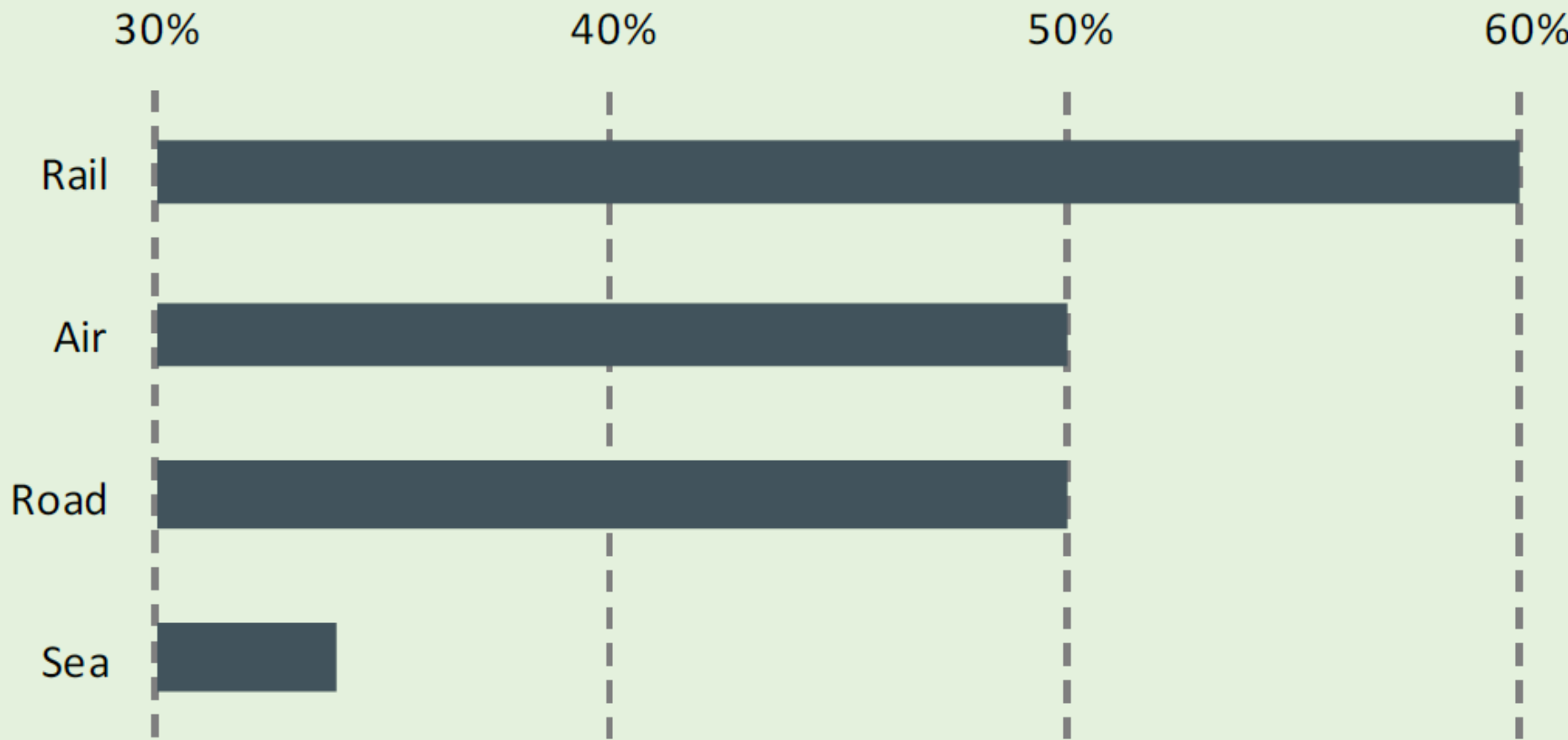
Figure 1. Competitiveness and quality of transport infrastructure

WEF Global competitiveness index score (overall index)



1/ Simple average of four quality indicators (roads, railroad infrastructure, port infrastructure, air transport infrastructure). The responses are to the questions : "In your country, how would you assess the following aspects of transport infrastructure? a) Roads b) Railroad system c) Air transport infrastructure d) Seaport facilities [1 = extremely underdeveloped - among the worst in the world; 7 = extensive and efficient - among the best in the world].

CURRENT ASSET DEPRICIATION BY SECTOR

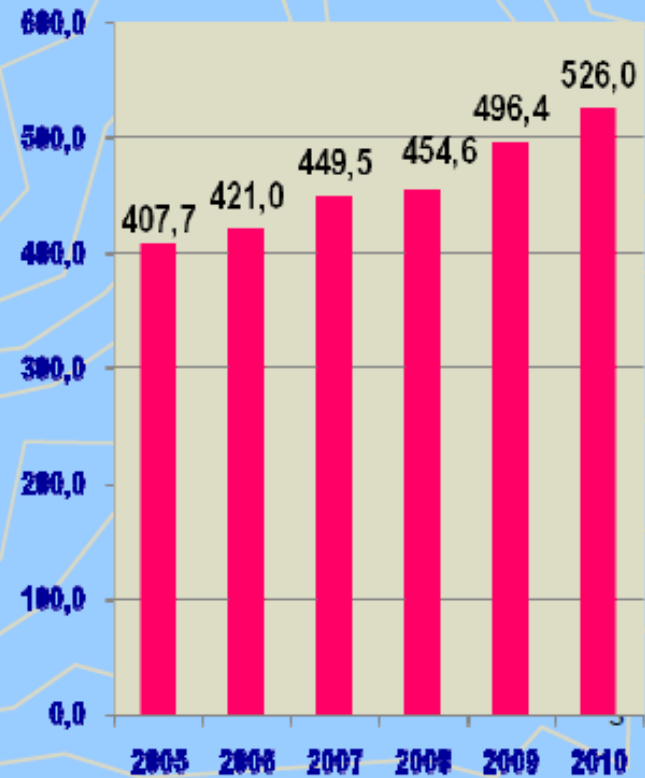
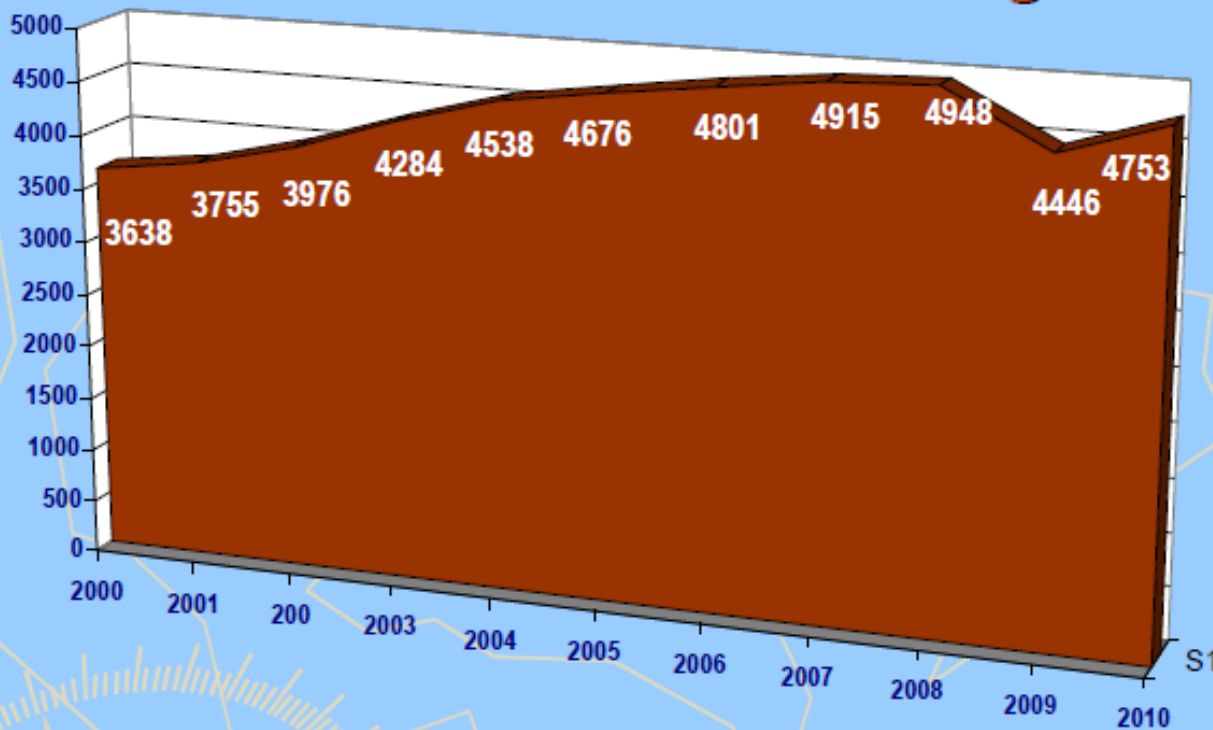


Source: Ministry of Transport of the Russian Federation, 2012

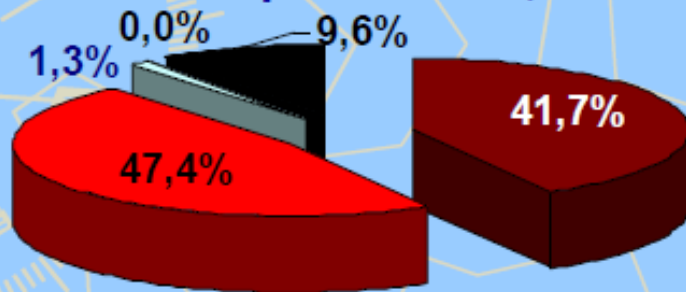
Freight transportation

Freight turnover
(all modes of transport)
(2000-2010) billion tonno.-km

Volumes Of cargo handling
in seaports of the Russian
Federation, million tons



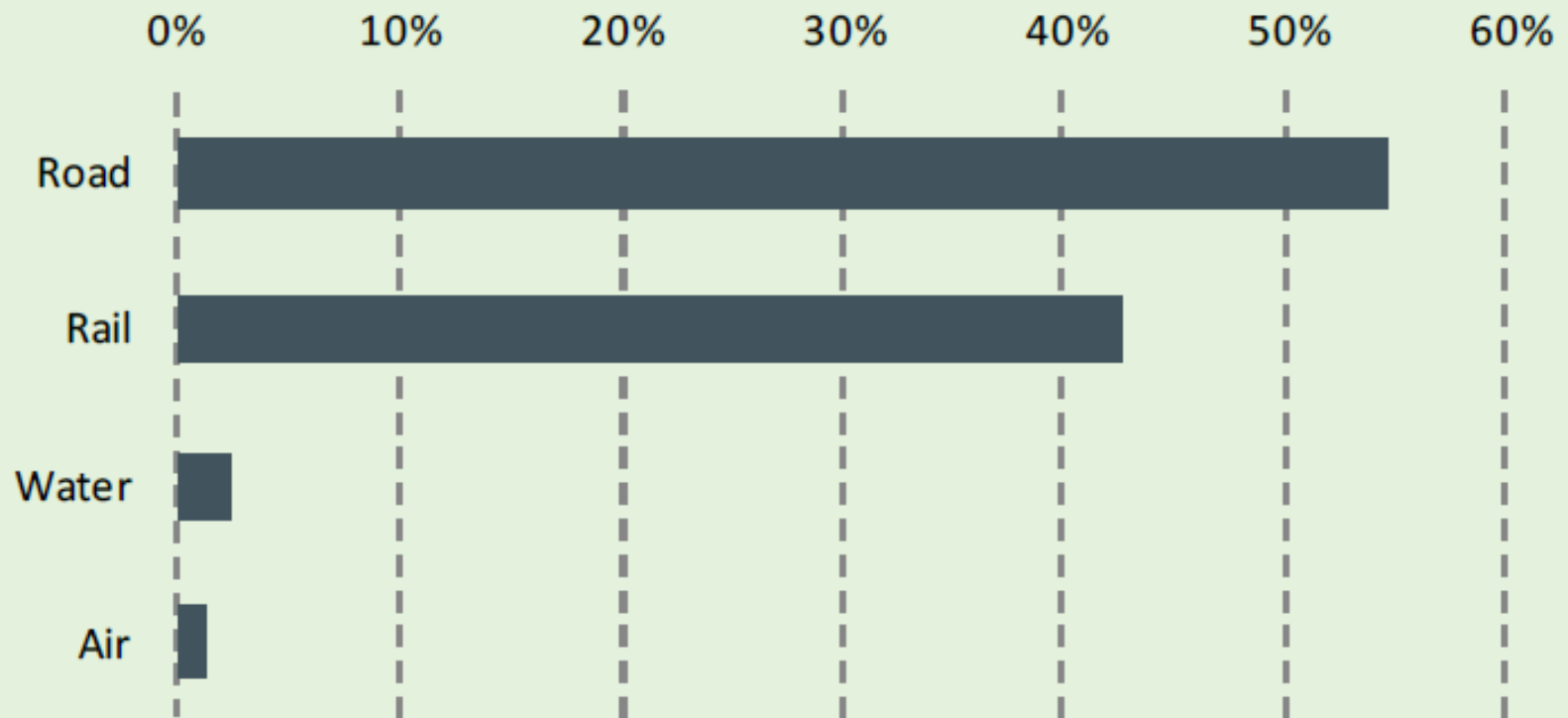
Freight turnover distribution between modes of transport in 2010, %



