

## **An overview of the implementation of coastal and marine spatial planning in Indonesia : an opportunity and challenge**

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Coastal and Marine Spatial Planning in Indonesia has been implemented since early 80's, but it was done sporadically and part of Land Spatial Planning (terrestrial based). Specific for marine planning area, it was just officially regulated by the Law No. 27 year 2007 about Coastal and Small Islands Area Management, especially for the marine waters up to 12 nautical miles from the shorelines. Beyond that point (> 12 NM) the zoning of the marine waters is under national jurisdiction. In that law, the official name of CMSP in Indonesia is *Rencana Zonasi Wilayah Pesisir dan Pulau Pulau Kecil (RZWP3K)* literally translated as Zoning Plan of Coastal and Small Islands Area. In that law, CMSP is mandatory and should be developed on each Regency/Municipality basis. But, in its development, based on the Law No. 23, 2014 (about decentralization governance), marine area jurisdiction was shifted from regency/municipality into provincial level jurisdiction, resulting the CMSP process was also shifted into provincial level. The steps of CMSP development follows the decree of the Minister of Marine Affairs and Fisheries No. 23/2016 about Coastal and Small Islands Area Management Plan. Recently, Indonesia has already legally adopted CMSP in 25 provinces out of 34 provinces. Another significant step is by the issuance of Law No. 11/2020 where it is mandated that the CMSP should be harmonized and integrated with the respective Land Spatial Planning. This harmonization is an important milestone in Indonesia's spatial planning development process which is aimed to achieve a better and integrated land and marine spatial planning.

## **MSPglobal International Guide on Marine Spatial Planning and regional suggestions**

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The MSPglobal Guide is the result of a joint initiative by the Intergovernmental Oceanographic Commission (IOC) of UNESCO and the European Commission's Directorate-General for Maritime Affairs and Fisheries (DG MARE), in order to support the development and implementation of marine/maritime spatial planning (MSP) processes worldwide. The purpose of the guide is to assist governments, partners and MSP practitioners globally in the development of marine spatial plans, and to capture the evolution and lessons learned globally on MSP since the first guide was published in 2009 by IOC-UNESCO. The development of MSP as a practice is evolving to address new and emerging issues related to ecosystem-based management of the ocean.

The report introduced the mainly contents of the Guide, it includes, about this guide, MSP and ocean governance basics, how to set the scene, designing the planning process, assessments for planning, the plan, enabling implementation of the marine spatial plan, monitoring, evaluation and adaptation. Also, some new concepts include in the guide also put forward, such as blue economy, transboundary marine spatial planning, land-sea interaction, etc. The factors that need to be considered in planning, such as data, law, key stakeholders, funding, etc. are highly inputted. In the final part, some suggestions are put forward to promote the MSP process in southeast countries.

## **China Marine Spatial Planning Approach and Its Application in Cambodia**

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China has more than 40 years' experience for Marine Spatial Planning (MSP), China's MSP institutional system and technical scheme in the period of rapid development of marine economy could reference by Cambodia MSP. Since the signing of the Memorandum of Understanding on China-Cambodia cooperation in the marine field, China and Cambodia have conducted a series of cooperation in the areas of Marine Spatial Planning. National Ocean Technology Center, MNR, China and DMCC, GDANCP, MoE, Cambodia cooperating in Cambodia Marine Spatial Planning research, China-Cambodia Marine spatial Planning Joint Laboratory and Cambodia Marine Spatial Planning Information System construction, and get a bunch of results. The next step will continue to deep in MSP cooperation, to update MSP document and establish China-Cambodia cooperation platform for coastal zone planning, continue to deepen capacity building cooperation.

