Proceedings of the Training on Marine Spatial Planning (MSP) Application in the Scaling-up of Integrated Coastal Management (ICM)

21-26 April 2025
Xiamen, China

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Introduction

1.0 The Training on Marine Spatial Planning (MSP) Application in the Scaling-up of Integrated Coastal Management (ICM) was conducted on April 20-26, 2025 at the Xiamen City Hotel in Xiamen, China. The workshop was attended by a total of 30 participants, composed of 19 PNLC Members from Cambodia, Indonesia, Lao PDR, Philippines, Thailand, Timor-Leste, and Vietnam and university representatives from Malaysia, Brunei Darussalam and Singapore, as well as the secretariat team from FISO-Xiamen University and the PRF.

2.0 The training was co-organized by the Fujian Institute for Sustainable Oceans (Xiamen University) (FISO)/Sustainable Coastal Development Capacity-Building Research Lab (SCD Lab), and the Partnerships in Environmental Management for the Seas of East Asia (PEMSEA). It was supported by the China Oceanic Development Foundation (CODF).

3.0 The objectives of the training were:

- To train PNLC members and marine-related professionals on the concept, principles and framework of ICM and MSP
- To develop a standard ICM-MSP course
- To form a team of ICM and MSP trainers in the region

To fulfill the above objectives, the training was divided into two main components:

- Part 1, covered the technical content of ICM and MSP, complemented with field visits to relevant sites in Xiamen.
- Part 2, covered the training development, management and training delivery methods.

4.0 The 5-day training featured five resource speakers from China, Indonesia, and the Philippines:

- Prof. Pan Xinchun, Secretary General of China Oceanic Development Foundation (CODF)
- Prof. Xue Xiongzhi, Dean, Fujian Institute for Sustainable Oceans (Xiamen University)
- Prof. Ario Damar, Faculty of Fisheries and Marine Sciences, IPB University
- Dr. Kong Hao, Associate Research Fellow, Fujian Institute of Oceanography/ Special Joint Researcher, Fujian Institute for Sustainable Oceans (Xiamen University)
- Mr. Dennis Raposa, Training Specialist
- Ms. Nancy Bermas, Regional Project Manager, PEMSEA

5.0 The Training comprised of seven (7) lectures, three (3) field visits, a training simulation and two (2) workshops on training course design and planning for collaboration. (See programme in Annex 1)

6.0 Supporting documents may be found in the annexes:

- Annex 1 - Training Programme
- Annex 2 - List of Participants, Speakers, and Organizers
- Annex 3 - Photos

Training Proper

April 21: Day 1 of the Training

7.0 On Day 1 of the training program which started at 8:30am, the participants were welcomed by Prof. Li Yangfan, Vice Dean of the Fujian Institute for Sustainable Ocean (FISO) and Prof. Wang Sheng, Party Secretary of the College of the Environment and Ecology (CEE), Xiamen University. The opening remarks were delivered by Vice President and Secretary General Pan Xinchun of the China Oceanic Development Foundation (CODF) and Ms. Aimee Gonzales, Executive Director of PEMSEA.

8.0 After the opening programme, there was a group photo session followed by a coffee break. After the break, Ms. Isdaharatati gave an introduction to the objectives, agenda and programme of activities.

9.0 Day 1 covered 3 lectures that mainly looked into the concept, principles, framework and practices on ICM and MSP in China, Indonesia, and the Philippines.

10.0 Lecture 1 on **Good Practices, Learnings and Achievements of China's Marine Spatial Planning** was presented by Prof. Pan Xinchun, Secretary General of China Oceanic Development Foundation (CODF). His presentation provided an overview of managing the oceans: China's practices and achievements. Some of the salient points are:

10.1 Marine Law and Planning System

- China's Marine Law and Planning System represents a multifaceted and evolving framework that integrates legal, administrative, and spatial planning tools across multiple levels of governance. Driven by the rapid expansion of maritime economic activities, increasing environmental challenges, and strategic geopolitical considerations, China has developed a comprehensive system to regulate the use, protection, and development of its marine and coastal zones.
- China possesses more than 11,000 islands, of which 489 are inhabited. Over 7,300 of these islands have a land area exceeding 500 square meters, and the combined coastline of all Chinese islands extends over 14,000 kilometers.

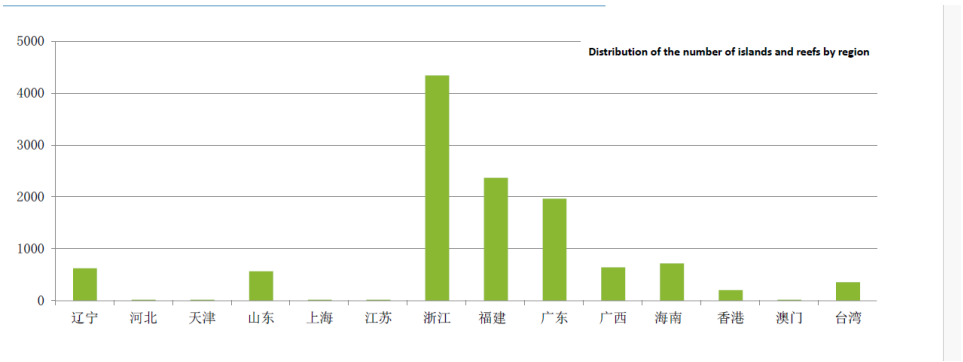


Figure 1. **Marine Law and Planning System in China**

- China's practices in ocean governance: (i) Development of the Maritime Legal Framework and Planning System; (ii) High-quality development of the marine economy; (ii) Establishment of a marine ecological civilization; (iv) Advancing high-level self-reliance and strength in marine science and technology; (v) Cultivating a marine culture with contemporary characteristics; (vi) Protecting maritime security and rights; (vii) Establishing a powerful modern navy; and (viii) Building a maritime community with a shared future.

10.2 Development of the Maritime Legal Framework and Planning System

The state has enacted marine laws and regulations. China has established a series of national laws that form the foundation of its marine governance system. China’s maritime legal and planning system has developed rapidly over the past few decades, evolving in response to the country’s growing maritime economy, environmental challenges, and strategic geopolitical interests. The system integrates international legal obligations with state-driven planning mechanisms, forming a comprehensive governance structure for the sustainable use and protection of marine and coastal resources.

10.3 High-Quality Development of the Marine Economy

China’s marine economy has long been a vital pillar of the nation’s broader economic development, driven by key sectors such as fisheries, shipping, port infrastructure, and offshore energy. Emerging industries—including blue biotechnology and marine biomedicine—are harnessing marine biodiversity to unlock new innovations. Offshore renewable energy, such as wind, tidal, and wave power, continues to diversify energy sources and reduce carbon emissions. Smart ports and shipping are embracing digital technologies, automation, and green logistics, while marine tourism and cultural development promote ecological preservation and heritage conservation.