- Rail Transport
- Road transport
- Air transport
- Pipelines
- Maritime and inland waterways

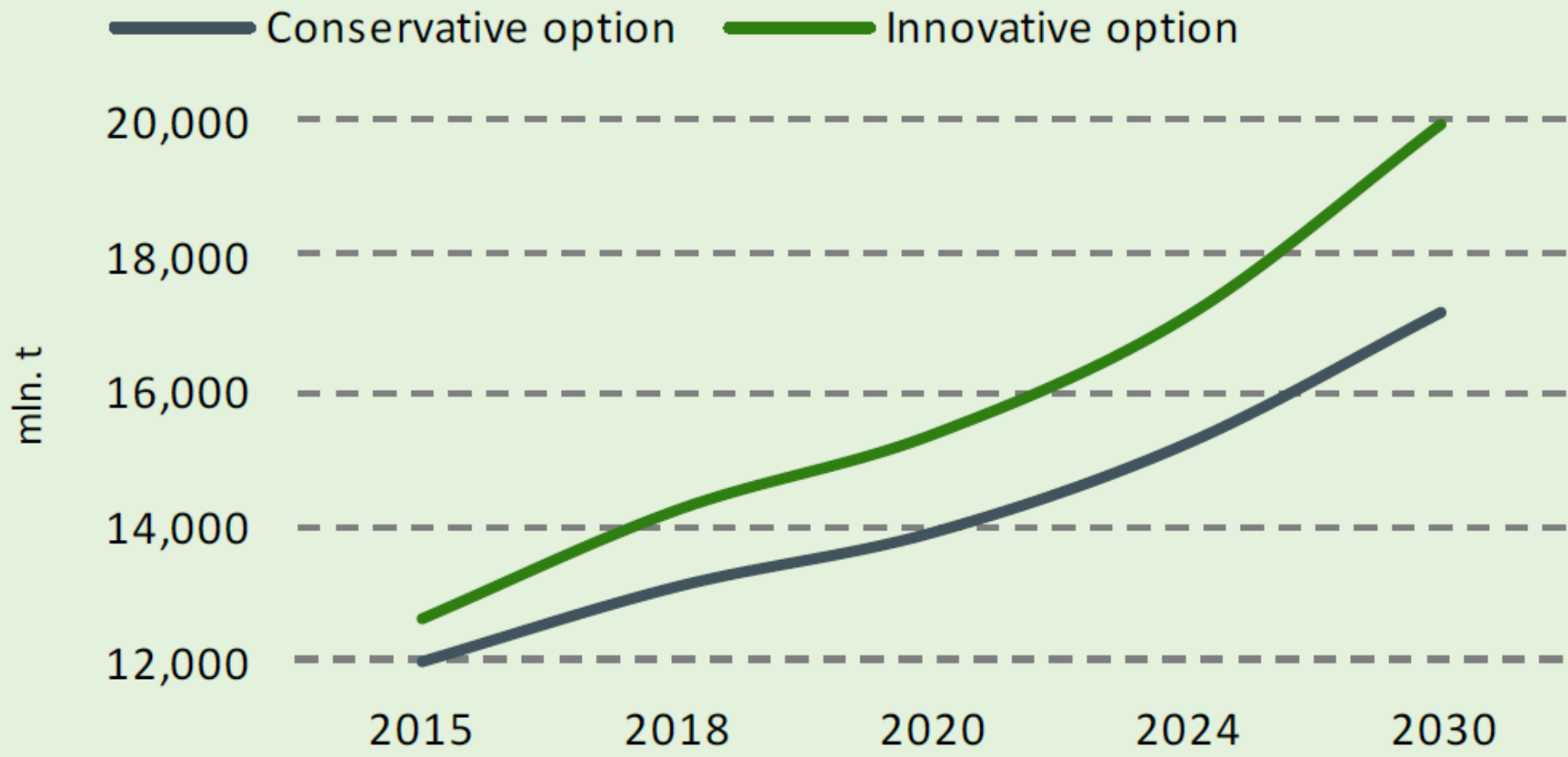
RUSSIAN TRANSPORT SECTOR IN FIGURES

FREIGHT TRANSPORTATION BY MODE OF TRANSPORT



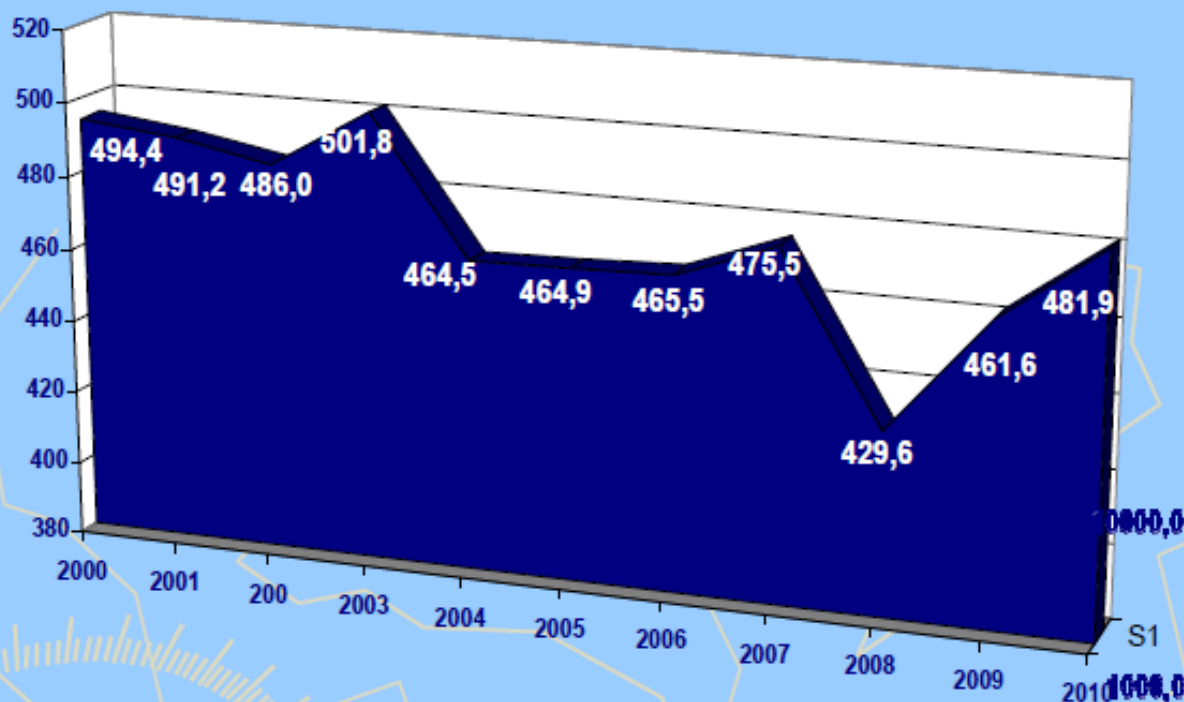
Source: Ministry of Transport of the Russian Federation, 2012

FREIGHT TRANSPORTATION FORECAST



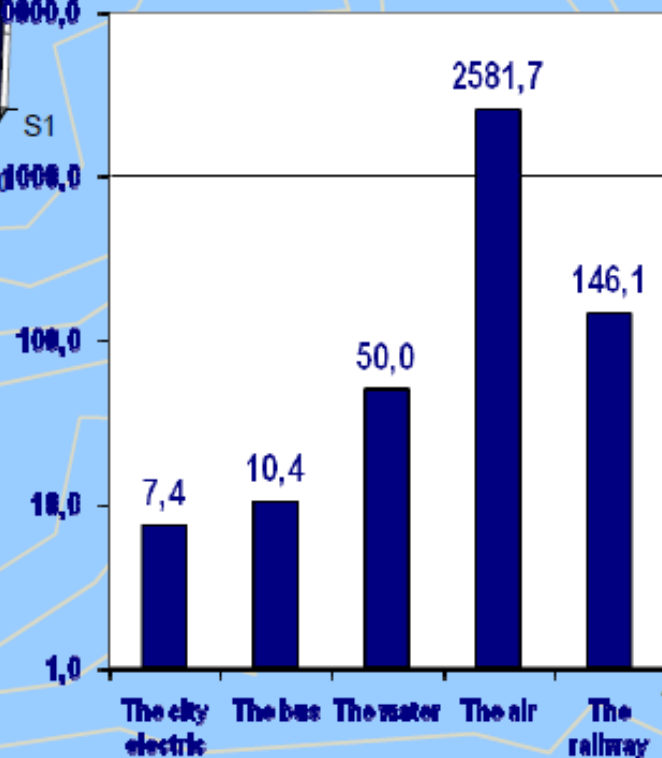
Source: Ministry of Transport of the Russian Federation, 2012

Passenger transportation

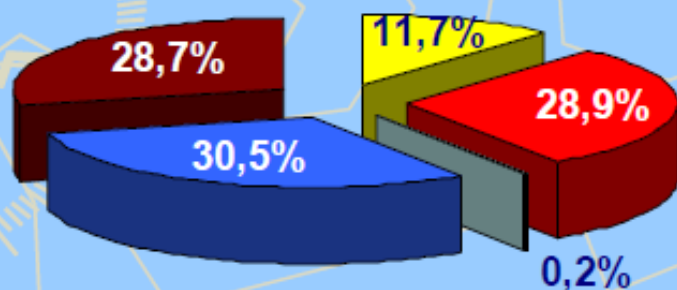


Passenger turnover by all modes of public transport (2000-2010) billion pass.-km

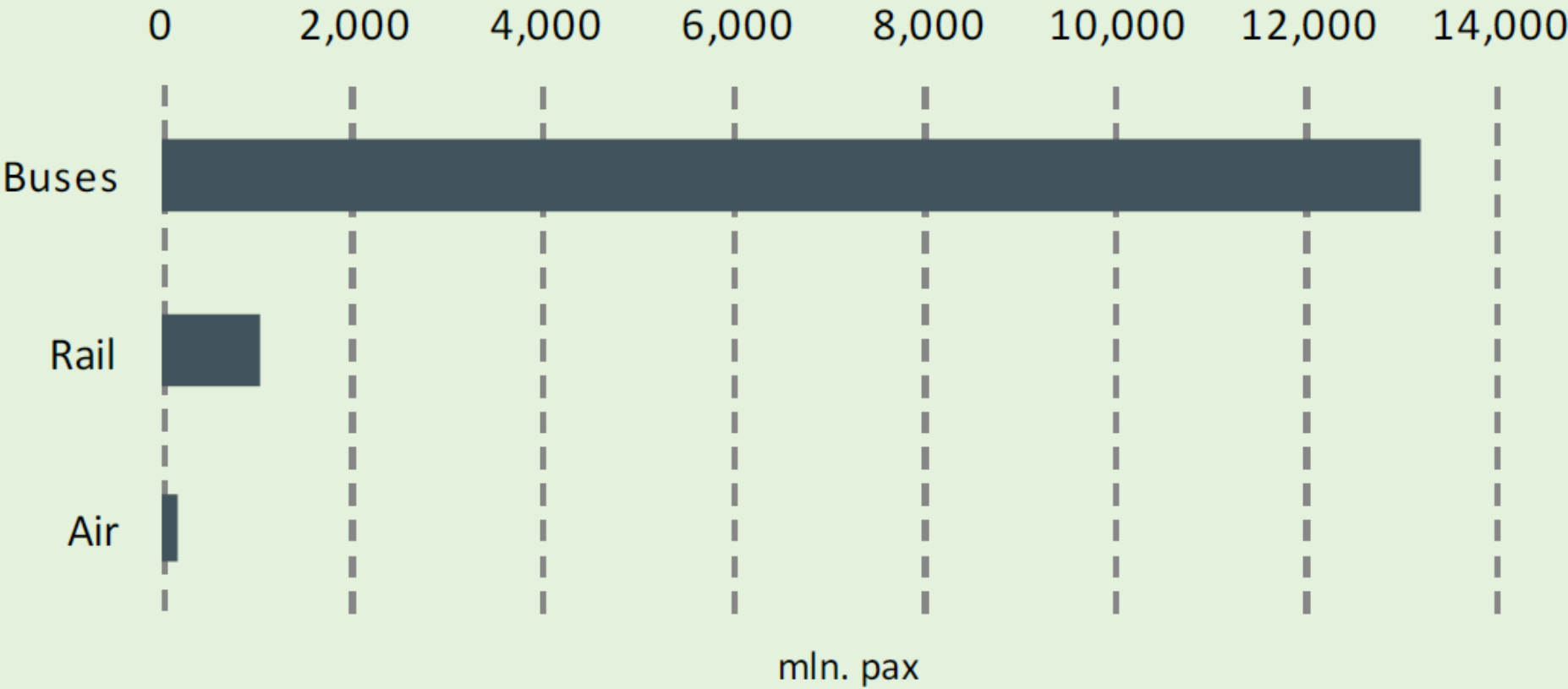
Average range of transportation of one passenger in 2010, km



