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## SOME ISSUES OF CONVERSION AND PROTECTION OF MARITIME DOMAIN

**Abstract:** The process of conversion of facilities in the maritime domain zone in Croatia has been going on for more than thirty years. Use is largely structured as a lever to justify economic exploitation. Protection of the maritime domain, although crucial, is often of minor importance. Sensitivity is particularly important to consider for environmental protection when converting buildings. The paper analyses the conversion and complexity of potential environmental devastation. The specificity of the problem is often the illegal usurpation of the maritime domain, which leads to a collision of legal provisions and the real situation on the ground. A special problem is the determination of the boundaries of the maritime domain, which is a true representation of the complexity of the environmental protection procedure during the conversion of facilities on the maritime domain. Maritime domains on the territory of Croatia occupy a fairly large area concerning the entire state territory. It has a typical Mediterranean climate, relatively lush vegetation, exceptional attractiveness, and investment potential. These characteristics are the basis of strategic development and economic growth, but also a trap in case of over-exploitation, which creates the possibility of long-term intensive devastation of the maritime domain. Negative repercussions must be avoided because otherwise the meaning of every developmental aspect is lost. The purpose of the research is a comprehensive analysis of the conversion of facilities on the maritime domain and the identification of opportunities to achieve the highest standards in environmental protection. This would prevent environmental devastation.

**Keywords:** maritime domain, devastation, environmental protection

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## **Introduction**

The basic responsibility of every country that has access to the sea is to prevent and ecologically protect its sea and coast. At the same time, it has all the institutional mechanisms at its disposal, the use of which would make a step forward for society. According to the Maritime Domain and Seaports Act (OG 158/03, 100/04, 141/06, 38/09, 123/11, 56/16, 98/19), the following are considered maritime property: seacoast, ports, breakwaters, embankments, banks, cliffs, reefs, estuaries that flow into the sea, canals connected to the sea, and sea and marine underground living and non-living natural resources (fish, ores, etc.).

The maritime domain is potentially the most suitable area for the exploitation of natural resources. It has a 'timeless' dimension because exploitation is not only focused on present generations but also on future generations. Threats, challenges, and environmental risks impose the need to create a strategy that would adequately articulate today's high environmental standards. Many degraded and neglected facilities such as: military buildings and warehouses, Austro-Hungarian (AU) fortifications, battlefields, breakwaters, and embankments are located on the maritime domain in Croatia. It is stated that maritime domains and associated facilities are a fundamental part of potential economic development.

## **Theoretical and legal determinants and characteristics of the Maritime Domain**

The literature reveals a large number of papers, analyses, and professional projects on the topic of environmental protection in the conversion of facilities to the maritime domain. The aim is to achieve a balance of economic progress and environmental protection. Also, there were attempts by all stakeholders to take a step forward for society through a public debate on protection. In recent times, the structure and execution are extremely complex, intriguing, and ubiquitous. According to the author Jambrović (2014), scientific research develops and applies methods of risk assessment, then the assessment of environmental uptake and others, based on which it is possible to compare the size of interventions in nature with the possibility of preserving the environment. The environment should be protected by replacing and developing technological processes that create fewer pollutants and consume fewer natural resources. The development policy of both developed and developing countries is based on this principle.

The author Jelavić (2012) states that the protection of maritime property from pollution is determined by the Declaration on Environmental Protection, which, among other things, determines the establishment of a separate ministry for environmental protection and physical planning, and it will be a link to unique local and regional self-governments. The author Vukčević (1994) pointed out the fact that the degradation of nature continues with the construction of buildings, traffic, quarries, hotel and tourist facilities, etc. Such poor architecture disrupts existing urban units, and coastal (Mediterranean) harmony and landscape, especially in the maritime domain area. Author Creel (2003) stated that unless governments and users of coastal resources take

action, population pressures and the associated levels of economic activity will further degrade many coastal habitats.

