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Coastal Zone and Maritime Common Good Participatory Allocation

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ABSTRACT

The paper presents results of the research focused on analysing applicable allocation approaches (general mechanisms) regarding coastal zones and maritime common good. We identified relevant general stakeholder groups and two general allocation approaches, one with decision-making authority granted exclusive to public authorities, and other – participatory approach – based on self-governing and deliberative inclusion and proactive participation of all relevant stakeholders in the allocation decision-making process and governing mechanism. The research also utilises application of agency theory to maritime common good and coastal zone allocation, evaluating identified allocation approaches in the light of the agency theory. The research also encompasses an in-depth literature analysis, complementary accompanying previous research in the field and evaluating compatibility of participatory allocation approach with modern institutional framework addressing coastal zone management in the Mediterranean. The importance of further developments of maritime common good and coastal zone allocation approaches and mechanisms, based on active participation and partnership of stakeholders in the decision-making process, is emphasized in order to further strengthen the potential for stronger and fruitful utilisation of information background (local knowledge) from local population necessary to sustainably improve complex allocation process of maritime common good on the long run.

1 Introduction

A wide range of theoretical and empirical studies [2], [3], [4], [9], [10], [11], [21], [24], [29], [33], [34], [35] in the last decades questioned the appropriateness of allocational decision-making about commons based exclusively on the public authorities. Considering allocative specificities of the commons and their immanent characteristics of subtractability in use in combination with low level of excludability, and combined with exclusive allocation authority from public authorities, often requires special attention being put on the question of searching for control mechanisms. In essence, this can be well illustrated by quoting old Latin phrase from Juvenal "Quis custodiet ipsos custodes?", modernised by L. Hurwicz as "Who will guard the guardians?". This is an important question and is far from negligible when considering improvements to the mechanism of allocation of the commons and maritime common good, and its significance and practical manifestations can be seen very easily in numerous practical examples of maritime common good non-legal appropriation and devastation. Sharing the same perspective, this research also evaluates the appropriateness of this mechanism for allocating the maritime common good based on the exclusive action of the public authority.

Previous research [7], [8] offered definitions of the maritime common good analysing its components, while also offering its categorisation mainly as a common good (commons), and partially as a public good, in the framework of theories of economic goods. In addition, research have demonstrated its perspective within the IAD framework and connections with integrated coastal zone management and corresponding institutional framework,

primarily the Barcelona convention and the Protocol on Integrated Coastal Zone Management in the Mediterranean (ICZM protocol). These research also shade a late on possible directions of decision-making mechanisms capable of producing better economic, ecological and social effects. Those directions are mainly focused on the necessity of inclusion of the coastal zone stakeholders, including local population, in the decision-making mechanisms, taking into accounts the modern legal and institutional framework as well as modern research approaches focused on the common's governance.

In this paper we are presenting results of our research analysing long-term sustainability and social, environmental and economic aspects of possible allocation approaches (general mechanisms) of maritime common good and coastal zones, while also taking into account the necessity to overcome the well-known common goods related issue of the "tragedy of the commons" [12]. Our research is focused on the application of agency theory to maritime common good allocation, and is founded on the previously mentioned research as well as on the modern legal and institutional framework dealing with coastal zone management in the Mediterranean.

2 Literature Review

The literature review follows the general approach used by Vukelić et all. [32] that is applicable to be used in multidisciplinary studies related to maritime issues. There are four crucial steps to be performed, from material acquisition and descriptive analysis, to selection of categories and evaluation.

The acquisition of material was carried out from March to May 2024 with the following strategies being adopted during the acquisition period.

- Defining time span: all references that are available in the selected databases and published until 2023.
- Selecting sources: the author opted to review peer-reviewed articles coming from available journals.
- Identifying keywords: the keywords used to search for relevant literature were "participatory", "participation", "commons", "maritime", "marine", "coastal".
- Narrowing search: combination of keywords, time differentiation, truncation symbol (keyword root and asterisk sign), and Boolean operators were used to narrow the search among titles, keywords, and abstracts.
- Selection of databases: Web of Science Core Collection.
- Reporting: the selected set of references has been collected analysed using VOSviewer software as well as using graphical representations from Web of Science (WoS).

The descriptive analysis was performed for two separate periods (P) with different keywords in each period:

P.1. From 1969 (1955) up to 2023 utilising only the general keywords "participatory", "participation" and "commons" in order to get a wider perspective about the field;

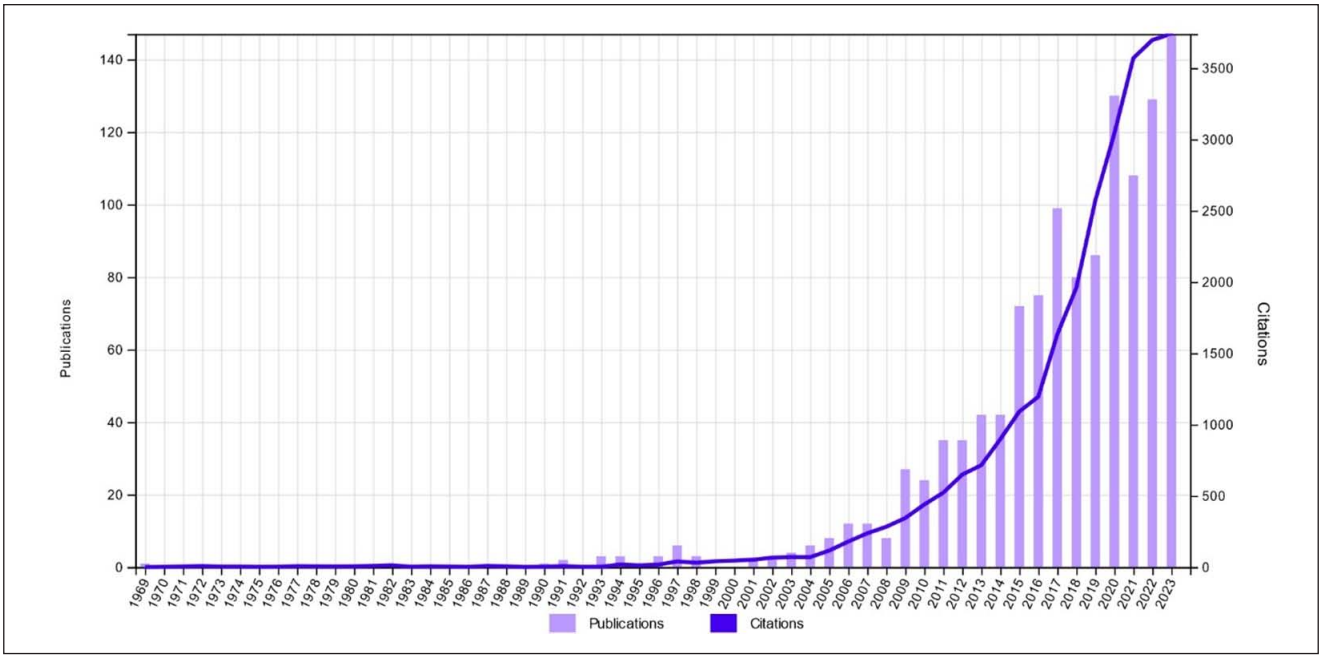

Figure 1 Publication and citation time distribution for articles acquired through Web of Science for a broad field of participatory governance

