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No 16

XENOPHON PAPER

“Blue Growth as a Driver for Regional Development”



October 2018

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The present publication is the scientific outcome of the 9th International Black Sea Symposium on “Blue Growth as a Driver for Regional Development”, organised on 20-21 March 2018, in Athens.

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Preface

Blue economy has always been high in the agenda for policy stakeholders and researchers over the years, however through scarce and uncoordinated actions. Therefore, it is optimistic that over the past years, there are coordinated efforts from all parties involved, to implement a result-oriented strategy with targeted policies related to the sustainable development of the marine and maritime sectors.

The concept of Blue Growth is evaluated positively by the Black Sea countries, as it addresses a significant potential of the wider region that remains untapped. Besides, the inter-connectedness of the seas and of the maritime activities demands for enhanced cooperation and coordination of actions among stakeholders for the optimum results.

Within this context, the International Centre for Black Sea Studies (ICBSS) organised the **9th International Black Sea Symposium on “Blue Growth as a driver for regional development”**, with the aim to become a platform for constructive dialogue among stakeholders, to contribute to knowledge about the various aspects of the marine and maritime sectors, and why not, to facilitate the creation of synergies for future productive cooperation.

Since its establishment in 1998, -this year marks ICBSS’ 20th Anniversary-, our objective has been to *enhance knowledge*, to *empower people* and to *enable synergies* at regional and interregional levels. And through this highly educative route, we have come to realize the importance of capitalizing on the Region’s high potential with the aim to provide the optimum opportunities to its people.

The present publication includes the contributions of experts to the 9th IBSS aiming to highlight the opportunities and challenges for sustainable blue growth; to present practices of successful maritime entrepreneurship, and eventually, to provide food-for-thought about the future of blue economy in our wider region.

In my capacity as Director General of ICBSS, I would like to cordially thank all authors for their comprehensive and highly interesting inputs to this collective edition.

I hope you enjoy it!

Mr. Georgios Mitrakos, ICBSS Director General

Athens, October 2018

Chapter 1

Fostering sustainable Blue Growth in the Black Sea

Matteo Bocci, Independent expert, **Frédéric Herpers**, *Stratégies Mer et Littoral (SML)*, **Thanos Smanis**, *Pesceres Italia srl*, **Christophe Le Visage**, *Stratégies Mer et Littoral (SML)*

The paper builds on the assessment of Blue Growth potentials done in each country so far¹ and provides an overview of the main i) potentials and challenges, ii) areas of greater needs for innovation, and iii) financing support available to boost Blue Growth across the Black Sea.

Black Sea Countries² have recently endorsed a Ministerial Declaration in Burgas, Bulgaria³ to continue working together to identify the regional maritime and marine priorities and actions to be included in a Common Maritime Agenda in liaison with regional structures such as BSEC⁴, BSC⁵ and CPMR⁶. This should be done including through the fork of the “Facility for Blue Growth in the Black Sea” (later ‘the Facility’) promoted by the EU DG MARE.

The view on the challenges and opportunities presented in this paper builds on the Blue Economy Fiches drafted for each Country by the authors. **The overall analysis and suggestions with respect to possible instruments to foster private financing are nevertheless personal opinions of the authors of this paper, and do not necessarily reflect the official view of the Facility and other stakeholders involved in its activities so far.**

The *Facility for Blue Growth in the Black Sea* is a two-year technical assistance project aimed to:

- Assist national administrations and key maritime public and private stakeholders in the region;
- Facilitate better governance in maritime affairs in the Black Sea by the coastal countries, based on a country approach and according to the countries’ requests for assistance;
- Identify shared maritime priorities at national and regional levels, including a marine research and innovation agenda;
- Provide advice and best practices on possible new technologies and sectors that have not made yet their marks on blue economy in the region;
- Provide advice and examples on how to foster innovation and investments;
- Support the set-up of project through the matchmaking of potential partners, the identification of funding sources and support for application for funding, project drafting.

1 *During the first semester of work of the facility based on desk search and national visit and workshop to endorse the statements on respective national blue economy*

2 *Bulgaria, Romania, Moldova, Ukraine, Russian Federation, Georgia, Turkey*

3 <https://ec.europa.eu/maritimeaffairs/maritimeday/en/burgas-2018> -

4 *Black Sea Economic Commission*

5 *Black Sea Convention*

6 *Conference of Peripheral Maritime Regions*

The initiative has been launched in 2017 and for the time being is expected to last until the end of 2019, under the supervision of a Steering Group composed of the focal points from the public administrations of the participating Black Sea Countries and the relevant regional organizations. It is chaired by the EU Directorate General for Maritime Affairs and Fisheries (DG MARE). For the time being, the Facility activities have been focused on specific Blue Economy assessments at Country level, so to identify and share the main challenges, opportunities and needs for the Blue Growth, based on an ecosystem approach.

Key Messages

The assessments delivered by the Facility for Blue Growth in the Black Sea pointed at several areas of development potentials for the Blue Economy in the Black Sea. A number of Maritime Economic Activities (MAEs) show in fact growth potentials across the region, but the lack of opportunities for exchanges amongst operators, authorities, researchers and innovators, as well as the too complex interplay of public programmes, financing agencies and private investors, are hindering such potentials. Support to and coordination of all stakeholders⁷ in the region is essential to exploit such Blue Growth potentials in a sustainable manner (economically, financially, socially and environmentally) across the Black Sea.

To do so a number of financing streams are currently available, including those channelled by the EU. These funds ensure good coverage in most sectors at country levels, but they often don't intercept the needs of operators (often small and micro enterprises) at the local level and make it complex to integrate and "blend" various funds at the whole seabasin level (i.e. across sectors and countries). **Even when successful, public funding at disposal is often not sufficient to trigger systemic change at the regional level and ensure a longer-term engagement of private investors. As such, the actual benefit of the existing financial streams for local stakeholders is limited.**

More effective mechanisms could be introduced to federate ("blend") the existing streams of funding in an integrate approach, so to better support Blue Growth at the regional and country levels and ensure the critical mass for policy funds to trigger the interest of private investors acting across the Black Sea. The mechanism would foster sustainable private investments in areas that are not currently perceived as profitable in the short term, but can generate greater socio-economic impact in the longer-term if well addressed.

In this context, **the set-up of a Blue Growth Accelerator could boost the adoption of innovation by local businesses and stakeholders across the Black Sea. The accelerator will therefore not only be aimed at fostering new technologies and emerging start-ups, as more usual for such mechanism, but also and importantly will be supporting turnaround strategies and innovative marketing for existing SMEs in the Blue Economy across the region.** The mechanism would act in the framework of the national and common priorities and is to be ratified, monitored and revised under the umbrella of a regional Steering Committee. Such mechanism could be set-up in the form of a legal entity with the objective of promoting "public goods" by leveraging on public and private finance, to ensure returns of investments in the framework of a long term sustainable Blue Growth in the Black Sea.

1. Potentials, challenges and needs for Blue Growth in the Black Sea

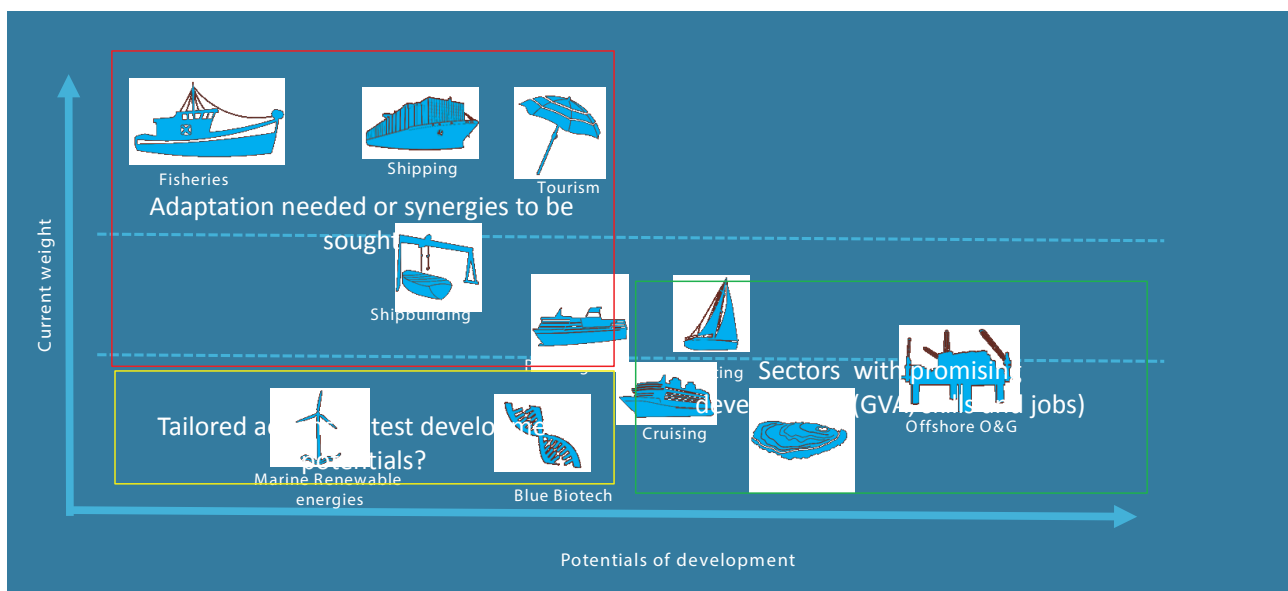
The Facility has delivered a number of Blue Economy (BE) "Country Fiches" discussing on one hand the current and future potentials of Maritime Economic Activities (MEAs) in terms of economic size and jobs available and on the other one the current and future potentials of Maritime Policy Driven Activities (MP-DAs) as support for regulation, management and monitoring to create the conditions for a sustainable BE development.

⁷ Public administrations, private sectors and their representation (clusters), NGOs

1.1 Challenges already emerge at the regional level to boost Blue Growth in the Black Sea

A number of Maritime Economic Activities (MEAs) show growth potentials in a sustainable way, but with different degrees of maturities and needs to be addressed. A repartition of sectors and activities across three different “blocks” of economic activities is illustrated in the figure below, positioning the Maritime Economic Activities (MAEs) on the basis of their current weights (current jobs and GVA,) and their potentials for development (future jobs and GVA).

Fig. 1.1. Overview of MEAs based on the BE Country “Fiches” and repartition in three “blocks”



Source: Facility

The illustration above results in the following challenges for Blue Growth in the Black Sea:

- *Economic activities related to relatively ‘traditional’ and large sectors are not sufficiently sustainable.* These are economic activities in sectors such as tourism, fisheries, shipbuilding, etc. and to be fully performing they require strong adaptation and innovation in the existing business models and services offered, so to maximise their potentials in generating local economic returns and more stable and high-quality jobs.
- *Innovative economic activities with a relatively limited size at the current stage but with strong development potentials in the mid-to-longer terms require greater sustain.* These are specific activities in niches such as yachting and cruising, or (to some extent) mariculture, which could be instrumental in the diversification and generation of higher added value to the abovementioned ‘traditional’ sectors. But these are also sectors currently emerging and with strong potentials on their own, such as gas and marine energy.
- *Underdeveloped activities with unclear future potentials in the current absence of essential basic and applied marine research.* These include renewable energy and biotechnologies, for which further research should be fostered in order to assess their potentials and foster pre-commercial opportunities.

These regional patterns are reflected in the main country dynamics, although with some specificities and differences emerging, in terms of potentials and available capacities.

1.2 Regional commonalities also allow for country specificities

In general, there is a good availability of port infrastructures and already existing liaison with several countries in the Black Sea (ferries, maritime transport). Natural capital is under several threats (overexploitation by fisheries, land and marine pollution, coastal erosion, climate change effects, etc.), yet it also offers opportunities. These, despite being sustainable in principle (oil & gas, marine renewable energies, mariculture, biotechnologies) need to be fully assessed as to their environmental impacts. The connection between river and sea, as a land sea interaction, is not just beneficial for the valorisation of the natural and cultural assets and the subsequent tourism growth, while it also triggers new synergies across sectors (e.g. cruise, coastal and land tourism, short-sea shipping, shipbuilding) creating cross-cutting local added value. It is also clear as, as discussed in the individual BE “fiches”, the potentials identified require a stronger and better role of public policies and related policy activities in order to create a reliable and effective framework for the Blue Growth in the Black Sea.

An overview of opportunities and needs, as emerging from the assessment provided by the Facility, is provided in the table below. A similar range of needs and required support actions has emerged with respect to policy-related activities and is detailed in the BE “fiches”. For ease of simplification we are limiting our presentation to the maritime economic activities, but we restate the relevance of policy capabilities to be fully in place in order to boost socio-economic returns.