The author Hlača (1996) states that the maritime domain can be defined as a part of the general (public) domain that consists of the sea, its bottom, and submarine, and certain parts of the land related to the sea, together with constructed facilities that by their nature or purpose serve public maritime use. The author Charlier (1989) argued that large quantities of solid matter are also discharged at sea: for example, dredged material, building material, and fine noxious particles carried by rivers, such as asbestos fibres. Occasionally, heavy metals find their way to the sea: among them, the most dangerous is mercury and cadmium, materials that have polluted the coastal area of Japan. Also, high concentrations of copper, lead, arsenic, and other metals have been reported in some areas. The reflections of certain experts on legal solutions are extremely close. They articulate and define all processes, structure, performance, and all stakeholders in environmental protection in the conversion of facilities on the maritime domain. Concern for the protection and improvement of the environment is generally associated with additional investments to meet the conditions of protection. The Environmental Protection Act (OG 80/13, 153/13, 78/15, 12/18, 118/18) and the Ordinance on Environmental Impact Assessment (OG 59/20) of the Republic of Croatia determine the interventions in the environment that require an assessment of the environment. Regarding the performance of economic activity in the maritime domain, some of the most common interventions for which it is necessary to prepare an environmental impact assessment study are listed on Decree on Environmental Impact Assessment (OG 61/14, 3/17).

It is advisable to state that before the 90's the coastal belt or maritime domain was a social and common domain, i.e. in general use. It was only in the recent period after 1990 that it began to be defined as a maritime domain or '*res communes omnium*', which was a step forward. This meant that the maritime domain was inviolable and non-transferable, could not be in real estate, and could not acquire the right of ownership in its territory. However, it is important to emphasize those buildings and structures that are permanently related to the maritime domain are considered as part of the maritime domain itself. In the last 30 years, the boundaries of the maritime domain have begun to be determined. In other words, there was a gap between the actual i.e. recorded situation on the ground and the declarative non-proprietary institute of the maritime domain. It is advisable to ask why the institutions have not yet implemented a credible and detailed register of illegal registration of ownership of the maritime domain.

The definition of the maritime domain by its content in some segments is contradictory and imprecise. This primarily refers to the definition of the seacoast, the sea underground as well as living and non-living natural resources. From the legal definition we see that maritime property includes (The Maritime Domain and Seaports Act (OG 158/03, 100/04, 141/06, 38/09, 123/11, 56/16, 98/19)):

- coastal component – sea coast,
- water component – inland waters and territorial sea,
- submarine component – seabed and subsoil.

The length of the Croatian coast without islands is 1,777 kilometres, and including the islands about 6,500 kilometres, so the development in the field of maritime domain is of crucial importance for the state and the population. The research has found that Croatia is one of the few countries whose sea surface is larger than the land surface. Regarding the maritime domain, the author Panžić (2008) states that the solution lies in sustainable development and economic use of our coast, sea, bottom, and submarine to the extent that it brings us maximum profit as long as it does not jeopardize their preservation and is a great challenge for legislators. There is great doubt as to how to strike a balance between legislation that must be structured and designed to contribute to the protection of the common good and the benefit of the community, while not slowing down potential investment cycles. Given that it is of special importance, legal bases are created which are a prerequisite for the use of a maritime property. One of the most well-known legal regulations is concessions.

Interestingly, the analysis of Croatia's Maritime Development Strategy (from 2014 to 2020) shows, among other things, that the goals of the strategy itself are set very ambitiously and envisage increases in revenues from maritime concessions from 80 million to 160 million through the establishment of an integrated maritime asset management system. Integral management means that it is necessary to develop methods to manage it systematically and to establish a cadastre of maritime domain for this purpose. During the economic exploitation of maritime domain zones (through concession) and major interventions in already existing facilities, it is necessary to create control mechanisms that will neutralize possible pollution caused by human activity. The fact is that without these control mechanisms, the market valuation of this area would greatly cause a devaluation of its value and comparative advantages. Croatia has never correctly and systematically articulated a strategy towards this issue. The geographic position of the maritime domain suggests that it must be approached in a specific and serious way. The rise of Croatian tourism and the acceleration of the dynamics of all accompanying processes is also directly manifested in the complexity of the relationship between development and the basic principles of environmental protection. The issue of a significant amount of faecal water after the conversion of facilities is also open. They should be adequately treated and targeted.

Therefore, it is extremely important that Croatia respects the undeniable fact of exceptional potential and that the concept of our legislative practice meets the most successful conversion of facilities, buildings, and structures with the most painless and acceptable interventions in the maritime domain.

### **Analysis of environmental protection in the conversion of facilities on the Maritime Domain**

The maritime domain is ranked among the potentially most economically important areas of any country that has access to the sea. During the transition process in Croatia, environmental protection has been neglected, which has been recognised as a major problem in recent times. In the further course of this paper, a possible solution to this problem will be analysed, which would help reduce environmental pollution.

Furthermore, the geographic position of Croatia is extremely attractive. Croatia is also a Mediterranean, Central European, and Danube River country at the crossroads of European geographical macro-regions. Nevertheless, the direct and indirect effects of environmental management to date have pointed to problems and temptations resulting from objective circumstances. Marine and environmental pollution, devastation and pollution of the seacoast has been detected as the biggest problem, which has a very negative effect on the quality of life of the local population. Therefore, the local government should be the first to react and act to find a new and better solution.

