ESPON

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Inspire policy making by territorial evidence

BT2050

Territorial Scenarios for the Baltic Sea Region

Targeted Research

Synthesis Report

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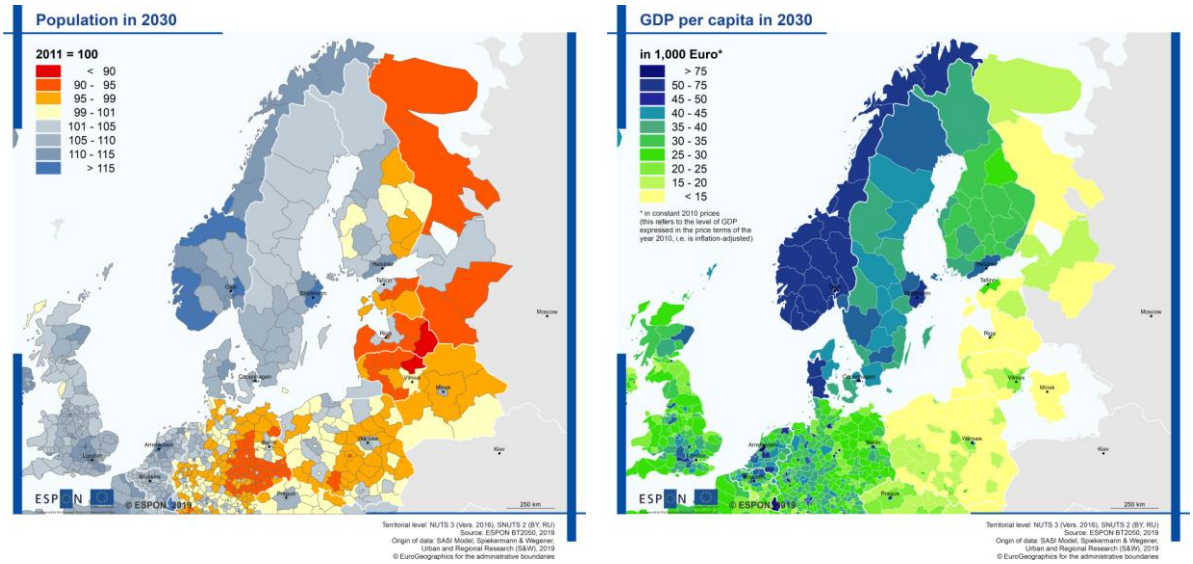
The BT2050 scenarios and their territorial profiles

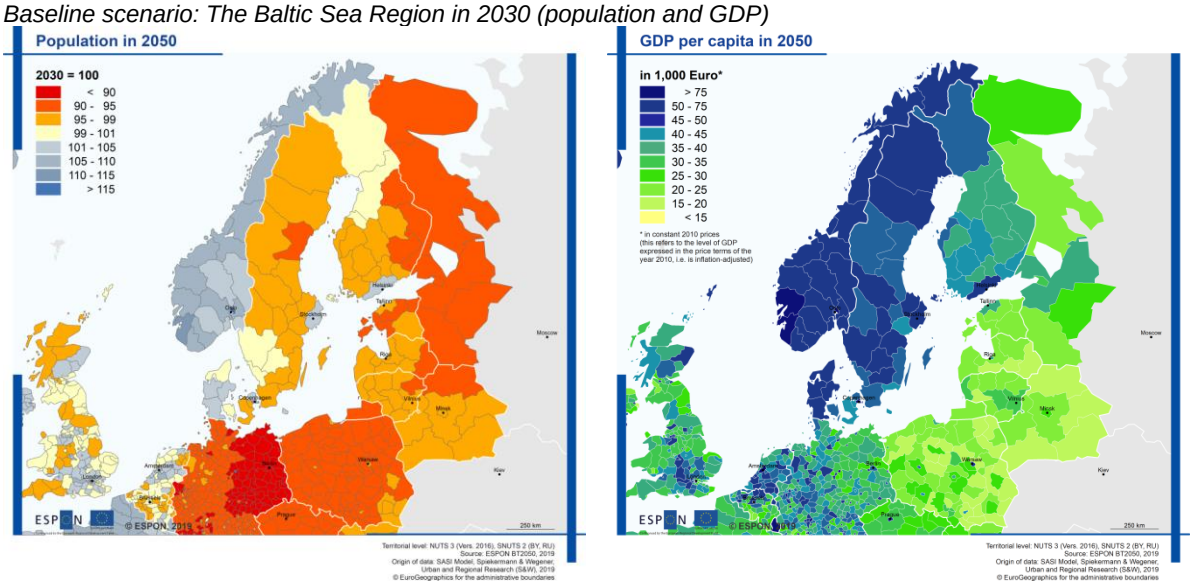
In the framework of the ESPON BT2050 three scenarios were developed: a Baseline Scenario illustrating the development of the region in 2030 and 2050 and two territorial scenarios, showing alternative futures for the BSR in 2050: '*Well-being in a Circular Economy – a RE- mind of a good life'* and '*Growing into Green-tech Giants – the ecological footprint clear-up'.* These scenarios were the instruments for informing BSR spatial policy, specifically to support the revision of the VASAB-Long Term Perspective.