Tab 1.1. Overview of main potentials and needs (skills, etc.) for each Country

Countries	Emerging niches to be supported	In need of adaptation	Potentials to be further assessed	Capacity and needs
Bulgaria	Synergies between marine & river small cruise, coastal tourism and short sea shipping	Fisheries Tourism shipbuilding	Offshore aquaculture Offshore wind	Limited innovation whereas existing skills (institutes)
Georgia	Synergies between small cruise and coastal tourism	Tourism Fisheries	Marine aquaculture Renewable energy Blue biotech, Oil & gas	Environmental protection enhancement
Moldavia	Synergies between marine & river small cruise	Passengers (ferries) and maritime transport (goods)	Synergies between small cruise & tourism	Development of training and education
Romania	Synergies between marine & river small cruise, coastal tourism	Tourism shipbuilding	Offshore aquaculture Marine energy Blue biotech	Limited innovation whereas existing skills (institutes)
Russia	Synergies between small cruise and coastal tourism including yachting	Fisheries Tourism	Marine aquaculture Renewable energy, Blue biotech Oil & gas	Strong research institutes are still strong but weak connection with business or administration
Turkey	Synergies between small cruise and coastal tourism including yachting Shipbuilding	Fisheries	marine energy exploitation, blue biotechnologies	Cross-sectoral development/ management requested Good skills and infrastructure

Ukraine	Synergies between small cruise and coastal tourism	Fisheries Tourism	Marine aquaculture Renewable energy Blue biotech	Good skills – new infrastructures
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Source: Assessment presented in the BE “Fiches” and discussed with Countries (on-going)

1.3 Specific critical areas have also emerged as target for policy intervention

A number of maritime economic activities therefore show growth potentials, as discussed so far, but the lack of opportunities for exchanges amongst operators, authorities, researchers and innovators, as well as financing agencies and private investors, is hindering the actual Blue Growth in the region. Some specific critical areas to be addressed in this respect are the following:

- *Limited overall policy framework and regulatory context* that allows proper returns of investments, and limited capacity in fostering national/regional integrated maritime policy;
- *Emerging but still insufficient policy coordination* amongst relevant national/regional bodies;
- *Limited access of open forms of innovation*, though stakeholders cooperation (operators, researchers and authorities), to boost adoption of innovation and change at (cross) sectoral level;
- *Limited capacity in fostering innovation in maritime competencies and skills* across economic activities, at every educational level (secondary/higher, managerial/technical);
- *Lack of capacity for sustaining the dialogue with investors*, so to raise interest of investors through demonstration and business cases, risk assessment and support to areas with limited bankability in the short term but strong potential returns in the longer term.

Support in fostering the capabilities of all stakeholders in promoting such exchanges through a constant dialogue is needed, if we want to exploit such Blue Growth potentials in a sustainable manner (economically, financially, socially and environmentally) across the Black Sea. The next chapter assess the extent to which such resources exist and actually reach the local stakeholders.

2. Financial support to foster Blue growth in the Black Sea⁸

Given the strong potentials identified in the BE “Fiches” it is vital for the Black Sea Region to address the main challenges identified for traditional, innovative and underdeveloped economic activities (Chapter 1.1), by addressing the various critical areas discussed in Chapter 1.3. To do so, it is essential to mobilise the most effective and reliable sources of financial support available across the seabasin, both in terms of public funds (i.e. grants) for short–terms projects and longer term public and private investments. Nevertheless, for these sources to be fully effective, it is important to overcome some challenges posed by their current fragmentation across countries and areas of intervention, and foster greater synergies across the existing financing sources. An overview of potentials and challenges of public and private financial sources is provided in the next chapters.

⁸ EU budget for results per country: http://ec.europa.eu/budget/euprojects/search-projects_en?combine=&broad_area=2282&project_country=All&programme=All&priorities=All&=Apply

2.1 Public funds are available across the basin, but still too fragmented to be fully effective

A first element considered is that of *public funding*. At a first glance, a range of financial sources is available across the region, although with certain strengths and limitations. EU Funds, for example, are (mostly) grants covering a range of areas of needs⁹ for local operators and the broader range of stakeholders (enterprises, universities, administrations, etc.) in the Blue Economy. They tend to be project-based and target primarily actors in EU Member States, although in many cases non-EU stakeholders are also targeted or can also apply as co-partners to EU beneficiaries (as illustrated in the table below). The BSEC Facility¹⁰ also offers grants in a range of areas that reflect the Donor Agreements¹¹. An overview of the main sources of public grants available is provided in the table below (Tab. 2.1), with indication of the eligible countries across the Black Sea.

Tab. 2.1. Brief overview of a sample of Publicly-funded Programmes available (2014/2020): total amount (for the instrument not only in the region), activities covered and eligible Countries.

Public Grants	Amount (on the period)	Activities supported	Eligible Black Sea Countries						
			BG	RO	TK	GE	RU	UA	MD
BSEC - Facility for the Black Sea ¹²	USD 1 ml (region)	Infrastructure, environment, energy efficiency, trade, SMEs	X	X	X	X	X	X	X
Horizon 2020 ¹³	€77.03 bn	Research, innovation	X	X	X	X	X ¹⁴	X	X
COSME ¹⁵	€2.3 bn	SMEs support, clustering Internationalisation	X	X	X			X	X
CBC ¹⁶ - ETC - ENI	€10.1 bn	Administrative capacity, infrastructures	X	X	X	X	X	X	X
Global Navigation Satellite Systems Agency ¹⁷	€7.07 bn	ICT structures and systems	X	X	X	X	X	X	X
International Security Fund ¹⁸	€1.04 bn	Justice, security, enforcement	X	X	X	X	X	X	X

9 Skills/Competencies, Management/Internationalisation, Research/Innovation, Infrastructures, Loan

10 <http://www.bsec-organization.org/Downloads/Call%20for%20Proposals.pdf>

11 Within the scope of the trilateral Donor Agreement of 18 November, 2016 and the Cooperation Agreement in respect of the Facility between the BSEC Secretariat and the BSTDB of 11 July, 2016.

12 <http://www.bsec-organization.org/Downloads/Call%20for%20Proposals.pdf>, <http://www.bsec-organization.org/Downloads/Operating%20Guidelines.pdf>

13 https://ec.europa.eu/programmes/horizon2020/sites/horizon2020/files/horizon_2020_first_results.pdf

14 Under specific conditions

15 <https://www.iprhelpdesk.eu/kb/2642-what-cosme>

16 http://ec.europa.eu/regional_policy/en/policy/cooperation/european-territorial/

17 https://www.gsa.europa.eu/system/files/reports/gnss_market_report_2017_-_maritime.pdf

18 http://ec.europa.eu/dgs/home-affairs/financing/fundings/funding-home-affairs-beyond-013/index_en.htm

ERASMUS+¹⁹	€14.8 bn	Education mobility	X	X	X	X	X	X	X
LIFE²⁰	€3.45 bn	Environmental capacity	X	X					
Cohesion Fund²¹	€63.4 bn	Infrastructures, environment	X	X					
European Regional Development Fund²²	€4 bn	Infrastructures, environment	X	X					
European Social Fund²³	€10 bn	Human capital, inclusion, (youth) employment	X	X	X				
European Maritime, Fisheries Fund²⁴ Shared management	€6,06 bn	fisheries, support to CFP & EU IMP implementation, research and innovation, skills, environment sustainability	X	X					
European Maritime, Fisheries Fund Direct management	€340ml	Governance, cross-sectoral initiatives, blue growth scientific advice and knowledge for fisheries, fisheries control and enforcement	X	X	X	X	X	X	X

Source: Internal selection

DISCLAIMER AND MAIN MESSAGE: The funds illustrated in the table above are based on the selection of some of the most relevant EU funds across a broader range of financing streams. As the information on actual regional allocation is not always available, the information provided refers to the whole budget at disposal beyond the region. Nevertheless, the main countries eligible for the funds are indicated. The main message out of this illustration is that the range of available resources is broad, although very fragmented across types of activities supported and beneficiary countries across the Black Sea Region. Some funding support is very competitive (e.g. Horiwon2020) other schemes are preliminary targeted to EU Member States but other countries can join in consortia (e.g. COSME), others are only targeting the EU.

19 https://ec.europa.eu/programmes/erasmus-plus/node_en

20 <http://ec.europa.eu/environment/life/>

21 http://ec.europa.eu/regional_policy/en/funding/cohesion-fund/

22 http://ec.europa.eu/regional_policy/en/funding/erdf/

23 <http://ec.europa.eu/esf/home.jsp?langId=en>

24 <https://ec.europa.eu/easme/en/european-maritime-and-fisheries-fund>

2.2 A wider range of financing mechanisms are also operating across the region

Apart from public grants, a range of other *Financing Mechanisms* is available, in the form of loans and bonds but also grants (as for the BSEC financing). A number of such financing mechanisms aim at blending various sources of financing (public/private), and offer opportunities for leveraging on a broader range of private investors through the use of public finance. In this way, they ensure longer-term financial support and continuity beyond individual projects across the region to enhance the sustainability of each action. Nevertheless, the focus of such mechanisms is relatively broad and not necessarily focussing the specific challenges and need of the Blue Economy in the region. These mechanisms remain therefore heterogeneous (as the funds previously reviewed), lack of overall coordination and focus on the specific challenges identified for the Blue Growth in the Black Sea. An overview of selected instruments and source is provided in the table below (Tab. 2.2), including the indication of which Black Sea countries can apply.

Tab. 2.2. Brief overview of a sample of Financing Mechanisms available across the region: total (possibly for the region), spending so far and overview of eligible Countries.

Financing Mechanisms	Amount	Activities supported	Eligible Black Sea Countries						UA	MD
			BG	RO	TK	GE	RU			
EBRD (loans) ²⁵	€115 bn (global)	Capacity, marketing, infra-structures	X	X	X	X	X	X	X	
EIB (loans) ²⁶	283.7 bn (global)	Capacity, marketing, infra-structures	X	X						
UNDP ²⁷	\$5 bn (region)	Skills, capacity	X	X	X	X	X	X	X	
Black Sea Trade & Development Bank (loans) ²⁸	€4.9 bn (region)	Economic and social development	X	X	X	X	X	X	X	
World Bank ²⁹	\$3.4 bn (region)	Economic and social development	X	X	X	X	X	X	X	
ICMA (bond) ³⁰	\$150 bn (global)	Environmental investments	X	X	X	X	X	X	X	
Small Enterprises Assistance Fund ³¹	\$40 ml (global)	SMEs capability	X	X		X				
Dutch Investment Fund ³²	€5.6 ml (global)	Environment, ICT	X	X	X	X	X	X	X	

25 <http://www.ebrd.com/home>

26 <http://www.eib.org/efsi/>

27 <http://www.undp.org/content/dam/undp/library/corporate/Partnerships/Funding%20Compendium%202016.pdf>

28 <https://www.bstbd.org/>

29 http://siteresources.worldbank.org/EXTABOUTUS/Resources/29707-1280852909811/IBRD_Mar_18.pdf

30 <https://www.undp.org/content/sdfinance/en/home/solutions/green-bonds.html>

31 <http://seaf.com/what-we-do/our-locations-investment-vehicles/central-eastern-europe/>

32 <https://www.dif.eu/homepage>

Axxes Capital ³³	€15 ml	Market/product diversification	X	X					X
Japan Social Development Fund	Grants up to \$75 k	Innovation, Skills Infrastructures						X	X

Source: Facility

DISCLAIMER AND MAIN MESSAGE: The financing bodies illustrated in the table above are based on the selection of some of the most relevant institutions operating in the region. As for the previous table, as the information on actual regional allocation is not always available, the information provided may refer to either the global or the regional operations (as indicated in parenthesis). The main message out of this illustration is that the range of available financing resources and “blending” mechanisms operating across the Black Sea is equally broad. Some are using public resources (e.g. UNDP, WB), others are entirely private (e.g. ICMA) and others can blend public and private sources (e.g. EIB/ERDB). These institutions and mechanisms remain nevertheless relatively fragmented and focus on a range of activities, not entirely related to the Blue Economy and the regional needs emerging from the BE assessment (Chapter 1). Their actions and areas of interest are more focused on national support to meet national needs (environment protection (UNDP, WB), social condition improvement (WB) or infrastructures development (EIB/EBRD/BSTBD). A full assessment of such funds is revised in other documents by the Facility³⁴.

2.3 Private investors remain the largest source of financing across the seabasin

Policies are mainly defined and driven to support public action for the overall benefit of the society (public and private sectors). An aspect relatively neglected for policy implementation is the extent to which *private investments* are available across the region, and to what extent they can be used to address areas of critical needs to boost Blue Growth across the Black Sea. Private investors include an extremely wide range of initiatives and bodies, which is impossible to capture in this brief report. Nevertheless, as a proxy for this exercise and an indication of the ability of Black Sea Countries to attract private investments, an overview of *Foreign Direct Investments (FDI)* is provided in the table below (Tab. 2.3). The table covers the period 2010/2016 and indicates yearly and total FDIs as well as average annual growth.