For example, it is unacceptable that only in 2020 these types of maritime vessels with the new Ordinance on boats, motor boats and yachts with built-in tanks for holding faeces must be equipped with a standard landing socket that allows receiving pipes of the device to be connected to the discharge pipe of a recreational boat (Ordinance on boats, motor boats, and yachts, 2020). This provision strictly prohibits the discharge of faecal water into the marine environment. Although faeces are biodegradable waste that quickly decomposes, their direct discharge into the sea is not environmentally friendly. In Croatia, according to the Ministry of Environmental Protection and Energy and Croatian water (government organization), there have been many attempts to implement development projects for wastewater treatment. One example is the agglomeration of northern Pula for the needs of the EU project called Pula North. The goal of the project, in addition to raising the quality of water supply and connecting the local population to the drainage system, is wastewater treatment, reconstruction, and construction of new main sewers, pumping stations, and construction of new treatment devices. This method of implementation would contribute to reducing the impact of pollution in the case of the Bay of Pula. Therefore, such solutions can be defined as environmentally friendly. There is a big doubt even though the documentation has been realized, the necessary permits have been secured and the competent ministry has carried out a strict feasibility check in the field as to why the implementation phase has not started. In addition, it is important to note that Croatia is a contracting party to the Barcelona Convention and in 2012 ratified the Protocol on Integrated Coastal Zone Management of the Mediterranean by adopting the Act on Ratification of the Protocol on Integrated Coastal Zone Management in the Mediterranean (OG 8/2012). The aim was to define all processes to achieve the goals of sustainable management and to make a definite step forward in environmental protection. The authors (Favro & Kovačić, 2010) point out that the conditions related to the international Blue Flag for beaches and marinas can be taken as a reference aspect of investment in environmental protection in the maritime domain. It is a marine and coastal environmental protection program that has been successfully implemented in Europe and several non-European countries for fourteen years.

Taking into account the characteristics of the Bay of Pula, above all the spaciousness, protection and closedness, its significance has always been that it is the main economic resource of the city of Pula. It was discussed and researched, and finally, it was realised that the main collector network does not meet the basic regulations. The structure and construction were not efficient primarily due to insufficient hydraulic capacity,

biological load, and sea penetration towards pumping stations, which affected the shortening of their service life. It also had a negative impact on the operation of wastewater treatment plants (so-called UPOV). The project of improving the water supply system and the system of drainage and wastewater treatment in the agglomeration of Pula North includes parts of the city of Pula and parts of the surrounding municipalities (Fig. 1).



Fig. 1. Location of the planned project in Istria

Source: Public drainage system and wastewater treatment plant, Pula North Agglomeration, Environmental Impact Assessment Study, 2016

Among other things, 439 m of safety discharges of pumping stations would be built and wastewater would be treated using SBR technology. It is important to note that the competent ministry considers the performance, refers it to a public hearing, and finally approves the planned request as environmentally friendly. It is definitely a step forward for society in the function of achieving the goals of protection of the entire marine and coastal ecosystem.

The quality standard of discharged wastewater in Croatia is defined by the following (most important) laws and bylaws:

- Water Act (OG Water Act (OG 66/19, 84/21),
- Ordinance on limit values for wastewater emissions (OG 26/20),
- Decision on the designation of sensitive areas (OG 81/10).

The area of the northern part of the Pula Bay should shortly be articulated as a crucial development resource of the city of Pula that would certainly receive certain benefits and revenues through the economy for the benefit of the domiciled community. An elementary feature of the current policy of environmental protection, the sea, and the entire coastal area must be in synergy with the conversion of facilities on the maritime

domain. It is estimated that in this case, additional revenues would be generated through the gentrification of facilities, taking into account the positive environment.

## **Results and discussion**

The maritime domain, although undefined in the past, was for the inhabitants at the time the primary area where they exploited primarily marine resources. In recent times, the feature of this area is more and more usurpation of space, and therefore it is necessary to balance economic development and ecosystem. Firstly, through a public debate, and then through necessary implementation in Croatian legislation of Directive 2008/56 /EC of the European Parliament and the Council of 2008 establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive) as a foundation and possible punishment due to non-compliance with regulations. The author Nakić (2016) discusses solutions in the immediate environment as well as in European countries, and regarding the maritime domain, he notes that mostly all countries have accepted a system according to which the maritime domain is a public domain, most often owned by the state. Croatia is alone in defining the maritime domain as a common domain and in its non-ownership system. The analysis showed that only in recent times has the importance of the coastal area, and thus the maritime domain, been given importance. In the current phase, all the processes necessary to implement the principles of protection of the marine environment during the conversion of facilities have been articulated. These conversions must be of direct and indirect benefit to the local community. Otherwise, the conversion as such does not make much sense.

