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Croatia and an Integrated Coastal Zone Management Framework

Abstract

Coastal development significantly affects all environmental components – the sea, soil, air, and water, as well as the sensescape of humans and other organisms. In 2013 Croatia ratified the Protocol on Integrated Coastal Zone Management which sets the principles regarding adequate and timely participation of local population in a transparent decision-making process, the formulation of land use strategies, giving priority to public services and activities requiring the immediate proximity of the sea, avoidance of unnecessary concentration and urban sprawl throughout the entire coastal zone, and making preliminary assessments of the risks associated with human activities and infrastructure. The paper aims to analyse the divergence of Croatian practice from international obligations assumed as Croatia still lacks national strategies related to the use of its coasts and the sea and the ex-ante environmental assessment procedures are inadequate. Educating the public, capacity building of public administration bodies at national and local levels, fulfilment of regulatory tasks, compliance with obligations assumed at the level of United Nations and European Union and taking account of the need of local population are the prerequisite for preserving coastal environment, communities' well-being, resilience, and viability of tourism which is based on natural capital.

Keywords: integrated coastal zone management, natural capital, environmental impact assessment, marine spatial planning

1. Introduction

Croatian Adriatic region has in the last few decades been subject to immense pressure of coastal development which exerts significant impact on the sea, soil, air, and water, as well as the sensescape of humans and other organisms, in other words on the fragile coastal ecosystems and on the quality of living of local communities. At the same time Croatia as a party to Barcelona Convention ratified in 2013 the Integrated Coastal Zone Management Protocol which clearly sets the rules for sustainable development of coastal areas.

The focus of this research is on the discordance between international obligations and the situation in coastal zones resulting from current practice. The paper provides brief review of the history of integrated coastal zone management (hereinafter: ICZM) and analyzes the concept of integrated coastal zone management set out in the United Nations Agenda 21 and ICZM Protocol of the Barcelona Convention with particular emphasis on the aspects that are insufficiently complied with in Croatian practice. It then considers valuing of the ecosystems as potential approach to more efficient ICZM implementation and draws the attention to organizational inconsistencies and their rectification.

2. Integrated coastal zone management

ICZM is a multidisciplinary process that puts together various levels of government and the community, science and management, sectoral and public interests in preparing and implementing a program for the protection and the sustainable development of coastal resources and environments. Its goal is to improve the quality of life of coastal communities and provide for development while maintaining the biological diversity and productivity of coastal ecosystems [1].

Integrated policy must meet the following requirements: comprehensiveness in the input phase or the need to collect and make use of an array of different data ranging from biodiversity and pollution to spectral activities and mitigation; aggregation when processing inputs that requires not only funding and personnel but also a mandate (ministry or agency); and consistency of outputs which necessitates that no single economic interest prevails and that marine protection considerations are sufficiently taken into account [2].

The beginnings of ICZM are associated with 1965, the year of conducting of the first such program by the San Francisco Bay Conservation and Development Commission. Early efforts concerning coastal management were made due to degradation of coastal areas by poor planning and inappropriate exploitation. The Coastal Zone Management Act enacted by the Congress of the United States in 1972 marked the introduction of ICZM at the national policy scale. Integrated coastal management escalated into a common global practice in mid-eighties [1,3,4].

Europe, characterized with a long coast and diverse natural, social and economic circumstances embarked upon ICZM activities in 1996 [5]. Integrating ocean policies in Europe is based on an integrated maritime policy and a framework directive for the protection of European seas, where the idea behind the integrated maritime policy was to find the right balance between the economic social and environmental dimensions of sustainable development [6]. Member States are encouraged to develop their own national integrated maritime policy.

In Croatia, it can be said that ICZM has a relatively long history, dating back to sixties and seventies when the United Nations Development Programme (UNDP)

initiated the projects of Upper and South Adriatic. Throughout six years of their duration, a number of urban planning institutions were engaged, several foreign companies, as well as individual experts [7]. One legacy of the South and Upper Adriatic projects is their establishment of an official approach towards environmental protection [8].

3. Agenda 21

Agenda 21, an action plan for sustainable development adopted in 1992 at the UN Conference on Environment and Development, pinpointed the importance of an integrated coastal and ocean management in its Chapter 17 which states that the marine environment forms an integrated whole that is an essential component of the global life-support system and a positive asset that presents opportunities for sustainable development [9].

