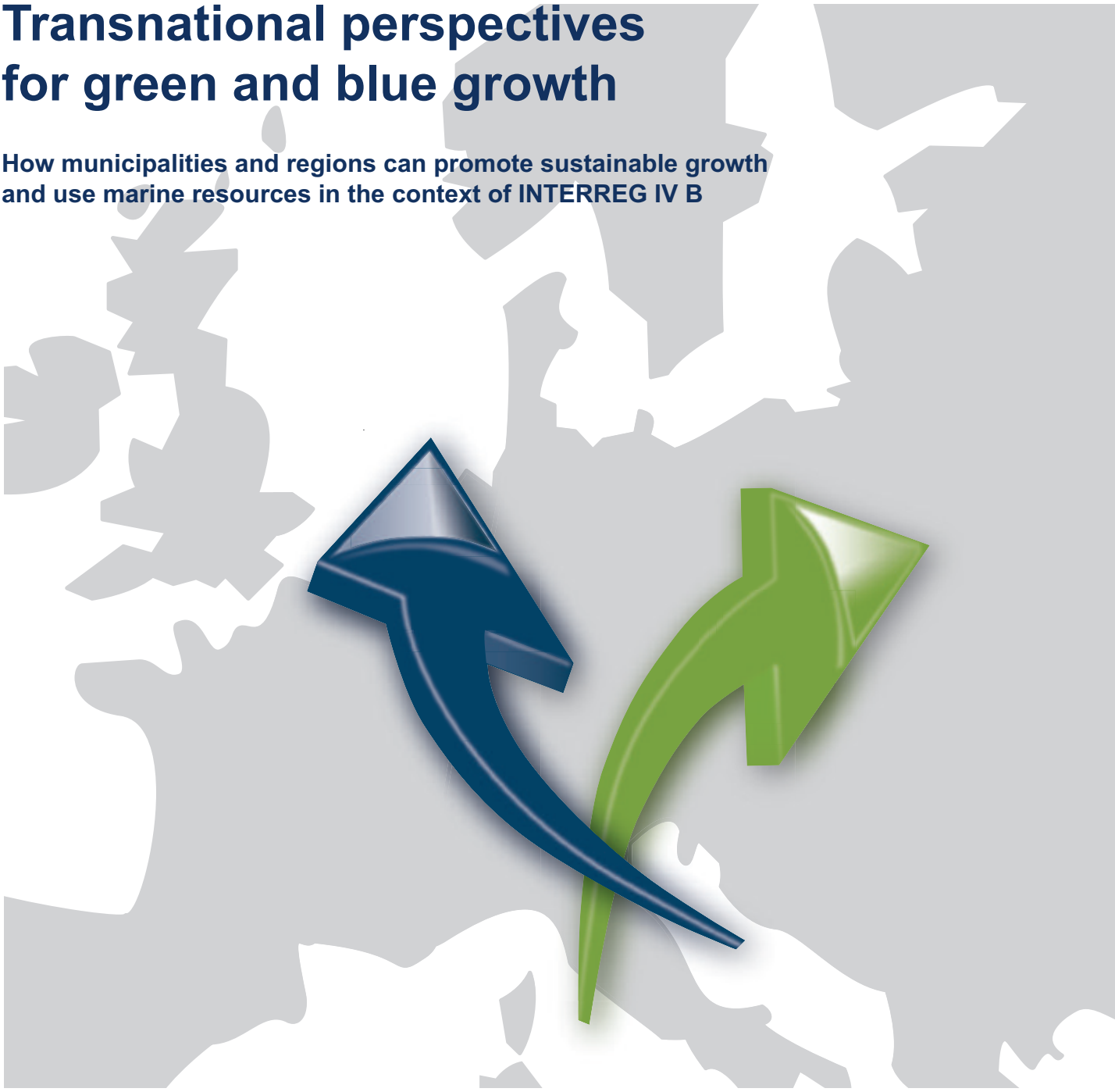
Federal Institute for
Research on Building,
Urban Affairs and
Spatial Development

within the Federal Office for
Building and Regional Planning

INTERREG B
ZUSAMMENARBEIT. GRENZENLOS.

Transnational perspectives for green and blue growth

How municipalities and regions can promote sustainable growth and use marine resources in the context of INTERREG IV B



Dear Readers,

How does transnational cooperation contribute to “green” and “blue” growth? This question is the focus of this brochure, by which we present the results of a thematic analysis of INTERREG IV B projects with German participation.

Transnational cooperation may contribute in various ways to green and blue growth. This is demonstrated by 17 project examples, which deal with important and at the same time very different thematic fields of green and blue growth. The approaches range from algae cultivation and the implementation of smart energy grids and storage technologies to the development of new building materials and sustainable cruise tourism as well as the promotion of aquaculture. The added value of transnational cooperation consists in ‘soft’ results rather than in the realisation of comprehensive tangible investments. Comparatively little money is used for setting many wheels in motion in order to prepare investments, to improve the use of resource and to establish long-standing cooperations.

Blue and green growth is a highly topical subject. In the new funding period 2014-2020, transnational cooperation programmes are designed to contribute to the implementation of the EU strategy “Europe 2020 for smart, sustainable and inclusive growth” – and thus to green and blue growth.

The brochure shall help to better utilise the results and experiences of transnational cooperation projects in the field of green and blue growth for spatial development in the partner countries involved as well as in regions and municipalities.

With this in mind, I wish you an inspiring and stimulating reading.

Harald Herrmann
Director and Professor of the
Federal Institute for Research on Building,
Urban Affairs and Spatial Development

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1. INTRODUCTION

The functioning of European economies is based on continuous economic growth. This growth has led to the exploitation rather than only the use of natural resources. The consequences become not least visible by climate change. This leads to the challenge of a more sensitive use of natural resources. Simultaneously, the recent European debt, banking and economic crises have shown how continuous decline in economic growth affects the development of European regions[1]. Their developments are not least linked to the challenges of globalisation, demographic change, climate change, reliable and competitive energy supply and increasing social polarisation which have to be mastered by the European regions . Thus, the question is raised how Europe and its cities and regions may possibly escape the crisis and at the same time may develop an economic model ensuring more sustainable use of natural resources.

The Europe 2020 strategy, which was launched by the European Commission in 2010, shall give answers to this question. According to the perception of the European Commission, the European Parliament shall stimulate and support public communication of the strategy and hence increase its legitimacy.[2] Since the European 2020 strategy was adopted by the European Council, it has been representing the growth strategy of the European Union by 2020. It shall guide the policies of the European Commission and the Member States. By focusing on the three growth objectives of smart, sustainable and inclusive growth, the Europe 2020 strategy tackles the abovementioned challenges.

The spatial development policy equivalent to the Europe 2020 strategy is the Territorial Agenda of the European Union 2020 (TA 2020). In 2011, the Agenda was adopted by the ministers responsible for spatial development of the EU member states. It stresses the importance of innovative and sustainable growth for balanced spatial development. In coherence with the objectives of the European 2020 strategy and the Territorial Agenda 2020, the growth targets of green and blue growth have evolved as two specific themes that are considered to have particular growth potential.

In this context, **green growth** refers to economic growth that focuses on sustainability and often also aims at growth and innovation in the field of green technologies. It is considered to be essential for long-term and sustainable development and for strengthening the competiveness of European enterprises and stakeholders facing global competition. **Blue growth** describes the exploitation of the not yet (fully) utilised potentials of European oceans, seas and coastal areas for jobs and growth. Blue growth thus represents the maritime dimension of the Europe 2020 strategy.

By means of the objective of “European Territorial Cooperation” – better known as INTERREG – the European Union promotes cross-border (INTERREG A), transnational (INTERREG B) and interregional (INTERREG C or INTERREG EUROPE) cooperation in the framework of its regional policy. Between 2007 and 2013, the INTERREG B programmes supported transnational cooperation of German stakeholders with their partners by a total of 1.1 billion euros in the five transnational cooperation areas Alpine Space, Central Europe, North-West Europe, North Sea Region and Baltic Sea Region. In 2014, the Danube Region will be added as a sixth cooperation area with German participation. By focussing on territorial cooperation and its integration in European regional policy, transnational cooperation contributes to implementing the Europe 2020 strategy and the Territorial Agenda 2020. Against that background, INTERREG B promotes green and blue growth also at European level. Roughly about 15 % of a total of 439 INTERREG B projects in the five mentioned cooperation areas (September 2013) show a link to green and blue growth respectively.

In the context of INTERREG B, local and regional stakeholders collaborate with universities, research institutions and enterprises in transnational projects in order to promote and implement the objectives of green and blue growth respectively. This brochure presents a selection of projects of different areas of activity that demonstrate how municipalities and regions as well as science and business may benefit from contributions to green and blue growth within the framework of the European Territorial Cooperation. These project examples were refined by the study “Thematic analysis of transnational cooperation: green and blue growth” (“Thematische Auswertung der transnationalen Zusammenarbeit: Grünes und blaues Wachstum”)[3]. In addition, the brochure provides an outlook on future definitions of transnational cooperation.

1 See DG Regio (ed.) (2010): Regional Challenges in the Perspective of 2020 – Phase 2: Deepening and Broadening the Analysis. Brussels.

2 See Stiftung Wissenschaft und Politik (ed.) (2011): Die EU-Wachstumsstrategie “Europa 2020”. Der Prozess als Ziel. Berlin.

3 Study in the context of the BBSR research programme “Demonstration Projects of Spatial Planning” (MORO).

2. FIELDS OF ACTION FOR GREEN AND BLUE GROWTH IN MUNICIPALITIES, REGIONS AND TRANSNATIONAL AREAS

2.1 Green and blue growth objectives of the European Union

The objectives of green and blue growth have different roots and are targeted by several policy fields in the European Union. This is reflected by the fact that they are covered by different documents. The European Union primarily sets out its objectives for green growth in the Europe 2020 strategy and the objectives for blue growth are presented in an explicit strategy for the use of marine resources[4].

Green growth aims to make growth processes more resource-efficient, cleaner and more resistant without slowing down economic growth[5]. The green growth objective is most clearly reflected by the sustainable growth objective in the Europe 2020 strategy, which is specified by the 20-20-20 climate protection and energy targets. Until 2020, greenhouse gas emissions shall be reduced by 20 % compared to 1990, the share of renewables energies in final energy consumption shall increase to 20 % and energy efficiency shall increase by 20 %. The European Union has defined flagship initiatives in order to specify and implement the strategy.

While the flagship initiative “Resource-efficient Europe” aims at decoupling economic growth from resource and energy consumption, the industrial modernisation of production processes in enterprises and SMEs is targeted by the flagship initiative “An integrated industrial policy for the globalisation era”. The efforts to build a bioeconomy until 2020 shall be strengthened in the framework of the flagship initiative “Innovation Union”. This is set out in the European action plan for a sustainable bioeconomy in Europe[6]. Central themes for promoting green growth are for instance the following:

- Improved product designs and a more efficient energy use shall simultaneously strengthen economic performance and reduce the use of resources.
- By investing in environmentally friendly production processes and their further development new markets shall be explored and the competitiveness of the European economy shall be strengthened.
- Increasing energy and resource efficiency with simultaneous dispersion of corresponding construction standards will promote the competitiveness of the building sector.
- Developing markets for environmentally friendly vehicles requires the creation of suitable infrastructure as well as the further development of existing technologies and their dissemination.
- Markets and competitiveness of the bioeconomy shall be strengthened by providing new knowledge, developing necessary infrastructure and logistic facilities, developing standards and informing consumers.

Given that the Europe 2020 strategy does not contain any spatial references, it also does not mention any specific contributions of coastal and maritime areas to smart, sustainable and inclusive growth. This is supplemented by the strategy for blue growth, in which the European Commission specifies five priorities for strengthening sustainable maritime growth[7]:

- Blue energy shall be increasingly produced by wave and tidal power plants. Other forms of innovative energy production shall be strengthened by taking advantage of differences in salinity and seawater temperature.
- Aquacultures increasingly contribute to providing animal protein and to improving the nutrition of many people. Impacts on feral live stocks and on water quality occurring due to an intensified use of aquacultures need to be considered.
- Maritime, coastal and cruise tourism for instance require high water quality and pristine marine habitats to ensure high recreational value and growth potentials for future developments as well.
- Marine mineral resources gain increased importance for the guarantee of supply due to better and cheaper possibilities for exploiting them in the course of technological progress.
- Blue biotechnology focuses on the use of marine organisms (e. g. algae, sponges, marine molluscs) in different economic sectors as for instance in pharmaceutics, cosmetics or as biofuel sources.

The European Commission identified growth opportunities in these areas in order to simultaneously contribute to European competitiveness, resource efficiency, job creation and the identification and utilisation of further

4 European Commission (2012): Blue Growth opportunities for marine and maritime sustainable growth. Brussels. COM(2012) 494 final.

5 See Hallegatte, S. et al. (2011): From Growth to Green Growth – A Framework. Policy Research Working Paper. The World Bank Sustainable Development Network. WPS5872. p. 3.

6 See European Commission (2012): Innovating for Sustainable Growth: A Bioeconomy for Europe. Brussels. COM(2012) 60 final. p. 8 f.

7 European Commission (2012): Blue Growth opportunities for marine and maritime sustainable growth. Brussels. COM(2012) 494 final. p. 6 ff.

"The Bio Base NWE project supports SMEs that wish to scale up their innovative biobased products and processes from the laboratory to the industrial scale; and thus, contributes to shaping a bio-based economy."

Dr Lieve Hoflack
Bio Base Europe

sources of growth while protecting biodiversity and the marine environment. With the Limassol Declaration[8], the ministers of the Member States responsible for integrated maritime policy have created the political foundation for a maritime dimension of the European 2020 strategy. They also refer to the potentials of the seas for innovation, sustainable growth and jobs.

