



# Background Synthesis Document

## VASAB Long-Term Perspective for the Territorial Development of the Baltic Sea Region

October 2009



## **Background Synthesis Document**

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### **Publication:**

The document has been drafted by Wiktor Szydarowski using outputs and results of the BSR INTERREG IIIB project East West Window and edited by VASAB Committee on Spatial Development (CSD).

The document contains outputs and results of BSR INTERREG IIIB Neighbourhood program Tacis strand project East West Window. The East West Window project is part-financed by the European Union. The contents of this document are the sole responsibility of VASAB and can under no circumstances be regarded as reflecting position of the European Union. The Grant Contract for European Community External Actions 2007/132-845.

### **Maps:**

Maps are prepared by Nordregio, RRG Spatial Planning and Geoinformation, Maritime Institute in Gdansk, as well as by Niels Boje Groth and Julien Grundfelder based on data provided by Immanuel Kant State University of Russia.

### **Design:**

Triple Bounce Ltd., Latvia

### **Printing:**

McAbols Poligrafija Ltd., Latvia

Printed in Latvia on environmentally friendly paper certified by FSC and PEFC, October 2009  
First edition, for 7<sup>th</sup> Conference of the BSR Ministers responsible for spatial planning and development, 16 October 2009, Vilnius, Lithuania

ISBN 978-9984-9955-7-1

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## CONTENTS

Introduction . . . . .	4
The overview of the Baltic Sea Region . . . . .	5
1. Progressing economic integration in the Region . . . . .	6
2. BSR metropolitan regions as international centres and gateways . . . . .	9
2.1 BSR metropolises as centres of regulative power . . . . .	9
2.2 BSR metropolises as centres of innovation, research and development . . . . .	11
2.3 BSR metropolitan regions as collective symbols and gateways to markets and people . . . . .	16
3. Small and medium sized cities in the challenge of demographic trends . . . . .	19
4. Practical solutions in urban-rural relations and partnership . . . . .	23
5. Saint Petersburg and Kaliningrad as gateways between Russia and the BSR . . . . .	27
5.1 Development tendencies of Saint Petersburg . . . . .	27
5.2 Development tendencies of the Kaliningrad Region . . . . .	28
5.3 Integration potential of North West Russia into the BSR . . . . .	30
6. Transport accessibility . . . . .	35
6.1 Fragmented road networks . . . . .	35
6.2 Interoperability of the BSR national rail networks and transnational railway services . . . . .	38
6.3 Existing Interreg initiatives on transport corridors . . . . .	39
6.4 Better accessibility potentials . . . . .	41
7. Integration of the energy networks . . . . .	41
7.1 Patterns of energy production . . . . .	41
7.2 Patterns of energy consumption . . . . .	43
7.3 Territorial capital of renewable energy . . . . .	46
8. Bridging the digital gap between the BSR countries . . . . .	47
8.1 Best practices on e-accessibility in the BSR . . . . .	48
9. Awareness of the sea use potentials and threats around the Baltic Sea . . . . .	51
10. The current state of maritime spatial planning in the BSR . . . . .	53
11. Preconditions for successful introduction of the maritime spatial planning . . . . .	55
Appendix I: Abbreviations and acronyms used . . . . .	58
Appendix II: List of the Members of the Committee on Spatial Development in the Baltic Sea Region — CSD/BSR . . . . .	59
Acknowledgement . . . . .	61

## INTRODUCTION

VASAB — Vision and Strategies around the Baltic Sea — is an intergovernmental network of 11 countries promoting cooperation on spatial planning and development in the Baltic Sea Region. The member countries are: Belarus, Denmark, Estonia, Finland, Germany, Lithuania, Latvia, Norway, Poland, Russia and Sweden.

In 2005, the Council of the Baltic Sea States encouraged VASAB to update the vision of long-term territorial development of the Baltic Sea Region (BSR). Therefore, in the Gdansk declaration of September 2005, the ministers responsible for spatial planning and development agreed to prepare a long-term perspective for the territorial development of the Baltic Sea Region (LTP) with active participation of the regional authorities and in a dialogue with relevant pan-Baltic organisations.

Preparation of the LTP was coordinated by the VASAB Committee on Spatial Development. The document was deliberately profiled to certain policy sectors (urban networking and urban-rural relations, accessibility and transnational development zones, sea use planning and integrated coastal zone management) and developed by the thematic working groups.

Financial support for the LTP working groups was provided by the BSR Interreg III B project *East West Window*. This particular project addressed the territorial integration of the North-West Russia into the BSR through joint spatial planning and development actions in some priority fields. The purpose of the project's analytical work was, inter alia, to diminish knowledge gaps on the economic and spatial trends, which are relevant for connecting potentials between the North-West Russia and the other BSR territories and to develop solutions for using the potential of the North-West Russia to foster the economic competitiveness, territorial cohesion and sustainable development in the BSR.

The final draft of the LTP went through the concertation process by respective national ministries. It was also forwarded to all relevant organisations, both at the pan-Baltic level and in the BSR countries, to gather feedback on the content quality and on the feasibility to lead and be involved in actions stipulated by the document.

The LTP document identifies the most important assets, development trends and challenges affecting the long-term development of the Baltic Sea Region; predicts the state of the Region in 15 - 20 years as a result of joint efforts of countries and organisations; and presents the most important instruments and actions to guide the development of the Region towards territorial cohesion.

The Background Document features a synthesis of the most relevant development tendencies resulting from the analyses conducted by the *East West Window* working groups. It serves as a conceptual basis for the actions laid down in the LTP document.

## THE OVERVIEW OF THE BALTIC SEA REGION

The Baltic Sea Region includes eleven countries, encompassing whole territories of Poland, Belarus, Lithuania, Latvia, Estonia, Finland, Norway, Sweden and Denmark; parts of Russia (Saint Petersburg City, the Republic of Karelia and the five oblasts of Kaliningrad, Pskov, Novgorod, Leningrad and Murmansk) and parts of Germany (the six Länder of Bremen, Hamburg, Schleswig-Holstein, Mecklenburg-Vorpommern, Brandenburg and Berlin, and the Regierungsbezirk Lüneburg).

Eight of the eleven countries are the European Union members.

The Baltic Sea Region contains a large part of Northern Europe, spanning the latitudes from 49° N to 71° N and the longitudes from 5° E to 41° E. The Region includes almost the whole Baltic Sea drainage area.

The distance from North to South (from the northernmost parts of Norway to the south-eastern corner of Poland) is ca. 2,500 km (equalling the distance from Stockholm to Sicily). The distance between the eastern and the western border of the Baltic Sea Region exceeds 1,500 km.

The total land area of the Baltic Sea Region is approx. 2.4 million km<sup>2</sup>, which is more than half of the total area of the European Union with 27 member states (ca. 4.2 million km<sup>2</sup>). The total population living in the Baltic Sea Region is approx. 105 million. This figure could be compared to ca. 500 million living in EU 27. The average population density is 45 per km<sup>2</sup>, compared to roughly 120 per km<sup>2</sup> in EU 27.

Not surprisingly, the huge territory of the Baltic Sea Region shows many internal differences. Land use varies from tundra and boreal forests in the northern part of the Region, changing to agricultural land and deciduous forests in the south. Almost half of the Region lies north of 61° N, but only approximately eight million people live in that area. Population densities in the southern half of the Region are close to the European average.

The Baltic Sea Region is an urbanised territory. More than 60% of the total population lives in about 1,050 cities with more than 10,000 inhabitants. Around 25% of the population dwells in the rural areas. Saint Petersburg and Berlin are the largest metropolises with 4-5 million inhabitants each.

## I. PROGRESSING ECONOMIC INTEGRATION IN THE REGION

Regional integration is the key concept in examining to what extent the Baltic Sea Region is developing towards a strong European mesoregion, and the economic integration is its crucial parameter. In that respect, trends in the intra-regional trade (i.e. trade between the countries within the Region) and the intra-industry trade (trade taking place within the same kind of commodities) are of primary importance.

The intra-regional trade flows within the BSR in the last 5-6 years show a period of consolidation, with only minor changes in the trading pattern. The Baltic Sea Region is the dominant foreign trade area for the smaller economies, like Estonia and Lithuania (with a share of the BSR in the total trade over 50 %). For the four Nordic countries, the share of the BSR trade is between 34.5% for Norway and 43.6 % for Denmark. These figures are somewhat lower for Russia and Germany, on account of the overall size and geographic location of these countries.

The intra-industry trade indexes for the BSR countries show a considerable coherence of the production pattern. The share of the intra-industry trade has been constantly increasing, primarily in the eastern part of the BSR, reaching now about 40% of the total trade, as compared with twice as big share in the western BSR countries. The exception to this pattern is, however, the case of Russia.

The Russian trade shows predominance of the inter-industry exchange with a rather non-integrative character. The export patterns display a domination of natural resources and commodities such as gas, oil and oil products; whilst machines and equipment prevail among the imported manufactured goods. Within the BSR, Russian investments are relatively low and mainly related to the transport and energy sector, following the motivation to get a strategic access to the world-wide markets and become members of the global specialised networks. The east-west routing of the major transport lines from Russia to Western Europe makes both the North West Russia and the three Baltic States a strategic transit area for Russian international transport. In effect, significant Russian investments have been placed in the network of railways and pipelines leading to the seaports of the three Baltic States, as well as in the infrastructure of these ports. Recently, Russia has been developing new port capacity around the Gulf of Finland (Primorsk, Ust-Luga, Vysotsk) to redirect substantial part of cargo flow.

The observed trends show a low, however a continuously increasing economic integration, with the internal relations of the Baltic Sea Region developing stronger than the external relations. This pattern casts a promising light for political initiatives which aim at improving the economic convergence and territorial cohesion in the area.







## 2. BSR METROPOLITAN REGIONS AS INTERNATIONAL CENTRES AND GATEWAYS

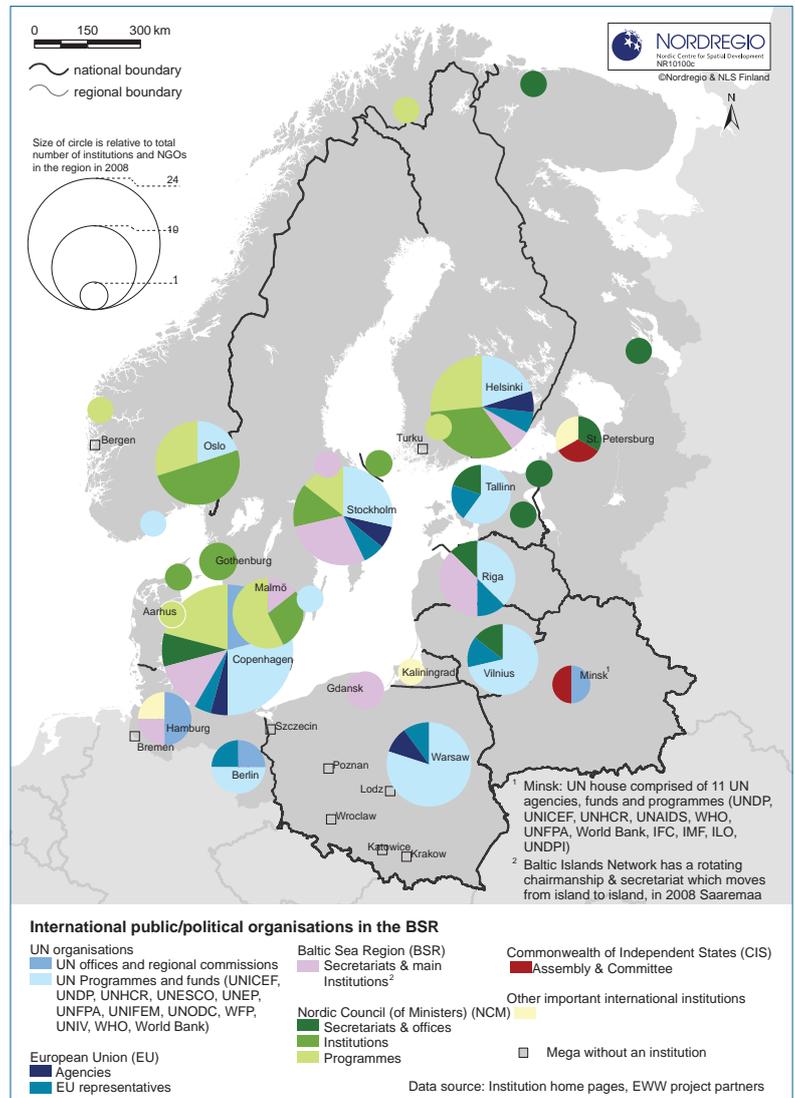
### 2.1 BSR METROPOLES AS CENTRES OF REGULATIVE POWER

BSR metropolitan regions (MEGAs) play a role as international centres for decision and control, although their performance is territorially diversified (fig. 1). The Nordic countries, the northern part of Germany and Saint Petersburg represent areas where decision making power (expressed e.g. by location of international organisations, high market-valued companies, banks and other financial services) is much more concentrated as compared to e.g. Poland or the Baltic States.

The metropolitan region of Copenhagen accommodates the broadest representation of such international organisations. Pan-Baltic institutions are primarily located in Copenhagen, Stockholm, and Riga, and to a lesser extent in Hamburg and Helsinki, whereas EU-related institutions are present specifically in the three Nordic capital regions (Copenhagen, Stockholm and Helsinki) and also in Warsaw. The latter seems the most important centre in respect of the UN-related institutions in the BSR, followed by Minsk, Hamburg and Copenhagen. Unsurprisingly, Saint Petersburg and Minsk are important locations for the Commonwealth of Independent States organisations (CIS), as they are more oriented towards their eastern hinterland than to the rest of the BSR.

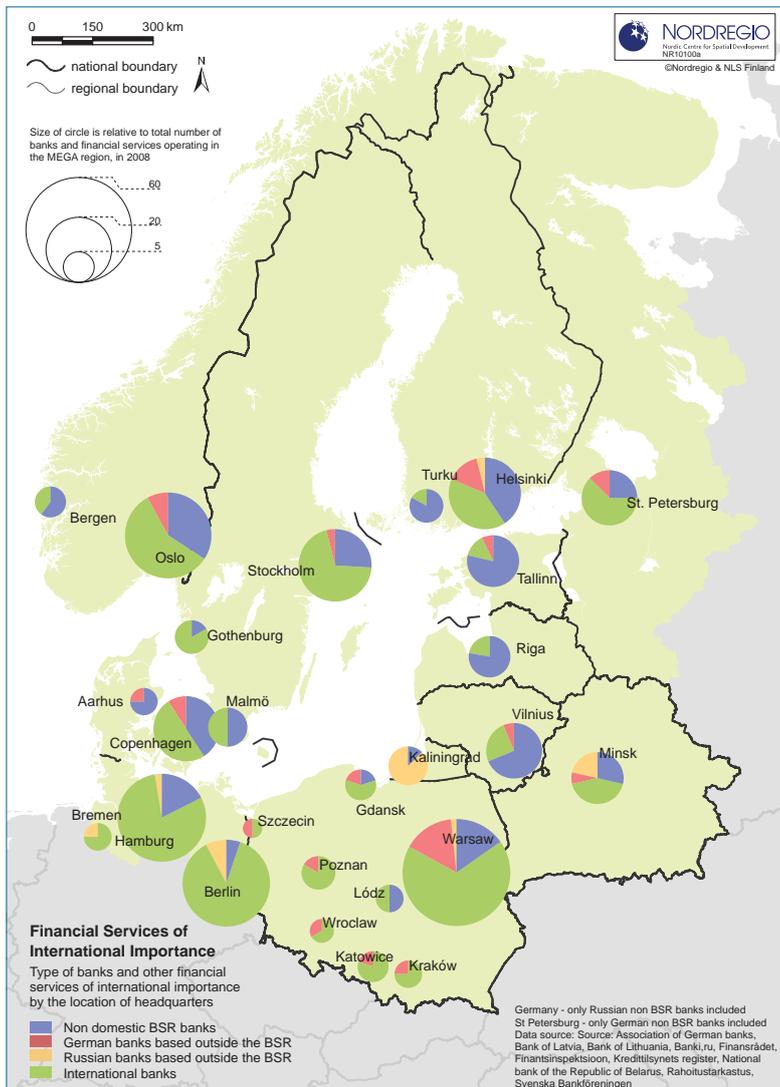
Almost all headquarters of 25 highest market value companies in the BSR are located in metropolitan regions, primarily in the Nordic capitals. The top position is however taken by Saint Petersburg

Fig.1 Metropolitan regions of the BSR as seats of international organisations



Source: Nordregio

Fig.2 Metropolitan regions of the BSR as hosts of international financial services



Source: Nordregio

international banks. The situation in Kaliningrad is a rather isolated case, as only one bank from abroad (Sweden) is currently situated there. Saint Petersburg, on the other hand, displays a pattern of financial servicessimilar to those in the metropolitan regions of Stockholm or Helsinki.

A very interesting pattern has evolved in the global business services represented by the global accountancy companies. In contrast with the Nordic countries, the BSR part of Germany (likely because of the extensive competition by the domestic firms) and the highly polycentric Poland and Belarus do not show the existence of a regional network of such services outside the metropolitan regions. The same can be said for the Baltic States and the North West Russia.

hosting a decision centre of the Russian *ОАО Gazprom-neft*, which represents a market value of about 200 billion euro (in 2007).

The BSR metropolises are also centres of banks and other financial services. All capital cities, except those of the Baltic States, as well as Saint Petersburg and Hamburg feature a vast number of international financial service providers located outside the Region. In other words, these metropolitan regions can be viewed as the central nodes in the servicing of financial assets originating outside the BSR (including Germany and Russia).