Tab. 2.3. Brief overview of a sample of yearly Foreign Direct Investments (FDIs) in USD billions

Countries	2010	2011	2012	2013	2014	2015	2016	Total '10/'16	Annual FDI	Annual Growth
Bulgaria	1,5	2,9	1,7	1,8	1,5	2,8	0,8	13,2	1,9	-8%
Romania	3,0	2,4	3,2	3,6	3,2	3,8	4,6	23,8	3,4	15%
Turkey	9,1	16,1	13,6	12,8	12,5	17,3	12,0	93,3	13,3	-3%
Georgia	0,8	1,0	0,9	0,9	1,8	1,6	1,7	8,7	1,2	14%

33 <http://axxesscapital.net/balkan-accession-fund/>

34 <http://blackseablueeconomy.eu>

Russia	31,7	36,9	30,2	53,4	29,2	11,9	37,7	230,8	33,0	34%
Ukraine	6,5	7,2	8,2	4,5	0,8	3,1	3,3	33,6	4,8	31%
Moldova	0,2	0,3	0,2	0,2	0,2	0,2	0,1	1,5	0,2	-12%

Source: UNCTAD (2017)³⁵

DISCLAIMER AND MAIN MESSAGE: The performances illustrated in the table above refer to the whole economy in each country, and are biased by factors such as the diversification of the country's economy and the geographical dimension of the countries. They also refer only to a portion of investments, with domestic investments being also extremely relevant for our analysis. As such, the data in the table above should be used carefully for the purpose of our analysis. All this taken into account, the main message emerging out of this illustration is that private investments are an asset to sustain the Blue Growth across the Black Sea region in the long term. Even in countries where private investments are limited (if compared to the overall regional performance), in fact, the resources available are in the range of billions. National average volumes are comparable to the resources of individual financing institutions in the region.

2.4 Strategic use of public funds can trigger private investments but requires new approaches

The availability of such a wide range of funding and financing resources, paradoxically, turns into a challenge for individual enterprises and stakeholders looking for financial support, as they easily get lost in a range of different and often uncoordinated streams. Through time, also, they evolve towards new political priorities and might not ensure the long-term sustainability which is essential for ensuring stable socio-economic impacts. Further details can be provided under the current discussion of the EU Proposed Budget (EC 2018³⁶).

Greater information on the availability of such resources is certainly helpful to have an overview of the available financial resources across the Black Sea, but it might also most likely increase the level of confusion for those final "beneficiaries" (i.e. the local fishermen association or the tourism operators in a certain region, struggling to access to the much needed resources to change their business models or adapt specific technologies to their own needs, or even more simply and most likely not in position to understand how to address the challenges they are facing).

In the absence of a general framework for strategic development priorities in the region, the current investments might end up in infrastructures, projects and technological developments which would generate financial returns, but may not ensure long-term sustainability (financial, economic, social and environmental) for the Blue Growth in the Black Sea.

Public funds could be used as a leverage to trigger the interest of venture capitalists and other regional and international investors, but this approach would require a stronger coordination and longer-term visions for the available streams of public resources. Such coordination and long-term vision can be ensured by a mechanism that would allow on the one hand to provide sufficient confidence to private investors, while on the other hand would act in the framework of shared policy goals for the Blue Growth across the Black Sea.

35 <http://www.unctad.org/en/Pages/DIAE/World%20Investment%20Report/Annex-Tables.aspx>

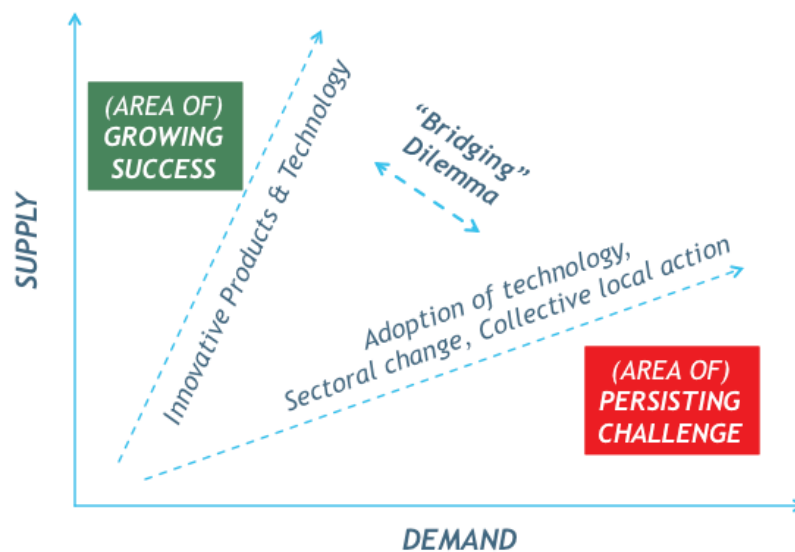
36 https://ec.europa.eu/commission/publications/factsheets-long-term-budget-proposals_en

3. The challenge(s) in using finance to foster local adaptation

As briefly described earlier (Chapter 1), the analysis emerging from the BE “Fiches” suggest a range of challenges for the Black Sea to adopt innovation and embrace strategic change to be more competitive, sustainable (environmentally as well as socio-economically) and resilient Blue Growth through time. A general argument in Public Policy (OECD, 2011³⁷) is that, in the absence of market capacity to embrace change (often expressed as “market failures”), performances can be boosted by “increasing the productivity of public spending, through innovation, in areas of social demand” (ibid. p. 10).

Nevertheless, even public policy seems to face relevant challenges when confronted to the support of innovation uptake in highly fragmented sectors, such as those relevant large sectors in the Blue Economy (coastal tourism, fisheries, etc.). The mechanisms used by public funding (R&D financing) and private investments (e.g. incubators/accelerators) seem to privilege a focus on boosting innovation supply (new products and technologies) rather than supporting the demand for innovation and the market capacity to adopt it. As a consequence, there is a limited impact of public funding in boosting adoption of technology and strategic change (CEPS 2015³⁸, EU-SPRI 2017³⁹) on the demand-side of innovation (i.e. the ecosystems of small and micro enterprises which characterise relevant BE sectors).

Fig. 3.1. Financial support to supply and demand in the BE innovation market



Source: Facility

In the absence of a systematic literature on this matter, some anecdotal evidence can be used to exemplify such challenges – for example with respect to Horizon 2020, the main EU fund aimed at boosting R&D across and beyond the EU including the Black Sea. The example is interesting as this is a largely successful EU initiative, driving innovation through a number of highly competitive projects being awarded through time (DG RTD, 2015⁴⁰). Nevertheless, if we look at the type of initiatives and projects boosted by the fund, we understand how the initiative mainly (and importantly) supports the supply of innovation, namely by boosting of new technologies and products through the funding of joint partnership of researchers and entrepreneurs

37 https://read.oecd-ilibrary.org/science-and-technology/demand-side-innovation-policies_9789264098886-en#page11

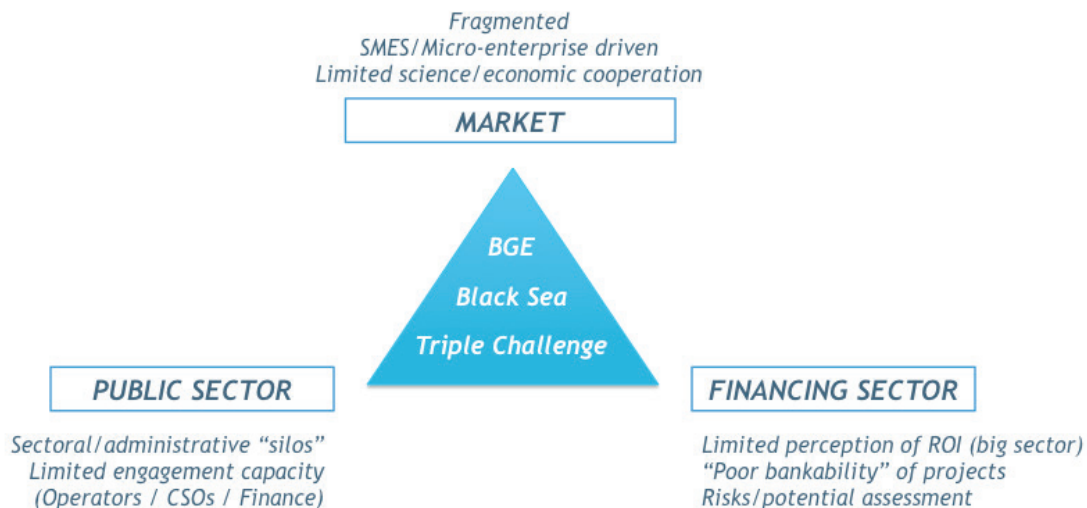
38 <https://www.ceps.eu/system/files/IEForum12015.pdf>

39 <http://euspri-vienna2017.org/wp-content/uploads/2016/12/2017-Eu-SPRI-Call-for-Papers-final.pdf>

40 https://www.ffg.at/sites/default/files/downloads/page/horizon_2020_first_results_1.pdf

across multiple countries (ibid. p. 36-40). This is a particular challenge for the Black Sea, where the ability of BE sectors in adopting innovation and strategic change is limited due to a “triple challenge” in the market, the public sector and the financing system.

Fig. 3.2. Triple challenge in boosting Blue Growth in the Black Sea



Source: Facility

The challenges in boosting the adoption of innovation and structural change in strategic sectors for Blue Growth in the Black Sea are three-fold:

- *Markets in the Blue Economy in the region are extremely fragmented*, not only within each sector due to the proliferation of small and micro enterprises (as often in other European seabasins), but also due to fragmentation and differences in market features, capacities in fostering innovation and research cooperation, as well as diverse institutional settings across EU and non-EU countries (more than in other European seabasin);
- *Public Sector bodies are also facing major challenges*, due to a “compartmentalisation” of sectoral Ministries, often acting as separated “silos” and often lacking of experience in (and structured for) cross-sectoral cooperation, a recent history in the engagement with local socio-economic stakeholders and an often limited capacity of Local Authorities, although with notable differences across countries in the region;
- *Financing Sector institutions are generally reluctant to invest strategically* in the BE sectors, given the premises of a fragmented and short-term market with lack of ability in demonstrating concrete returns of investments, and local authorities having poor experience in acting as intermediary bodies – through both competences and guarantees.

Studies delivered in the aftermath of the financial crisis show that “short-term companies attracted short-term investors (bringing with them a whole new set of performance pressures on executives) and that the financial and strategic performance of these companies was more volatile – and riskier – than that of the long-termers” (Harvard, 2012⁴¹). The interplay of the three abovementioned challenges result in a general

lack of any (mid-to-) long-term vision for the Blue Economy across the Black Sea, and often in each Country, resulting in lack of strategic (mid-to-) long-term financial support. To avoid the failure of Blue Growth across the Black Sea region, longer-term support and visions should be delivered and effective financing mechanisms should be put in place to sustain such visions.

4. A financing mechanism for sustainable Blue Growth in the Black Sea

The Black Sea has a number of potentials and needs to be addressed to fully exploit a sustainable Blue Growth across the region (Chapter 1). Sustainable stream of financing sources is essential to exploit its potentials and fulfil its needs. Nevertheless, the multiple streams of public and private financing currently existing are too fragmented and lack of the coordination necessary to trigger effective sustainable growth in the seabasin (Chapter 2). Furthermore, while funding the promotion of new technologies or products has been generally successful in the recent past across EU sea-basins, there seems to be a persisting challenge in fostering strategic change and technological adaptation across economic operators (Chapter 3).

In this chapter, we suggest the possible feature of a financing mechanism that could overcome current limitations so to: i) provide greater coordination amongst existing financial streams towards shared local and regional priorities; ii) act as a catalyst to leverage additional private investments, and ii) foster strategic change for local actors across the Black Sea. The proposal is intended as a basis for further discussion with other actors supporting sustainable Blue Growth in the Black Sea.

4.1 Blending different financial sources in a “fund of funds” (as a first step)

An interesting practice, for the purpose of this paper, is that of intermediary bodies managing a variety of complementary financing sources (technically known as a “fund of funds” and existing for example for EU funds in Romania and Bulgaria⁴²). The European Investment Bank (EIB), for example, describes the use of such mechanisms in relation with the European Structural Innovation Funds (ESIF) as such: “EU Member States receive funding under the ESIF have a national body known as the Managing Authority (MA) which oversees the use of the available resources; MAs use ESIF allocations and place them in Financial Intermediaries – for example Financing Institutions – through a Fund of Funds (FoF) [...] from which eligible projects can be financed” (EIB, 2018⁴³).

This mechanism is illustrated in the figure below, where the Managing Authority could be any Public Body responsible for public funds and related programmes, while the Fund of Funds could include a range of financial streams from other bodies (public and/or private) interested in maximising synergies and coordination to achieve shared goals.

42 <http://www.fmfib.bg/en/news/5-the-fund-of-funds-is-to-invest-over-bgn-1-billion-in-the-bulgarian-economy-through-financial-engineering> http://www.eif.org/what_we_do/resources/esif_regional_Romania/index.htm 58M€ 2014-2020

43 <http://www.eib.org/products/blending/esif/index.htm>

Fig. 4.1. Main structure in the management of funds through the EIB as an “intermediary”



Source: EIB website

A similar approach is taken by the European Bank of Reconstruction and Development (EBRD), that also attaches specific technical advice to the financial support provided. For example, by “putting a major focus on its SME activities, which combined the provision of finance with knowhow and advice, [and by] exploring ways to enhance vocational skills and youth inclusion through its work with SMEs across the region” (EBRD, 2017⁴⁴). Financial Intermediaries can therefore actively engage with local actors, so to identify the best ways through which providing financial and technical support to foster local competitiveness.

In the context of the Black Sea, a financing mechanism of this type could be envisaged with the multiple purposes of allowing the “blending” of existing financial streams – for example by the EU, BSEC and other international institutions as discussed in Chapter 2 – into a larger “pot” of financial support for Blue Growth in the Black Sea – from EU and non-EU countries. By doing so, the mechanism could ensure the coordination of loans and grants to support operators in strategic areas for Blue Growth. Some examples could be the Multi Donor Trust Funds (MDTF)⁴⁵ although at this stage we are not entering details on the actual specificities of such mechanism, as this would required a more in-depth analysis.