In recent years, the focus has shifted toward high-quality development, emphasizing sustainability, technological innovation, and ecological stewardship to align economic progress with environmental responsibility.

10.4 Establishment of Marine Ecological Civilization

- Improving coastal environmental quality including strengthening pollution control, coastal ecosystem restoration, integrated coastal zone management (ICZM), technological and scientific innovation, public awareness and international cooperation.
- Outcome and challenges: these efforts have led to measurable improvements in water quality in many coastal regions, increased mangrove coverage, and enhanced ecosystem resilience.

10.5 Marine Science and Technology Development

- Advancing high-level self-reliance and strength in marine science and technology: China is prioritizing research and development in critical marine technologies such as deep-sea exploration, marine autonomous systems, marine biotechnology, and ocean observation platforms.
- Building advanced research facilities: Establishing state-of-the-art marine laboratories, research vessels, and underwater equipment to support independent scientific discovery and technological innovation.
- Advancing high-level self-reliance and strength in marine science and technology: China aims to position itself as a global leader in marine science and technology, underpinning sustainable marine economic development, environmental stewardship, and maritime security.

10.6 Marine Culture: Cultivating A Marine Culture with Contemporary Characteristics

In the new era, advancing China's maritime culture requires a multidisciplinary approach that encompasses research and development across theory, literature, art, industry, and the preservation and promotion of outstanding traditional heritage. This holistic engagement ensures that maritime culture remains vibrant, relevant, and a driving force for sustainable marine development.

10.7 Maritime Safety: Focus on Future Development Protecting maritime security and rights.

The future development of maritime safety in China centers on enhancing legal frameworks, technological capabilities, institutional coordination, and international cooperation to safeguard its maritime security and rights.

10.8 A Maritime Community with a Shared Future: Building a Maritime Community with A Shared Future

The concept of "A Maritime Community with a Shared Future" embodies China's strategic vision for fostering peace, cooperation, sustainability, and inclusive development within the realm of global ocean governance. It is an extension of the broader diplomatic philosophy of building "a community with a shared future for mankind", emphasizing the interconnected nature of maritime interests across nations. This framework promotes collaboration over confrontation, advocates for mutual benefit, and underscores the importance of responsible stewardship of marine resources. By encouraging joint efforts in marine environmental protection,

scientific research, economic development, and maritime security, China seeks to build a cooperative international maritime order grounded in equity, inclusiveness, and sustainable progress.

11.0 Lecture 2 on the **Concept, Principles and Framework of ICM and Its Importance in Sustainable Coastal and Marine Development** as applied in Indonesia was provided by Prof. Dr. Ario Damar of the CCMRS IPB University and MSP-FPIK IPB University. The salient points of his presentation are as follows:

11.1. Coastal areas and its importance.

- Coastal Area: Coastal area" refers to the region where land meets the ocean, sea, or other large bodies of water. These areas are typically characterized by unique ecological, economic, and social features.
- Coastal areas play a critical role in both environmental and human systems, offering invaluable ecological, economic, social, and cultural benefits.
    - Ecological Value:
      Coastal ecosystems such as mangroves, coral reefs, seagrass beds, and estuaries support high biodiversity. They serve as nurseries for marine life, help regulate climate through carbon storage, and protect inland areas from natural disasters like storm surges and coastal erosion.
    - Economic Value:
      Coastal areas are hubs of economic activity, supporting fisheries, aquaculture, tourism, shipping, and offshore energy industries. These sectors provide employment, food security, and contribute significantly to local and national economies.
    - Social Importance:
      Millions of people live in coastal regions due to the availability of natural resources and economic opportunities. Coastal areas offer recreational spaces, contribute to public health and well-being, and serve as vital zones for sustainable development.
    - Cultural Significance:
      Many coastal communities have deep-rooted cultural and historical ties to the sea. Coastal landscapes often hold spiritual, traditional, and ancestral value, shaping the identity and practices of local populations.
- Key Characteristics:
    - Ecological Richness: Home to diverse ecosystems like mangroves, coral reefs, seagrass beds, and tidal flats.
    - Human Settlements: Often densely populated due to access to resources, trade routes, and tourism.
    - Economic Activities: Includes fisheries, aquaculture, tourism, shipping, and offshore energy.
    - Vulnerability: Prone to natural hazards such as coastal erosion, sea level rise, storms, and flooding.

11.2 Ecological and Economic Challenges

Figure 2 Ecological and Economic Challenges

- Ecological Challenges in Coastal Areas:
  - Destruction of mangroves, coral reefs, and wetlands due to urban expansion, tourism, and aquaculture and Habitat Degradation: Loss of biodiversity and disruption of marine food chains
  - Pollution: Industrial, agricultural, and plastic waste enter coastal waters, harming marine life and ecosystems and eutrophication from nutrient runoff causes harmful algal blooms and dead zones
  - Climate Change Impacts: Rising sea levels threaten low-lying coastal regions and ocean warming and acidification damage coral reefs and alter species distribution
  - Overfishing and Resource Exploitation: Unsustainable fishing practices reduce fish populations and disrupt ecosystems and Coastal mining and dredging disturb habitats and increase erosion.

- Economic Challenges in Coastal Areas
  - Dependence on Natural Resources: Over-reliance on fisheries, tourism, and coastal agriculture makes economies vulnerable to environmental changes and disasters
  - Conflicting Land Use: Competition among tourism, industrial development, conservation efforts, and local livelihoods often leads to land-use conflicts and inefficient resource management in coastal areas. This can result in overlapping claims, environmental degradation, and the marginalization of local communities, especially when development priorities overshadow ecological and social considerations.
  - Inequitable Development in Coastal Areas: Inequitable development refers to the unequal distribution of economic benefits and opportunities among different groups within coastal communities. In many coastal regions, large-scale investments in tourism, real estate, or industry often prioritize profit over people

The intersection of ecological degradation and economic vulnerability makes sustainable coastal management a pressing need. Addressing these challenges requires integrated policies that balance conservation with development and community well-being.