Source: Authors using WoS graphical representation services

Figure 2 Subject areas distribution for articles acquired through Web of Science for a broad field of participatory governance

Source: Authors using WoS graphical representation services

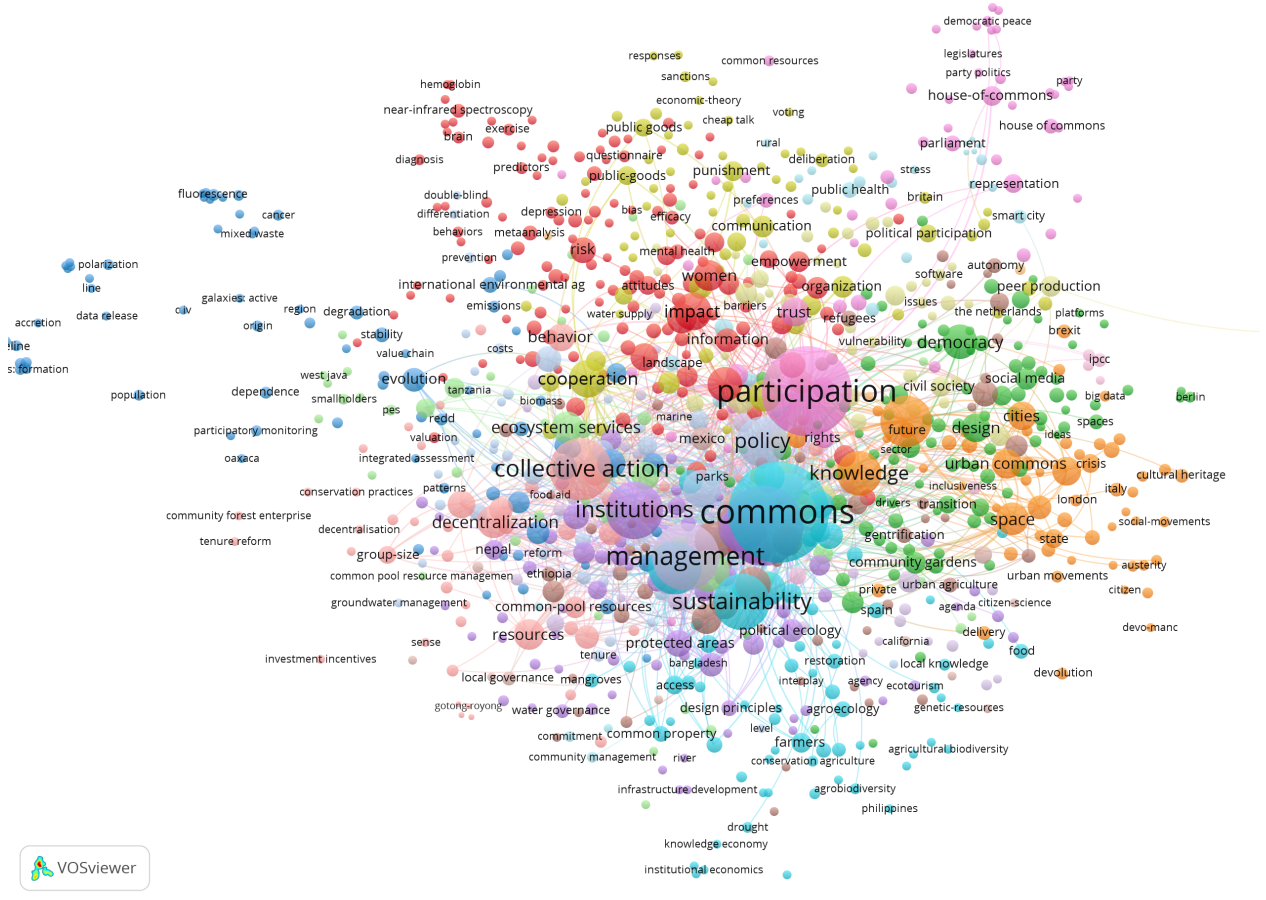

Figure 3 Weight of items based on the analysis of titles, abstracts and keywords for articles acquired through Web of Science for a broad field of participatory governance

Source: Authors

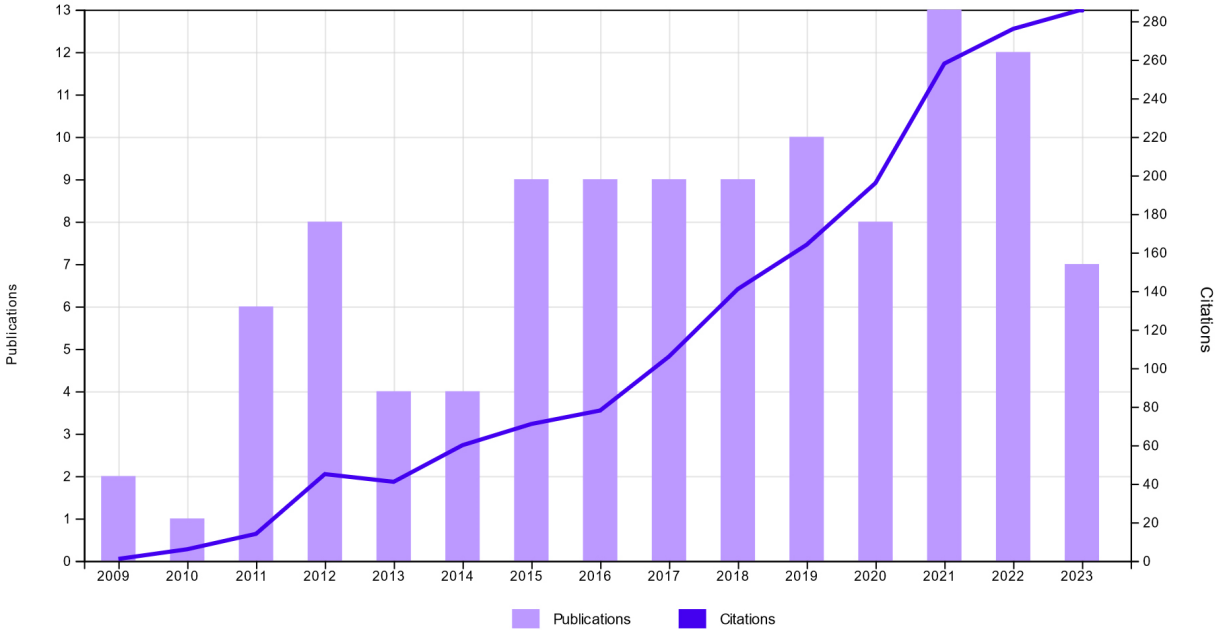

Figure 4 Publication and citation time distribution for articles acquired through Web of Science for a narrower field of participatory governance in maritime or coastal areas

Source: Authors using WoS graphical representation services

P.2. From 2009 up to 2023 utilising all of the previously mentioned keywords "participatory", "participation", "commons", "maritime", "marine", "coastal" in order to collect data about applications in maritime and marine as well as coastal environment.

