

Orientation of marine spatial planning in Vietnam

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Abstract

Marine Spatial Planning (MSP) in Vietnam has an ecosystem-based approach. It allocates and designs a balanced and rational marine space for sustainable marine development for economic, social, and ecological purposes. The four primary targets of the MSP are related to socio-economic development, ensuring national defense - security, rights and interests at sea; ecological balance maintenance and environment protection; sustainable marine management. MSP is defined to 2030, with a vision to 2050, based on five viewpoints and ten basic principles. The MSP framework consists of 10 basic activities: Strengthening institutions and policies to create a legal corridor; organizing and enhancing the capacity of management to implement MSP; establishing financial sources and mechanisms for MSP; participation of stakeholders and scientists; establishment of MSP; appraise and approve the MSP; licensing and revocation of licenses to use marine space; harmonize and minimize conflicts of interest in the maritime area use; MSP monitoring and evaluation; MSP adjustment. These activities are arranged in a 5-step cycle. According to MSP, the allocation of marine space is classified into four main groups of use sectors: Marine economic development, conservation, and protection of nature; particular use; reserved area. Depending on the MSP levels, the sectors of marine spatial use can be divided in more detail. MSPs are proposed to be decentralized into three groups: National, regional, and local. Each MSP level has an accompanying planning map at an appropriate scale. Each MSP level has relevant authorities responsible for establishment, submission, approval and implementation.

Keywords: Marine spatial planning, framework, steps, hierarchy, Vietnam.

INTRODUCTION

Marine Spatial Planning (MSP) is a public process for analyzing and allocating human activities over space and time in a marine area to achieve ecological, economic, and social goals, often determined through a political process [1]. UNESCO has consulted methods and practical experience of on MSP through its forums and networks. In 2009, this organization issued a guide called: “Marine spatial planning: a step-by-step approach toward ecosystem-based management” [2].

MSP is a strong development trend in the world. Vietnam has also received a theoretical and scientific basis, and many research projects and implementation projects have been implemented and have achieved initial results. However, Vietnam’s MSP is confused about the theoretical basis, method of conducting, and goal orientation. The Planning Law (2017) has confirmed a solid legal basis for the MPA. But it does not seem to have shaped the functions and tasks of the planning, considering the economic development goals rather than balancing the benefits between the economy, society, and marine ecology. Based on UNESCO guidelines, MSP practices in different countries, and specific conditions in Vietnam, this article presents the basic orientations for MSP in Vietnam.

THE SITUATION OF MARINE SPATIAL PLANNING IN THE WORLD

General situation

MSP is a type of master plan that creates a framework for sustainable development for a large sea area of a country in the long term and with divergent implementation. It creates a balance and harmony between socio-economic development and ecological conservation on a large national sea area. MSP is ecosystem-based, integrated and adaptive, strategic and participatory.

The ecosystem-based MSP, having been evaluated as effective in some countries, is now considered an effective coastal and marine management tool in many countries [3, 4]. UNESCO has provided guidelines for the

development and implementation of MSPs [2]. However, these guidelines are only general guidelines. At the same time, countries are very different in terms of natural, socio-economic conditions, especially differences in institutions, social organization, and legal basis (table 1).

There is no single best practice organization model for MSP for all countries, as the legal situation varies from country to country. The United States has relatively early access to MSP (1972), but currently, there is no national law on MSP. The MSP has been developed, implemented, and regulated in the Netherlands and Norway, where there is no legislation specifically for this area. The legal basis is only an inter-ministerial or inter-agency agreement in these countries but strong enough to implement the MSP. Australia (1998) and Canada (1996) were early adopters of MSPs published in marine policy documents. China approved the Law on the administration of sea areas in 2001; the UK ratified the Marine and Coastal Access Act in 2009, Sweden adopted the Sea Act in 2009. The European Union issued Directive 2014/89/EU on MSPs, requiring all 23 member states that have seas to develop MSPs by 2021. South Africa also approved a marine spatial planning law in 2017.

These laws have an integrated approach to national maritime policy, including the implementation of the MSP. The planned marine space is an important issue that has always been raised, and many countries have implemented MSPs in their territorial waters, exclusive economic zones, and coastal zones with varying degrees of success.

The ocean management of some countries in the world often applies bottom-up control. For example, MSP in the United States is divided into federal, regional, and state. Whereas in China, the ocean management model is top-down, while in Vietnam, under the 2017 Planning Law, the MSP is focused only at the national level. In this way, the top-level is only responsible for long-term strategy and significant events.

Table 1. Status of marine spatial planning in some countries [5]

Nation	Terminology	Legislative Development	Implementation
Australia	Regional marine planning; now marine bioregional planning	Constitution and new legislation	Great Barrier Reef zoning; new bioregional plans in final stages
Taiwan	Marine functional zoning	Legislation drafted but not adopted	Zoning for some areas
China	Marine functional zoning	New legislation, regulations and guidelines	Extensive zoning building on early experience
Poland	Maritime spatial planning	Existing legislation; regulations in preparation	Advisory, pilot plans for limited areas
Germany	Marine spatial planning	Existing legislation for territorial waters, new for EEZ	Plans completed for all German waters
Netherlands	Marine spatial planning	Existing legislation for territorial waters, new for EEZ	National policy framework for Dutch North Sea
Sweden	Marine spatial planning	Existing legislation for territorial waters, under way for EEZ	Weak municipal implementation; national legislation and plans forthcoming
Norway	Integrated management	Implemented through soft-law	Plans for large sea areas
UK	Marine planning	New, landmark legislation	National policy in place; first plans in preparation
Spain	Marine spatial planning	New, primary legislation, only alluding to MSP	Five regional strategies to be prepared
Portugal	Maritime spatial planning	Based on environmental law	Plans for all Portuguese waters nearing completion
Canada	Integrated ocean management	New, legislation; indirect reference to MSP	Five pilot projects; MPA network
USA	Coastal and marine spatial planning	New and existing federal and state legislation	Number of state-level projects

Over the past decade, MSP has been internationally recognized as an operational method for implementing ecosystem-based marine management. On 8–10 November 2006, the IOC organized the first international conference on MSP at UNESCO headquarters in Paris, with delegates from more than 30 countries, the starting point for disseminating marine MSP on a global scale. Some MSPs have been completed; some have been implemented and adjusted [6].