2.2 Green growth as a transnational theme of European spatial development policy

The Territorial Agenda 2020 is the backbone of European spatial development policy. It considers the challenges that European regions face. It identifies areas of actions for a balanced European spatial development that shall support the green growth objectives of the Europe 2020 strategy[9]:

- Cities shall be motors for smart, sustainable and inclusive growth.
- Both the preservation and the sustainable use of the natural capital are crucial for many rural regions to safeguard the ecological functions and services of this capital.
- The preservation of high-quality agricultural land is essential for sustainable land use in rural areas with significant agriculture and forestry.
- Sustainable development and growth require well-functioning ecosystems and the protection of the natural heritage.
- For a balanced development of the European regions it is necessary to create environmentally friendly jobs and to strengthen recreational functions of natural and cultural landscapes.

8 Council of the European Union (2012): Declaration of the European Ministers responsible for the Integrated Maritime Policy and the European Commission, on a Marine and Maritime Agenda for growth and jobs the "Limassol Declaration".

9 See Hungarian Presidency of the European Council (ed.) (2011): Territorial Agenda of the European Union 2020. Towards an Inclusive, Smart and Sustainable Europe of Diverse Regions. p. 7 ff.

Bio Base NWE

Cooperation area	North-West Europe
Funding period	January 2012 – December 2015
Name of the lead partner (Member State)	Bio Base Europe ivzw (BE)
German project partner	CLIB2021 – Cluster Industrielle Biotechnologie e. V.
With project partners from	Belgium, The Netherlands, Ireland, United Kingdom
Website	www.biobasenwe.org/

The Bio Base NWE project supports enterprises in the development of innovative bio-based products and processes.

The bio-economy is not only an economic domain with great growth potential; it is also suitable for creating sustainable economic growth. This requires extensive and continuous innovations in all areas of the bioeconomy, for which SMEs in particular often need assistance. The Bio Base NWE project focuses on supporting SMEs in overcoming the innovation gap for bio-based innovations.

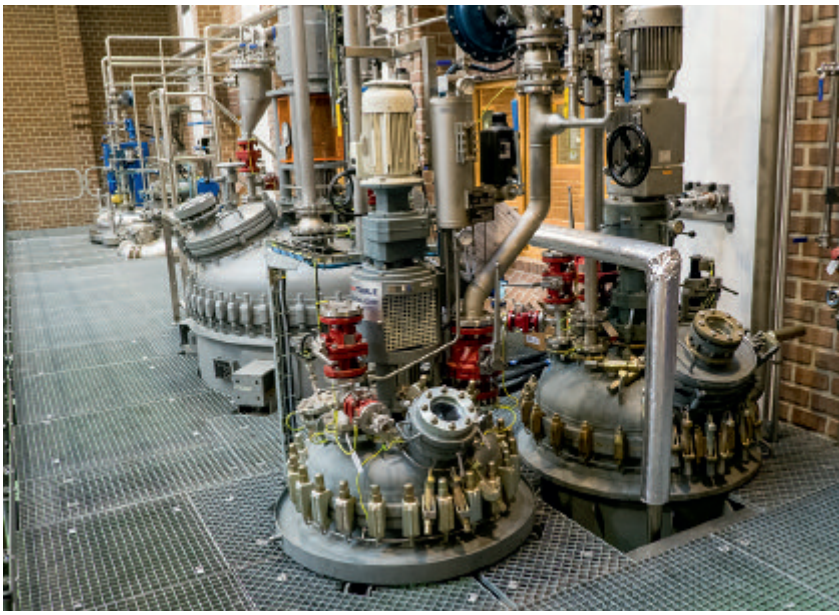
This is why the project offers financial, technological, political and educational support to SMEs that are involved in innovation activities in the bio-based economy. They, for example, include enterprises of the chemical, agricultural, food, textile and pharmaceutical industries. The promotion of innovative green technologies, products and processes shall further an economically relevant adjustment to climate change.

The Bio Base Europe pilot plant in Ghent (Belgium), a partner in the project, is a test facility that develops and optimises bio-based production processes at industrial scale. The pilot facility is equipped with state of the art equipment and constantly keeps investing, also through the Bio Base NWE project, in new technologies. The wide spectrum of modular operation units can be flexibly adapted to the customers' specific requirements for the production of a whole range of bio-based products. In addition, 50 SMEs will be granted an innovation coupon worth 10,000 € that gives them access to this pilot facility to test new bio-based developments.

Eco Treasures from Belgium is one of the enterprises that have already been granted such a coupon. The enterprise was able to develop a method to extract new, valuable compounds from seeds. The Dutch company Pectcof could improve its method for extracting pectin from the pulp of coffee cherries, which is industrial coffee waste, and will be able to process larger amounts in the future.

These activities support innovation efforts of SMEs in the field of bio-economy in North-West Europe. Successful innovations form the basis for their future competitiveness. The targeted SMEs may establish resource-saving processes, enter new growth developments and open new market opportunities.

Pilot plant Ghent: glass-lined, pressure proof and corrosion resistant reactors (project Bio Base NWE)



Frequently, promoting green growth cannot be exclusively implemented by means of regional or local approaches. Transnational approaches are suitable for fully exploiting regional and local potentials. Different geographical conditions of the regions are often associated with different skills, competences and approaches. For green growth this implies that the exchange and transfer of competences may enhance the sustainable use of natural resources for improving competitiveness. One example is the project “Alpine Building Culture and Ecology” (AlpHouse). By facilitating knowledge exchange it promoted better linkages between the traditional building culture of the Alpine area and energy-efficient building requirements.

Especially SMEs may benefit from exchange in transnational programmes. They frequently lack access to relevant research results that, depending on their thematic orientation, may not be located in their vicinity but in other countries. Transnational projects help overcome various barriers of access by creating trust between the stakeholders involved, for example. This not least applies to knowledge about environmentally friendly methods of production, which is often principally existent but is not everywhere equally available. So, the stakeholders of the project “Qualification, Innovation, Cooperation and Keybusiness for Small and Medium Enterprises in the Baltic Sea Region” (BSR QUICK) aimed at strengthening the innovation potential of SMEs in the fields of climate and environmental protection through cluster-based cooperation and qualification. Another approach for promoting innovation is shown by the “Bio Base NWE” project, which aims at easing the access of SMEs to research results by supporting the development and application of innovative bio-based products and processes.

Moreover, experimental projects are often easier to be implemented in the framework of transnational cooperation. The diversity of stakeholders and perceptions are as beneficial to the success of such projects as the scope for creativity provided by these programmes. For example, the project “Utilisation of Post-Mining Potentials for Sustainable Re-Development in Central European Mining Cities and Regions” (ReSource) made essential preparations for various local reuses of former mining sites, which could be implemented by other financial means after having finished the project.

Furthermore, transnational projects support green growth by creating awareness in SMEs for their competitiveness beyond their own region. Competitiveness generally comprises different aspects as for instance the knowledge about markets beyond the own region or the implementation of economically relevant adaptations to climate change. In this context, the project “Promotion of Resource Efficiency in SMEs in Central Europe” (PRESOURCE) supports the improvement of the energy efficiency of SMEs in manufacturing industries. INTERREG projects are thereby important communication channels to inform SMEs about new EU directives, which require adjustments of production processes to environmental standards, or to demonstrate innovation potentials thus supporting competitiveness.

2.3 Blue growth as a transnational theme of European spatial development policy

Regarding its concern for a balanced European spatial development, the Territorial Agenda 2020 mentions different types of areas, among other things those relevant for blue growth such as coastal zones, islands and sea basins. It is stated that maritime activities are important for territorial

"In the AQUAFIMA project we focused on suitable preconditions for sustainable aquacultures. Considering the overexploitation of many fish stocks, we could contribute to their recovery and promote regional value chains due to the project's regional ties."

Matti Skor
Landgesellschaft Mecklenburg-Vorpommern mbH

cohesion and that specific economic activities as energy production or transport are particularly rapidly growing in European marine areas[10].

The themes of blue growth in terms of a balanced European spatial development are even more pronounced in the European Commission's proposal for a directive on maritime spatial planning and integrative coastal management.[11] Based on the listed goals of maritime spatial planning[12], different fields of action, that are directly reflected in INTERREG IVB projects, may be derived for blue growth:

- Renewable maritime energies shall be reinforced by new energy forms, by merging energy networks and increasing energy efficiency. Whereas the project "Energetic Algae" (EnAlgae) seeks to investigate new methods of energy production by means of algae, the project partners of the project "E-Logistics in NSR Harbour Cities" (e-harbours) dealt with the development of innovative and intelligent energy networks in harbour cities.
- Fishery and aquacultures shall be enhanced to support sustainable development and growth. The project "Integrating Aquaculture and Fisheries Management Towards a Sustainable Regional Development in the Baltic Sea Region" (AQUAFIMA) tackles this issue as it promotes new possibilities for supplying fish by simultaneously stabilising fish stocks.
- A good ecological condition of maritime regions shall be achieved by more rational use of natural resources. The project "Towards Sustainable Growth of Cruise Shipping in the NSR" (CRUISE GATEWAY) offers a starting point in the tourism sector. It aims to make cruise tourism more sustainable.

10 See Hungarian Presidency of the European Council (ed.) (2011): Territorial Agenda of the European Union 2020. Towards an Inclusive, Smart and Sustainable Europe of Diverse Regions. p. 11.

11 See European Commission (2013): Proposal for a directive of the European Parliament and of the Council establishing a framework for maritime spatial planning and integrated coastal management. Brussels. COM(2013) 133 final.

12 Ibidem, Art. 5

AQUAFIMA – Integrating Aquaculture and Fisheries Management towards a sustainable regional development in the Baltic Sea Region

Cooperation area	Baltic Sea Region
Funding period	June 2011 – March 2014
Name of the Lead partner (Member State)	Landgesellschaft Mecklenburg-Vorpommern mbH (DE)
German project partners	Gesellschaft für Wirtschafts- und Technologieförderung Rostock mbH Universität Rostock EUCC – Die Küsten Union Deutschland e.V. REM • Consult (project management)
With project partners from	Denmark, Estonia, Latvia, Lithuania, Norway, Poland
Website	www.aquafima.eu/en/

The project AQUAFIMA shows how spatial development concerns related to the seas are coordinated supported by the fishing industry and may contribute to maritime growth.

AQUAFIMA focuses on strengthening the aquaculture sector of the Baltic Sea Region. Hereby several aspects of fisheries were simultaneously considered, especially the role and potentials of aquacultures and the management of existing stocks. Furthermore, possibilities were examined, on how aquacultures may be used as an alternative method for restocking fish populations in coastal areas.

Therefore analyses and evaluations of specific measures for different fish species were conducted. Management competences in the field of aquaculture were promoted through programmes for professional and vocational education. By analysing the problems and synergies between fisheries and aquaculture, the acceptance of aquacultures should be increased.

Project results include a review of fishery policies in the Baltic Sea Region, the development of strategies and competences for (re-)increasing fish stocks and the promotion of the fishing industry as an element of spatial development. Among other things, on the basis of four cross-border pilot regions, such as the Szczecin Lagoon, new management concepts for fisheries and aquaculture were developed by involving local fishermen. The study on the Szczecin Lagoon, jointly conducted by colleagues from the Coastal Union Germany and from Fish and Environment as well as from the National Marine Fisheries Research Institute (NMFRI) pointed out that extensive rules for fishing in the Lagoon exist both on the Polish and on the German side. There is, however, little cross-border communication and cooperation in this thematic field. Through subsequent feedback with stakeholders from the fields of research and politics and from fishing associations it became clear that there is a need for coordinated management of the Szczecin Lagoon leading to an added value that can be achieved at academic, regional and political level.

Fish spawn in aquaculture site
(project AQUAFIMA)

The objectives formulated for maritime spatial planning clarify: the ecosystems of the seas do not know any borders and the use of marine resources by one region cannot be seen independently from the use of the same marine resources by other regions. The key aspects for maritime growth identified by the European Commission may only be realised in accordance with a balanced spatial development. This requires a transnational coordination of activities. Besides coordinating activities, qualification and education levels in maritime professions must be increased. The project “Northern Maritime University” (NMU) examined the networking of universities, focusing on these occupations in the North Sea Region, to improve research and teaching.

Joint themes of the regions of a marine area cover various economic sectors. Based on different marine resources, they are relevant for shipping, fishery, tourism, harbour industries and many other sectors. The resources are very differently used and may complement each other, may help ensure resources or may even be in conflict with each other. Especially transnational interdisciplinary INTERREG projects may contribute to solving such conflicts and sensitise decision-makers to ensuring resources and reinforcing blue growth respectively. One example for this approach is the project “Strategic Project on Transnational Commercial Activities in Research & Innovation, Clusters and in SME-Networks” (StarDust). It pursued an interdisciplinary approach to tackle various challenges of the Baltic Sea Region in order to optimally position regions in global competition.

2.4 Challenges of green and blue growth for cities and regions

The different issues of green and blue growth that are dealt with in transnational projects are eventually based on fundamental challenges to which cities and regions are increasingly exposed. This includes globalisation, which affects the competition of cities and regions for businesses and residents, and climate change, that demands measures of adaptation and prevention in agriculture, in producing renewable energies and in coastal protection, for example. In addition, demographic change and the continuing dependence on energy imports as well as on fossil fuels represent central challenges. Depending on spatial conditions and for different types of areas these general challenges imply specific, often multidimensional problems that are linked to aspects of green and blue growth.

"Through the joint development of courses within the Northern Maritime University Network we could increase the attractiveness of the North Sea Region for maritime industries."

Prof Kevin Cullinane
Edinburgh Napier University

The task of cities is to act as engines of development. On the one hand, they must distinguish themselves as high quality knowledge locations, which successfully bring together science and business. On the other hand, they shall use their environmental resources more carefully and reshape their energy consumption. Continuous urbanisation simultaneously increases the population pressure. Structural agglomeration may hence affect urban climate or may lead to a lack of urban green and recreational areas. In exchange with the urban hinterland, cities are thus dependent on balancing the use of resources.

Peri-urban areas or functional city regions, respectively, are required to acquire new knowledge, which is mostly accumulated in large cities and which is to be made accessible to regional stakeholders and SMEs located in the urban hinterland. Multipliers and matchmaking-processes may stimulate overall regional development. At the same time, combining the innovative potential of SMEs is necessary for further developing it in exchange with large cities. Peri-urban areas furthermore need to maintain and ameliorate their environmental quality as far as possible in order to perform as ecological compensation areas. The description of the region of Rostock (see section 3.6) illustrates the relationship between urban development and the development of the urban hinterland by means of marine resources.