Baseline Scenario for BSR: 2030 – 2050

The BT2050 Baseline Scenario offers a perspective about how the Baltic Sea Region will look like in 2050 if trends of the recent past (e.g steady economic growth, inflow of immigrants) and current policy practices (e.g. EU political integration) continue to be in effect in the following three decades. For this, the SASI Model, used to develop the Baseline Scenario, offers quantitative projections of population development by different age groups and GDP per capita of the region (see Maps below)



Baseline scenario: The Baltic Sea Region in 2030 (population and GDP)



Baseline scenario: The Baltic Sea Region in 2050 (population and GDP)

As illustrated in the maps showing population development, between 2030 and 2050, most parts of the BSR shrink, one of the consequences of the ageing population. Norway, some Danish regions, Copenhagen, Stockholm and Helsinki are exceptions and few regions in Finland, Sweden and Denmark, maintain a stable population during these periods. The current economic divide that reflects the spatial distribution of thriving economies in the west and the declining economies in the east of the macro-region still persists in 2050. The capital regions of Poland, the Baltic States, Belarus and the wider St. Petersburg region in Russia are exceptions. These regions gain substantial economic power with increases in their GDP per capita comparable to many regions in western Europe and much higher than in other regions in these countries. The highest average economic growth rates appear in Belarus and Russian regions in the BSR and it is lower in Germany and the Nordic countries indicating a sign of economic convergence as lagging regions grow stronger than the better-off regions of today.

The Baseline Scenario gives a mixed picture in terms of balanced territorial structures. In 2050, the main agglomerations of all countries of the BSR are flourishing in several respects. They are the drivers of the national economies; they are the place to live which is true for an even much larger part of the population than 30 years ago. This happens at the expense of rural areas which are in most countries of the BSR economically behind and facing problems of depopulation.

In terms of territorial cohesion, the BSR still yields clear internal disparities. However, the assessment of territorial cohesion at more aggregate levels, suggests that substantial progress has been made during the first half of the 21st century. In economic performance, the BSR is on average much closer to the European average in 2050 than in any period before. Lagging countries of the BSR caught up on the leading countries, a development which is in particular true for Belarus, the Russian regions of the BSR and for the Baltic States. And this disparity is despite the much higher growth rates of the lagging countries This means that territorial cohesion is even with such diverse growth rates of lagging and advanced regions a decade-long process and requires a strong long-term supporting effort.

The territorial implications of the Baseline Scenario yield two main messages:

- There will be a further pronounced unbalanced development between urban and rural regions in the BSR as a whole and in all the countries belonging to this macro-region; urban areas will be the economic powerhouses and will attract more population than other types of regions.
- But overall territorial cohesion (measured with GDP per capita) will happen across all regions regardless the regional type. This calls for specific attention to policies in favour of territorial cohesion but with a view on the different types of regions that might have specific needs for support.

Alternative territorial scenarios for the BSR 2050[1]

