

HOW TO ADDRESS THE CHALLENGES IN THE BLACK SEA REGION IN THE CONTEXT OF THE DEVELOPMENT OF THE BLUE ECONOMY

Marusya LYUBCHEVA¹, Milen DIMITROV¹ & Mihaela BARHALESCU²

¹ Black Sea Institute Association, 14 Mitropolit Simeon Street, Burgas, Bulgaria, e-mail address:
milyubcheff@gmail.com, info@blacksea.bg

² Constanta Maritime University, Faculty of Naval Electro-Mechanics, 104 Mircea cel Batran Street, 900663,
Constanta, Romania, e-mail address: mihaela.barhalescu@cmu-edu.eu

Abstract : The publication examines the challenges facing the countries of the Black Sea region and the key role of human resources in the development of the blue economy, analyses how they can be effectively adapted to the new realities related to technologies, skills and policies. The data are based on our own researches, the reports and discussions of the annual National Round Table "The Sea - Border or Door". They show how the challenges can be addressed in order to improve cooperation processes, ensure citizen participation in management processes, increase knowledge about marine resources and accelerate the process of blue growth in the region.

Key words : Blue economy, challenge, cooperation, human capital, innovation, knowledge, renewable energy, skills, maritime professions, sustainable development, sustainable growth, technology.

1. INTRODUCTION

In the context of growing awareness of sustainable development and the need to utilize water resources in an economically and environmentally responsible manner, the blue economy and blue growth are emerging as key drivers for future development. These concepts cover a wide range of activities – from maritime transport and fishing to renewable ocean energy and tourism. At the heart of the success of these sectors is the most valuable resource – human capital. The adaptation of human resources to the specific requirements and challenges of the blue economy is essential for achieving sustainable growth and innovation. This material will examine the key role of human resources in the development of the blue economy and will analyse how they can be effectively adapted to the new realities related to technologies, skills and policies.

The wide range of problem areas requires a reassessment of the situation and to consider it in the context of the preparation and adaptation of human resources for the development of the blue economy in the aspect of its modern technical, technological and social significance, as well as from the perspective of the green and digital transformations of the sector. That is, the human resource responsible for the various areas of management and protection of the marine ecosystem and its functioning as a sustainable blue zone. These responsibilities are predominantly outlined in the

environmental and economic spheres, related to some of the challenges: pollution and eutrophication, monitoring of marine and coastal areas by expanding the network of research and monitoring control /which in some countries still remains incomplete/, research of risks and risk areas, for which risk assessment and analysis are necessary to take preventive measures, the participation of the civil sector in the management of HR, the low level of knowledge about the marine environment, insufficient skills for using innovative methods in the management of the marine ecosystem, digitalization, green transformations and active inclusion of scientific research in the systems for the protection of the marine ecosystem and improving the interaction between education, science, business and the civil sector.

All countries in the Black Sea region are addressees of the challenges, but respond in different ways, although subordinating their policies to the principles of the Integrated Maritime Policy and the EU's actions regarding the Black Sea.

The data cited in the publication were collected from the Black Sea Institute's own research, as well as from the discussions at the annual round table "The Sea – Border or Door" for several years [1].

A study by the Black Sea Institute Association shows that the most serious challenges facing the Black Sea region are political challenges (Figure 1)[1].

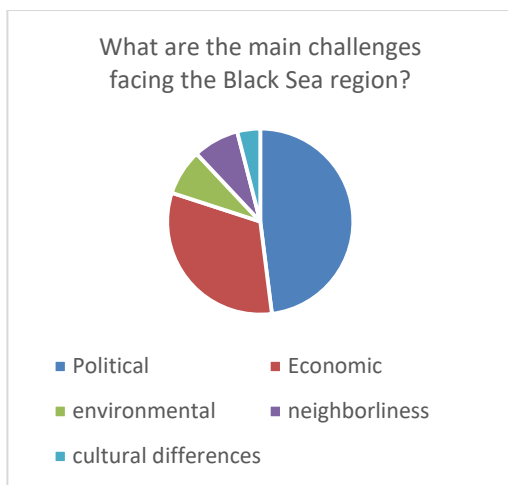


Figure 1 The main challenges facing the Black Sea region [1]