The first period analysis revealed that a total of 1208 journal articles were detected. There is evident lack of articles before 1990s with some of them starting to emerge from early 1990s onwards.

The majority of publications were in environmental studies and sciences (35%), followed by economics (8%). Subject areas are significant because they reveal the typical profile of scientists working on specific issues and can assist them in locating profiles that support their research field.

The 2009 has been detected as a crucial year for increase in the number of published articles in the wider field, which was expected primarily due to the 2009 Nobel Prize [31] in Economic Sciences being awarded to E. Ostrom (the Prize was shared with O. E. Williamson) for her "analysis of economic governance, especially the commons". This event potentiated further development of the field and widening of the application perspective.

Following this evidence, the second analytical time frame (2009-onwards) was selected for more deeper literature analysis narrowing the field with a strict focus on participatory governance in maritime and/or coastal issues.

The second period analysis revealed that a total of 111 journal articles were found addressing participatory governance in relation to maritime or coastal areas. After 2009, there is evident growth of published articles as well as number of citations demonstrating the significance and further potential for research, as well as necessity for deeper analytical understanding of necessary research areas to be addressed. In the diverse reality and immanent complexity of the maritime affairs and coastal zones, where multidisciplinary plays essential role in the necessity to comprehensively address social and economic issues in order to achieve sustainable and socially desirable outcomes and results, this is particularly important to be addressed in the research.

In the process of evaluation of material, the selected articles were examined for possible inconsistencies with the aim of checking them by first skimming their summaries and conclusions. This was performed in order to ensure that the credibility of the literature review was enhanced, and that the author's focus was not skewed.

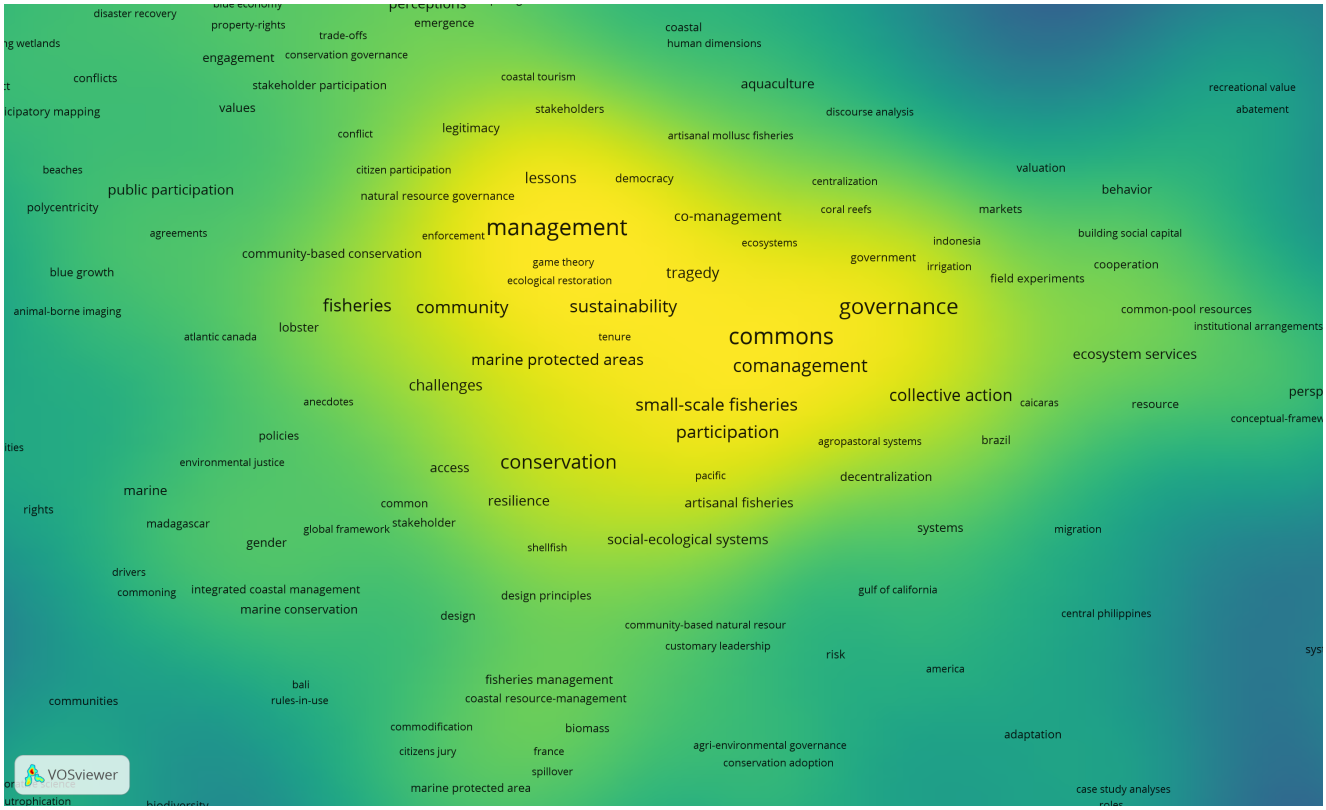

Figure 5 Weight of items based on the analysis of titles, abstracts and keywords for articles acquired through Web of Science for a narrower field of participatory governance in maritime or coastal areas

Source: Authors

3 Theoretical Background and Institutional Framework

In order to comprehensively address the research focus it is also important to analyse the theoretical background as well as its interconnections with the institutional framework that sets up the underlaying assumptions for possibilities of practical implementation of the participative allocation approaches in the field of costal zones and maritime common good.

Emphasizing essential aspects generating possibilities of improving the allocation mechanism, it is important to mention that Ostrom [22] points out that it is evident that there is no single way of moving beyond the significant institutional uniformity that is currently dominant. There is a visible increase in the number of agencies in modern public sector regulation, with most supreme political decision-making increasingly detached from an average cizizen, representing a kind of 'filter' zone or 'distancing' zone from a specific field issue. The specific field issues in the maritime common good are particularly important for the success of the allocation mechanism, primarely because of the multiple layers and complexity of the maritime common good.