In 2006, only three countries had government approval of the MSP, with maritime space covering 0.3% of the World's Exclusive Economic Zone (EEZ). By 2009, more than 70 countries were interested in MSP, and about 14 countries had conducted MSP, including Australia, Canada, China, USA, Mexico, Germany, UK, Norway, Netherlands,... [7]. By 2013, about 50 plans

were prepared in at least 20 countries [6]. In some countries, such as the Netherlands, the MSP is currently in its third planning cycle [8].

By 2016, 13 countries approved the MSP plan, accounting for about 7%. It is expected that by 2025 there will be 40 countries with more than 30% of the EEZ of the World. The 2nd International MSP Conference in March 2017 in Paris reviewed MSP activities worldwide after ten years (2006–2016), identified models, considered the possibility of MSP implementation to global ocean management, cross-border cooperation, identification of MSP priorities for the next decade (2017–2027),...

The MSP continues to grow, although the number of projects reaching the implementation stage is still lower than expected. According to Grorud-Colvert et al., (2021); by 2020, only about 7.7% of the ocean

is self-reported by countries as existing in some designated MPA (20), but only 5.9% is in MPAs that have been implemented, with likely much less actively managed [9].

Marine spatial planning in some countries

Marine spatial planning in the United States

The United States was the earliest country to adopt coastal and marine management with the Coastal Zone Management Act (CZMA) enacted in 1972 as the initial basis for the MSP. However, to date, the federal legal basis for MSP has been fragile, mainly in a few states. The MSP has not yet been formally incorporated into US statutes, although implemented [5]. MSP coverage is still limited to state waters or smaller areas, not yet at the federal level. Despite President Obama's Executive Order of Ocean Policy in 2010, national MSP activity still lags behind many other countries [10]. The United States approaches ocean management in a "bottom-up" manner, and the MSP is divided into three levels: federal, regional, and state. The states have jurisdiction over the coastal waters up to a limit of 3 nautical miles. The states have jurisdiction over coastal waters up to a limit of 3 nautical miles from shore, except some states such as Texas, Puerto Rico, and the Gulf of Florida, this limit is 9 nautical miles. All waters beyond the three nautical miles limit up to 200 nautical miles limit are federal waters. The Rhode Island Special Oceans Management Plan is an example of a positive MSP at the state level [11]. Here, particular areas are identified with three main functional categories: renewable energy areas, special interest areas, and conservation areas.

Marine spatial planning in Australia

Australia leads the way in the use of three-dimensional maritime spatial zoning and stakeholder engagement. "Marine bioregions" have been used as a foundation for developing marine spatial management since the late 1990s [12]. The Australian Constitution divides ocean responsibilities at the federal, state, and regional levels. The area of state administration from low sea level to the limit of three nautical miles and the common zone from three nautical miles to 200 nautical miles [5]. In 2002,

Australia's entire exclusive economic zone (EEZ), the third-largest in the world, was divided into five planning zones. After ten years of planning, in November 2012, five plans of marine biological zones were completed and approved. Great Barrier Reef Marine Park (GBR) is considered a typical model of MSP based on an ecosystem approach. A fundamental advantage is that here, the MSP is suitable for marine conservation purposes and criteria. The MSP in the GBR has existed since 1999 (figure 1), and since 2016, the marine park areas have been classified into protected area categories according to IUCN regulations [13].

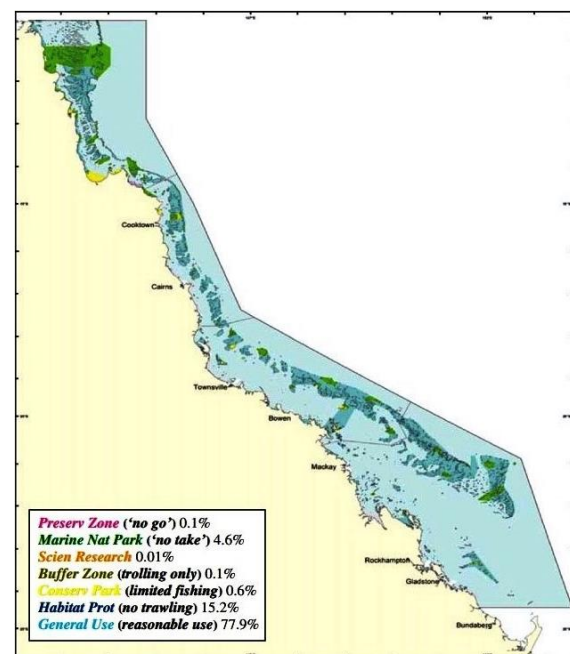


Figure 1. MSP in Australia: Zoning Greet Barrier Reef Marine Park [14]

Marine spatial planning in some European countries

European countries have achieved many results in science, legal basis, and practical experience for the most successful MSP establishment, development, and implementation in the Baltic Sea region [15]. The MSP in the Baltic Sea has been promoted as a means of maritime management in a large area with nine countries sharing coastlines

around a relatively small and enclosed sea (Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Poland, Russia, and Sweden). The MSP in the Baltic Sea has transboundary characteristics, requiring good interaction and coordination between countries [16].

The UK implements the MSP in part through the Marine Management Organization (MMO). It is an independent government administrative body responsible for licensing and regulating marine activities in the waters around England and Wales. The MMO has the authority to establish a marine planning and marine licensing system, manages British fisheries, and works with Joint Nature Conservation Committee (JNCC) to build and manage a network of marine protected areas to conserve vulnerable species and habitats and respond to marine emergencies [17]. This organization has developed a 12-step MSP program within the UK Marine Policy Statement [18].