As a result, coordinated actions can be identified to support the adoption of innovation in the private sector and the strengthening of public sector capacity (Chapter 3), while fostering applied research in a range of strategic areas to support local business and policy needs. In short, the mechanism would allow to use the available financial streams in a coordinated and integrated manner across synergetic maritime and coastal activities at the local and (sub)regional levels (Chapter 1).

4.2 Leveraging the interest of private investors for co-financing (to ensure sustainability)

Another essential practice emerging in recent years is the role intermediary mechanisms acting as catalysts to leverage a wider range of investors (domestic and foreign, public and private) towards more long-term and sustainable goals. By ensuring a high level of technical expertise and allowing trust and peer-to-peer exchange with high-profile investors, such mechanisms are able to make the case for the financial returns of long-term regionally sustainable investments, as opposite to short-term profit investments. They do so for example by providing financial guarantees to overcome investment risks and the reluctance to invest in areas which are not perceived as fully “bankable” (for example investments in short-scale sustainable infrastructures, or the support to fragmented and SME-dense strategic Blue Economy sectors, where returns are

44 www.ebrd.com/cs/Satellite?c=Content&cid=1395257070981&d=Mobile&pagename=EBRD%2FContent%2FContentLayout

45 https://ec.europa.eu/europeaid/sites/devco/files/info-note-multidonor-trust-fund-eu-support-2003-2016_en.pdf

expected in the longer term).

Building on such experiences, a similar mechanism in the Black Sea would aim growingly shifting the available streams of investments towards areas with the higher sustainability for local operators and communities across the sea-basin, promoting at the same time cross-border collaborations. It would do so by attracting an increasingly larger amount of additional investors through time and fostering a cumulative “snow-ball” (or even better “blue wave”) effect towards a critical mass of sustainable private investments across the region. Again, examples of similar mechanisms could be the Multi Donor Trust Funds (MDTF)⁴⁶ but these could not be purely replicated for supporting the Blue Growth in the Black Sea, as leaner mechanisms could be more beneficial for the region.

4.3 Accelerate the uptake of innovation through expert advisor and active brokerage

A final interesting experience, also promoted in the context of the EU Blue Growth Strategy, is that of Accelerators⁴⁷ acting as brokers across local stakeholders (mostly economic operators, but also research and innovation actors and public authorities), with the aim of providing tailored support in a range of areas (marketing, dialogue with stakeholders, tailored technical assistance, etc.). The Neptune Accelerator⁴⁸ for example, is a network of clusters across the EU which uses a total of 2.8 million of EU Horizon 2020 “cascading” grants – therefore acting as a lower-level coordinator in the use of such resources through a range of actions. The mechanism only relies on EU funding and is mainly targeting the promotion of new technologies and services (supply-side discussed in Chapter 3), but is an interesting model to consider for the specific bottlenecks of the Black Sea.

4.4 A regional mechanism acting as a catalyst for Blue Growth to foster regional Role⁴⁹

Building on the experiences and practices described so far, a specific mechanism can be identified with the aim of i) fostering greater coordination across financing streams in the region, by ii) acting within a common regional vision and “mandate”, while iii) promoting the exchange and brokerage across various local and regional stakeholders to boost the adoption of innovation, though an iv) increasingly greater engagement with investors interested in profitable regional development.

The set-up of a *Blue Growth Accelerator for the Adoption of Innovation across the Black Sea (Accelerator)* would allow to overcome the current financial challenges, while addressing more effectively the needs and opportunities of operators, policy-makers and other stakeholders across the region. The figure below (Fig. 4.2) provides an overview of the main activities foreseen for such Accelerator in relation with: market operators, public bodies and the financing sectors.

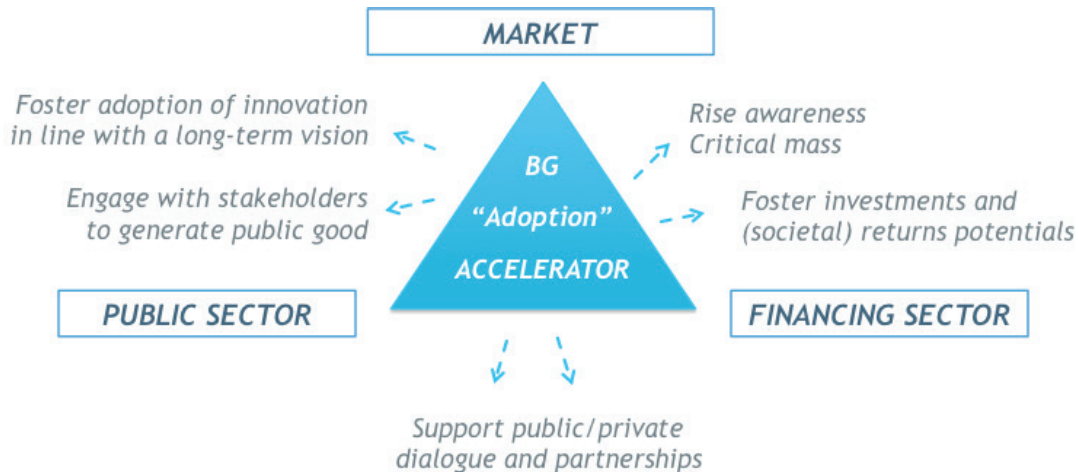
46 https://ec.europa.eu/europeaid/sites/devco/files/info-note-multidonor-trust-fund-eu-support-2003-2016_en.pdf

47 <https://ec.europa.eu/eipp/desktop/en/projects/project-217.html>

48 <http://www.neptune-project.eu/Neptune-Accelerator>

49 *Returns of Investments*

Fig. 4.2. Main actions and objectives for the mechanism in response to the challenges identified



Source: Facility

The main roles and characteristics we foresee are the followings:

- Differently from the more common “supply side” Accelerators (Chapter 3), that focus on the supply side of innovation and technological development, this proposed mechanism would aim at *boosting regional adaptation and capacity – therefore supporting the demand of innovation*.
- *Its goal would be to support the adoption of innovative business models and technologies across the region, as well as a stronger cooperation between businesses, research and other operators.*
- Acting as an intermediary body at the regional level, the Accelerator would not only *allow to “blend” different financial resources – by using public funds as guarantees to attract private mid-long term investments – but also act as a “broker” and allow greater dialogue between public bodies and financing institutions (EIB model) at the regional level, as well as sectoral dialogue at the local and (sub) regional level.*
- *It would discuss with larger funds and investors how to foster cooperation towards long-term sustainable returns (e.g. by offering guarantees for certain possible short-term risks) and will directly targeting SMEs and micro enterprise to support their innovation through technical advice towards the achievement of public goods (EBRD model).*
- *The mechanism may initially rely on public funding (grants) but will have to rapidly and increasingly develop its own business model on how to achieve self-sustainability through the engagement with private investors acting in the region.*
- *Overall aim of the Accelerator will be therefore to foster the financial, socio-economic and environmental sustainability for the Blue Growth in the Black Sea, acting in line with the overall policy vision as emerging from the support of the facility, while remaining independent, with a permanent control on equity.*

The mechanism could be set-up in the form of a legal entity with public ownership leveraging on public and private finance, to ensure returns of investments in the framework of a long term sustainable Blue Growth in the Black Sea.

Chapter 2

Blue Growth as a tool for sustainable fisheries management of threatened fisheries resources; A case study of the spiny lobster fishery off Aegean Sea.

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Abstract

The spiny lobster is an ecologically important species and an important fishery resource. It is listed among the IUCN Red List of threatened species, classified as Vulnerable. Also, it is a priority conservation species throughout in its range. The spiny lobster was known from Scotland to the Mediterranean and east to Greece but now is rare. Fisheries using nets, creels and diving have reduced numbers to remnant populations. It is estimated that throughout its range the populations have experienced a decline of 30-50%. Recent data from F.A.O suggest that the fishing pressure was increased, but Marine Protected Areas are successful at enhancing stocks. Postlarvae have been known to settle in holes in shallow water but habitats and behaviour of juveniles and adults are otherwise poorly known. Generally, adults dwell in rocky and coralliogenous habitats, but numerous studies suggesting that spiny lobsters may have wider substrate preferences than previously thought. Although observations of spiny lobsters in Greece go back 2000 years to Aristotle, a detailed understanding of the species habitat, biology and fishery in eastern Mediterranean and Greek waters is very limited. There are only a handful of published available data from previous studies dating from 1938, but all of them are sporadic. Furthermore, there is no national monitoring plan, though some surveys that were taking place in Aegean Sea most of them are referring on the species presence in various regions across Aegean Sea or on general information on the spiny lobster fishery. The associated ecosystems support an important biodiversity with threatened, economically important and protected species such as the red coral, gorgonians, groupers, sponges and the triton. Furthermore, some of the spiny lobster habitats are listed among the vulnerable EU marine habitats and almost all of them offer many different services, besides fisheries, to humans. These include, amongst others, recreational and tourism services, ecological and biodiversity services -since they are biodiversity hotspots. Over and above, these ecosystems are heavily impacted by many threats like fishing -directly and indirectly (e.g. ghost fishing), habitat degradation, pollution, alien and invasive species (e.g. Dodecanese, south Aegean Sea), and climate change. The EU developed a policy background on marine environmental protection and ecosystem restoration. This policy has strong "tools" like the EU Habitat Directive and the EU Biodiversity Strategy, EU Marine Strategy Framework Directive, the Barcelona Convention and the Paris agreement on climate change and its impacts on the environment and on human societies. The Barcelona Convention poses specific legal and policy framework on: (i) Natural marine and coastal resources and (ii) Protection of the marine environment, always taking into account the human factor and relative actions and activities that secure its welfare. Important gaps are occurring, especially in biodiversity, in marine ecosystems and habitats and nowadays in fisheries management that need to be re-evaluated in modern approaches like ecosystem-based which ensure the sustainability of ecosystem services.

Keywords

Spiny lobster, threatened species, fisheries management, Blue Growth, Aegean Sea

Introduction

The European spiny lobster *Palinurus elephas* (Fabricius, 1787), spiny lobster thereafter, is one of the three *Palinurus* species inhabiting the Mediterranean and adjacent Atlantic waters- *P. elephas*, *P. mauritanicus* and *P. charlestoni*, with both morphological and genetical (mDNA) differences being present (Groeneveld et al., 2013). All three species are exploited and included at the IUCN Red list of Threatened Species (Table 1).

Table 1: Species of Genus *Palinurus* inhabiting Atlantic and Mediterranean waters which are included at the Red List.

SPECIES	STATUS	JUSTIFICATION	REFERENCE
<i>Palinurus charlestoni</i>	NEAR THREATENED	Limited habitat use. Continuous overfishing lead to the decline of mature individuals.	Cockcroft <i>et al.</i> , 2011b
<i>Palinurus elephas</i>	VUNERABLE	There is an important population decline, with ongoing trends, at the rate of 30-50%	Goñi, 2014
<i>Palinurus mauritanicus</i>	LEAST CONCERN	Populations suffered serious declines, some resilience seems to be occurring	Cockcroft <i>et al.</i> , 2011a

P. elephas found across Mediterranean Sea, excluding Levantine Sea, to the east Atlantic from North Africa to Scotland, UK (Hebrides and Orkney Isles) (Holthuis 1991). It is the only spiny lobster species off Eastern Mediterranean Sea, dwelling in shallow waters to 200m, commonly found in hard substrates (Groeneveld et al., 2013). Spiny lobster is classified from IUCN as “Vulnerable” mainly due to its continuous overfishing (Goñi, 2014). The relative fisheries data are scarce and usually local or regional, making it unclear when fishermen began to fish beyond sustainable limits, though that non-selective netting is contributing negatively. *P. elephas* is one species that was harvested for centuries as far as Ancient Greece. Nowadays, mainly in the Mediterranean countries, the first sale price of the species might get as high as 120 €/kg but, despite its huge economic value, European spiny lobster supports only a peripheral fishery and it is considered as a bycatch species for more than 100 finfish fisheries (Goñi and Latrouite 2005; Groeneveld *et al.*, 2013). There are only a few and sparse available data regarding the spiny lobster fishery at Aegean Sea. In Greek Aegean coasts lobsters (*P. elephas*, *Scyllarides latus* and *Homarus gammarus*) are considered as delicacy and are highly priced (30-90 €/kg) (Kampouris, unpublished data.). All species are considered as bycatch for an unknown number of artisanal vessels. Till the early 70s the fishery was conducted with primitive gears and tools (Moraitopoulou-Kasimati, 1973). Hellenic spiny lobster fishery has the same issues as most of Mediterranean fisheries. Most of individuals are sold directly to consumers, hotels or restaurants and taverns. Though that monitoring, and management plans are lacking, there are some specific fishery restrictions that concern all the lobster (spiny, clawed and slipper lobsters) species in general. These are the following: (i) fishing is prohibited from 1 September to 31 December, (ii) the minimum landing size is 90mm of carapace length or 240mm of body length, (iii) the minimum landing weigh is 420g and, (iv) the prohibition of landing berried females (Goñi and Latrouite, 2005).