11.3. Integrated Coastal Management (ICM)

- Integrated Coastal Management (ICM) is a strategic, multi-sectoral framework for the sustainable and balanced management of coastal areas. It seeks to harmonize the efforts of various stakeholders—including governments, local communities, industries, and environmental organizations—to ensure that coastal development supports ecological integrity, economic viability, and social equity.
- Integrated Coastal Management (ICM) in Indonesia
  Indonesia, boasting a vast coastline of over 81,000 kilometers and thousands of islands, faces significant coastal management challenges such as overfishing, pollution, habitat degradation, and the growing impacts of climate change. In response, Indonesia has embraced Integrated Coastal Management (ICM) as a fundamental strategy to promote sustainable development and balance ecological protection with economic and social needs in its coastal zones.
- Indonesia's experience with ICM demonstrates the importance of integrated, participatory approaches to coastal management in archipelagic settings. Continued efforts are needed to strengthen governance, improve local engagement, and address emerging environmental threats.
- Key Aspects of ICM in Indonesia:
  - ✓ Policy and Legal Framework: Indonesia's government has established various regulations and policies supporting ICM, such as the Coastal Zone Management Act and the National Strategy for Coastal and Small Islands Management.
  - ✓ Multi-Stakeholder Involvement: ICM implementation involves coordination between national and local governments, community groups, NGOs, and private sectors to ensure inclusive decision-making
  - ✓ Focus Areas: Protecting critical habitats like mangroves, coral reefs, and seagrasses, managing fisheries sustainably, reducing pollution and waste from land-based sources, and enhancing resilience to coastal hazards and climate change
  - ✓ Community-Based Approaches: Empowering coastal communities through capacity building and participatory planning has been essential to the success of ICM projects in Indonesia.
- Challenges:
  - ✓ Coordination between multiple agencies and jurisdictions can be complex.
  - ✓ Balancing economic development with environmental conservation remains difficult.
  - ✓ Funding and technical capacity constraints limit full-scale implementation in some regions

11.4. ICM Cycle

The Integrated Coastal Management (ICM) Cycle is a step-by-step, adaptive process used to plan, implement, and evaluate sustainable coastal development. It helps ensure that coastal management is systematic, inclusive, and responsive to changing conditions.

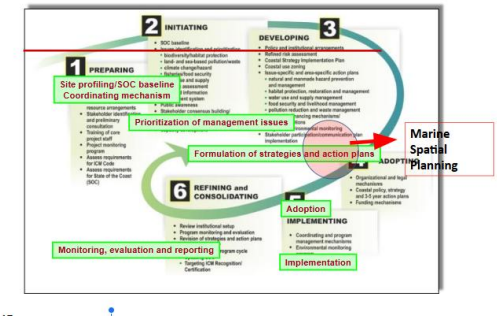


Figure 3. ICM Sycle

11.5. Best Practices in Integrated Coastal Management (ICM) Implementation in Indonesia

Indonesia's vast and diverse coastal regions have driven the development and implementation of effective Integrated Coastal Management (ICM) practices. The following best practices showcase key approaches that have significantly contributed to successful and sustainable coastal management across the archipelago.

1. Multi-Stakeholder Participation and Community Engagement
    - Involving local communities, government agencies, NGOs, and private sectors in planning and decision-making ensures that diverse interests are considered and that local knowledge is integrated.
    - Community-based coastal resource management (CBCRM) initiatives empower local populations to take active roles in protecting their environment and livelihoods.
2. Decentralized Governance and Local Empowerment
    - Indonesia's decentralization policies have allowed local governments to take ownership of coastal management, leading to tailored solutions that fit specific regional contexts.
    - Capacity-building programs strengthen local institutions' ability to implement and enforce ICM plans effectively.
3. Integrated Policy and Legal Frameworks
    - Harmonizing national and regional policies related to fisheries, environment, tourism, and spatial planning reduces conflicts and promotes coherent management.
    - Legal instruments such as Regional Spatial Planning (RTRW) incorporate coastal management principles to guide sustainable development.
4. Ecosystem-Based Management Approaches
    - Protecting and restoring critical habitats like mangroves, coral reefs, and seagrass beds helps maintain biodiversity and natural coastal defenses.
    - Programs focus on habitat rehabilitation alongside sustainable fisheries and pollution control.
5. Use of Scientific Data and Monitoring

- Regular environmental monitoring and data collection inform adaptive management strategies, enabling timely responses to emerging threats.
- Integration of traditional ecological knowledge with scientific research improves management outcomes.

6. Climate Change Adaptation and Disaster Risk Reduction
    - ICM programs incorporate climate resilience measures, such as mangrove restoration and coastal zoning, to mitigate sea-level rise and extreme weather impacts.
    - Disaster preparedness plans are linked with coastal management to protect communities and infrastructure.
7. Public Awareness and Education Campaigns
    - Raising awareness through education programs and media campaigns fosters stewardship and responsible behavior among coastal residents and visitors.

11.6. Main Goal of ICM

The main goal of Integrated Coastal Management (ICM) is to achieve sustainable and balanced use of coastal and marine resources by harmonizing environmental protection, economic development, and social well-being.

This goal is achieved by:

- Promoting coordinated action among different sectors and stakeholders.
- Protecting coastal ecosystems such as mangroves, coral reefs, and wetlands.
- Reducing conflicts over land and resource use.
- Strengthening community resilience to climate change and natural disasters.
- Ensuring equitable access to coastal resources and development benefits.

11.7. Tools in ICM

Integrated Coastal Management (ICM) uses a variety of tools to support informed decision-making, foster collaboration, and ensure the sustainable use of coastal resources. These tools help integrate ecological, social, and economic factors across sectors and levels of governance

- scientific soundness (i.e., for measuring pre- and post-project changes and benefits);
- ease of application (i.e., data requirements and technical/scientific skills of users);
- transferability (i.e., replication by local governments/ICM Learning Centers across the region)

11.8. Key Tools in ICM

1. Spatial Planning Tools (e.g., Marine Spatial Planning – MSP)
    - Helps allocate space for various uses (fisheries, tourism, conservation, etc.)

- Reduces conflicts and guides sustainable development in coastal zones.

2. Geographic Information Systems (GIS)
    - Maps and analyzes coastal features, habitats, land use, and risks.
    - Supports evidence-based planning and monitoring.
3. Environmental Impact Assessment (EIA)
    - Evaluates potential environmental effects of development projects.
    - Ensures sustainability and legal compliance before implementation.
4. Carrying Capacity Assessment
    - Determines how much human activity (e.g., tourism or aquaculture) an area can sustain without environmental degradation.
5. Stakeholder Analysis and Engagement Tools
    - Identifies key actors, their interests, and influence.
    - Promotes inclusive participation and consensus-building.
6. Integrated Coastal and Marine Zoning
    - Designates zones for specific purposes such as protection, development, or multiple uses.
    - Helps manage competing interests.
7. Monitoring and Evaluation Frameworks
    - Tracks progress toward ICM goals using indicators.
    - Supports adaptive management and accountability.
8. Legal and Policy Instruments
    - Provides the regulatory basis for coastal management.
    - Includes national laws, regional regulations, and local ordinances.
9. Economic Valuation Tools
    - Assesses the economic value of coastal ecosystems and services.
    - Supports arguments for conservation and sustainable investment.
10. Risk and Vulnerability Assessment Tools
    - Evaluates exposure to coastal hazards like erosion, floods, and sea-level rise.
    - Informs resilience-building and climate adaptation strategies.