Agenda 21 also defines the capacity building concept, meaning human resource development, the creation of coastal organizations and promotion of an overall policy environment [10]. Its Section A entitled Integrated management and sustainable development of coastal and marine areas, including exclusive economic zones, lays down that each coastal State shall consider establishing, or where necessary strengthening, appropriate coordinating mechanisms (such as a high-level policy planning body) for integrated management and sustainable development of coastal and marine areas and their resources, at both the local and national levels. Such mechanisms should include consultation, as appropriate, with the academic and private sectors, non-governmental organisations, local communities, resource user groups, and indigenous people.

4. The system of Barcelona Convention

Barcelona convention or the Convention for the Protection of the Mediterranean Sea Against Pollution was adopted in 1976 and entered into force in 1978. In 1995 it was amended and renamed as the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean. The convention and its seven Protocols form a legal framework to prevent pollution and ensure the sustainable development of the region's marine and coastal areas.

The Integrated Coastal Zone Management (ICZM) Protocol was signed in Madrid in 2008 and in 2011 it entered into force. At the Conference of Parties (COP) 17 held in Paris in 2012, the Action Plan for the implementation of the Protocol 2012-2019 was adopted. COP 18 (Istanbul 2013) adopted the institutional and legal sections of the Reporting Format for the ICZM Protocol and COP 20 (Tirana 2017) adopted the decision that envisages the introduction of Marine Spatial Planning (MSP) into the system of the Barcelona Convention and its Protocols, implying the development of

appropriate means to include MSP in the implementation of the ICZM Protocol. COP 21 (Naples 2019) adopted Common Regional Framework (CRF) considered to be the strategic instrument meant to facilitate the implementation of the ICZM Protocol from 2020 to 2027. COP 23 (Portorož 2023) adopted the Conceptual Framework for Implementing Marine Spatial Planning.

4.1. ICZM Protocol

The Republic of Croatia signed ICZM Protocol [11] in 2008 and ratified it in 2013.This section will therefore focus on certain aspects set out in the ICZM Protocol which a country such as Croatia, undergoing intense development in its coastal area and subject to pressure by various stakeholders interested in the use of maritime demesne should consider and comply with.

Article 2 of ICZM Protocol defines integrated coastal zone management as being a dynamic process for the sustainable management and use of coastal zones, taking into account at the same time the fragility of coastal ecosystems and landscapes, the diversity of activities and uses, their interactions, the marine orientation of certain activities and uses and their impact on both the marine and land parts.

Art 6 outlines the principles of ICZM stating the following: the complementarity and interdependent nature of the marine part and the land part forming a single entity shall be taken particularly into account; all elements relating to hydrological, geomorphological, climatic, ecological, socio-economic and cultural systems shall be taken into account in an integrated manner, so as not to exceed the carrying capacity of the coastal zone and to prevent the negative effects of natural disasters and of development; timely participation in a transparent decision-making process by local populations and stakeholders in civil society concerned with coastal zones shall be ensured; cross-sectorally organized institutional coordination of the various administrative services and regional and local authorities competent in coastal zones shall be required; the formulation of land use strategies, plans and programmes covering urban development and socio-economic activities shall be required; priority shall be given, where necessary, to public services and activities requiring the immediate proximity of the sea; the unnecessary concentration and urban sprawl should be avoided, preliminary assessments shall be made of the risks associated with the various human activities and infrastructure so as to prevent and reduce their negative impact on coastal zones.

In author's opinion the most challenging items when it comes to compliance by the Republic of Croatia are considering the land-sea interactions, carrying capacity, timely participation by local populations in a decision making process, cross-sectoral institutional coordination, land use strategies, priority given to public services requiring immediate proximity to the sea, unnecessary concentration of urban sprawl, and preliminary assessment of the risks associated with human activities in coastal zones.

Art 8 set out that the Parties shall establish in coastal zones a zone where construction is not allowed. This zone may not be less than 100 meters in width, save for projects of public interest or areas having particular geographic or other local constraints related to population density or social needs. Stricter national measures determining the width shall continue to apply. Croatia is far from complying with this requirement. There are even the attempts to change locally the limits of maritime demesne so as to facilitate private project development in immediate proximity to the coastline, all without strategic environmental assessment [12].