The MSP in Ireland has an essential objective of minimizing conflicts of interest, harmonizing the development of interests between fisheries, a traditional marine profession, and wind farms as a new growth sector. As an important fishing area, the MSP here focuses on allocating space for different types of fishing and aquaculture [17].

The Netherlands has a solid legal basis and has successfully implemented the MPA, prioritizing wind farms and marine protected areas. The Spatial Planning Act and the New Water Act (2005) went into effect, extending jurisdiction to the territorial sea and exclusive economic zone of the Netherlands. In November 2011, the revised IMPNS2015 Plan was approved. Planning in territorial waters is a shared responsibility of the city, provincial and national governments. The government is responsible for the exclusive economic zone in terms of industry interests and marine environment protection. MSP section of the North Sea of the Netherlands prioritizes use for shipping, defense, conservation, and great potential sites for wind farms. MSP has approached the three-dimensional space clearly, with the layering technique showing priority. For example, the area of exceptional

ecological value is monolayer; other activities can overlap 2 or 3 layers [2].

Belgium has a small sea area, MSP focuses on developing offshore wind farms; allocation of marine protected areas; regulations on mining places for sand and gravel materials; strengthening the prevention of oil pollution; mapping habitats; protecting shipwrecks that are of biological value, and manage land-based activities that have an impact on the marine environment [2]. The Plan's first phase focuses on spatial demarcation for sand and gravel mining and offshore wind farms, while the latter focuses on nature conservation within the European Community's Natura 2000 network.

Germany has a good legal basis and management organization for MSP with objectives and principles similar to land use planning, prioritizing offshore wind energy, tourism, nature protection and traditional fields such as shipping, fisheries, and defense [5]. Spatial planning has long been carried out within the territorial sea on the same regulatory terms as land. The federal government has MSP authority over the exclusive economic zone under the European Act of Law Adaptation 2004. The MSP ordinances for Germany's exclusive economic waters in the North and Baltic Seas have come into force since 2009.

Latvia's marine protection and management requires an ecosystem-based approach consistent with environmental protection and spatial development principles. The MSP in Latvia was established under the circumstances associated with the Helsinki Accords linking the countries around the Baltic Sea. The Baltic Sea Action Plan (BSAP) at the 2007 Baltic States Ministerial Conference sets out regulations and activities to achieve a good environmental status by 2021, committing to jointly develop the principles MSP is large-scale interdisciplinary based on an ecosystem approach [19]. The Latvian MSP map is relatively detailed in maritime space use activities in three main functional areas (figure 2): priority areas, potential development area, and current use area. Priority marine space uses include navigation, fisheries, military, tourism, and conservation.

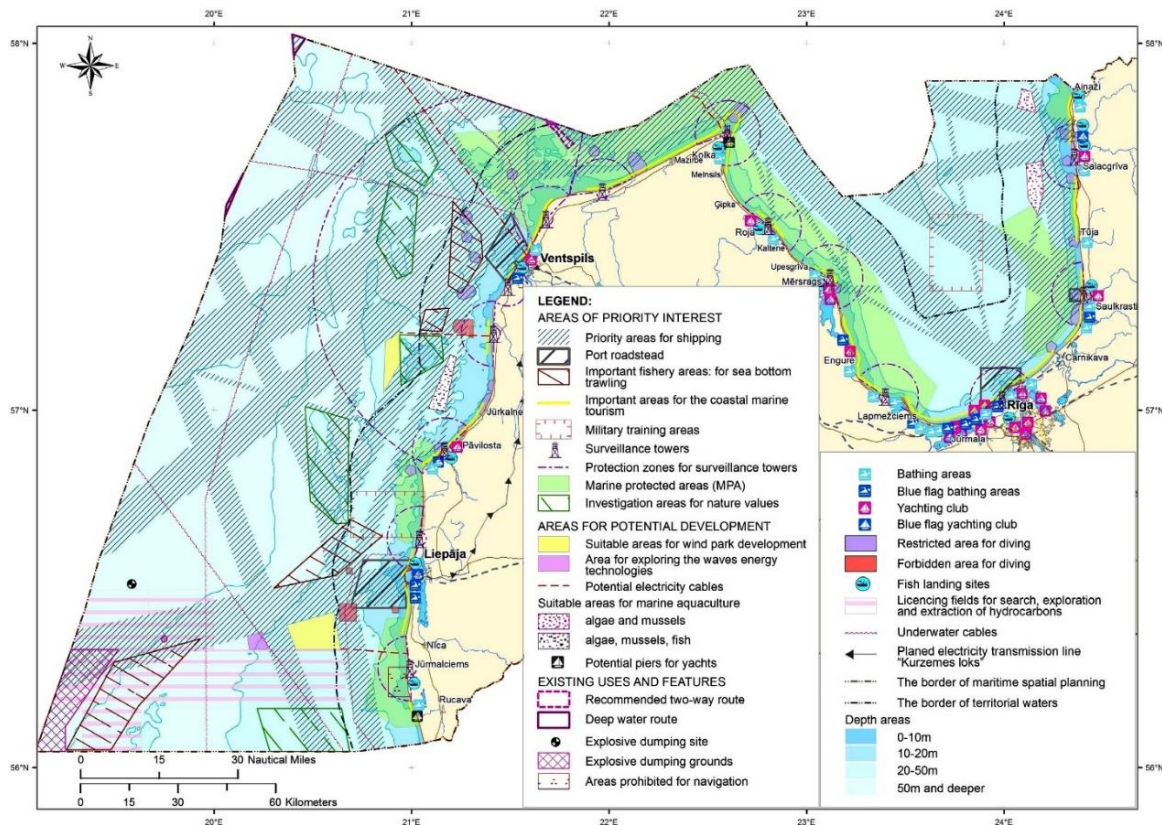


Figure 2. Latvian marine spatial plan [20]

Marine spatial planning in China

Marine Functional Zoning (MFZ) is considered the official MSP in China. China's Law on marine environmental protection (1999) and China's Law on the administration of the use of sea areas (2001) formalized the legal status of the MFZ [21]. In 2007, the State Oceanic Administration (SOA) issued regulations and guidelines on the process of zoning and managing the MFZ.