Environmental protection in the conversion of the maritime domain is based, among other things, on the construction and expansion of the sewerage network, increasing wastewater collection and connection to the system. In this context, the creation of a clean and unpolluted environment is the basis that will determine the potential development of the economy and reduce the current depopulation of these areas. The combination of an ecologically clean environment with annual air quality monitoring reports according to which air quality in the city of Pula belongs to the first category, market assessment of this area certainly has a higher value. The increase of negative impact on the environment due to inadequate development projects whose structures and performances are not in the function of space protection is discussed. The Decision on the designation of sensitive areas does not define the wider area of the city of Pula as a sensitive area (Fig. 2). For comparison, in the long run, the city of Pula opted for a wastewater distribution system. At the current stage, the system is mixed, i.e. faecal and rainwater are in the same pipeline. In the planned intervention zone, potential tourist activity is planned, which includes about 1,000 dry and 600 berths at sea with an additional 200 hotel beds. Namely, the projected planned intervention specifically in the case of the city of Pula will certainly increase the general social standard, reduce health risk, and most of all reduce the negative impact on the environment, i.e., soil, air, groundwater, and biological conservation of the sea.

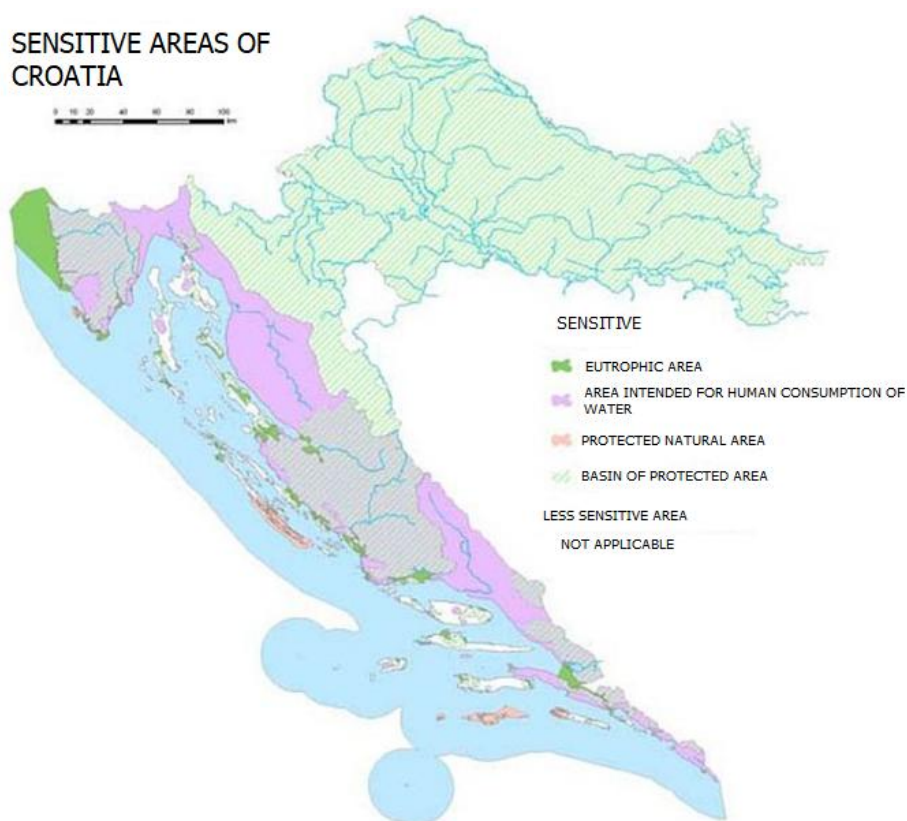


Fig. 2. Mapping of sensitive areas

Source: Decision on the designation of sensitive areas (OG 81/10)

It was noticed that all invitations of tender that have been announced in Croatia, either international or 'regional', guarantee the potential investor all the accompanying infrastructure, including the drainage and wastewater treatment system. The authors (Kovačić & Komadina, 2011) noted that the fundamental attitude of sustainable development is a humane attitude towards the next generations. Sustainable development is not just an economic activity that satisfies present and future generations, but sustainability should be understood as the endless survival of quality systems that ensure life and the existence of infrastructure and institutions that distribute and protect components of these ecosystems. Therefore, the positional characteristics of these areas require new alternatives and solutions that would reduce possible pollution and negative impact on the environment to a minimum.