What Ostrom [22] mentions as possible ways of moving away from the uncritical acceptance of institutions uniformity, involves developing more complex theories to explain human activity in a wide variety of conditions and environments. This statement is best illustrated by one of her thoughts: "We must not be complex, only to be complex. But we must strive not to take on our own simplicity" [22]. Following the scientific approach [22] the analysis must be as simple as possible provided that it is sustainable in view of the problem being investigated, but the principle of "maintaining as simple as possible" is not adequate when looking at complex socio-ecological systems that are integrated into many levels. Ostrom [22] emphasises that it is imminent that theories are simpler than the real complexity of the world they are studying, otherwise it would seek to reproduce the world exactly as it is, rather than forming the theories, which can then be tested.

It is important to point out that many studies [22] have shown that communities can be as efficient or, under certain conditions, more efficient than the public authorities. The debate on the effectiveness and efficiency of institutions should be extended to a larger area of property regimes than purely joint ownership [22]. According to Ostrom [22], various forms of co-

management and co-governance that give significant managerial and governing responsibilities and the right of access to and around resources, with a wide variety of types of co-management and co-governance, can be effective if they are well adapted to the individual resource attributes and to the larger or smaller resources with which it is associated. It is therefore possible and justified to carry out such research in the domain of a maritime common good which has open access characteristics and is subject to a non-proprietary regime, given the impossibility of selling out and since no one is legally the owner of the maritime domain. The complexity of the maritime common good as a unique resource with high-profile micro-specificity linked to the local environment triggers the need to consider improving and streamlining the approach and mechanism for allocation through the participation of stakeholders in the initial allocation, implementation, control and reallocation.

Allocation, possible mechanisms and approaches are essential economic questions that have been studied for years and are in the very essence of economic interest Over the years, researchers [21], [33], [3], [11], [10], [29], [2], [34], [35], [4], [24] demonstrated that there are two essential criteria (excludability and subtractability) relevant for the modern classification of economic goods to: private goods, public goods, common goods (commons), and toll goods, as well as four main allocation mechanisms: market, public authority, altruism and anarchy. While markets are often seen as an appropriate allocation mechanism for private goods, and public authorities for public goods, there is still an open conflict in the area of commons governance and allocation between modern theories evaluated in multiple on the field cases [23], [14], [16], [17], [18], [20], [21], [7], [8] and multiple practical approaches, including coastal zones and maritime common good [7], [8], [36], [37] that is addressed in this paper. In the effort to shade more light on governing perspectives of maritime common good, recent research [8] proposed the introduction of a third criteria – renewability – for economic goods classification, thus classifying the commons as renewable or non-renewable goods. In that sense, the research also proposed definition and classification of maritime common good and its components, as well as subcomponents. Those research [7], [8] also provide definitions of the maritime common good as the comprehensive interrelation of life, work, resources and area in the sea and by the sea, taking into account characteristics of inseparable integral unity in order to produce desired effects in a long-term sustainable and open access way thus benefiting all the stakeholders. Such approach is important to comprehensively analyse and evaluate systematic perspective and complexity of the maritime common good as a complex and fragile economic good. The research also defined two fundamental components (living and non living) of the maritime common good. While the non-living component includes spatial as well as service, cultural and social values, the living component includes animal and botanical world of the sea and the coast. It also demonstrated strong need for a comprehensive analysis in order to provide solid foundations for further improvements of the governing mechanisms and the general management of maritime affairs, particularly the importance and effects of stakeholders' participation in the decision making allocation processes of maritime common good and coastal zone resources.

Institutional framework was analysed through the Barcelona Convention [19] (the legal fundament of the Mediterranean Action Plan – MAP) and one as well as the most recent of its seven underlying protocols, the Protocol on Integrated Coastal Zone Management in the Mediterranean – ICZM Protocol [26] giving specific attention to the Mediterranean countries and their coastal regions while simultaneously taking into account the extensive interactions that people have had with coastal zones over a long period of time. The core goals missions of the ICZM Protocol is to establish a uniform framework for the Mediterranean's integrated coastal zone management in compliance with the Barcelona Convention and all of its protocols, as well as taking the required actions to fortify regional collaboration between Mediterranean Sea's coastal regions.

Goals of the ICZM Protocol [26] are to ensure sustainable development of coastal areas harmonised with economic, social and cultural development; preserve coastal areas; ensure sustainable use of natural resources; ensure preservation of coastal integrity; prevent and reduce effects of natural risks; and achieve coherence between coastal related public and private initiatives and public authorities decisions at all levels. There are 10 general principles of the integrated coastal zone management stipulated in the ICZM protocol, targeted to achieve long-term sustainable and harmonised development of coastal areas. For the research focus of this paper, the fourth general principle is particularly important being addressed to participation of local populations and stakeholders in civil society in a process of transparent decision-making. It also recognises the local population and civil society as an important factor in the success of coastal zone management and underlines the importance of their participation in the decision-making processes as well as the importance of transparency of the processes itself. Article 14 of the ICZM Protocol [26] more deeply addresses the participation issue requiring adequate stakeholders' involvement in all relevant phases of coastal zone management and governance, including authorizations issuing processes. It stipulates the participation through stakeholders' involvement in consultative bodies, inquiries, public hearings and partnerships, while it also requires availability of mediation or conciliation procedures for stakeholders challenging public decisions relevant for costal

zones. The ICZM Protocol [26] recognises five general types of stakeholders in the context of coastal zone management: territorial communities and public entities, economic operators, non-governmental organizations, social actors, and public concerned.

The question here is what are the main stakeholder groups relevant for the maritime common good and coastal zone governance and whether the relevant stakeholders (users) of a common resource – the maritime common good, can cooperate on the issue of the allocation of this shared resource, without external coercion, and whether such cooperation can be further developed under adequate conditions and institutional solutions aimed at strengthening and encouraging cooperation, i.e. stimulating a rational individual to cooperate.

Based on the presented analysis, the key stakeholder groups on the costal zones and maritime common good can be identified as:

- National government
- Regional government
- Local government
- Business entities
- Non-governmental organisations (NGOs)
- Social entities
- Local population (Interested public)

4 Coastal Zone and Maritime Common Good Property Rights and Allocation Approaches

For common goods in the use of natural resources, the terms 'rights' and 'rules' are often used interchangeably [30]. However, for the sake of clarity in the analysis, and according to Schlager and Ostrom [30], it is important to recognise that 'rights' are derived from 'rules', since 'rights' refer to certain actions for which the right (authorisation) has been granted, whereas 'rules' relate primarily to regulations that create (enable) authorisations. A property right therefore constitutes an authorisation to carry out an activity within the limits of a specific domain [30] to which that activity and that right relates, and for each right an individual and/or organisation has/have rules which authorise or require certain actions in the exercise of that property right. Rights also have complementary obligations, since the deprivation of rights implies that someone else has a proportionate obligation to respect that right [30]. Expressed otherwise, the possession of a specific right by an individual implies the simultaneous existence of a reciprocal obligation on another individual to comply with the rules which form the basis of that right (its basis and derives from it).