The MFZ system in China has gone through three generations. The first generation was around 1989–1995, with no legal foundation. The second generation, from 1998 to 2003, was based on a legal basis with the MFZ system designed at the national, provincial and district levels [22, 23], with eight types of marine use type 1 (figure 3) including 22 subtypes [23].

The MFZ system consists of three levels: national (5 large marine areas and 29 marine

areas), province (11 coastal provinces), and district [23]. The functional units of sea uses are placed on the frame of the main functional areas [24]. The hierarchy of responsibility for the establishment and approval of the MFZ is clearly defined.

There are three types of functional zoning in a Chinese marine area: Marine Functional Zoning (MFZ), Marine Environmental Functional Zoning (MEFZ), and *Marine ecological red line (MERL)*. In particular, the MERL is a supplement to the MFZ because of the increasingly apparent disadvantages of MFZ and is also a premise for the appearance of a type of integrated planning of marine space and coastal land. The Hainan island integrated spatial Plan (2015–2030) is an example of the integration of MSP and land (island) planning, linking MFZ and MERL [25].

contributed to gradually putting the understanding of MSP into practice in Vietnam [27]. Several international and regional organizations such as IOC/UNESCO, National Oceanic and Atmospheric Administration (NOAA), Coordinating Body on the Seas of East Asia (COBSEA), Swedish International Development Agency (SIDA)) and the United Nations Development Program (UNDP) have supported the Ministry of Natural Resources and Environment, along with many coastal localities, to implement projects to strengthen Vietnam's capacity in coastal management and MSP. These organizations have supported Vietnam with training, manuals, reference books, and sharing international lessons on MSP.

Some initial results

Marine spatial planning at the national level

The project "Vietnam sea use planning to 2050 and implementation plan for the period 2017–2025" of the General Department of Seas and Islands was implemented in 2016. The mission's overall goal is to sustainably use the seas and islands under Vietnam's sovereignty, sovereign rights, and jurisdiction based on harmony between the interests of economic development, environmental protection, and ensuring national defense and security.

The sea use planning's zoning of this project is shown on a 1:1,000,000 scale map for the entire sea area of Vietnam and a 1:250,000 map for the sea area from the shore to the outer limit of the territorial water. According to the value of resources and ecology, marine space has been divided into three regions: region with high natural and ecological significance; region with medium natural and ecological values; region has not yet determined specific ecological and resource values. According to the priority of use activities, marine space is divided into four zones: (1) Defense and security zone; (2) Zone with strong development needs; (3) Zone with medium development needs; and (4) Zone with unspecified specific needs. Six types of use zones have been planned: special use zone; zone focusing on conservation and economic development; zone of economic development combined with nature conservation; priority

zone for oil and gas exploitation; priority zone for fishing; zone for other uses. Since then, 34 areas of use have been identified.

However, the map and legend of this project are not clear if this is the MSP or just marine functional zoning similar to the MFZ in China. On the map, some regions represent integrated functions such as development and nature conservation, and there are areas for specific uses such as oil and gas and fishing, etc. The planning map has not shown many essential services such as ports - navigation, marine tourism, urban development, and coastal economy. Almost each use activity occupies a separate space, and there is no overlap representing the three-dimensional planning of the MSP.

Marine spatial planning at the regional level

Spatial planning of the coastal waters of Mong Cai - Do Son

NOAA has coordinated with the Ministry of Natural Resources and Environment to carry out tasks under the Protocol on "Using Zoning and Planning for Spatial Management in Quang Ninh-Hai Phong Coastal Zone" (2011–2013). Perhaps, this is the first study on MSP in Vietnam and has opened up many new problems about approaches and methods [26]. MSP maps of 1:250,000 scale for Hai Phong - Quang Ninh and 1: 100,000 scale for two areas of Mong Cai - Hai Ha and Cat Ba - Hai Phong Port have been established. In addition to the ecosystem-based orientation, the project also approaches community-based management to conserve and protect heritage sites and marine protected areas.

The project has focused on the following issues to develop functional zoning of the coastal area of Ha Long bay:

- Risks and multisectoral conflicts in resource use and space use in the coastal area of Ha Long bay;

- The allocation of rights to use and access to multi-sectoral resources;

- Boundaries of zones;

- Classification of use zones and management policies for each zone;

- The legal framework of zoning;

- Showing the location of the use zones on the map;

Renovating, building, and perfecting the institution for the use and implementation of the zoning plan.

The map and legend show that the protected area (I) includes: Fishing grounds and limestone island caves; buffer zone (II) does

not specify any specific development activities; development zone (III) includes 13 sub-regions. Some critical activities, such as ports and navigation routes, etc. not shown on the map and legend.