11.9. Marine Zoning Plan

- A Marine Zoning Plan is a spatial management tool designed to organize and regulate human activities in marine and coastal areas to promote the sustainable use of marine resources, minimize user conflicts, and safeguard critical ecosystems. It serves as a core component of Marine Spatial Planning (MSP) and is integral to the broader framework of Integrated Coastal Management (ICM).
- A Marine Zoning Plan is an integral part of coastal and marine management planning, particularly in the planning and regulation of natural resource utilization. It provides a clear spatial structure and pattern that designates specific zones for various activities, such as conservation, fisheries, tourism, and industry. Each zone outlines which activities are allowed and which are prohibited, helping to minimize

conflicts and ensure environmental sustainability. Additionally, the zoning plan serves as a legal and technical basis for the issuance of permits, guiding the approval or rejection of proposed developments and ensuring alignment with sustainable management objectives.

11.10. MSP in ICM

- Marine Spatial Planning (MSP) is a key tool within Integrated Coastal Management (ICM) that involves the organized allocation of marine space to balance ecological, economic, and social objectives. MSP helps manage the increasing demands on marine and coastal areas by guiding where and how activities such as fishing, tourism, shipping, conservation, and energy development should take place.
- Marine Spatial Planning is an essential mechanism within ICM that provides a spatial framework to balance multiple uses of coastal and marine areas, ensuring sustainable development, ecosystem conservation, and stakeholder collaboration.

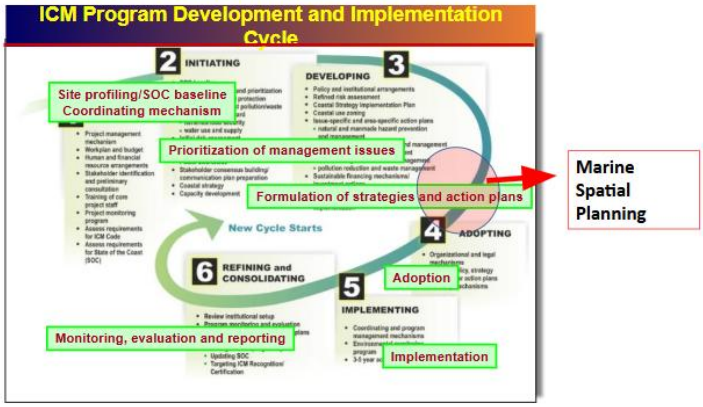


Figure 4. ICM Program Development and Implementation

11.11. Impacts Integration between land and Marine Spatial Planning

- Integrating land and marine spatial planning is crucial because coastal ecosystems and human activities are interconnected across these boundaries. Coordinated planning ensures that decisions on land use complement marine management, leading to more effective and sustainable outcomes.
- The integration of land and marine spatial planning enhances environmental sustainability, economic efficiency, and social equity by managing coastal zones as interconnected systems rather than isolated parts.

11.12. Key Impacts of Integration:

1.0 Improved Ecosystem Connectivity and Health

- Protects critical habitats like mangroves, wetlands, and coral reefs that depend on both terrestrial and marine environments.
- Reduces pollution runoff and sedimentation from land to sea, preserving water quality and marine biodiversity.

2.0 Enhanced Disaster Risk Reduction

- Enables coordinated coastal defense planning, such as protecting natural buffers (mangroves, dunes) and managing upstream land activities that affect flooding and erosion.

3.0 Balanced Economic Development

- Aligns urban expansion, agriculture, and infrastructure development on land with sustainable marine uses like fisheries and tourism.
- Prevents conflicting uses, such as industrial pollution from land-based sources harming marine protected areas.

4.0 More Efficient Resource Use and Conflict Reduction

- Facilitates multi-sector coordination to optimize resource allocation and minimize conflicts between land-based and marine activities.

5.0 Strengthened Governance and Stakeholder Collaboration

- Promotes cross-sectoral and cross-jurisdictional cooperation among agencies managing land and sea.
- Encourages integrated policies and joint decision-making.

12.0 Lecture III on **ICM Practices and Scaling-up in East Asia: Linkages of MSP and ICM in a Source-to-Sea System** by Nancy Bermas of the PEMSEA Resource Facility, focused on the integration of ICM and MSP within a broader Source-to-Sea (S2S) framework. The presentation aimed to show the synergies and complementarities between ICM and MSP and how these contribute to operationalizing broader area-based management frameworks like S2S, Ridge-to-Reef (R2R), and Headwaters-to-Ocean (H2O) for replication and scaling up in East Asia. A summary of key points are as follows:

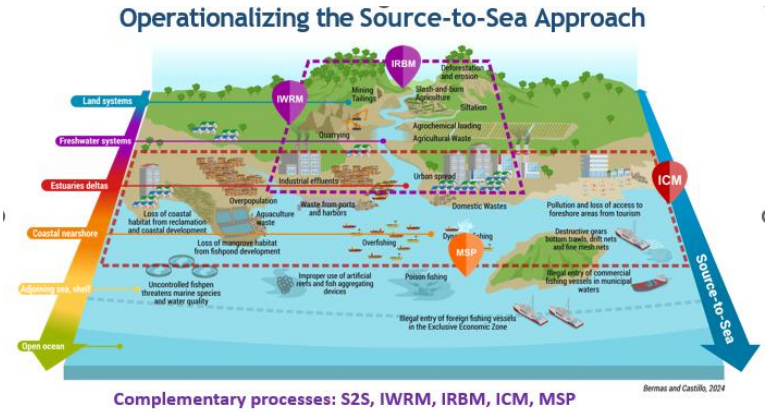
- Evolution of ICM and MSP Practices
    - ICM in East Asia:
        - Began in the 1960s (San Francisco Bay Commission) and recognized in Agenda 21 (1992).
        - Grew to cover 40% of the 227,700 km East Asian coastline by 2022.
        - Supported by national laws (e.g., China's Law on Sea Use 2001, Philippines EO 533 2006) and donor funding.
        - Over 286 ICM sites across 20 countries; alignment with UN SDGs and regional Decadal Plans.
    - MSP Globally and in East Asia
        - Early adopters: Australia (1998), Canada (1997), China (1997 marine zoning).
        - EU Directive (2014) mandated MSP by 2021; UNESCO's MSP global guide (2022–24).
        - 126 countries engaged in MSP by 2022; nine East Asian initiatives in pre-planning to approved plan stages.
        - China, RO Korea, and Indonesia lead regional MSP development.