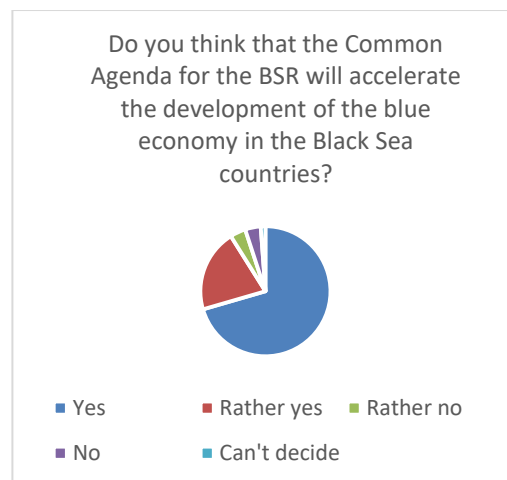


Figure 2 The influence of Common Agenda for the Black Sea region [1]

Obviously, the residents of the region define the situation in the Black Sea region as risky, and this means that the situation should be taken into account, i.e. to seek solutions for the development of the blue economy in the conditions of crisis.

The countries of the Black Sea region have always been characterized by serious differences in terms of their economic development, confirmed by the second position of the economic challenges. Even more so in the conditions of military operations that are being conducted on the shores of the Black Sea. It is interesting, that environmental challenges are almost equal to the others, because until recently they were dominant.

The need for a Common Agenda for the development of the Black Sea region is recognized, which clearly shows that the process that began with the Black Sea Synergy has not yet yielded the necessary results. The expectations that such a Common Agenda will be created and developed by the EU indicate that the countries do not take into account the existence of their own capacity to develop national strategic guidelines and visions for the development of their own Black Sea territories, taking into account the principles of the Integrated Maritime Policy and the blue economy (Figure 2).

The situation with the pandemic, and subsequently with military operations, showed the need for sustainable practices in the management of marine resources. The ongoing economic turmoil shows that coastal communities need to diversify their sources of income to withstand economic and social shocks. Cumulatively, several elements can be outlined that are relevant and that should be taken into account by all institutions and organizations in each of the Black Sea countries involved in the management of the blue economy (Figure 3) [2]:

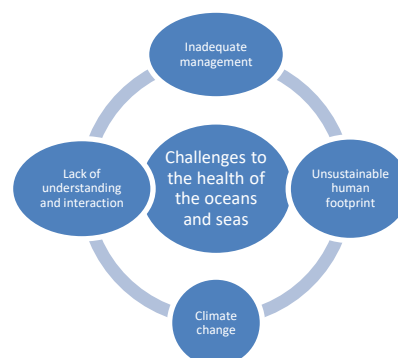


Figure 3 The challenges to the health of the oceans and seas [2]

All the elements mentioned are related to the human resource involved in the blue economy. The problems before the crisis manifestations increase seriously during the crises, but unfortunately there are no studies that determine the degree of influence. As can be seen from the priorities of the blue economy, it refers to the sustainable management and use of marine resources, which can play an important role in economic recovery and sustainable development in general. With the understanding that the development of the blue economy is one of the economic potentials in its reasonable and adequate use, since it refers to the use of entirely natural resources [2].

To overcome the challenges facing the blue economy, we will pay attention and outline the necessary directions for the preparation and adaptation of human resources, as the most strategic resource for participation in achieving blue growth, emerging as an important result of the use of the planet's blue wealth. Cooperation in the management and development of the blue economy, and the participation of the civil sector in the management of maritime regions, knowledge and skills,

are among the most important groups of factors that determine the participation of human resources in the blue economy, taking into account the trends of globalization, the search for synergy and economic and social transformations.

Bulgaria and Romania – as well as some of their key regional and local stakeholders endorsed the Charter of the EU Mission 'Restore our Ocean and Waters by 2030', committing to accelerate the restoration of the Danube River and Black Sea region [3]. High-level representatives from both countries, including the Bulgarian Minister of Environment and Water, officially endorsed the Charter at the 'From the Danube Source to Black Sea – Healthy Waters and Healthy Life' event in Burgas, Bulgaria. Joined by other key regional stakeholders including the Burgas Free University, Constanta Municipality and local schools, they pledged national actions to restore the Danube and Black Sea [4].

