

The MSP Stakeholders' Perception of Port and Coastal Protection Activity

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Abstract

The management of coastal and marine areas is a dynamic and complex one, which must take into account ways of balancing resource use and promoting the sustainable growth of the maritime economy. The MSP Directive (2014/89/EU) requires the Member States to consider economic, social, and environmental aspects in order to support sustainable development and the growth of the maritime sector, taking into account the interactions between land and sea. Thus, the aim of this article is to carry out an assessment of stakeholders' perceptions of land-sea interactions' impact on the port and coastal protection activities in the Romanian Black Sea coastal area, from the point of view of their priorities: ecological, economic, and social. The analysis was performed on the basis of a questionnaire drafted within the MARSPLAN BS II project, to which MSP stakeholders, public and private entities, responded, the variables being grouped according to the scale on which the participating organization is operating: international, local and national.

Key words: port and coastal protection activity, stakeholders, Land–Sea Interaction (LSI), Romanian coastal area, Maritime Spatial Planning (MSP)

J.E.L. classification: O20, R10

1. Introduction

The coastal area is the transition area, especially the part of the land marked by its proximity to the sea, an area in which the processes that depend on the interaction between land and sea are the most intense (Clark, 1996). As a consequence of the fact that coastal areas have often been used for a series of destructive and consumerist uses not necessarily specific to them (for instance, seaports and marinas) (Nguyen *et al.*, 2020, p. 125) and of the diversity of the economic activities which develop in these areas, an integrated approach to the management processes is necessary. Since one can observe an intensification of the use of this space whereby deficits and potential conflicts are rising, there is a need to institutionalize these uses so as to reduce direct or induced negative effects (Schlüter *et al.*, 2020, p. 1).

One of the European policies which aims to ensure a sustainable balance for coastal and marine areas is Directive 2014/89/EU on Maritime Spatial Planning. It provides the framework for an integrated planning and adaptive approach to how the EU Member States are managing their human activities in these areas. This is one of the reasons why most EU coastal states are preparing different types of maritime spatial plans, and the Member States have the responsibilities and abilities to design and determine the format and content of these plans for their marine waters.

Thus, Bulgaria and Romania, in partnership, implemented in the 2019-2021 period the MARSPLAN BS II project, one of the main objectives of the project being the development of the maritime spatial plans at national and regional/cross-border levels for the Black Sea area. Within the project, several studies on the Romanian and Bulgarian maritime space were conducted (Aivaz, Stan and Vintilă, 2021a; Aivaz, Stan and Vintilă, 2021b; Stan and Vintilă, 2022; Stancheva and Stanchev, 2021; Stancheva *et al.*, 2021), which tackled economic and social issues of public and private entities from the perspective of human activities and uses, mainly in the marine areas, in close relation with the coastal areas. Complying with the requirement of the MSP Directive (2014/89/EU), within the

project, under Activity 2.3 "Integration of Land-Sea Interactions (LSI) in MSP for the cross-border region", a study on Land-Sea Interactions (LSI) was performed, by consulting MSP stakeholders.

This paper carries out an analysis of the perception of MSP stakeholders regarding the most important land-sea interactions' impact on port and coastal protection activity in the Romanian Black Sea coastal area.

2. Literature review

The management of coastal and marine areas is a dynamic and complex one, which must take into account ways of balancing resource use and promoting the sustainable growth of the maritime economy. The development of specific economic activities in these areas (e.g., fishing, agriculture, maritime transport, resource extraction, tourism, other land-based activities) can have a direct, indirect, or induced negative impact on the environment. Therefore, coastal area management must integrate information from all the entities in this area, from a multidisciplinary perspective (Álvarez-Berastegui *et al.*, 2014, p. 1), especially regarding human uses and activities, as these can have an impact on coastal and marine ecosystems.

Article 4 of Directive 2014/89/EU specifies that the relevant current and future activities and uses, as well as their impact on the environment and the natural resources specific to each marine region must be taken into account when drafting the MSP, while also paying attention to the interactions between land and sea.

The Land and Sea Interactions (LSI) analysis is not a new discipline in itself, nor is it an additional requirement for the coastal or marine planning activity (SUPREME, 2018, p. 4), it is merely a framework developed to be taken into consideration within MSP. The study of these interactions demonstrates the need for balance in the relationships between socio-economic activities both at sea and on land (Creamer *et al.*, 2020, p. 13).

At the same time, the MSP Directive (2014/89/EU) stipulates that in the preparation of MSP plans particular attention should be paid to the various pressures arising from: human activities, climate change effects, natural hazards and shoreline evolution through erosion or accretion, as these can have a serious impact on the development and economic growth of the coastal areas.