It is stipulated that the Parties shall ensure that their national legal instruments include criteria for sustainable use of the coastal zone, including, inter alia, identifying and delimiting, outside protected areas, open areas in which urban development and other activities are restricted or, where necessary prohibited, limiting the linear extension of urban development and the creation of new transport infrastructure along the coast, providing for freedom of access by the public to the sea and along the coast, restricting or prohibiting the movement and parking of land vehicles as well as the movement and anchoring of marine vessels in fragile natural areas on land or at sea, including beaches. In Croatia, interventions are made even in protected areas, see [13]. Anchoring of vessels remains uncontrolled and the movement and parking of vehicles along the coast is a normal practice.

Article 9 entitled Economic activities states that the Parties shall ensure that the various economic activities minimize the use of natural resources and consider the needs of future generations. Regarding tourism, the Parties agree to promote specific forms of coastal tourism, including cultural, rural and ecotourism, while respecting the traditions of local populations. Tourism as principal economic activity in Croatia and speculative development overconsume and degrade natural resources such as water, land, landscape, marine ecosystems, karst vegetation permeable surfaces, with an impact on the quality of life of local population [14].

Art 10 entitled specific coastal ecosystems lays down that the Parties shall adopt measures intended to preserve or develop coastal forests and woods located, in particular, outside special protected areas. In Croatia even the policy related to forests is not in concordance with such a provision [15, 16]. Both protected and unprotected forests are imperilled by clearing for development and timber exploitation.

Article 19 dealing with environmental assessment states that given the fragility of coastal zones, the Parties shall ensure that the process and related studies of environmental impact assessment for public and private projects likely to have significant environmental effects on the coastal zones, and in particular on their ecosystems, take into consideration the specific sensitivity of the environment and the inter-relationships between the marine and terrestrial parts of the coastal zone. The Parties shall thus formulate a strategic environmental assessment of plans and programmes affecting the coastal zone. It is pointed out that the environmental assessments should take into consideration the cumulative impacts on the coastal zones, paying due attention, inter alia, to their carrying capacities. Most procedures for coastal projects in Croatia only

undergo the screening and not environmental impact assessment, based on improper environmental reports and often disregarding divergent opinions by the public and professionals [17].

Article 20 entitled Land policy states that in order to ensure the sustainable management of public and private land of the coastal zones, Parties may inter alia adopt mechanisms for the acquisition, cession, donation or transfer of land to the public domain and institute easements on properties. Croatian practice departs from such stipulation. The concessions on coastal strip are often granted for lengthy time periods, making them almost equivalent to privatization [18,19].

4.2. Marine spatial planning

Marine spatial planning (MSP) is a cross-sectoral coordination and decision-making tool enabling public authorities and stakeholders to apply an integrated, policy-based, transboundary approach to the ecosystem-based regulation, management and protection of marine environment, considering the competition in seas from various sectors and stakeholders, as well as to analyse and allocate the spatial and temporal distribution of human activities in marine areas for achieving ecological, economic, and social objectives that have been specified through both technical and political process. MSP can be considered the tool for the implementation of ICZM in marine part of the coastal zone. MSP based on ecosystem approach[1] focuses on the sea part where the boundaries are defined according to ecologically significant areas, and it provides integration with the terrestrial part covering coastal area and its hinterland [20].

Adriatic Sea is rich in biodiversity and endemic flora and fauna, is intensely fished area in relation to its size, hosts busy shipping routes and is all the more subject to the pressure of nautical tourism, intense development along its eastern karst coasts, energy production from renewables and fossil fuels, fish farming, and commodification of its other marine resources, with climate change effects deteriorating the situation. Possible siting of the competing and often environmentally harmful but profitable private activities should be regulated through a properly adopted national maritime spatial plan, which has to date not been proposed or adopted, despite the obligations and expired deadlines [21].

[1] Ecosystem approach can be defined as a holistic approach to land, water and living resources targeting sustainable delivery of ecosystem services in an equitable way. It goes beyond examining single issues, species, or ecosystem functions in isolation Instead, it recognizes ecological systems for what they are: rich mixes of elements that interact with each other continuously. This is particularly important for coasts and seas, where the nature of water keeps systems and functions highly connected. The essence of the ecosystem-based management approach is to address the coastal zone as a continuum made of land and sea space, preserving the integrity of its ecosystems and dealing with the processes that occur in them and influence on them in an integrated manner [20].