Within the context of transnational economic integration, the location and size of non-domestic, but still BSR-based financial services is of particular importance (fig. 2). Their existence is fundamental in easing the market entry, e.g. for the companies based in another BSR country. Particularly in the capital regions, but also in Saint Petersburg, as well as in Turku, Bergen, Aarhus and Lodz, this sector makes up a considerable share in the overall number of the

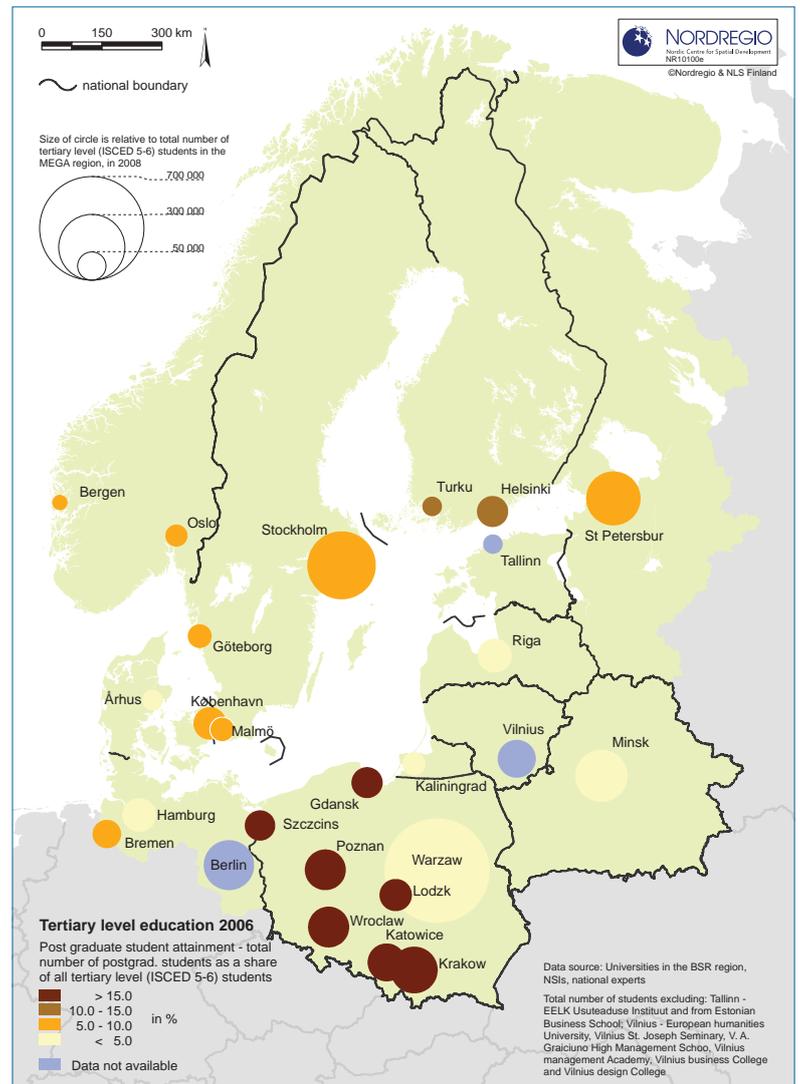
Overall, there is a clear east-west performance gap between relative strong MEGAs in the western part of the BSR and weaker ones in the eastern part. The ranking of European cities for global network connectivity confirms the better position of Western MEGAs, as compared with the Eastern MEGAs, in hosting the international institutions and office locations of the so called advanced producer services and global media firms. The exception, however, is Warsaw where several structures of that kind have been established.

## 2.2 BSR METROPOLES AS CENTRES OF INNOVATION, RESEARCH AND DEVELOPMENT

Even though innovation is not necessarily used in the same place it is produced, a certain picture of the BSR concerning the second metropolitan function, i.e. innovation and R&D, can be made based on a few factors.

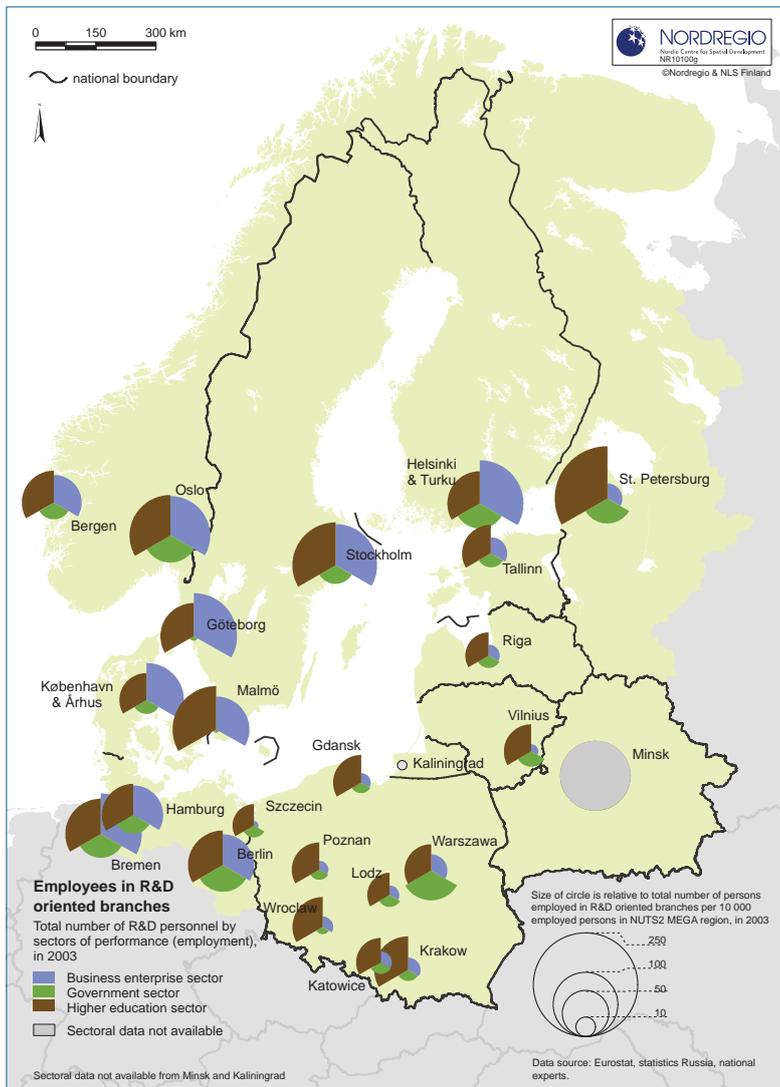
Data on the postgraduate students in the metropolitan regions reveals a striking pattern with a leading position of Polish MEGAs in terms of absolute numbers and share of such students in the tertiary level education (fig. 3). Saint Petersburg and Stockholm are other noticeable centres in the BSR, whereas the Finnish metropolitan regions of Turku and Helsinki show lower overall numbers, but a high share of the postgraduate students as compared with all tertiary level students. Measured against their overall size as working places, the absolute numbers of Warsaw in particular, but also Minsk, Vilnius and to some extent Riga are relatively high, whereas the overall numbers for Hamburg, Copenhagen and Oslo are rather low in this respect.

Fig.3 Tertiary level education performance of the BSR metropolitan regions



Source: Nordregio

Fig.4 Employees in research and development economy sectors of the BSR metropolitan regions



Source: Nordregio

It must be noted however, that relatively high overall numbers or a high share of those postgraduate students can be viewed as a regional competitive asset only if the region manages to uphold and successfully utilise these resources, i.e. by minimising the brain drain flows to other regions.

Another factor, which measures the number of employees in research and development sectors, confirms these observations, with the Polish metropolitan regions showing a strong share in the higher education sector, though a rather low one in the other two branches (businesses and government). It is, in general, interesting that the higher education sector is more strongly represented in the Eastern BSR metropolitan regions than in the western ones, in reverse to the share of the R&D related employees in the business sector (fig. 4).

The innovation profiles of the BSR metropolises in the western part of the BSR result from a business-focused strategy towards product and process innovation, while in the eastern part they are driven by the university sector as a generator of innovation. This dominating role of universities and research institutions in producing innovation is confirmed by Russian business managers and entrepreneurs in their evaluation of the quality and innovativeness of Russian products.

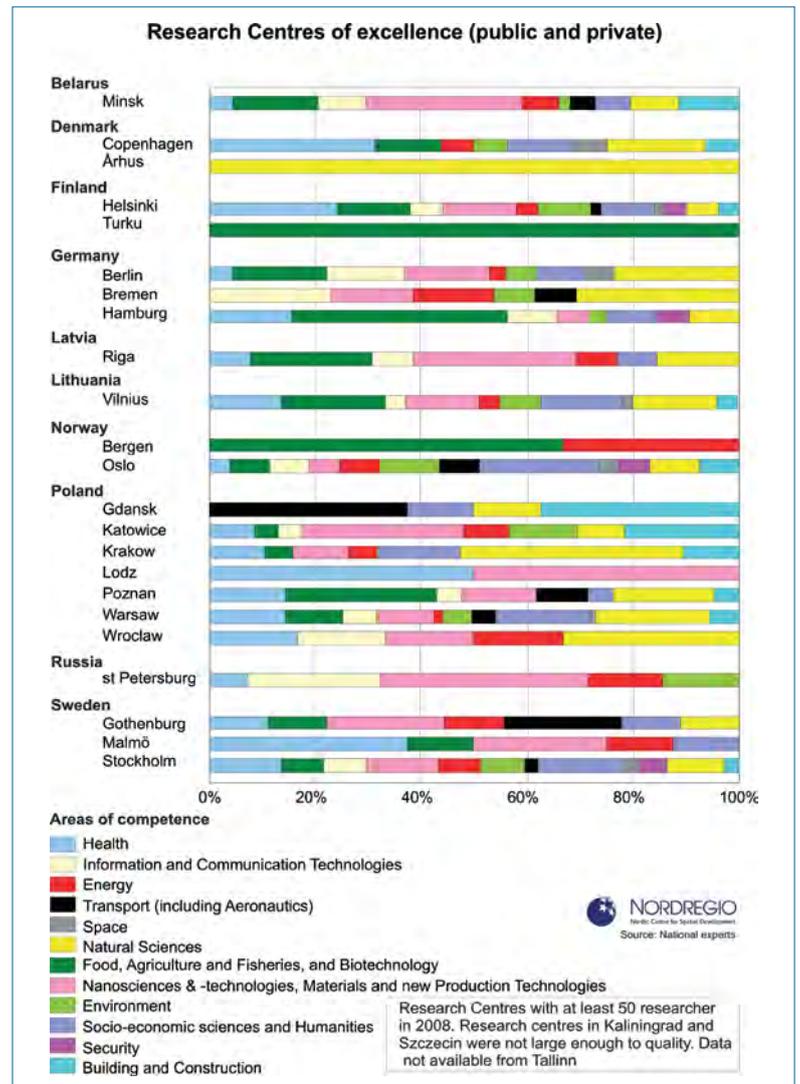
Nevertheless, the sectoral profiles display a very competitive picture of the innovation in the BSR, showing that most of the metropolitan regions are innovative in the same sectors. Analysis of the research centres of excellence suggests some potential areas for cooperation among MEGAs (fig. 5). Specifically, the following areas of competence are represented in almost every BSR metropolitan region by larger research institutions, which allows to assume that these areas have the strongest

potential to build up pan-Baltic collaborative networks: a) Health; b) Natural Sciences; c) Food, Agriculture and Fisheries, and Biotechnology; and finally d) Nanosciences &-technologies, Materials and new Production Technologies.

On the other hand, when comparing the numbers of employees in technologically oriented branches with employees in knowledge intensive services, the differences in the overall development paths between western and eastern metropolitan regions can easily be detected (fig. 6.1, fig. 6.2). The former ones show relatively higher numbers in knowledge intensive services than in technologically-oriented branches – opposite to the status of eastern MEGAs. These reveal relatively lower shares of the employed in 'high' and 'medium high-tech' manufacturing. The unique case of Saint Petersburg, which demonstrates a considerable share of high-technology services, may be associated with presence of the research centres in this field.

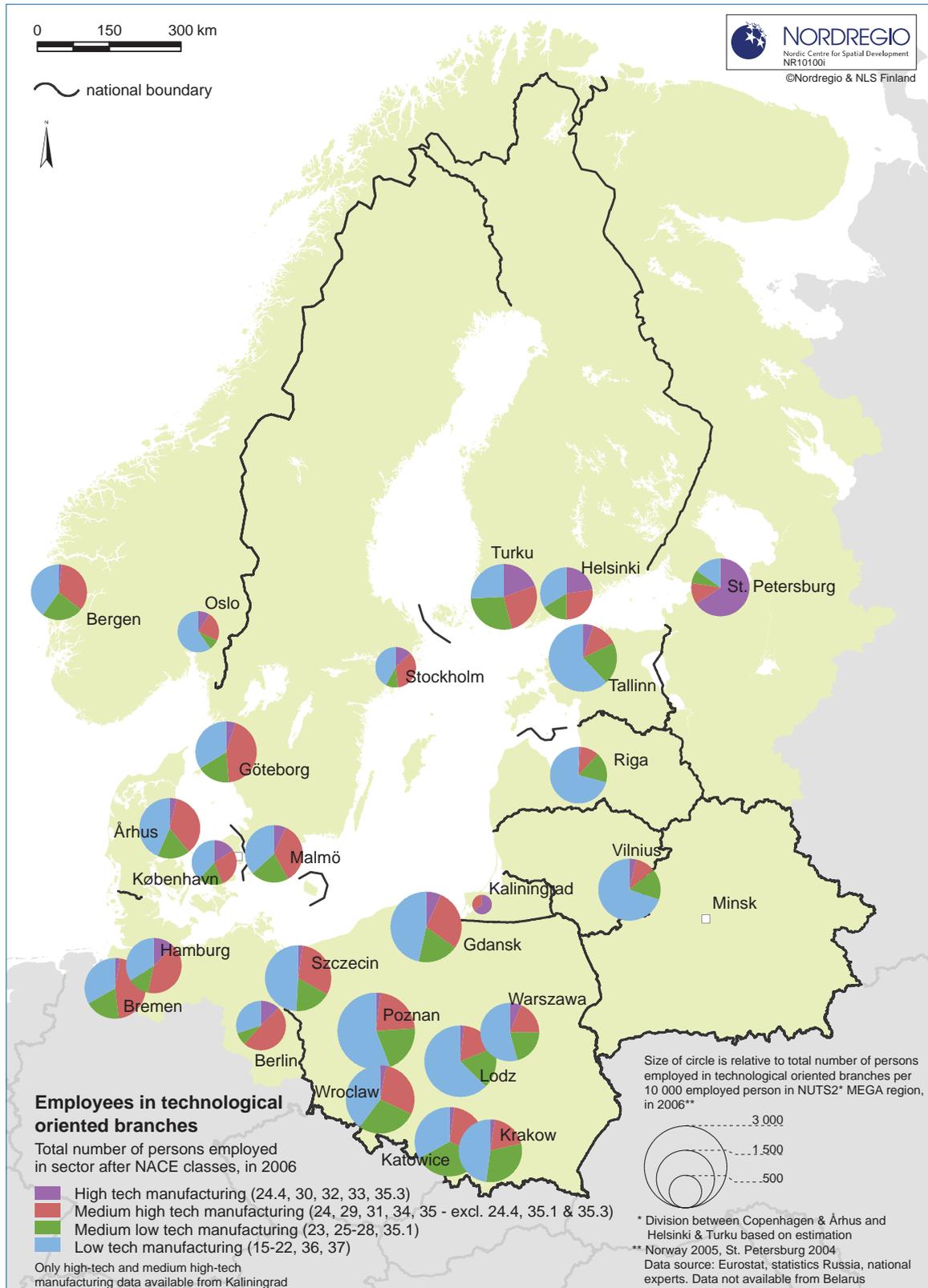
Finally, patent applications to the European Patent Office may serve as an indicator of the Region's ambition to exploit knowledge for the economic market and provide stronger bonds in the European integration (fig. 7). In this area, a significant territorial gap exists, as most of the western BSR metropolitan regions apply for patents at the European level in much higher numbers than the Eastern regions. Concerning Belarus and Russia, the analysis of the total patent applications reveals very low figures, which manifests both the limitation of the intellectual property rights in these parts of the BSR and the need for institutional changes.

Fig.5 Public and private research centres of excellence in the BSR metropolitan regions



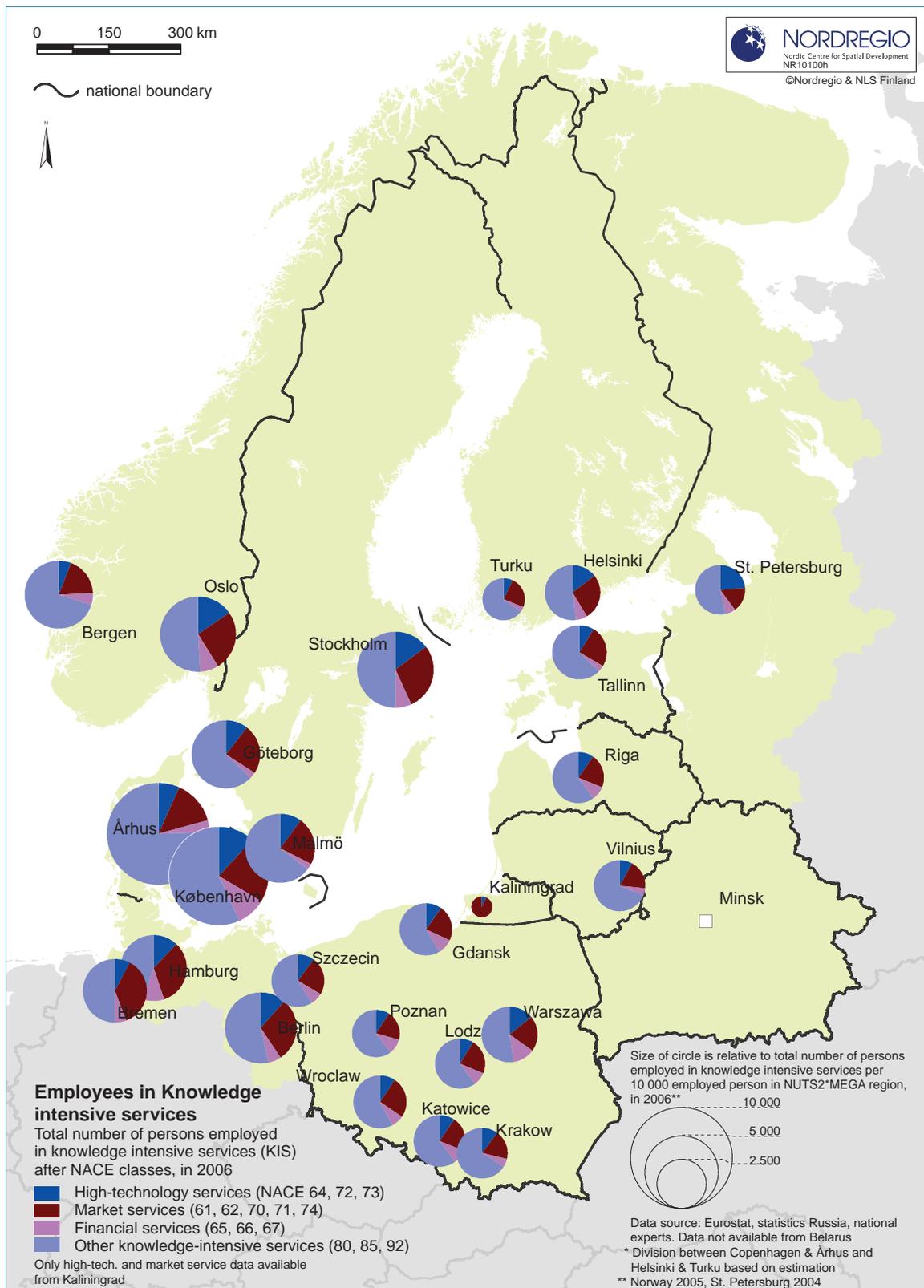
Source: Nordregio

Fig. 6.1. Employees in technologically oriented branches in the BSR metropolitan regions