The economic aspect of property rights focuses on the individual's rights in relation to a good (asset) in terms of his or her ability to enjoy (consulate) in that good, directly or indirectly. The legal aspect of property law concerns primarily property rights, which are legislatively recognised and enforced by a state government.

In economic terms, the issue of property rights includes:

- the right to use the good;
- he right to earn income from the good;
- the right to transfer (sales) goods to others,
- the right to enforce property rights.

Given the presence of individual property rights, certain regimes of ownership rights may also be established:

- non-proprietary regime – open access;
- public (state) ownership,
- joint/group ownership,
- private ownership.

The Croatian maritime common good (sometimes translated from Croatian as the maritime domain, primarily when it addresses the area instead of the resource aspect) is legislatively under the non-proprietary regime [37], [36], [39]. No one is the owner of a maritime common good, which, as a common good [7], [8], and according to the Croatian low [39] it is not capable of being an object of ownership nor other real rights, and cannot be in the control of any natural or legal person, but for the use of all – open access.

For a proper understanding of the common goods in the light of contemporary scientific research and in the context of property rights, it is important to underline that the concept of 'common goods' or 'commons' and 'common property' originated from a studies of what is now known as 'open access' in modern theory. In contrast, in legislate and customary law, the 'shared ownership' aspect has long meant, in stark contrast with the principle of open access, the exclusive ownership of a particular group of individuals [15].

According to Schlager and Ostrom [30], common goods – common pool resources (CPR) have two core classes of property rights – two levels of property rights:

- operational level,
- collective choice level.

These two levels of property rights are also reflected in the level of actions that individuals are entitled to take. Operational activities are defined by the operating rules irrespective of the sources of those rules, and in this respect, those rules which are in a specific use at the operational level may come from different sources. According to the above, and considering common pool resources (CPRs), the operational level property rights are covering the rights to [30]:

- Access – the right to enter a specific physical area;
- Withdrawal – the right to take (withdraw, harvest) the 'product' or part of a particular resource, i.e. the resource itself.

The level of property rights at the level of collective choice builds on the operational level. Individuals who have a right of access and withdrawal may or may not have more extensive rights empowering them to engage in collective choice. The distinction between rights at operational level and rights at the level of collective choice is crucial. The difference is that the operational level is about exercising rights and the level of collective choice is involved in determining the future rights to be exercised [30]. The right to create (develop) future operational rights is what makes the right levels of collective choice so strong. Therefore, the property rights of the level of collective choice can be categorised as the right to [30]:

- Management – the right to regulate internal usage patterns and transform resources through the creation of improvements;
- Exclusion – the right to determine who will have the right of access and how this right can be transferred;
- Alienation – the right to sell or lease (concession) of any or both of the mentioned collective choice rights above.

Under these property rights, primarily in the light of common goods, and according to Schlager and Ostrom [30], which identify four key ownership positions: owner, proprietor, claimant and authorised user, it is possible to systematise property packages (bundles of rights) with property positions (authorisations) for the maritime common good as done below – Table 1 and Figure 1.

The presented table and figure systematisation examines separately the right of access to a resource (open access) from the exploitation rights with the aim

Table 1 Systematisation of property packages and positions in maritime common good

	Concession Grantor	**Concessionaire**	**Authorised body**	**Authorised user**	**User**
Access	X	X	X	X	X
Withdrawal	X	X	X	X	
Management	X	X	X		
Exclusion	X	X**			
Alienation	X*				

Remarks: * The right of alienation relates only to the part of the total alienation rights comprising only the right of granting concession for any or both of the rights (management and/or exclusion) falling within the category of collective choice. ** Right to exclusion only within the limits of the concession awarded to it.

Source: Author following [7], [8]

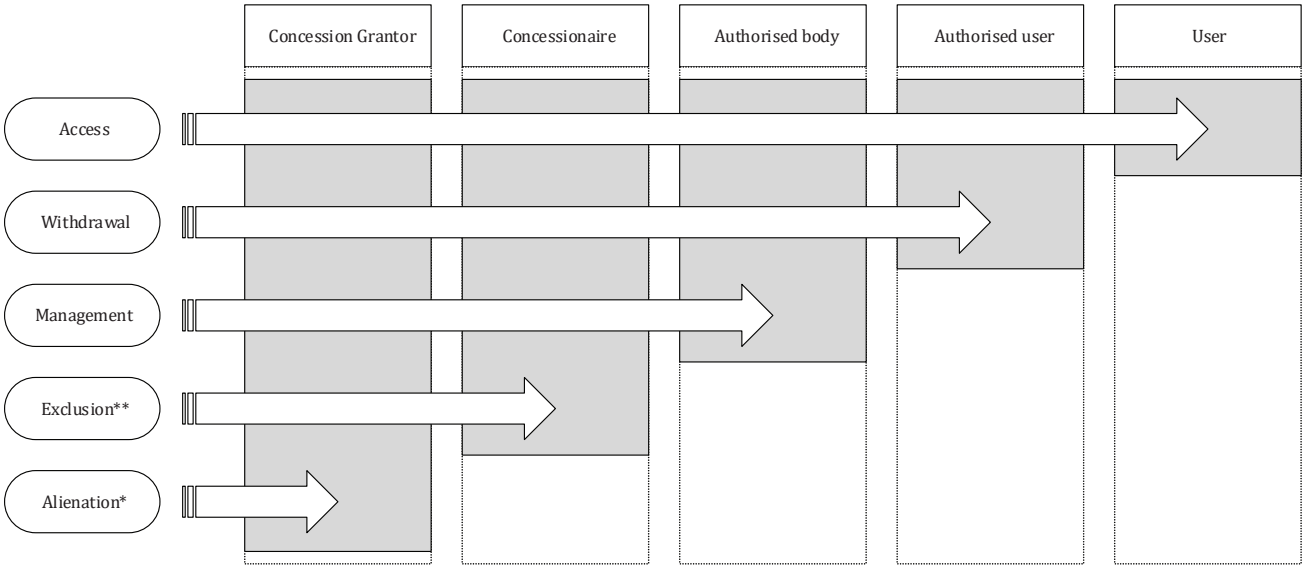

Figure 6 Property packages and positions for maritime common good

Remarks: * The right of alienation relates only to the part of the total alienation rights comprising only the right of granting concession for any or both of the rights (management and/or exclusion) falling within the category of collective choice. ** Right to exclusion only within the limits of the concession awarded to it.
Source: Author