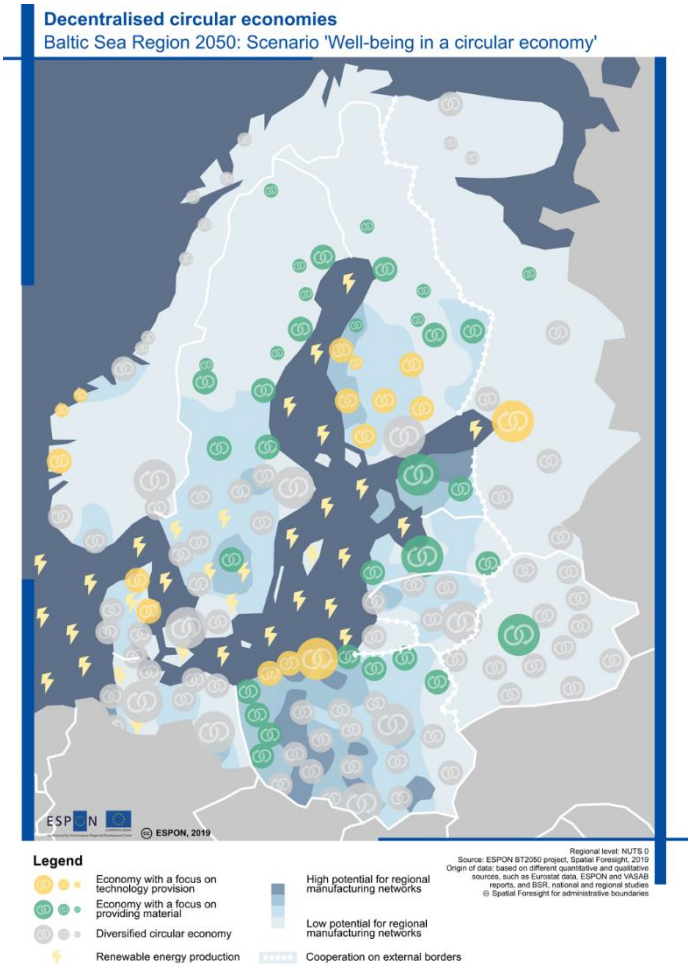
The two alternative scenarios for the BSR 2050 derive from a combination of thorough research of relevant trends and factors influencing the BSR so as to develop the scenario logic, and a participatory,

[1] The references used to develop the territorial scenarios can be found in the texts of the main report and the scientific annexes.

co-creative approach with relevant stakeholders to finalise the two scenarios and their territorial implications.

Well-being in a circular economy – a RE-mind for a good life

This scenario describes a future where the BSR has developed into a sharing and circular economy region, where citizens have consciously decided to change the existing linear economic model in favour of a better quality of life. A sharing and repairing culture characterise this scenario, where manufacturing revives, local production is revitalised, people consume less and more responsibly, while products are produced in higher quality and last longer. In this scenario decentralised patterns are observed, where second and third-tier cities and towns become the main centres, reducing the importance and concentration in metropolitan and large urban areas.



Map 1: Decentralised circular economies. Baltic Sea Region 2050: Scenario "Well-being in a circular economy"

A regionalised small and medium-cities scenario.

As second and third-tier cities in the BSR have the critical mass for manufacturing activities in the framework of a repairing economy, less concentration and even declining in the metropolitan areas and the traditional big growth centres is observed in this scenario.

Regional centres gaining ground

The regional centres allow citizens to organise more efficiently in their sharing economy exchanges. Other cities that focus more on providing technology towards new solutions for the circular economy play an important role. An urban-rural shift is also possible as more people choose to live closer to nature.

Transport loses global profile

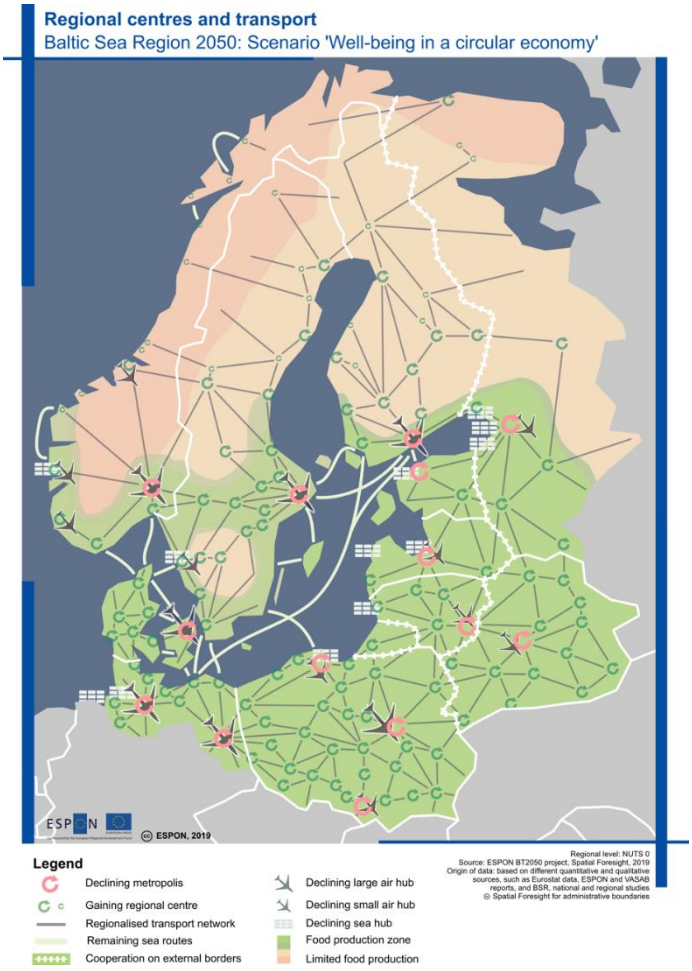
As production is regionalised and high-quality products last longer, reducing the production needs, the importance of global and European airports declines, Sea hubs also declining, especially in places where ports have shaped their economy. Road accessibility connects the different regional centres, which are the main logistic function. Drones and other self-driving vehicles serve the remotest areas.

