

BLUE GROWTH AND RELATED SMART GROWTH IN THE ADRIATIC-IONIAN MACROREGION

Project Ideas Report

The present report aims at recording the project ideas of the Thematic Cluster (TC) 1 “Blue Growth and related Smart Growth”¹, in order to be financed in the framework of the next programming period. The Thematic Cluster is part of the ADRION Programme capitalization strategy and comprises a wide range of sectors that are each other inter-dependent and contribute to the overall Blue and Smart Growth frame: energy, fisheries and aquaculture, bio-economy, bio-technologies, green shipbuilding, and nautical sector development. Specific project ideas or categories of ideas for the three (3) priorities areas of the EUSAIR Pillar 1 are developed, namely Blue Technologies, Fisheries and Aquaculture, and Maritime and Marine Governance and Services. Also the report includes cross-pillar project ideas as well as ideas for the other three (3) EUSAIR Pillars (i.e. sustainable tourism, Environmental quality, and Connecting the region).

EUSAIR Flagships

Flagships are proposed as solutions for the main challenges of macro-regional importance consistent with national needs as well as with the EU policy objectives for a greener, low-carbon and more connected Europe. The list of EUSAIR flagships of Pillar 1 as well as the indicative type of actions/projects are presented in this section².

The flagship for **Topic 1-Blue Technologies** for the new programming period 2021-2027 is the following:

Fostering quadruple helix ties in the fields of marine technologies and Blue bio-technologies for advancing innovation, business development and business adaptation in Blue bio-economy.

The indicative type of actions to be eligible for funding under this period for Topic 1 are:

- Encouragement and creation of clustering, especially in quadruple helix
- Research on Blue technologies and prioritization of its adoption by SMEs in the macro-region
- Promotion of blue skills

¹ More on the TC1: <https://www.adrioninterreg.eu/index.php/2020/03/04/adrion-thematic-cluster-on-blue-growth-and-related-smart-growth/>

² EUSAIR Flagships. Available at https://www.adriatic-ionian.eu/wp-content/uploads/2020/10/EUSAIR-flagships-GB_clear-8-june.pdf

- Reinforcement of networking, knowledge sharing and creation databanks
- Enhancement of competitiveness and sustainability of relevant local and European industry sectors through utilization of marine bio-discoveries
- Allowing development of novel eco-friendly end products that serve circular economy
- Development of solutions to decarbonize fishing fleets
- One-stop-shops' operation for SMEs support

The Flagship for **Topic 2-Fisheries & Aquaculture** for the new programming period is the following:

Promoting sustainability, diversification and competitiveness in the fisheries and aquaculture sectors through education, research & development, administrative, technological and marketing actions, including the promotion of initiatives on marketing standards and healthy nutritional habits.

The indicative type of actions to be eligible for funding under this period for Fisheries are:

- Development of a strategy for small scale fisheries
- Scientific cooperation on fisheries management
- EU compliance and common standards and practices
- Developing skills
- Creation of a network for monitoring and predicting the distribution of alien species in the macro-region and potential ways of exploration
- Restoration actions to enhance habitat features (e.g. artificial reefs) in areas that have been degraded or replaced by maritime infrastructures and in-situ monitoring of their efficiency.

Three main axes around which common actions for Aquaculture can be developed:

- Administration: includes legal framework, licensing procedures and monitoring of the activity. Data is available from previous projects together with monitoring tools that are under development (e.g. TAPAS project)
- Technology: Methodological and technical issues related to farming. Nutrition, ichthyopathology and treatment are of high priority and exchange of information is vital.
- Marketing (including Trade): refers to quality of the final product, promotion of the industry, market research etc, including the promotion of initiatives on marketing standards and healthy nutritional habits. Trade: refers to facilitation of trade of fisheries and aquaculture products including seafood processing products, traceability, certification, harmonization of legislation.

The Flagship for **Topic 3-Maritime and Marine governance and services** for the new programming period is the following:

Bolstering capacity building and efficient coordination of planning and local development activities for improving marine and maritime governance and Blue Growth services.

The indicative actions/projects to be eligible for financing under this period for Topic 3 are:

- Research platforms and Trans-regional cooperation between community-led local development (CLLD) strategies for actions: a) to combat marine litter pollution, b) development of fishtourism and ichthyotourism, and c) creation of start-ups and local employment and promotion of partnership working.
- Governance of maritime space for a sustainable and transparent use of maritime and marine resources. This will include: a) supporting the implementation of the new Directive on Maritime Spatial Planning b) adopting clearer legal frameworks for development of Allocated Zones for Aquaculture (AZAs), marine protected areas (MPAs), exploiting deep-sea water and marine mineral resources.
- Maritime professional skills: improve the level of skills and expertise for the working manpower in maritime sector.