## **Key success for Marine and Coastal Management in Thailand**

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The mission of Department of Marine and Coastal Resources, Ministry of Natural resources and Environment, Thailand is to promote sustainable use of marine resources while maintaining ecosystem health and integrity. The main management strategy evolves around achieving compliance from local communities to harvest resources sustainably and conserve marine resources. Public participation is crucial to achieve compliance since it builds trust and understanding between the government and communities. In Thailand, public participation process has to be conducted before enacting protected areas or management measures in order to identify needs and prioritize local communities' suggestion. By aligning the regulation with the communities' need, rate of compliance to the regulation are usually high therefore leading to great outcome toward conservation of marine resources. Moreover, building network of local communities' volunteers increase surveillance and monitoring capacities of the department through reports of misconduct, or any rescue needed.

A case study of sea-walker in Koh Larn, Chonburi province, Eastern coast of Thailand, a pilot Marine Spatial Planning site in collaboration with China, showed that by engaging the stakeholders and understanding their needs, impact on coral reef can be minimized by allocating specific area to the sea-walker with the promise that they will no longer touch, move, or do harm to the natural reef. Another case study from Trad Bay, a designated future marine protected area, showed that local communities are very active and willing to comply on the protection of the marine resources when engaging them in public participation. Hence, public participation is critical in order to achieve high compliance rate and effective marine and coastal management in Thailand.

## **Scenario Analysis in Marine Spatial Planning under Climate Change: Present Applications, Challenges and Trends**

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Scenario analysis has been identified as the most promising approach to inform marine spatial planning (MSP) adaptation to future evolving conditions. As an effective policy tool to advance ecosystem-based ocean management, MSP can reduce current and future conflicts over sea uses and address climate change. Scenario are neither predictions nor forecasts, but rather alternative descriptions on how the future might unfold. Integrating scenario analysis and MSP could be seen as a potential ecosystem-based solution to limit the impact of climate change on ocean and coastal ecosystems. This paper aims to (1) review the present applications of scenario analysis in MSP under climate change whether from theoretical perspectives or management practices; (2) identify the challenges of scenario-building under climate change in the MSP process; (3) analyze future trends, especially implication for China and other southeast Asia countries. Based on the literature review and existing practices, a step-by-step approach of scenario building in MSP under climate change is also established in this paper. The steps are including (1) analyzing driving forces for spatial development, which describes the policy, economic, technological, social and demographic as well as environmental and climate driving forces, (2) assigning weights to different drivers or indicators by balancing different interests of marine sectors and stakeholder groups and (3) developing scenarios and demonstrating the positive and negative effects of the proposed scenarios.

## **Marine Spatial Planning in Phang-Nga Bay, South of Thailand**

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Phang Nga Bay is one of the most prominent marine ecosystems of large estuarine ecosystems with karst characteristics as well as fossil deposits of various eras. Phang Nga Bay is considered a valuable area of marine ecosystems, biodiversity, large carbon reservoirs, geology, history, culture, traditions, lifestyles of coastal communities that help drive social-economics on the Andaman Sea of Thailand. Coral reef, mangrove and seagrass are prominent marine ecosystem of the area. Major conservation areas are Phang Nga bay National Park, Than Bok Khoranee National Park, Mu Ko Pi Pi National Park and Mu Ko Lanta National Park which are managed by the Department of National Park, Wildlife and Plant Conservation. The area is known as the world class tourist destination of Thailand as well as major small scale fisheries area of the country. Various uses in Phang Nga Bay area from the past to the present, such as fishing, mining, tourism, transportation routes, etc., all contribute to various impact on estuarine ecosystem. Therefore, there is urgently necessary to collect information such as the geography, climate, resources and resource health. Utilization model, stakeholder group, impact, threat, regulation, agreement Laws that agencies are responsible for managing to create a marine spatial plan for sustainable utilization management. The information will be analyzed for the preparation of marine and coastal spatial planning in the Phang Nga bay. Uses conflict and compatibility matrix of each activity in Phang Nga Bay are compared and identified. Future investigation will be collected to clarified the suitable utilization of each activity in each zone.

## **Blue Economy Initiative in Trat Province, Eastern Coast of Thailand**

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Marine and coastal resources have been utilized in various activities such as fisheries, transportation, tourism, oil and gas plantation, etc. Then, marine, and coastal resources including environmental quality have been degraded which reflex to the loss of ecological balance, economic, social and community conditions and food security.