The revival of manufacturing

Regionalised product life cycles in places with a high manufacturing potential are the backbone of the repairing economy. The production of high quality and long-lasting products also lies in the use of proper material and new technologies. Economy centres providing either of the two play a crucial role in the production of local products in the region. Regions providing material can be found in several second-tier cities across the BSR. This is highly related to the available resources of the places that are relevant to the circular economy concept.

Technological developments play an important role with eco-vation (innovation in the area of a green economy) being a condition for the circular economy model. Digital accessibility is high and allows people to organise themselves into different online platforms that facilitate the exchange of services and stuff and support repairing activities. Technology has given employment a new twist, with automation (e.g. robots, nanotechnology and artificial intelligence) replacing humans in repetitive production jobs

New virtue ethics shapes peoples' lifestyles – less is more. People have chosen to live in harmony with the environment. This virtuous life, follows the virtual ethics as expressed by the Stoic philosophers, aims at improving the quality of life and the well-being of people. A new societal model has emerged, where people share more and consciously change their consumption habits for the common good and environment sustainability. Good government has contributed to achieving better life fulfilment by introducing policies that support such actions and improve the life index of people through caring about the environment, housing, income, jobs, work-life balance for more life satisfaction and community building.



Map 2: Regional centres and transport, Baltic Sea Region 2050: Scenario 'Well-being in a circular economy.'

The potential of renewable is untapped

Although the energy demand is lower due to less production and consumption, regions with high potential are the frontrunners to more renewable resources shift. The movement of slow food, focusing on local food and traditional cooking curbs the use of pesticides and value the organic and bio food production, which becomes the core of agricultural production.

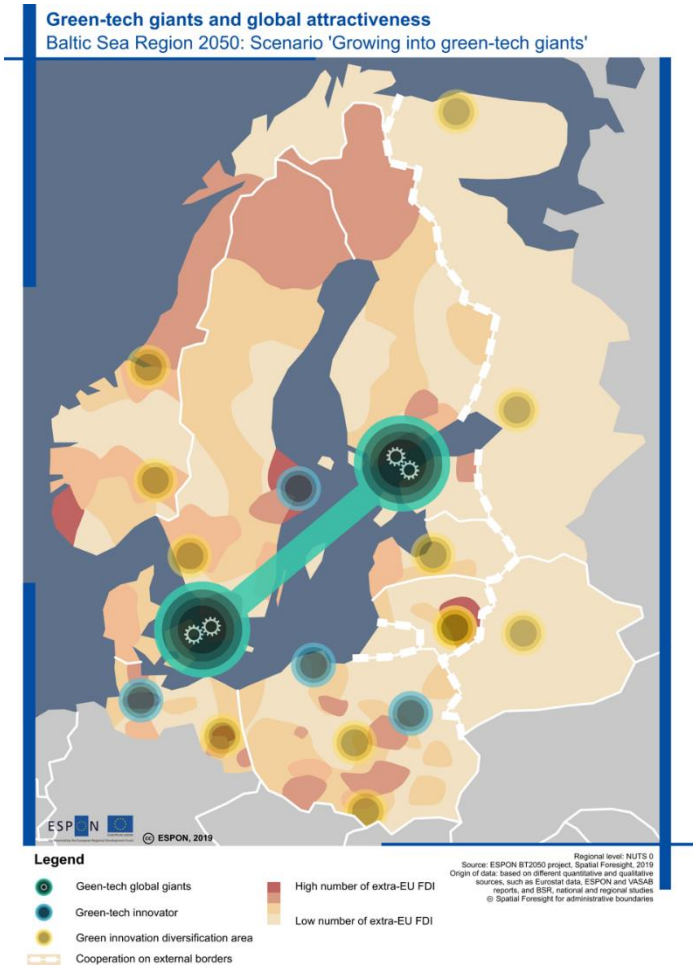
In neighbourhood relations cooperation is a must.