Rural areas are frequently challenged by not having the necessary number of enterprises to

NMU – Northern Maritime University

Cooperation area	North Sea Region
Funding period	January 2008 – June 2012
Name of the lead partner (Member State)	Transport Research Institute, Edinburgh Napier University (UK)
German project partners	Fachhochschule Lübeck Hochschule Bremen Jakobs-Universität Bremen Universität Hamburg
With project partners from	Denmark, Norway, Sweden, United Kingdom
Website	www.nm-uni.eu/

The NMU project has improved the quality of education for highly skilled specialists in the maritime sector.

In the North Sea Region, there is a lack of highly skilled professionals in maritime-related professions. Due to the various claims for the use of marine areas there is a need for multidisciplinarily trained professionals who can combine transport and infrastructure aspects with ecological concerns. No single university is able to provide the total range of maritime qualifications. The NMU project has undertaken the challenge to offer this variety of high-quality qualification measures.

The project dealt with the development of various education-related offers. Seven teaching modules were jointly developed by the partners. They e. g. focus on maritime industry issues and value added chains, maritime transport management, marine technologies and legal issues.

During a pilot run between September 2009 and June 2012, these modules were tested in 21 lectures for different target groups. They were carried out as classroom sessions or e-learning units, but also in combination of both (blended learning). In Bremen and Kiel, for example, blended learning was tested on the emissions of maritime transport and its purification. These learning units were organised and run by the University of Bremen and targeted industry representatives. The joint development of modules was combined with an increased exchange of lecturers (travelling lecturer concept) and therefore facilitated both the mobility of students and lecturers.

The results promote blue growth in two ways. On the one hand, new education courses directly contribute to the regional growth (additional students, educators etc.). On the other hand, the knowledge pool achieved and possibilities to use the knowledge that has been obtained when developing the learning modules in international cooperation provide a competitive advantage to the project partners compared to research institutions that did not participate in NMU.

The NMU project illustrated how the education of specialists may be promoted, so that they may contribute to maritime value creation in the future.

promote synergies or cluster development. Therefore, enterprises in rural areas particularly rely on multipliers and matchmaking-processes to take advantage of large-scale scientific locations. At the same time, rural areas have special knowledge available about raw materials, their cultivation and their characteristics. This is due to the above-average importance of agriculture and forestry in these areas. These endogenous potentials may be used for economic development in terms of green growth, as is illustrated by the regional analysis of Upper Bavaria (see section 3.6). Furthermore, many rural areas are particularly vulnerable to impacts of climate change. In addition, there are competing land uses as for instance between the cultivation of biomass for energy production or for using them as building materials and the cultivation of crops for food or animal feed production and retention areas.

Coastal areas will play a major role when the utilisation of seas and oceans is intensified in future. They must provide the necessary infrastructure and logistic facilities to ensure that different stakeholders can access marine resources. This ranges from the sea-side connection to the development of the hinterland, but also includes research institutions and commercial areas. Harbour cities thereby have an important interface function. The traditional harbour economy, geared to logistics and shipbuilding, competes with other economic sectors for existing and new capacities. The five levels of marine areas – sea surface, water column, seabed, subsoil as well as airspace – may be considered for different uses, which range from energy and food production to exploiting subterrestrial resources from which a need for coordination emerges. At the same time, ecological quality both on land and in the water needs to be ensured since especially nature conservation, fishery and tourism rely on functioning ecosystems.

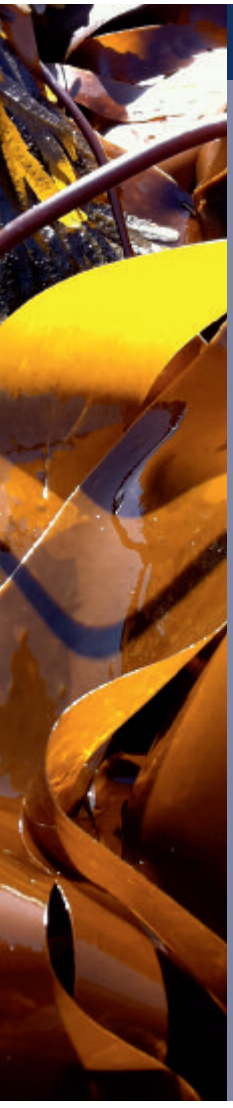
"The project EnAlgae aims at compiling and communicating key information on diverse applications for macro- and microalgae – both in energy generation and in waste water treatment and CO_2 absorption."

Dr Shaun Richardson
Swansea University

3. HOW TRANSNATIONAL INTERREG PROJECTS CONTRIBUTE TO GREEN AND BLUE GROWTH

Different initial situations, understandings of problems and policy approaches exist within transnational cooperation areas. This affects these areas' understanding of green and blue growth and conceivable projects as well as aims to be pursued. It is therefore necessary to develop a common understanding of central terms, objectives and tasks at the beginning of each project's work. This requires a change of perspective and to see the bigger picture, which by many project stakeholders is considered to be the most important added value of transnational cooperation projects.

The projects presented in the following paragraphs depict how INTERREG projects manage to overcome joint challenges and promote green and blue growth. For this brochure, 17 projects covering different thematic aspects of green and blue growth were selected as exemplary approaches. Thus, the thematic variety of possible approaches is illustrated. They range from algae cultivation and the implementation of smart energy grids and storage technology to the development of new building materials and sustainable cruise tourism as well as the promotion of aquaculture.



EnAlgae – Energetic Algae

Cooperation area	North-West Europe
Funding period	December 2010 – June 2015
Name of the lead partner (Member State)	Swansea University (UK)
German project partners	Hochschule für Technik und Wirtschaft des Saarlandes Fachagentur Nachwachsende Rohstoffe e. V. Karlsruher Institut für Technologie
With project partners from	Belgium, France, Ireland, The Netherlands, United Kingdom
Website	www.enalgae.eu

The EnAlgae project focuses on the potential of algae as an economically viable source of bioenergy in North-West Europe.

The implementation of the European targets for reducing CO_2 emissions and the dependence on fossil fuels form essential challenges for European regions. Various possibilities have to be investigated and developed so as to exploit the natural potential for sustainable energy production.

The EnAlgae project considers algae to be one such alternative energy source and analyses under what conditions it can be developed further to become economically viable and usable. The employment of algae ranges from uses for bioenergy and biofuel generation to combined use in biorefineries, i.e. for the production of foods and animal feeds. The requirement of algae for nutrients, light and CO_2 can be exploited to provide bioremediation benefits when they are grown using wastewater or flue gases.

The universities and research institutions participating in the project benefit from the exchange of knowledge and expertise with nine pilot algae cultivation facilities. In three pilot plants in Ireland, the UK and Brittany macroalgae (seaweeds) are being grown in on-shore breeding plants and then grown at sea to provide biomass, which is then used for energy production. These pilot plants are located in different types of coastal areas so that a variety of suitable techniques can be tested and compared. At the off-shore growth sites the related environmental impacts of algae cultivation are being examined. Six pilot plants grow microalgae in land-based facilities and assess the bioenergy potential of the resulting biomass. The German pilot plant of the University of Applied Sciences of Saarland is one such facility and grows the algae using wastes from fish farming.

The knowledge gained from the pilots and from partners investigating economic, policy and regulatory aspects is incorporated into a web-based tool for decision-making (decision support system). Interested investors and policy decision-makers will thus be provided with information on the available technological possibilities as well as the political and ecological conditions. The great response from the industry and broad public interest were obvious during the numerous OPEN DAYS events held at the pilot plants.

Closed photo bioreactor for cultivating microalgae at Swansea University (project EnAlgae)

The common ground of these projects is that they link green and/or blue growth to aspects of spatial development. The following chapters illustrate the specific contributions of the projects to green and blue growth in the participating municipalities and regions. The selected results represent the variety of possible contributions to green and blue growth. They comprise inventions and innovations, better qualification by imparting skills, exchange in networks, knowledge transfer as well as carrying out pilot measures and preparing follow-up investments. The main characteristic of transnational cooperation is thereby the need for actions that reach beyond national borders because the topics with which the projects are dealing result from joint challenges.

3.1 Innovative use of resources for new growth potentials

Innovations are of crucial importance for creating future growth potentials. Different framework conditions are of varying relevance for utilising new knowledge depending on the concrete fields and uses of innovations. Correspondingly, the methods and approaches used by INTERREG projects to bring forward the development and application of innovations differ.

Algae as a multifaceted resource

In the project “EnAlgae”, for example, data on framework conditions and innovative approaches and techniques how to use macro- and microalgae were collected and exchanged between participating stakeholders like the “Hochschule für Technik und Wirtschaft” in the Saarland and “Karlsruhe Institute of Technology” (KIT). Thereby, a distinction is made between different types of cultivation for microalgae in land-based facilities and for macroalgae in offshore facilities. Algae have an enormous potential for renewable power generation. Furthermore, algae are analysed with regard to their particular application and use in biorefineries for forage production or water purification. These analyses are supplemented by market and sustainability analyses as well as summaries on the latest research about algae and their use. The collected information concerning technological opportunities, suitable locations, expected returns, profitability and legal framework conditions shall reduce the barriers for investors and decision-makers and promote the increasing use of algae. By involving the European Biomass Industry Association in the project, an information network focusing on algae can in the future, among other things, provide enterprises of the biomass industry with information regarding the sustainable use of algae.

Harbour cities as nodes in energy grids

In contrast to power generation from algae, various technologies in the field of renewable energy sources have by now proved of value. However, there is further need for innovation concerning smart grids for energy transport, energy storage as well as for a flexible provision and distribution of energy. The “e-harbours” project focused on the development and implementation of sustainable energy concepts based upon energy networks in harbour cities. Different innovative approaches were identified in six showcases that have partially been implemented by involving economic stakeholders. These approaches for example include the introduction of electric boats in Amsterdam, calculated scenarios on energy consumption in energy-intensive enterprises in Antwerp and the promotion of smart energy networks in residential areas in Malmö. Due to

"The project e-harbours was not just focusing on the technical aspects of smart energy networks. By involving economic, legislative and organisational aspects, the project furthermore focused on the concrete implementation and economic viability of smart energy solutions."

Jan Schreuders
Municipality of Zaanstad

the variety of approaches, the whole range of the topic could be displayed and stakeholders could be sensitised to the opportunities of network technologies.

From the lab to large-scale production

The path from inventions towards innovations, i. e. to marketable products, services and processes, is paved with several obstacles that have to be overcome in order to assure the long-term contribution of innovative ideas to the regional added value. The "Bio Base NWE" project focuses on this leap and aims at SMEs in the bioeconomic sector that have a high innovation potential. Yet these SMEs often face the problem of realising their potentials and developing their inventions into innovations, thus, not reaching the state of marketability. The project aims at the transformation of processes from laboratory to production scale and therefore at reaching marketability. By means of coupons worth 10,000 € the different necessary tests can be run in the "Bio Base" Pilot Plant in Ghent (Belgium). The modules offered to enterprises range from the pretreatment of biomass and enzymatic catalyses to downstream processing. Hitherto, 10 of 50 coupons have been awarded to enterprises in Germany, The Netherlands and Belgium. The German SME Autodisplay Biotech GmbH, located in the Life Science Center in Dusseldorf, for example, envisages to accelerate its development of surface display systems for bacteria by using the coupon of "Bio Base NWE" and access to the "Bio Base" Pilot Plant. Relevant enterprises furthermore receive advisory services with regard to their innovation management etc., which aims at providing general support for the organisational implementation that is essential for realising marketability. Due to its partner structure, that especially includes technology centres and

E-Harbours – E-Logistics in NSR Harbour Cities

Cooperation area	North Sea Region
Funding period	September 2010 – February 2014
Name of the lead partner (Member State)	Municipality of Zaanstad (NL)
German project partner	Hochschule für Angewandte Wissenschaften Hamburg
With project partners from	Belgium, The Netherlands, Sweden, United Kingdom
Website	http://eharbours.eu/

The e-harbours project presents some starting points for an efficient organisation of energy production and use in harbour areas, which is increasingly based on renewable energies.

Port regions are major energy consumers. Due to high inefficiencies and low usage of renewable energies, the transformation of the energy systems in harbour areas may contribute to significant energy savings. The e-harbours project searched for energy-saving potentials, more flexible demand management and new storage technologies in harbour areas. On the basis of intelligent energy networks (smart grids), the project has made a contribution towards more sustainable energy concepts in harbour cities.

In the harbour cities of Amsterdam, Antwerp, Hamburg, Malmö, Scalloway and Zaanstad, the necessary technical, economic and organisational requirements for concrete measures to implement sustainable energy concepts in harbour cities were estimated. In Amsterdam, for example, the saving potential for 250 commercial and 14,000 private boats was analysed. After a conversion to electric driving, these boats can be charged at times of low energy demand and thus save about 10 % in energy costs. Batteries of electronically driven boats therefore offer a flexible interface to intelligent energy networks.

While this example is related to highly interlinked energy systems, the example of the Scottish port of Scalloway shows that also in small ports with local, largely independent systems with potentials for better energy use, a lack of awareness of the problems and opportunities often prevents the actual use of these potentials.

The presented potentials for improving energy systems address a wide range of stakeholders including port operators, enterprises and citizens of harbour cities. By saving energy costs, the competitiveness of European harbour areas is strengthened in the global competition.

institutions promoting bioeconomy like CLIB 2021 (“Cluster industrielle Biotechnologie”), the project can offer this wide range of organisational and technical services.

3.2 Training and awareness-raising activities triggering local development

Generating and transferring knowledge is decisive for utilising future growth potentials in terms of green and blue growth. Besides initiatives for further education, this may comprise activities aiming to raise people’s awareness of challenges of green and blue growth. In the context of INTERREG projects, training activities often deal with application-oriented matters and aim at disseminating new developments and knowledge in selected economic sectors in order to promote these sectors’ competitiveness by increasing their resource efficiency, for example.