Methods & Materials

The present paper presents a preliminary assessment on the EU policies, conventions, agreements and strategies such as the Blue Growth in relation to threatened species protection, conservation and potential restoration with examples from Aegean Sea and the spiny lobster fishery.

The new concepts in fisheries management rely on the “ecosystem based” approach rather to “single-species”, yet it is acknowledged that a species-specific background basic knowledge on biological and ecological requirements is essential. Furthermore, scientists and policy makers need to prioritize the protection, conservation and monitoring efforts on keystone species that can act as indicators of “good environmental status” as posed by the EU Habitats Directive and the Marine Strategy Framework Directive. Also, the active stakeholders’ involvement such as fishermen is a must, since they have a strong ecological knowledge and experience in many relative aspects (e.g. Heyman and Granados-Dieseldorff, 2012; DeCelles et al., 2017). Finally, a multidisciplinary approach is necessary, considering fisheries management, ecology, economy and society.

Blue Growth is an EU long-term strategy that sets specific priorities on (i) the development of sectors with an important potential, (ii) on the knowledge and legal certainty improvement and (iii) tailor-made measures regarding sea basin strategies, all of which are fitting well with the fisheries and aquaculture in Mediterranean Sea, since (a) fisheries and aquaculture are acknowledged as sectors with potential of development, if well managed, (b) the integration of fisheries data collection from local and national systems into a coherent whole and (c) the Mediterranean basin strategy that sets priorities on the protection of the marine environment by development of Marine Protected Areas and the stocks safeguard taking into account the fishers welfare. The Barcelona and OSPAR conventions, signed by European countries including Greece, set specific priorities on the insurance of sustainable management regarding marine resources. Also, the EU Common Fisheries policy prioritizes the conservation of marine resources and the warranty of profitable fishing sector, by a wider stakeholders’ -like fishers, engagement.

The lobster fishery in Greek waters is regulated by generic regulations, as stated above, but there are many uncertainties and generalizations. For instance, although lobster fishing is allowed from May to July, the use of creels is prohibited. Moreover, the lobster fishery is mainly artisanal (onshore), thus lobster landings are not obliged to be reported and these lobsters and especially spiny lobster are not considered as targeted species.

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Discussion

Spiny lobsters -and lobsters in general, support important independent or multispecies fisheries globally and therefore, they have an important contribution on the ecosystem’s function, structure and dynamics. Spiny lobsters as *P. elephas* are identified as keystone species (Eddy *et al.*, 2014) in many ecosystems worldwide. Noteworthy, is that *P. elephas* and its habitat are priority conservation features in many Mediterranean and EU counties. The Barcelona and OSPAR conventions, signed by European countries including Greece, set specific priorities on the insurance of sustainable management regarding marine resources. Also, the EU Com-

mon Fisheries policy prioritizes the conservation of marine resources and the warranty of profitable fishing sector, by a wider stakeholders' -like fishers, engagement. The associated ecosystems support an important biodiversity with threatened, economically important and protected species such the red coral, gorgonians, groupers, sponges and the triton (*Charonia tritonis*). Furthermore, some of the spiny lobster habitats are listed among the threatened EU marine habitats (Gubbay *et al.*, 2016). Over and above, these ecosystems are heavily impacted by many threats like fishing -directly and indirectly (e.g. ghost fishing), habitat degradation, pollution, alien and invasive species (e.g. Dodecanese, south Aegean Sea, Corsini-Foka *et al.*, 2017 and references within) and of course climate change whose impacts are rather unknown either in terms of biodiversity or on fisheries management.

In Greece, thus far, there is sporadic, limited (Sini *et al.*, 2017) and/or species-specific knowledge and information, with an important emphasis on finfish fishery. Even when important and useful studies were conducted there are limited data on decapod fishery, mainly regarding the Norway lobster, and most of the times there are no data regarding the spiny lobster fishery biology (Tsikliras *et al.*, 2013). Furthermore, the national legislation is rather complicated -or too generalized, creating great uncertainties on the fishery management effectiveness (Petza *et al.*, 2017). European spiny lobster fishery requires specific regulations and management. First and foremost, the spiny lobster and lobsters in general should be considered as targeted species, at least at Aegean Sea. The species' protection is being acknowledged by the fishers, thus scientists and policy makers should proceed with wide engagement on fishery management implementation. Although within the European and Mediterranean countries the regulations of the spiny lobster fishery are not unified, there are specific conventions, policies and strategies that can form a coherent "umbrella" for the lobster fishery implementation on tree-axial basis, (i) the species' and habitats' regional conservation and protection, (ii) the sustainable fishery management, having in mind the livelihoods and welfare, with active fishermen and other stake holders involvement and (iii) the dissemination of recent trends in fisheries sciences, all of which are top priorities of the European Blue Growth strategy.

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Chapter 3

‘Blue Biotechnology Master for a Blue Career’ (BBMBC) project: Developing highly-skilled professionals for the cutting-edge blue biotechnology sector

Andrew Kennedy, Press & Communication Officer at the Conference of Peripheral Maritime Regions

Abstract

This project’s first objective is to create an innovative Master’s degree that will allow students to swiftly enter the labour market once they have graduated. Secondly, the project aims to capitalise on this flagship project by develop similar Master’s degrees in partner universities or anywhere else in Europe.

The ‘Blue Biotechnology Master for a Blue Career’ (BBMBC) is a European project to create a Master’s degree in the cutting-edge sector of blue biotechnologies.

The Master’s degree also involves work-based training and placement opportunities that give students the chance to gain extensive experience in this competitive sector.

The marine biotechnology sector currently lacks scientists with both academic and practical knowledge, so this Masters will develop highly-skilled professionals who can take fill the gaps and gain employment.

Co-funded by the European Maritime and Fisheries Fund (EMFF) through the European Integrated Maritime Policy (IMP), this unique public-private partnership involves academic organisations and Small and Medium Sized Enterprises (SMEs) from France, Portugal, Spain and the United Kingdom.

Running from January 2017 to December 2018, the Master’s degree is being held at the project’s lead partner, the University of La Rochelle, based in Region Nouvelle-Aquitaine in France.

The university is working alongside the Atlantic Arc Commission (AAC) of the Conference of Peripheral Maritime Regions of Europe (CPMR), French company Valbiotis, Spain’s Universidad Católica de Valencia, the UK’s University of Stirling, UK company Xanthella, and Portuguese company CIIMAR.

The BBMBC project will create a completely new teaching programme focused on blue biotechnologies and dedicated to their application particularly in the health, nutrition and aquaculture domains.

The Master’s curriculum will be dedicated to graduate students and workers allowing them to gain expertise in the blue biotechnology field in 10 months. Thematic courses will be scheduled intensively on a weekly basis.

The academic sessions will be based on interactive workshops and conferences. All sessions, workshops and classes will be led by faculty members with years of experience and by industrialists willing to impart their knowledge.

As well as educational courses, work-linked training will take place during the course on industrially-relevant problems, combining practical approaches to the latest scientific knowledge and research.

From the beginning of this master's programme, each student will be associated with a project led by a blue biotechnology industrial partner and will be hosted in this structure for the duration of the apprenticeship or internship.

Objectives

This experimental project is aimed at enhancing the dialogue between European industries and academics in the Blue Biotechnology field. Industry and SMEs will play an active leading role in the design of the courses, share their experiences by coordinating and delivering courses, conferences, and by hosting students and participating in research projects.

This association should lead to the creation of an Atlantic European consortium specialised in the training of students and workers to a high level in applied blue biotechnologies.

The first objective is to allow students to swiftly enter the labour market once graduated. Secondly, the project aims at capitalising on this flagship project to develop new similar Master's degrees in the partner's universities or anywhere else in Europe.

The project will help raising awareness about blue careers in general, particularly in the blue biotechnology sector. To ensure sustainability, the aim is for the project to be replicated in other regional universities across Europe in the future.

The BBMBC project will involve:

A Master's Degree co-designed with the industry:

Companies involved in the blue biotechnology field from five different EU countries have helped design an internationally recognised curriculum which fulfils the needs of industries looking for highly skilled employees.

The objective was to establish students and workers in the blue biotechnology field require at Master II level. To achieve this, the project conducted a skills gap analysis in conjunction with its industrial partners.

In addition, academic partners identified a list of scientific knowledge and competencies to be acquired by the student. As a result, both academics and industrial partners contributed to the design of the syllabus for the Masters programme, ensuring it is up to date, comprehensive and will produce full qualified students who are ready to take up jobs in this exciting area of work.

Lifelong Learning Schemes:

Skilled workers or people seeking employment will have the opportunity to benefit from lifelong learning schemes and mentoring opportunities which will foster their prospects and progression. This will also strengthen connections between academia and the industry and will increase the sustainability of the project.

The University of La Rochelle is responsible for the implementation of the policies concerning work-linked training and lifelong learning. Regarding the apprenticeships, it will ensure coherence in the educational progress and the quality of the tutoring of the apprentices.

It will reach out and appeal to people in employment, making them aware of the benefits of retraining for the year, including the development of new skills, an opportunity to boost their confidence and self-esteem, and the chance to make themselves more appealing to employers in a fast-changing industry.

Workers could also choose to participate in some parts of the master programme (e.g. week-long) to strengthen their skills and knowledge.

The university will also gather a directory of Atlantic companies and laboratories working in the blue biotechnology field. This directory will be developed so that students can access a wide range of positions for apprenticeship and internship opportunities.

A job and internship dating meeting has already been organised to allow students and SMEs to meet their future collaborators. Each SME interested in the Masters programme was given a memento with all information needed to recruit students. An agreement pack has been prepared to inform students and SME's about their rights and obligations.

The Masters will be accessible for long life learning, so the University of La Rochelle has also contacted life-long learning organisations and informed employed workers of the programme content.

A Summer School:

A summer school is being organised at the University of La Rochelle and will give the students the opportunity to attend conferences and courses on blue biotechnologies.

The Summer School, which is being held at the end of June, aims to improve the understanding and practical skills of people involved in the Blue Biotechnology domain. The focused three-day period will allow in-depth study and immersion in a stimulating research environment.

The academic sessions will be based on interactive workshops and conferences. All sessions, workshops and classes will be led by faculty members from the University of La Rochelle with years of experience and by industrialists willing to impart their knowledge.

Career Prospects:

This course in blue biotechnologies offers a springboard for students' future. It offers exciting job opportunities in a wide variety of modern industries including Health, Nutrition and Aquaculture.

As well as educational courses, work-linked training will take place during the course on industrially-relevant problems, combining practical approaches to the latest scientific knowledge and research.

From the beginning of this master's programme, each student will be offered placement opportunities with a project led by a blue biotechnology industrial partner. They will be hosted in this structure for the duration of the apprenticeship or internship.

By giving students the chance to undertake work-related training with the industrial companies involved as partners in the Master's degree, the project is building relationships and connections that could lead to employment in the future. It is also preparing students for the workplace and giving them skills that they can take into their future working lives.

Transferability and feedback:

The aim is to communicate the goals, innovation and opportunities offered by the Master's degree to all project partners and to a larger audience to broaden the recruitment reach and to select the students that are best suited.

An accurate assessment of the Master's class will also be carried out. Given that the proposed educational programme is industry-oriented, it is important to gather the opinion of the partner SMEs once the students have completed the master programme.

Other European geographical areas where the implementation of this Master programme could have a positive impact in the training of professionals and/or the development of related industrial sectors, will be thoroughly analysed.

The knowledge gained throughout the project will be presented in a methodology brochure and may be published in a peer-reviewed article format for a pedagogic innovation journal, so that other academic institutions can benefit from this experience to implement similar industry-focused programmes.

To find out more about the 'Blue Biotechnology Master for a Blue Career' (BBMBC) project, visit the project website for information on the partners involved, the project's goals, upcoming events, and how to apply: <https://www.bbmbc.eu/>

Chapter 4

Blue Growth in the Black Sea: Challenges and Opportunities for Ukraine

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Abstract

The current state and role of coastal areas in the national economy were researched. Marine and maritime activities at national and regional levels were defined according to qualitative indicators such as innovativeness, competitiveness, employment, policy relevance and environmental sustainability. The main of the marine and maritime activities as being the most promising in Ukraine were identified. The links between the marine activities in Ukraine and strategies at national and regional levels were revealed.

Keywords

Blue Growth, Black Sea, Marine Activities, Association Agreement, Sustainability.

The concept of Blue Growth

In September 2012, the European Commission put forward a blue growth strategy for the EU. Elaborated in the context of the EU's Integrated Maritime Policy, the initiative focuses upon the potential of the EU's marine and maritime sectors to contribute to sustainable economic recovery in Europe, and in particular to create new jobs and foster innovation [1].

The Black Sea basin offers a lot of opportunities for economic development, taking into account not only its environmental, geographical diversity, but also the great array of important regional players and stakeholders. The concepts of "Blue Economy" and "Blue Growth" have gradually become a familiar term in the states adjoining the Black Sea area, partially as a result of the efforts of the European Commission [2].

Blue Growth is a long-term strategy to support sustainable growth in the marine and maritime sectors as a whole. The strategy consists of the following components:

- Develop the sectors that have a high potential for sustainable jobs and growth.
- Essential components to provide knowledge, legal certainty and security in the blue economy.
- Sea basic strategies to ensure tailor-made measures and to foster cooperation between countries [3].