Project Ideas

This section presents the project ideas or categories of ideas of TC1 for the next programming period. A brief description is included.

PILLAR 1.

TOPIC-1: BLUE TECHNOLOGIES

Low Emission Energy Supply & Production-Sustainability-Bio-technologies

- ***Production of electricity from Renewable Energy Sources (RES) in shipyards***

Shipbuilding industry is considered as one of the key global industries. It consumes a significant amount of energy while also leaves a strong footprint on the environment. It is therefore required to increase RES in shipbuilding industry in line with the adopted international legislation. This could improve energy efficiency of shipyards and reduce their environmental impact. Offshore wind turbines combined with solar panels, and tidal and wave energy systems may be the main renewable energy sources in shipyards, given the complex nature of shipbuilding process, the heavily exploited shipyard area and the complex geographical placement.

- ***Development of hybrid installations for marine and offshore wind energy combined with aquaculture, fish-farming, etc.***

The concept concerns the integration of offshore wind turbines with aquaculture/fish farming systems in an offshore multi-purpose platform. Potential advantages include: a significant cost reduction-by allowing multiple use of space and infrastructure, through co-located and shared technologies-and an optimization of maritime spatial planning. In addition, for remote and island communities of the EUSAIR macro-region, not able to access the utilities grids, a multi-purpose platform may constitute the only secure, sustainable and affordable source of energy, food and jobs.

- ***Cluster of zero emission modular drone ships for fishing, aquaculture and sea operations.***

Provide a modular approach to ship design, allowing a manned-unmanned solution for a number of applications, considering a zero emission propulsion (H2 or fully electrical based).

- ***Use of marine biotechnology to develop concrete prototypes and processes in the societally relevant fields***

Such as health and well-being (medicine, cosmetics), food and feed, environment (novel materials (e.g. biopolymers, bioremediation). Marine biotechnology can make an increasingly important contribution towards meeting these societal challenges and in supporting economic recovery and growth in the macro-region by delivering new knowledge, products and services.

- ***Development of new technologies able to produce green fuel***

During the last decades, algal biomass (both macro-and microalgae species) has received increasing attention as a potential source of advanced biofuels production resulting in a considerable attention from research, industry and policy makers. Algae offer several advantages compared to land-based biomass crops, including: better photosynthetic efficiency; higher oil yield; growth on non-fertile land; tolerance to a variety of water sources (i.e. fresh, brackish, saline) and CO2 re-using potential. Despite the extensive research and investments in the last decades, no large-scale, commercial algae-to-biofuels facilities were implemented yet.

- ***Use of aquaculture wastewater for phytoplankton culture***

Appropriate plankton species in EUSAIR regions and culture practices for improving biomass and quality, probably in two steps. Use of phytoplankton as aquafeed additive or for the production of bioactive compounds.

- ***Seaweed cultivation in integrated multi-trophic aquaculture***

Elucidation of the seaweed effects on fish metabolism and welfare, proliferation of seaweed culture under control conditions and use of seaweeds as aqua feed additives. Potential for Integrated Multi-Trophic Aquaculture (IMTA) in EUSAIR regions.

- ***Fish oil and fishmeal substitution in aquafeeds***

Use of alternative sources in proper quantities and ratios for fish growth performance and welfare. Estimation of fish welfare by brain neurotransmitters (serotonin, dopamine and their metabolites). Use of alternative raw materials produced in the EUSAIR regions.

Knowledge transfer

- ***Seed funds to support technology transfer from innovators to traditional businesses in the field on new materials for green boatbuilding***

There is a double need: traditional businesses need to innovate, on one side; new innovative and sustainable products need to be developed through open innovation able to cluster research and MSMEs, on the other. Such an idea could promote sustainable new products and innovate traditional businesses.

- ***Implementation of a Blue Innovation Voucher mechanism, including***
 - Building of blue skills, thanks to one-on-one and collective consulting
 - Coaching, valorizing the creation of a Blue consultants' roster
 - The creation of an on-line Gallery of Knowledge Providers for the Innovation Vouchers Call
 - Structured networking intra-regional & transnational activities in all pilot areas, to achieve regional and transnational networking B2B, B2R, B2G, R2R, R2G
 - A transnational Blue Innovation Voucher Call, having as priority, among others, circular economy and strongly valorizing Smart Specialization Strategies of each Pilot Region.