Modern building techniques and traditional building culture

The “AlpHouse” project is a concrete example for further education in the field of application orientation in the building sector. Different qualification modules for craftsmen, architects, planners and other SMEs of the building sector have been developed, tested, evaluated and optimised in the course of the project. These modules shall support the target groups in both maintaining the traditional building culture and meeting demands for modern building techniques that increasingly consider specific climatic conditions. This knowledge transfer which is based upon regional potentials shall strengthen regional enterprises as the main backbone of the labour market in rural areas of the Alpine Space. By using regional building materials, it furthermore aims at supporting regional economic cycles. At various conferences and so-called “Gemeindegespräche” (discussions at local level) with craftsmen and local decision-makers, the relevance and transnational dimension of the topic could be emphasised for the wider audience. The involvement of relevant SMEs was based on a widespread participation of partners and experts ranging from associations like the Chamber of Crafts and Small Industries for Munich and Upper Bavaria (“Handwerkskammer für München und Oberbayern”) and research and training institutions like “Energy Institute Vorarlberg” to engineers, architects and planners.

Port of Scalloway (Shetland Islands): potentials for improved energy use (project e-harbours)

Training as a background for blue innovation

In the “Northern Maritime University” (NMU) and “AQUAFIMA” projects, teaching modules addressing students were developed. The “NMU” project thus aimed at improving and supporting sophisticated job opportunities in the maritime economy. As universities cannot hire own specialists for every specific field, teaching modules were jointly developed as in-class lectures, e-learning and blended learning units. Research activities on which the learning units are based were also jointly carried out. The Swedish Environmental Research Institute IVL and the Bremen University of Applied Science worked on maritime transport and human resources management, for example. In addition, information on the content and structure of the partner universities’ study courses could be improved. This rather

"Through the exchange with and between enterprises, the Act Clean project succeeded in identifying problems with regard to implementing environment friendly production processes in enterprises and in developing approaches to solve these problems."

Dr Carmen Gottwald
Umweltbundesamt

academic result supports the students if they wish to continue their studies at another participating university. Improving qualification levels aims to increase the regional attractiveness for maritime industries in the medium term both in order to convince maritime enterprises to stay in the region and in order to attract new maritime industries in the long term.

In contrast to this rather broad approach, the "AQUAFIMA" project focussed on improving possibilities for further education and training with regard to aquacultures. It hence addresses one key topic of blue growth. E-learning modules that were developed and tested by the cooperating universities are already used by them for their teaching activities. By involving the University of Rostock, the modules shall be integrated in an international and harmonised master programme on aquacultures in the medium term. In addition to these training activities, different activities were implemented in order to raise awareness for future developments in the fishery sector.
For this purpose, the marketing of fish as a healthy product was promoted through a photo competition and an exhibition that was among other things presented in the German Oceanographic Museum in Stralsund. Interested consumers were furthermore informed about regional fish breeding and production in aquacultures compared to conventional fishery.

Raising the awareness of decision-makers and enterprises

Whereas the development of established economic sectors through training activities was an essential part of the project work in "AlpHouse", "NMU" and "AQUAFIMA", the

Act Clean – Access to Technology and Know-how in Cleaner Production in Central Europe

Cooperation area	Central Europe
Funding period	December 2008 – February 2012
Name of the Lead partner	Umweltbundesamt (DE)
German project partner	Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit
With project partners from	Austria, Czech Republic, Hungary, Italy, Poland, Slovakia, Slovenia
Website	www.act-clean.eu/

The Act Clean project shows possibilities for facilitating the access of SMEs to the use of environment friendly technologies.

SMEs often need support, in order to adapt to new EU directives and regulations, to integrate environmental standards in their production processes and to introduce environmental innovations that ensure their competitiveness. The Act Clean project provides different services for SMEs, which help them to make their production processes more environmentally friendly.

A transnational network of National Contact Points with access to almost 200 institutions in eight central European countries represents one of these services. Through this network, a large number of SMEs could be directly addressed and was offered proposals for implementing environmentally friendly processes and products. This was based on several hundred examples of environmentally friendly technology applications, which were collected and are available in a publicly accessible database.

Another service is the toolbox developed and provided by the project. The toolbox illustrates 45 approaches for particularly common needs that occur in SMEs in the areas of emissions, waste, energy, materials, environmental management and life cycle analyses. The approaches e. g. include the calculation of emissions, methods for predictions and an appropriately adapted use of available wind energy as well as the provision of information of particularly important policies and initiatives of the EU. These results are complemented by policy recommendations dealing with central problems which SMEs face when complying with environmental standards.

Matchmaking activities were conducted in more than 20 national and transnational workshops, during which interested SMEs gained access to approaches and technological know-how already implemented in other SMEs. Thematic priorities included both questions on resource and energy efficiency and questions regarding the handling of waste and environmental management systems.

projects “EnAlgae” and “PRESOURCE” focus on raising the awareness of different stakeholder groups. The “EnAlgae” project intends to sensitise decision-makers for the widely unknown potentials of the use of algae and for synergies resulting from combining the use of algae with other activities (fish breeding in aquacultures or sewage water purification, for example). Hence, technological possibilities were presented at different international events, such as the European Biomass Conference and Exhibition in Copenhagen in 2013, for example.

The “PRESOURCE” project is a follow-up project of the completed project “Access to Technology and Know-How in Cleaner Production in Central Europe” (Act Clean). Both projects support the transformation of enterprises to resource-efficient production processes. By utilising the project results from “Act Clean” (see section 3.3), “PRESOURCE” supports the awareness-raising of both SMEs and creditors for the economic viability of efficiency-enhancing approaches. The “EDIT Value Tool”, that is currently being developed and supposed to be ready for use in the course of 2014, shall enable an analysis of resource efficiency potentials of SMEs. By disseminating the tool through chambers and associations and with the support of qualified energy and material consultants, SMEs shall get access to this tool. In order to ensure that the potentials identified for the enterprises are exploited, “PRESOURCE” moreover aims at providing SMEs with information on financing alternatives. This information shall also be made available through chambers and associations.

PRESOURCE – Promotion of Resource Efficiency in SMEs in Central Europe

Cooperation area	Central Europe
Funding period	June 2012 – November 2014
Name of the Lead partner (Member State)	Umweltbundesamt (DE)
German project partners	Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit Fraunhofer Gesellschaft zur Förderung der angewandten Forschung e. V.
With project partners from	Austria, Czech Republic, Hungary, Italy, Poland
Website	www.presource.eu/

The PRESOURCE project supports SMEs in increasing their resource efficiency and shows ways how to finance the necessary investments.

SMEs are often unaware of their possibilities to increase their energy and material efficiency or they do not know how to finance such investments. The PRESOURCE project puts the SMEs’ attention on these questions and shows possibilities how to identify and exploit potentials for increasing their resource efficiency. It furthermore indicates alternative funding sources.

The “EDIT Value Tool” (Eco-innovation Diagnosis and Implementation Tool for Increasing the Enterprise Value) is crucial for raising the awareness of SMEs. This tool is currently developed by the project and is applied in three steps. Analysing the stakeholders involved, the product cycle and comparing material and energy inputs with the material and energy output (step 1) is followed by identifying existing potentials and appropriate measures (step 2). Finally, the feasibility of the suggested measures is assessed (step 3). The training of energy and material efficiency consultants in dealing with the “EDIT Value Tool” shall facilitate the access of SMEs to the tool. By developing and introducing the tool, the project contributes to the activities of a resource-efficient Europe in line with the Europe 2020 strategy.

In addition, it is important to inform enterprises about the possibilities to fund the measures. They range from traditional financial service products to specific funding programmes and alternative funding possibilities, such as “crowd funding”. At the same time, potential creditors shall understand that resource-saving measures are economically viable and may be a worthwhile investment in the medium term.

Growth-related added value is especially expected for SMEs using this tool that are able to identify measures increasing their resource efficiency and potentials for saving costs and that may consequently increase their competitiveness.

"For established and new cruise ports in the North Sea Region, CRUISE GATEWAY offered an opportunity to develop and exchange approaches for sustainably organising the boom of cruise tourism. Thus, the project contributed to managing growth in an environmentally sound way."

Adina Cailliaux
Hafen Hamburg Marketing e.V.

3.3 Local networking to create integrated growth

Networks may contribute to stimulating economic growth by promoting exchange between stakeholders working in different fields within the same region or between stakeholders working in the same field at transnational level. It is often a matter of developing thematic networks between administrations or of bringing together stakeholders who work on related topics but have different institutional backgrounds.

Networking administrations, enterprises and scientific institutions

The projects "AQUAFIMA" and "Act Clean" served as networking platforms for stakeholders from the administrative, scientific and economic sectors on different territorial scales. According to the new regulation on the Common Fisheries Policy, national strategic plans for the development of aquaculture activities shall be established in all EU member states. Project results of "AQUFIMA" contributed to the development of the German national strategic plan on aquaculture activities for which the Ministry of Energy, Agriculture, the Environment and Rural Areas Schleswig-Holstein is in charge. Status quo and potential analyses on aquaculture in the Baltic Sea Region that were carried out by the "Landgesellschaft Mecklenburg-Vorpommern" form the main basis for this plan. At regional level, the cross-border exchange between fisheries associations, responsible authorities and research institutions was enhanced by means of workshops. For instance, a SWOT analysis on fishery and aquacultures was carried out for the Szczecin Lagoon and on this basis the need for an area-based fisheries management was identified. By

CRUISE GATEWAY – Towards sustainable growth of cruise shipping in the NSR

Cooperation area	North Sea Region
Funding period	October 2010 – September 2013
Name of the Lead partner (Member State)	Hafen Hamburg Marketing e.V. / Hamburg Cruise Center e.V. (DE)
German project partners	Seehafen Kiel GmbH &Co. KG Columbus Cruise Center Bremerhaven Der Senator für Wirtschaft, Arbeit und Häfen Bremen
With project partners from	Belgium, Denmark, Norway, Sweden, The Netherlands, United Kingdom
Website	www.cruisegateway.eu

The exchange of experiences and knowledge between small and big ports during the CRUISE GATEWAY project has promoted the establishment of sustainable cruise tourism in the North Sea Region.

The cruise tourism sector faces two core challenges in the North Sea Region. On the one hand, North Sea ports are not yet perceived as independent, cohesive tourism destinations, but rather considered as entry or exit ports for other cruises. On the other hand, cruise tourism has for years recorded steady growth, which should be continued and sustainably organised in the long run. Activities to overcome these two challenges were the focus of the CRUISE GATEWAY project.

A number of events took place in the framework of the CRUISE GATEWAY project, which aimed at establishing the North Sea Region as a model region for cruise tourism. Actors should be made aware of different elements of sustainable organisation and learn from their exchange. In that respect, different workshops on various themes were organised: For example, shore excursions were discussed in Bremerhaven (DE), accessibility aspects in Antwerpen (BE), logistics issues in Kiel (DE) and creating the conditions for successful marketing was the focus of a workshop held in Esbjerg (DK).

A catalogue with possible actions was developed to inspire ports which aspire to establish themselves as sustainable cruise ports. The possibilities range from early attention of sustainable aspects during the planning process of cruise terminals and the promotion of environmental concerns during the on-going operation of a cruise terminal and its infrastructure to designing shore excursions as environmentally friendly as possible. The main results were summarised in a "Best Practice Guide Sustainability". It serves as a summary of guidelines for partners and other North Sea ports and their efforts to organise cruise trips environmentally friendly.

The results should help both the cities, that participate in cruise tourism, and operators of ports and terminals attract additional guests. It shall stimulate growth not only in the cruise tourism sector but also in related business fields. By including smaller ports, that have not been involved in cruise tourism so far, in the project network, further growth stimuli may be created for them.

establishing such management in the future German and Polish stakeholders might better coordinate their measures to improve water quality and stocking activities for fish stocks to recover. This would help maintain the economic basis for regional fishery in the Szczecin Lagoon in the long term. In the “Act Clean” project, buyers and sellers of technologies for increasing resource efficiency were brought together at workshops, B2B meetings and trade fair stands. Good practices for product-integrated environmental protection (“Cleaner Production”) were disseminated and are still available in an online database. Main aspects that were identified in the course of the project were laid down in a “Transnational Agenda”, for which the ministries, that were members of the project’s Advisory Board, had agreed on core elements in the field of “Cleaner Production”. This informal consensus provided starting points for implementing the Europe 2020 strategy with reference to the flagship initiative “A resource-efficient Europe”.

Learning processes through networking

Besides networks for different stakeholders or matchmaking of supply and demand, networks may furthermore initiate learning processes through topic-related exchange. These aspects were and are of special relevance in the projects “CRUISE GATEWAY”, “NMU” and “Grow2Build”. The “CRUISE GATEWAY” project is an example for building a transnational network of well-established cruise ports like Copenhagen or Kiel and smaller ports that do not yet have the full infrastructure necessary for cruise tourism. In Bremerhaven the awareness of political stake-holders for the cruise industry and its relevance for the regional economy was among other things raised by a conference on sustainable

Grow2Build – Local cultivated hemp and flax as resource for biobased building materials

Cooperation area	North-West Europe
Funding period	May 2011 – August 2015
Name of the lead partner (state)	Stichting Dienst Landbouwkundig Onderzoek DLO (NL)
German project partner	Institut für Textiltechnik, RWTH Aachen
With project partners from	Belgium, France, The Netherlands, United Kingdom
Website	www.grow2build.eu/

Grow2Build promotes the use of hemp and flex as building materials by establishing a value chain.

The demand for an increasingly bio-based economy implies challenges with regard to the adaptation of production processes and the establishment of new value chains for different economic sectors. All stakeholders along the respective value chain have to become involved for the necessary adjustments. In the case of bio-based materials like hemp and flex, the value chain includes farmers, firms processing raw materials as well as building firms. The Grow2Build project supports the establishment of a value chain by awareness raising, information and communi-cation.

The collaboration of experts shall promote synergies between primary production, craft-based and industrial processing and the final use of hemp and flex. Both shives, that are usually considered as waste, and fibres and seeds may be used for the production of building materials. Whereas fibres are suitable for producing composites or insulation materials, shives may be among other things used for producing clay bricks and particle boards.