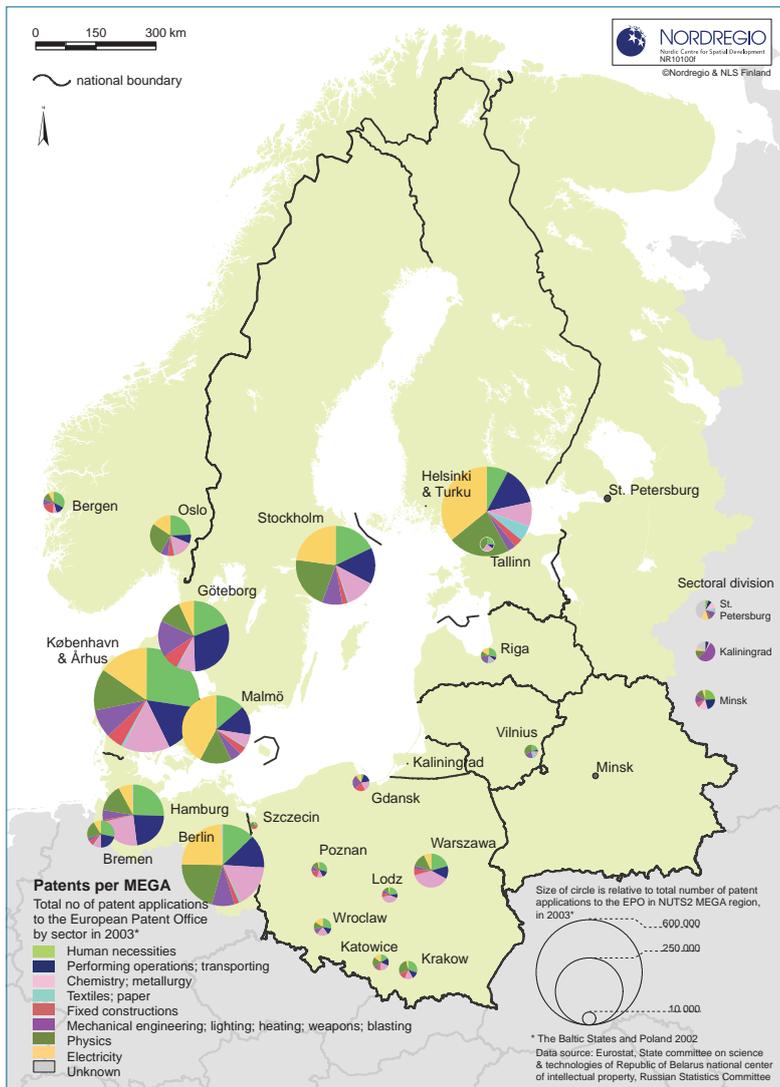
Source: Nordregio

Fig. 6.2. Employees in knowledge intensive services in the BSR metropolitan regions



Source: Nordregio

Fig.7 Patent applications from the BSR metropolitan regions to the European Patent Office



Source: Nordregio

## 2.3 BSR METROPOLITAN REGIONS AS COLLECTIVE SYMBOLS AND GATEWAYS TO MARKETS AND PEOPLE

The functioning of the BSR metropolitan regions as gateways to knowledge, people and as collective symbols is mostly dependent on the Region's relative position in the international network of air- and seaports, high-speed railways, motorways, and telecommunication systems.

In this context, the number of flights between the destinations is a good approximation of the intensity of interactions between the BSR metropolitan regions. From a global perspective, none of the BSR metropolitan regions have so far developed a dense, global air transport network that would be comparable to those established, for instance, in London, Paris, Frankfurt or Amsterdam. In exploring this potential it is important, however, to bear in mind that the hub and spoke system is not only shaped by e.g. the infrastructural endowments and market sizes of

regions, but primarily by specific strategies and capacities of individual airlines. Such strategies are driven by market rules, which make the maintenance of unprofitable destinations unfeasible.

The observations reveal that the different parts of the Baltic Sea Region have developed their strong relational networks in line with historical, cultural and geopolitical past. Intensive connections exist between western BSR airports and airports situated in the EU15, and especially in the United Kingdom, the Netherlands, Belgium, Germany and France. Destinations in Southern Europe are also privileged due to their attractiveness for tourism. At the same time, airports on the Eastern shore (primarily Saint Petersburg, Kaliningrad, Riga and Minsk) act as gateways for the destinations in the non-BSR part of the Russian Federation, as well as in Ukraine, Central Asia, Middle East and the Caucasus.

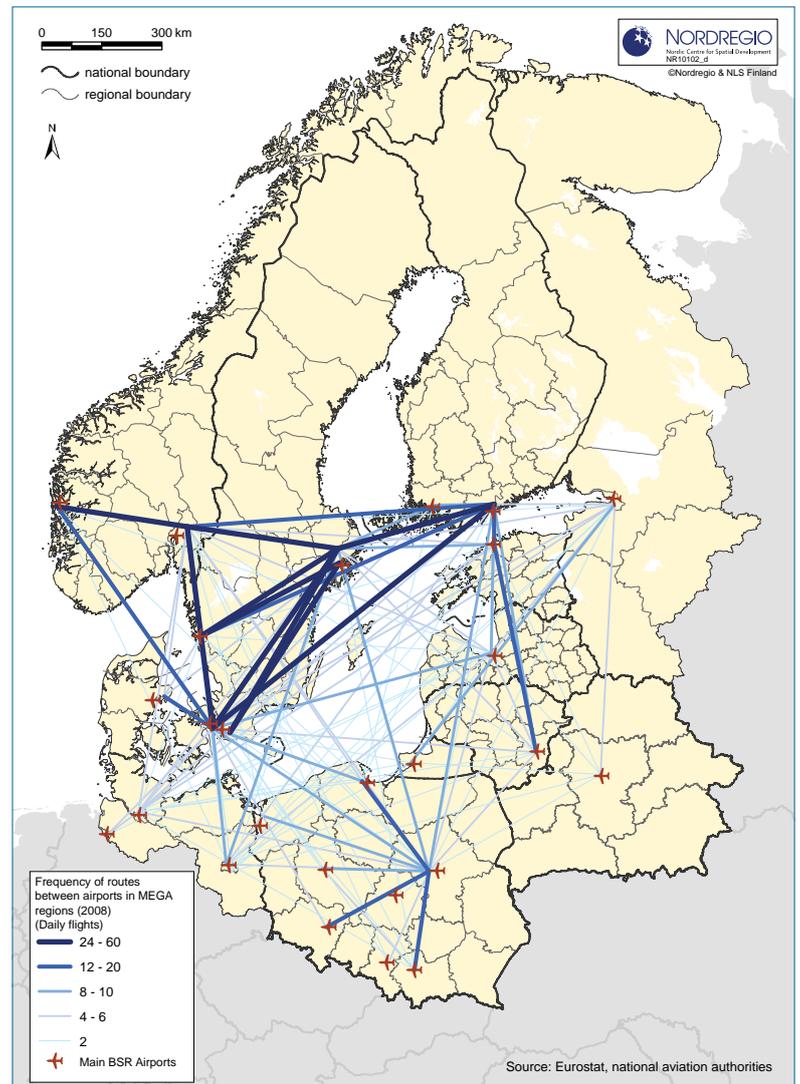
Another interesting feature is that while the air network originating in the BSR is rather dense in relation to the number of destinations, it is practically non-existent for many parts of the world. Indeed, there are very few connections to relatively large and established markets, such as Canada, Australia and Japan, or emerging markets such as Latin America and India, and almost no direct connections to Africa.

The air connections pattern within the BSR features a dense network of the direct flights between the main metropolitan regions (fig. 8). This network is especially intensive between the Nordic capital cities due to strong institutional, cultural and historical ties, but also due to a relatively high degree of integration between the labour markets and business structures of these countries. Also, interactions between Finland, Estonia, Latvia and Lithuania become more and more intensive.

It is not the case for the smaller metropolitan regions, which lack direct connections to some BSR capitals, as well as to other secondary metropolitan regions. This group contains almost all Polish metropolitan regions except Warsaw, but also, for example Bremen, Bergen, and Kaliningrad. Such shortcomings make it impossible to connect these regions to a system of one-day return trips favoured by the business world.

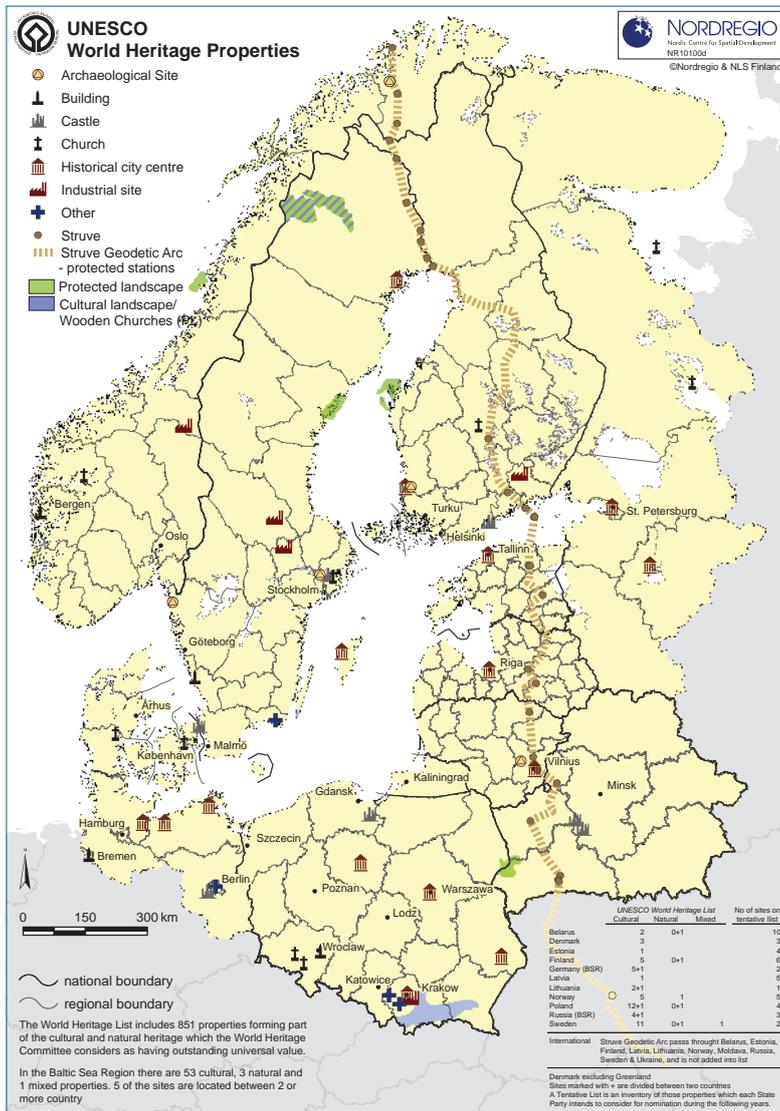
In terms of the passenger volumes the largest airports in the BSR are still located in the West. In Copenhagen, Stockholm and Oslo the annual number of passengers reaches up to 20 million. On the Eastern side, only the Warsaw airport has traffic volumes at the level of northern Germany and the Nordic countries, with over 8 million passengers in 2006. A recent sharp increase in the passenger traffic volumes, recorded primarily in airports of a smaller size, may project a reduction in the current imbalances between the Western and Eastern parts of the BSR and may decrease the advantages of some BSR metropolitan regions in this respect.

Fig.8 Passenger air connections between the BSR metropolitan regions (spring 2008)



Source: Nordregio

Fig.9 UNESCO World Heritage Sites in the BSR



Source: Nordregio

The gateway function of the metropolitan regions in the BSR is also facilitated by the seaports. The most dynamic passenger ports are located in the proximity of western MEGAs (Helsingborg-Helsingør, Helsinki-Stockholm and Rødby-Puttgarden), with only one seaport on the eastern shore (Tallinn) ranked among the leading 25 ports in the Region. On the other hand, the cargo flows show a different picture, with Hamburg, Bergen and Saint Petersburg at first three places, but with more prominent positions of eastern BSR ports. These have noted a significant increase in the turnover between 2000 and 2006.

Maritime routes connect the BSR metropolitan regions with the global markets in Asia, North America and Oceania. This connectivity is of utmost importance for the export of manufactured goods (e.g. from Finland and Sweden) and natural resources (e.g. Russia), and plays a major role for the integration of the BSR in the global trade patterns.

In the globalisation processes the international fairs play a key role in opening up 'domestic' markets. Almost all of the selected BSR metropolitan regions perform such a function, and no east-west divide is detectable. In this context, the prominent position of Saint Petersburg should be noted.

As the metropolitan regions are embedded in the global flow of signs and symbols, they are able to produce certain collective images and thus mental maps which have a great impact on the perception of decision-makers, investors and tourists. To this end the spatial distribution of the UNESCO World Heritage Sites may be perceived as an asset for strengthening a MEGAs' profile beyond its own territory. Here, a rather balanced east-west distribution of such competitive assets is displayed (fig. 9).



### 3. SMALL AND MEDIUM SIZED CITIES IN THE CHALLENGE OF DEMOGRAPHIC TRENDS

The overall morphological pattern of the urban system reveals an uneven distribution of cities between the northern and southern parts of the BSR, with quite dense clustering of smaller cities in most of the metropolitan regions, notably the metropolitan regions of Berlin, Hamburg, Copenhagen, Oslo, Stockholm, Warsaw, Lodz and Katowice. These medium-sized cities in the metropolitan areas often are the 'winners'. Closely located to the MEGAs, they usually are offered the opportunity to follow more than one track of development. They may offer attractive and cheap housing for people working in the metropolitan centre, as well as building sites for private companies, often with an easy access to efficient transport and ICT infrastructure.

Only seldom such opportunities are at hand outside the metropolitan areas. Medium-sized cities in more remote regions are not offered the opportunities of integrating with the housing and labour markets of the metropolitan cities. They have to match the challenges and dynamics of the local regional economy, usually facing new trends of globalisation. The most peripheral cities are often exposed to negative development trends, especially if they are not endowed with attractive nature for tourism or with assets to develop transport and logistics services. A significant challenge in this regard is brought by demographic trends.

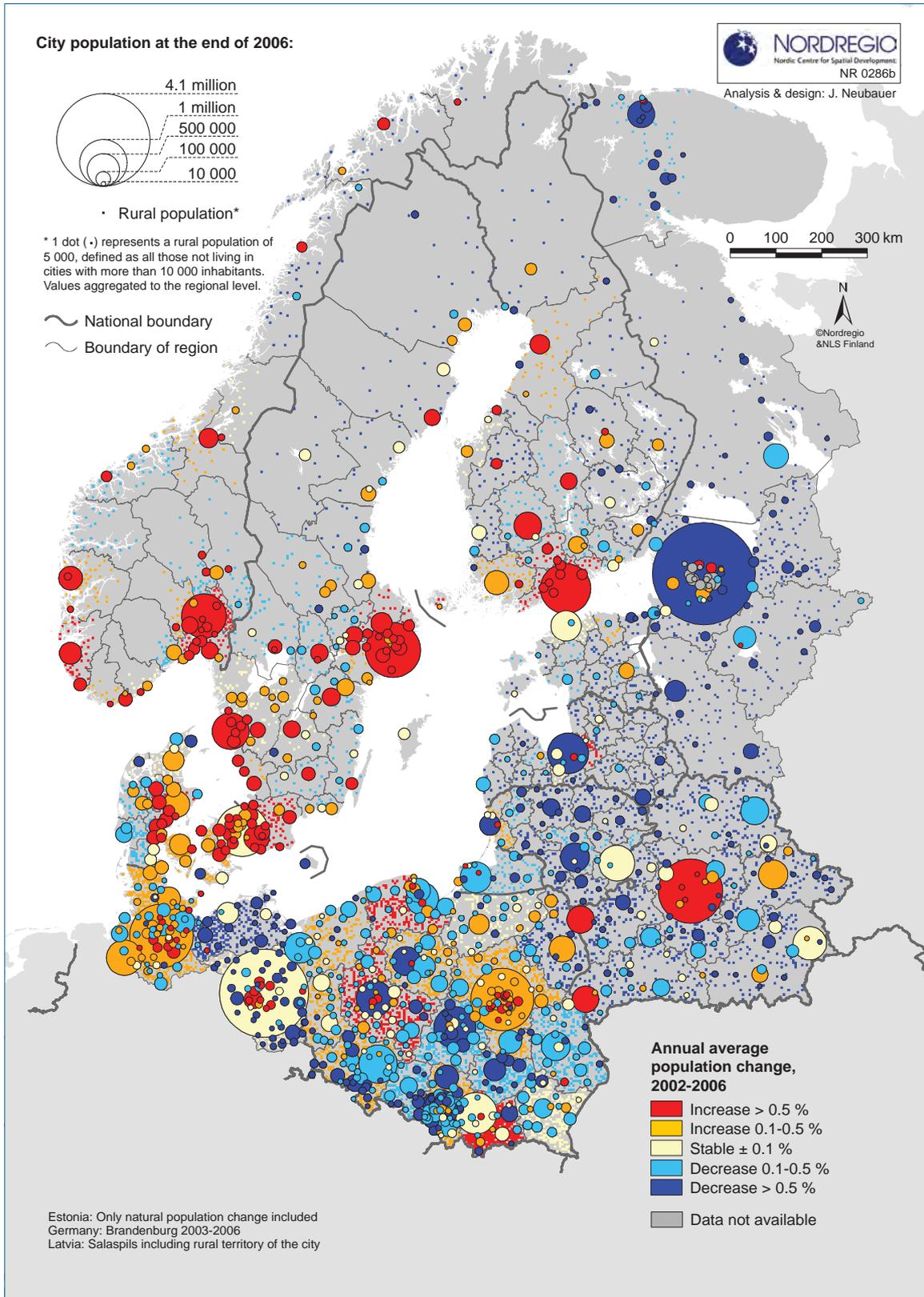
In general, the BSR population shows a downward trend on account of natural losses resulting from low fertility rates, ageing of the societies and decreasing share of the youngest generations in the age structure. This overall trend varies from one country to another, and between large cities on one hand and small cities and the rural areas on the other.

In line with the current observations, the ageing of the population is strongly correlated to migration of younger age employees from rural and peripheral regions to the metropolitan labour markets (fig. 10.1, fig. 10.2). This process is confirmed by the fact that even though many larger cities in the BSR lost population between 2002 and 2006, they managed to increase their numbers of employed persons. The migration of labour force in turn causes labour markets outside the metropolitan regions to shrink, fuelling urban decline tendencies and contributing to a shortage of labour resources. These are especially severe in the southern and eastern parts of the BSR (eastern part of Germany, Poland, Belarus, the Baltic States and Russia).

The other perspective is projected for the metropolitan areas, where a relative stability of the population figures is maintained due to a positive net migration. In some cases migration rates even reinforce the natural population increase (e.g. largest Nordic cities, except Copenhagen). On the other hand, most cities in the three Baltic States experience a population decline, irrespective of the status and size.