The multiple economic, social, and recreational opportunities of this area have attracted people to the coastal areas (Petrișor *et al.*, 2020, p. 2), leading over time to pressures resulting from human activities, the coastal and marine areas being among the most relevant areas when tackling management and conservation processes due to the interactions that characterize the exchange zone between land and sea (de Andrés and Barragán Muñoz, 2022, p. 1).

In the context of maritime spatial planning (MSP), land-sea interactions (LSIs) are important, given the many coastal activities that are developing, especially the port and coastal protection activities. In this context, maritime spatial plans can create important enabling conditions for the operation and development of ports (Czermański *et al.*, 2021, p. 1), the coastal area being fully protected for its use purposes.

The MSP Directive requires the Member States to consider economic, social, and environmental aspects in order to support sustainable development and growth in the maritime sector, taking into account land-sea interactions.

From the perspective of MSP stakeholders, in addition to all the challenges that have come up over time in the coastal area, the unprecedented global economic context generated by Covid-19 has raised a new issue, that of organizational resilience, given that a resilient company will design and implement effective actions in order to increase the likelihood of its own survival (Aivaz and Căpățână, 2021, p. 289). Starting from the premise that a company's financial assets are those means by which a company can secure an income for a period of several years, given that they are economic resources that can generate future economic benefits for the company which owns them, Aivaz, in a series of comprehensive research, analyzed the economic activity of companies in key sectors located in the Black Sea coastal area: agriculture, forestry and fishing (Aivaz 2021a, p. 2; Aivaz, 2021b, p. 31), Horeca (Aivaz and Micu, 2021, p. 324), maritime fishing and aquaculture (Aivaz, 2021c, p. 9). The selected financial indicators - fixed assets, current assets, accrued expenses, net income, return on total assets - emphasized a whole series of particularities regarding the flexibility or rigidity of the groups and sub-groups of analyzed activities. Both the companies which survived and those

which improved their results were able to transform their business by amplifying the intrinsic value of their products and by becoming a psychological and social bond for the consumers. As a general conclusion, the implementation in MSP of the results of certain studies which are focused on entities operating in various fields of activity (fishing, aquaculture, agriculture, transport, tourism, construction, Horeca, etc.) is relevant for the efficient management of the sustainable development of the coastal and maritime area.

Thus, the multitude of economic activities taking place in the coastal area requires the involvement and participation of various authorities, economic operators and other stakeholders, from different levels, while MSP has to discover the preferences and interests of all stakeholders (Zauchă and Kreiner, 2021, p. 1). In order to successfully promote sustainable development, it is essential for the stakeholders representing the multiple sectors operating in the coastal area, the authorities and the public to be consulted in a timely manner during the preparation of MSPs (Directive 2014/89/EU).

To this end, Bulgaria and Romania have carried out the analysis of the land-sea interactions (LSI) for the cross-border area, using descriptive and exploratory methods (Stancheva and Stanchev, 2021, p. 50).

3. Research methodology

The aim of this paper is to carry out an assessment of stakeholders' perceptions regarding land-sea interactions' impact on port and coastal protection activities in the Romanian Black Sea coastal area from the point of view of their priorities: ecological, economic, and social.

For the implementation of Activity 2.3 "Integration of Land-Sea Interactions (LSI) in MSP for the cross-border region", a questionnaire was prepared by the representatives of the National Institute for Marine Research and Development "Grigore Antipa", and distributed online to the stakeholders by the partners involved in the MARSPLAN BS II project and interpreted by the members of the research team from "Ovidius" University of Constanta.

The questionnaire comprised 65 questions and was designed to clarify aspects which include the two components related to (1) interactions with landward to seaward impact and (2) seaward to landward interactions. They cover both economic activities and natural phenomena and processes. The stakeholders, public and private entities, filled in the questionnaire (Vlasceanu *et al.*, 2021, p. 241), the variables being grouped according to the scale on which the participating organization operates: international, local, and national. From a methodological point of view, this assessment was carried out for each natural activity or process by assigning a value in relation to the three dimensions of sustainability (ecological, economic, and social), using a numerical set of values from 3 to 0. Thus, for each response option the assessment of ecological priority, economic priority and social priority is defined by the score value given, as follows: High (score 3), Medium (score 2), Low (score 1) and Not Known (score 0). The data processing, systematization of results, and obtaining indicators used for the statistical analysis were performed using the Statistical Program for the Social Sciences (SPSS).

4. Findings

Romania's coastal area stretches for about 245 km along the North-Western shore of the Black Sea. For the sustainable development of the coastal area, as well as for the reduction of the coastal erosion which has severely impacted the Romanian Black Sea shore, the Master Plan "Protection and Rehabilitation of the Coastal Zone" was drawn up so as to assess the existing situation and identify the required investments - projects related to coastal erosion control (Stan, 2014, p. 54; Stan, Aivaz and Ionițiu, 2019, p. 111).