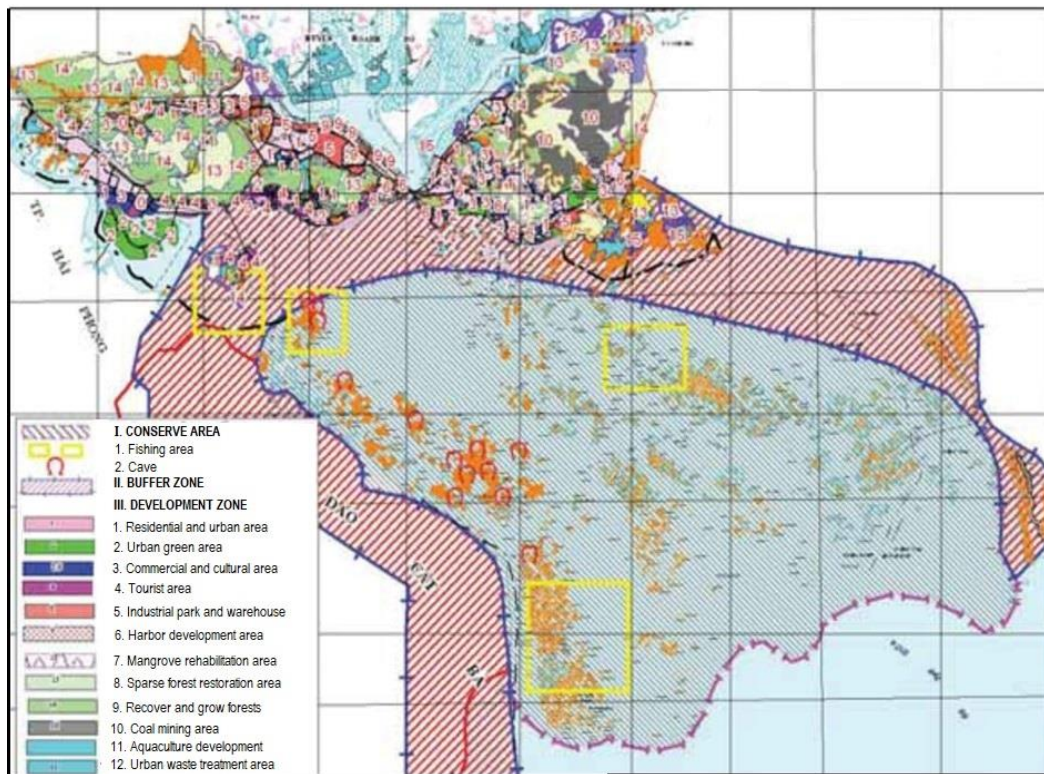


Figure 4. Functional zoning of the coastal zone of Ha Long bay (Quang Ninh), scale 1:100,000 [27]

Spatial planning in the marine area of Con Dao - Phu Quoc

Project KC.09.16/11–15: “Study, establish scientific arguments and propose orientation of marine spatial planning in Phu Quoc - Con Dao waters for sustainable development”, carried out in 2013–2015 [28] was an MSP for a large marine area associated with rather large islands. The project has introduced an 8-step process of MSP and established MSP orientation maps at 1:200,000 scale for Phu Quoc - Con Dao waters, detailed maps at 1:50,000 scale for Phu Quoc area, and 1:25,000 scale for Con Dao area. These are the MSP’s scientific results and good experience as a reference for other marine areas, although the mapping system’s logic,

synthesis and feasibility still have limitations. For example, the space allocated for maritime uses, such as economic, nature conservation and particular use, is based on three functional areas: development, protection, and environmental management. These are probably environmental management functional areas, not MSP functions. There were no different space use units and detail levels on the 1:200,000 scale maps for the whole region and 1:50,000 scale maps for the Phu Quoc area, and 1:25,000 for the Con Dao area. Many essential marine uses have not been shown on the planning map, such as ports and navigation, fishing, etc. The central planning space is on islands and coastal lands rather than

on the sea. The legend and content on the map show that the plan has zoning characteristics, the environmental management function, the zoning of the integrated management of resources, and the environment of sea and islands.

Marine spatial planning for the Gulf of Tonkin

The State project code KC.09.16/16–20 (2017–2020) has researched to develop the marine spatial planning plan in the Gulf of Tonkin to 2030, with a vision to 2050. Based on the viewpoints, principles, objectives, criteria, and functions determined, the MSP for the Gulf of Tonkin has been completed with a 1:500,000 scale map. Since then, the activity program's framework and priority tasks have been determined, which are placed in a 5-step planning cycle. Each cycle is ten years for regional planning and five years at the local level.

The MSP map for the Gulf of Tonkin has allocated spatial units for eight types of marine use: 1. Tourism and marine services; 2. Ports and Navigation; 3. Exploiting oil, gas, and minerals; 4. Fishing and aquaculture; 5. Coastal economic, urban, and industrial development; 6. Renewable energy and new economic sectors; 7. Conservation and protection of marine nature; 8. Special use. These operations are located in five different functional areas.

MSP for the waters of Mong Cai - Do Son was established with a map of 1:250,000 scale that has allocated space for seven marine use units placed on a frame of 3 functional areas: conservation area, transition area, and development area. The MSP for two marine-island areas, Bach Long Vi and Con Co, was established with a 1:25,000 scale map that has allocated space for seven types/subtypes of marine use placed on a frame of 4 functional areas: protected areas strict zone, buffer zone, reasonable use zone, and sustainable development zone. Each applicable region, area, and the zone is defined for management characteristics and activities according to the permission level: priority, allowed, conditional and, not allowed.

There are six programs, including different projects and tasks, proposed to support the plan's formulation, development and

implementation. MSP for the Gulf of Tonkin needs monitoring and evaluation throughout the implementation process to be adjusted and enter a new cycle.

Local marine spatial planning at the local level

Hai Phong is a coastal locality with early access to MSP with Decision No. 210/QĐ-UBND dated February 15, 2012, of the City People's Committee on MSP program to 2020, vision to 2030. However, the Law on Planning promulgated in 2017 stipulated that MSP was only available at the national level, not at the local MSP, despite the project: "Marine Spatial Planning for City Hai Phong City to 2020 with a vision to 2030" was completed in 2018. This project has been established with a 1:50,000 scale MSP map, which is essentially just zoning using marine space. However, it has proposed the use options of marine areas for socio-economic activities with many exciting ideas.

ORIENTATION OF MARINE SPATIAL PLANNING IN VIETNAM

The basis for developing and implementing MSP

MSP is based on specific conditions of natural conditions, resources, natural disasters, environment, exploitation, and use of sea and islands for socio-economic development, ensuring security and defense, rights and, national interests at sea. At the same time, the MSP is based on the international and regional context, especially on the relevant legal basis.