The MSMEs need to develop innovation in order to evolve, but are mainly of very small size, family businesses, which cannot run heavy research projects, for operational and financial reasons. At the same time, they need to build on their Blue skills, especially regarding innovation development, as well as their networking, both at regional and trans-national level.

Blue Innovation Vouchers will offer Blue MSMEs the opportunity to run small-scale technology transfer projects, following light, business-friendly procedures and practically without any turnover limits or co-financing obligations. At the same time, they will offer them great opportunities for competencies' development, especially on innovation development with a focus on circular economy, as well as of networking

Digitalization and Innovation

- ***Using AI and Big Data in Maritime technologies***

Big data and Artificial Intelligent (AI) are crucial components of data driven decision-making in most industries. Big data and AI gradually transforming the traditional process of the maritime industry. The application of these technologies can provide new opportunities to improve productivity, efficiency and sustainability.

Alternative financing for Blue technologies

- ***Map access opportunities to alternative investments such as Crowdfunding for Enterprises in Blue Economy***

The idea concerns the development of a mechanism that will support MSMEs through the development of One-stop-shops towards funding using the instrument of Crowdfunding. One of the major need that all very small, small and medium enterprises have is the access to funding. This project will tackle this need through the Crowdfunding concept. This project idea could allow SMEs to have access to alternative methods of financing an aspect that is of great importance for every very small, small and medium enterprise.

- ***Public-private partnership***

Public-private partnership as a tool for development of blue economy, promoting the innovative activity and diversification of the economy. The purpose of the public-private partnership (PPP) in innovation sector is aimed to the development of scientific and technological potential and the formation of a competitive industry for the functioning of the domestic/global markets.

TOPIC-2: FISHERIES & AQUACULTURE

- ***Development of Private Certification Protocol for fish freshness and quality***

Clusters of fishermen in EUSAIR regions could apply this protocol to deal with unfair competition and increase the added value of fish products.

- ***Promotion of initiatives for rational use of waste and by-products deriving from fisheries***

It is estimated that about a quarter of wastes coming from fishery are discarded, so causing not only a significant environmental impact but also a loss of the potential value of such products. This fact stresses the importance of finding adequate modalities for fish wastes management, taking into account the possibility to use them not only as fish feeds but also as a potential source of bioactive compounds.

- ***Valorization of existing edible marine species (local seafood of the Adriatic and Ionian Sea) through the design of integrated paths addressing cultural (traditions), economic (food and wine tourism), commercial (diversification of business for fishermen) and environmental aspects.***

To valorize cultural traditions, protect the marine ecosystem and provide small fishery with additional income.

Digitalization and Innovation

- ***Digitalization of fishing activities***

The introduction of digital technologies improves production processes and trade in aquatic bioresources, increases the transparency and helps improve the accuracy of the forecasting of various natural processes,

including climate change, the dynamics of the number of aquatic bioresources, and the efficiency of online control over the catch of hydrobionts and the quality of products of them. Such technologies can be Big Data, the Internet of Things (IoT), sensors, robotics, data storage and transmission, etc.

CROSS-SECTORAL PROJECT IDEAS: TOPICS 1, 2 & 3

Knowledge transfer

- ***Mapping competences and innovative skills strategic for maritime industry***

The concept concerns the mapping of relevant skills needs and competences required in innovative maritime sectors in the macro-region. The needs can be identified according to the relevant time span (i.e. as current skill needs; short term skill needs; and medium-term and long-term skill needs). Furthermore, the skills and competences of well-established maritime sectors can be examined, with the objective of assessing their potential inclusion in the skills required by innovative maritime sectors (e.g. the lack of experience in offshore installations and qualified technical staff could be addressed due to long-term experience of the shipbuilding and maritime industries in most of the countries).

- ***Experiment new approaches for Knowledge Transfer for innovation & elaborate innovative learning models & tools***

Stimulating and accelerating with this way the development and implementation of innovative technologies/products/services of maritime industries which in turn will enable sustainable blue growth and enhance human wellbeing without jeopardizing the good environmental status.