The Black Sea is a strategically important region for Ukraine. Economic sectors active on or near the sea are interacting with other sectors in complex value chains. The list of sectors relevant from a maritime perspective is very wide. Shipping and ports, environmental monitoring, coastal and maritime tourism, marine aquaculture, marine biotechnology, protection of habitats, seabed mining are the main sectors that have a

high potential for sustainable growth. Specific features of the Black Sea make it vulnerable to disturbances to its environment and ecosystems. Therefore, the major sectoral focus of the initiatives has been on the environment. This reflects a strong historical concern over the environmental health of the Black Sea and the resultant impacts on tourism and biodiversity in general.

It is very important to define priorities of development for seashore regions correctly, in order to use existent potential effectively. It is necessary to take into account such indexes as: Sustainability, Competitiveness, Policy relevance, Innovativeness, Employment, Spill-over effects. To use a SWOT analysis, an internal comparison, considered strengths and weaknesses of the most relevant and promising activities within the country of reference in order to identify possible drivers and bottlenecks to economic growth [4].

The main challenges in the Black Sea Region

The potential of the Blue Growth development is limited by series of challenges.

The lack of knowledge. More knowledge on biophysical characteristics, carrying capacity and synergies or trade-offs between sea-related sectors to ensure an efficient and sustainable management of different activities is needed.

An assessment of the value of marine resources and their corresponding ecosystem services. Not only marine living resources are poorly measured and understood, they are also rarely valued properly. Measuring the Blue Economy gives a country a first-order understanding of the economic importance of the sea. For example, sometimes the value of fisheries and renewable marine resources were much greater than that of the minerals [5].

The lack of quality information and communication technologies. Communication between researcher and industry still remains a weak point;

The low institutional capacity of public authorities and stakeholders. It is the lack of institutional capacity that slows down reforms even when political leaders push them. The government is good at planning, but poor at implementation because of low project culture and — most importantly — the lack of execution, as sometimes there are no people to implement the plans. “Good governance” is the basis and ultimate objective for institutional capacity building. Good governance builds trust and social capital. Related to this, there is a lack of coherence between national maritime policies within the Black Sea, resulting in widely differing approaches to spatial planning, business development and environmental protection.

The lack of funding. Missing knowledge and practice with funding instrument. To ensuring appropriate engagement by the stakeholders in initiatives requires financial resources. Support for research platforms involving public, private and academic partners. Policy approaches are required that both free up public finance for blue growth, as well as allowing the development of more flexible financial mechanisms that might be used to foster investments in more innovative activities [6].

The lack of highly qualified and skilled professionals. Many Blue Economy sectors are experiencing difficulties in finding the right employees – and most sectors expect these difficulties to continue in the near future. This is due to: skill gap between education offer and labor market needs, especially with regards to technological developments and innovation; lack of communication and cooperation between education and industry; lack of attractiveness and awareness of career opportunities in the blue economy [7].

That is why cooperation and concerted actions of the all stakeholders: Households, local communities, Public Authorities, Business and Finance structures are required.

Facilitation at a sea basin level of public – private partnerships have added value across different sectoral areas. In particular, consideration of government supports of major tourism projects that have the potential

to stimulate further local development.

Assisting interregional collaborative processes among private, research and public sectors, aimed at exploiting research results, developing technological and innovative capacities, creating, and exploiting knowledge.

Stimulating the development of viable maritime clusters and research networks, as well as the formulation of research strategies to develop blue bio-technologies and spur innovation in transport, shipbuilding, blue energy, capture fisheries and aquaculture; and developing and diversifying tourism products.

Blue economy is an essential driver for Ukraine welfare and prosperity.

Blue Growth promotes an integrated approach, away from more sector-oriented approaches. Maritime spatial planners need to be aware of the potential of such synergies. They can play an essential role in promoting such an integrated approach, and facilitate exchanges between sector stakeholders that would otherwise not take place.

Opportunities for Ukraine

After signing **Association Agreement between the European Union** and its Member States, as one part and **Ukraine**, as the other part, new opportunities for the development of the marine sector have been created. Ukraine is indeed eager to apply European Union's experiences in this regard, and thrives to achieve the full compatibility with the best European policies and practices. It will offer Ukraine a framework for modernizing its trade relations and for economic development by an extensive harmonization of laws, norms and regulations in various sectors, creating the conditions for aligning key sectors of the Ukraine economy to EU standards.

The **Strategy for Sustainable development "Ukraine 2020"** defines the purpose, roadmap, priority and indicators of the appropriate defense, socio-economic, organizational, political and legal conditions for the establishment and development of Ukraine. The purpose of reforms is to achieve the European standards of life and decent place in the world for Ukraine. The Strategy includes 62 reforms. 8 reforms and 2 programs are the top priorities among them. The Strategy also defines 25 key indicators of successful state development [8]. Development, Security, Responsibility and Pride were defined as the main vectors of Ukraine.

The next step to support the Government's wide-ranging efforts is to implement the **Medium-Term Plan Government Priority Action Plan to 2020**, which has been developed in accordance with the Ukrainian Cabinet of Ministers' Activities Programme. The key to ensuring sustainable economic growth and achieving European standards of living is the medium-term planning of consistent and comprehensive reforms. The Medium-Term Plan defines the main objectives and areas of Government activity for 2017-2020 and will form the basis for medium-term budget planning, the Government's annual operational planning, the strategic plans of ministries and other central executive bodies, the introduction of expert positions to deal with reforms, the legal framework for reforms and will serve as a tool for focusing donor assistance.

The Medium-Term Plan Government Priority Action Plan is focused on citizens and all aspects of their daily work and life and, as such, defines the following objectives [9]:

Economic Growth - To be achieved by creating a favourable investment climate and maintaining macroeconomic stability by continuing fiscal consolidation.

Effective governance - To be achieved as a result of the public administration reform, decentralization and public finance reform.

Human capital development - Including healthcare and education reforms, improvement of the social safety

net, and the development of culture and sport.

The Rule of law and the fight against corruption - To be achieved by supporting effective action by anti-corruption institutions by ensuring equal access to justice and by providing effective protection of property rights.

Security and defense - Including matters of state sovereignty and territorial integrity protection, as well as the most important aspects of public safety.

The implementation of the Medium-Term Government Priority Action Plan to 2020 will create a supportive regulatory environment, in particular for provision of development of small and medium enterprises and ensuring the development of public-private partnership.

It will lead to the Creation of new jobs, improvement of the business climate and development of small and medium businesses; reduction of the number of administrative barriers for businesses, harmonization of the technical regulation system with the European one.

Small and medium enterprises in the Black Sea Region play an important role as key engines for economic growth; provide more than half of all employment and more than a third of gross value added. The easiness of doing business is a way of bringing investment in the economy.

Ukraine is ranked 76th among 190 economies in the ease of doing business, according to the latest World Bank annual ratings. The rank of Ukraine improved to 76 in 2017 from 80 in 2016. Ease of Doing Business in Ukraine averaged 116.50 from 2008 until 2017, reaching an all-time low of 152 in 2011 and a record high of 76 in 2017. "To rise in the overall ranking of Ukraine allowed successes in four of them. So the breakthrough this year was on the indicator "Dealing with Construction", where our country grew by 105 points (from 140 to 35). In the category of "Paying Taxes" Ukraine increased by 41 points (from 84 to 43), due to the reduction and unification of the Unified Social contribution. In addition, the country advanced on the indicators "Getting Electricity" (from 130 to 128) and "Resolving insolvency" (from 150 to 149) [10].

Blue Growth is an important element of the Integrated Maritime Policy (IMP), which is a cross-sectoral policy that seeks to provide a more coherent approach to maritime issues, with increased coordination between different ministries, with the public authorities and the private sector, with regions and with other countries.

Blue growth is very important for Ukraine. It is smart regulation, access to finance, knowledge and technology, access to markets, entrepreneurship.

The Black Sea Region can make a significant contribution to blue growth. At the same time, the environmental and ecological stability of marine ecosystem needs to be safeguarded for the future generations.

Conclusion

The Black Sea region can make a significant contribution to blue growth. It is very important for Ukraine. Blue economy is an essential driver of economic and social development. Maritime economic activities need to be inclusive – providing employment opportunities and promoting full participation – especially from local and coastal populations.

Blue Growth will not be realized by itself. It requires adequate support from local, regional, national, EU and international-level policies. The authorities of our states have to contribute towards stimulating the emergence of the blue economy, while identifying the suitable sectors that could benefit from this, in particular by promoting innovation, research and consolidating exchanges of good practices with their neighbours. At regional level more effort would be needed to provide assistance and support on improving investment ability of projects through dedicated advisory services for Blue Growth.

Smart regulation, access to finance, knowledge and technology, access to markets, entrepreneurship are Blue Growth support.

New opportunities for the development of the marine sector in Ukraine have been created.

But legislative playing field that provides the Blue Growth with adequate incentives and rules and use integrated coastal zone management, marine spatial planning and applying ecosystem approach is required. It is very important to develop economy without ecosystem losses. Therefore, sectoral monitoring should fully understand the economic, environmental and social impact of each sector on local and national level.

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Chapter 5

Connecting “Black Sea Blue Growth Value Chains” with Caspian Sea and East Med

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Abstract

The increasing importance of Black Sea in the energy sector is undoubted. The recently announced development of the New Silk Road, the increasing importance of the pipelines that connect the Black Sea with the Balkan Peninsula and Western Europe, provide the framework of development priorities in the area, while the economies of the neighboring countries seem to follow an uptrend. On the other hand, EU initiatives in the field of Blue Growth provide financial opportunities of the parties involved. The scope of the paper is the analysis of the value chains that can be created in the Black Sea Region as the connecting area of the Caspian Markets on one hand and the East Med countries on the other. The neighboring countries can benefit directly or indirectly of the expansion of business in blue growth fields, only if synergies will be developed among the most competitive ones or among those that will be prepared to face the increasing opportunities for growth. Economic stakeholders of the area should realize that they must be involved in the blue growth sectors under a well-defined strategy which emphasizes in their participation in the relevant value chains. Collective bodies like Chambers of Commerce, export organizations and business clusters must contribute to enable individual companies and stakeholders in the growing process. Furthermore, the paper examines and analyzes the terms of “value chain” as a factor in the analysis of developmental characteristics of the Black Sea, as well as the role of value chains in the global investment context.

Developing – Connecting Global Value Chains (GVCs)

Connecting countries is not a simple import – export issue. It’s not only the Current Account surplus or deficit, or the general effect on the BoP. It’s the multiplier effect that the Added Value creates.

Multiplier effect affects many more economic factors, i.e. employment, consumption, integration, technology boosting, and an overall effect on GDP.

The simple example in Figure 1 illustrates that country A exports USD 100 of goods, produced entirely in A, to country B, which further processes them before exporting them to C where they are consumed. B adds value of USD 10 to the goods and so exports USD 110 to C. Conventional measures of trade show total global exports and imports of USD 210 but only USD 110 of value-added has been generated in their production. Conventional measures also show that C has a trade deficit of USD 110 with B, and no trade at all with A, despite the fact that A is the chief beneficiary of C’s consumption. By tracking flows of value added, one can recalculate C’s trade deficit with B on the basis of the value-added it “purchases” from B as final demand. This reduces

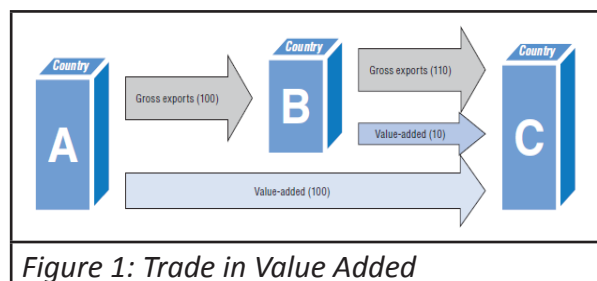


Figure 1: Trade in Value Added

By tracking flows of value added, one can recalculate C’s trade deficit with B on the basis of the value-added it “purchases” from B as final demand. This reduces

its deficit with B to USD 10. If the same approach is applied to A's value added, C will have a deficit of USD 100 with A. C's overall trade deficit with the world remains at USD 110¹. What has changed is its bilateral positions. The example provides solid understanding on how GVCs can be enabled in international trade. Companies (no matter the size) can be enabled in GVCs contributing in BoP surplus which leads to sustainable development.

International Investments are considered as one of the building blocks of the GVCs, as multinationals enterprises (both public driven and private) continuously shift resources through borders and restructure their activities geographically through International Investments, placements, bilateral and multilateral agreements, etc. Moreover, governments (especially China) have become increasingly important actors in international investments (based on bilateral and multilateral agreements), creating and expanding their GVCs abroad. These structural changes in international economic context are considered as the new phase of globalization and certainly have to be considered by appropriate policies on a local (member states), regional (Black Sea) and broader (EU) level.

As a Global, Value Chain is a full range of firm's activities from the conception of the idea for a product to the end user, all the sub activities like design, production, marketing, distribution and customer support are parts of the "chain". What is more important for firms that don't have the capacity (technically, financially, institutionally, etc) to be part of all the mentioned stages, any firm may use its competitive advantage in order to become part of this chain in only one or two sub tasks, i.e. being part of the transportation, branding, logistics, forwarding, etc. To this end, firms in the Black Sea region may benefit from the expansion of Chinese exporters (large scale corporations), becoming active trade partners in one or more stages. Otherwise, Chinese investors just struggle the local economic context, reducing the transferred sources (private and public benefit) to the growing economies that are supposed to benefit from the Chinese FDI.