The legal basis for the development of the MSP includes policies and resolutions of the Communist Party of Vietnam, with the highlight being Resolution No. 36-NQ/TW of the 12th Party Central Committee on the sustainable development strategy of marine economy in Vietnam to 2030, vision to 2045 issued in 2018; Vietnamese laws on Maritime (2015), Fisheries (2017), Petroleum (2008), Marine resources and environment (2015),...; Decrees of the Government and decisions of the Prime Minister; international conventions (especially UNCLOS 1982) and bilateral and multilateral agreements to which Vietnam has joined.

Vietnam's Law of Sea No. 18/2012/QH13 (2012) defines the scope and legal regime of the legal zones in the waters of Vietnam. This Law stipulates that MSPs are only at the national level, perform functional zoning, and arrange and rationally allocate space for socio-economic sectors and fields on coastal lands, islands, archipelagos, marine regions, and airspace under the sovereignty, sovereign rights and national jurisdiction of Vietnam (Article 3, Clause 3). Planning Law No. 21/2017/QH14 of 2017 is the most specific and detailed legal document on MSP. According to Decree 37/2019/ND-CP of the Government in 2019, the national MSP includes the following main issues: Scope and content of the National MSP (Article 21); The national MSP at 1:4,000 000 scale map system for the geographical location map and the relationship between Vietnam and the neighboring regions and the world; the 1:100,000 - 1:1,000,000 scale maps for nine types of component maps.

Resolution No. 36-NQ/TW sets out major guidelines, which direct the development of marine economic sectors in order of priority: (1) Tourism and marine services; (2) Maritime economy; (3) The exploitation of oil and gas and other marine mineral resources; (4) Aquaculture and fishing; (5) Coastal industry; (6) Renewable energy and new marine economic sectors. These are the primary marine economic sectors that are allocated using marine and coastal space. This resolution also specifies: "planning marine space according to protection - conservation zones, buffer zones and socio-economic development zones for sustainable development of the marine economy".

Vision, goals, and criteria

Vision and goals

MSP orientation is defined to 2030, vision to 2050, adjusted every ten years. The goals of MSP is to allocate and design reasonable use of space for economic activities, national defense and security, nature conservation and environmental protection to develop effectively socio-economic efficiency, ecological balance, and harmonization between the benefits of sea use, and implement integrated management of

natural resources and the environment, towards sustainable development of sea areas. The objectives of MSP are determined depending on each planning period, planning level, and planned sea area.

Criteria

Four essential criteria are defined for the MSP, adjusted in more detail for planning levels and areas. Each criterion needs to set out measures and evaluation indicators in the specific circumstances of the planning level and area.

Socio-economic development criteria aim for sustainable development, ensuring rationality and balance between fields, consistent with existing plans and resource capacity; prioritizing multi-sectoral growth; reducing conflicts and environmental impacts, towards community interests and social justice, ensuring livelihoods and socio-cultural values.

The criteria for ensuring national defense - security, sovereignty, and national interests at sea prioritize defense and security activities, exceptional management with sensitive areas related to national rights and interests, coordinating and associating with economic activities and nature conservation.

The criteria for ecological balance and environmental preservation are to protect and maintain the ecological balance, functions, and services, prevent and mitigate pollution, natural disasters and respond to climate change, establish a marine nature conservation system and combine conservation with national defense and security, and protect breeds, spawning grounds, and aquatic resources.

The criteria for sustainable marine management to develop the MSP framework are the basic steps in an MSP cycle, building the organizational structure of management and resources, organizing stakeholder engagement to ensure transparency, setting up a system of solutions and support tools, monitoring, evaluate and adjust the MSP.

Viewpoint and principles of marine spatial planning

Viewpoint

Viewpoint 1. MSP has the purpose of serving the integrated management of marine

resources and environment, sustainable marine management towards sustainable development, achieving the goals of economy, society, and ecological balance.

Viewpoint 2. MSP is in the centralized and unified state management system. It is suitable for the territorial organization and territorial master plans, not to replace but to put in a supportive - adjusting relationship with sectoral plans.

Viewpoint 3. MSP ecosystem-based approach; cyclical, adaptive, warning and adjusting; ensuring harmony, fairness and transparency but with priority selection; emphasizing stakeholder engagement and community interests.

Viewpoint 4. MSP is based on the scientific basis and reliable and objective data, attaching importance to international theory and experience but ensuring that it is suitable to the actual conditions of Vietnam in terms of socio-economy, natural features, and resources.

Viewpoint 5. MSP focuses on transboundary factors, placed in the context of international cooperation and integration; comply with Vietnamese laws and international conventions and regional agreements Vietnam has joined.

Principles

The ten recommended MSP principles are as follows:

Principle 1. Be suitable to natural conditions and develop the potential of marine resources, including natural and social-human resources.

Principle 2. Conform to the requirements of socio-economic development, sustainable management, and use of sea and islands.

Principle 3. Ecosystem-based approach.

Principle 4. Approach to three-dimensional space.

Principle 5. Plan iteratively and ensure continuity of the MSP process.

Principle 6. Ensure stakeholder engagement, transparency, fairness, and sustainability.

Principle 7. Minimize conflicts, balance, and harmonize interests based on prioritization.

Principle 8. Adaptive and preventive management.

Principle 9. Ensure linkage in the centralized and unified management system.

Principle 10. International and regional integration and cooperation, taking into account transboundary factors.

Framework for activities and steps to implement marine spatial planning

Activity frame

Activity 1. Strengthening institutions and policies to create a legal corridor for MSP

Set to determine the legal basis for the development, appraisal, and implementation of the MSP; propagate, explain and educate about laws and policies; implement sanctions to ensure the effectiveness and rigor of legislation serving MSPs; propose adjustments, supplements, and amendments to existing legal documents, and at the same time, request the competent authorities to issue new legal documents if necessary.