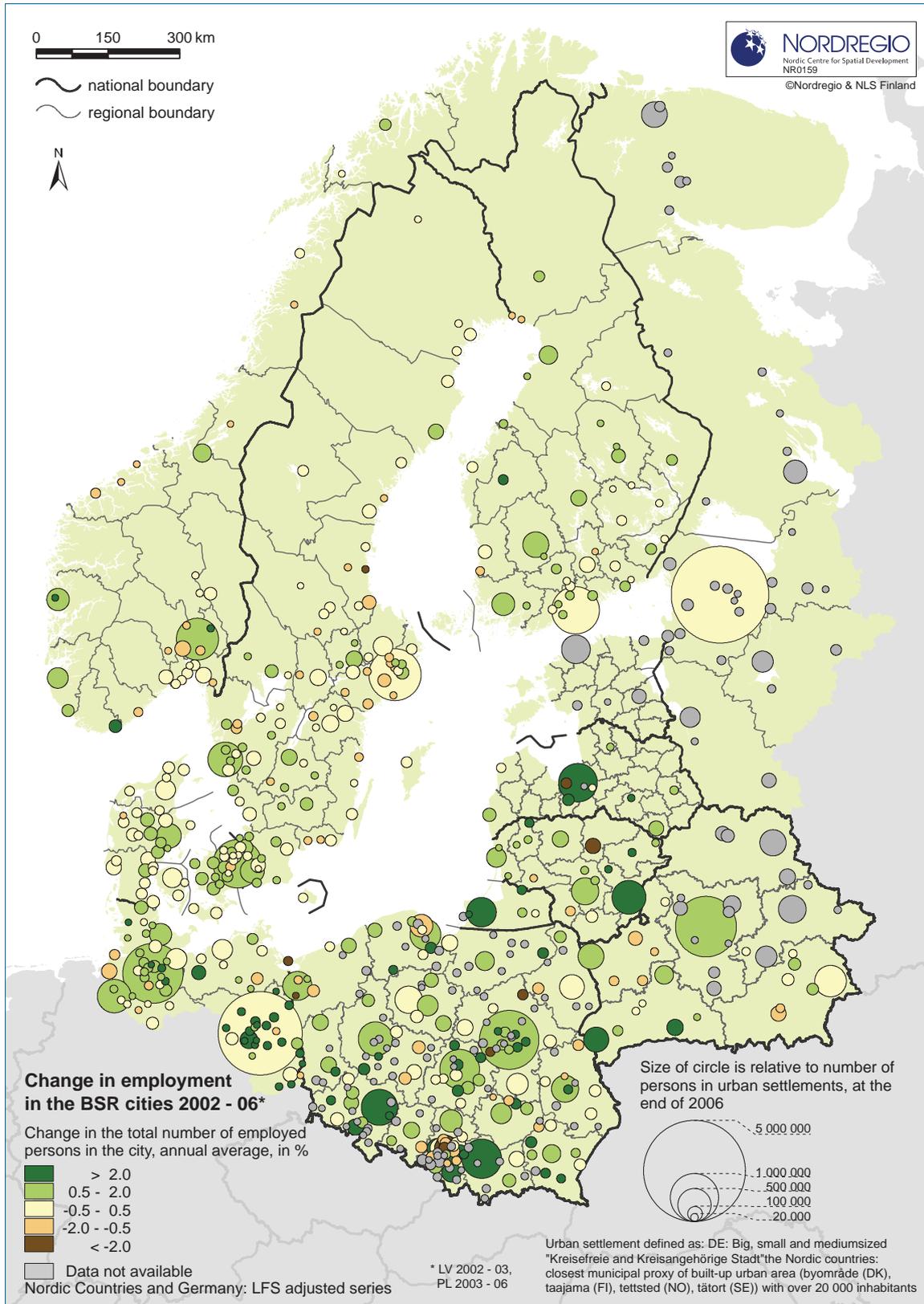
These rather negative prospects for the small and medium sized cities outside the metropolitan regions raise reasoning about possible invigorating role of national policies on innovation, research and

Fig.10.1. Overall population change in BSR cities (2002–2006)



Source: Nordregio

Fig.10.2. Change in employment rate in BSR cities (2002–2006)



Source: Nordregio



development. The overall conclusion is that the small and medium sized cities are not given special attention in national policies in the BSR in this field. On the other hand, they are not ignored.

In the Nordic countries and Poland, the innovation and research policies tend to focus on improvement of education and research at the universities as national knowledge institutions. The Finnish Regional Centre Programme, which explicitly targets the small and medium sized cities, is an exception. In the southern part of the BSR the national policies vary from one country to another.

In Germany, no specific national innovation policy with regard to small and medium sized cities has been formulated. However, the regions (länder) try to foster regional innovative capacities. Rather than focusing on the small and medium sized cities, the political discourse has recently turned to the question on how the small and medium sized cities can profit from the development of the metropolitan regions.

In Belarus, the practise of developing and sustaining the national hierarchical urban system has recently been reinforced by a number of plans and programmes. These plans and programmes focus upon service rather than research and innovation in order to guarantee a certain level of living standards.

Latvia shows a considerably strong political awareness to improve the living standards in the entire country. The importance of Riga as the national driving force is acknowledged, thus no distinct policies are targeted to mobilise innovative potentials of the small and medium sized cities.

In Russia, the concept of 'science-towns' is a well-established instrument for the territorial organisation of innovation, although this instrument is rather applied to strengthen the performance of metropolitan regions (as in case of the science town of Peterhof in the vicinity of Saint Petersburg).



## 4. PRACTICAL SOLUTIONS IN URBAN-RURAL RELATIONS AND PARTNERSHIP

The Baltic Sea Region is characterised by an advanced settlement system consisting of all categories of central urban places - from metropolises through small towns as local centres - to a large number of rural settlements. Functional relations between urban, sub-urban and rural settlements are well developed in many areas. Specific conditions and trends however need to be taken into consideration:

- The northern areas of the Baltic Sea Region (especially in Norway, Sweden, Finland and Russia) are sparsely populated and influenced by harsh climate conditions; many rural settlements are too remote from well-endowed urban and rural centres to benefit from their services of general interests.
- In the eastern areas, rural settlement centres are weak in the provision of services to rural population and agriculture. This includes basic social services (health, education), banking and commercial services, etc. The decline in agricultural employment is not sufficiently compensated through alternative measures, which still fuels out-migration of population and thus weakening of rural centres even further.
- In northern and some western areas many rural centres have proved to be too small for rational service provision.
- Current development trends reveal that the metropolitan areas and big cities in the BSR benefit mostly from the concentration of capital, labour force and knowledge, while the areas far away from them experience decline in population and jobs.

Within the framework of the transnational Interreg project 'East West Window' specific experience has been gained on urban-rural development trends in Russia:

- Until now, there has not been any meaningful practical experience in the field of urban-rural partnership in Russia. Cooperation between the urban and rural areas is often pursued within the framework of inter-municipal cooperation, although it remains focused on cooperation between several municipalities or between cities and their surrounding areas.
- The settlement system of North West Russia is characterised by one metropolis (Saint Petersburg) and few bigger cities with more than 100 thousand inhabitants (Kaliningrad, Murmansk, Novgorod, Pskov, Petrozavodsk). Outside Saint Petersburg the population density varies between 63 inhabitants per sq km in Kaliningrad Region and less than 10 inhabitants per sq km in Murmansk Region and the Karelian Republic. Accordingly, the density of the network of smaller towns is low and functionality of the smaller towns towards the surrounding villages is in need for strengthening. Large disparities persist between the urban and rural areas which tend to be deepened due to the negative demographic situation.

- The current development in Northwest Russia shows a dynamic growth in big cities such as Saint Petersburg and Kaliningrad. Accordingly, rural areas surrounding the big cities are among the most dynamically developing territories of the region. Due to expansion, typical intensive apartment building along the borders of the city turns suburban settlements into the “bedrooms” for pendulum migrants working in the city. In contrast to such development, rural areas, which are more remote from the main growth centres, face considerable population and economic decline.

The above-mentioned conditions and trends cannot be met through the traditional rural development policies alone, but call for new forms of urban-rural cooperation and partnership in the Baltic Sea Region at all levels (from the transnational to local), including a higher responsibility of metropolises for a wider hinterland. Investigations on that and the demonstration projects have been launched in Germany, Russia and other countries. At the BSR level, the transnational Interreg project ‘New Bridges’ intends to develop new approaches.

The urban-rural development problems and cooperation within the BSR was also addressed by a number of transnational Interreg projects in the period of 2000-2006.

The Hinterland project focused the attention on the hinterland areas (areas located in a distance of 50 km and more from the coastal zones and from the metropolitan areas and larger cities) and addressed the tendency of long-term population decline as a forerunner of other decline processes in the neighbouring towns and contributor to decreased attractiveness and competitiveness of whole regions. In that respect the project made an attempt to manage the decline process by means of modern, innovative spatial development approaches, such as decline scenarios and a typology for hinterland villages, the Hinterland Village Vitality Check and hinterland decline information events.

With the enhancement of knowledge about the facets of decline the project produced foresights and development strategies for the future settlement structures, rural-urban business relations, transport and infrastructure matters, as well as landscape and agriculture aspects, and applied them in pilot activities. 110 pilot project/partnership ideas were carried out by the local and regional partners with strong citizens' participation and a support by key experts - universities, planning and development institutions and authorities from the neighbouring larger city regions (Vorderland). As a result of the pilot activities and improved methods for finding key potentials for new innovative partnerships, the project installed more than 100 Hinterland-Vorderland networks around the BSR at the level of individual villages to deal with the decline.

The A.S.A.P. project responded to the challenge of compensating lower economic potentials and safeguarding the rural development through strengthened institutional capacity in the rural municipalities. This integrated approach applied by the project meant the gathering of the local level practitioners and “strategists” from the national and supra-national level to help the public and private service providers adapt to the new demands, and universities to become partners for developing the rural areas.



The project also initiated an international exchange of experience on these subjects and implemented pilot actions in the participating regions to serve as model solutions for similar activities in other regions around the Baltic Sea.

The project produced a number of solutions for integrated rural development, based on pilot actions and best practice cases in selected rural policy issues (e.g. management of demographic change, e-government and citizen-friendly administration, etc.). This includes solutions for strengthening the role of universities in the rural development processes and delivering knowledge and skills to the rural areas.

The ASAP university – region interaction handbook includes a model for university – region cooperation that takes up the experiences and gives guidance how to promote the regional engagement of universities. It defines steps of knowledge management and transfer for the benefit of the rural areas that can be adapted by other university regions.

The SebCo project targeted the general problem of the decline of medium-sized cities which is faced by the regions in the South Baltic Arc corridor. These cities are located in the “development shadow” of the large growth centres such as Berlin, Warsaw, Vilnius and Riga. They are too small to be recognised internationally, and they are often involved in a fierce competition for inhabitants and investments with their surrounding municipalities.

The project thus set an aim to provide measures to counteract such decline tendencies and turn these urban centres into motors for regional development in the corridor area. Among several development measures, related with the cities' accessibility and economic tissue, the project focused on:

- initiating a few long-lasting city-suburban alliances as pilot solutions in an effort to offer possibilities for efficient allocation of public services and for coordinated spatial development planning;
- setting up formal networks of cooperation at the regional level between cities and their hinterland, as well as at the international level within the so-called South Baltic Arc;
- transferring the experience gained to international arenas.

As an example of the results, a target agreement was formulated between 15 municipal authorities in the Neubrandenburg city-suburban area to deal with the problems of declining population and demographic change. The agreement induced a structural cooperation model with a city-suburban forum as an unanimous decision-making body on issues of a strategic importance, and a “city-suburban reconciliation” working group with representatives of the administration on regional, county and local level providing professional guidance to daily work and preparing decisions of the city-suburban forum. The purpose of this cooperation model was to plan and provide an efficient and attractive supply of services (social infrastructure, transport planning, land use planning, tourist projects, etc.) and thereby strengthen the city-suburban area so that it could contribute substantially



to the economic development of the larger region. The results of this cooperation influenced the profile of the EU-funded regional development programme.

Another scheme for a coordinated city-suburban development was created in Lithuanian Taurage County. The scheme was embedded in the national framework (the ministerial Taurage town development programme 2007-2013) and exercised through strategic actions to assign the city of Taurage the role of a development node for the adjacent peripheral areas and settlements. Besides strengthening of the employment capacities in Taurage city, these actions aimed to sustain the viability of the minor centres and the employment of the rural residents, as well as to enhance commuting of the unemployed labour force from the periphery to workplaces offered by the city. In practical terms, the investments into human resources were made (education and training), complemented with stimulation of transformation of the local business sector towards non-traditional sectors.



## 5. SAINT PETERSBURG AND KALININGRAD AS GATEWAYS BETWEEN RUSSIA AND THE BSR

### 5.1 DEVELOPMENT TENDENCIES OF SAINT PETERSBURG

Over the years the economic growth rates of Saint Petersburg have exceeded the average values of the Russian economy. The city's remarkable position in the international trade exchange of the Russian Federation is affirmed by its high shares in the volumes of shipped manufactured goods, which constitute one third of the whole North West region of the Russian Federation.

About one third of Saint Petersburg's foreign trade is done with the BSR countries, whereof Finland seems to be the main trading partner. In the trading pattern, Germany, Finland, Norway and Denmark are the net exporters to Saint Petersburg, whereas the former eastern countries - Poland, Estonia, Latvia and Lithuania - are the net importers.

This development is driven by the strategic policy of the city authorities. In 2004, a new system of national planning, unique for Saint Petersburg, was established to resolve in a concerted manner the problems of socio-economic, financial and urban planning, as well as deal with other aspects of the urban development. The Long-term Concept of Socio-economic Development has set an ambition to position Saint Petersburg as a world city and to integrate it into the global economy. It also intends to transform Saint Petersburg to a global marketplace for summits, conferences, forums and nationwide federal functions, as well as to a leading European centre of international tourism.

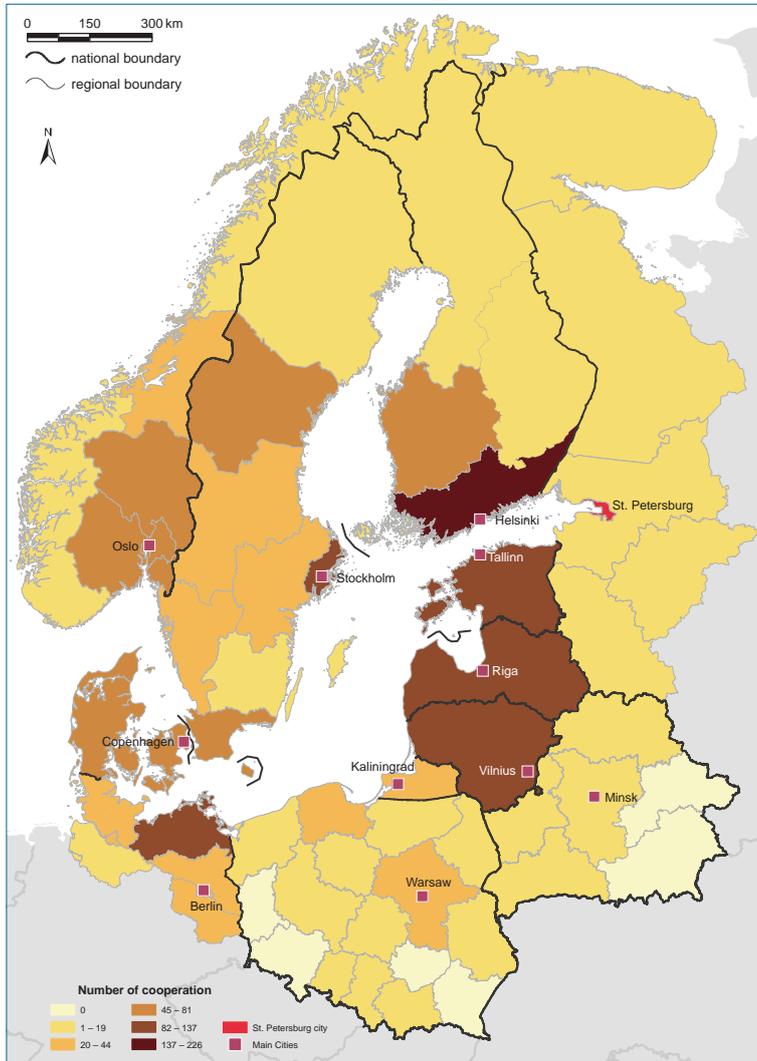
Assisted by the federal government, Saint Petersburg makes use of different tools for attracting investments. Continuing a steep upward trend, all foreign investments in 2007 are expected to reach 6.3 bln USD. The largest investors are global multinational companies situated outside the BSR, driven by the prospects of getting access to the huge Russian consumer markets rather than another benefits, e.g. cheaper Russian labour force or other factors of production.

In order to facilitate the investments even further, the City Government has proclaimed a modernisation programme to increase the competitive capacity of the city, including:

- improvement of the transport infrastructure (new port territories, access to the ports, warehouses and terminal logistics zones), as more than 50% of Russia's export and import volumes between Russia and the EU are expected to be realised through Saint Petersburg;
- establishment of IT parks and special economic zones in order to facilitate a transition to innovative economy, provision of new products, effective marketing and adjustment of serial production, and further integration and competitiveness with the outer world.

Special Economic Zones have been designated for the period of 2006–2026. Within these zones, a production of software, communication facilities and electronics, automation of engineering

Fig. 11.1. Intensity of cooperation between Sankt Petersburg and other BSR territories by the number of Interreg IIIB project partners



Source: Fedorov G. et al, 2008, *Russian integration in the Baltic Sea Region: Kaliningrad region case study*, Immanuel Kant State University of Russia

processes, military and civil avionics, medical electronics and the development of analytical instrumentation are planned to take place.

The positive development in the field of foreign investments is contrasted by the social situation. The city population has decreased from 5 million inhabitants in 1990 to 4.5 million in 2007, as the migration balance does not cover the natural loss of population. However, the unemployment rate is one of the lowest in the Russian Federation.

## 5.2 DEVELOPMENT TENDENCIES OF THE KALININGRAD REGION

The economic situation of the Kaliningrad Region is below the average of the Russian Federation, as the GDP level reaches barely 70% of the index for the whole country. This gap is, however, likely to shrink on account of industrial production recording the highest growth figures in the North West federal district. Consequently, in 2007 the GDP of the Kaliningrad Region grew by 25% as compared with the previous year index that was three times more than the whole country average. The foreign trade turnover of the Kaliningrad Region is on a steep rise, recording a 32.4% increase in 2006 as compared with 2005, and further 64% increase in the following year. The import volumes exceed the export figures, with the imported commodity structure consisting of engineering production, manufactured goods and chemical industry products, while the export is dominated by raw materials.

In a year's time, between 2006 and 2007, the accumulated foreign investments in the Kaliningrad Region rose by 56%. They were allocated to the manufacturing sector, financial services and trade.