    - Implementation Frameworks and Tools

- ICM Cycle Stages and Key Activities:
  - Preparing: Baseline SOC, stakeholder ID, workplan, budget
  - Initiating: Risk assessment, info systems, communication plan
  - Developing: Coastal strategy, zoning, action plans, financing
  - Adopting: Legal mechanisms, budget allocation, harmonization
  - Implementing: Action plan rollout, M&E, integration into government
  - Refining and Consolidating: Performance M&E, strategy revision, next-cycle plan
- MSP 10-Step Process
  1. Establish authority
  2. Secure financing
  3. Organize planning
  4. Engage stakeholders
  5. Assess current conditions
  6. Project future scenarios
  7. Draft plan
  8. Implement measures
  9. Monitor performance
  10. Adapt and iterate
- Core Tools & Methodologies
  - Environmental and risk assessments
  - Coastal use zoning plans
  - Integrated Information Management Systems (IIMS)
  - Socioeconomic and ecosystem monitoring guidelines
  - Marine protected area (MPA) effectiveness tracking

- Case Study: Guimaras Province, Philippines
  - ICM Trigger and Governance
    - Sparked by the 2006 oil spill: 2 million L bunker fuel, ₱237 M losses, 47% population impacted.
    - Established a multi-stakeholder ICM Coordinating Committee and PMO.
    - First LGU ordinance (2018) adopting ICM for coastal/marine resource management.
  - Institutional & Legislative Instruments
    - ICM Ordinance No. 2018-06: comprehensive local ICM legal framework.
    - Integration into Provincial Development Plans (PDIP 2017–2022).
    - Sub-committees for habitat, hazards, water, food security, pollution.
  - Financing & Capacity Development
    - Annual LGU budget allocations (2008–2016) plus donor, private, central-govt support.

        - Training on fisheries management, MPA governance, disaster risk reduction.
        - Participation in regional events: Xiamen World Ocean Week, EAS Congress.
    - Addressing Key Issues
        - Hazard management (sea-level rise, quarrying).
        - Habitat protection (MPA expansion: 830 ha in 1999 to 2,672 ha in 2018).
        - Water security (sanitary landfill, anti-plastic ordinances).
        - Pollution control (3RproMar project on waste reduction).
- Integrating Source-to-Sea and Other Area-Based Management
    - Source-to-Sea (S2S): connects watershed, estuary, and ocean interventions.
    - Integrated River Basin Management (IRBM)/IWRM: links freshwater and coastal governance.
    - MSP: spatially allocates maritime uses while ICM handles multi-sector coastal issues.



- Synergies and Operational Integration

Attribute	**MSP Focus**	**ICM Focus**
Spatial scope	EEZ and maritime zones	Shorelands, municipal waters
Temporal framework	Continuous adaptive cycle	Multi-stage project cycle
Integration	Sea-based uses with land planning	Coastal-to-river basin linkages
Governance	National/regional directives, EU MSP Directive	Local ordinances, coordinating committees

Attribute	MSP Focus	ICM Focus
Core approach	Ecosystem-based spatial planning	Strategic, participatory integrated mgmt.

- Key Takeaways
  - Mainstreaming and Scaling Up: Leverage existing ICM sites to embed MSP processes.
  - Capacity Building: Strengthen institutions and human resources across scales. Highlights the importance of strengthening capacity at regional, national, and local levels (institutional and human) to facilitate the implementation and upscaling of ABM approaches in East Asia.
  - Data & Networks: Promote shared information systems and regional training networks.
  - SDG Alignment: Document and report on contributions to SDG targets via ABM.
  - Strengthening Coordination: Emphasizes the need to strengthen coordination for integrated management of watershed, coastal, and marine areas through mainstreaming area-based management (ABM) approaches and processes, alongside documenting and consolidating good practices.
  - Networking and Knowledge Sharing: Promotes facilitating networking for data and knowledge sharing, and the application of tools and methodologies.
  - Holistic and integrated approach to coastal and marine management: Leverage the strengths of ICM and MSP within a broader S2S perspective, with a strong focus on collaboration, capacity building, and knowledge exchange in the East Asian context.
  - Opportunities for Integration and Replication: It emphasizes opportunities for integration and replication, citing the GEF-UNDP-ASEAN IRBM Project. This project involves 6+4 ASEAN Member States, 7 river basins/sub-basins/watersheds, and 4 Large Marine Ecosystems. It also introduces IRBM tools such as State of River Basin Reporting, WEFE (Water-Energy-Food-Ecosystems) toolkit, IRBM Guide, and solution templates for IRBM project development.

13.0 In the evening, FISO hosted a welcome dinner for all participants, speakers and organizers.

<u>April 22: Day 2 of the Training</u>

14.0 Lecture 4 on **MSP as a Tool in ICM: Capacity Building and Communication Platform for Sustainable Coastal Development** was given by Prof. Xue Xiongzhi, Dean of the Fujian Institute for Sustainable Oceans-Xiamen University, via a video recording. He provided an overview of the Capacity Building and Communication Platform for Sustainable Coastal Development. Highlights of his presentation are as follows:

- Marine Spatial Planning (MSP) serves as a critical tool within Integrated Coastal Management (ICM) frameworks by promoting both capacity building and effective communication among diverse coastal stakeholders. This dual role helps bridge gaps in knowledge, skills, and coordination, ultimately supporting more sustainable and collaborative coastal development**.**

- MSP processes require the collection, analysis, and integration of complex spatial and ecological data. This creates opportunities to enhance technical capacities of local managers, planners, and stakeholders by training them in data management, GIS mapping, marine ecology, and decision-support tools. The participatory nature of MSP also fosters the transfer of knowledge between scientists, government agencies, local communities, and the private sectors.
- MSP encourages the establishment or enhancement of institutional frameworks that facilitate coordinated coastal governance. By clearly defining roles, responsibilities, and processes for spatial decision-making, MSP helps build organizational capacities to manage coastal resources more effectively, including conflict resolution and adaptive management.
- Capacity building under MSP extends beyond technical skills to include improving stakeholders' understanding of cross-sectoral interactions and trade-offs. This promotes more holistic thinking and equips managers to balance competing interests such as fisheries, tourism, conservation, and shipping within coastal zones.
- Communication Platform within MSP:
    - Stakeholder Engagement and Participation: MSP offers a structured platform for engaging a wide range of stakeholders in coastal planning. By facilitating inclusive dialogue, it ensures that different voices—including marginalized or indigenous communities—are heard and considered in decision-making processes, enhancing legitimacy and local buy-in.
    - Transparency and Shared Understanding: The use of spatial visualization tools such as GIS maps and scenario models within MSP improves transparency, making complex information accessible and understandable to non-experts. This shared understanding reduces conflicts and promotes consensus by making trade-offs and impacts visible to all participants.
    - Facilitating Cross-sector Collaboration: MSP bridges sectors that traditionally operate in silos by providing a common framework and language for communication. It encourages coordination among government agencies, industry, conservation groups, and community organizations, helping align policies and activities towards sustainable coastal development

- In essence, MSP strengthens ICM frameworks by building the capacities of stakeholders and institutions to plan, manage, and adapt coastal resources effectively. At the same time, MSP acts as a dynamic communication platform that fosters transparency, participation, and collaboration. Together, these functions enable more informed, inclusive, and adaptive coastal governance, which is essential for achieving sustainable coastal development.