Thus, complex coastal engineering interventions have been carried out along the Romanian coast aimed at protecting the shoreline and expanding the port of Constanta, the coastal protection approach consisting in the implementation of "heavy" and "light" structural rehabilitation solutions (Stan, Vintilă and Țenea, 2014, p. 578).

For the analysis performed in this article, port and coastal protection activities were selected from the comprehensive questionnaire distributed among the stakeholders that targeted the most relevant activities taking place in the Romanian coastal area. The surveyed stakeholders were public and private entities from the activity sectors which are relevant in terms of the use of marine space and operating in the coastal area (public authorities, economic agents, non-governmental organizations, research institutes and universities, public companies, etc.) and whose activities are carried out at different levels - international/national/local.

The performed analysis pays attention to stakeholder's assessment regarding how land-based developments influence and support marine developments and how they influence the environment in terms of port and coastal protection activities, according to the information and the interests which are impacted by maritime spatial planning.

Table no. 1 Stakeholders' assessment on the environmental priority

			The scale on which the organization operates			Total	
			International	Local	National		
To what extent can port activity, coastal protection (seawalls) be considered an Ecological Priority?	3	Count	7	16	13	36	
		% within The scale on which the organization operates	70.00%	76.20%	65.00%	70.60%	
	2	Count	3	3	5	11	
		% within The scale on which the organization operates	30.00%	14.20%	25.00%	21.60%	
	1	Count	0	1	1	2	
		% within The scale on which the organization operates	0.00%	4.80%	5.00%	3.90%	
	0	Count	0	1	1	2	
		% within The scale on which the organization operates	0.00%	4.80%	5.00%	3.90%	
	Total		Count	10	21	20	51
			% within The scale on which the organization operates	100.00%	100.00%	100.00%	100.00%

Source: Author's own processing

Thus, for the surveyed entities, regardless of the scale on which the organization operates (international, local, national), port and coastal protection activities are considered *an environmental priority*, the following values being assigned: 70.60% - High, 21.60% - Medium, 3.90% - Low and 3.90% - Not Known (Table no. 1). The coastal and littoral area is subject to pressure from anthropogenic factors with a major impact on coastal and marine ecosystems, through port activities, maritime transport, fishing, agriculture, fish farming/pisciculture, large urban agglomerations and tourist resorts, tourism and water sports, industrial objectives, etc. One can notice that the local level entities consider these activities as a high priority - 76.20%, because the negative impact on the ecological status has consequences on the local coastal communities, the local community's interest in the implementation of the coastal area management process being very significant (Braşoveanu, 2015, p. 20).

The infrastructures along the Romanian coastline are: harbors, marine / coastal / artificial reef civil engineering works, submerged, emersed, perpendicular to the shore, parallel breakwaters, etc. In the coastal and marine area, measures to mitigate the potential negative impact on the ecological status are needed. A positive impact is generated by construction works on the sea, which are mainly aimed at stopping coastal erosion.

Coastal protection works regulate local alluvial transport and help maintain certain beaches along the seashore, areas which are in the proximity of several EU-designated protected areas (Filip, Stan and Vintilă, 2016, p. 525). However, major beach sanding works have a negative effect on shallow water biodiversity from an ecological point of view.

According to the data analysis, regardless of the scale on which the respondent organization operates (international, local, national), port and coastal protection activities are considered an *economic priority*, as the following scores resulted: 74.50% - High, 13.70% - Medium, 2.00% - Low and 9.80% - Not Known (Table no. 2). Ports play a significant role in the development of coastal areas, the undertaken economic activities contributing essentially to the growth of port cities from an economic perspective. Moreover, ports are important in terms of supporting economic activities in the hinterland, given that they act as a crucial link between maritime and land transport (Dwarakish and Salim, 2015, p. 295).