The backbone of the legislation on physical planning in Croatia is the 2013 Physical Planning Act, as amended. The amendment to this Act which came into force in July 2017 is considered as complete transposition of the EU MSP Directive into the legislation of the Republic of Croatia. Its Article 49a among others states that marine area is planned by physical plans of the counties that encompass marine area and zoning of the cities or municipalities [22].

The ministry in charge of physical planning is the Ministry of Physical Planning, Construction and State Assets. Although drafting of the Marine Spatial Plan commands for involving at least the ministries responsible for maritime affairs and for marine environment protection, said ministry is currently coordinating a process for adopting the Marine Spatial Plan of Exclusive Economic Zone and the strategic environmental assessment of said Plan [23]. According to Schubert, it is questionable whether the coastal State is entitled by international law to establish a spatial planning regime in the EEZ [24]. It is neither part of the State's territory nor subject to its sovereignty. Anyway, subdivision of the sea for the purpose of planning separately its constituent parts as practiced in Croatia is contrary to ecosystem approach, the integrity of marine and terrestrial part and holistic approach mentioned above. The problem is further exacerbated by the fact that marine environment portfolio has for years not been accorded respective attention within the ministry responsible for environment and nature protection.

Without a valid maritime spatial plan agreed among different sectors and stakeholders, which had undergone mandatory public consultation and strategic environmental assessment, it is highly risky and inappropriate to allocate certain maritime demesne area for a particular use. Maritime spatial plan is important for resilience of communities in coastal areas [25], the resilience of ecosystems [26] and vital ecosystem services they provide, as well as for coastal management in general [27].

4.3. Common regional framework for ICZM

As mentioned previously, CRF is a strategic instrument meant to facilitate the implementation of ICZM Protocol. Its objectives and general principles specify, among others, respecting of the carrying capacity, formulating appropriate land use strategies, environmental impact assessments, coastal erosion, climate change, nature-based solutions, ecosystem approach, coastal adaptation into appropriate institutional and policy frameworks, and achieving good governance among actors [20]. It also proposes a methodological guidance for reaching good environmental status (GES) through ICZM.

In addressing land-sea interactions (LSI), CRF points out that almost all marine uses need support installations on land, while several uses existing mostly on the land part expand their activities to the sea as well. These interactions have to be identified and mapped, assessing their cumulative impacts, benefits and potential conflicts and

synergies. Interactions between land and sea activities can extend further beyond the coastal zones, for example in terms of long-distance connections related to transport and energy distribution or fish migration up-stream and stemming need for blue corridors. Thus, although the primary focus is on coasts, identification and mapping of those wider connections and assessment of their environmental, social, economic and spatial implications are very important. Regarding interactions of planning processes, inshore and offshore activities should be planned in harmonized manner considering the functional integrity of the land-sea continuum.

Concerning environmental assessments, CRF emphasises that the application of EIA and SEA supports the implementation of ICZM principles including the need to consider all elements of natural and cultural system in an integrated manner. Both environmental assessment processes seek to identify alternative options and the consideration of cumulative impacts.

In respect of land policy when applied to ICZM, it contributes to maintaining unoccupied natural areas and facilitates public access to the coast and the sea. Therefore, land acquisition is seen as one of the instruments to preserve coastal natural areas. Concession is seen as a way to raise funds that can be reinvested in ICZM activities which also enables to consider a non-permanent occupation on areas potentially vulnerable to immersion or coastal erosion risks, in the perspective of their temporary touristic or economic valorisation. Potential instrument for ICZM land policy is separation between ownership and right of use, for instance an easement can be designed to establish a right of way along the coastline on private properties bordering maritime public domain to facilitate the access of public to the coast. Pursuant to Art. 20 of the ICZM Protocol, the states are encouraged to conduct a diagnosis of sensitive coastal zones threatened by urbanization and climate change in order to identify priority areas and design a coastal areas acquisition and protection strategy.