The improvement of the environmental situation of the BSR is a priority of the citizens and governments in the region, with the aim of improving the quality of life. Cooperation is a prerequisite for such a priority, both within the countries of the BSR, as well as with the EU and Russia and Belarus, considering that environmental protection, is one, if not the main, sector which cannot be addressed single-handedly but needs strong cooperation and commitment.

Growing into green-tech giants – the ecological footprint clear-up

This scenario describes a future where the Baltic Sea Region is a giant in green technology and the achievements of the 4th industrial evolution are in the epicentre of everyday life. The mix of innovation and green technology have led to a reduction of the ecological footprint of the region. At the same time, high-end innovation and the race for more growth have led to an increased 'guilt-free' consumerism. An

increasing concentration of economic activity around the present metropolitan areas and growth centres which in most cases are the capital cities is observed.



Map 3: Green-tech giants and global attractiveness, Baltic Sea Region 2050. Scenario 'Growing into green-tech giants'

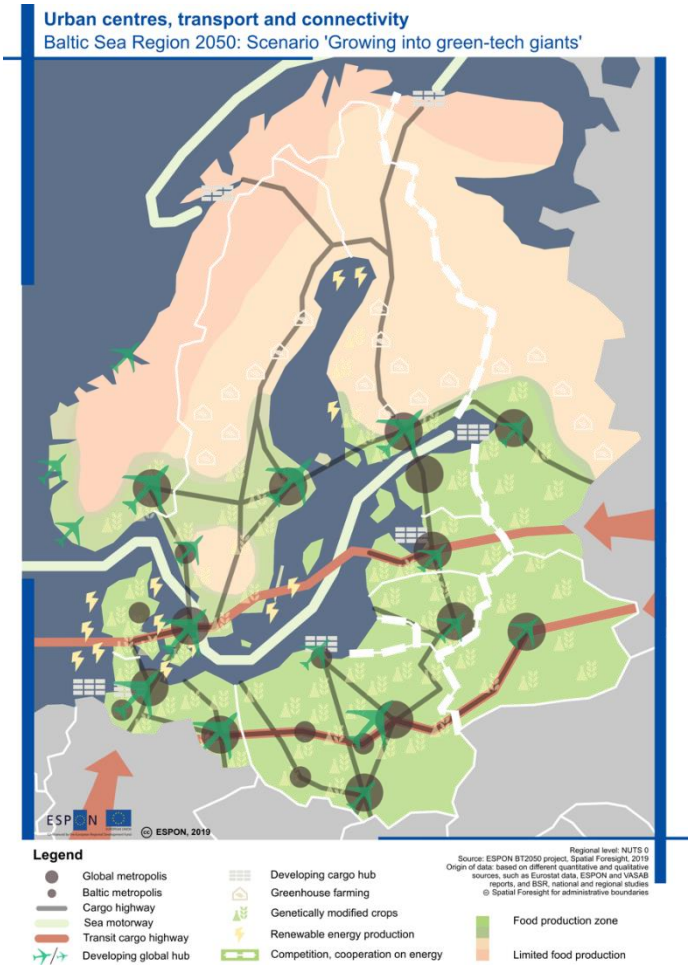
Concentration on metropolitan areas and growth centres

Green technology requires high tech innovation and a knowledge-based economy, which in most cases are the capital cities. The cross-border networks of Copenhagen and Malmo and Helsinki and Tallinn are the four global green-tech giants who cooperate fostering green technology and exchange knowledge. Other urban areas (e.g. in Germany, Poland and Sweden) are strong innovators and have the potential to innovate further on green technology. A green diversification area is built across a number of urban areas in the BSR. These are urban centres which are rather more moderate innovators, with high potential to develop technologies for a greener economy.

Transport hubs gain importance New routes link more efficiently the West to the East markets (e.g. extensions of the Belt and Road initiative). Transit cargo highways stretch from the East either through the Baltic Sea or through Poland, towards bigger harbours in the North Sea. New sea highways are also designed facilitating accessibility to the East through new Arctic paths. Airport hubs serve as freight gateways of the region and ports continue playing a key role in the economic growth

The 4th industrial is embedded in everyday life. The boundaries between physical, digital and biological systems are blurred through a fusion of technologies. Cloud computing has revolutionised IT platforms and services, with companies using enterprise or public clouds not only because it is more cost-efficient but also for easier data storage and mining, as well as for cryptocurrency exchanges, as the latter functions as the new monetary system. This advanced technology has been used and implemented in 'greening' the economy to respond to the commitment to achieve by 2050 a zero-emissions policy in the BSR

Dilemmas related to ethical and societal values emerge. Although green technology mediates the environmental concerns and mitigates climate change, still ethical constraints remain in society. These mainly regard the extent of the technological use, the accelerated production, the limited data protection, which pose questions on people's fundamental rights and freedoms especially when it comes to e-governance which is today what shapes current politics.