Table no. 2 Stakeholders' assessment on the economic priority

			The scale on which the organization operates			Total
			International	Local	National	
To what extent can port activity, coastal protection (seawalls) be considered an Economic Priority?	3	Count	8	17	13	38
		% within The scale on which the organization operates	80.00%	81.00%	65.00%	74.50%
	2	Count	1	1	5	7
		% within The scale on which the organization operates	10.00%	4.80%	25.00%	13.70%
	1	Count	1	0	0	1
		% within The scale on which the organization operates	10.00%	0.00%	0.00%	2.00%
	0	Count	0	3	2	5
		% within The scale on which the organization operates	0.00%	14.20%	10.00%	9.80%
	Total	Count	10	21	20	51
		% within The scale on which the organization operates	100.00%	100.00%	100.00%	100.00%

Source: Author's own processing

The Romanian coastal area includes the Port of Constanta, located on the Western coast of the Black Sea, being positioned on the routes of 3 pan-European transport corridors linking the North Sea to the Black Sea via the Rhine-Main-Danube corridor. One can notice that this criterion is a top priority for the international level entities - 80.00%, and for the local level entities - 81.00%. The entities' interest in this economic activity is particularly strong because the advantageous position of the Port of Constanta confirms its major role within the European intermodal transport network, being favorably located at the intersection of the trade routes connecting the markets of landlocked countries in Central and Eastern Europe with the Transcaucasian region, Central Asia and the Far East (National Company "Administrația Porturilor Maritime" S.A. Constanța). The Port of Constanta is both a maritime and a river port and a tourist port and it performs these functions together with its two satellite ports, Midia and Mangalia, which are part of the Romanian seaport complex.

On the other hand, the rehabilitation works carried out on the beaches of the Romanian coastline, which will lead to the expansion of the beach areas, will have the main effect of increasing the tourist potential and, implicitly, increasing the number of tourists in the coastal area. The attractiveness of the area will generate new investments in tourist infrastructure (hotels, restaurants, leisure facilities, etc.).

Regarding the extent to which port and maritime coastal protection activities are a *social priority*, the distribution of stakeholders' scores regarding the assessment of this priority are: 56.90% - High, 29.20% - Medium and 13.70% - Not Known (Table no. 3). This stakeholders' perception is supported by the differences in terms of development between the city of Constanta and the other urban and rural localities along the coastal area. It is worth noting that for the international level entities these activities are considered a top priority (90.00%), since the company carrying out most of the coastal area rehabilitation works is an international one which absorbs local workforce, but also other workforce. The coastal area rehabilitation measures, including infrastructure projects, currently being implemented, over time, will lead to the development of coastal communities. On the other hand, the Free Zone status of the Port of Constanta facilitates foreign trade and the transit of goods to/from Central and Eastern Europe.

Table no. 3 Stakeholders' assessment on the social priority

			The scale on which the organization operates			Total
			International	Local	National	
To what extent can port activity, coastal protection (seawalls) be considered a Social Priority?	3	Count	9	10	10	29
		% within The scale on which the organization operates	90.00%	47.60%	50.00%	56.90%
	2	Count	0	7	8	15
		% within The scale on which the organization operates	0.00%	33.40%	40.00%	29.40%
	0	Count	1	4	2	7
		% within The scale on which the organization operates	10.00%	19.00%	10.00%	13.70%
Total	Count		10	21	20	51
	% within The scale on which the organization operates		100.00%	100.00%	100.00%	100.00%

Source: Author's own processing

From the performed analysis, one can see that stakeholders' assessment on how land-based developments influence and support marine developments and how they impact the environment in relation to port and coastal protection activities is perceived differently depending on their knowledge, expertise, information and interests, which are affected by maritime spatial planning, with land and sea interactions (LSI) being strongly linked to the economic benefits of MSP (Creamer *et al.*, 2020, p. 13). Thus, the involvement of the stakeholders representing the multiple sectors operating in the coastal area in maritime spatial planning is necessary and useful, being among the key factors in MSP's success (Zaucha and Kreiner, 2021, p. 1).

The shared use of maritime space with other activities, especially in the coastal zone, as well as its socio-economic consequences will also be addressed in maritime spatial planning, as the integration of land-sea planning is known to be challenging, due to the complex groups of actors and agencies and to competing sectoral uses (Morf *et al.*, 2022, p. 336).

5. Conclusions

Even though the economic and social well-being of the coastal area depends to a large extent on the rational and sustainable use of natural resources (Vintilă *et al.*, 2017, p. 670), nevertheless, sustainable development with regard to the marine area, while not having succeeded in definitively stopping the harmful effects of human activities, has largely allowed the environment to better manage itself (Braşoveanu, 2013, p. 89), with MSP supporting sustainable development and growth in the maritime sector taking into account the interactions between land and sea.

Maritime Spatial Planning (MSP) is a complex process that needs to take into account Land and Sea Interactions (LSI), and the contribution of stakeholders at different levels is important given the variety of challenges facing MSP-LSI. Thus, when drawing up MSP plans there is a need to integrate significant information and data regarding the relevant activities from an LSI perspective, including by creating national strategies covering both land and sea areas (Kidd, Jones and Jay, 2019, p. 259).

Therefore, drafting the MSP plan for the Black Sea area at national and regional/cross-border levels will be a tool for the efficient organization of coastal area management.

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