Black Sea and the New Silk Road

It is in the Balkans and Black Sea region that the contemporary equivalents of the Silk Road on land (via Central Asia) and the maritime Silk Road (via the Indian Ocean and the eastern Mediterranean Sea) meet each other and connect to Europe.

A land route via the Black Sea region would provide China with a transport corridor to Europe that avoids areas that are part of, or militarily controlled by, Russia or the United States. It is to China's strategic benefit if it succeeds in decreasing its dependence on trade routes that can easily be disrupted by other great powers.

The greatest relevance of the Balkans peninsula at this time relates to the port of Piraeus in Greece, which is the main Mediterranean base of China's largest shipping company, COSCO Shipping. China's involvement in Piraeus may develop into a greater Chinese role in trade, finance and manufacturing throughout the Balkans and Central Europe. This would then further strengthen China's interest in developing the Black Sea region as a part of the China-Central Asia-Europe trade corridor.

Notable focus points for Chinese companies and the Chinese government in the Balkans and Black Sea region are port management in Greece, infrastructure construction in the Western Balkans and Turkey, agricultural production in Ukraine and the energy sector in Romania and Greece.

In addition, Chinese companies are also active in the region in telecommunication, manufacturing and banking. Two key countries in the region are Greece and Serbia. They provide China with footholds within the region from where it can build up its OBOR activities by way of a step-by-step approach.

China of course seems to be cautious not to antagonize Russia and to be taking into account Russian geopolitical sensitivities in the Black Sea region. Given their location, both Georgia and Ukraine could potentially be

1 *The case study is provided in OECD edition "Interconnected Economies Benefiting from Global Value Chains", Chapter 2 "Measuring Trade in Value Added (2013)"*

close diplomatic partners and hosts to major China-funded infrastructure projects.

The new Silk Road is being shaped not only by China but also by non-Chinese actors. By investing in infrastructure and facilitating east-west (across the Black Sea) and north-south (across the Balkans) corridors, regional actors can enhance their role in OBOR and stimulate engagement by China.

The formula used to stabilize Sino-Russian relations in Central Asia, by way of the Shanghai Cooperation Organization, could provide a starting point for a joint mechanism for the Black Sea region that involves regional countries as well as Russia, NATO and China. The European Union needs to signal clearly that it favours regional development and that it is open to cooperating with China to this end.

The Agenda of Blue Growth in Black Sea region

Blue Growth is one of EU's long-term strategies aiming at supporting sustainable growth in the marine and maritime sectors as a whole, in seven defined sea basins that EU member States maintain important interests. The strategic concept supports both the tangible short-term targets (20/20/20 EU strategy²), as well as the long term strategic targets for EU sustainable growth. Seas and oceans (Adriatic and Ionian Seas, Arctic Ocean, Atlantic Ocean, Baltic Sea, Black Sea, Mediterranean Sea & North Sea) are drivers for the European economy and have great potential for innovation and growth.

Blue economy in the Black Sea consists of the following main blue sectors³ which reflect the potential capacity of the six neighboring countries⁴ that are directly affected:

- Ship building – Ship repairing
- Fisheries
- Transport
- Coastal & Maritime Tourism

The main priorities that are based on the aforementioned sectors have been set during stakeholders' conferences and discussions, with the participation and encouragement of the European Commission. These priorities focus on the added value of the blue economy in the Black Sea region, bringing together private and public sector to cooperate on:

2 *The targets were set by EU leaders in 2007 and enacted in legislation in 2009. They are also headline targets of the Europe 2020 strategy for smart, sustainable and inclusive growth. The three key targets are: 20% cut in greenhouse gas emissions (from 1990 levels), 20% of EU energy from renewables and 20% improvement in energy efficiency.*

3 *The Blue Growth Sectors are: aquaculture, coastal tourism, marine biotechnology, ocean energy, seabed mining, but the "blue economy" consists more as a wider business area that further exploits states competitive advantages.*

4 *Although only six countries are referred as Black Sea countries, beneficial partners regarding Black Sea funds include the following areas:*

- *Bulgaria: NUTS II regions of Severoiztochen and Yugoiztochen*
- *Greece: NUTS II regions of Kentriki Makedonia, Anatoliki Makedonia and Thraki*
- *Romania: NUTS II region of South-East*
- *Turkey: NUTS II equivalent regions of Istanbul, Tekirdağ, Kocaeli, Zonguldak, Kastamonu, Samsun and Trabzon (More precisely: NUTS II equivalent regions of TR10 (İstanbul), TR21 (Tekirdağ, Edirne, Kırklareli), TR42 (Kocaeli, Sakarya, Düzce, Bolu, Yalova), TR81 (Zonguldak, Karabük, Bartın), TR82 (Kastamonu, Çankırı, Sinop), TR83 (Samsun, Tokat, Çorum, Amasya) and TR90 (Trabzon, Ordu, Giresun, Rize, Artvin, Gümüşhane)*
- *Ukraine: Odessa, Mykolaiv, Kherson, Zaporosh'ye and Donetsk Oblasts, Crimea Republic and Sevastopol*
- *Armenia, Georgia, R. Moldova: all regions*

- Destination development (tourism),
- Coastal and maritime tourism development (tourism),
- Charting the sea bed with the help of the research community (sea bed mining)
- Maritime business endeavours funding and partnerships,
- Skills and competences identification to enable the marine/maritime workforce to apply new technologies,
- Use of the sea in a sustainable manner (environment)

European strategy and Blue Growth Initiative in the Black Sea is supported by certain EU funds that have been allocated to the area. Marine and maritime-related EU-funded projects have been implemented across various policy areas and are financed by various EU funds. More specifically, the Instrument for Pre-accession Assistance (IPA), the Horizon 2020 SME Instrument and the European Neighbourhood Instrument (ENI) provide financial support for actions in this region. The latter finances the Black Sea Basin Joint Operational Programme 2014-20, which aims to contribute to a stronger and sustainable economic and social development of the region. The programme's two specific objectives are "Promoting business and entrepreneurship (including tourism)" and "Environmental protection and reduction of marine litter".

The extensive supporting Programme must be expanded in terms of the priorities that have been recognised as of vital importance, in order to include the possible development plans (both short and long term) that have been set by the Chinese public and private sector, which gradually "invade" the Black Sea through the Caspian Sea. The development of Merchant Centers, Logistic Centers, Port infrastructure, Intermodal transportation, must become the agenda of the EU funding tools, in order businesses from the EU Black Sea side to benefit from their increasing participation in the GVCs that OBOR provides.

From "What you sell" to "what you do" - Opportunities and Threats for GVC development in Black Sea Region

The activities that a firm (global or regional) is involved in are nowadays much more important than what exactly this company may sell. The participation of the economic organizations in procedures and processes may add much more added value in the company, than investing in integrated production of a single or a series of products. A typical example is the way that s/w developers act, where they develop s/w codes without knowing the final product that will make use of their sub product. By participating in more GVCs, the s/w provider may become a multinational company, integrating devices (i.e. mobile phones, pcs, etc) that can be composed into final products in many other countries.

Similarly, the countries of the Black Sea region may be based on the tangible opportunities that EU provides regarding "Blue Growth" Initiative and encourage their companies to invest in know-how, so that they can be valuable parts of the Eastern (i.e. China) or Western (i.e. Germany, US, UK, etc) investors that provide the necessary capital but are not interested in the integrated business investment through OBOR corridor. Being in a GVC, the Black Sea region firms will be part of the investment process, increasing their competitiveness contributing to their economies and finally offer potential for further development both private and social. The old-fashioned production style that ignores the interconnected nature of GVCs can only survive through the increase of protectionism but certainly is going to be defeated in the global competition.

The changing trading and developing mentality through GVCs implies first of all significant investment in human capital, skills, increasing know-how, linking of industry – academic relationships and knowledge. Further strengthening of the Institutional framework which leads to long lasting stability is also important.

The SMEs, that the Black Sea economies consist of by more than 90%, play the most important role in the

niche area of GVCs and contribute to the exports and development of larger firms, must be further supported by governments in order to develop their linkages with international firms.

Additionally, the trade facilitating critical infrastructure (i.e. Ports, Terminals, Logistic and Trade Centers, etc), as well as trade facilitating procedures like customs, tariffs, import – export barriers and trade permits must efficiently function, facilitate and further increase value chains in the area.

To sum up, GVCs can help countries integrate in the global economy by:

- *joining GVCs instead of building a value chain from scratch*
- *Creating / Capturing value in GVCs leads to competitiveness, innovation and skills*
- *Adjusting to GVCs means important positive effects on national economies due to reallocation of productive resources*

The growing interconnectedness of economies creates important opportunities but also new policy challenges, which, at the same time, are associated with potential risks.

The potential risks and challenges of the increasing and rapidly developing GVCs in Black Sea region can be further identified and segmented in the following categories⁵, which are obvious even in the Black Sea area:

External Risks

- Human made disasters that are associated with Blue Growth activities (oil spills, environmental risks, emissions, etc)
- Increase in the Social Cost (i.e. accidents, accidental pollution, etc)
- Sabotage, terrorism, crime, war which is based to the land / border control (i.e. continuous war in Syria, political turbulence in Iraq, etc)
- Political uncertainty, due to the interconnected relations of the involved countries and governments
- Labour unavailability, due to the shortage in skills development and the need for integration in all educational scales (i.e. ECTS, ECVET, compliance of the National Qualification Frameworks to the European Qualification framework, etc)
- Institutional framework, which is further connected to the bilateral and multilateral agreements that are needed in order free trade to be facilitated in the area

Internal Risks

- Operational capacity, due to the small scale and lack of expertise
- Enterprise underperformance, or lack of corporate governance and thinking
- Demand variability, due to late adaptation in international rapid changing circumstances
- Personnel availability, since the academic and training environment in the Black Sea region is far away from being characterized as commonly developed
- Financial uncertainty, due to the volatile political and economic environment in the area
- Facility unavailability, due to lack of investments in critical infrastructure

Conclusion

It is commonly accepted that the OBOR venture is coming with potential, bringing lots of opportunities for the private and social stakeholders in the Black Sea region. The long-lasting lack of homogeneity in the institutional, financial, academic and business environment within the Black Sea countries can be transformed into opportunities for the local businesses to become valuable parts of the GVCs in the area.

Commonly accepted and implemented policies that can be encouraged by bilateral agreements, on Common Projects Development, Enhancement of Clustering / GVCs integration in Black Sea, development of Common Education Syllabi, Transfer of know-how, Skills development through Professional Training, Development of Common, Interconnected and complementary critical infrastructure, as well as New modes of synergies through Clustering, networking and JVs, will consider the Black Sea countries and people of the new era as acting beneficiaries than passive facilitators of the upcoming venture.

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Chapter 6

The geopolitical concept of the Intermarium in the context of the cooperation of the Baltic-Black Sea countries

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The idea of an integrated association of Eastern Europe within the conditional geographic axis “the Baltic Sea - the Black Sea” was first formulated in the first half of the nineteenth century by Polish intellectual Adam Jerzy Chartoryski. However, a clear geopolitical outline of the concept of the Baltic-Black Sea Union, or the so called the Intermarium, as a confederation of states from the Baltic to the Black and Adriatic Seas was made in the modern era after World War I and the collapse of major European multinational empires.

Based on the concept by Jozef Piłsudski, a number of Central and Eastern European countries (Poland, Czechoslovakia, Hungary, Romania, Yugoslavia, Moldova, Latvia, Estonia, Finland, Lithuania, Belarus and Ukraine) should have united under the partnership bloc of states “from sea to sea” as an alternative force in Europe versus Russia and Germany. This confederation should range from the Black and the Adriatic to the Baltic Sea. His concept of Prometheism included the need to support the national liberation struggle of the non-Russian peoples in the western and southern regions of the former Soviet Union, foremost the peoples of the Ukraine, Georgia, Azerbaijan, North Caucasus and the “Free Cossack movement” of the Don and Kuban Cossacks. The emergence of new independent states on the one hand would greatly weaken the power of the Soviet Union, and on the other - would create a kind of a “safety belt” for Poland in the east. Actively, as the forces and capabilities, helping national liberation movements, Piłsudski hoped to create in the future the Eastern bloc of satellite states, where Poland played the role of a regional leader. Further development of the Prometheus concept would be the intensification of national movements of the Karelians, people of the Volga region, Central Asia, and in the very long term the Buryat peoples of Siberia and the Far East. In this scenario the USSR would break into a number of national states, and Russia itself, as the core of the empire, would be reduced to its purely ethnographic boundaries. Thus, the main objective of Prometheism was the weakening of the Russian Empire (no matter which political similitude – “red” or “white”) due to its dismemberment on a national basis. Piłsudski believed that diversity of nations would be Achilles’ heel of the empire in Eastern Europe.

There were other, more modest variants of the Intermarium, like the plan of the Minister for Foreign Affairs of Poland, Józef Beck (1894-1944) - based on the realities, he reduced Intermarium to the union of Poland, Romania and Hungary.