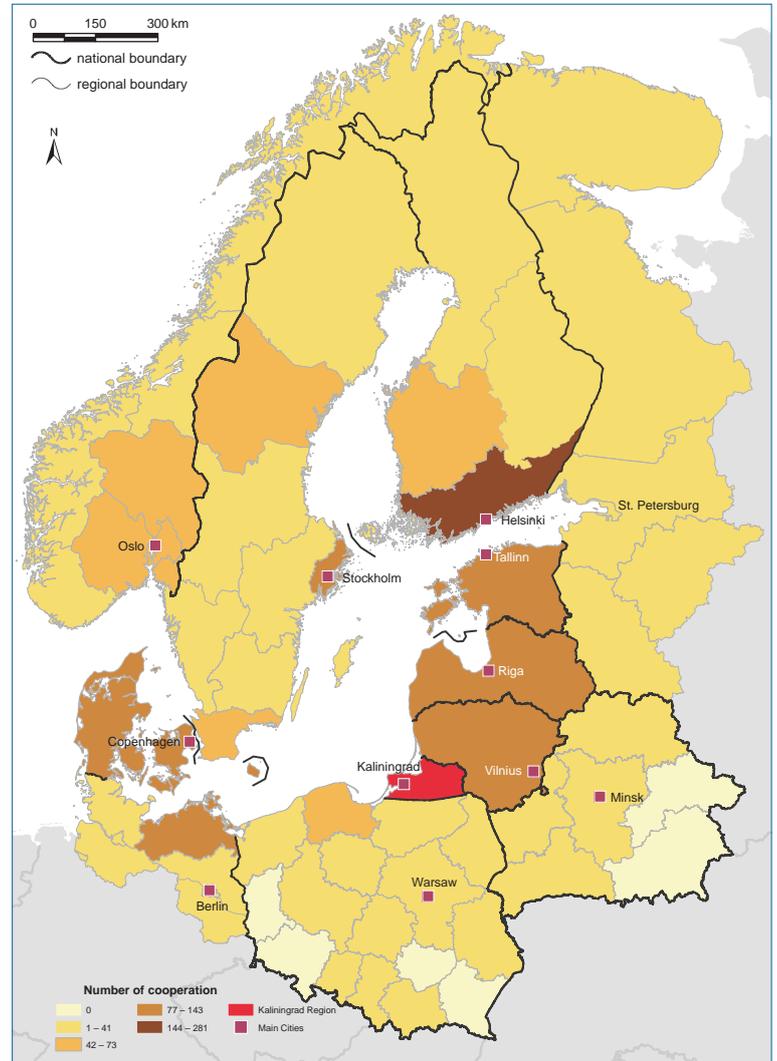
Due to the isolated geographical position from the mainland, the socio-economic development of the Kaliningrad Region has a high priority in the federal policy. The federal government has granted the region the status of Special Economic Zone, which gives a preferential tax treatment, mostly for large investors in predefined sectors, and endorsed the Federal Target Programme: *Development of the Kaliningrad Region for the period up to 2010*. The region often enjoys privileges of being a testing ground or a pilot region for the national projects within health-care, education, housing and agriculture areas, and the programmes for repatriation. The federal government puts special emphasis on development of the regional tourism sector.

The customs and tax privileges introduced by the Special Economic Zone are expected to increase the competitiveness of the Kaliningrad Region for the EU, by promoting such advantages as low labour cost and proximity to the Russian market. At present, however, the volume of the foreign investments per capita in the Kaliningrad Region is four times lower than the Russian average, and the investments themselves tend to be concentrated in the city of Kaliningrad.

On the other hand, the high dynamics of the business development has put the Kaliningrad Region in a leading position among Russian regions in terms of the number of small and medium enterprises.

The two regional strategic documents, namely: *'The programme of socio-economic development of the Kaliningrad Region for the period of 2007-2016'* and the *'The mid- and long-term perspective strategy for the socio-economic development of the Kaliningrad Region'*, attempt to make use of the

Fig. 11.2. Intensity of cooperation between Kaliningrad Region and other BSR territories by the number of Interreg III B project partners



Source: Fedorov G. et al, 2008, *Russian integration in the Baltic Sea Region: Kaliningrad region case study*, Immanuel Kant State University of Russia

geographical location of the region in increasing its economic competitiveness and improving the quality of life of its inhabitants. Therefore, a large number of the investment projects aim to enhance the connections with the outside world and deal with the border crossing infrastructure, including the port and airport facilities. Also, a networking pattern of the economy, culture and civil security cooperation initiatives is visible, as it takes strength from the proximity of contacts within the southern part of the BSR (fig. 11.1, fig. 11.2).

### 5.3 INTEGRATION POTENTIAL OF NORTH WEST RUSSIA INTO THE BSR

While the institutional political and cultural cooperation between the EU and Russia is nourished by the proximity within the BSR, the economic cooperation tends to be global and not confined to the BSR boundaries. There is also an observation that Russian companies tend to be locally oriented, focusing upon the Russian market and not trying to be internationally competitive and hence innovative.

Such an orientation is reinforced by the lower competitiveness of several Russian products in the international markets. The reason for this is that the positive dynamics of the industrial production seems not to be driven by the modernisation processes, which may negatively influence the competitive position of these industrial branches on the international market. In effect, the industrial production may primarily concentrate on serving the domestic market. One of the obstacles to it, as perceived by the business representatives, is the quality of relations between the administration and the business sector.

This lack of interest in international trade and competition means that the Russian companies are unlikely to become the drivers of the regional and economic integration in the BSR. As commented earlier, the business development strategy of Saint Petersburg is giving the priority to large multinational corporations, following the efforts to consolidate the city's position as a global strategic hub. Reflecting the country's policies, Saint Petersburg has strong ambitions in the global economic integration, while the Baltic Sea Region is given a moderate attention. Proximity of the Baltic Sea Region seems rather to inspire cultural cooperation, institutional cooperation at the local and regional level and joint project cooperation.

The Danish experiences cast light on the outsourcing potential of smaller or medium sized companies originating from the BSR, which seek an access to and cooperation liaisons with the attractive Russian market. Thus, they may become an important integrative factor connecting the economies of the BSR and North West Russia area, substituting in this role the larger multinational companies.

Among the clusters developed in the **Saint Petersburg area**, especially three of them deserve attention as the potential drivers of competitive industrial development: transport, automobile production and ICT.



A good climate for the transport cluster in the Saint Petersburg area is achieved by Russian investments in transport and logistics in compliance with the recently agreed seaport development programme. Its aim is to create new terminals for the container and automobile cargoes and to improve transport access to the port. It should be remembered that, besides the transshipment facilities located in Saint Petersburg and Leningrad Oblast, such an infrastructure exists in the three Baltic States, as several facilities are operated and owned partly or entirely by the Russian transport companies.

Foreign direct investments in Saint Petersburg have greatly contributed to the development of several automobile production companies. First and foremost, the investments refer to the car assembly sector.

The third potential cluster, the ICT, results from the function of Saint Petersburg as an important data transmitting hub for Russia (e.g. connecting to Finland) and one of the main offshore programming centres in the country. Yet this new sector is characterised by an absence of transparency and lacks organisation and competition. Due to the geographic closeness to the Finnish ICT industry, one of the prospects for the Russian ICT industry is to become the partners of the Finnish companies engaged in off-shore programming along with Estonian programmers.

Also, telecommunication services are able to stimulate the development of production chains. The study by the Finnish institute ETLA suggests that if a large foreign company locates its branch in Estonia and sales offices in Russia, the demand for communication providers and operators and assembly of electronic equipment will grow along with the demand for the output of cable, metal and construction services.

Still, however, the innovative sector of Saint Petersburg and Russia at large is characterised by several drawbacks, such as: low level of demand for innovation, few innovative activities in the companies, scarce and non-systematic support for innovation and weak international integration. Saint Petersburg space and laser engineering companies, and to some extent nanotechnology companies have the best perspectives.

Generally, the milieu for innovation is undeveloped and trapped in short-sighted policies focusing on how to avoid the entrance in the competitive international market. According to the responses by eleven entrepreneurs and managers, the key problems are institutional rather than economic. Thus, they prioritise improved institutional settings over the funding opportunities. First and foremost this refers to the guarantees of ownership and intellectual rights, quality and legal system.

Several barriers still limit the business sector development in the **Kaliningrad Region**, as the ambiguity of the status of the enclave in relations between the Russian Federation and the EU does not encourage the current investments. Meanwhile the import dependency of the region and the low-technology oriented production result in a low competitiveness of the Kaliningrad Region within the BSR. A shortage of high standard infrastructure (e.g. in energy and transport), as well as a lack of

skilled labour hamper the economic development within the region, which is furthermore unequally developed in territorial terms (mostly divided into a developed western part and less developed eastern part). This situation has occurred also due to an ineffective use of the land resources: in fact many areas are still owned by the Ministry of Defence and its land cannot be used for any kind of development.

Furthermore, as a result of the Special Economic Zone introduction, the industrial production in the Region has evolved into two independent sectors: an export-oriented sector characterised by raw materials and low level of processing and an import-oriented sector focusing upon the Russian domestic market. The import-oriented sector is characterised by relatively modern production equipment and may potentially develop into an internationally competitive, hence integrative, component of the regional economy. At present, however, the sector is mainly competing in the Russian domestic market rather than in the international markets.

The potential for the international economic integration of the Kaliningrad Region is not used in a full scale due to the orientation of the production towards the Russian market, especially in the case of food industry, domestic electronic appliances and furniture. Characteristics of the Kaliningrad Region, such as low-priced labour force and metal, tax privilege for large investments and lower transportation costs compared to other regions in the Russian Federation provides, however, opportunities to increase outsourcing processes.

Due to the lack of significant natural resources, the Kaliningrad Region cannot be competitive vis-à-vis the Russian and the worldwide markets in this field, but it can compete rather by developing innovation. A shift towards the innovative economy was recorded in 2007 through the *Strategy of Socio-economic Development of the Kaliningrad Region for the Mid- and Long-term Perspective*. This shift is mainly oriented towards both Poland and the Baltic States and can therefore be seen as means for integrating the Russian economy into the European (or BSR) system.

Integration potentials for the Kaliningrad Region can be found within the technological transfer, education, research and health care sectors, mainly in cooperation with universities, as well as with some R&D centres and medical services. High competitive potential is seen in the shipbuilding and food processing (fish products) industries. Some opportunities have been identified also with regard to the power complex (in case a cogeneration plant of the nuclear station is built), mechanical engineering, tourism and recreation (spa services, congress tourism), the amber excavation and processing sector, as well as the transport and logistics complex to be created within a framework of several large projects. The target has been set to transform the Region into the logistics and distribution centre of the BSR. Furthermore, the Special Economic Zone status may encourage the Region's innovative development by offering favourable tax conditions for large investments.







## 6. TRANSPORT ACCESSIBILITY

### 6.1 FRAGMENTED ROAD NETWORKS

While a high capacity infrastructure, such as motorways or main double-track railways, permits a good connectivity to/from the main metropolitan areas, the secondary transport networks are important both for intra-regional travels and for connecting particular territories to the primary networks. During the last decade, most of the BSR countries have witnessed an increase in the density and quality of the secondary road network, especially visible in Lithuania, Belarus and Estonia.

The primary road network in the BSR is fragmented (fig.12). Germany and Denmark as the most densely populated territories of the BSR are the only part of the Region that presents a rather dense and integrated network of motorways. In the Nordic countries, the motorways to and from the main metropolitan areas form a star-shaped pattern around these centres. In the Baltic States, the high capacity road sections are concentrated around the capital regions and are not extended in either north-south or east-west directions towards the neighbouring countries' capitals. In North West Russia, segments of highways around the cities of Saint Petersburg and Kaliningrad form a radial shape.

Consequently, one can identify three main bottlenecks related to the motorway networks in the BSR.

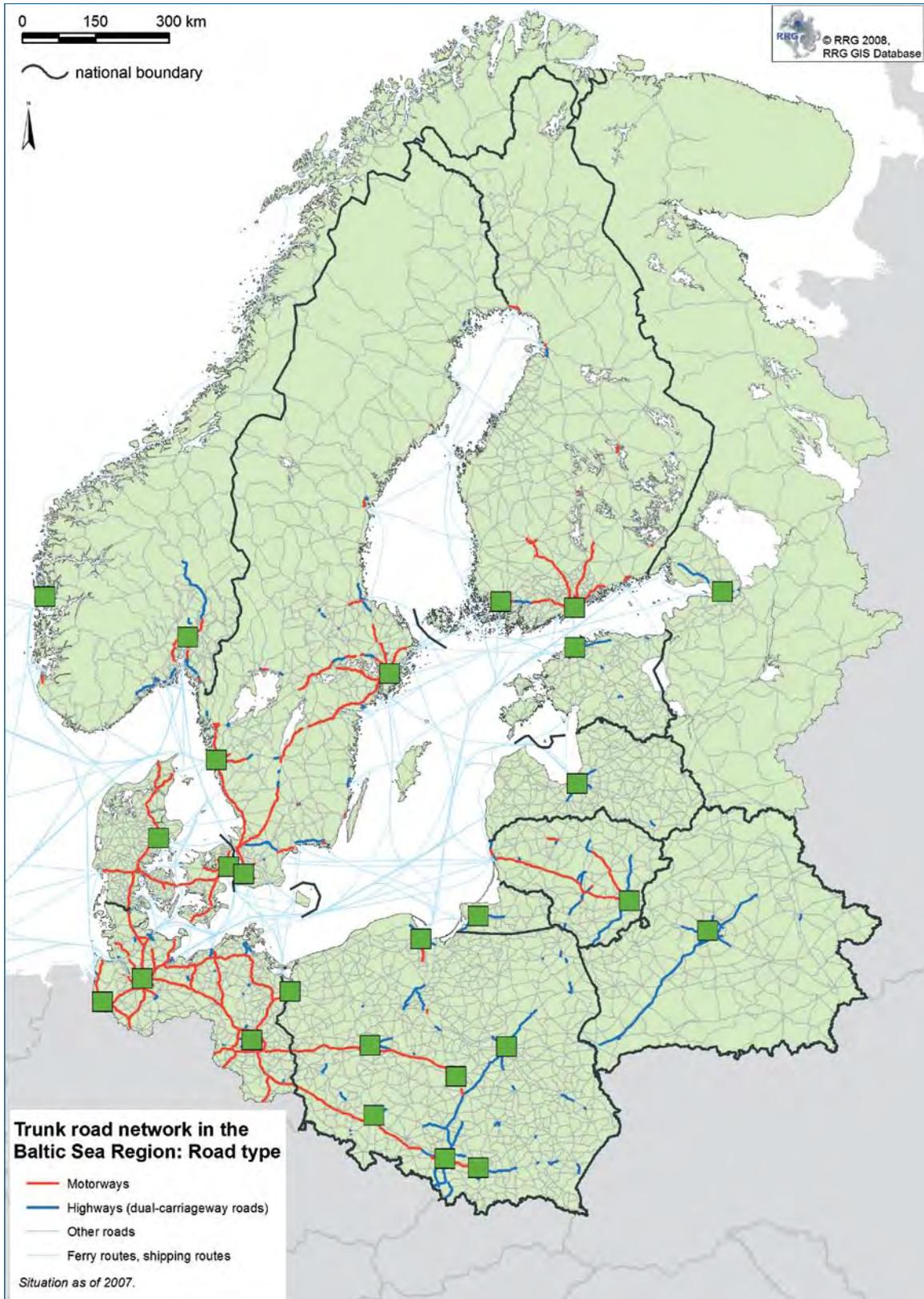
First of all, the existing networks are still very influenced by the national systems. Even if improvements have been made in order to connect various national systems, especially at the borders of Poland, there are still many missing links, especially in the eastern part of the BSR, where Poland, the Baltic States, as well as Russia and Belarus ought to be better connected to each other with motorways. The lack of North-South connections is thus an obstacle for further integration of the BSR.

Second, the quality of the existing infrastructure is still very uneven. The carrying capacity and the quality of the motorway infrastructure can be deemed as low according to the European standards, especially on the eastern shore of the Baltic Sea. These quality issues act as a limiting factor for the mobility of goods and persons and necessitate large investments in order to solve the problem.

Finally, besides some persistent structural bottlenecks for the road system, some institutional bottlenecks can be felt as well. Although the recent accession of Poland and the Baltic States to the EU (2004) and the Schengen area (2008) has considerably reduced administrative obstacles to mobility, the lack of interoperability of national road infrastructure slows down the process of integration throughout the region, especially with regard to Russia and Belarus. The border crossings between the EU countries and the neighbouring countries along the eastern border create a bottleneck that may cause a significant disruption in the road traffic, as the waiting times reach several hours for both coaches and trucks at many crossing points.



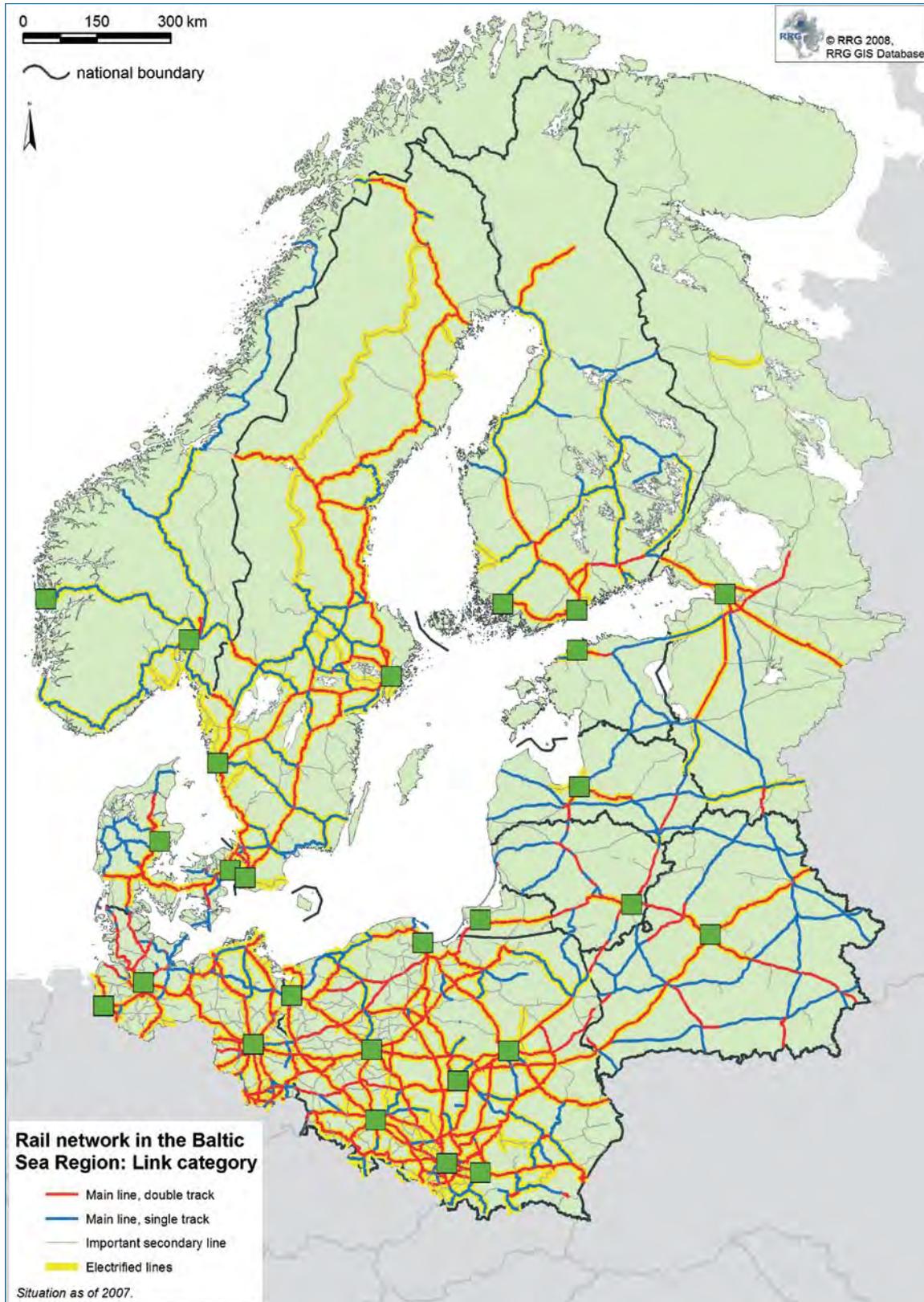
Fig.12 The primary road network in the BSR



Source: RRG Spatial Planning Database



Fig.13 The rail network in the BSR



Source: RRG Spatial Planning Database



## 6.2 INTEROPERABILITY OF THE BSR NATIONAL RAIL NETWORKS AND TRANSNATIONAL RAILWAY SERVICES

Across the BSR, the lack of interoperability of the various national railway networks, due to different technical solutions and degree of modernity, is a limiting factor for enhancing mobility of persons and goods on a transnational basis.