Passenger turnover by modes of transport in 2010, %

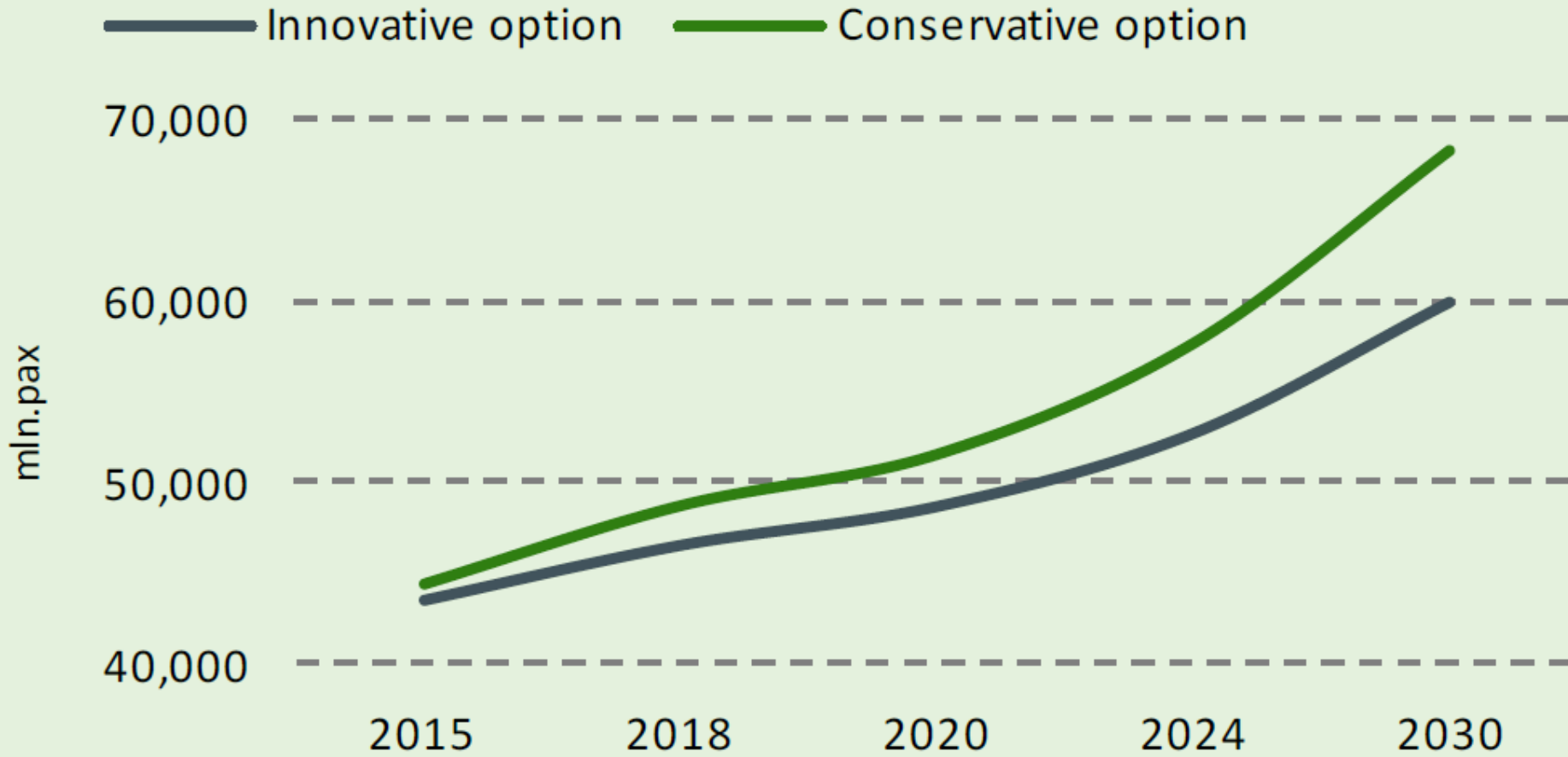


PASSENGER TRANSPORTATION BY MODE OF TRANSPORT



Source: Ministry of Transport of the Russian Federation, 2012

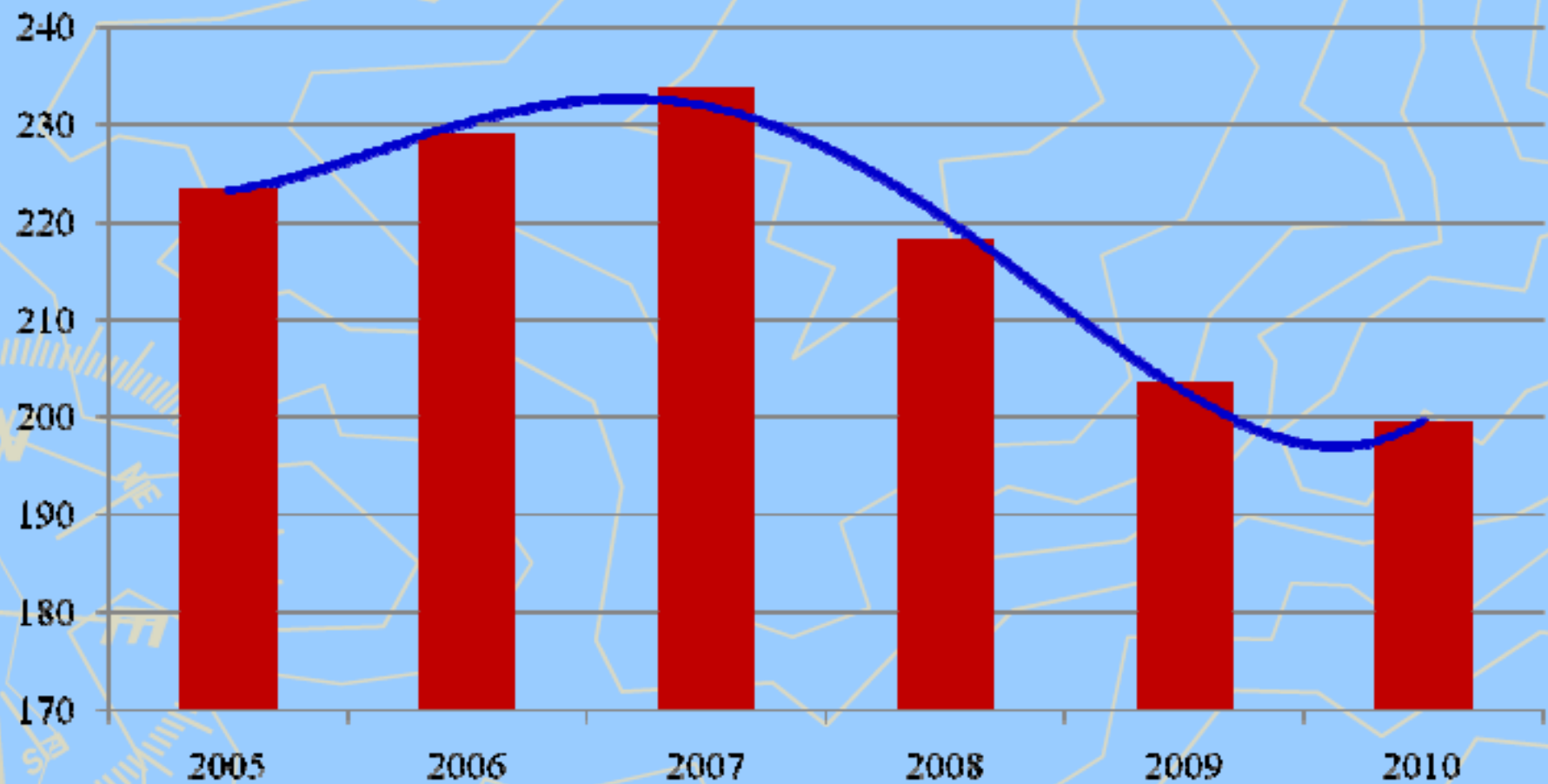
PASSENGER TRANSPORTATION FORECAST



Source: Ministry of Transport of the Russian Federation, 2012

SAFETY OF TRAFFIC

The number of road accidents, thousand units



THE LARGEST IMPLEMENTED PROJECTS

1. Highways



- ▶ The construction of the federal highway "Amur" Chita – Khabarovsk
- ▶ The construction of Ring Road in St. Petersburg (except for land, passing by a complex of protective structures against floods)
- ▶ Put into operation site traffic bypass Irkutsk length 24 km
- ▶ Opened for operation on a fee basis reconstructed section of the federal highway M-4 "Don" from 414 to 464 km
- ▶ The construction of the bridge over the River Don in Rostov-na-Donu
- ▶ Put into operation sections of roads with a total length of 1000 km

Russian Roads

CURRENT STATE:

- **Federal roads require upgrading to meet current and projected demand**
- **Formation of the core network of federal roads linking all Russian regions is not completed**
- **Low level of development of road networks in rural areas and to the Far North, the Republic of Sakha (Yakutia), Magadan region, Chukotka Autonomous Area**

Russian Roads

IN PROGRESS AND UPCOMING PROJECTS:

- **Central Ring Road in Moscow region**
- **New roads:**

- **Izhevsk - Perm - Khanty-Mansiysk - Tomsk**
- **Uglich - Vladimir - Saransk - Penza - Saratov**
- **Motorway M-3 “Ukraine”**
- **High-speed transport corridors:**

- **“West-East”, new direction**
- **“North-South”, new direction**
- **International highway routes:**

- **“North Chord”**
- **“South-West Chord”**
- **“Central Chord”**
- **Section of “Europe - Western China” corridor**

2. Rail transport



- ▶ In 2010, increased traffic speed train "SAPSAN" between Moscow and St. Petersburg
- ▶ Launch of speed train service between St. Petersburg and Helsinki, which was first speed line between EU and Russia
- ▶ Launch of "SAPSAN" speed train service between Moscow and Nizhny Novgorod, launched a new speed line Nizhny Novgorod - Moscow - St. Petersburg
- ▶ Implemented projects and infrastructure improvements on railway directions Kuzbass - North-West, Kuzbass - Far East transport hub, Kuzbass - the Azov-Black Sea transport knot
- ▶ **Overall in the last 7 years, built over 990 km of new railways and the second tracks, more than 930 km of station tracks, electrified some 780 km**

Russian Rail

CURRENT STATE:

- No high-speed rail line in the country
- Large number of traffic bottlenecks
- 6 constituent entities of Russia have no rail service

IN PROGRESS AND UPCOMING PROJECTS:

- Development of Moscow railway hub
- High-speed Trunk Railways:
 - Moscow - St. Petersburg
 - Moscow - Nizhny Novgorod - Yekaterinburg
 - Moscow - Minsk
 - Moscow - Kiev
 - Kazan - Samara
- Railway access to the ports of:

Primorsk	Temryuk
Vyborg	Novorossiysk
Vysotsk	Taman
Ust-Luga	Sovetskaya Gavan
Murmansk	Vanino
Nakhodka	Olya
Vladivostok	

Discuss the Following Question:

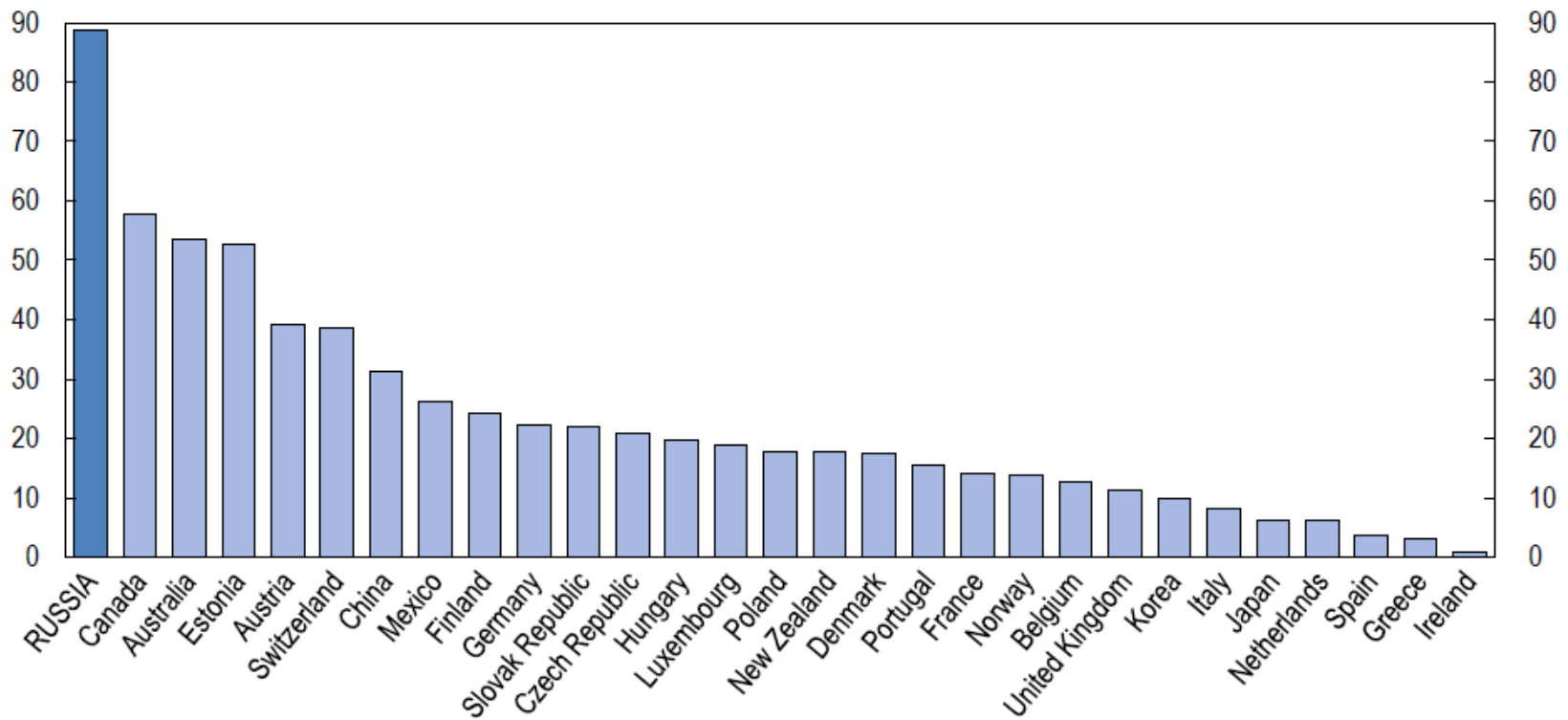
On what areas of the Russian border train speed is slower than on the others? For what reasons?

Train speed is below at the Russian-China border because of the rearrangement of wheeled bogies. Rail-road track (distance between the rails) is 1435 mm in China and in Europe, while it is 1520 mm in Russia. In the mid-19th century, when the railway construction began, Nikolay I concerned that the military adversaries can use the railway to transport troops.



The railway track is the same in Russia and in Finland, Mongolia, states of the former Soviet Union. On the borders of Ukraine and Belarus with western neighbors wheeled carts are also rearranged. Systems of automatic change of railway track are used very rarely (for instance, in Brest).

Figure 3. Railway share of freight transport
2010, % in total inland freight tonne-km



Note: Excluding oil and gas pipelines. 2009 data for Canada, China, Greece, Luxembourg, Switzerland. 2008 for Australia, Korea, New Zealand, United Kingdom.

Source: OECD/ITF (2012), *Trends in the Transport Sector 1970-2010*.

«RUSSIAN RAILWAYS»

THE STRATEGIC PLAYER IN THE RUSSIAN AND FOREIGN TRANSPORT MARKET

- Provides 42 % of a cargo turnover in transport system of Russia (without pipeline - 85 %) and 30 % of a passenger turnover

ONE OF THE LARGEST RAIL CARRIERS OF THE WORLD

- 85,3 thousand in km of a way cover 9 time zones of Russia
- More than 1,2 million workers
- Owns park more than 20 thousand locomotives and an order of a half-million of goods wagons
- The considerable scientific potential is formed by research institutes – affiliated societies of Open Society "Russian Railway"

STEADY FINANCIAL CONDITION

- Authorized capital - about 41.6 billion euros
- Profitable operation in a crisis
- One of the first Russian companies to simultaneously assess the three international rating agencies (Moody's (Baa1), Standard & Poor's (BBB), Fitch (BBB), the forecast "stable")
- Placement of the debut issue of Eurobonds of JSC "RZD" amounting to U.S. \$ 1.5 billion for 7 years

3. Water transport



- ▶ In St. Petersburg, has opened a new Trans-Atlantic shipping line operated by "Maersk" between South America and Russia
- ▶ Due to the shipowners' own funds and borrowed loans shipping companies built 14 merchant ships with a total deadweight of more than 1.4 million tons
- ▶ On the domestic shipyards were constructed and put into operation 9 rescue vessels
- ▶ In August 2010, held a pilot transit flight on the Northern Sea Route Arctic ice class tanker Arc 5 «SCF Baltica» with a cargo of 70 000 tons of gas condensate

Ports

CURRENT STATE:

- **Underdeveloped rail, road and pipeline connectivity to seaports**
- **Poor state of warehousing facilities**
- **Insufficient port capacity for cargo transshipment**

IN PROGRESS AND UPCOMING PROJECTS:

- **Port Ust-Luga (formation of harbour basins, construction of process-specific terminals)**
- **Port Sabetta (construction of a seaport for transshipment of liquefied natural gas)**
- **Complex development of Murmansk transport hub**
- **Complex development of Novorossiysk transport hub**

Airports

CURRENT STATE:

- **Number of operational airports in Russia continues to reduce despite high rate development of civil aviation**
- **Russian airports are not keeping pace with equipment and systems developments occurring in international civil aviation**
- **There is a strong reliance on Moscow acting as a hub/transfer location; this results in lower volumes of passengers utilising regional airports**

Airports

IN PROGRESS AND UPCOMING PROJECTS:

- **Sheremetyevo, Moscow (construction of third runway, modernisation of domestic passenger terminal and cargo terminals)**
- **Domodedovo, Moscow (construction of two new modules in the passenger terminal and airfield facilities)**
- **Yuzhny, Rostov-on-Don (construction of a Class A airport)**
- **Koltsovo, Yekaterinburg (reconstruction of runway, passenger terminal and other airport facilities)**

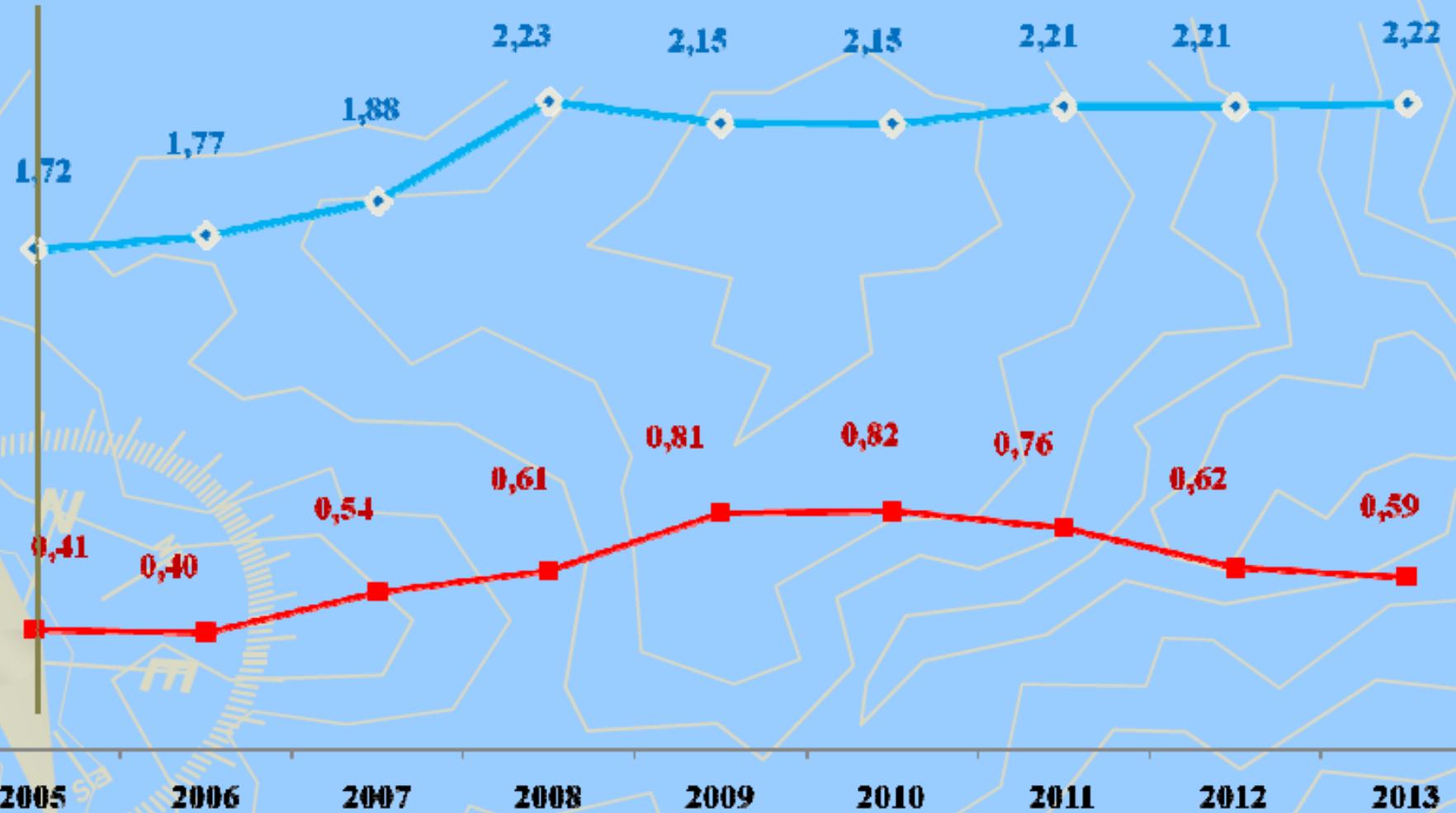
4. Passenger public transport



- ▶ Public buses services cover 951 cities and towns, as well as 59 thousand rural settlements. Trams served 63 cities, trolleybuses - 86 cities
- ▶ In 2010, was continued construction of new subways in the cities of Omsk, Chelyabinsk, Krasnoyarsk. In addition, according to the norms constructed underground subway portion of the second light rail line in Volgograd