of providing opportunities to finely tune and systematise property rights in relation to property positions, as well as a total of five key property positions compared to the four reported by Schlager and Ostrom [30]. In this respect, a distinction has been made between the user and the authorised user, in the sense that the authorised user has the exploitation right in addition to the basic right of access, whereas the user has the sole right to access the resource. Applying this development of property rights to the maritime common good of the Republic of Croatia, and given that, according to the relevant legislation [37], [36], access to the maritime common good is in principle open to all, except in areas which are excluded from common use and concession granted for special use or commercial use, thus excluding the open access, it is recognised that generally only the right of access is granted to everyone. In a certain limited extent, the right of withdrawal is also granted to everyone, since all can benefit from the service, cultural and social based values that are part of a non-living component of the maritime common good [7], [8] that can be utilised by everyone in accordance with its intended purpose, but other aspects of withdrawal (exploitation) of a non-living or a living component may not be used by anyone without prior authorisation, either through concessions or through various types of permits, such as fishing permits etc. A partial right of alienation within the meaning of the right of granting concession for any or both of the rights (management and/or exclusion) falling within the category of collective choice, are available only to the public authorities, directly or indirectly, through port authorities, whereas no one is allowed to sell the good. The right to exclude potential users in the sense of the initial allocation of the maritime common good to concession holders is also granted only to public authorities, either directly or indirectly through the state apparatus – public administration, port authorities, harbour master's offices, etc. When part of the maritime common good is excluded from common (general) usage and converted to exclusive commercial use (through concession), part of the management and exclusion rights is transferred from the grantor to the concessionaire. In these segments of the maritime common good, that are under concessions regime and thus outside the common (general) use, the concessionaire has a certain level of management rights and the right to exclude potential users, but only within the limits of the concession granted to it, and in general the right to operate the maritime common good and the right to exclude potential users lies exclusively with the public authority. The right of a public authority to exclude potential users of a maritime common good stands out effective only in parts which public authorities grants to concession and excludes from common (general) use. However, although this part of the maritime common good represents a minor part, compared to the overall availability of the maritime common good for open access, it is nevertheless of crucial importance for the economic development of the coastal areas and the maritime economy.

The absolute dominance of the public sector in matters related to the maritime common good is clearly evident in matters of property rights, as citizens have only a part of the operational level of property rights, while the public authority, led by the central government, has all levels of property rights except the right to sell the maritime common good (maritime domain). Finding improvements in the allocation of the maritime common good through participatory allocation mechanisms and self-regulatory organisation and involvement of stakeholders at all stages of the allocation processes is a possible way for improvements.

Nevertheless, some public policies are wrongly targeted in terms of distinguishing between self-organised systems and centralised policies of public authorities aimed at 'decentralising' resource management [22]. It is therefore necessary to clearly define and distinguish what is considered a real self-regulation, from what is only the apparent form of centralised decentralisation. Ostrom [22] points out that a number of surveys have revealed diverse and often unfavourable outcomes in situations where shared resources were 'decentralised' in a centralised manner. Conversely, in situations where the beneficiaries of common resources have the right to vote, i.e. they have the right to participate in the process of designing and creating rules that they will then use in connection with the exploitation of the shared resource, rules may often be developed that are very compatible with the complexity of the environmental system to which Ostrom [22] refers. However, there are no easy solutions to manage complex eco-systems. Ostrom [22] studies show that allowing resource users to have a significant influence in the management of natural resources can lead to long-term sustainable outcomes, but caution is needed not to assume that there is a simple way to 'decentralise' resource management using a single formula for the whole region or nation or worldwide. Each specific resource in each specific environment and time needs to be approached in a specific way taking into account past scientific knowledge, but not by non-critically following seemingly promising patterns, but by analysing each case per se in details identifying (and implementing) possible improvements.

The research question addressed here relates to decision-making systems and models, as well as to the interaction between individuals and ways of collective decision-making as an essential aspect of analytical understanding of allocative action in the domain of the maritime common good. The problem that arises is two folded, questioning whether it is expedient to involve stakeholders in the allocation decision-making

process, and the necesity to formulate an appropriate approach that properly describes such a collective action.

Considering that an effective governance and social allocation of scarce resources can hardly be predominantly based on altruism, this research is kept on the assumption of an relatively rational individual, but in any case this does not mean an absolutely selfish and self-oriented individual who always pursues only her or his own short-term selfish interest. By contrast, the need to involve real actors in the evaluation of a social dilemma models has been often highlighted in social sciences, particular economics, in an effort to comprehensively and realistically address a relevant field topic in real terms.

4.1 Public Allocation Approach

The allocation model based on the exclusive action of public authorities is essentially a model that is currently in place in Croatia, and which has been in force for many decades on the territory of the Republic of Croatia.

As allocators under this governing regime are exclusively recognised only at the levels of public authorities: state, regional government, local government, and public port authorities, it is therefore possible to illustrate the current system of decision-making on the maritime common good that includes only the part of the relevant stakeholders into the decision making system.

Table 2 Stakeholders involved in the decision-making system on allocation of the maritime common good – state of play in Republic of Croatia

	Involved	Not involved
National government	✓	
Regional government	✓	
Local government	✓	
Business entities		X
Non-governmental organisations		X
Social entities		X
Local population (Interested public)		X

Source: Author

In order to perform qualitative analysis of the allocation approaches we defined five main criteria for evaluation. The criteria presented and described in the following table are defined in the light of the agency theory.

Table 3 Analysis and evaluation criteria

	Target
Number of principal-agent relations	Min.
Number of relations of control	Max.
Coverage ratio of principal-agent relations with relations of control	Max.
Relative reduction of principal-agent relations	Max. (Decrease)
Relative growth of relations of control	Max. (Increase)

Source: Author

Considering the above-mentioned stakeholder groups involved in the decision-making mechanism on maritime common good and existing legislatively defined governing and allocation mechanism in Croatia, it is possible to schematically outline the model of the public authorities as the exclusive allocator of the maritime common good, also highlighting the underlying lines of the principal-agent relationship and the relationship of control between the key players.

Analysing the presented model, we identified the total of 20 principal-agent relations with 9 co-existing control relations. On average, each of the identified principal-agent relations is covered with 0,45 control relations which means that 45% of the principal-agent relations has been secured through control relations.