2. COOPERATION IN THE BLUE ECONOMY

The areas for cooperation in the blue economy are quite diverse. The expectations for cooperation, according to studies by the Black Sea Institute Association, distribute this diversity as follows: tourism 97%; trade 84.2%; joint production 66.7%; information technology 54.%; shipbuilding/ship repair 60.6%, fishing 54.5%; aquaculture 63.4%, agriculture 21.2%. In the hands of human resources are many opportunities that depend on the initiative, knowledge and competence of potential participants. Purely maritime areas of interest collect a high overall share of preferences, although they rank lower than tourism and trade /it should be understood that if we talk about tourism here, we mean maritime tourism/. Cooperation between institutes and organizations can optimize the use of marine resources, the sharing creates interaction and synergy. The sustainable development of the blue economy requires the involvement of local communities to ensure that their needs and interests are taken into account, as the risk of economic losses for fishing communities affects not only trade, but also the labor market related to the blue economy, the creation of new jobs, the qualification of participants and the acquisition of knowledge and skills specific to the blue professions, as well as the quality of life along the coast. A number of European funds and programs /Maritime Affairs and Fisheries, Horizon Europe/, as well as the Joint Operational Program "Black Sea Basin" are also working towards cooperation. There are already hundreds of projects, reflecting the idea of Black sea cooperation, which have been financed under this program, there are also many cross-border partnerships created by the consortia that developed the projects, innovative technologies have been created, ideas for the development of the blue economy have been brought

forward. However, in order to achieve sustainable results, it is necessary to establish post-project requirements through which partnerships can be continued, i.e. projects should not be considered as independent entities, but to seek the continuation and realization of jobs and employment. Only in this way the sustainability of the results, especially when it comes to infrastructure projects and those that would bring high added value, will become a real result and multiply blue growth. A cursory analysis of the projects financed under the OP "Black Sea Basin" shows a significant share of projects to combat plastic waste, but the real result of them is not yet available. The improvement of environmental indicators on the Black Sea coast is more likely due to reduced economic activity than to effective activity under the program.

3. KNOWLEDGE AND SKILLS FOR IMPLEMENTATION IN MARITIME PROFESSIONS

To fulfill the key role of human resources in the blue economy, technical skills (marine engineers, renewable energy specialists, marine biologists, aquaculture specialists), management and entrepreneurial skills for maritime business, skills for working with new technologies (digitalization, automation in the maritime sector), combined with environmental and conservation knowledge are needed. Innovation and competitiveness contribute to the sustainable management of marine resources, which is why the exchange of experience and innovations between different regions can accelerate the transition to a dynamic blue economy. Different levels of education offer different opportunities for increasing knowledge about the sea and create specialists in the blue professions, but a lot of effort is needed to motivate human resources to focus on them. Ignorance of blue professions is one of the problems and obstacles for young generations to orient themselves towards them. Professional guidance and career development come to the rescue. The Black Sea Institute created promotional cards of the blue professions it works with adolescents in the process of career guidance (Figure 4).



Figure 4 The promotional cards of Black Sea Institute.

In Romania, “The persons who want to sail the seas and oceans of the world, must consider that the compulsory education include graduating a maritime higher institution in order to access a career in navigation. They can choose to study in a university either to become officers for the **Romanian Naval Forces**, or **maritime officers and engineers** for the **merchant marine navy**. There are many specializations that can offer training for all type of activities related to maritime sector and here are some examples: Navigation, Naval Architecture and Marine Engineering, Naval Systems and Technologies, Mechanical, Industrial and Maritime Engineering, Shipping and Port Management, Telecommunication Systems, Environmental Engineering, Naval Transport, Business and Engineering in Transports etc.”(Figure 5)[5].