Through the paper, it was emphasised that the rational concept of conversion of facilities on the maritime domain is a key and strategic interest of Croatia. In that case, almost all economic goals would be achieved, and the environment would be protected, along with other very important segments such as preserving the quality of drinking water, treatment of faecal water, and responsible waste management. The authors (Koboević et al., 2012) commented on experiential solutions in the United States. Namely, due to population growth and additional pressure on coastal areas, space has become a rare resource in the United States as well. As a result, there is a need for the planned use of resources, especially in coastal areas. With the growing awareness of



environmental sensitivity, a movement has emerged for the planned exploitation of (coastal) spatial resources in the United States. The opportunity to use various EU funds should be aimed at protecting the environment and promoting green technologies. An elementary feature of the action should be the aspiration to reconcile the conversion or intervention in space (economic activity) and the protection of the marine environment.

In SWOT analysis strengths, weaknesses, opportunities, and threats are summarized and the problem and the subject of the research are determined (Table 1).

Table 1. SWOT analysis of maritime domain

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> <li>Relative purity of the sea</li> </ul>	<ul style="list-style-type: none"> <li>Non-realisation of sustainable development and integrated coastal zone management (maritime domain)</li> </ul>
<ul style="list-style-type: none"> <li>Regular evaluation and control of sea quality</li> </ul>	<ul style="list-style-type: none"> <li>Undefined borders of the maritime domain of the City of Pula, inadequate valorisation and inaction following the challenges of the area</li> </ul>
<ul style="list-style-type: none"> <li>Security</li> </ul>	<ul style="list-style-type: none"> <li>Incoordination of marine spatial plans strategy</li> </ul>
<ul style="list-style-type: none"> <li>Favourable geographic position, climate, and nature</li> </ul>	<ul style="list-style-type: none"> <li>Low harmonization level between relevant acts/ regulations</li> </ul>
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> <li>A holistic and systematic way of managing the maritime domain</li> </ul>	<ul style="list-style-type: none"> <li>Illegal construction, usurpation, and devastation of space on the maritime domain</li> </ul>
<ul style="list-style-type: none"> <li>Possible direct and indirect benefits for the local community</li> </ul>	
<ul style="list-style-type: none"> <li>Preservation of rich marine biodiversity</li> </ul>	<ul style="list-style-type: none"> <li>Slowness of the procedure in determining the boundaries of the maritime domain despite the knowledge of modern methods</li> </ul>
<ul style="list-style-type: none"> <li>More efficient use of the marine environment</li> </ul>	

Source: own work

A positive example is the conversion of the maritime domain and coastal areas in Venice through the action of the domicile and creative sector. The authors (Cizler & Soriano, 2019) observed and stated that one of the most recent successes of the non-

institutional actors involves the decision to move the facilities for the maintenance of the MOSE project from the Northern Arsenal to Marghera, an industrial borough of Venice located on the mainland. This decision was made at the end of 2018, after a long fight of Forum Futuro Arsenale to save this valuable historical area, by drawing attention to its significance and to the need to keep it accessible to the citizens.

Therefore, it is proposed to take a stance on surveyed facilities on the maritime domain to avoid unsustainable forms of tourism, ordering ecosystems, and create conditions for gentrification or restructuring of space.

## Conclusion

The conversion of facilities to the maritime domain is a process that must be based on economic, social, and environmental principles and standards. At the global level, all the complexity of the issue of protection of the marine environment on the maritime domain is noticeable, primarily due to the complete urbanisation and radical intervention in space. Since in Croatia the institute of the maritime domain is compromised, the subject of various abuses of conversion facilities can cause disorder and confusion. A markedly more favourable solution can be achieved by thorough consideration and management of the maritime domain institute, which should be subject to change and questioned with the opening of new options and solutions. A much better solution can be achieved by quality construction of public drainage systems and installation of modern wastewater treatment plants. That can be seen in the example of the city of Pula. This method of operation ensures a large reduction in the penetration of harmful wastewater into the sea, which is environmentally justified if special care is taken of the impact of the project on the environment. The paper confirmed the necessity of caring for the environment and the intention to reduce negative impacts, all to preserve and protect valuable areas of the maritime domain.

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