In order to be in line with the systematic approach and to analyse all possible solution, in the following paragraph there is also addressed the possibility of a market as the dominant allocation mechanism. What is particularly important to emphasise here is that the model of market allocation of the maritime common good is performed strictly in a theoretical sense and considering the coastal area only in a part of the wider scope of the maritime common good, particularly disregarding its functionality and the need for sustainability of the whole system of maritime common good. Even under such conditions, the approach of market allocation of the land part of the maritime common good could barely exist in the simmilar way as the real estate market exists, while the sea part would not be able to do so. However, in such a case, even if only the land part were to be under a market allocation regime, the maritime common good would completely lose its comprehensive and systematic functionality. As a result, the link between the two fundamental components of the maritime common good – living and non-living components – would disappear, and the link between the two segments of the spatial aspect of the non-living component – land and sea segments –would also be undermined, further disabling the achievement of the service aspect [8] of the maritime common good. This would also run counter to all elements of the acquis communautaire of both the Mediterranean and the European

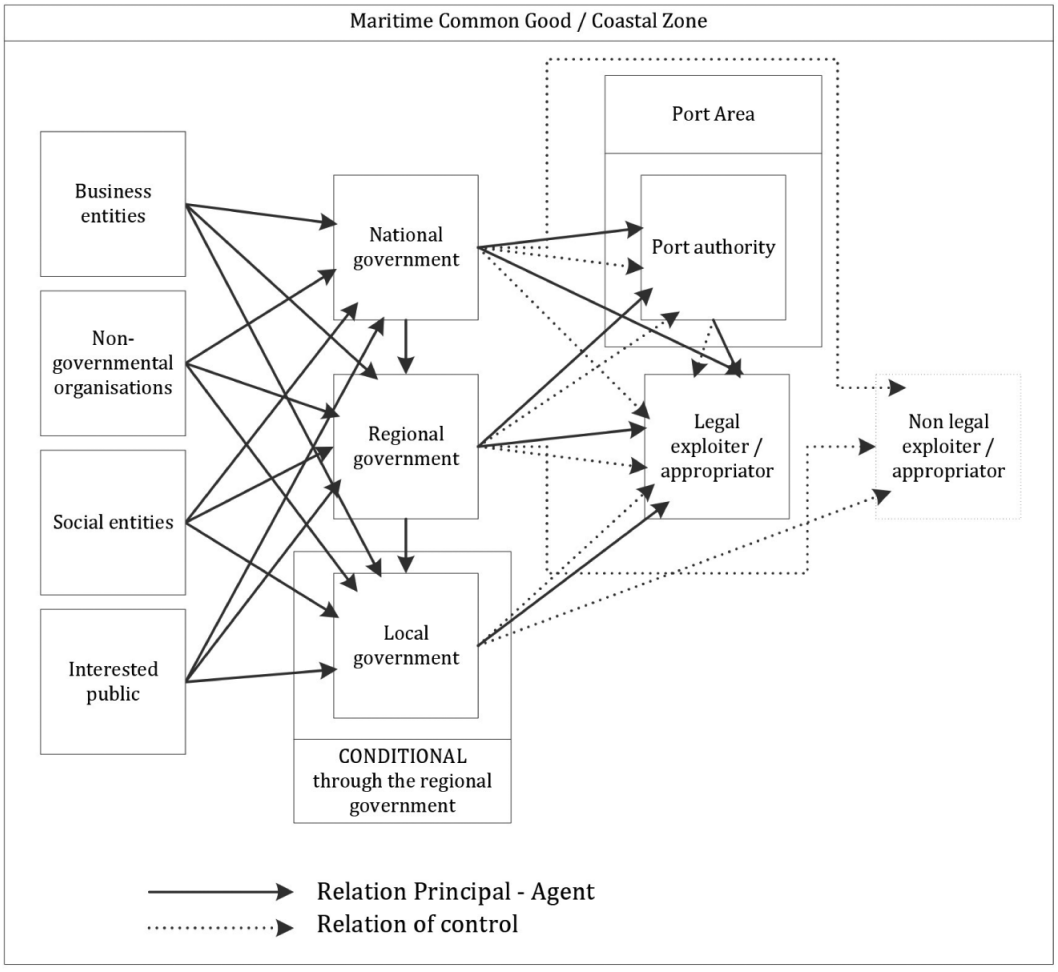

Figure 7 Public Allocation Approach Schematic Overview

Source: Author following [7], [8]

Union, which underlines the need to preserve and improve coastal areas. Therefore, the market model for the allocation of the maritime common good cannot be taken into account from the practice perspective, but was only mentioned in the pure theoretical context for the theoretical correctness.

4.2 Participatory Allocation Approach

The presented approach is based on the governing principles of polycentricity and partnership between public authorities and other relevant stakeholders in the maritime common good allocation, with a particular focus on the local population. Participation of all relevant key stakeholder groups in the allocation and governance mechanism of the maritime common good is also consistent with the fundamental intents of the ICZM Protocol [26], which specifies the involvement of stakeholders in coastal decision-making and their appropriate involvement in the formulation and implementation phases of strategies, plans, programmes and projects, and in the permit-granting processes. According to this, the key allocative stakeholders in the participatory allocation approach are identified and are listed in the following Table 4.

Table 4 Key relevant stakeholder groups to be involved in the governing process and decision-making mechanism on allocation of the maritime common good

	Involved	Not involved
National government	✓	
Regional government	✓	
Local government	✓	
Business entities	✓	
Non-governmental organisations	✓	
Social entities	✓	
Local population (Interested public)	✓	

Source: Author

In the participatory approach all relevant stakeholder groups play an equal allocative role and consequently such an allocation model based on participatory allocation can be schematically illustrated as follows (Figure 8).

Compared to the public allocation model and analysed in the context of the problem of principal-agent and control relations, the participatory approach is characterised by a significantly smaller number of agency relations. The number of principal-agent relations is 10, which is 50 % less principal-agent relations compared to the public allocation approach, while at the same time there is 17 control relations identified in the participatory approach, representing 89% more control relations compared to public allocation approach.

As the participatory allocation approach puts all seven identified relevant stakeholder groups on an equal basis regarding the decision-making authority they have, cooperation between the stakeholders (allocators) is essential for governing process. This cooperation is reflected both in cooperation between key stakeholders and between entities within each of the seven categories of stakeholder groups.

In the following Table 5 we present results of the analyses and comparison of the Approaches 1 and 3 according to previously defined five evaluation criteria.