15.0 A presentation on **Xiamen ICM Sites Overview** was given by Ms. Luo Shuyu, International Affairs Specialist, Fujian Institute for Sustainable Oceans (Xiamen University). The presentation provided a background to the field visit sites and prepared the group for what to expect, see, and look out for during the field visits. The choice of

sites highlights the transformation of several coastal and urban areas in Xiamen through ICM. It showcases how ICM principles have been successfully applied across the demonstration sites to achieve ecological restoration, socio-economic development, and sustainable urban growth. The field visits aimed to demonstrate Xiamen as a global model for coastal city sustainability through integrated, science-backed, and inclusive management. Key sites included:

15.1. Yundang Lake

- Before: Severely polluted; poor biodiversity.
- Actions: Sewage treatment, desilting, wetland restoration, legal frameworks, and public involvement.
- Result: Water quality vastly improved, biodiversity rebounded, lake became a city symbol.

15.2. Baicheng Beach

- Before: Sand erosion due to illegal construction; beach degraded.
- Actions: Removed illegal structures, restored sand flow, built low-impact Yanwu Bridge.
- Result: Transformed into a resilient tourist beach with ecological and economic benefits.

15.3. Guanyinshan Beach

- Before: Coastal erosion and limited recreational use.
- Actions: Beach nourishment using soft engineering and sand replenishment.
- Result: Ecological enhancement and development of a major tourist area and CBD.

15.4. Wuyuan Bay

- Before: Aquaculture dominance, poor water quality.
- Actions: Removed aquaculture, improved drainage, restored wetlands, built walkways.
- Result: Became a hub for marine recreation and tourism with high water quality and biodiversity.

15.5 Gaoji Causeway

- Before: Solid causeway blocked water flow; ecological damage.
- Actions: Replaced sections with bridges, improved water circulation.
- Result: Recovered ecosystems and upgraded transport infrastructure.

15.6. Xinglin Bay

- Before: Reclaimed land for aquaculture; low water quality.
- Actions: Dredging, pollution control, habitat creation, and industrial park development.
- Result: Balanced urban development with ecological conservation and tourism growth.

15.7. Xiamen Horticulture Expo Garden

- Combines landscaping, tourism, and ecology around Xinglin Bay.
- Features 10 themed garden zones blending Chinese and international styles.

15.8. Overall Outcomes:

- Ecological: Enhanced biodiversity, restored wetlands, improved water quality.
- Social: Elevated public spaces, increased environmental awareness, boosted livability.

- Economic: Stimulated real estate, tourism, and modern industries through eco-integrated planning.

16.0 The 1st of 3 scheduled field visits for the duration of the training took the group to 3 locations: Baicheng Beach, Yundang Lake, and Haiwan Park. The foci of the sites were on pollution control and environmental restoration.

April 23: Day 3 of the Training

17.0 Day 3 lectures covered both the last lecture on the technical content of the training and started with the lectures and workshops focusing on training methodology and delivery.

18.0 **Lecture 5 on Integrated Land-Sea Management for Marine Spatial Planning - Coastal Zone Planning of Fujian Province was presented by** Dr. KONG Hao, Associate Research Fellow, Fujian Institute of Oceanography/ Special Joint Researcher, Fujian Institute for Sustainable Oceans (Xiamen University). He provided an overview of the integration of land and sea management through Marine Spatial Planning (MSP) within the framework of Integrated Coastal Management (ICM), using Fujian Province as a case study. His presentation addresses the challenges, strategies, and methodologies for effective coastal zone planning in China. A summary of his presentation is as follows:

18.1 Scope of coastal zone

- The coastal zone is the dynamic interface between land and ocean, where terrestrial and marine processes interact continuously. This unique area holds significant ecological, economic, social, and cultural value, often facing competing uses and various environmental pressures.

The scope of coastal zone

	Explanation	The sea boundary	The land boundary
Natural boundary	There are more obvious topographic signs	The oceanward boundary is generally indicated by isometric lines or extended to the continental shelf	Natural signs on the land side, such as coastal mountains, waterlines, major coastal roads and other areas with terrain changes
Administrative boundaries	Define according to the boundary of sea area and land management	Sea area management boundaries, territorial sea boundaries	The boundaries of land administrative regions, the boundaries of provinces, cities, counties and towns.
Ecosystem units	With specific ecosystem boundaries as the management scope	ecosystem boundary	ecosystem boundary
Any distance	Define it according to the actual management needs	Actual management needs	Actual management needs

Figure 5. Scope of coastal zone

- Coastal zone space is the zone where the land and the sea centrally contact and function. It not only bears the pressure of development and construction but also bears the responsibility of ecological environment protection. It is the area where the flow and exchange of various resources and elements in the land and sea system are the strongest.

18.2 Pressures on the Coastal Zone

- These pressures, both natural and human-induced, pose significant challenges to the ecological health and long-term sustainability of the province's coastal and marine environments.
    1. Marine Pollution
       Intensive land-based activities and industrial operations contribute to serious marine pollution. These include: discharge of untreated or partially treated domestic and industrial wastewater, agricultural runoff carrying fertilizers and pesticides into coastal waters, oil spills and pollution from port and shipping activities.
    2. Overexploitation of Marine Resources
       Fujian's rich marine biodiversity is under stress from: overfishing and illegal, unreported, and unregulated (IUU) fishing, unsustainable aquaculture practices that degrade habitats and introduce pollutants, depletion of natural fish stocks, affecting ecosystem balance and local livelihoods.
    3. Coastal Erosion and Habitat Loss
       Coastal erosion has accelerated due to human interventions such as dam construction, sand mining, and shoreline hardening (e.g., seawalls and breakwaters). Critical ecosystems — including coral reefs, seagrasses, and mangroves — are being lost or degraded
    4. Tourism and Infrastructure Development
        - Coastal tourism has surged, leading to construction in ecologically sensitive areas.
        - Recreational activities contribute to habitat disturbance, especially on beaches and near coral reefs.
        - Infrastructure such as highways, ports, and industrial parks alter natural coastal dynamics
    5. Climate Change Impacts
        - Sea-level rise and more frequent typhoons increase flooding and erosion risks in low-lying areas.
        - Saltwater intrusion into freshwater systems threatens agriculture and water supplies.
        - Coastal ecosystems are stressed by rising temperatures and ocean acidification.