As for the technical solutions, the main challenges remain in matching the gauge differences between the Russian (1520mm) and European (1435mm) systems. Besides Russia, also Belarus, the Baltic States and Finland have been using the Russian gauge, while in Poland and Kaliningrad both systems can be found. Consequently, these territories become a central platform for enabling the integration of both railway systems on the eastern shore of the BSR.

Both Poland and the northern part of Germany show a dense network of electrified and double-tracked railway lines. The quality of the infrastructure between the crossing points varies, as some are only equipped with non-electrified lines and some with single-track lines. Sweden, Norway and Denmark have a rather good inter-connectivity of their railway systems, as the electrified, double-track lines are not disrupted at the borders. The connectivity to the Danish and 'continental' networks has been improved with the construction of the Öresund Bridge. Although the Danish and North German railway systems are connected to each other with double-track lines, these lines are not electrified, which may limit, for instance, the high-speed train service between Germany and Scandinavia.

The situation in the Baltic States is much different. The network of the electrified and double-track lines is still in its infancy, despite the fact that rail has traditionally been the most used means of transport in these countries. Moreover, the lack of modern North-South rail connections linking together the Baltic national networks is a clear hindrance for enhancing the intra-Baltic mobility of persons and goods.

In the case of Kaliningrad, the East-West connections to the rest of the Russian Federation, via Vilnius and Minsk, are fairly well developed, but there are few connections to northern Poland or coastal parts of Lithuania. Saint Petersburg is connected to Finland with a double-track line. Plans to complete a high speed railway line between the two cities are underway.

Overall, the network of the electrified, double-track railway lines in the BSR can be deemed to be as only partially integrated (fig.13). The process of integration has so far functioned by the integration of different 'blocks': Germany-Poland, Denmark-Sweden-Norway, Finland-NW Russia and Baltic States-Kaliningrad-Belarus-NW Russia, although the integration within the latter block is the weakest. The potential for further integration of the Region as a whole lies in the capacity to improve the inter-connectivity of these different 'blocks', for instance via the priority axes of the EU TEN-T programme.

Data on the service frequency on rail routes between the main BSR metropolitan areas reveals the importance of such BSR gateways of the rail system as Berlin, Copenhagen and Warsaw (fig.14). Furthermore, the poor level of connectivity of the main metropolitan areas on the Eastern shore



of the Baltic Sea, i.e. between Poland, the Baltic States, Western Russia and Belarus, is probably the most serious bottleneck for the complete rail network integration of the Baltic Sea Region. Today there is no direct train service between Warsaw, Vilnius (or Kaunas), Riga and Tallinn.

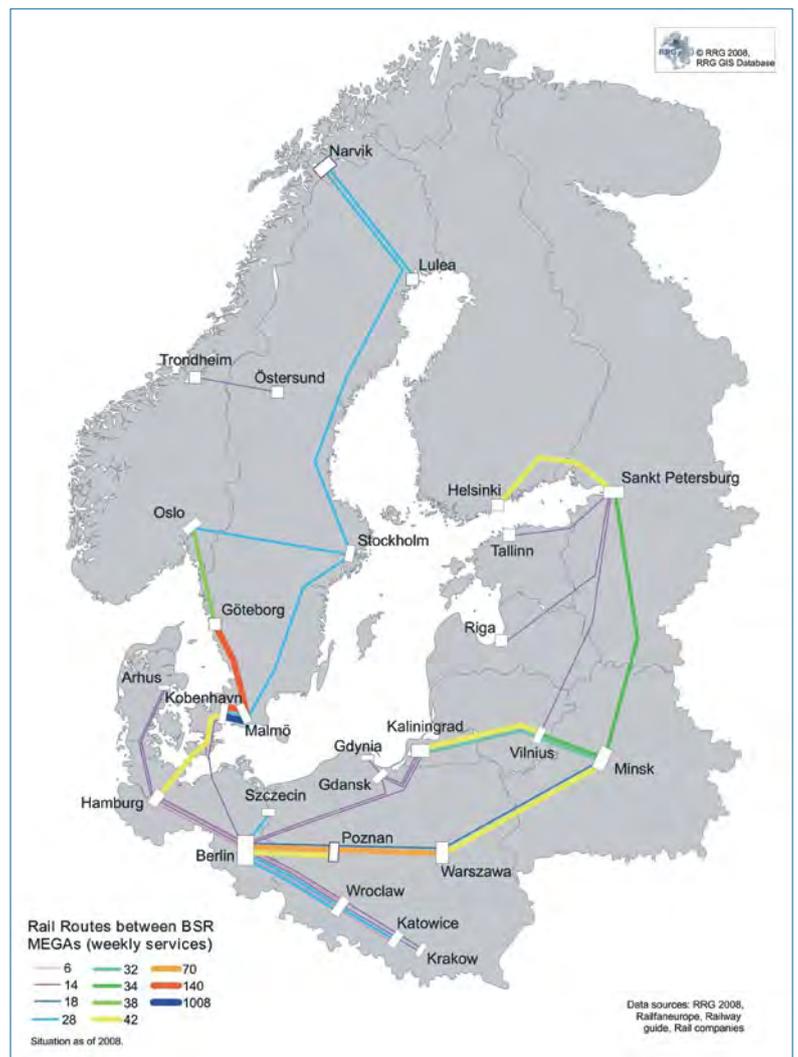
Finally, within the context of European-Asian rail freight flows and the primary role that the Baltic Sea Region may play in this aspect, Saint Petersburg appears as a connection point between the European and Asian networks and thus the economic markets. Consequently, the railway corridors between Saint Petersburg and Tallinn/Helsinki carry heavy freight flows.

### 6.3 EXISTING INTERREG INITIATIVES ON TRANSPORT CORRIDORS

Efficient development of missing links and removal of transport bottlenecks ought to profit from the regional and local best practices as a catalyst for transforming a mere transport infrastructure into the development corridors.

During the period of 2000-2006, many transnational and cross-border initiatives were taken by the groups of regional and local actors. The objectives of such cooperation were usually to identify the major missing links within the infrastructure networks, as well as the bottlenecks caused by the lack of capacity of the transport infrastructure and facilities. Besides, it was intended to exchange and develop good planning practices across the borders and to define joint strategies to synergise the effects of the transport development at international (EU-Russia), national and cross-border levels.

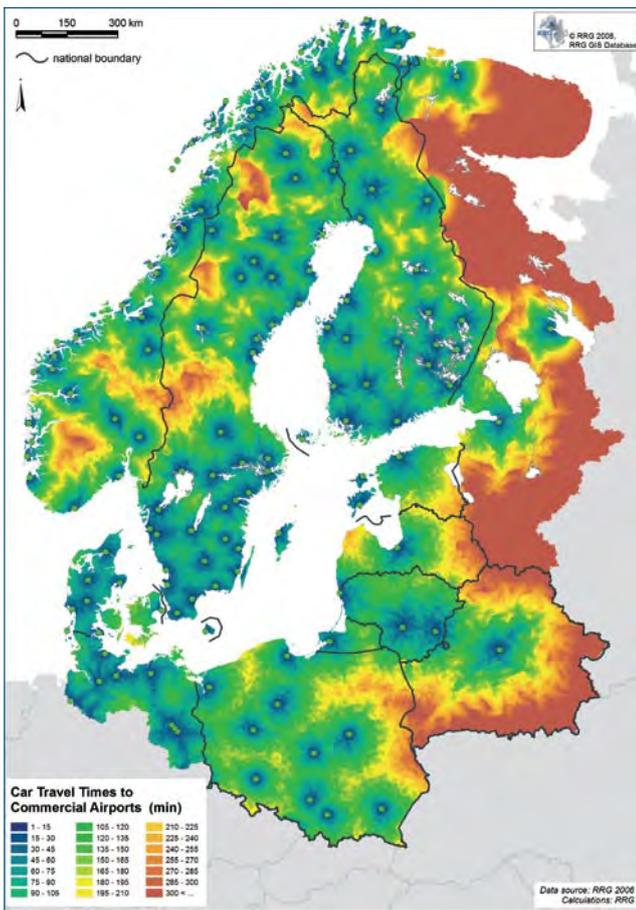
Fig.14 Service frequency on the main BSR international rail connections (2008)



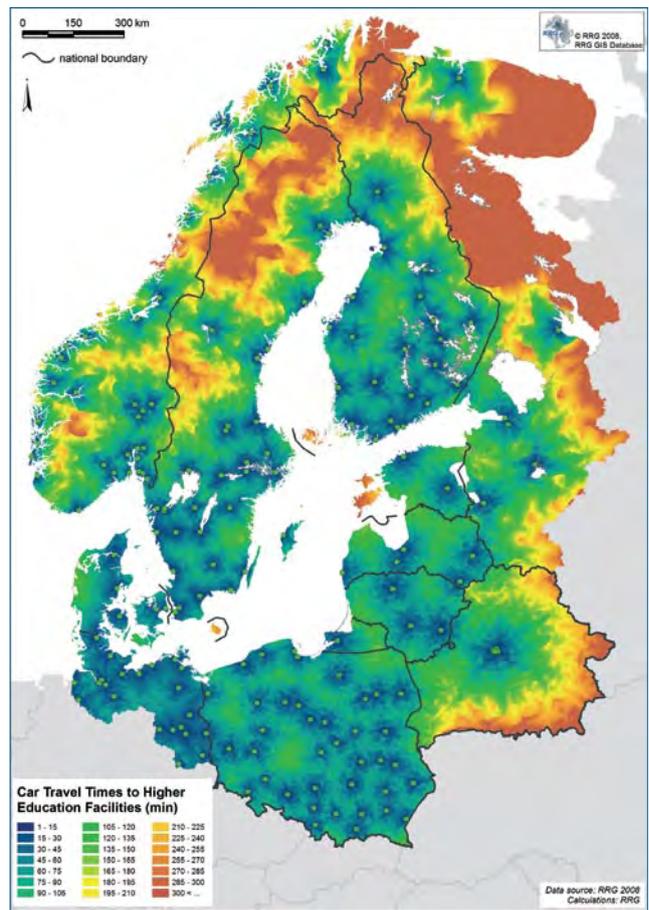
Source: RRG Spatial Planning Database



Fig.15 Travel time to the commercial airports (left) and the higher education facilities (right) in the BSR



Source: RRG Spatial Planning Database



Source: RRG Spatial Planning Database

The development of multimodal transport networks across the Barents region is an example of such initiatives. Within this framework, such issues as the development of tourism roads, traffic safety, transportation of dangerous goods, adaptation of different national standards, administrative blockage were dealt with. Moreover, the group of the regional actors stresses the transnational added value of this initiative from a cross-border (better integration between the neighbouring regions) to a global perspective (interface between Asia and Europe).

Other successful transnational initiatives on the transport corridors include: SEBTrans-Link, East-West Transport Corridor, Baltic Gateway or Rail Baltica, to name a few.

Such transport-oriented Interreg projects provide alternative approach to the traditional national transport planning, often focused solely on the main domestic needs without addressing the needs of the periphery regions of the countries. Their asset lies in a bottom-up approach to the development of transport infrastructure, which necessitates the integration of different national strategies and their adaptation to the context on the ground.



## 6.4 BETTER ACCESSIBILITY POTENTIALS

In less densely populated regions, medium-sized cities assume a vital role in acting as regional hubs and in serving their hinterlands. This is especially the case in the northern parts of the Nordic countries (Trondheim, Tromsø, Narvik, Sundsvall, Umeå, Luleå, Oulu, Rovaniemi, etc.), but also in the Baltic States (Tartu, Liepaja, Klaipeda, Siauliai, etc.). The development of currently missing transport links would enable these cities to create larger cross-border labour-markets and regional economies, thus obtaining a more robust and diversified economic profile. This is for instance the case for the territories between Liepaja (Latvia) and Klaipeda (Lithuania), as well as between Riga and Vilnius.

In this respect, the access of these territories to such facilities as airports, cargo terminals and universities is the central issue (fig.15). In contrast to the metropolitan areas, the sparsely populated regions of the Northern peripheries, islands and eastern parts of Poland have long distances to such structuring facilities. Strategies aiming at a more balanced distribution of service facilities over the BSR territory would improve the local accessibility in those areas.

## 7. INTEGRATION OF THE ENERGY NETWORKS

Integration of the electricity transmission grids in the BSR countries is a necessary step in order to create a consolidated energy network in the Region (fig.16). These grids have been designed for supplying the domestic market and, consequently, individual countries have adopted different technical standards. These differences in technological standards pose one of the main challenges for the interoperability of the electricity networks in the Region.

In the Nordic countries, the joint energy body (Nordel) ensures compatibility of the Nordic electricity transmission systems by developing joint regulatory frameworks and providing technical standards for connecting the electricity facilities to the consumers. On the eastern shore, the transmission grids of the Baltic States, Belarus and Russia are rather compatible, as they share similar technical standards. Poland has developed another technical standard for its transmission grid, which is barely connectable to the neighbouring countries.

The territorial capital of the country or region plays an important role for defining energy production strategies. For instance, hydropower and renewable energies are typically energy sources that need to be exploited and transformed into electricity on site, whereas coal and uranium can be transported in order to feed conventional thermal or nuclear power plants.

### 7.1 PATTERNS OF ENERGY PRODUCTION

Analysis of the sources of energy production in each BSR country reveals different profiles. In Norway most of the production comes from hydroelectric power; Russia and Denmark have an energy

Fig.16 Energy transmission grids in the BSR



Source: Nordregio



production strongly based on the extraction of oil and gas; in Estonia and Poland coal extraction represents the largest share in the energy production (more than 80%); in Lithuania and Sweden nuclear energy composes more than half of the total national energy production, respectively 70% and 54%; in Latvia, the production of energy from combustible, renewable and waste resources represents 87% of the total energy production, which is a unique case in the Region. Finally, three countries show a rather balanced mix of energy in their national production: Germany producing mainly coal (42%) and nuclear energy (32%); Finland - mainly the renewable (42%) and nuclear energy (37%); and Belarus - oil and gas (52%) and renewable energy (33%).

Observation of medium-term trends in the energy production helps to distinguish three groups of the BSR countries. Five of the countries have significantly increased their total production of energy since 1971 (Denmark, Finland, Norway and Sweden) or since 1990 (Latvia). Belarus and the Russian Federation belong to the group of countries that has witnessed a rather stagnating trend. Finally, four countries (Germany, Estonia, Lithuania and Poland) have recorded a decrease in their total production of energy.

The electricity production capacity is very much associated with the infrastructure available in each region and country, as it depends on the location of the power facilities on their territory (fig.17.1, fig.17.2). By putting together the indicators of the total regional production and the level of production per capita, it is possible to identify the main profiles of the regions and the importance of their position in the BSR. A high ratio denotes an over-production of electricity as compared to the regional needs, and thus a possibility for exporting electricity; while a low ratio indicates smaller margins and a necessity for importing electricity from the other parts. Regions of the BSR where the calculated ratio is high are situated in northern Sweden, in south-western and northern Norway and in Lunenburg (Germany). On the eastern shore of the BSR, the ratio is rather low with the exception of southern Poland and the Leningrad and Murmansk oblasts of Russia. Evidently, large metropolitan regions, such as Oslo or Stockholm, show both a low production of electricity and a low ratio.