The project of the confederal state based on the idea of the revival of the Polish-Lithuanian Commonwealth, the plan of Marshal Piłsudski faced resistance both domestically and from abroad. The Ukrainian, Belarusian and Lithuanian nationalists feared that in the united state the non-Polish (especially non-Catholics) would be in a position of second-class citizens. In Poland itself there were many supporters of creating a purely Polish national state. The project of the confederal union of states even before World War II also faced national prejudices, political short-sightedness, and intrigue from Germany and the USSR. As a result, these plans were not implemented. However, during World War II, the government of the Polish-Lithuanian Commonwealth II, headed by General Władysław Sikorski, developed this idea and defended a plan to create a new Intermarium between the Baltic, Black, Adriatic and Aegean seas, and the first steps were even taken - in

1942 there were consultations on the establishment of governments in emigration of the Greek-Yugoslav and Polish-Czechoslovak confederations. Of course, these were only intentions and forms of political thinking. However, they describe one of the main trends of the Polish geopolitical thinking.⁶

The project to create the Baltic-Black Sea axis was developed by the Ukrainian intellectuals in the early 20th century. The idea of this alliance was actively maintained and also developed by the Ukrainian intellectuals, including Yuriy Lypa, S. Rudnytskyi, M. Sosnovskyi and M. Hrushevskyi. From the times of the Kievan Rus (which was formed along the trade route from the Varangians to the Greeks – a medieval trade route that connected Scandinavia, Kievan Rus and the Eastern Roman Empire, through the diplomatic relationship of Hetman Bohdan Khmelnytskyi and Hetman Ivan Mazepa during Cossack Hetmanate 1649-1764) the idea has continued to maintain its relevance.

The next stage of development of the concept of inter-regional partnership was the idea of the Baltic-Black Sea alliance, or the confederation of Lithuania, Belarus and Ukraine, formulated by Mykhailo Hrushevskyi. This issue was also considered by the Government of the Ukrainian National Republic (UNR). While in exile, the government of the UNR conducted preparatory work to create the Black Sea Union. It was to promote the economic recovery of Eastern Europe, and active political and economic relations with Western Europe. Members of this alliance were to become the Ukrainian People's Republic, Kuban, Georgia, Azerbaijan and Armenia. Describing the draft treaty of the Black Sea Union, particular attention should be paid to the fact that the union "has the task of establishing the statute system on democratic principles in the territories of members of the treaty."⁷

Yuriy Lypa developed the geopolitical doctrine in 1940 (the "Black Sea Doctrine"), indicating the historical continuity of orientation for the north-south axis - from Scandinavia and the Baltic states to the Black Sea, Anatolia and the Middle East.

In his work on the Ukrainian geopolitics of the "Black Sea Doctrine," Yuriy Lypa described the model of active inclusion of Ukraine in the European territorial and political processes that directed the Ukrainians not to adapt to the existing, but to the creation of new geopolitical realities, establishing Ukraine as a subject of international relations. Who will own Crimea, emphasized Yuriy Lypa, will own the Black Sea. Ukraine could become a powerful state, if it could maintain an honest and friendly policy towards its traditional ally - Belarus. Its main allies should have been Turkey, the countries of Caucasus and Transcaucasia, and Bulgaria. Ukraine's future could be promising in alliance with Bulgaria and Turkey - the Black Sea countries that in the quest for national unity were similar to the aspirations of Ukraine. Yuriy Lypa inclined towards the Black and Baltic Sea federation, which would include Poland, Lithuania, Belarus and Ukraine.⁸

Michael Sosnovskyin 1966, in his work "Ukraine in the international arena 1945-1965. Problems and perspectives of Ukrainian foreign policy" has emphasized the importance of the Kiev-Warsaw axis, which can assure the development of political and economic power in the space between the Baltic, Adriatic and Black Seas and the Caucasus.⁹

The idea of creating the Baltic-Black Sea Alliance began to take real shape in the late 1980s - early 1990s, due to the weakening of the central government in Moscow in the Soviet Union and the emergence of democratic mass organizations in the national republics. Thus, the Baltic-Black Sea Cooperation was discussed by leaders of the Belarusian People's Front and the People's Movement of Ukraine, and in particular by its leader Viacheslav Chornovil.

6 Vozniak Taras, "Geopolitical Context of the War in Ukraine. Paradoxes of the Polish Geopolitics", Lviv, «İ», 2015, http://www.ji.lviv.ua/jilibrary/Vozniak/Geopolitychni%20konteksty%20vijny%20v%20ukrajini/Poland_geopolit.htm

7 Y. Shmalenko, "The Geopolitical Concept of the Ukrainian Scientists in the Early Twentieth Century." *Visnik of the National University "Lvivska Politechnica"*. - 2007. - No. 584: Power that army. - P. 38-44

8 LiudmylaRassokha, "Ukraine and World Today" No.9 (359) 10.03.2006

9 Sosnovskyi M., "Ukraine in international relations 1945-1965. Problems and perspectives of Ukrainian foreign policy", *The Studium Research Institute, Inc., Toronto, 1966, p.189*

The concept of the Intermarium is consonant with the idea, proposed in the early 1990s by the former President of Poland Lech Wałęsa, called "NATO-bis".

In February 1993, President of Ukraine Leonid Kravchuk declared the initiative in Budapest of the establishment of a zone of stability and security in Central and Eastern Europe. It was expected that it would be joined by the Baltic States, Ukraine, Belarus, Poland, Czech Republic, Slovakia, Hungary, Austria, Bulgaria and Romania. In April 1993, in Kyiv, the project of creation of the Central Eastern European Area of Stability and Security was drafted, which should have operated under the motto "Safety for Themselves - Through Security for All."

In 1994, in Kyiv, the League of the Intermarium Parties was created that had generated the idea of the Baltic-Black Sea alliance as a zone of stability and security. On September 10 to 11, 1999 during the Yalta summit, there was a summit called "The Baltic-Black Sea Cooperation: to the Integrated Europe of the Twenty-First Century without Dividing Lines" during which the issues of intensification of multilateral cooperation in the space between the two seas were discussed.

At the summit in Vilnius in 1997, the initiative to enhance the Baltic-Black Sea Cooperation on the state level was made by President of Lithuania Algirdas Brazauskas. From May 2 to 5, 2006 in Vilnius, the international conference Common Vision for a Common Neighbourhood was held, which was devoted to problems of the Baltic-Black Sea Cooperation.

The BBSC principles were partly implemented in the political, institutional and economic dimensions through the creation of the Visegrad Group (1991.), GUUAM (1997) and the Community of Democratic Choice (2005).

In 2015, the idea of creating the Baltic-Black Sea alliance was also offered by the newly elected President of Poland Andrzej Duda. He claimed that he intended to invite the heads of states of Central and Eastern Europe in order to create a "partnership alliance of states" from the Baltic to the Black and Adriatic Seas – the Three Seas Initiative.

Andrzej Duda presented The Three Seas Initiative in Ukraine during the annual ambassadors' meeting on August 24, 2016, on the occasion of the 25th anniversary of Ukraine's Independence, and later at the summit in Dubrovnik with the President of Croatia, Kolinda Grabar-Kitarovic.

During a speech in Kiev, the President of Poland emphasized that Central and Eastern Europe should get its own political subjectivity in order not to become a field for the game of big players, and such actions should be implemented within the framework of the EU and NATO. He was convinced that it was about creating a bloc of countries independent of the big countries in the east and west. In his opinion, it is necessary to move away from the division into a centre and periphery, as well as depart from the transfer of unilateral models from the western countries to the east within the framework of the EU.

In Croatia, at the first summit of the Three Seas Initiative, representatives from 12 countries were present, but only half of them were equal to the rank of President. At the Presidential level Croatia, Poland, Hungary, Lithuania, Slovenia and Bulgaria were represented. Czech Republic, Slovakia, Romania, Austria, Estonia and Latvia were represented at the level of ministers and vice-ministers.¹⁰

Ukraine was not invited to the summit and still remains outside its borders. It is recurrence of the Eastern Partnership mistakes that are beautifully written on paper and do not work in reality because of the impossibility of accommodating it to realities, lack of accessible, transparent financial mechanisms, economic and security cooperation.

10 *Choć losy UE decydują się w Berlinie, Duda woli odwiedzać Dubrownik i brylować wśród małych państw Trójmorza, Newsweek, 26.08.2016. <http://www.newsweek.pl/polska/andrzej-duda-trojmorze-abc,artykuly,396034,1.html>*

It should be emphasized that the creation of any block of countries in the space between the Baltic and Black Seas is possible only on a platform of mutual trust, respect, tolerance and equality; common political, economic, social and security interests. Poland and Ukraine, which have access to the Baltic Sea from the Polish side and to the Black Sea from the Ukrainian side, could become a “skeleton” of the block. Unwillingness of one of the partners will automatically lead to the collapse of the coalition. Hence, it is important in this context to overcome the negative stereotypes from the common history in Poland and Ukraine. Otherwise, despite the obvious mutual geopolitical interests, the desire of certain political elites, the deep historical roots of fruitful cooperation and close cultural ties the rapprochement between the two countries can be significantly inhibited.

Since the announcement of the Three Seas Initiative, it has focused on the development of infrastructure in the north-south axis. Expanding cooperation in the region also requires large-scale projects, which will benefit everyone. Its result could be, among other things, the creation of a high-speed railway from Tallinn to Dubrovnik with branches to Vienna, Kiev, Bucharest, Sofia and Belgrade. This type of railway is missing in this part of Europe, - claimed A. Dudaduring in his interview with The Polish Institute of International Relations.¹¹

There are two major concrete projects of the Initiative: the *Via Carpathia* and a liquid natural gas (LNG) infrastructure project - creation of a north-south gas corridor to diversify sources of energy supply, which connects an already existing LNG terminal in the Polish Swinoujscie with a terminal on the Croatian island Krk. The *Via Carpathia* consists of a connecting highway that will stretch from the Lithuanian seaport Klaipeda to the Greek trading hub of Thessaloniki on the Aegean coast. This project is noteworthy because the CEE region has poorly developed north-south transportation infrastructure, contrasting with the relatively well-developed east-west connectivity.¹²

At the end of October 2016, the European Parliament approved a report that provides support for the development of transport infrastructure along the eastern borders of the EU. The *Via Carpathia* should become the key trans-European corridor, which should connect the countries of Northern and Southern Europe, in the future - Ukraine and Turkey.

Turkey can become an important part of the Baltic-Black Sea community. It is worth noting the fact that the expansion of contacts of Turkey with European countries of the former socialist camp can only strengthen NATO and the EU. Moreover, the expression of initiative from the Baltic countries, Poland and Ukraine on the extension of the partnership with Turkey can be an important step for the further normalization of relations between Ankara and the West in general. Such countries as Bulgaria, Romania and Greece are already members of the EU and NATO, but Turkey is still not a member of the EU. Moreover, Turkey is likely to be interested in expanding its influence, especially in the Middle East.

Turkey can be regarded by Central and Eastern Europe as a strategic partner for a number of reasons. Principal among these reasons are the economic, energy and humanitarian spheres. For example, Ankara has the potential key aspects of the issue of refugees around Europe and can become a reliable supplier of energy to Europe. Moreover, when establishing strong partnerships, Ankara can become a reliable trading partner for Central Europe. Defence potential of the future union requires some research – due to the wide geography of its participants; it can turn into an independent factor in the military sphere of Europe. For example, it can be considered as a broad buffer factor against the Russian Federation, which is an unconditional advantage for the Baltic States and Ukraine. Moreover, the presence of such an alliance will significantly reduce the dependence of its participants on the position of other states in general.

The newest acquirement in the development of the concept of the Intermarium is its possible spread to the Caspian states, due to economic and security factors.

11 *Poland Needs to Be Hungry for Its Own Success - Interview with President of Poland Andrzej Duda*// <http://www.ppd.pism.pl/Numery/1-67-2016/Rozmowa-z-Prezydentem-RP-Andrzejem-Duda#>

12 *Max Kratschke, The enigma of the Three Seas Initiative. – ViennEast May 2, 2018*// <http://www.intellinews.com/comment-the-enigma-of-the-three-seas-initiative-140942/>

The Baltic-Black Sea and the Caspian region in the future can be a wide area of trans-regional cooperation between Europe, the Caucasus, Central Asia and the Middle East. The efforts of countries in the region should promote free trade, initiating joint transport and energy projects, development of a Eurasian transport corridor, realization of the important pipeline project to transport natural gas from the Caspian regions to Western Europe, for example: Trans-Adriatic Pipeline and White Stream.

Analyzing the political and economic situation in the region of Central and Eastern Europe, the idea of uniting the small states of the three seas is positive in terms of economic, political and security cooperation. The integration of the economies of the Eastern European countries, which together prevail over the Russian economy, could play a crucial role for security not only for Europe, but for the whole world. However, the absence of Ukraine or its nominal participation under certain conditions in such regional projects and alliances is in fact recognition of the sphere of influence of Russia, which makes this association insufficiently strong in the security dimension.

In addition, the Eastern Partnership can be an additional tool for the Three Seas initiative and for forming a new partnership of countries in order to increase security in the region and eliminate the “gray zone” that has actually existed since the interwar years in Eastern Europe and the South Caucasus.

The concept of the Baltic-Black Sea alliance today is more relevant than ever, and its implementation can be a key factor in the development and security of Central Europe as well as the Baltic-Black Sea region in the twenty-first century.

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