Investments into a transport sector

% from GDP

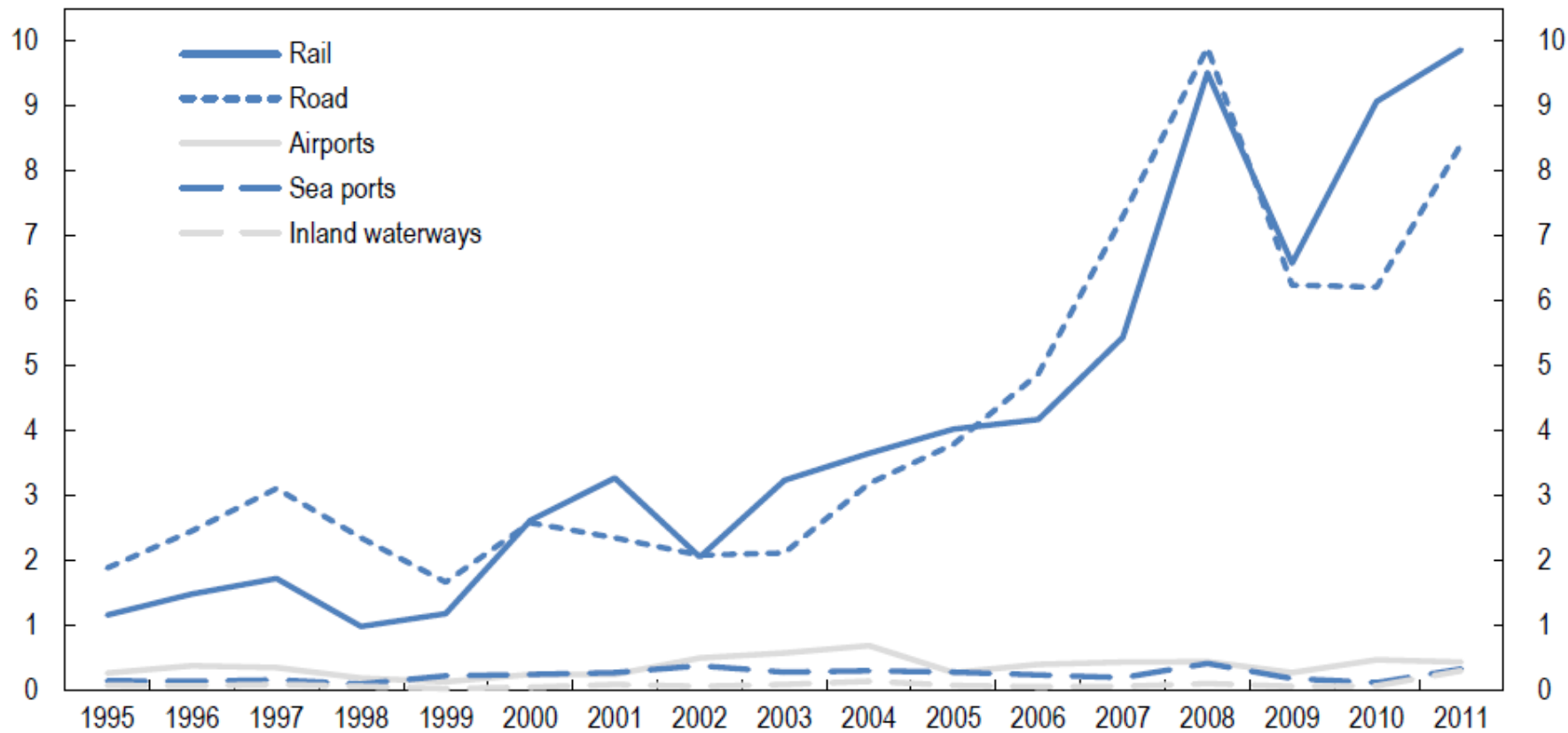


◆ Инвестиции в основной капитал за счет всех источников финансирования, % от ВВП

■ инвестиции в основной капитал из средств федерального бюджета, % от ВВП

Figure 2. Transport infrastructure: gross investment spending

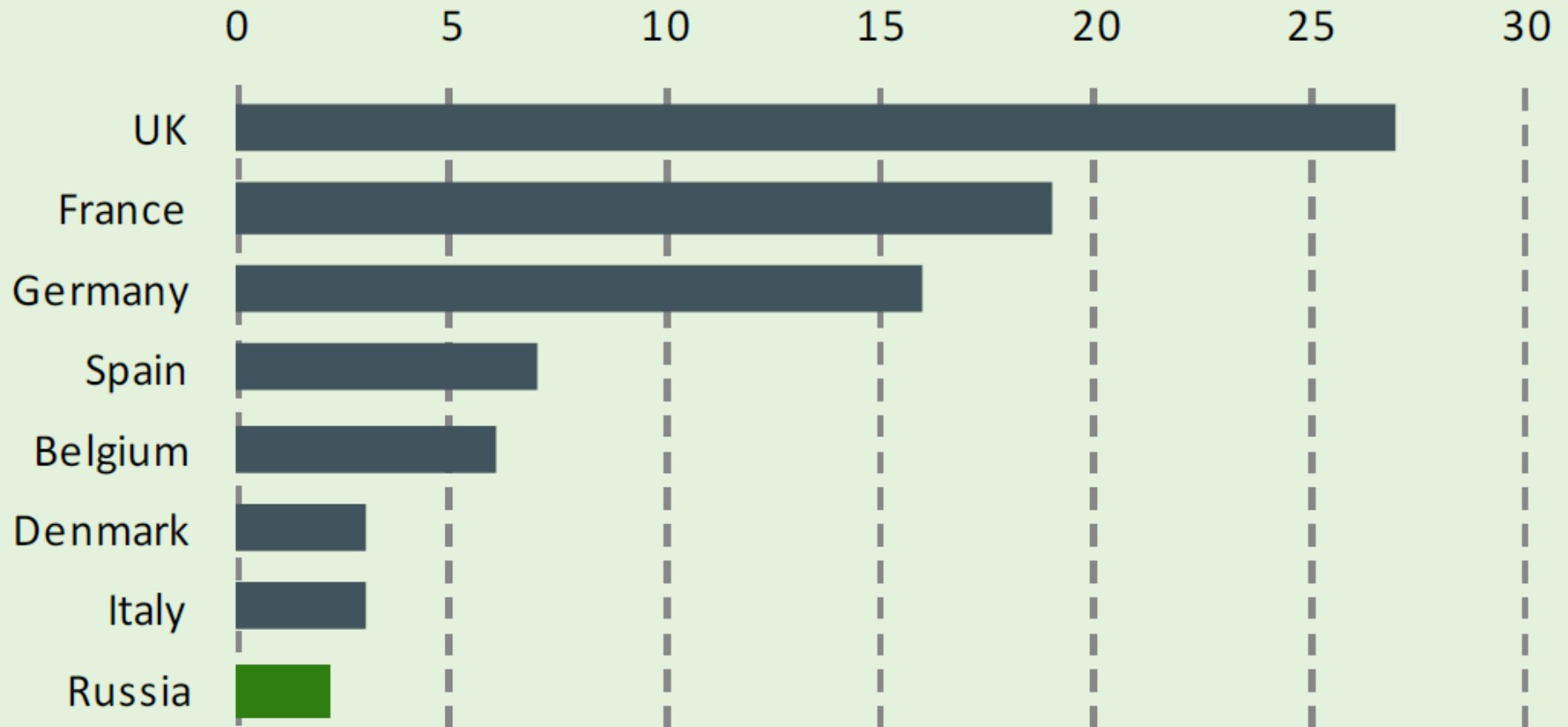
Current prices and exchange rates, billion euros



Source: OECD/ITF (2013), *Spending on Transport Infrastructure 1995-2011*.