- The pressures on coastal zones are multi-dimensional and often interconnected, requiring integrated, adaptive, and participatory approaches to management. Tools like Integrated Coastal Management (ICM) and Marine Spatial Planning (MSP) are essential to mitigate these pressures, balance competing interests, and promote long-term sustainability.
- The continuous accumulation of various human development and construction activities, including land reclamation, port construction, sewage discharge, marine mining, etc., has brought huge interference and damage to the coastal ecological environment.
- The coastal zone refers to the dynamic interface between the land and the ocean, where terrestrial and marine processes interact. It is a unique area

characterized by ecological, economic, social, and cultural significance, often subject to competing uses and pressures.

- Key Categories of Coastal Zone Pressures: urbanization and coastal development, pollution, overexploitation of resources, climate change and sea-level rise, erosion and sedimentation, tourism and recreational activities, and industrial and port activities.
- Natural disasters always threaten urban construction and ecological security, especially in coastal areas. Storm surge, flood, coastal erosion and sea level rise have become the primary issue for the development of coastal zones.

18.3 Coastal zone planning

- Coastal zone planning is an effective tool to address the a forementioned issues. In 2019, China started the implementation of the new Territorial Space Planning System (five-level and three-class), and identified coastal zone planning as a special plan in the territorial space planning system, focusing on the solution of the key issues of land and sea systems.
- Fujian Province has emerged as a national leader in coastal zone planning in China, implementing a progressive approach that integrates land-sea coordination, environmental protection, and sustainable blue economy development. With over 3,000 kilometers of coastline and a rich diversity of coastal and marine ecosystems, Fujian's coastal zone is both ecologically significant and economically vital. However, it also faces mounting pressures from urbanization, industrialization, and climate change. To address these challenges, the province has adopted Integrated Coastal Zone Management (ICZM) and Marine Spatial Planning (MSP) as key strategic frameworks.

18.4 Method of coastal zone planning

- The method of coastal zone planning combines technical analysis, participatory governance, spatial zoning, and adaptive management. When effectively implemented, it ensures balanced and sustainable use of coastal resources, protects vulnerable ecosystems, and enhances resilience to environmental change. Regions like Fujian Province have demonstrated that integrated, science-based planning can successfully align development and conservation goals in complex coastal settings.
  - ✓General requirements
  - ✓Fundamental analysis
  - ✓Strategy and objectives
  - ✓Planning zoning
  - ✓Resource classification management and control
  - ✓Ecological environment protection and restoration
  - ✓High-quality development guidance
  - ✓Integrated ecosystem-based coastal zone management
  - ✓Planning and implementation guarantee
  - ✓Planning, coordination and transmission

- Effective coastal zone planning requires a systematic, science-based, and participatory approach that integrates land and sea uses, manages conflicting interests, and ensures environmental sustainability. The following methodological steps outline how coastal zone planning is typically conducted, drawing on best practices and experiences from regions such as Fujian Province:
    - ✓ Baseline Assessment and Data Collection
    - ✓ Mapping and GIS Analysis:
    - ✓ Stakeholder Engagement and Institutional Coordination
    - ✓ Zoning and Spatial Allocation
    - ✓ Policy Integration and Legal Alignment
    - ✓ Scenario Development and Impact Assessment
    - ✓ Implementation and Monitoring
    - ✓ Capacity Building and Public Awareness

18.5 Practice of coastal zone planning in Fujian Province

- Fujian Province, located on the southeastern coast of China, has been at the forefront of integrated land-sea management (ILSM), using Marine Spatial Planning (MSP) as a strategic tool to coordinate sustainable development in its dynamic and resource-rich coastal zone. The province's approach exemplifies how harmonized planning between terrestrial and marine environments can address competing interests, environmental pressures, and long-term socio-economic goals.
- Based on the natural environment and resource characteristics of the sea area, the current status of sea area development and utilization, environmental protection, and the strategic needs of coastal economic zone development, the sea areas in Fujian Province are divided into three primary functional zones: marine ecological protection zones, marine ecological control zones, and marine development zones**.**

- Fujian's planning process includes the following core strategies:
    - ✓Marine Functional Zoning (MFZ): Marine areas are designated for specific uses — such as fishing, aquaculture, conservation, tourism, transportation, and energy — to minimize spatial conflict and promote efficient resource use.
    - ✓Ecological Redlining: Fujian established strict ecological protection zones where development is restricted to preserve ecosystem services and biodiversity.
    - ✓Integrated Land-Sea Coordination: Planning processes integrate terrestrial and marine spatial data, enabling coherent decision-making across administrative and ecological boundaries.
    - ✓GIS and Decision Support Tools: Geographic Information Systems (GIS), remote sensing, and modeling tools are used to support spatial analysis, monitoring, and planning.
- Key Achievements

- ✓Restoration of Coastal Habitats: Large-scale restoration projects have rehabilitated mangroves, and estuaries, enhancing ecosystem resilience.
- ✓Pollution Control and Water Quality Improvements: Improved wastewater treatment infrastructure and coastal water monitoring have led to notable improvements in nearshore water quality.
- ✓Institutional Coordination: Planning has improved collaboration between government agencies, scientific institutions, and stakeholders across sectors.
- ✓Sustainable Blue Economy Development: Sustainable aquaculture and eco-tourism have been promoted as alternatives to extractive industries.

19.0 Lecture 6 on **Training Methods and Technologies and an Introduction to individual and group exercises on Training Delivery and Training Course Development** was presented by Mr. Gil Dennis Raposa, an Independent International Consultant and Training Specialist. His presentation was divided into two parts: (1) Training Methods and Technology; and (2) Facilitating Skills for Trainers. His presentations provided a comprehensive overview of the training development process, various training methods, and the role of technology in enhancing learning. A summary of key points of his presentation are as follows:

- Phases of Training Development: The presentation outlines a systematic five-phase approach to training development:
    1. Analysis: This phase involves a needs analysis (including training needs and cost analysis) to identify the target learners and what they need to learn.
    2. Design: Here, learning objectives (terminal and enabling) are defined, and an instructional plan is created. This includes sequencing objectives and learning points, developing a content outline, selecting training methods and appropriate media, creating lesson/session plans, and estimating time allocation.
    3. Develop: This phase focuses on creating media and materials and planning the logistics for course delivery.
    4. Implement: This involves planning and conducting field trials of the curriculum and materials, refining and validating the training, delivering it to the target learners and facilitators, performing course maintenance, and documenting records.
    5. Evaluate: The final phase involves planning and executing the evaluation process to measure training effectiveness.
- Training Methods: The presentation discusses a wide array of training methods, categorizing them for different learning styles and objectives:
    - Instructor-Led Training (ILT): Includes lectures, discussions, demonstrations, and presentations.
    - Experiential Learning: Emphasizes active participation, such as case studies, role-playing, simulations, games, and fieldwork.
    - Collaborative Learning: Focuses on group interaction, including brainstorming, buzz groups, group discussions, and group exercises.
    - Self-Paced Learning: Allows learners to progress at their own speed, using methods like self-study guides, computer-based training, and e-learning modules.