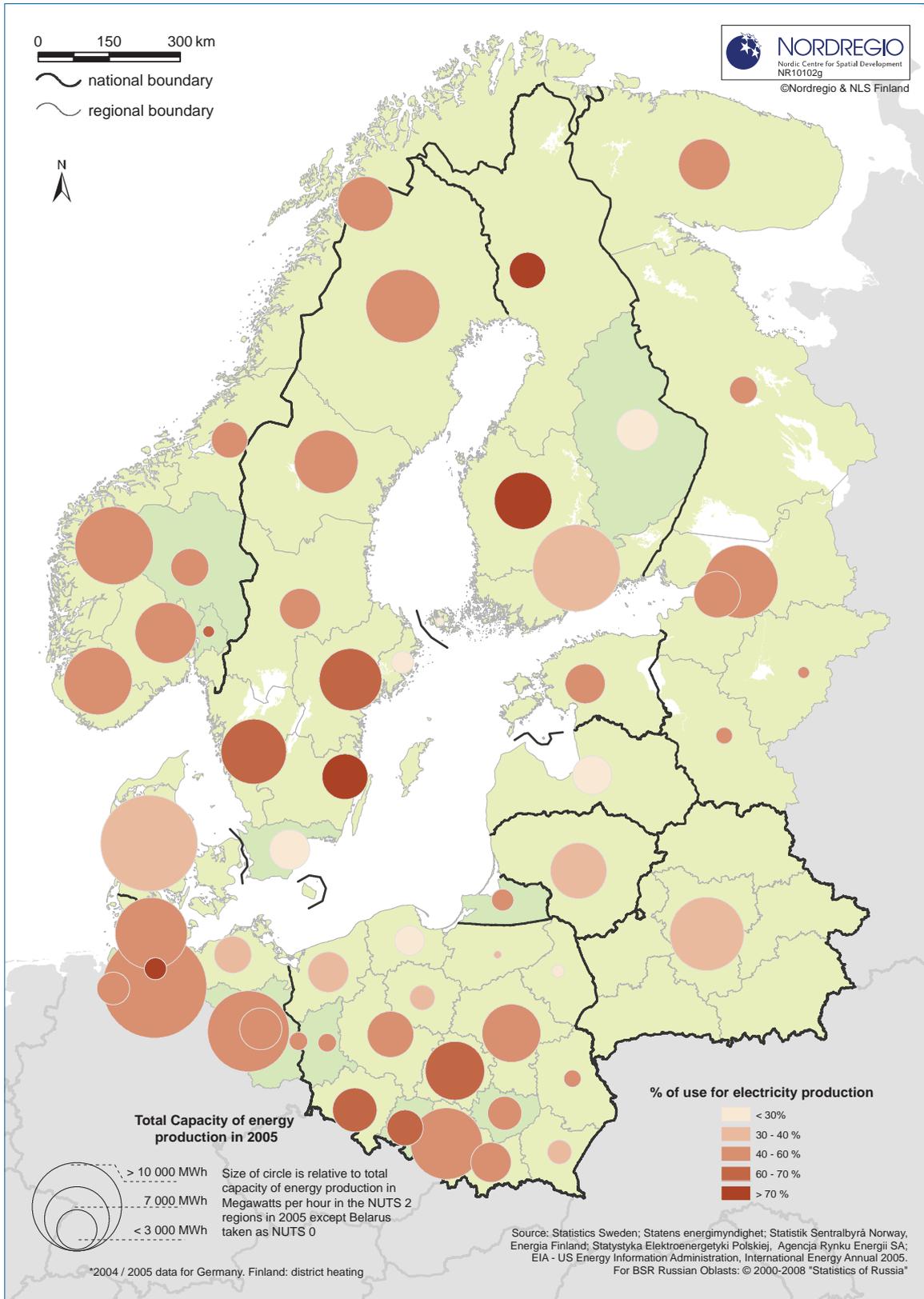
## 7.2 PATTERNS OF ENERGY CONSUMPTION

A resource structure of the energy production has a direct impact on the capacity of the countries to satisfy energy needs of different economy sectors. Industry, transport and residents are three main energy consumption sectors in all BSR countries are, amounting to approximately 30 % each.

In several BSR countries the national production of energy is a small part of the energy that is actually consumed. Apart from Russia, Norway, and to a lesser extent Denmark, all other countries are dependent on the import of energy, which makes energy dependency one of the most important topics for energy policies at the EU and national levels. These strong dependencies are a vital argument for developing integrated energy networks and markets, enabling to regulate supply and demand patterns across the borders.



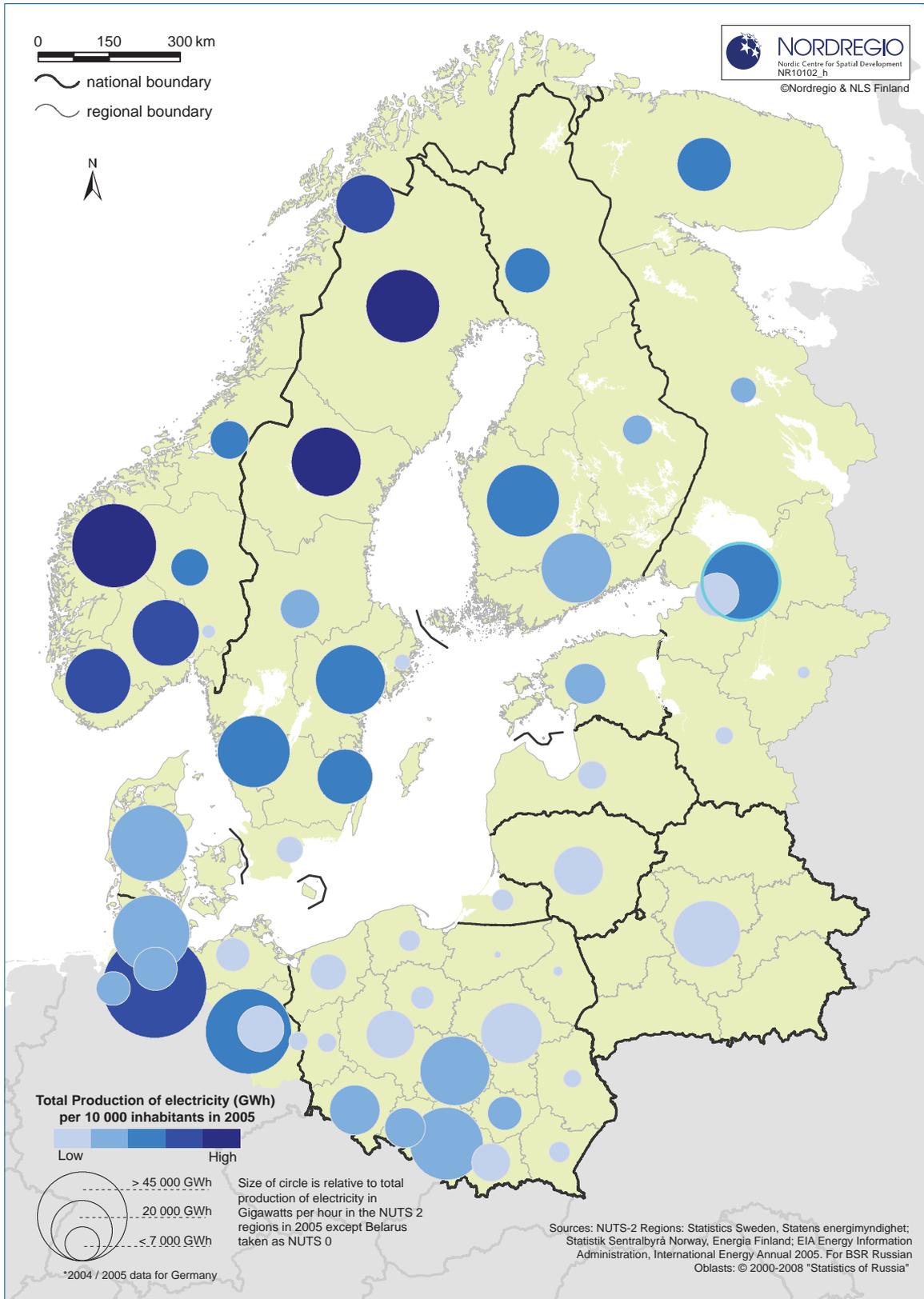
Fig.17.1. Electricity production capacity in total volumes in the BSR regions in 2005



Source: Nordregio

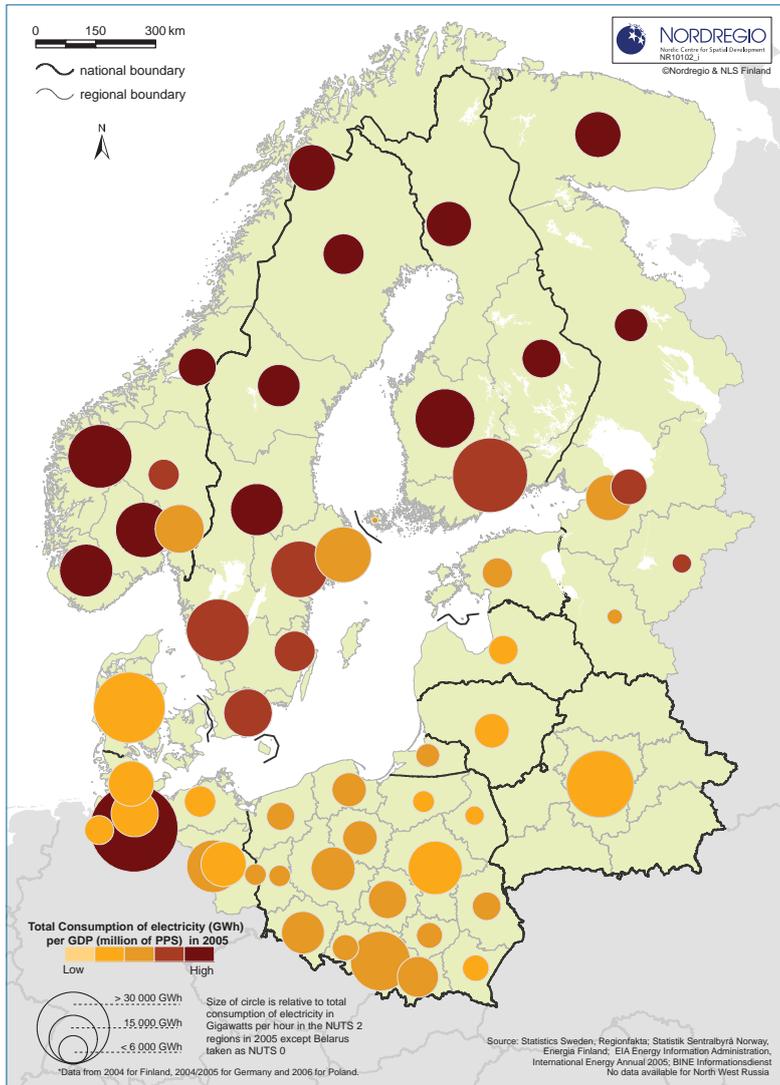


Fig.17.2. Electricity production capacity per capita in the BSR regions in 2005



Source: Nordregio

Fig.18 Electricity consumption per GDP unit in the BSR regions in 2005



Source: Nordregio

counterparts on the Eastern shore, as measured in electricity consumption weighted by the GDP (fig.18). To some extent, the regional economies of North West Russia have a high level of energy consumption intensity as well, despite lower volumes of consumption in absolute terms.

### 7.3 TERRITORIAL CAPITAL OF RENEWABLE ENERGY

Production of energy from renewable resources brings two substantial benefits: first, it leaves lower environmental impacts in the context of the climate change; second – it decreases the energy dependency of countries and regions by reducing the need for importing the energy.

When it comes to the trends in energy consumption, the example of oil products is interesting, as it is used in all three main sectors: industry (e.g. chemical), transport (e.g. gasoline and kerosene) and residential use (domestic fuel). In this regard, almost all BSR countries have reduced their consumption in the recent decades. For the former Soviet Union countries like Russia, Latvia, Lithuania, Estonia and Belarus, the drop was observed between 1990 and 1995. In case of Denmark and Sweden, a significant decrease happened in late 70s and early 80s. For Finland and Germany, the consumption has been rather stagnant over the last thirty years. Poland and Norway are the only two countries for which the consumption of oil products has increased over the last decades: if the level of consumption in 2005 in Norway corresponds to 125% of the consumption level in 1971, it has doubled in the case of Poland.

The analysis of the territorial distribution of electricity consumption reveals that the regional economies of Germany and the Nordic countries are, in general, much more energy (here electricity) intensive than their



The BSR countries have different renewable energy production profiles. The first category comprises the countries which utilise extensive river basin resources for hydropower generation (Norway, Russia, Sweden and Latvia). Countries like Finland, Estonia, Lithuania and Belarus have biomass as the dominant contributor to the production of renewable energy. Finally, the third group of countries (Germany, Denmark and Poland) have no dominant form of renewable energy, thus showing a more diversified production with a wider variety of sources (wind power, hydropower, waste, biomass, biofuel).

## 8. BRIDGING THE DIGITAL GAP BETWEEN THE BSR COUNTRIES

Information and Communication Technologies (ICT) have become an integrated part of the policy debates as concerns the notion of accessibility. New technologies such as mobile telephony or broadband internet connections give the opportunity for individuals and businesses to expand their contact networks, broaden the market area for their products and to access information that can be considered as universal knowledge more quickly and autonomously. As in the case of transport and energy, the ICT relates to the notion of accessibility not only in terms of the available infrastructure, but also in terms of how these infrastructures are used by individuals and businesses.

Many countries of the BSR are at the forefront of the EU when it comes to ICT: Sweden and Finland, due to the presence of Ericsson and Nokia, have acted as the world leaders in the production of ICT hardware; Norway, Denmark and Germany have rapidly developed adequate hard and soft infrastructure for their respective economies. On the eastern shore of the BSR, the development of ICT infrastructure and management has started later during the stage of the economic restructuring towards market economies.

The recent figures on the penetration rate of fixed or mobile telephony across the BSR countries show that the main challenge as regards the access to ICT is not any longer how to develop the usage of mature technologies, but more how to catalyse and anticipate the development of emerging technologies. The disparities between the BSR countries concerning the access and use of ICT can be highlighted on two main dimensions: first, they are substantial when it comes to the emerging technologies (e.g. broadband) and almost nonexistent when it comes to mature technologies (e.g. mobile phones). Besides, for a particular technology, disparities between countries are bigger in the case of individual use (households) as in the case of the business exploitation.

The analysis of trend data related to the number of broadband subscribers across the BSR reveals that the countries have not been engaged in this technology at the same period and at the same pace. The Nordic countries, Estonia and Germany have witnessed a strong increase of subscription already in 2000; other countries, such as Lithuania, have followed several years later, and finally, countries like Latvia, Belarus and Russia have been the latest to develop the technology. Yet, these disparities for this specific technology are only temporary, as they will eventually balance themselves in the near future.



However, in all BSR countries strong disparities exist between different types of territories: in general, metropolitan areas have better access to ICT than more sparsely populated ones. This implies that the location of persons and businesses within the national territory has a strong influence on their capacity to access high quality ICT networks.

In 2005, the BSR countries were classified into four categories according to the disparity gaps in the household use of the broadband connection between densely and sparsely populated regions. Sweden belonged to the top category (i.e. with the smallest disparities); Finland and Denmark to the second group; Norway, Germany and Estonia to the third one; and finally, Latvia, Lithuania and Poland to the last one.

In only two years' time all BSR countries have managed to reduce the disparities between the densely and sparsely populated regions significantly. Norway, Finland, Denmark and Germany have joined Sweden in the top category; Estonia has moved to the second category; Poland and Latvia to the third one; while Lithuania is still in the last category, although its ratio has been reduced by a half.

This advancement shows that the territorial disparities in the area of ICT diminish rather fast. Yet, in general terms, territories outside the metropolitan areas are not so well equipped to act as the driving forces in the ICT system. Transnational and cross-border cooperation should foster the improvement of regional capacities regarding the hard (e.g. infrastructure, connectivity of the networks) and the soft (e.g. e-learning, education) investments in those regions.

## 8.1 BEST PRACTICES ON E-ACCESSIBILITY IN THE BSR

Several recent transnational Interreg IIIB projects (Rural Broadband and LogOn Baltic) have highlighted important issues concerning the access to ICT in the BSR.

The Baltic Rural Broadband project aimed at improvement of the broadband access in selected rural regions of all BSR EU member states and Norway by identification and dissemination of the best practice examples, development of the local or subregional broadband strategies, and by encouraging the local stakeholders to promote the broadband solutions as a key element of the future regional development strategies. The project highlighted both territorial disparities in disfavour of the rural areas, as well as social disparities in terms of ICT access, e.g. by older and low income individuals. It also emphasised the role of private companies as providers of the necessary infrastructure in distant areas and technologies (e.g. radio-based) in rendering such services. In this regard, some test installations were made and pilot projects implemented for the development of the local network modules through smaller investment.

The LogOn Baltic project concentrated on the role of logistics and ICT competence in the regional development. It provided a transfer of knowledge in that respect and delivered recommendations to the regional development agencies on how to support enterprises in the participating regions in their effort to improve their ICT and logistics competence.







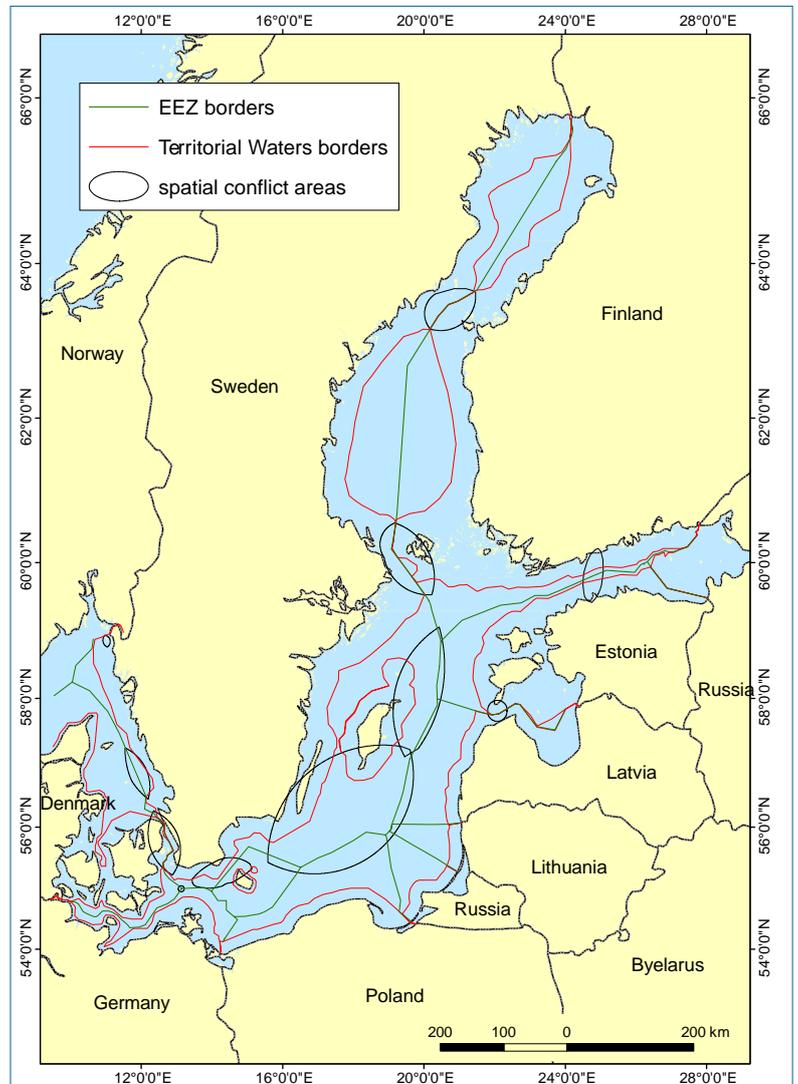
## 9. AWARENESS OF THE SEA USE POTENTIALS AND THREATS AROUND THE BALTIC SEA

The observations tell that few BSR countries have managed to obtain a comprehensive insight into the ongoing developments in their sea space. This regards both knowledge on the driving forces and potentials, as well as knowledge on the conflicts, which may arise from the current pattern of development. The policy work is channelled into sectoral frameworks and rarely exchanged at the BSR level, with the exception of information on shipping intensity and sea protection and pollution status.