Activity 2. Organizing and strengthening management and administration capacity to implement MSP.

It aims to establish a management organization system with an appropriate, coherent and unified structure, focal point, and coordination organizations with groups of experts through well-defined relationships. The focal point for MSPs at national and regional levels is the Vietnam Administration of Seas and Islands, for local MSPs (provinces and districts), are Sub-Departments of Sea and Islands in coastal provinces.

The activity involves the following tasks: building infrastructure systems, technical capacity and equipment, information networks, databases,...; recruiting and training a team of qualified, competent, and skilled experts, technicians and office staff; organizing training courses or setting up training centers on marine MSP for local units; establishing operational organizations and units to serve the work of information, propaganda and education, and ecosystem monitoring, environmental monitoring, marine condition monitoring and administrative management.

Activity 3. Establishing financial sources and mechanisms for MSP establishment, management, and operation

The activity is set to establish a stable and long-term financial source mechanism to ensure the effective operation of the planning project. Potential financial sources come from the state budget through ministries, sectors and localities, taxes, and fees for using the sea, natural resources - environment, appropriate topics and projects, and other financial resources, including international and domestic organizations and individuals. And to establish a mechanism for using investment capital sources in line with formulating, appraising, and implementing the master plan to stabilize key activities such as operating the management apparatus, maintaining information systems, monitoring, evaluation, advice, recommendations,...

The activity is also to form and establish a mechanism to coordinate with programs, projects, and tasks of fundamental investigation, observation, and scientific research to use capital to create a database for MSP effectively.

Activity 4. Participation organization for stakeholders and scientists

The activity identifies the composition of the stakeholders involved in the establishment, development, and implementation of the MSP, including interested parties in the sectors of marine space use for socio-economic development; relevant localities and ministries; NGOs and associations; coastal and islands communities, etc. Determination of when and how stakeholders are involved in the MSP development, appraisal, implementation, monitoring, and evaluation.

Also, it develops mechanisms to engage the community, create consensus, promote resources, minimize marine use conflicts, and take care of their interests; promote co-management and community-based management of appropriate situations.

Develop mechanisms and engage the participation of interest groups to strengthen their responsibilities, contribute their ideas, activities, and funding, create consensus, and resolve conflicts of sea use. Develop mechanisms and enhance the participation of scientists, taking advantage of their effective

contribution in providing data and information for MSP consulting and management.

Activity 5. Establishment of marine spatial planning

The activity aims to:

Identify the lead organization and MSP focal point. For national and regional MSPs, the lead organization is the Ministry of Natural Resources and Environment (MONRE), the focal point is the Vietnam Administration of Seas and Islands; for the local MSP at the provincial level, the leading organization is the People's Committees of the provinces, the focal organization is the Sub-Department of Seas and Islands. For the local MSP at the district level (when necessary), the lead organization is the provincial Departments of Natural Resources and Environment; the focal point is the Sub-Department of Seas and Islands; select consultants, identify participating and coordinating organizations to establish the MSP project;

Develop the basic content of the MSP project, including the following main issues: Determining the vision, purpose, objectives, criteria and principles, operational framework of the project,...; identify and analyze current and future conditions; identifying and analyzing land-sea interactions in planning; identify and analyze interest conflicts of sea uses;

Design zoning map of marine spatial uses, then MSP map. Establish key programs, projects, and tasks for MSP. Identify priorities and roadmap for implementing marine space activities, including socio-economic development, nature conservation, environmental protection, defense and security assurance, and national rights and interests on the sea. Design scientific investigation and research activities for MSP; propose plans, organizational structure, and solutions to implement MSP.

The proposed MSP project is accepted by the organizations responsible for establishing and developing the MSP, which is MONRE with the National and Regional MSPs, and the Provincial People's Committee with the local MSPs.

Activity 6. Appraisal and approval of MSP

The MSP project dossier is sent to the competent authority for appraisal by the law. Appraisal and approval of national and regional MSPs are under the authority of the Government. Appraisal and approval of the local MSP at the provincial level, also under the authority of the Government. Appraisal and acceptance of the district level's MSs (if any) are under the authority of the People's Committee of the province. The implementation procedures for appraisal, approval, and publication of the MSP according to Decree No. 37/2019/ND-CP of the Government in 2019 detailing some Law on Planning 2019.

Activity 7. Licensing and revocation of licenses to use marine spaces in compliance with the MSP

The assignment of certain sea areas to organizations and individuals to exploit and use marine resources is permitted. The granting of a license to use maritime space considers the licensing conditions, authority, and duration. The permit is collectively referred to as the investment certificate, or the decision to allow the exploitation and use of marine resources, issued by the competent State management agency. At the same time, the license also stipulates the responsibilities of state management agencies and organizations, and individuals assigned to use marine space according to the Government's Decree No. 51/2014/ND-CP in 2014 regulating the assignment of certain sea areas to organizations and individuals to exploit and use resources.

The right, scope, and scale of license to use the sea need to be unified and synchronized among legal documents, focusing on the law on planning. The licensing must be based on the approved MSP project, except for special cases in oil and gas, defense and security, etc., shall be carried out by the Government's regulations.

Renewal or revoke the license to use the sea space at the end of the sea use activity, or need to change the use purpose for special reasons related to national defense, security, and interests, ... or due to violations of organizations and individuals using marine space.

Activity 8. Reconciling and mitigating disputes during the implementation of the MSP.

This activity is set to identify and analyze various types of space use conflicts, including conflicts between organizations and individuals using the sea, between development and nature conservation, between localities with bordering seas and marine areas, between the common interests of the community and organizations and individuals using the sea. Also, to identify and analyze forms of space use conflicts caused by water surface disputes, resource disputes and negative environmental impacts, propose solutions to harmonize, minimize contradictions and conflicts. These tasks include harmonizing interests in space allocation, identifying priority activities and operational periods of reasonable use, strengthening the support of science and technology, enabling stakeholder engagement,...