In order to establish this young value chain that is based on renewable materials, the project does not focus on the direct support of firms. Instead it focuses on establishing a framework favourable for this sector’s development, identifying opportunities and challenges, networking the economic sectors in question as well as on communication and marketing activities. Planned results among other things comprise a GIS tool for North-West Europe, a mobile exhibition for an eco-building centre and information leaflets on standardised and harmonised growing and prepa-ration techniques in order to ensure high quality products. Furthermore, SMEs cooperate with the research centre of the University of Brunel (BE) to carry out joint pilot studies and to develop and test product innovations.

All SMEs along the value chain of building materials from hemp and flex including the sectors of agriculture, skilled crafts and industrial processing, the building sector, house builders and architects may use the project results.

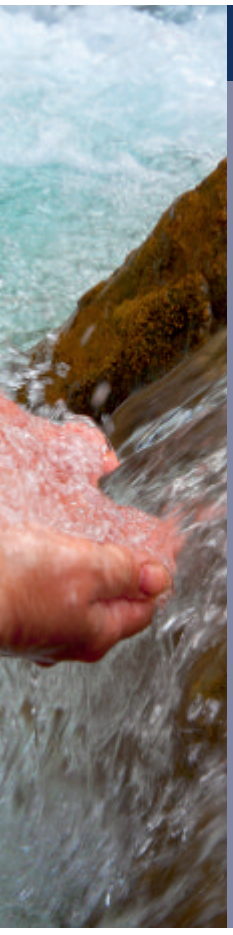
"In Star Dust, networks involving research institutes and enterprises have been established for coping with the main transnational challenges. These networks contribute to enhancing the capacity for innovation and competitiveness in the Baltic Sea Region."

Karin Nygård Skalman
VINNOVA

shore excursions and related media coverage. Smaller ports could benefit from their project partners' knowledge in the course of joint events and thematic working groups. The development of networks shall reorient the shipping companies' attention towards the North Sea as an independent cruise destination. Especially established cruise ports may benefit the best as they represent hubs in this respect. Finally, a new cooperation in the field of ecologically compatible transport and logistic solutions was initiated by the network. This cooperation further stimulates green and blue growth in the participating ports.

In the "NMU" project a transnational network of researchers from five countries of the North Sea Region working on different aspects of maritime development and blue growth could be established. The exchange between researchers and guest lectures (travelling lecturer concept) enabled the compilation of the specific knowledge available in various universities. The variety of competencies of the German partners already hints at the wide range of necessary relevant knowledge. The Lübeck University of Applied Sciences contributed expertise in the field of mechanical engineering to the exchange, the Jacobs University in Bremen provided knowledge on maritime logistics and the Bremen University of Applied Sciences offered knowledge on maritime industries and management. As the networking activities also included economic stakeholders, for example terminal managers who presented their logistical concepts, valuable mutual stimuli were created between the research and the practical sector and consequently promoted the practical relevance of the teaching modules.

The development of a network in the project "Local Cultivated Hemp and Flax as Resource for Biobased Building Materials" (Grow2Build)



StarDust – The Strategic Project on Transnational Commercial Activities in Research & Innovation, Clusters and in SME-Networks

Cooperation area	Baltic Sea Region
Funding period	September 2010 – December 2013
Name of the lead partner (Member State)	VINNOVA (SE)
German project partners	Wirtschaftsförderung und Technologietransfer Schleswig-Holstein GmbH BioCon Valley® GmbH
With projects partners from	Denmark, Estonia, Finland, Latvia, Lithuania, Norway, Poland, Sweden
Website	www.bsrstars.se/stardust/

The StarDust project supported the development of new growth potentials by promoting innovation for ecological, economic and societal themes in the Baltic Sea Region.

The Baltic Sea Region has to cope with various ecological, economic and societal challenges. Examples are increasing water pollution and an ageing population. StarDust concentrated these challenges and developed thematic, innovation-oriented sub-projects to address them.

The project followed a cross-sectoral approach that focused on five transnational sub-projects. With regard to economic aspects, it focused on increasing the efficiency of marine transport systems. In the field of societal challenges, the adaptation of services to the needs of an ageing society was addressed and the protection of drinking water supply was considered from an ecological point of view. The latter aimed at improving the protection of water by means of innovative technologies, products and services. In order to achieve this target, research institutions, clusters and SME networks working on topics like sewage systems and chemical pollution were involved. With the comprehensive approach of five sub-projects, more than 850 SMEs could be involved in innovative project activities in the Baltic Sea Region.

Based on this cooperation, some 35 project ideas were developed and new business partnerships could be established, so that the enterprises could increase their geographic and thematic coverages. In the field of research and development, seven projects could be won by means of the project and the established platforms.

In this way, the development of networks within the sub-projects and the related cooperation contributed to increasing the innovation capacity of the stakeholders involved. Beyond the project duration, especially research institutions, clusters and SME networks will benefit from the project results.

Port of Copenhagen: networking between established and new cruise ports (project CRUISE GATEWAY)

directly addresses enterprises of the building sector. In this project, enterprises working on processing and using hemp and flax as building materials shall be specifically brought together by means of databases, workshops, exhibitions and other events. The exchange between the enterprises improves their market opportunities in this new field step by step. Besides sellers, buyers as well, i. e. well-established firms of the building sector, shall be informed about the range of applications and advantages of hemp and flax as building materials. The networks comprise the whole value-added chain – from growing through processing to finally using hemp and flax. Thus, many SMEs – including farmers, manufacturers of construction materials and building companies – may benefit from the development and promotion of this value chain.

Cross-sectoral networks

Complementing this sector-specific network development, the "StarDust" project focused on developing cross-sectoral networks. The project aimed at the development of innovative approaches for overcoming central challenges of the Baltic Sea Region. Apart from societal and ecological challenges like an ageing society or increasing water pollution, these challenges also include the competitiveness and the capacity for innovation in the Baltic Sea Region. The cooperation of research institutions, enterprises and public stakeholders established networks and clusters in five cross-sectoral fields that focused on the development of new technologies and further project ideas. "MarChain", one of the subprojects, aimed at networking existing cluster initiatives for increasing the competitiveness of maritime transport chains by organising them more energy-efficiently and environmentally friendly. Lightweight ferries that use alternative fuels shall contribute to reducing costs and emissions of transport. The subproject "Mobile Vikings" used another approach: Innovation activities in the field of ICT were supported by new inter-cluster linkages. In the context of the Business Roaming Agreement developed by the Swedish Cluster 55, the exchange of 46 partners from different continents was supported and thus enhanced the internationalisation of SMEs. The participating companies agreed to provide their partners with office premises for at least one week so that clusters of local SMEs can specifically be brought together with big global companies. By involving companies in all five subprojects and the resulting exchange between the scientific and the economic sector, the capacity for innovation could be enhanced in the Baltic Sea Region.

3.4 Complementary knowledge supporting the regional economy

As transnational cooperation projects compile and refine knowledge and systematically provide information to local and regional decision-makers who do not possess the required resources, the projects may stimulate growth. By means of a comprehensive knowledge base, incorrect planning and bad investments may be prevented and the high need for advisory services in the relevant fields may be reduced. The exchange and compilation of knowledge across several countries facilitates the development of important preconditions and allows for seeing the bigger picture.

Applying and providing know-how

The project "Capitalising knowledge on Alpine Building Culture" (AlpBC) aims at utilising the results from "AlpHouse" (see section 3.2) and other transnational projects that aim at linking the traditional Alpine building culture with demands for modern and sustainable building techniques. In order to promote green growth, a concept for an "AlpHouse-Center" is developed,

"In AlpStore, we raise awareness among local stakeholders as well as enterprises of all Alpine regions for the relevance of upgrading storage technologies. In the long term this is essential for an ecologically and economically viable transition into the era of renewable energies."

Ludwig Karg
B.A.U.M. Consult GmbH

among other things for the region of Traunstein. This centre shall be the main contact point that compiles knowledge and makes it available for craftsmen, architects, planners, house builders and decision-makers of administrative authorities.

During the first phase of the project "Strategie to Use a Variety of Mobile and Stationary Storages" (AlpStore) an analysis of essential necessities and framework conditions for (further) developing storage technologies in seven countries of the Alpine Space was carried out. Its objective was to establish a solid knowledge base for local and regional decision-makers as well as for enterprises. This knowledge base relies on status quo analyses for selected measures for which the current and anticipated future relevance of storage and grid technologies in the specific region were scrutinised. As these analyses are not restricted to the participating regions of the Alpine Space and are available in English, their relevance reaches beyond the programme area's borders. By compiling the national analyses for a white paper that will be structured as a guideline and will stress the specific urgency of different measures, existing knowledge gaps of stakeholders and decision-makers regarding the future development of renewable energies shall be closed. Both national framework analyses, the white paper based on these analyses and the regional analyses support regional and local decision-makers in tackling the necessary planning and investment activities for promoting a post-fossil and post-nuclear energy system. By providing decision-makers with knowledge on the extent and time frame for necessary

AlpStore – Strategies to Use a Variety of Mobile and Stationary Storages

Cooperation area	Alpine Space
Funding period	July 2012 – December 2014
Name of the Lead partner (Member State)	B.A.U.M. Consult GmbH (DE)
German project partners	Allgäuer Überlandwerk GmbH eza! Energie- & Umweltzentrum Allgäu Gemeinnützige GmbH Forschungsstelle für Energiewirtschaft e. V. P+M Rothmoser GmbH & Co. KG
With project partners from	Austria, France, Italy, Liechtenstein, Slovenia, Switzerland
Website	www.alpstore.info/

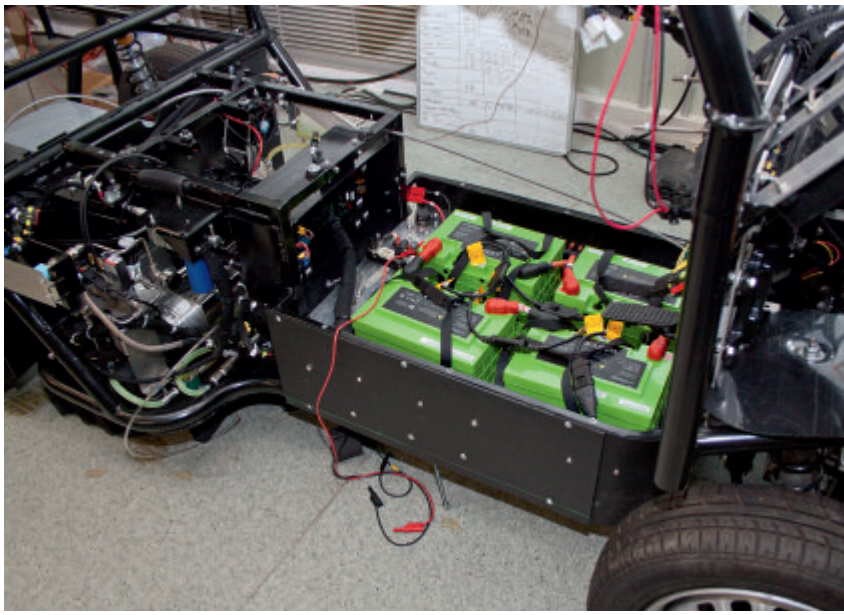
Within the AlpStore project, possibilities of innovative and flexible energy storage that are adjusted to regional needs are analysed and exemplarily applied.

The project meets the challenge of ensuring continuous power supply during the day and the year by more strongly using the natural capital of the Alps (sun, water, biomass). Thus, preparatory analyses were executed in eleven model regions covering their political, societal and geographical frameworks. For each model region, the status quo of the regional energy system consisting of energy production, use, transport and storage was presented and future potentials identified. On the basis of these analyses, a master plan was developed for each region, which depicts visions and objectives and outlines a roadmap of upcoming tasks.

Building upon these insights, currently 12 pilot studies are conducted, in which storage and system technologies for optimising the use and coordination of different energy sources are explored. Examples of approaches from the pilot studies are the charging infrastructure of e-bikes, energy plus homes and the supply of mountain villages in the periphery of energy networks. Public Power Utility Allgäu (Allgäuer Überlandwerk) and the Energy and Environment Centre Allgäu (eza!) test the use of battery storage in households with photovoltaic systems and combine them with the installation of smart electricity meters. As a result, the power consumption is analysed and complementary changes for the households' behaviour will be recommended. The pilot studies take regional and local needs and conditions into consideration in order to develop adequate proposed solutions. The Allgäu example shows that both demand management (smart grids) and the use and combination of appropriate technologies on the supply side (storage) are addressed. These results provide the basis for creating guidelines for decision-makers and professionals.

This approach may stimulate growth in terms of green growth, for example, by initiating regionally applied follow-up investments. Due to the diversity of approaches and regional needs to be considered, households, enterprises of the energy industry and local and regional governments may use the project results.

Electric vehicle with fuel cells using the Vehicle to Grid technology (project AlpStore)



storage capacities, uncertainties existing among stakeholders may be removed and incorrect planning and bad investments can be prevented at an early stage.

Exchanging experiences and knowledge

Transnational projects may address the knowledge transfer between different groups of stakeholders. Whereas the project “CRUISE GATEWAY” focused on administrative and economic stakeholders of ports, terminals and tourism destinations, “BSR QUICK” emphasised the exchange between SMEs and research institutions. In the “CRUISE GATEWAY” project different strategies and activities regarding ecologically acceptable cruise tourism were discussed and collected at conferences and in working groups. Recommendations derived from these activities can be used to demonstrate stakeholders of the cruise industry how to contribute to sustainable cruise tourism.