CROSS-PILLAR PROJECT IDEAS

- ***Green Hydrogen power generation programs to be applied in ports and terminals (Pillar 1/Pillar 2)***

Hydrogen is gaining increased attention from policy makers and industry leaders as an important element for a fully renewable energy system. It is also seen as an economic opportunity for greening existing industries and as a basis for entirely new ones (e.g. bio-based industries). The advantages of establishing a hydrogen hub are many. Large scale of hydrogen in ports can considerably reduce carbon emissions. A hydrogen network can also enable the ports in the macro-region to play a leading role, as well as to remain the one of the driving forces of the national economies.

- ***Research on Blue technologies and its usage by SMEs to remediate the blue environment (e.g. sea, estuaries, etc.) (Pillar 1/Pillar 3)***

All blue environment (e.g. sea, estuaries, etc.) after being constantly used needs to be remediated in order to be used again effectively and in order to be efficient. Thus, there is a great need for its remediation. The Blue environment is vital for the existence of its “inhabitants” plants and animal. In addition, a large number of activities are taking place, actively or passively, that assist either the environment to be cleaner or entrepreneurs to be more effective and efficient. This idea could be implemented since the blue environment, particularly Mediterranean is much burdened.

- ***Smart sensors and platforms for pollution monitoring (Pillar 1/Pillar 3)***

R&D&I platforms could gather information on marine litter (e.g. distribution, hot spot) useful to develop management plans and clean-up programmes or/and on water quality and support the development of measures against pollution.

- ***Funding constant update of the S3 analysis (All Pillars)***

At macro-regional level to get updated insights on the innovation potential and challenges of the whole area.

OTHER EUSAIR PILLARS

- ***Development of digital representation of port and intermodal operations to enhance efficiency (Pillar 2)***

Final aim of the concept is to monitor freight and passengers movements, identify infrastructural and non-infrastructural bottleneck and simulate the measures to overcome them

- ***Multi-modal transport for goods (Pillar 2)***

To boost and foster clean, multimodal transport, increase connectivity and competitiveness and minimize the negative environmental effects induced by transport activities.

- ***Mobility of tourist flows (Pillar 4)***

Mobility and tourist flows are strictly connected, and tourism can act as a driving urban function in order to promote more sustainable lifestyles. According to World Tourism Organization the tourism mobility is responsible for 5% of CO₂. This highlights the need for change in the styles of tourism consumption in order to meet the challenges of climate change that cities must face.

- ***Harmonizing the state of affairs caused by COVID 19 (e.g. Tourism recovery) (Pillar 4)***

The tourism economy has been heavily hit by the coronavirus pandemic, and measures introduced to contain its spread. The concept concerns the development and/or exploration of mitigation and recovery strategies/recommendations/practices, across macro-region, with a special focus on sustainable tourism practices, bolstering the knowledge sharing among countries and paving the way towards a more sustainable and resilient tourism sector.

- ***Innovative services in support of Cultural and Creative Industries-CCIs and of Tourism (Pillar 4)***

Development of innovative solutions and services, support of cooperation between tourism and CCI SMEs, ensuring the exchange of knowledge and experience, and exploiting synergies between tourism and cultural and creative industries.

- ***Urban regeneration through temporary uses***

In a time when cities are not growing but transforming themselves, especially when in crises, we need to find new and agile ways to respond to local needs. Temporary uses can be a source of life for neighbourhoods in order to promote a sustainable urban regeneration promoted by public administration and citizens. Temporary uses can accommodate any function, but it would be essential to respond to needs related to employment, with co-working and start-ups, urban sustainability and cultural activities.

WHY THESE PROJECT IDEAS/CATEGORIES OF IDEAS NEED TO BE IMPLEMENTED

- To foster competitiveness of the economic system of EUSAIR linked to the sea (e.g. shipbuilding, fishing) toward sustainability models
- To enhance the cooperation between research centers/knowledge keeper and enterprises on tech. transfer
- To reduce the gap between EU and IPA countries for on innovation level
- To stimulate further interaction between academia, industry, government and civil society
- To improve the levels of skills and expertise for manpower in maritime sector
- To increase the levels of awareness of civil society and policy makers on potential of blue sustainable development
- To stimulate private investment in the blue technology sector
- To promote sustainable new products & services and innovate traditional businesses
- To protect the marine ecosystem

WHAT NEED IS SERVED

- Innovation
- Sustainability
- Digitalization
- Reduction of CO2 emissions and pollution
- Reduction of production times
- Improving security and safety of processes
- Identification and channeling of resources towards blue investments

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