According to the national reports the driving forces shaping the current development of the sea space are in principle very similar in all BSR countries; however their intensity and position may differ. At the same time, the recent research (Interreg IIIB Balance project) exhibits a need to protect not only species, but also their habitats and even marine landscapes. Demands for a stricter protection of the marine biotopes result from an increased knowledge about the state of the marine environment, from accordingly intensified environmental quality objectives and also from a stronger sea use competition. In the long term such quality demands would lead towards reaching a favourable conservation status for all the Baltic Sea's living environments and species.

Also wind farms are discussed in almost all reports as important and perhaps the most promising development potential for the Baltic Sea Region. This indicates that the issue of maritime renewable energy is not only pushed forward by respective EU Directives and taken then to the national legislation, but it has its own rationale and dynamism as an important alternative in even relatively abundant in fossil fuels countries, such as Russia.

Fig.19 Areas of the sea space use conflicts in the Baltic Sea



Source: National reports from the BSR countries



Other challenges, but at the same time potentials, are posed by mining, in particular oil and gas extraction, energy offshore generation and transmitting, telecommunication services, etc.

It is interesting that the sea military areas seem to be a common problem for the new EU members. There is a need to convince the military authorities in these countries that the sea space becomes a scarce resource and that the national defence requirements ought to be considered in balance with a range of national and the BSR interests.

There are also some noticeable differences between the countries in the perception of the future development of their sea space. To exemplify, fishery is heavily stressed in the Russian plans as an important development potential, whereas in other countries the focus is on preserving the fish stock and protection of areas for reproduction, growth and fishing. In general, a SW-NE border line between the BSR countries can be drawn according to the number of the perceived sea use conflicts now and in the future, which has probably to be linked with the intensity levels of human activity in the sea area (fig.19).

The identified driving forces and potentials, like protection of the marine biotopes, depleted fishery, the increasing global and local shipping, construction of wind power plants in the open sea, toxins and oil leakage from the wrecks and dumped material, as well as the extension of the international energy, transport and telecommunications systems with pipelines and cables should be analysed as an interlinked system. Intensification of the traditional uses and emergence of new ones (e.g. blue biotech and sub-sea technologies) result in an increasing competition for the use of certain areas and zones not only in the territorial, but also the exclusive economic zone waters.

With the growth of user demands, there is a need for a more comprehensive approach to the sea space, which would allow the coexistence of both human impacts and the natural processes. The reason why such integration is essential is the specificity of the sea space. It allows for more users in the same area as on the land, but, on the other hand, the lack of physical borders and barriers makes the sea environment much more prone to impacts of any human activity. Sea use processes are closer interlinked with each other than those on the land. Moreover, very often their impacts transcend the maritime borders of the countries and also extend to the land (e.g. the sea level rise, climate change, nature conservation, issues of transport and infrastructure).

All the above-mentioned forces and conflicts cannot be solved without a clear BSR vision and goals. Besides, an agreement on the targets for the use of resources (e.g. indicative percentage of the sea space to be protected, type of maritime landscapes to be preserved, separation of the traffic routes, etc.) or on the development of international energy transfer lines/systems may be drawn at the BSR political level.

The visions and long term strategies concerted in a transboundary manner are needed also on a national level, e.g. on the development of mariculture, port development, power generation, mining, coastal safety, etc. Transnational cooperation would also be beneficial for prevention of sea accidents and weather disasters, management of erosion and dumping, establishment of intelligent logistic systems or operating together in forecasting and modelling.

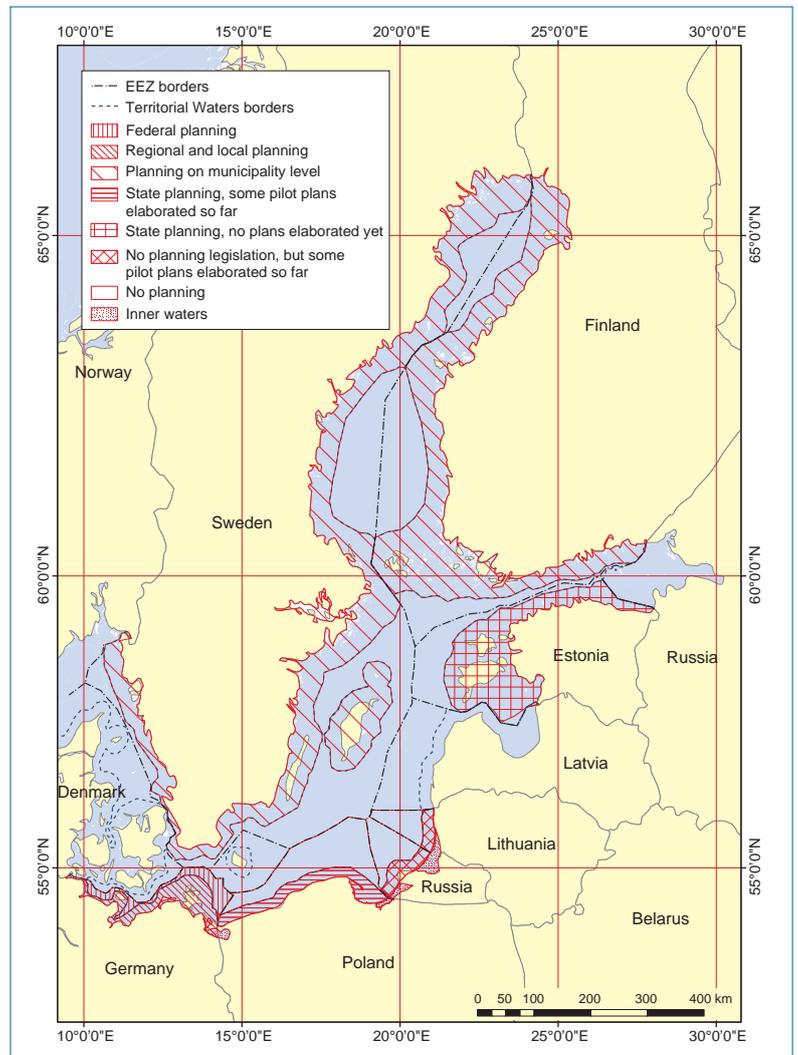


## 10. THE CURRENT STATE OF MARITIME SPATIAL PLANNING IN THE BSR

Although the main driving forces which shape the development of the Baltic Sea space are more or less similar in the BSR countries, the coverage and intensity of spatial planning differs among them (fig.20).

There is no BSR country (except perhaps Germany) that has managed to establish a fully developed maritime spatial planning system. In Germany, the planning of territorial waters is the component of the planning at the Länder level, and the Exclusive Economic Zone is under the jurisdiction of the federal state. German maritime plans are of statutory nature and define the rules and principles for all subsequent planning. They design suitable, reserved and restricted areas for shipping routes, cables and pipelines, fishery, nature protection, energy and scientific use. In case any installations are to be located within the suitable areas set by the maritime plan, additional procedures, such as the Territorial Impact Assessment (TIA), are required.

Fig.20 Maritime spatial planning governance in the BSR countries



In Poland, only one pilot maritime spatial plan has been elaborated so far (for the western part of the Gdańsk Bay). This quasi-strategic document contains a range of functions, which on land correspond to the spatial development study at municipality level and local land use plans. According to the Polish law, the development of maritime spatial plans is in the competence of the maritime administration, and following issues should be defined in these plans: the designation of the sea areas, prohibitions or limitations in their use, taking into account the requirements of nature protection, distribution of public investment, alignment of transport and technical infrastructure, as well as areas and conditions for protection of environment and cultural heritage. In Poland the sea space use is also determined by the National Spatial Development Concept currently under elaboration (due by the end of 2008).

Source: National reports from the BSR countries



In Sweden, Finland and Norway, the local (and also regional in Norway and Finland) governments have a right, but not an obligation to extend their plans into sea areas. This right is frequently used in Norway, as 82% of Norwegian municipalities have already produced maritime spatial plans, and rather exceptionally in Sweden. In Finland, certain uses, such as nature protection areas, shipping routes, etc. are reflected in the regional and municipal level plans. The Norwegian Ministry of Environment, in cooperation with other ministries and authorities, has designed a management plan for the Barents Sea and the sea area of the Lofoten Islands to establish a holistic and ecosystem-based management of the activities performed there. It should also be noted that both in Finland and Sweden the maritime spatial planning in the exclusive economic zones is nonexistent and not regulated by the law. Sweden is currently working to increase the planning intensity in the Swedish sea space.

Maritime spatial planning does not exist in Russia, Latvia and Denmark.

In Denmark, the sea-based activities are mainly addressed by a number of sectoral regulations. The Planning Act only refers to the coastal zone of the Danish territory and the responsibility for the coastal zone planning and management is dispersed among different sectors and different administrative levels of decision-making. In Russia, the maritime spatial planning is not even mentioned in acts related to sea space management, and spatial plans cover only terrestrial areas. Although the Latvian National Development Plan 2007-2013 recognises the potentials and risks associated with the coastal location of the country, it does not contain any vision for the future territorial organisation or zoning of the sea space. However, by recognising the strategic importance of the nature values for the development of its region, Kurzeme planning authorities plan to broaden the network of the protected areas by including there also the Marine Protected Areas.

There are several reasons for the differences between the countries in approaching the maritime spatial planning issues.

First, maritime spatial planning is demand driven, and therefore it exists mainly in the countries of a relatively high population density or in countries for which marine resources form an important part of the national economy. Also the nature and efficiency of the existing sea management system is important. The low efficiency coupled with a growing number of conflicts usually urges for introduction of the maritime planning system.

Second, maritime spatial planning is usually rooted in planning paradigms of the countries (case of Germany and Norway) and their trust in spatial planning as an instrument for conflict reconciliation.

Finally, the nature and efficiency of sea management system plays an important role. In case of Denmark, the cooperation between different sectors using the sea space probably creates fewer conflicts so there is less pressure to invest into the maritime spatial planning. In Russia, the sea space has clear connotations only with the shipping, so the need for more comprehensive sea space management has not matured yet among the decision makers.



## II. PRECONDITIONS FOR SUCCESSFUL INTRODUCTION OF THE MARITIME SPATIAL PLANNING

The basic precondition for successful introduction of the maritime spatial planning is a clear division of responsibility in this field in each BSR country. The planning responsibility should be entrusted to a public body, which governs the sea space under the national legislation. At the same time, the usually dispersed responsibilities for the sea space management should be clearly defined and well coordinated.

The second precondition is to set the targets and agree about them on the BSR level for all relevant uses of the Baltic Sea space, including habitats and maritime landscapes. Otherwise, the national maritime planning schemes would become incoherent, sectoral and contradictory.

The third precondition is to introduce maritime spatial planning at the national level to cover the whole sea space in each BSR country. The planning should, first of all, focus on identification of main sea potentials and threats (conflicts), and to provide general guidance for the decision making, potential investors, developers and other sea space users. Also, it should set a framework for more detailed plans to be made on demand for addressing the problem areas (areas of conflicting interests) and areas for large scale development (e.g. wind farms).

The final precondition concerns the quality of maritime spatial planning. Since the management of the sea space is of genuine transnational character, there is a need for a common denominator for maritime spatial planning in all countries surrounding the Baltic Sea. Even if the speed and scope in introducing the maritime spatial planning might differ between the countries, the general direction of the changes should be similar. Therefore successful introduction of the maritime spatial planning in each BSR country requires common principles on the scope and procedures of this instrument. The following principles are proposed for further examination:

- MSP should demonstrate a farsighted and pro-active approach, based on a BSR vision, internationally agreed goals, etc. It should not only react to the emerging conflicts, but try to inspire the existing and potential sea space users towards an optimum use of the sea space and to secure resources for future uses;
- MSP should be run by an institution independent from any sectoral influence and following common vision and goals, preferably agreed at the BSR level;
- MSP should be based on a principle of diversity, on participatory approach and transparency. These principles are important if the planning is to fulfil its guiding and operational role, being a forum for harmonisation of actions and activities of different entities in the same space;



- MSP should respect the ecosystem approach as the strategy for an integrated management of land, water and living resources that promotes their conservation and sustainable use in an equitable way;
- MSP should cover all sea layers (sea surface, sea bottom and water column between them) and should take into consideration important seasonal changes in the sea space;
- MSP should use the adaptive approach to the planning and be of a continuous character;
- MSP should be science-based i.e. accompanied by properly formulated and supported research programmes examining the sea space as a functional entity;
- MSP should be transnationally coordinated and a joint planning of some sea areas should be done in order to achieve coherent development of the cross-border sea uses, to prevent occurrence of negative externalities and to support measures for protection of natural assets;
- MSP should follow the nested approach, which means a vertical and horizontal coordination of the planning process and the resulting spatial plans;
- Complementary planning of the sea space and the adjacent coastal areas should be achieved to secure coherence and continuity of the development and activities in both these areas;
- MSP should be of precautionary character due to the shortcomings in available information on sea space and processes;
- MSP should take into account recommendations, knowledge and information of pan-Baltic organisations and CEMAT at an early stage of planning in order to secure the coherence of the maritime spatial plans with the pan-Baltic policy messages and proposed actions;
- The decision-making processes in case of lacking maritime spatial plans should be well coordinated vertically and horizontally, be transparent and include public participation.



## APPENDIX I: ABBREVIATIONS AND ACRONYMS USED

Acronym	Explanation
ASAP	The INTERREG project dealing with the challenge of compensating lower economic potentials and safeguarding the rural development through strengthened institutional capacity in the rural municipalities
BSR	Baltic Sea Region
CEMAT	The European Conference of Ministers responsible for spatial and regional planning, bringing together representatives of the 47 member states of the Council of Europe
CIS	Commonwealth of Independent States
ETLA	The Research Institute of the Finnish Economy.
EU	European Union
GDP	Gross Domestic Product
ICT	Information and Communication Technologies
IT	Information Technologies
MEGAs	Metropolitan European growth areas
MSP	Maritime Spatial Planning
R&D	Research and Development
SebCo	The INTERREG project dealing with city-hinterland cooperation as a motor for the regional development in the south-eastern part of the BSR
SEB Trans-Link	The INTERREG project supporting the preparation process of investments and other initiatives to improve accessibility to the road- rail and sea transport networks of the north-south corridor between Sweden and Poland/Kaliningrad Region/Lithuania
SW-NE	South-West to North-East
TEN-T	Trans-European Networks in the field of transport
TIA	Territorial Impact Assessment
UNESCO	United Nations Educational, Scientific and Cultural Organization
USD	United States dollar
VASAB	Vision and Strategies around the Baltic Sea

## APPENDIX II: LIST OF THE MEMBERS OF THE COMMITTEE ON SPATIAL DEVELOPMENT IN THE BALTIC SEA REGION – CSD/BSR

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## ACKNOWLEDGEMENT

The present Background Synthesis Document is the result of a number of preparatory activities of the Long Term Territorial Development Perspective (LTP) coordinated by the VASAB Committee on Spatial Development (CSD). We would like to thank all persons involved in preparation of the document.

In particular, we would like to mention that the process was initiated by Polish chairmanship (2004-2005, CSD Chairman Zbigniew Rykowski), architected by VASAB Swedish chairmanship (2006-2007, CSD Chairman Olle Lundgren), steered further by Latvian chairmanship (2007-2008, CSD Chairmen Edgars Zalāns and Gunārs Anšņš) and concluded under Danish chairmanship (2008-2009) skilfully orchestrated by Peter Pouplier.

As agreed during the VASAB Swedish chairmanship, the LTP development process was organised in three thematic working groups. The working group on urban networking and urban-rural partnerships was led by Helle Fischer and Wilfried Görmar, the working group on accessibility and transnational development zones led by Vladislavs Vesperis and Jussi Rautsi, the working group on integrated coastal zone management and sea use planning led by Patrycja Jakubowska.

Elaboration of the LTP would not be possible without financial support provided by the European Commission as INTERREG IIIB Neighbourhood program Tacis strand project *East West Window*. The project idea was expertly developed by Jacek Zaucha, involving 10 project partners: Sankt Petersburg City Administration, Russian Economic Developers Association (ASSET), Immanuel Kant State University of Russia, Ministry of the Environment, Agency for Spatial and Environmental Planning, Denmark, Federal Ministry of Transport, Building and Housing, Germany, Ministry of Industry, Employment and Communication, Sweden, Nordic Centre for Spatial Development (NORDREGIO), Ministry of Regional Development, Poland and Maritime Institute in Gdansk, Poland. The project idea was enthusiastically picked up by the lead partner –the Ministry of Regional Development and Local Government of the Republic of Latvia and personally supported by the State Secretary Laimdota Straujuma.

In commemoration of the project conferences, seminars, workshops and expert meetings we would like to thank all the experts involved: Leonid Limonov, Natalia Lebedeva, Tatyana Vlasova, Irina Karelina, Nina Oding, Lev I. Savulkin, Gennady M. Fedorov, Igor Joukovskii, Pavel Porebnyakov, Andrey Klemeshev, Natalia Klimenko, Ilya Chernikov, Alexander Levchenkov, Galina Vorbieva, Anna Poletkina, Julia Baranova (Spirina), Tatiana Chekalina, Larisa Emeljanova, Alexander Yamarenko, Boris Chubarenko, Elena Kropinova, Sergey Zotov, Irina Chubarenko, Yuriy Zverev, Valentin Korneyevets, Irina Dragileva, Dmitry Domnin, Tatiana Vladimirova, Jacek Zaucha, Antoni Staskiewicz, Juliusz Gajewski, Andrzej Cieslak, Marek Dutkowski, Johanna Roto, Steinke Jon Moxnes, Ole Damsgaard, Gints Birzietis, Artūrs Caune, Laila Kūle, Igor Kabashkin, Andris Andrušaitis, Dmitri Semenkevich, Anna Lutskovich, Tiina Tilman, and Rupert Kawka. The main direction of the analytical work was suggested and the reports of the working groups drafted by Niels Boje Groth assisted by Julien

Grundfelder, Peter Schmitt, Alexandre Dubois, and the overall content coordination was provided by Jacek Zaucha.

The document would not be complete without maps drafted by Nordregio (Johanna Roto and Jose Sterling), Maritime Institute in Gdansk (Juliusz Gajewski), RRG Spatial Planning and Geoinformation (Carsten Schürmann) and Immanuel Kant State University of Russia (prof. G. Federov and his team).

Special thanks go to consultant Wiktor Szydarowski for excellent work on drafting the document, patience while discussing all the comments and finding compromises on the text.

We would like to thank also the BSR ministries responsible for spatial planning and development for organising the national consultation process, collecting responses and providing summaries of comments. In addition, we would like to thank Pan-Baltic organizations, regions and individuals who provided their comments to the draft versions of the Background document.

Additionally, we would like to thank the former VASAB Secretariat in Gdansk (Jan Kuligowski, Jacek Zaucha) and Secretariat in Riga (Tālis Linkaits, Dzintra Upmace, Ilona Samule, Kristīne Feldmane, Baiba Rēdere, Unda Krieviņa) for assisting the LTP elaboration process, Līga Balode of Triple Bounce Ltd for patience in discussing all the requests for design and Inga Nemše of McAbols Poligrafija Ltd for English proofreading of all the texts.