Figure 5 The promotional materials of Constanta Maritime University [6]

The blue economy at the European level creates a constantly increasing number of jobs, generates an increasing share of revenues. A WB report on Bulgaria provides data on the good development of the blue sector “Several marine-based sectors, including coastal and maritime tourism, fishery and aquaculture, shipping, ports, ship building and repair, and oil and gas exploitation, roughly €995 million in gross value added (GVA) in 2018, which is roughly 2 percent of the national GVA of all economic sectors and accounts for 3.4 percent of all jobs ”[7]. However, there is an increasingly fragmented management of coastal and marine natural resources, due to a lack of vision, national strategy and consistency in sectoral policies and market

development at the regional and national levels. It is essential to adapt human resources to the new technological realities and challenges of the blue economy. Which requires a lot of effort to master the digital and green innovations entering all spheres. Human resource adaptation is a two-way process – on the one hand, people adapt to new elements, and on the other hand, people create new technologies and innovations. That is why human resource adaptation to the blue economy means: developing specialized programs in universities and vocational schools; creating conditions for the development of blue innovations; improving the qualification and retraining of the existing workforce; developing digital and green skills; focusing on digital skills and working with data. developing soft skills (communication, teamwork, flexibility); increasing environmental and resource efficiency. The most important thing in adaptation is developing analytics, through which the necessary changes and the ways in which they are introduced are assessed, so that they correspond to the databases of processes accumulated so far, so that the transition is consistent and successful and does not have an unexpectedly destructive effect on the marine ecosystem. Mechanical adaptation to any technological transformations is dangerous for the health of the ecosystem. “ The wise man adapts himself to the world, the foolish man adapts the world to himself..”(Bernard Shaw).

4. CITIZEN PARTICIPATION IN THE MANAGEMENT OF MARINE RESOURCES

The Black Sea Institute's own research indicates that citizens, through their civil structures, hardly find a place in the management of the Black Sea territories and the marine ecosystem, citizens know little about the use of marine resources. Citizens give a low assessment of the management of marine territories, but they turn out to be only "consumers" of the challenges and with almost minimal opportunities for influence (Figure 6, Figure 7, Figure 8). Rather, their participation is to oppose some unfavourable decisions of various types of authorities regarding the marine and coastal environment /e.g. protection of dunes, protected areas, counteraction to overdevelopment, etc.

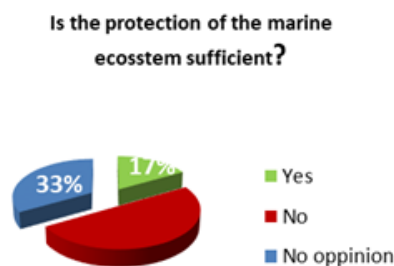


Figure 6 The protection of the marine ecosystem assessment

Do you think local and regional authorities are good stewards of the Black sea coast?

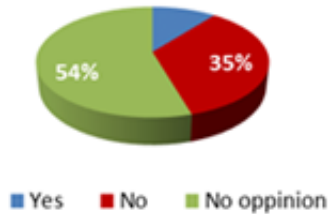


Figure 7 The assessment of regional authorities.

Do you think the marine ecosystem is well managed?

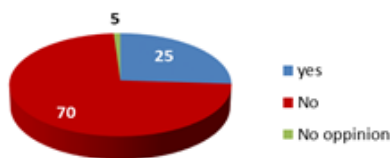


Figure 8 The assessment of marine ecosystem's management.

Citizens do not know enough about the marine ecosystem and its features, which is why they are not well acquainted with the resources of the sea. The most acceptable use of the sea is its tourist potential, and in a simpler form - beach tourism, attractions, etc. But the resources of the sea remain hidden from view, and this is an important reason to look for ways to increase knowledge about the sea (Figure 9, Figure 10).

Are marine resources well known and used by people

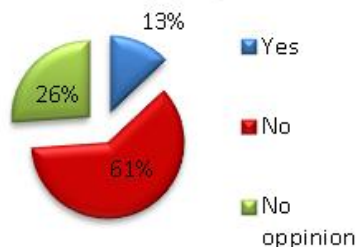


Figure 9 The assessment of marine resources well known and used by people.