Blue economy had been introduced and initiated in Thailand since 2016 under Thailand-China Cooperation on Marine. Trat province in the eastern coast of Thailand was selected as the study site under the workplan of the Department of Marine and Coastal Resources, Ministry of Natural Resources and Environment, Thailand. Baseline information which composed of marine resources, environment, socio-economic, type of marine utilization and coastal community conditions have been collected. Workshops and focus groups meetings had been conducted to increase the better understanding of Blue economy's concept of the stakeholders. The activities have been mobilized the Blue economy, compose of the rehabilitation of marine and coastal resources, knowledge management and supporting the careers of local livelihood. The key success should be included 1) the sustainable utilization of marine and coastal resources 2) innovation development of the resource's utilization 3) the sharing benefit of the stakeholders.

## **Nature-based Solution for Coastal Resilience through Dune Restoration**

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Dunes are an integral part of our coastal environment. They are the basis of important ecosystems, supporting valuable communities of plants and animals. Dunes act as flexible barriers to ocean storm surges and waves, protect low-lying backshore areas. Dunes are vitally important since they prevent water events from breaching and protect the vegetation from flooding, allowing a diverse set of vegetation to grow that is otherwise intolerant to seawater. Coastal dune restoration is considered as one of the nature-based solution to enhance coastal resilience. So far, most of the coastal dune systems are facing the problem of degradation, erosion and overexploitation, gradually losing their protective and ecological function. Dune rehabilitation refers to the restoration of dunes from a more impaired, to a less impaired or unimpaired state of overall function, in order to gain the greatest coastal protection benefits. This work summarizes the main function, formation and development of coastal dune, on the basis of the background, the main types and the key factors needed to be considered during dune restoration were introduced. Restoration actions have involved “soft” methods, such as vegetation planting, and “hard” methods, such as geotubes and rocky core, most of the time, hybrid methods are recommended. Finally a case study of coastal dune restoration at Changle, Fujian province, southeast China was presented to demonstrate the process and design of a coastal dune restoration project.

## **EVALUATION OF FISHERIES SUBSIDIES IN ACEH PROVINCE, INDONESIA**

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Fisheries subsidies at the provincial level have been carried out previously in 2015, where the Aceh government in providing subsidies prioritizes on capture fisheries where the main activities were procured the vessels and fishing gears, rehabilitating facilities and infrastructure. Since the study was conducted more than 5 years ago, there have been several changes at the level of policymakers. Therefore, it is deemed necessary to evaluate the status of fisheries subsidies in Aceh Province. The objective of the present study was to evaluate the Aceh government's policy for providing fisheries subsidies. The study used the document of the Aceh Province Revenue and Expenditure Budget in the 2015-2019 periods (secondary data), and interviews with several key persons (primary data). Data were analyzed descriptively. The results showed that fisheries subsidies in Aceh Province for the last five years have focused on the aquaculture sector 50-53%, while about 40-44% of the budget was plotted for the capture fisheries sector. Based on the fishery subsidy budget allocation and green fisheries policy, it shows that institutional fisheries management planning in Aceh Province is in a good category. It was concluded that based on the budget allocation, there is a change in the direction of the focus of fisheries development in Aceh Province, which previously relied on capture fisheries, to aquaculture.

## **The Development and Deficiencies of National Marine Park in China and Suggestions for Improvement**

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The construction of National Marine Park is one of the ways to perfectly combine the ecological environment protection and resource exploitation, it is also the form of marine ecological environment protection adopted by most countries in the world. With the development of ecological civilization, National Park system is developing vigorously in China. However, the construction of National Marine Park has a short history in , and faced with the dilemma of low level of laws and regulations, lack of special legislation, unsound management system, lack of specialized management agencies and professional management personnel, and insufficient public participation. Based on the analysis of the current situation of China's National Marine Park construction, this paper puts forward suggestions for improvement based on the mature experience of Australia and the United States.