Activity 9. Monitoring and evaluating the implementation of marine spatial planning

This activity involves organizing MSP monitoring and evaluation activities, setting up monitoring and evaluation teams and expert groups, reviewing the subjects to be monitored and evaluated, reviewing monitoring and evaluation objectives and targets, and developing programs and tasks for monitoring activities. Monitoring and evaluation contents include MSP implementation progress, efficient use of marine space and resources, ecological and environmental conditions, the organization and management of the plan's implementation, and publishing documentation, monitoring and evaluation results, and consensus on these results.

Activity 10. Adjustment of marine spatial planning

The adjustment includes space allocation according to the purpose of use, time according to the route and priority, MSP regimes and policies, MSP management and implementation solutions, ... Adjustment is based on planning review, reconsideration of objectives, criteria and new requirements set for MSP, considering efficiency and feasibility, MSP monitoring and evaluation results, considering new documents and emerging situations. Adjustments are made

during implementation and at the end of a process. Adjustment procedures include preparation of adjustment contents, a written request for adjustment, appraisal, and decision on adjustment approval.

Steps to establish and implement marine spatial planning

UNESCO has released a 10-step guide to implementing an MSP cycle. However, this is a general guideline and should be applied by each country depending on its conditions. The number of steps in an MSP cycle varies widely in different countries, for example, at least five as in Latvia, at most 12 as in the UK. On the other hand, the number of steps of UNESCO is relatively large and not in the correct time sequence, making it difficult to track the progress of MSP implementation. Based on the theoretical basis and considering the actual conditions in Vietnam, a proposed MSP cycle consists of five steps, including:

1. Preparation of planning establishment;
2. Establishment of planning;
3. Planning approval;
4. Implementation and supervision of planning;
5. Evaluation and adjustment of the planning.

Each step consists of several specific tasks [29].

Spatial allocation and planning hierarchy

Hierarchy of marine spatial planning

MSP has a more substantial legal basis with the Law on Planning No. 21/2017/QH14. However, this law stipulates that the MSP is only implemented at the national level, while the regulations on regional planning and provincial planning do not address the issues of the sea. Therefore, it is inconsistent with the actual situation and contrasts with other laws, such as the Law of the Sea 2012 and the Law on Fisheries 2017. As a country with an extensive sea area, the MSP in Vietnam requires centralized and unified management, but without a hierarchy, there will be a lack of feasibility and low efficiency. Based on reference to international experiences and application to practical conditions in Vietnam, MSP in Vietnam is proposed to be hierarchical

according to a 3-level system: national, regional, and local. Each planning level has an attached planning map defined at an appropriate scale.

National level MSP with planning map at scale: 1:1,000,000; divided into five large marine regions with different uses functions. At the regional level, each large maritime region is planned with a 1:500,000 scale map and can be divided into subregions with a 250,000 scale map. The five large marine regions have been identified as the Gulf of Tonkin, the Central Sea, the Southeast Sea, the Southwest Sea (the Gulf of Thailand), the high seas with the Hoang Sa Islands and Truong Sa Islands.

The local MSP is established at the provincial level with a planning map at the 1:100,000 scale. Where it is necessary, for example, island districts are large, or of special importance, at the local level, it is possible to develop a district-level MSP with a 1:25,000 - 1:50,000 scale planning map. Each level of MSP has appropriate organizations responsible for the establishment, submission, appraisal, approval, and implementation of the MSP.

Allocate space for marine spatial planning

Based on international experience and practices and Vietnam's actual conditions, the spatial distribution of marine use is classified into four sector groups. Depending on the level of detail of the MSP, marine space use activities can be further divided.

Group 1: Space for marine economic development, including six basic marine economic sectors defined by Resolution No. 36-NQ/TW as follows: 1. Tourism and marine services; 2. Port and maritime; 3. Petroleum and mineral exploitation; 4. Fishing and aquaculture; 5. The development of coastal economic, urban and industrial zones; 6. Renewable energy and new economic sector.

Group 2: Space for marine nature conservation and protection, including marine protected areas, islands and wetlands, natural and cultural heritage sites, biosphere reserve areas, ecosystems, breeding, and spawning grounds,...

Group 3: Space for particular uses, including defense and security activities, combined defense and economic activities,

disputed waters, overlapping waters, dumping sites,...

Group 4: Reserved space, including activities beyond planning vision, activities requiring further examination, or undisclosed priority uses,...

CONCLUSION

MSP orientation is based on theory, international experience, and practical conditions of Vietnam in terms of natural conditions, resources, natural disasters, and environment; the exploitation and use of the sea; legal basis and international context. MSP orientation is defined to 2030, vision to 2050, the goal is to allocate and design the use of marine space in a balanced and reasonable manner for economic, social, and ecological purposes, towards sustainable development of the sea. Four primary targets have been identified for the MSP, including socio-economic development, ensuring national defense and security, national rights and interests at sea, ecological balance, environmental protection, and sustainable marine management. On that basis, five views and ten principles of MSP have been identified.

The MSP Framework includes ten basic activities, (1) Strengthening institutions and policies to create a legal framework for the MSP; (2) Organizing and enhancing capacity for MSP management and implementation; (3) Establishing financial sources and mechanisms for the establishment, management, and operation of MSPs; (4) Organizing engagement for stakeholders and scientists; (5) Establishing MSP; (6) Appraising and approving the MSP; (7) Licensing and revocating marine use permits following the MSP; (8) Harmonizing and minimizing conflicts of interest during MSP implementation; (9) Monitoring and evaluating; (10) Adjusting the MSP.

These activities are carried out in five steps in each planning cycle.

The marine use space is divided into economic development, natural protection and conservation, special use, and reserved space. Depending on the planning level of detail, the units using the marine space can be further divided. MSP is proposed to be decentralized

into three levels: national, regional, and local. The MSP at each level is accompanied by a planning map of the corresponding scale and is established, submitted, approved, and implemented by competent authorities.

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