Map 4: Urban centres, transport and connectivity, Baltic Sea Region 2050: Scenario 'Growing into green-tech giants'

Places for innovation

While the tech hubs have a steep economy, less innovative regions have a more labour intense focus, but also higher chances to leapfrog directly to green economy innovation, lagging behind in other innovation forms. Innovation is to be found mainly in larger urban areas which concentrate resources, capital and skilled personnel. Green technology specialisation is located in regions that have had the potential for growing innovation with a focus on greening the economy and have had a leading innovation profile.

Rethinking energy

Denmark and north of Germany, the South of Sweden, in the coastal area between Sweden and Finland are places with potential to produce cleaner energy. Regions that relied in coal in 2020 face more difficulties towards a cleaner energy footprint and hence require more innovation. Research in new energy forms facilitates cleaner activities. Although the food production zone regards mainly the south part of the BSR, smart farming solutions (e.g. genetically modified crops,) enables the expansion of agricultural production towards the north.

Cooperation and competition are interchangeable. Business and industries cooperate on topics of interest and profit while competing when their interests are different. The relationship with Russia and Belarus may be in tension, especially regarding cyber-attacks, sanctions and connectivity.

Empowering a resilient future for the BSR

As the main objective of the BT2050 project is to provide evidence to support the revision of the VASAB-LTP, this document (VASAB, 2010a, 2010b) was of prime importance to identify thematic areas, which are strong holders for policy recommendation. These thematic areas were discussed in relation to the BT2050 scenarios and, from this analysis, several policies were identified and clustered into eight key integrated policies - sectoral policies with territorial relevance. These integrated actions are a response to the challenges that the BSR is currently facing and may face up towards 2050. Their proposal was based on the following assumptions: (i) their spatial character and the possibility of implementing policies at particular territorial unit; (ii) their significance from the point of view of more than one thematic area; (iii) the cross-border character of the problems being addressed; (iv) their possibility of implementation at the macro-regional level; and (v) their compatibility to BSR specific features described in the VASAB documents. The eight integrated actions are briefly described below.

- **Strengthening the network of Baltic medium-size cities.** This action acknowledges the increasing importance that medium-sized cities may have with the implementation of circular economy. It provides advice on how to prepare these urban settlements for their new role.
- **Supporting cross border service networks based on new technologies.** This action highlights the importance of developing integrated cross-border systems, based on unified technological and social standards for the provision of services of general interest.
- **Connecting the Baltic infrastructure on the regional level.** Considering the possibility of a decentralised spatial development of the BSR, this action advises prioritizing investments on regional/local infrastructure networks rather than in European corridors. It encourages supporting the BSR secondary networks, after the finalisation of the main continental projects.
- **Supporting cross border metropolises**. Dealing with the possibility of further polarisation of population and growth in larger cities, this action calls for further development of competitive advantages of the Baltic metropolises while, at the same time, safeguarding the quality of life and social inclusion of their inhabitants.
- **Using the Baltic Sea assets wisely**. This action supports the sustainable use of maritime resources, through policies that enhance the sustainable fisheries, sustainable tourism, local cabotage, construction of local power systems.
- **Adapting to climate change, water and green cross-border clusters**. This action target mitigation and adaptation measures to climate change. It suggest the implementation of financial means (e.g. taxes) to incentivise activities that are climate-oriented and curb those that may harm the environment
- **Attracting migrants to the BSR.** This action aim to enhance demographically and spatially balanced population structure in the BSR through migration policies. It includes programs of return migration, implementation of immigration programs targeting particular groups, improvement of residential attractiveness in particular areas to prevent depopulation, incentivise telework in peripheral areas.
- **Improving BSR integration through data integration, monitoring, research and spatial planning**. This action endorse the need of monitor the socio-economic changes of the macro-region, including flows within and outside BSR; perform territorial impact assessment (TIA) for the strategic documents, concerning BSR (EUS BSR) and the importance of integrating the spatial development plans for the maritime areas.