Table 5 Allocation Approaches Comparison

	Public	**Participatory**
Number of principal-agent relations (min.)	20	10
Number of relations of control (max.)	9	17
Coverage ratio of principal-agent relations with relations of control (max.)	45%	170%
Relative reduction of principal-agent relations (decrease)	+ 100%	- 50%
Relative growth of relations of control (increase)	- 47%	+ 89%

Source: Author

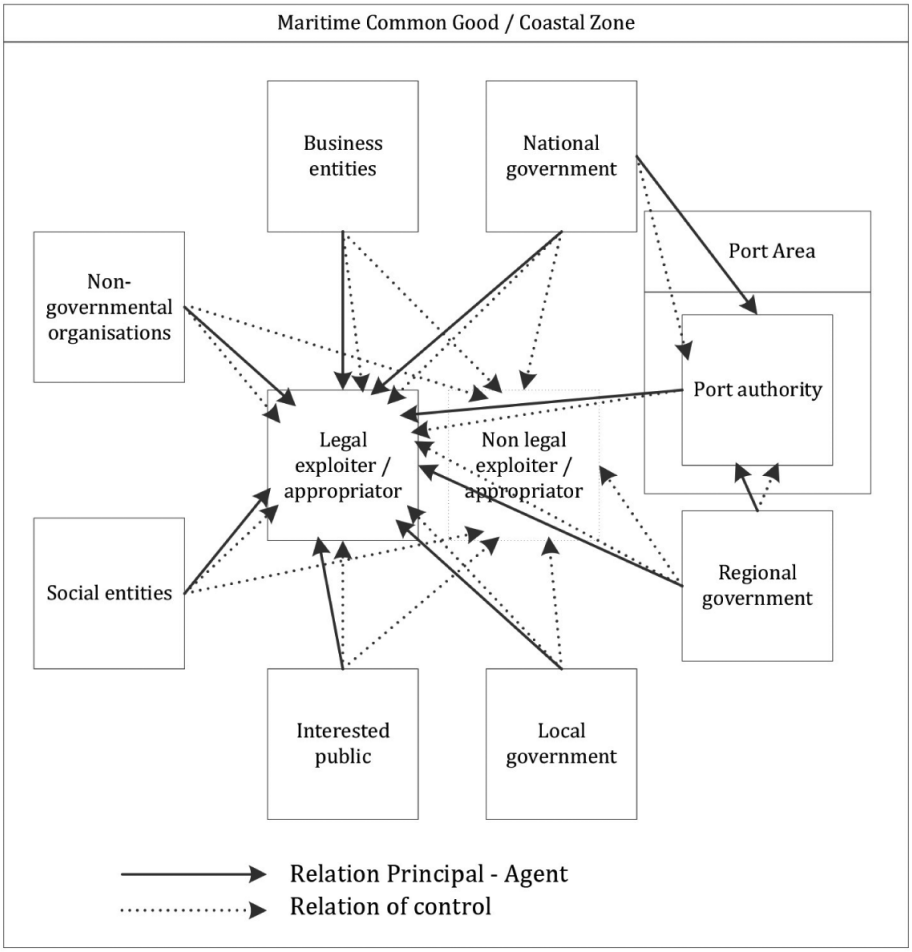

Figure 8 Participatory Allocation Approach Schematic Overview

Source: Author following [7], [8]

From the presented analysis it is visible that the participatory governance approach in comparison with the public governance approach (existing situation) has more than 3 times larger the coverage ratio of principal-agent relations with relations of control. There is a relative reduction of principle-agent relation for -50% in the participatory approach, compared with the increase for 100% in the public approach. In the same time, the participatory approach also demonstrates 89% increase in the number of relations of control compared with the public approach. Following the cumulative analytical results of all of the five presented criteria, the participatory approach demonstrates better results in all of the five aspects, thus showing potential to be even further evaluated as a potentially sustainable and feasible long-term option for improvements of allocation mechanism of coastal zones and maritime common good form the participatory perspective.

5 Conclusion

The paper presents research findings on potential allocation approaches (general governing mechanism) for coastal zones and maritime common good.

Literature review on WoS as a main source showed that the wider field of participatory commons governance started to grow slowly at the beginning of 1990s, but only after 2009 the field growth rate (measured through the number of publications and citations) started to significantly raise. This was a basis for creation of wider and deeper literature search for second period (2009-2023) performed by combining previously mentioned wider search with additional search elements such as "maritime" and "coastal". This second period analysis revealed that a total of 111 journal articles were found addressing participatory governance in relation to maritime or coastal areas, calling for this and further research.

Theoretical background and institutional framework analysis has been performed revealing significant research efforts in the last decades regarding participatory governance of the commons. Nevertheless, participatory governance of the coastal areas and maritime common good is yet to be further intensified and potentiated, primarily as there is an evident necessity to search for more sustainable ways of governing the coastal zones and maritime common good. However, analysis of the formal institutional framework shows that Barcelona Convention and ICZM Protocol laid down solid legal and wider institutional framework capable of encouraging the participatory allocation and governance of the coastal areas and maritime common good through proactive inclusion of stakeholders in the allocation decision-making process and governing mechanism. Based on the presented analysis, the key stakeholder groups on the costal zones and maritime common good were identified as: National government, Regional government, Local government, Business entities, Non-governmental organisations (NGOs), Social entities and Local population (Interested public).

The research addressed the questions on coastal zone and maritime common good property rights as well as the applicable allocation approaches. The non-proprietary regime of the maritime common good was analysed in combination with two levels of property rights (operational and collective choice level). Systematisation of property packages and positions in maritime common good was performed revealing relevant property packages and positions for maritime common good. Two applicable allocation approaches were developed and analysed – public allocation approach and participatory allocation approach. The analysis of the allocation approaches performed from the agency theory perspective showed that the participatory governance approach in comparison with the public governance approach has more than 3 times larger the coverage ratio of principal-agent relations with relations of control. There is also evident a relative reduction of principle-agent relation for -50% in the participatory approach, compared with the increase for 100% in the public approach. The participatory approach also demonstrates 89% increase in the number of relations of control compared with the public approach. Following the cumulative analytical results of all five presented criteria, the participatory approach demonstrates better results in all of the five aspects.

The importance of further research and developments of maritime common good and coastal zone allocation approaches and mechanisms, based on active participation and partnership of stakeholders in the decision-making process, is emphasized in order to strengthen the potential for stronger and fruitful utilisation of information background (local knowledge) from local population necessary to sustainably improve complex allocation process of maritime common good on the long run. This is important to further enhance robustness of the institutional framework as well as to improve governance and allocation mechanism to facilitate the attainment of economic outcomes while maintaining the resource sustainability, particularly in the light of the well-known Hardin's [12] problem of the "tragedy of the commons" and possible solutions offered by modern scientific research.

Concerning today's general conditions of coastal areas, marine ecosystems, and maritime common good, being under significant impact and continuous pressure through multiple levels (and layers) as well as types of human interventions in wide variety of social interactions, highlights the urgent necessity for measures pertaining to more effective allocation and governance approaches based on multiplicative effects of contemporary scientific development patterns in continuous combination with necessary field research.

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