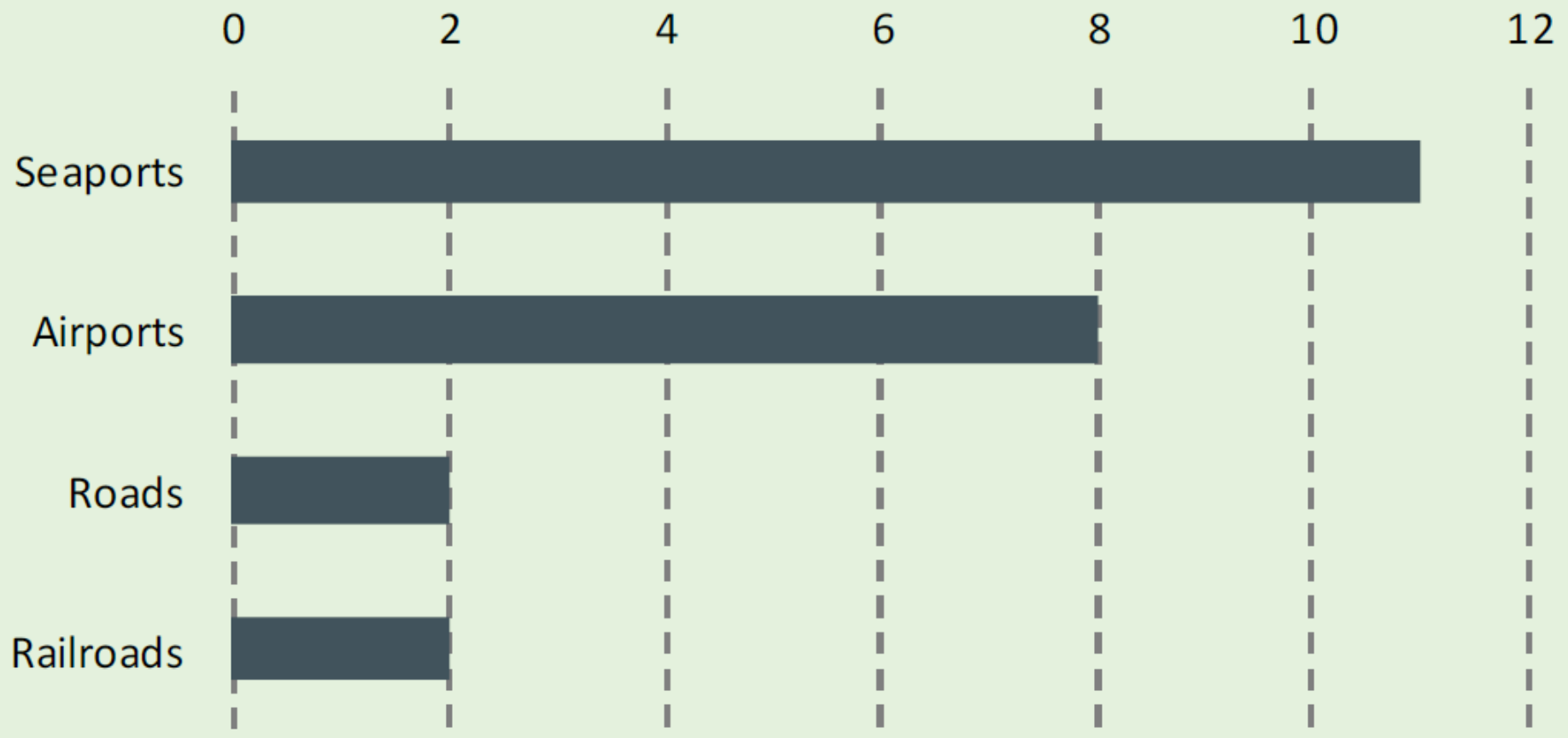
Investment

COUNTRY BREAKDOWN BY NUMBER OF PPP TRANSACTIONS



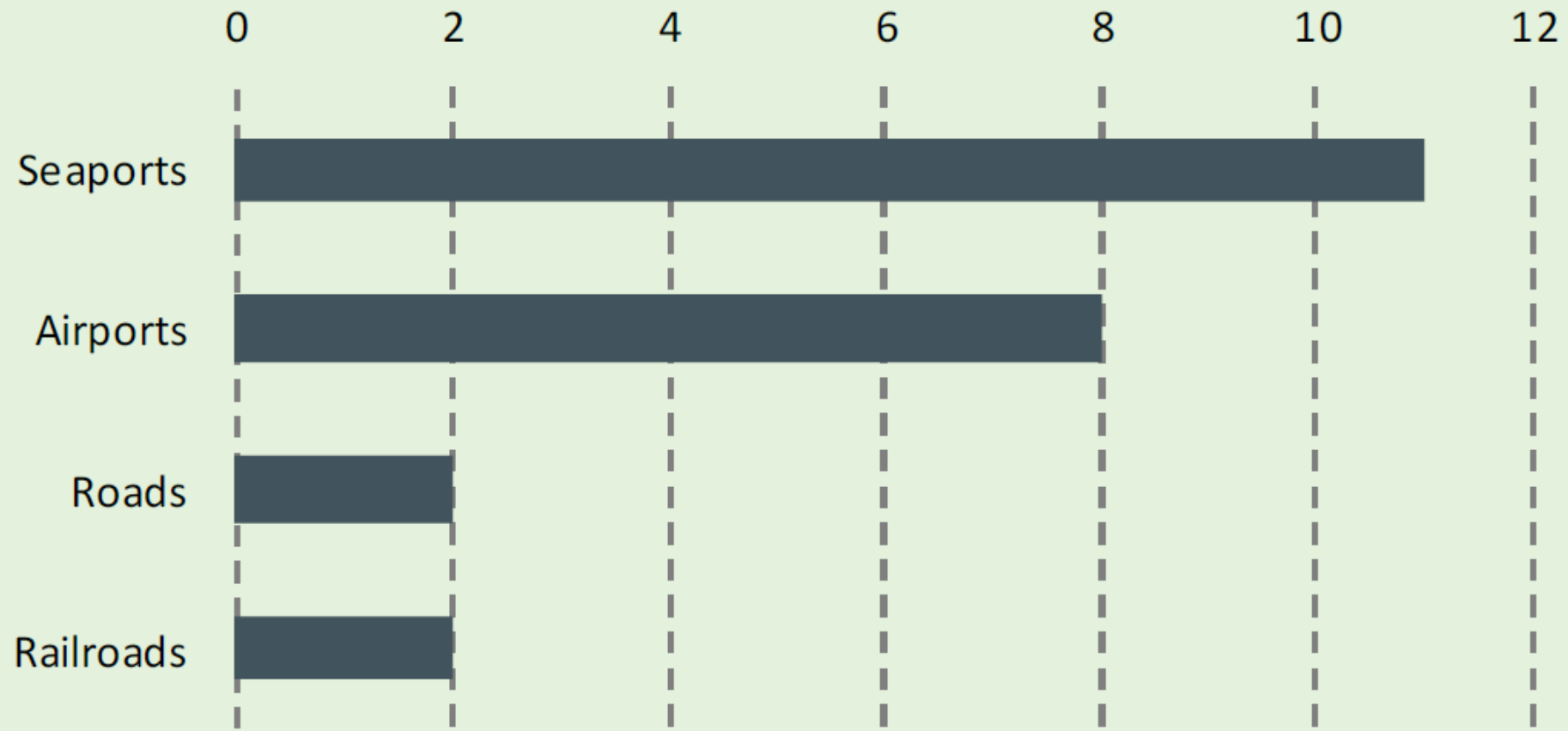
Sources: EPEC/World Bank, 2011

PPP PROJECTS IN RUSSIA BY SUBSECTOR, 1992-2011



Source: World Bank, 2011

PPP PROJECTS IN RUSSIA BY SUBSECTOR, 1992-2011



Source: World Bank, 2011

LARGE-SCALE INFRASTRUCTURE PPP PROJECTS IN RUSSIA, 2010-2030

Sector	Number of projects	Total cost, bln. USD
Airports	6	7.6
Ports	3	4.3
Road	13	214
Rail	13	277

Source: Ministry of Transport of the Russian Federation



Transport strategy of the Russian Federation for the period to 2030

approved by the Federal Government on November 22, 2008 Order No. 1734-p.

The Federal Program «Development of transport system of the Russian Federation (2010-2015)»

It is confirmed the governmental order of the Russian Federation No.377 from May, 20th, 2008

The basic challenges in the transport sector of the Russian Federation

- ▶ Historically rooted territorial heterogeneity of transport infrastructure.
- ▶ Needs to further increase the availability of transportation services to the public.
- ▶ Needs to further improving the quality of transport services
- ▶ Lack of full use of transit potential.
- ▶ Needs to ensure transport safety and security in accordance with new challenges.
- ▶ Needs to reduce the negative impact of transport to the environment.

The purposes of development of transport system

Strategic target of transport system development in the Russian Federation:
safe and quality transport services to improve mobility of people and provide innovative economic development

Aim 1

Harmonisation
(single transport space creation on the basis of balanced and effective development of transport infrastructure)

Aim 2

Competitiveness
(availability and competitiveness of transport services for freight owners, logistic companies and other customers)

Aim 3

Mobility
(availability, accessibility and quality of transport services for people)

Aim 4

Integration
(into world transport space and Euro-Asian linkages system)

Aim 5

Safety and security
Increasing the level of transport safety and security

Aim 6

Sustainable development
(decrease in harmful influence of transport to environment)

Stages of the Transport strategy implementation

Stage 1
Till 2015

Transition from modernisation to development of the transport system

Stage 2
2016 - 2030

Intensive development of the transport system on the basis of innovative technologies

The period 1
2016 - 2020

Creating a balanced system of transport communications.
Integrating technology players in this process.
Creating a competitive transport market.
Commissioning of minimum social standards for transport

The period 2
2021 - 2030

Creating a single transport space in the country with reasonable reserves.
Achieving world-class availability, amount and quality of transport services.
Achieving environmental standards in developed countries.

Priority - Development of a transport infrastructure and transit potential realisation







Transport strategy of the Russian Federation For the period till 2030






FAR EAST FEDERAL DISTRICT

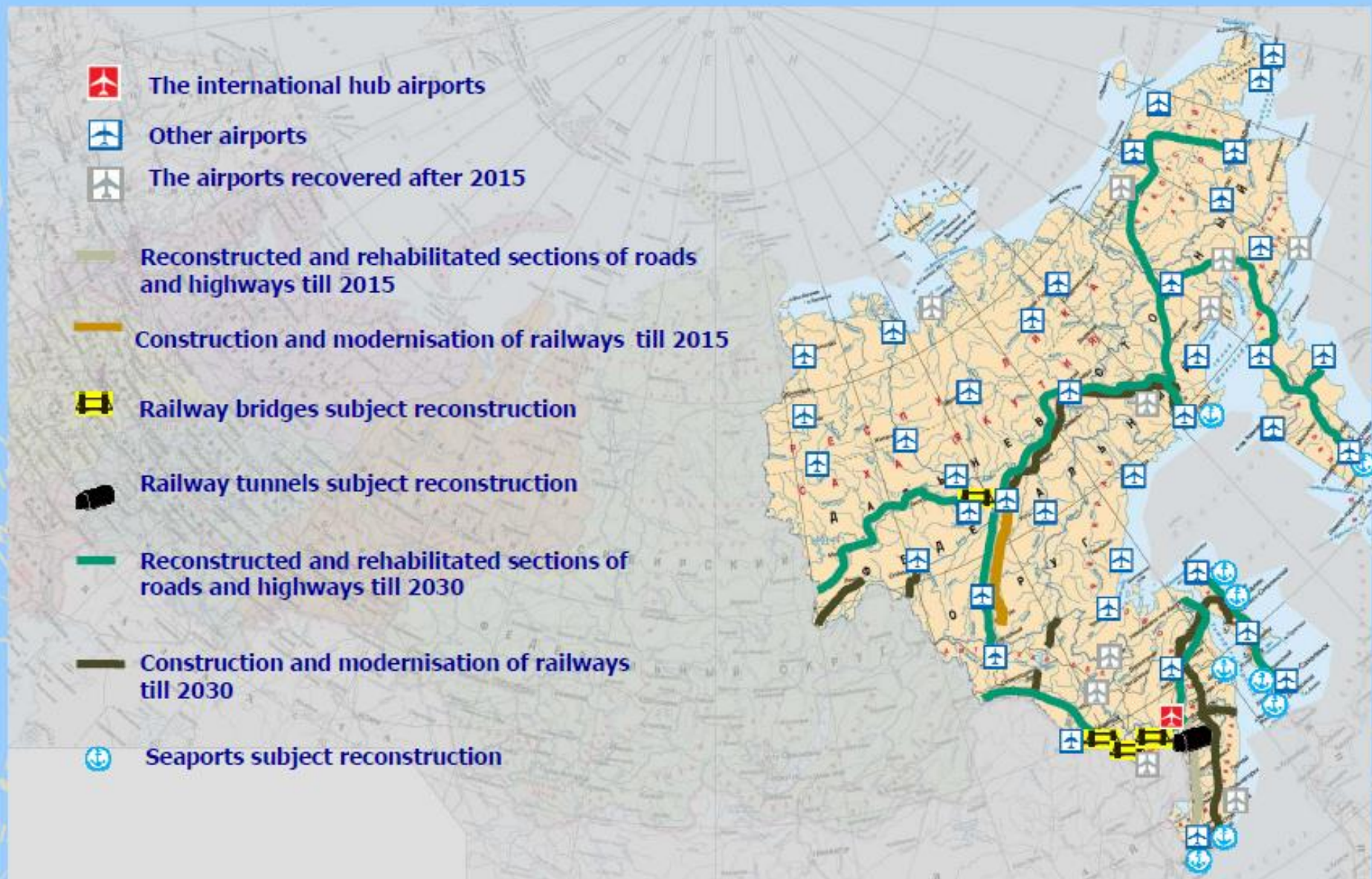
-  The international hub airports
-  Other airports
-  The airports recovered after 2015

-  Reconstructed and rehabilitated sections of roads and highways till 2015
-  Construction and modernisation of railways till 2015

-  Railway bridges subject reconstruction
-  Railway tunnels subject reconstruction

-  Reconstructed and rehabilitated sections of roads and highways till 2030
-  Construction and modernisation of railways till 2030

-  Seaports subject reconstruction




THE SIBERIAN FEDERAL DISTRICT


-  The international hub airports
-  Other airports
-  The airports recovered After 2015
-  Reconstructed and rehabilitated sections of roads and highways till 2015
-  Construction and modernisation of railways till 2015
-  Railway bridges subject reconstruction
-  Railway tunnels subject reconstruction
-  Reconstructed and rehabilitated sections of roads and highways till 2030
-  Construction and modernisation of railways till 2030
-  Sites of building and reconstruction on inland waterways
-  The river ports which are subject to reconstruction




THE URAL FEDERAL DISTRICT


 The international hub airports


 Other airports

 The airports recovered after 2015


 Reconstructed sites of motor roads till 2015

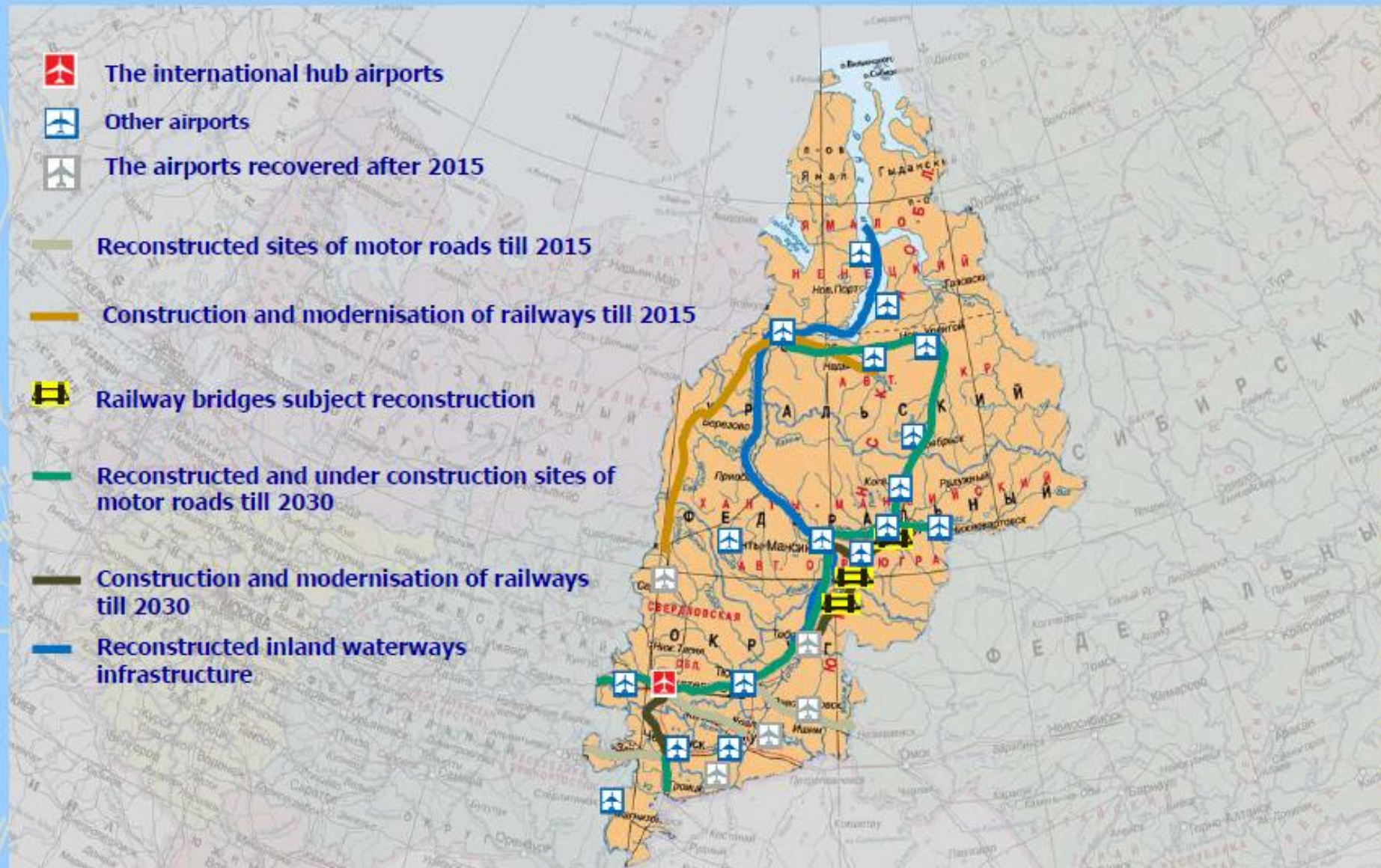
 Construction and modernisation of railways till 2015