The “BSR QUICK” project focused on strengthening SMEs through cooperation between enterprises and research institutions in three thematic clusters. The cluster “Energy, Climate, Environmental Protection” mainly aimed at strengthening the capability of SMEs to contribute to green growth. Besides using renewable energy sources in firms and extending the range of corresponding services and products, specific education and training activities were carried out. The exchange of knowledge between SMEs with regard to energy efficiency, waste recovery, sewage water purification and international economic activities respectively was promoted in trainings and seminars. Enterprises, especially from rural areas, got access to research results at transnational level through the Baltic Sea Academy, which is a network of 16 universities from 9 countries. As a consequence, specific regional economic strengths were identified in further detail and could be better interlinked. The chambers of industry and commerce and the chambers for crafts thereby acted as multipliers. They brought together interests and provided assistance for overcoming language barriers. By involving numerous chambers for crafts, for example in Hamburg, Schwerin and Cottbus, hundreds of business and investment plans for SMEs and their innovation activities could be developed. These plans shall now be implemented in the firms. Knowledge transfer is continued after the finalisation of the project. For instance, the follow-up project SKILLS ENERGY could be developed in the cluster “Energy, Climate, Environmental Protection”. It is supported by the European Commission as a pilot project, in which universities and chambers will jointly develop different energy-related training courses.

3.5 Pilot actions setting examples for future growth potentials

Within transnational projects, pilot investments support measures that stand out as models. In this context, possible solutions and approaches for specific problems can be developed and implemented, thereby creating new growth potentials. The implementation of pilot actions allows to test promising approaches that are based on region-specific challenges and potentials in respect of their suitability in practice. Thus, pilot actions are also tests that provide for further, usually more cost-intensive follow-up investments.

"In the project BSR QUICK we established the Baltic Sea Academy as a network of business and science stakeholders. By involving chambers as multipliers and consultants, we could contribute to green growth especially in rural areas of the Baltic Sea Region."

Dr Max Hogeforster
Hanse-Parlament e. V.

Storage technologies adjusted to regional characteristics

In the second phase of the "AlpStore" project, currently twelve regional pilot actions are implemented that focus on the further development and application of storage technologies. The German pilot actions deal with utilising used batteries for storing solar energy to reload batteries of e-bikes, for example, or that function as storage and buffer systems in plus-energy homes in the Allgäu. Furthermore, the use of biogas for combined heat and power generation in Grafing near Munich, the realisation of local potentials of different storage technologies like smaller pumps or storing compressed air in old salt mines in Berchtesgaden are further developed.

These approaches aim at utilising specific regional and local characteristics for storage technologies. Thus, the "AlpStore" pilot actions may be considered as preparatory measures for future growth in the field of storing renewable energies and shall support local and regional decision-makers in identifying new development potentials. As the showcases are located in very different types of regions and as spatial development and planning at both the regional and the local level are included, the pilot actions' results are suited for transfer, adjustment and implementation in other regions of the Alpine Space. Local energy agencies, energy producers or network operators, for example, may use these results. In this way, the project contributes to the energy transition

BSR QUICK – Qualification, Innovation, Cooperation and Keybusiness for Small and Medium Enterprises in the Baltic Sea Region

Cooperation area	Baltic Sea Region
Funding period	September 2009 – December 2012
Name of the Lead partner	Hanseparlament e. V. (DE)
German project partners	Handwerkskammer Cottbus Handwerkskammer Hamburg Handwerkskammer Schwerin Berufsakademie Hamburg gGmbH hochschule 21 gGmbH Behörde für Stadtentwicklung und Umwelt Hamburg
With project partners from	Belarus, Denmark, Estonia, Finland, Latvia, Lithuania, Norway, Poland, Sweden
Website	www.bsr-quick.eu

The BSR QUICK project supported the strengthening of the competitiveness of SMEs in the Baltic Sea Region.

Many SMEs are struggling with similar problems: They often have difficulties in accessing innovations, young and skilled personnel are missing and it is often difficult for them to penetrate international markets and to develop long-term strategies. In the BSR QUICK project, chambers from all parts of the Baltic Sea Region have come together. They are multipliers and intermediaries for the SMEs and can show them ways how to overcome these challenges.

In order to do so, different possibilities for providing support to enterprises were developed within the project. They especially focussed on cluster-based cooperation with universities and administrations as well as on skills training. By means of the Baltic Sea Academy a permanent network of 16 universities and research institutions was created to continuously support innovations by SMEs.

The cluster-based cooperation took place in three growth areas. The cluster "energy, climate and environmental protection" was explicitly linked to green growth. Concepts for competence centres were developed for all three clusters in cooperation with chambers and universities. In these centres, training programmes for energy efficiency and renewable energies are already conducted and the development of new curricula for vocational training is coordinated. Two web-based network platforms, the tool "Companies on Track" to plan investments and to measure the regular performance as well a handbook for personal and organisational development were prepared, so that enterprises can improve their own organisation and strategic orientation. In eight business fora with 600 participants, international exchange and the initiation of contacts between enterprises were promoted. They took place e. g. in Lublin, Vilnius and Gdansk and covered topics such as "renewable energies" or "energy efficiency".

The results of BSR QUICK address the members of the chambers. As a total of about 50 chambers in the Baltic Sea Region took part in the project, they provide direct possibilities for a large number of SMEs to contact them.

Hamburg City Hall: foundation of the Baltic Sea Academy in February 2010 (project BSR QUICK)

("Energiewende") and promotes the utilisation of potentials in order to increase the regional added value.

Reusing former mining sites

The "ReSource" project supported follow-up investments for former mining sites by taking preparatory steps. Potential analyses and feasibility studies were thereby of special relevance. The project aimed at developing new uses of cultural and natural potentials of old-industrial mining regions and post-mining landscapes in order to increase their economic attractiveness. For instance, the project contributed to preparing the use of geothermal energy from minewater for heating a visitor mine and a mining museum in Wettelrode (Mansfeld-Südharz county). This investment was afterwards financed by means of the EU LEADER programme and the municipality's own equity capital. Ideas for using the area of a former black coal freight terminal for the Horticultural Show of Saxony 2015 ("Sächsische Landesgartenschau") were developed in Oelsnitz (Erzgebirge). Since the application procedure has been successful, now both the Free State of Saxony and the municipality of Oelsnitz provide financial resources for the realisation of the Horticultural Show which shall entail new economic stimuli for the region.

Closed material cycles for islands

The project "Cradle to Cradle Islands" (C2CI) focused on developing and testing innovative approaches in the three clusters energy and mobility, water (supply and disposal) and materials. The innovative approaches of this project consist in the development of technologies and strategies that are based upon the Cradle to Cradle® concept and were adjusted to the implementation on islands. They for instance comprise e-bikes used for goods and luggage transport on camping sites, reusing sea containers as beach and holiday houses, that produce more water and energy than they consume, and approaches for fresh water cycles that are independent from the mainland. On Spiekeroog island the project focused on identifying fields of actions for future investments that consider the sustainability of tourism which is essential for the island's economic development. For instance, ideas for integrating the dunes into a potential new settlement development at the outskirts of the village were elaborated. As the island does not have a large-scale canal system for letting rainwater run off, an efficient surface water drainage system is of importance for both flood protection (precipitation) and maintaining the duckweed that assures the fresh water supply of the island. A complete coverage of the drainage system that consists of ditches can now be used for the impact assessment when planning future construction projects.

Regional preconditions for blue growth

The core issue of the project "Sustainable Uses of Baltic Marine Resources" (SUBMARINER) was the identification and analysis of potentials of sustainable use for future spatial development. The thematic fields of this cross-sectoral project included the cultivation of mussels, micro- and macroalgae, integrated multi-trophic aquacultures, the use of reed and the promotion of blue biotechnology as well as energy production from wave power. The project furthermore took combining different elements like aquaculture facilities at offshore wind farms into consideration. On the basis of a comprehensive sustainability assessment of the whole production chain for all fields, eleven strategic fields of action could be identified that illustrate the contribution of the Baltic Sea Region to blue growth and a sustainable bioeconomy. For instance, a master plan for maritime biotechnology was developed for

"By largely involving the population, many practical ideas how to create a closed circle economy have been developed in Cradle to Cradle Islands. These ideas will now be taken up and implemented by the participating regions."

Anne de Vries
Province of Fryslân

Schleswig-Holstein by the cluster agency Norgenta North German Life Science Agency on the basis of discussions about status quo, objectives and perspectives of blue biotechnology. The state government intends to promote the application of the master plan by means of an implementation strategy. In Mecklenburg-West Pomerania, representatives of the cross-sectoral network BioCon Valley intensively worked on regional strengths in the field of sustainable aquacultures and aquaponics and could identify and specify the need for a competence and technology centre for applied research in this field. Aquaponics is based on the principle that side-products of fish breeding are used as fertilisers or for mussel cultivation, for example. The results were afterwards used to prepare a feasibility study for the establishment of the aforementioned centre.

Whereas "SUBMARINER" aimed at identifying several fields of action, preconditions and potentials for increasing the use of aquacultures in line with sustainable regional development were analysed in the "AQUAFIMA" project. This included the analysis of employment potentials in selected subregions of the Baltic Sea Region like Mecklenburg-West Pomerania, an overview on existing and possible sites for aquaculture facilities as well as an analysis of necessary technical infrastructures and requirements with regard to spatial planning. Based on this study, a guideline on infrastructure- and (spatial) planning-related aspects, that are to be considered when establishing aquaculture facilities, was developed. This guideline lists central success criteria for aquaculture facilities and shall provide assistance to interested investors and therefore promote follow-up investments that in the end promote blue growth.

C2CI – Cradle to Cradle Islands

Cooperation area	North Sea Region
Funding period	January 2009 – December 2012
Name of the lead partner (Member State)	Province of Fryslân (NL)
German project partners	EPEA Internationale Umweltforschung GmbH Insel- und Halligkonferenz Inselgemeinde Spiekeroog Oldenburgisch-Ostfriesischer Wasserverband
With project partners from	Denmark, The Netherlands, Norway, Sweden, United Kingdom
Website	www.c2cislands.org/

Within the C2CI project the concept of developing closed material cycles was applied to the circumstances of North Sea islands and tested by different uses.

North Sea islands are highly dependent on approaches that contribute to the preservation of their environmental quality. This is due to their high density of tourists during the high season, which is associated with a high use of goods and resources and an economic dependency on the situation of ecosystems.

The Cradle to Cradle® concept focuses on developing closed material cycles and on avoiding waste. The C2CI project took up this concept and developed and tested suitable strategies for dealing with the resources of islands.

In order to identify different potential closed material cycles, three thematic fields, which are important for North Sea islands, were defined. In the field of energy/mobility, different results referring to energy production by using salt and fresh water were achieved. In the field of water, the project dealt with fresh water supply and in the area of materials, alternative building materials and designs were developed according to the Cradle to Cradle® principle. For Spiekeroog (DE) an energy and climate protection concept was developed. For Samsø (DK) implementing smart energy networks to transport energy produced by biomass was central. Other approaches e. g. referred to saving water in holiday houses or innovative mobility solutions by using e-bikes on Ameland (NL).

These activities allowed to develop new business fields, which may stimulate growth while promoting the preservation of the nature existential for the islands. The geographical focus on island regions allows for a high transferability to other islands in and outside the North Sea Region. Depending on the concrete applications of the solutions developed by C2CI, the project results may be used by local administrations, representatives of public services, local enterprises, citizens and tourists.

Oelsnitz (Erzgebirge): construction site on the area for the Horticultural Show of Saxony 2015 (project ReSource)

3.6 Added value of INTERREG projects for regional and local policies

The projects presented in the previous chapters are examples for the wide thematic range that is covered in the fields of green and blue growth by transnational cooperation projects.
The better projects are embedded in regional and local development strategies and instruments, the larger the added value a single project may create. By linking projects to local spatial development approaches instead of conducting them in isolation, it can be ensured that the relevant challenges of the thematic field are addressed and that the project contributes to coping with region-specific challenges. Two short regional case studies shall give an example how transnational cooperation may support regional stakeholders when utilising INTERREG funding strategically for proactive spatial development.

ReSource – Utilisation of post-mining potentials for sustainable re-development in Central European mining cities and regions

Cooperation area	Central Europe
Funding period	January 2009 – September 2012
Name of the Lead partner (Member State)	Landkreis Zwickau (DE)
German project partners	IBA Fürst-Pückler-Land Bildungswerk der Unternehmerverbände Sachsen-Anhalt e. V. Leibniz-Institut für ökologische Raumentwicklung
With project partners from	Austria, Czech Republic, Hungary, Slovenia
Website	www.resource-ce.eu/

The ReSource project developed possibilities to reuse former mining sites aiming at sustainable territorial development and taking competing uses into account.

How can former mining site areas improve their attractiveness and competitiveness by making use of their natural and cultural resources? The project focused on achieving qualitative growth which contributes to settlement and regional policy objectives. Apart from improving the attractiveness of the sites, ReSource aimed at reducing land consumption and improving the quality of life in the neighbourhood of former mining sites.

In order to achieve this qualitative growth, different possibilities of reuse were developed and prepared for selected former mining sites. Synergies between the reuses and territorial development were to be identified and implemented, while competitive applications between for example tourism and renewable energies were to be overcome.

Depending on the concrete characteristics of the mining sites, very different reuses were developed. Examples are the production of biomass, the use of mine water for geothermal energy or the use of mining sites as cultural sites for the promotion of tourism. The Lusatia Charter defines ten basic principles for dealing with post-mining landscapes. In 2010, these principles were formulated by the project partner IBA Fürst-Pückler-Land as joint guiding principles. According to them, the mining industry legacies should be used as resources. The 13 signatories of the Charter are representatives of the economic, political, scientific and administration sector who emphasised in the preamble that the promotion of multifunctional landscapes is a precondition for new economic activities in post-mining areas. Thus, the project supported the creation of conditions favourable for new economic activities in accordance with the Charter.

Municipalities and other public authorities are direct users of the project results since they are responsible for the implementation of the projects prepared. However, growth of the private sector shall be stimulated in the long term, which may then improve the competitiveness of these areas.