5. Natural capital and ICZM implementation

Saffache and Angelelli [28] illustrated possible approach to ICZM implementation through comparing Lesser Antilles islands which adhered to diverse practices influenced by their metropolitan states, more specifically the islands under French sovereignty and independent English-speaking islands. English-speaking islands follow the current developed in the United States and Great Britain where the fields and methods of natural capital valuation, including biodiversity, have been refined and where the laws already promoted the cost-benefit analysis and considering public gains and socio-economic benefits. Several valuation methods of natural capital have since been developed and described, see [29, 30]. In the case of the French islands, the value of coastal areas is not economically estimated, because the goods and services they provide are considered as non-market, therefore protection policy is not based on the economic valuation of coastal areas, possibly hindering the awareness of the degradation of coastal and

marine environment. For example, beautiful landscape or the existence of a fish stock can generate income directly or indirectly by attracting tourists, by contributing to increased real estate values, by generating income from the fishing and gathering activities, etc. On the contrary, damaged landscape may reduce the natural capital and induced incomes, creating additional costs of cleaning, decontamination, monitoring, waste of time and fuel over-consumption for catching fish farther, etc., which generates the case of external economies [28].

A semi-quantitative analysis for tourism-related real estate developments in coastal City of Opatija [31] that integrates economic, social, and environmental costs and benefits, based on the framework proposed in [32], shows for instance that the level of actual net gains for local community from such projects are dubitable. The analysis of environmental costs and natural capital degradation was qualitative.

It is to be noted that regulatory framework is currently evolving in direction of valuing the ecosystems. Regulation EU 691/2011 (amended in 2024) on European environmental economic accounts [33] establishes a common framework for the collection, compilation, transmission and evaluation of European environmental economic accounts. Its Annex IX provides the Module for ecosystem accounts which should present data on the extent and condition of ecosystem assets and services they provide to society and the economy, in line with the System of Environmental-Economic Accounting – Ecosystem Accounting[2] (SEEA EA) [34]. The first reference year is 2024 and it is set out that the statistics shall be transmitted within 24 months of the end of the reference year.

One must also mention EU Regulation 2024/1991 [35] on nature restoration which combines a restoration objective for the long-term recovery of nature in the EU's land and sea areas, which in its preamble also refers to SEEA EA. Geographical scope is specified in its Article 2 and includes coastal waters of the Member States, their seabed or their subsoil, as well as waters, the seabed or subsoil on the seaward side of the baseline from which the extent of the territorial waters of a Member State is measured, extending to the outmost reach of the area where a Member State has or exercises sovereign rights or jurisdiction, in accordance with the 1982 United Nations Convention on the Law of the Sea. Targets and obligations are set for coastal (Article 4) and marine ecosystems (Article 5). By 2030 on at least 30 % of the total area of habitat types that is not in good condition, by 2040 on at least 60 %, and by 2050 on at least

[2] The System of Environmental-Economic Accounting—Ecosystem Accounting (SEEA EA) is a spatially-based, integrated statistical framework for organizing biophysical information about ecosystems, measuring ecosystem services, tracking changes in ecosystem extent and condition, valuing ecosystem services and assets and linking this information to measures of economic and human activity. It was developed to respond to policy demands and challenges with a focus on making visible the contributions of nature to the economy and people. Such estimates however do not include the monetary value of the wider social benefits of ecosystems, including their non-use values. Assessing the importance of ecosystems will therefore require consideration of a wide range of information beyond data on the monetary value of ecosystems and their services [34].

90 % of the area of each group of habitat types. EU countries are expected to submit National Restoration Plans to the Commission within two years of the Regulation coming into force, therefore by mid 2026, showing how they will deliver on the targets.

6. Conclusions

Croatia has by now neither drafted nor enacted two strategic documents related to its coastal zone – National Strategy of Integrated Coastal Zone Management and Marine Spatial Plan although it had been obliged to produce both under international conventions and EU acquis. Its coastal management and legislative activity related the coasts and the sea is therefore not guided by officially agreed strategies and plans that would have been subject to strategic environmental assessments and public consultations.

The pressures by developers and industrial sectors on coastal areas are exacerbated by the lack of institutional and personal capacity for coastal and marine-related issues at national, county, and local administration levels. Furthermore, the portfolios of environment, spatial planning, maritime affairs, and islands are split among completely different ministries which insufficiently coordinate their activities. Besides that, regulating function is insufficient and the laws in force are poorly implemented.

Coastal environment should be accorded a value in order to assess the impact of economy on the environment and vice versa. European regulatory framework is developing in such direction as well. Semi-quantitative techniques may be applied in evaluating the costs and benefits of various interventions in coastal areas..

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