 Railway bridges subject reconstruction

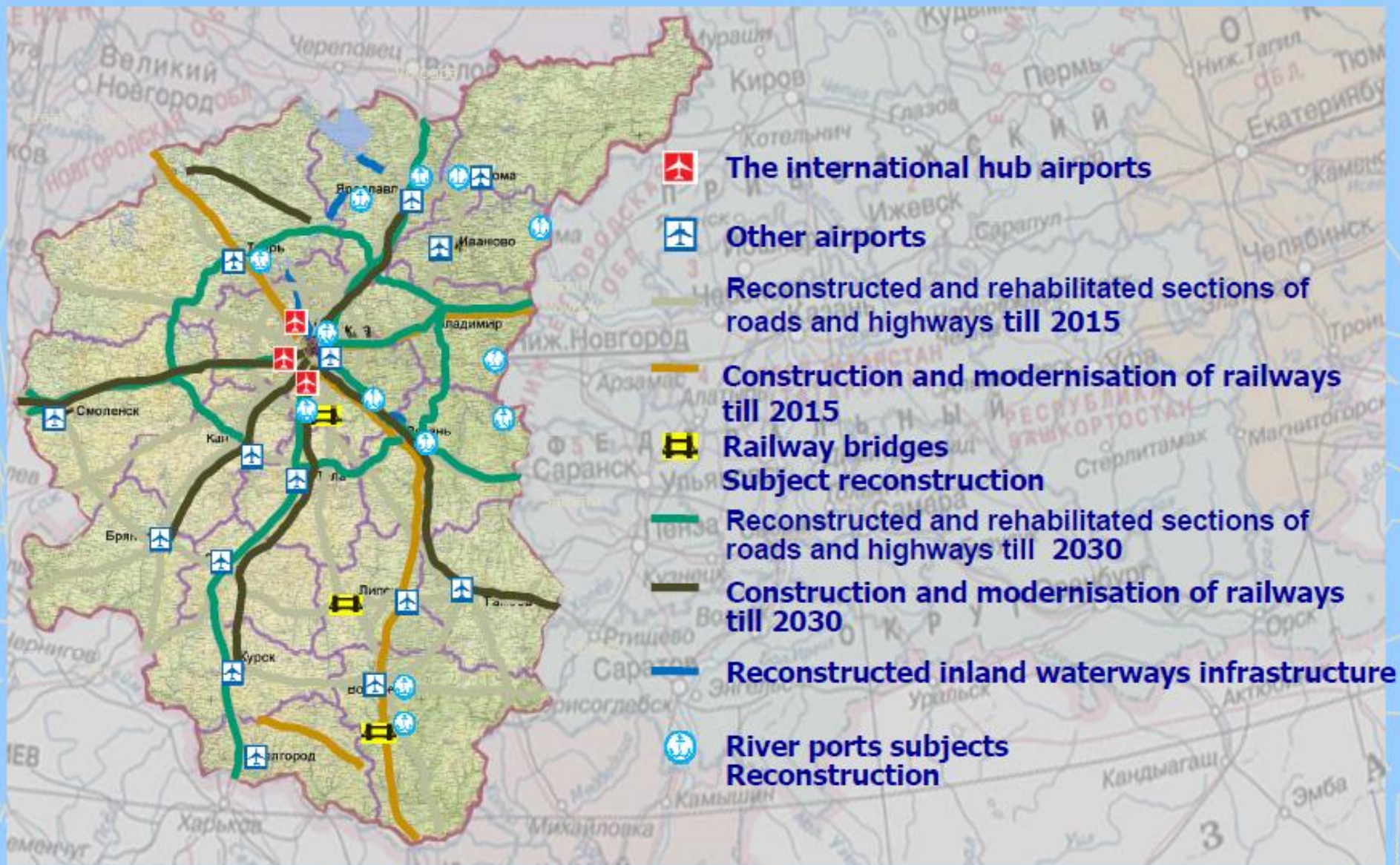
 Reconstructed and under construction sites of motor roads till 2030

 Construction and modernisation of railways till 2030

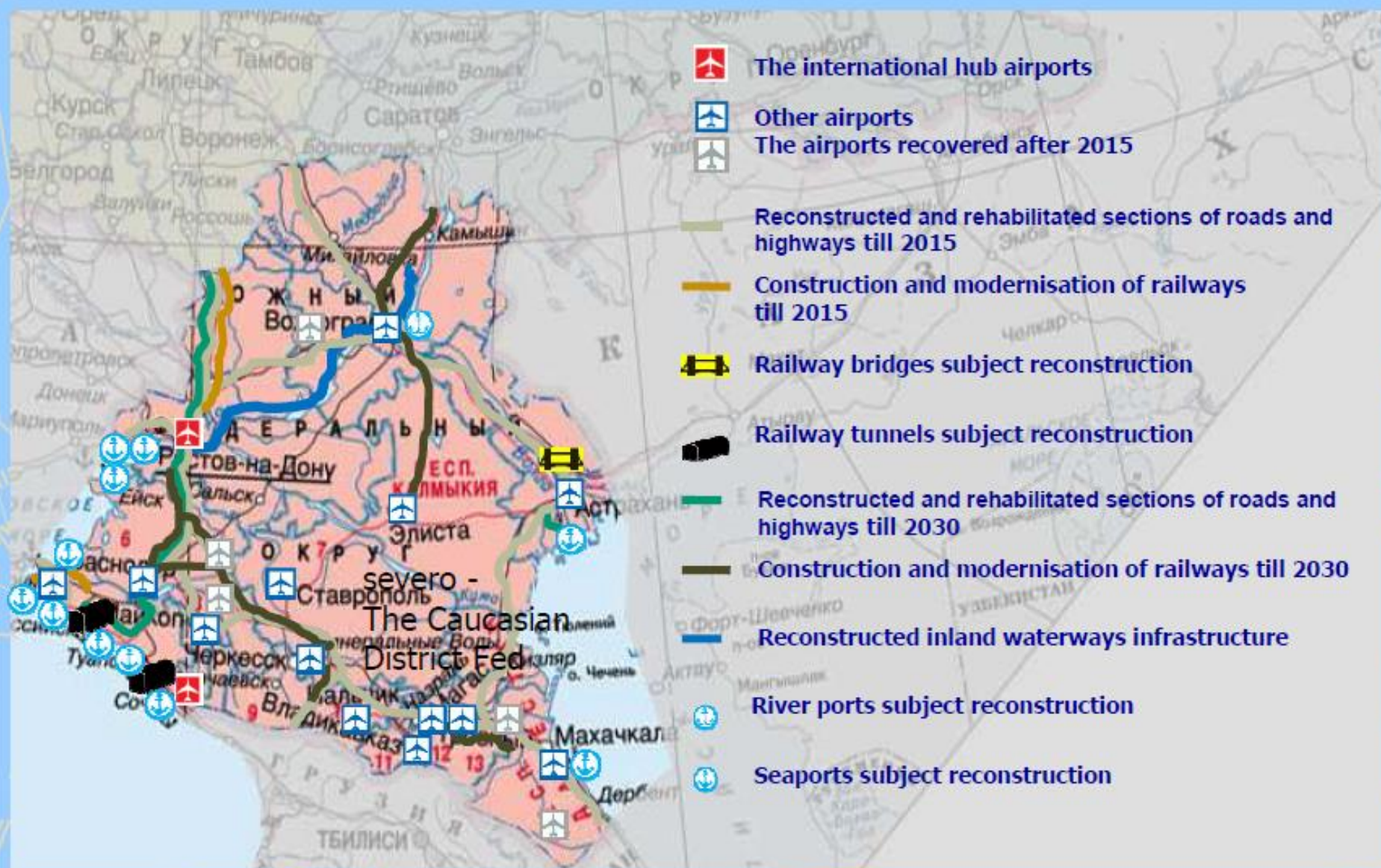
 Reconstructed inland waterways infrastructure