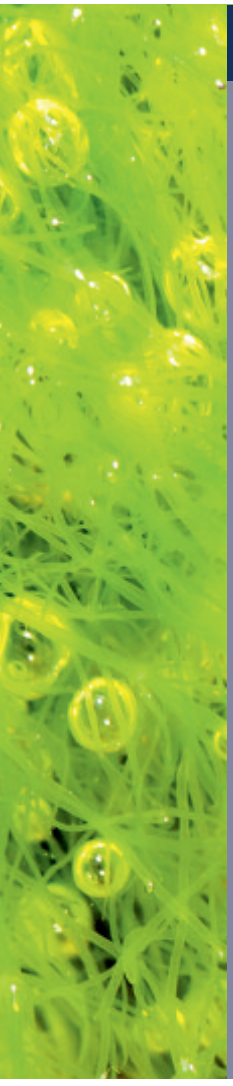
"SUBMARINER gave us the opportunity to analyse technological and economic potentials of different marine resources. We could develop region-specific options for actions and contribute to a more efficient and more sustainable utilisation of marine resources in the Baltic Sea Region."

Joanna Przedrzymirska
Instytut Morski w Gdańsku

Rostock region

The economic structure of the region of Rostock is traditionally characterised by maritime industries. Identifying, developing and promoting new potentials for blue growth requires to link traditional maritime industries with new technologies. One of these fields is fish breeding in aquacultures. Several regional needs for action result from various challenges like eutrophication, overfishing and strong dependence on exports. This is also reflected by the state policies, in which Rostock's regional policy is embedded. For instance, according to the current coalition agreement, the state government of Mecklenburg-West Pomerania explicitly aims at further developing the aquaculture technology and related research activities. However, due to high eutrophication, no sea-based aquaculture facility has been existing by now. A main challenge therefore refers to the development of technologies for absorbing the nutrient input. Related research activities, for example at the Department of Aquaculture and Sea-Ranching of the University of Rostock, shall develop processes for reducing the nutrient input in such a way that sea-based facilities may be built in the long term.

A regional case study carried out for the "SUBMARINER" project addressed the promotion of cooperation between research institutions and regional SMEs to further develop aquaculture sites. It referred to both



SUBMARINER – Sustainable Uses of Baltic Marine Resources

Cooperation area	Baltic Sea Region
Funding period	June 2010 – September 2013
Name of the lead partner (Member State)	Instytut Morski w Gdańsku (PL)
German project partners	Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit Kieler Wirkstoff-Zentrum am Helmholtz-Zentrum für Ozeanforschung Kiel Universität Rostock BioCon Valley® GmbH Norgenta
With project partners from	Denmark, Estonia, Finland, Latvia, Lithuania, Norway, Poland, Sweden
Website	www.submariner-project.eu/

The SUBMARINER project has contributed to developing the Baltic Sea Region as a model region for sustainable maritime management.

Growing maritime traffic, declining fish stocks, environmental pollution or high nutrient inputs are just a few examples of the problems in the Baltic Sea. At the same time, new technologies offer opportunities to better use marine resources in the future.

In order to consider the variety of challenges and to ensure an environmentally friendly and economically attractive use of the marine ecosystem in the Baltic Sea Region, the SUBMARINER project indicates potential uses of marine resources in the Baltic Sea Region and shows which political framework needs to be developed. For various marine resources, as for example algae, mussels, reed and waves, new or adjusted uses were analysed.

Based on a thorough analysis that is compiled in a compendium, a roadmap was developed, which describes a framework for all Baltic Sea Region stakeholders including perspectives until 2030 and a concrete action plan for the themes covered in the compendium. By approving the SUBMARINER network as a flagship project of the EU Strategy for the Baltic Sea Region, the theme of innovative uses of marine resources gains due attention beyond the initial project duration and receives further political support.

Apart from these policy-oriented perspectives, SUBMARINER also developed and tested approaches for sustainable economic development based on marine resources. For example the development of sustainable aquaculture was examined in Mecklenburg-West Pomerania under the guidance of BioCon Valley. A generator for producing energy from wave power, developed by the Coastal Research and Planning Institute of the University of Klaipeda (Lithuania) within the project, won the first prize at the innovation competition of the BALTTECHNIKA fair in 2012. In order to perpetuate the previously set impulses and to simplify implementation, the SUBMARINER Blue Growth Network shall be established as a European Economic Interest Grouping (EEIG).

In order to further develop the Baltic Sea Region as a pilot region, it is necessary that political and economic stakeholders use the project results and that the above-mentioned action plan is implemented.

Biotechnology as approach for using marine resources (project SUBMARINER)

land-based closed recirculation systems, in which salt and fresh water are continuously checked and, if necessary, purified, and land- and sea-based facilities that use aquaponics, i. e. combining fish breeding with plant breeding and mussel cultivation. The “AQUFIMA” project was implemented in close cooperation with “SUBMARINER” (see chapter 3.5) so that further related challenges of spatial development were addressed. On the one hand, they comprise many needs that concern planning permissions for facilities among other things resulting from environmental protection and nutrient input issues. On the other hand, long-term maritime and terrestrial spatial planning needs to take possible and suited locations into account.

Accordingly, Rostock Business and Technology Development GmbH, that is the local business and technology development agency, could gain competences in the field of site selections and analyses for aquaculture facilities. The new expertise is now used for core activities like advisory services on licensing procedures for interested investors and related communication with the local administration. “Landgesellschaft Mecklenburg-Vorpommern” succeeded in identifying thematic fields whose essential competencies shall receive more support in the future. An example is the promotion of SMEs whose sustainable growth may be supported by improved marketing activities that are also linked to standardising production processes, ensuring consistently high quality and developing (supra-)regional trademarks.

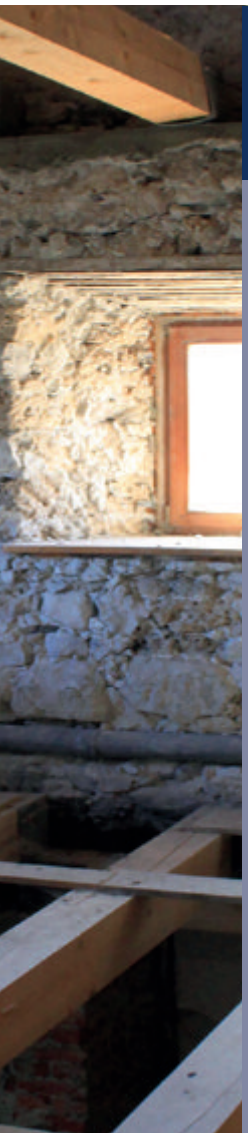
"Positive responses on the AlpHouse project prove the relevance of energy-efficient building whilst also taking traditional Alpine architecture into account. The term "AlpHouse" has become a trade name for this in the pilot regions."

Dr Karlheinz Valtl
Project Manager AlpHouse

Upper Bavaria

Regions of the Alpine Space are especially affected by climate change. Besides offering living space for humans, they provide natural habitats for flora and fauna that are particularly valuable and require protection. At the same time, different human activities entail environmental impacts on this sensitive natural area. Examples are agriculture and forestry, tourism and transport as well as other economic, leisure and settlement activities. The special vulnerability of the Alpine Space due to climate change calls for particular consideration of nature conservation and the preservation of undeveloped areas.

One consequence of these competing claims is that building areas for local development are a particularly restricted resource and, thus, especially valuable. Furthermore, the preservation of the traditional regional building culture and the integration of renovated and new buildings in the settlement structure as well as in the cultural and natural landscape of the region contribute to forming a regional identity and perception as a tourism destination. In addition, construction requirements resulting from topographic and climatic preconditions but also from political and planning specifications with regard to energy efficiency are to be considered. In conclusion, it can be emphasised that the



AlpHouse – Alpine building culture and ecology. Competence development of local craft companies in the area of energy-efficient renovation of traditional alpine old buildings and settlements
AlpBC – Capitalising knowledge on Alpine Building Culture

Cooperation area	Alpine Space
Funding period	AlpHouse: September 2009 – December 2012 AlpBC: September 2012 – June 2015
Name of the Leadpartner (Member State)	Handwerkskammer für München und Oberbayern (DE)
German project partners	Bayerische Architektenkammer Leibniz-Universität Hannover, Universitätsprofessur für Regionales Bauen und Siedlungsplanung (only AlpBC)
With project partners from	Austria, France, Italy, Slovenia (only AlpBC)
Website	www.alphouse.eu/ www.alpbc.eu/

The AlpHouse project shows how individual solutions may combine traditional building culture and architecture with energy efficiency construction methods. The follow-up project AlpBC illustrates how the results obtained in the AlpHouse project may be widely applied.

Due to the limited and valuable building land, the preservation of the regional cultural landscape and the prevention of architectural eyesores constitute special challenges in the Alpine Space. The simultaneous effort of preserving the traditional architecture and enhancing the energy efficiency of buildings makes high demands on local craftsmen, architects and planners. They have to find individual solutions that depend on the buildings' characteristics. Therefore training programmes on a range of topics are required, which, for example, show different possibilities to isolate roofs, facades, windows etc. stone or wooden houses or to provide knowledge and skills on how, for an individual case, the possibility of energetic refurbishment may be estimated and its costs be calculated. In order to implement the necessary skills training of craftsmen, architects and planners, training modules for design and planning, for the use of different materials and for technology and energy issues in connection with the refurbishment of buildings were among other things prepared. In addition to these training modules, the practical knowledge was expanded on the basis of pilot objects and by involving local businesses in order to develop sample solutions.

The follow-up project AlpBC aims at comprehensively using the results of AlpHouse. On the one hand, they should become generally known and used by craftsmen, architects etc.. In the pilot regions of Traunstein, Vorarlberg and in Italy the development and establishment of regional competence centres has therefore been promoted. These centres shall offer education, development, communication and consultation services on issues of the alpine building culture. On the other hand, the results shall be used in regional planning and in order to develop sustainable development strategies for the construction industry.

Maintaining Alpine building culture by using traditional building materials (project AlpHouse)

preservation and refurbishment of existing buildings is of high relevance for Alpine regions. It implies a high need for advisory services for local and regional decision-makers as well as for craftsmen, planners, architects and house builders.

In the context of the “AlpHouse” project, the knowledge of local and regional craftsmen regarding traditional craft skills and materials, their characteristics and range of application and their suitability for certain climatic conditions were considered and refined and optimised among other things by research and educational institutions. With training activities, the know-how was afterwards used to transfer skills to craftsmen, planners and architects. These results shall be used for spatial development in the follow-up project “AlpBC”. Hence, the Chamber of Crafts and Small Industries for Munich and Upper Bavaria (“Handwerkskammer für München und Oberbayern”) develops a concept for establishing a regional advisory and competence centre, a so-called “AlpHouse-Center”, in the urban municipality of Traunstein. It is supposed to become the regional contact point for house builders, craftsmen, planners and political decision-makers. By refurbishing buildings worth to be maintained, this project intends to contribute to sustainable spatial development in order to develop solutions for coping with the above-mentioned challenges. The county of Traunstein (Landkreis Traunstein) benefits from structures established in these projects, i. e. especially from links to expert committees bringing knowledge into the region that is necessary to develop the competence centre concept. Concentrating knowledge and competencies in the centre shall promote synergies and consequently create additional stimuli for regional economic development.

"In the INTERREG project Grow2Build, we promote knowledge transfer between enterprises on using renewable resources like hemp and flax as building materials. If these enterprises can increase and improve their production, the whole region benefits and it may contribute to resource-efficient growth."

Chris de Visser
Stichting Dienst Landbouwkundig Onderzoek DLO

4. CONCLUSIONS AND OUTLOOK

Unlike other funding programmes aiming at integrated spatial development, transnational cooperation programmes cover extensive areas of several European countries. With regard to the promotion of green and blue growth, the transnational programmes' contribution can be assigned to three thematic fields. The first field includes the **promotion of innovation** that may especially support young and innovation-intensive economic growth sectors in developing synergies and new potentials – innovations that contribute to green and/or blue growth can thereby be considered as crucial innovation-intensive economic fields. The second thematic field focuses on **increasing resource-efficiency** that usually entails a reduction of both the consumption of resources and incurring expenditures. A third thematic field refers to the **promotion of renewable energies** that does not only concern an increasing share of energy produced from renewables but also includes the development of centralised and decentralised storage capacities and energy grids.

Transnational cooperation programmes 2014-2020 will be very much geared to the key aspects of the Europe 2020 strategy. The thematic range will be more focused than in the previous funding period, and the combination of topics for individual transnational cooperation areas will be based on area-specific challenges and potentials in order to maintain the approach of supporting integrated spatial development. Overall, this shall contribute to European spatial development policy in terms of implementing the Territorial Agenda 2020. As the above-mentioned thematic aspects for promoting green and blue growth are consistent with both the key aspects of the Europe 2020 strategy and the priorities of the Territorial Agenda 2020, they will be supported in future transnational cooperation programmes. Whereas green growth will be important in all programmes, especially the North Sea Region and the Baltic Sea Region will focus on blue growth due to specific territory-related challenges.

Sustainable building with bio-based building materials (project Grow2Build)

Promoting innovation to develop green and blue growth potentials

Promotion of innovation is a cornerstone of the Europe 2020 strategy. One objective of the strategy is to develop a knowledge- and innovation-based economy. This is specified in corresponding quantitative and qualitative targets. Besides other targets, framework conditions for business innovation shall be improved in order to contribute to developing and marketing innovative products. This objective is specified in the Territorial Agenda 2020 with regard to strengthening competitiveness of local economies. In order to promote competitiveness in terms of transnational cooperation, programme areas with German participation will especially focus on building innovation capacities and improving framework conditions. This does not only include preconditions for economic innovations of products and processes but also so-called environmental innovations, social innovations and innovations in the field of services of general interest. These types of innovation promotion do not solely aim for contributions to green and blue growth. They may, however, develop additional synergies with other objectives of the Europe 2020 strategy, the Territorial Agenda 2020 as well as with other thematic-oriented targets[13] and may therefore be of special relevance for future funding.

13 See e. g. European Commission (2012): Innovating for Sustainable Growth: A Bioeconomy for Europe. Brussels. COM(2012) 60 final; European Commission (2012): Blue Growth opportunities for marine and maritime sustainable growth. Brussels. COM(2012) 494 final.