Are you familiar with technologies that operate in your country

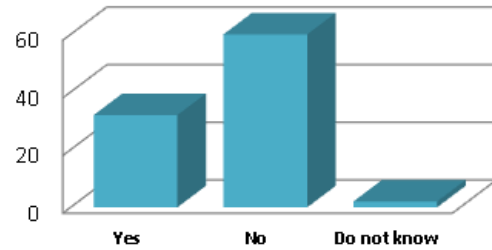


Figure 10 The assessment of knowledge of the technologies that operate in your country.

The implementation of digital technologies in the Romanian's seaports would be extremely beneficial for:

- coordinating port operations,
- avoiding unexpected events,
- safer port operations,
- increased shipping security,
- avoiding delays in the transport chain,
- understanding potential threats and realities on port facilities,
- and their adoption in Romanian seaports prepares the transition to the smart port [8].

Although the majority of citizens have insufficient knowledge about the sea, they assess the mix of problems of the sea as serious, because the result of the manifestation of the problems actually reaches them, namely - high level of eutrophication, deteriorated water quality, change to degradation of biodiversity, strong dependence of a healthy and balanced environment on marine activities and industries such as fishing, aquaculture and tourism, offshore activities. This is the reason why they treat with extreme distrust various types of innovations such as oil and gas extraction, the placement of energy production facilities on the coast or on the shelf, etc.(Figure11, Figure 12).

How do you feel about oil production in the Black Sea?

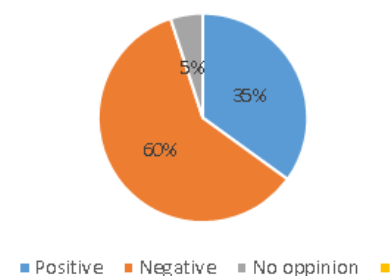


Figure 11 The assessment of oil production in the Black Sea.

Are marine industries opposed the maritime tourism?

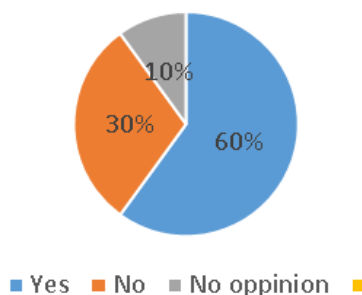


Figure 12 The assessment of marine industries opposed the marine tourism.

Each of the challenges needs serious analysis in order to be specifically addressed and overcome. The problem is that none of them acts independently, they are interconnected, which is why a synergistic direction must be sought to overcome them, which is difficult due to the asynchronous actions of the different types of authorities and institutions.

The challenges cited above have been repeatedly noted in a number of EU documents concerning the Black Sea and the Black Sea region, but the development of activities over time is quite slow [9], [10]. Their implementation almost exclusively on a project basis, provided by various European programs, is extremely insufficient, scattered in terms of focus and limited within the goals of each consortium implementing the project, regardless of the adopted general principles of each of the programs. Projects are developed without commitment and overlapping of results, partnerships are unsustainable, which also predetermines lower than expected results. The starting point for improving the situation is to increase the participation of the civil sector in the management of the Black Sea zones in each of the littoral countries, creating a strategic agenda for each of them, subject to the general principles for the development of the blue economy and blue growth, with the obligatory search for synergy in actions.

5. POLICIES AND SOLUTIONS

Building a vision for the development of the Black Sea region, accompanied by a national integrated agenda, ensuring synergy between education, science, business initiatives, state support, public-private partnership, subordinate to the protection of the marine ecosystem and the reasonable exploitation of marine resources.

Adaptation of human resources to the challenges of the blue economy;

Education and training: Development of specialized programs in universities and vocational schools; Upskilling and reskilling of the existing workforce; Promoting lifelong learning;

Skills development: Focus on digital skills and working with data; Development of soft skills (communication, teamwork, adaptability); Increasing environmental and resource efficiency.

Supporting policies: State policies to stimulate employment and development in the blue sectors; Cooperation between business, education and the state; Promotion of entrepreneurship in the blue economy; Synchronization in the activities of different types of authorities and institutions.

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