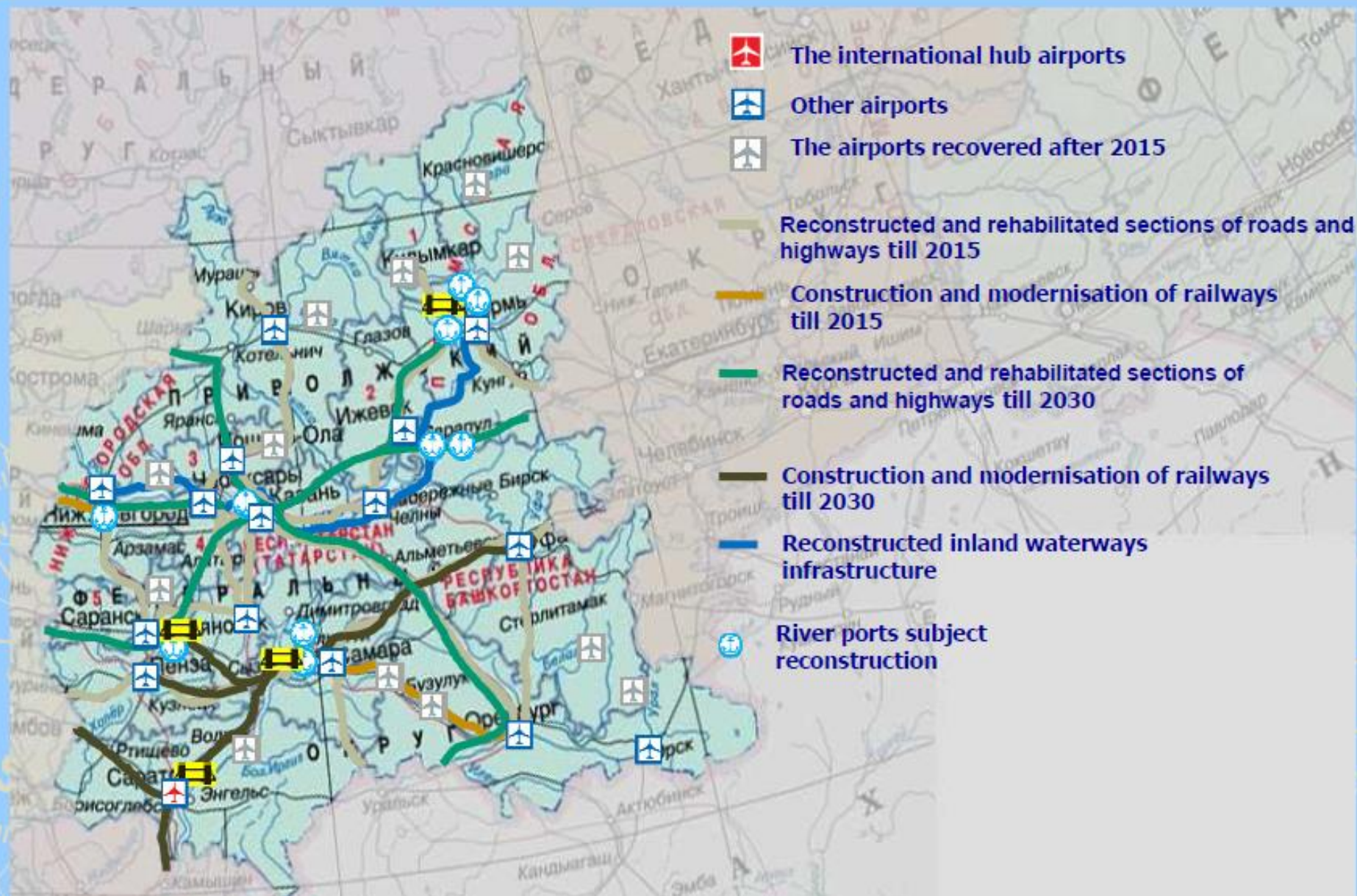
THE CENTRAL FEDERAL DISTRICT



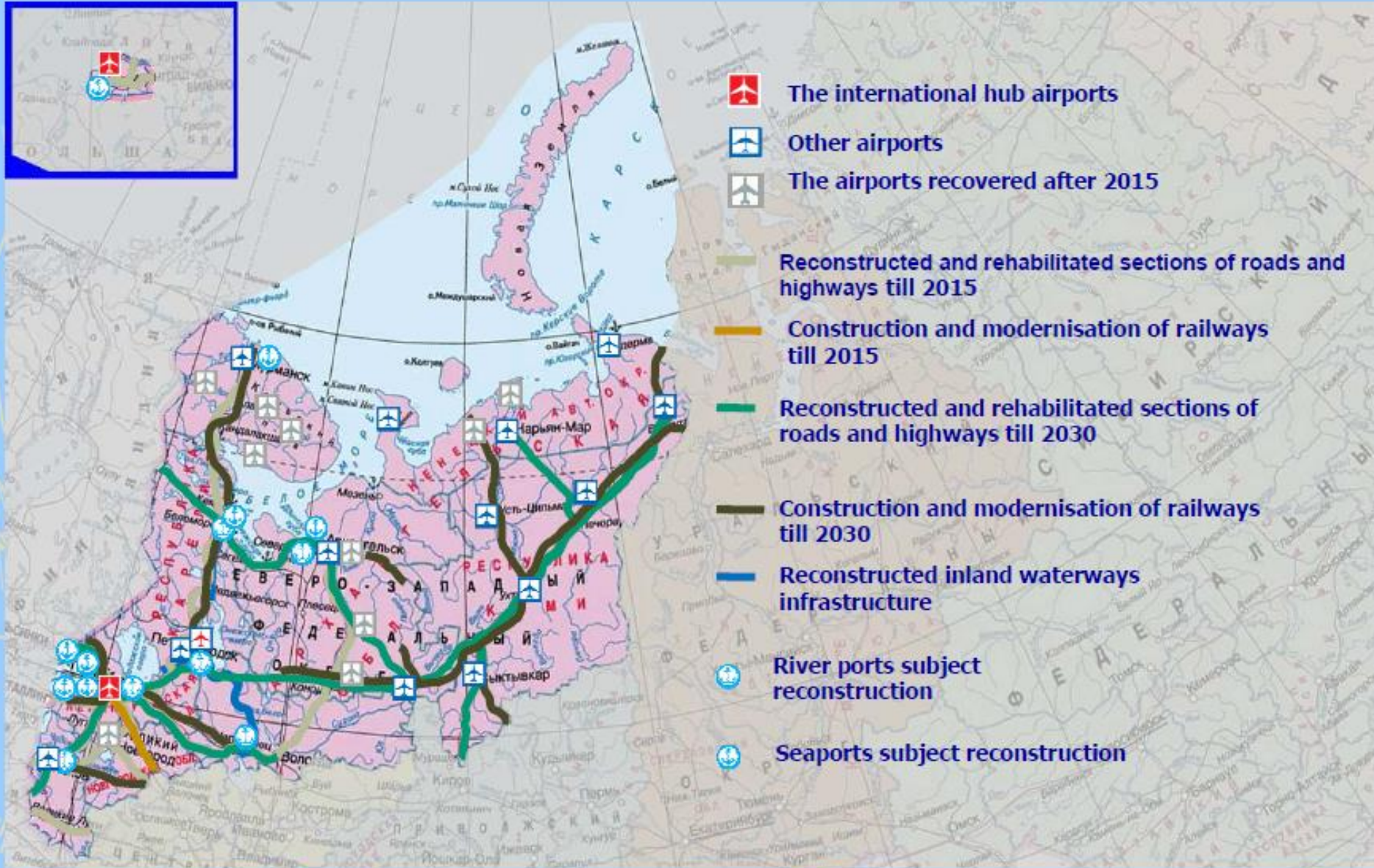
SOUTHERN and NORTH CAUCASIAN FEDERAL DISTRICTS



THE PRIVOLZHSKY FEDERAL DISTRICT



THE NORTH - WEST FEDERAL DISTRICT



Priority – harmonisation of the legislation of the Russian Federation in the field of transport with the international requirements

- ▶ The historical event was the establishment of the Customs Union between Russia, Belarus and Kazakhstan. The economic effect of creating such an alliance to Russia is estimated at 2015 in the amount of U.S. \$ 400 billion
- ▶ In 2010, signed 13 intergovernmental agreements on transport
- ▶ In 2010, eight federal laws adopted in the field of transport
- ▶ In 2010, ratified the CIS Convention on international road transport of passengers and baggage
- ▶ In October 2011 under the chairmanship of the Russian Federation in the Black Sea Economic Cooperation (BSEC) in Moscow will host a meeting of Ministers of Transport of BSEC member-states
- ▶ In October 2011 the Russian Federation will be a meeting of transport ministers of the Shanghai Cooperation Organization (SCO)
- ▶ A landmark event must be "Aviation Summit EU - Russia", which is agreed at an October 13-14 in St. Petersburg

Priority – transport safety



The decree of the President of the Russian Federation from March, 31st 2010г. №403 «About creation of complex system of transport security»

Till March, 31st, 2011

To equip the most vulnerable objects of transport infrastructure and vehicles specialized equipment and devices, providing the elimination of their vulnerability to acts of unlawful interference

Till January, 1st, 2014

Create a comprehensive system of public safety in transport, prevent emergencies and terrorist attacks on transport as well as to protect the population

Priority – sustainable development and mitigation of climatic changes

The most significant environmental problems

Environmental contamination by a road transport in cities

Protection of valuable landscapes under objects of a transport infrastructure

Emergency pouring of oil and oil products at their transportation by a water transport

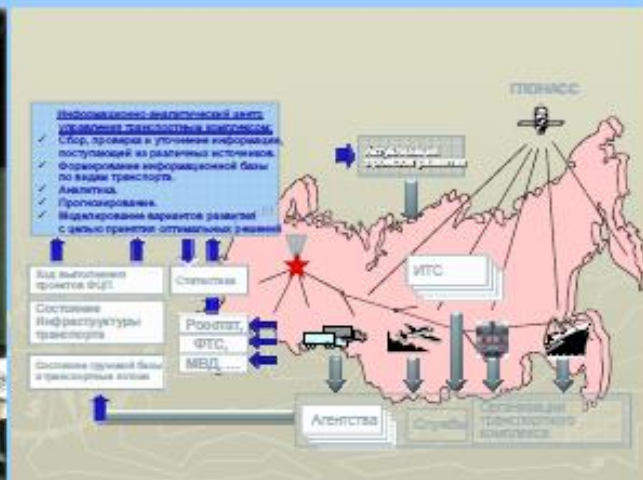
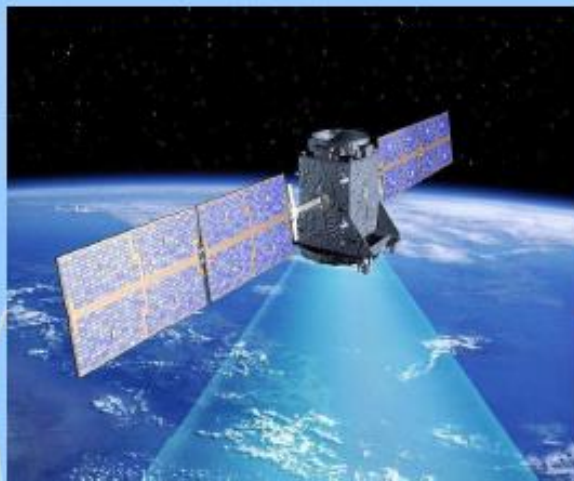
Key measures

- Development of new kinds of fuel and engines
- Development of city electric transport
- Stimulation of reducing of use of personal motor transport

- Enhancement of standards of designing, inclusion in projects of a wide range of measures on restoration, and also equivalent replacement of the withdrawn earths
- Forming of the mechanism of public ecological control

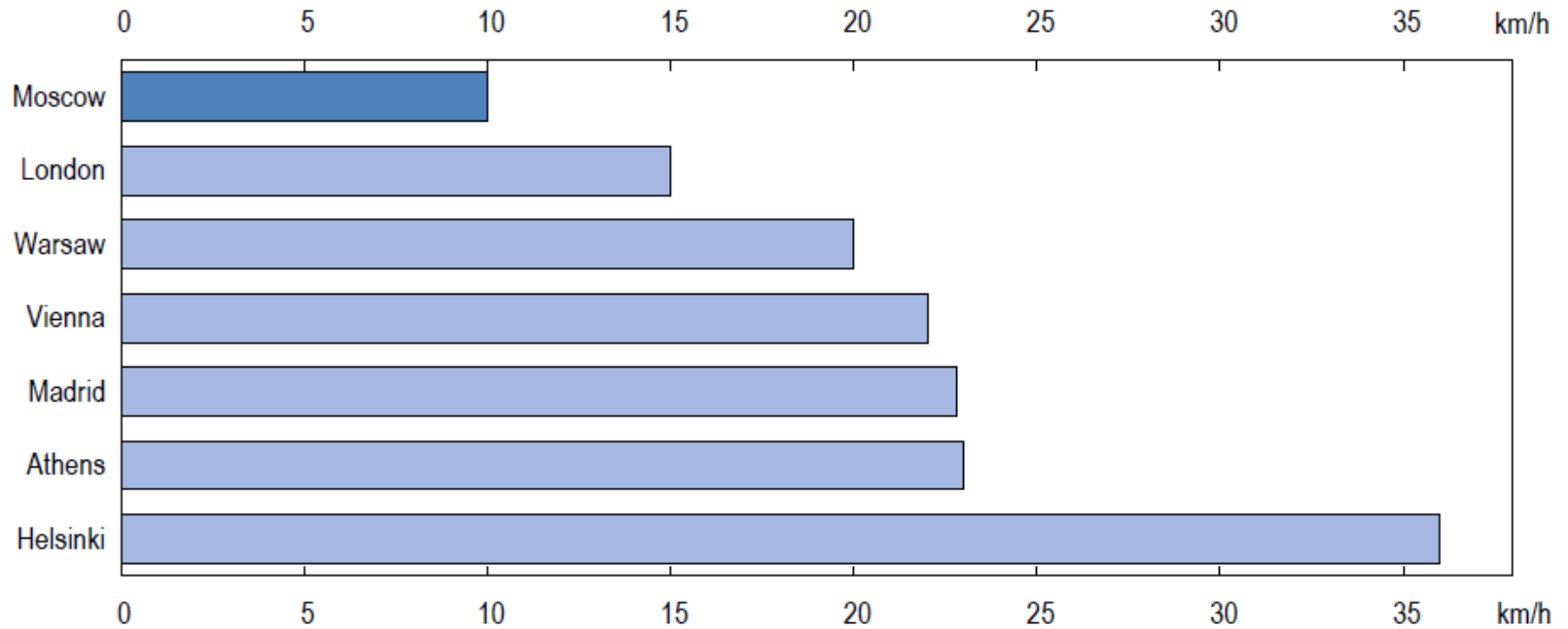
- Finishing of technical equipment of objects on a water transport to standard level
- Provision of the control of observance of ecological requirements

Priority - Innovations



- ▶ Active implementation GLONASS navigation system on transport
- ▶ Creation of the Automated management system by a transport complex
- ▶ Creation of intellectual transport systems (ITS)
- ▶ Creation of high-speed highways and increase of highway capability, air lines, sea and river routes
- ▶ Creation and application of asphalt concrete mixtures increased longevity, resource-saving technologies, composite materials
- ▶ Development of Programs of innovative development of the large companies

Figure 4. Average traffic speed in peak hours in selected cities



Source: Donchenko, V. (2013), "Towards the Sustainable Mobility in Russian cities: problems, challenges and risks", paper presented at the International symposium OPTOSOZ, Moscow, 14 March.