In the future, promotion of innovation in transnational cooperation may aim at improving preconditions for innovation capacity by supporting innovative applications, for example. Previous experiences show that the conditions for taking up new growth-related topics and being successful in terms of innovativeness differ significantly between regions of the same transnational cooperation area. The differences range from infrastructure to the availability of time and personnel. Different approaches, that in the end do not only support innovation capacity but also contribute to green and blue growth, are possible for future transnational cooperation. Among these are, for instance, target-oriented and strategically integrated education and training activities in INTERREG projects that make new approaches accessible for a larger number of enterprises and help change traditional ways of acting. In order to approach as many enterprises as possible, transnational promotion of innovation may increasingly involve chambers and economic development institutions as multipliers. Finally, the transfer of successful social models, for example in the field of personnel and organisational development, may also contribute to fostering innovations with regard to human resources.

Competitiveness through improved use of resources

Increasing resource efficiency is established in the Europe 2020 strategy by promoting a more resource-efficient, greener and more competitive economy. In this context, competitiveness shall be improved through higher productivity. This again shall be achieved by increasing resource efficiency when using environmentally friendly technologies. Simultaneously, the objective of reducing emissions is to contribute to tackling climate change. Matters with regard to the exploitation of resources and resource efficiency play an important role in the Territorial Agenda 2020 in different contexts:

- The overexploitation of natural resources shall be prevented by means of territorial coordination on their utilisation. This applies to both the general environmental quality and in particular to using seas and marine resources. In many cases, overexploitation endangers the competitiveness of local and regional economies.
- An integrated, sustainable and efficient use of resources is considered to be a key element for achieving the cohesion objectives. A better utilisation of resources shall positively affect the economic development and contribute to fairer access to services, infrastructures and public goods.
- Local resources may improve regional resilience towards external impacts. Thus, using resources in a well-considered, territorially coordinated and efficient way is beneficial for the regional development.

The relation between resource efficiency and economic growth is depicted in both the Europe 2020 strategy and the Territorial Agenda 2020. This relation is usually directly linked to objectives of green and blue growth. Transnational cooperation areas will emphasise different resource efficiency aspects in the funding period 2014–2020. Sustainable management and sustainable use of resources will be supported in several areas. Some programmes will focus on the valorisation of this sustainable use and its contribution to economic growth. This may be achieved by both new uses and changing uses of resources as well as by using previously unexploited resources. The latter especially applies to those cooperation areas for which marine areas and marine resources are of special significance.

In terms of the spatial development policy approach of transnational cooperation, different opportunities are possible for supporting more efficient land use. Continuously increasing land use implies a rise in competing claims for use, like energy production, traffic infrastructure, environmental protection, food production or leisure and recreation activities. In this context, transnational cooperation may aim at developing joint solutions. Transnational project consortia, that develop new ideas in experimental projects and prepare their implementation, may make use of more investment-oriented aid programmes for the implementation phase. Thereby, manifold ideas on how to improve resource-efficient processes, technologies and services may be developed. In order to promote this, relevant resources have to be explicitly considered as endogenous potential and the change of their use and/or reuse has to be tested in models and pilot actions.

Green economic growth by promoting renewable energies

The Europe 2020 objectives concerning resource efficiency are closely related to the Europe 2020 objectives concerning clean and efficient energy supply. They also refer to a more resource-efficient, greener and more competitive economy. New jobs as a contribution to green and blue growth shall result from a significant increase in energy production from renewable energy resources. Issues concerning renewable energy production are discussed in the Territorial Agenda 2020 against the background of increasing instability of energy supply, rising energy prices, insufficient energy infrastructures, inefficient energy consumption and the need for improving territorial access to trans-European energy networks. The promotion of renewable energy production and consumption is therefore closely linked to the promotion of green and blue growth. In all transnational cooperation areas, incentives for promoting renewable energies will be available in the future, even though these incentives are not comparable to extensive investment measures of other programmes but rather use other implementing instruments. They often aim at spreading existing strategies and funding opportunities for an increased use of renewable energies when, for example, the development of energy strategies or the promotion of low-carbon technologies shall be supported. Thus, supporting modernisation measures of public infrastructures may be used as an implementation mechanism as this serves as an example. Furthermore, the increased use of marine resources for energy production may be supported by transnational cooperation instruments and may contribute to regional green and blue growth.

The aforementioned land-use conflicts emphasise the need for finding new ways in the field of renewable energies, whether referring to new ways of dealing with land uses or by looking for different or more efficient modes of energy production. Previous examples, such as energy production from algae or minewater, should be sufficiently innovative to start thinking about new, unconventional alternatives. Furthermore and especially in a transnational context, various questions arise with regard to energy storage and energy supply by means of modern and efficient energy grids. In order to develop solutions for these matters, transnational cooperation may in the future aim at explicitly linking renewable energies and local and regional value chains. This would furthermore support the use of local resources for regional development. In the context of transnational project consortia, this may be realised by developing strategies that improve the transparency with regard to this topic or by developing new business models for energy production, distribution and consumption that contribute to regional green growth.

Perspectives for transnational project ideas

Regardless their thematic focus and in addition to these theme-specific perspectives and opportunities, further requirements have to be taken into consideration when applying for and implementing transnational projects:

- The variety of project results presented in this brochure remains eligible. But the projects will have to pay more attention to achieving specific results and impacts. Quantitative indicators shall provide evidence for the impacts. Special attention will be given to the utilisation and application of project results. Even though many kinds of project activities and results will be possible, especially pilot activities and pilot investments, measures for testing approaches developed at transnational level in a local and regional context and different pre-investment measures will become more important.
- The previous priority on sustainable urban and regional development will not be applicable in the starting funding period. Projects aiming for these approaches will first have to focus on the thematic priorities of the related programme before they can incorporate a spatially integrated perspective into their applications in a second step.
- A general aim consists in reducing the administrative burden caused by EU regulations and programme-specific management. This shall be achieved by measures for harmonising the procedures in various transnational programmes, by using lump sums for overhead cost calculations and by simplifying reporting.

Furthermore, macro-regional strategies will affect the organisation of transnational cooperation in some INTERREG B programme areas. Macro-regional strategies have already utilised transnational cooperation in the previous funding period that ended in 2013. Due to similar territorial borders and names, differences between macro-regional strategies and transnational programmes often remain unclear for laymen. They are, however, entirely different. Despite their homonymous names, macro-regional strategies are not directly linked to a transnational programme in geographic, content-related or organisational terms. Macro-regional strategies have a wider thematic scope whereas transnational cooperation remains important for pursuing spatial policy objectives and focusing on fewer topics. Thus, transnational cooperation programmes are only one of many instruments for financing macro-regional activities, even though experience shows that transnational cooperation so far is an important cornerstone for the implementation of macro-regional strategies. In some programmes, the implementation of macro-regional strategies will still and mainly be supported by projects that may be assigned to the thematic objective of improving institutional capacities.

In Germany, the BBSR and the federal funding programme “Transnational Cooperation” will continue their support of transnational cooperation. Contact persons will remain available both in the German contact points of the programme areas and in the BBSR. They will provide information on the then six programme areas with German participation (see Annex). With the federal funding programme “Transnational Cooperation”, implemented by the Federal Ministry of Transport and Digital Infrastructure (BMVI) with support from the BBSR, projects that are of special thematic and/or spatial interest for the Federal Government will be supported in the proven way in the future as well. Possibilities of financial support will be provided for preparing, co-financing as well as supplementing projects.

ANNEX: COOPERATION AREAS AND CONTACT PERSONS

Alpine Space

WWW.ALPINE-SPACE.EU

Participating countries

- Germany
- France
- Italy
- Slovenia
- Austria
- Switzerland
- Liechtenstein

Participating German federal states

- Bavaria (administrative regions of Upper Bavaria and Swabia)
- Baden-Württemberg (administrative regions of Freiburg and Tübingen)

German Contact Point

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Danube Region

Via: WWW.SOUTHEAST-EUROPE.NET

Participating countries

- Bulgaria
- Germany
- Croatia
- Austria
- Slovenia
- Slovakia
- Czech Republic
- Hungary
- Romania
- Bosnia und Herzegovina
- Republic of Moldova
- Montenegro
- Serbia
- Ukraine

Participating German federal states

- Baden-Württemberg
- Bavaria

German Contact Point

To be established in Ulm

Programme Secretariat

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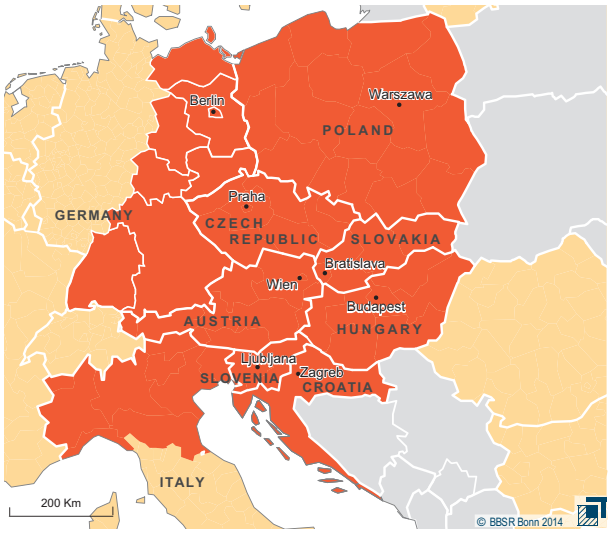

Central Europe
WWW.CENTRAL2013.EU

Participating countries
- Germany
- Italy
- Austria
- Poland
- Slovenia
- Slovakia
- Czech Republic
- Hungary
- Croatia

Participating German federal states
- Baden-Württemberg
- Bavaria
- Berlin
- Brandenburg
- Mecklenburg-West Pomerania
- Saxony
- Saxony-Anhalt
- Thuringia

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North Sea Region
WWW.NORTHSEAREGION.EU

Participating countries
- Belgien
- Denmark
- Germany
- United Kingdom
- The Netherlands
- Sweden
- Norway

Participating German federal states
- Bremen
- Hamburg
- Lower Saxony
- Schleswig-Holstein

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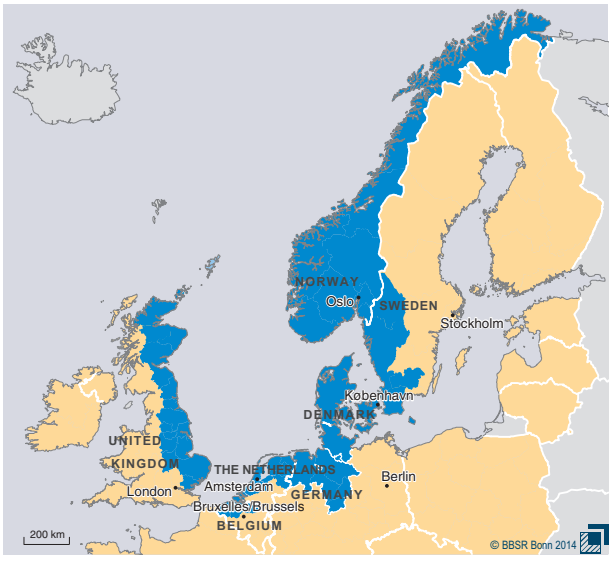

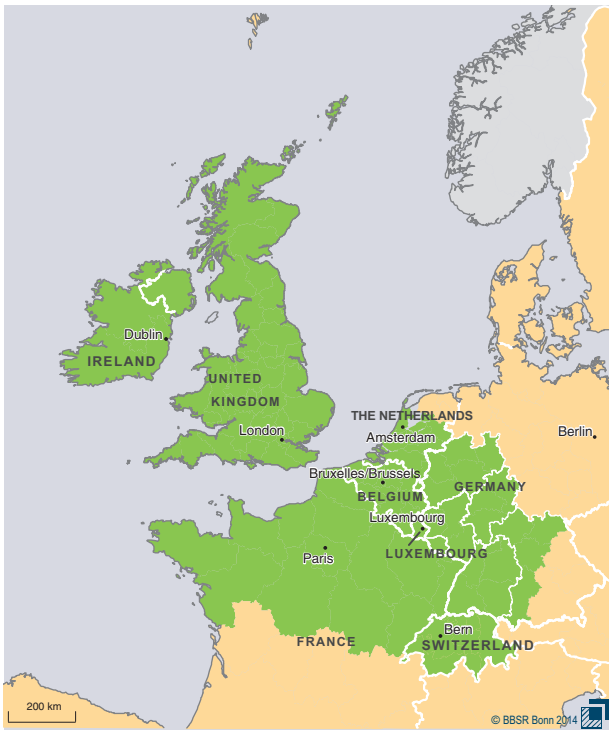

North-West Europe

WWW.NWEUROPE.EU

Participating countries

- Germany
- Belgium
- France
- United Kingdom
- Ireland
- Luxembourg
- The Netherlands
- Switzerland

Participating German federal states

- Baden-Württemberg
- Bavaria (administrative regions of Swabia, Central, Upper and Lower Franconia)
- Hesse
- North Rhine-Westphalia
- Rhineland-Palatinate
- Saarland

German Contact Point

Contact details for the current contact at the German Contact Point are published at:
www.interreg.de

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Baltic Sea Region

WWW.EU.BALTIC.NET

Participating countries

- Denmark
- Germany
- Estonia
- Finland
- Latvia
- Lithuania
- Poland
- Sweden
- Norway
- Russia
- Belarus

Participating German federal states

- Berlin
- Brandenburg
- Bremen
- Hamburg
- Mecklenburg-West Pomerania
- Lower Saxony (administrative region of Lüneburg)
- Schleswig-Holstein

German Contact Point

The establishment of a German Contact Point for the Baltic Sea Region is currently discussed. Further information (as soon as available) at:
www.interreg.de

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IMPRINT

Published by
Federal Institute for Research on Building, Urban Affairs and Spatial Development (BBSR) within the Federal Office for Building and Regional Planning (BBR)

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Orders from: Beatrix.Thul@bbr.bund.de
Keyword “Green and blue growth”

Status
April 2014

Printed by
Federal Office for Building and Regional Planning (BBR), Bonn

Layout
GS Druck und Medien GmbH, Potsdam

Picture credits
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July 2014
ISBN 978-3-87994-795-9