    - On-the-Job Training (OJT): Practical training received directly in the work environment.
- Role of Technology in Training: The presentation highlights how technology can enhance training delivery and engagement:
    - Learning Management Systems (LMS): Platforms for managing, delivering, and tracking online learning.
    - Virtual Reality (VR) and Augmented Reality (AR): Immersive technologies for realistic simulations and enhanced learning experiences.
    - Gamification: Applying game-design elements and game principles in non-game contexts to engage learners.
    - AI (Artificial Intelligence): For personalized learning paths, intelligent tutoring, and data analysis.
    - Interactive Tools: Mentimeter, Google Slides (for interactive presentations), Kahoot!, and various video conferencing platforms (Zoom, Google Meet, MS Teams).
    - Content Creation Tools: Canva, Camtasia, and online video editors.
- Effective Use of Presentation Software: The presentation also touches on best practices for using tools like PowerPoint, emphasizing clear and concise slides with visuals, and avoiding excessive text.

- Core Purpose of Facilitating Skills: The presentation defines facilitating skills as techniques that allow trainers to connect with and support learners, creating an engaging and responsive learning environment. These skills are presented as core to delivering effective, learner-centered training.
- The Four Basic Facilitating Skills: The presentation outlines four fundamental skills for trainers to help learning happen smoothly:
    1. Attending: This involves being fully present and showing care for the learners. Key aspects include facing learners, using appropriate eye contact, moving towards learners (rather than hiding), and avoiding distracting behaviors.
    2. Responding: This skill focuses on demonstrating that the trainer is listening and understanding. It involves responding to both the content of what learners say and their underlying feelings. Techniques include clarifying, paraphrasing, summarizing, and reflecting feelings.
    3. Questioning: This is highlighted as a core facilitating skill, emphasizing the importance of asking questions to engage learners and gain understanding.
        - Why Ask Questions: To gauge prior knowledge, encourage participation and critical thinking, get feedback on teaching, and help learners self-assess their understanding.
        - Types of Questions: The presentation differentiates between open-ended questions (encouraging elaboration) and closed-ended questions (for specific facts or confirmation). It also discusses different purposes: initiating (starting a discussion), clarifying (seeking more information), and probing (digging deeper).
    4. Informing: This skill involves effectively conveying information to learners. While the specifics of "informing" are less detailed in the provided snippets, it's implied to be the delivery of content in an understandable and impactful way, integrated with the other facilitating skills.

- Interactive Examples: The presentation uses examples of questions relevant to the MSP/ICM training to illustrate effective questioning techniques (e.g., "Tuan, can you give me one limitation to the success of ICM?" and "Can anyone tell me why ICM is an essential tool to operationalize the concept of sustainable development?").
- The presentation provided a practical guide for trainers, breaking down essential facilitation into actionable skills and stressed that effective training goes beyond simply delivering content; it involves actively engaging with learners, understanding their needs, and fostering an environment conducive to deep learning.

20.0 In the afternoon, the group was brought to the 2nd set of 3 field visits. The field visit sites showcased ecological environmental restoration through the Gao Ji Causeway as well as a good example on environmental restoration, blue economy and tourism through the Xiamen Horticulture Expo Garden and Xinglin Bay.

April 24: Day 4 of the Training

21.0 Day 4 of the training was held in Xiamen University Xiang'an Campus. Day 4 saw individual training simulations of all participants who were pre-assigned modules from the PEMSEA ICM Training Manual. The participants were given 10 minutes per presentation followed by panel feedback from Nancy Bermas on the technical content and Dennis Raposa on training delivery. (Presentations and videos of individual presentations may be found in Annex 3 while panel feedback on the individual training simulations may be found in Annex 4.

22.0 In the afternoon, the group was brought to the 3rd of 3 field visit sites. The field visit highlighted beach erosion and restoration through the Guanyinshan Artificial Beach and blue economy through a visit to Wuyuan Bay.

April 25: Day 5 of the Training

23.0 Day 5 of the training saw a continuation of the individual training simulations with panel feedback on their individual presentations.

24.0 Mr. Dennis Raposa provided guidelines on the workshop on **Developing/Enhancing the ICM MSP Training Course Outline**. After the workshop session, the groups presented their outputs which were followed by feedback from the panel composed of Ms. Nancy Bermas (technical content) and Mr. Dennis Raposa (form). (Results and panel feedback may be found in Annexes 3 and 5).

25.0 The workshop was followed by the Lecture 7, the last lecture for the training program, on **Challenges and Best Practices in Training Development, Conduct and Evaluation** which was presented by Mr. Raposa. The presentation addressed the common hurdles faced in designing, delivering, and assessing training programs, particularly in the context of Marine Spatial Planning (MSP) and Integrated Coastal Management (ICM). A summary of its key points follows:

- The Three Phases of Training: The presentation structures the challenges and best practices around the three core phases of any training program:
    1. Training Development (Design):
    - Challenges: Budget and resource constraints, time limitations, balancing time and budget, identifying genuine training needs, dealing with diverse learners/audiences, choosing the most appropriate training method, keeping content current and relevant, ensuring learning objectives are met, and collating/organizing content.
    2. Training Conduct:
    - Challenges: Lack of learner engagement, time constraints during sessions, surprises on the first day, needing to modify session plans mid-session, checking learner understanding, ensuring knowledge/skills are applied post-training, and participants not being the intended learners.
    3. Training Evaluation:
    - Challenges: Measuring and quantifying training effectiveness, and training evaluation often not being a priority.
- Focus on Problem Solving: The presentation uses an interactive approach, encouraging audience engagement through a "game" that prompts reflection on keywords related to training, such as "feasibility," "funding," "compliance," "stakeholder," and "performance," implying that these are critical considerations in overcoming challenges.
- Underlying Message: The core message, encapsulated by Albert Einstein's quote "In the middle of difficulty lies opportunity," is that challenges in training are opportunities for improvement and innovation. The presentation implicitly advocates for proactive planning, adaptable execution, and robust evaluation to maximize the impact of training initiatives.
- The presentation provided a practical overview of the difficulties encountered in the entire training lifecycle and sets the stage for discussing effective strategies and best practices to overcome them, ultimately aiming for more impactful and successful training outcomes in the field of marine resource management.

26.0 Action Planning/Discussion.

Before the discussion, possible cooperation areas and platforms are shared. Ms. Ye Liangying, Executive Director of FISO's Department of Capactiy Building and Communication, introduced the Sustainable Coastal Development Capacity-Building Research Lab (SCD Lab), highlighting its flagship product − the Capacity Index of Sustainable Coastal Development for Countries Along the Maritime Silk Road (CISCD), MSP collaboration, training programs, as well as the Xiamen University Sustainable Coastal Development Scholarship, which opens to ASEAN applicants; Ms. Isdahartati Ibnu Izhar, PNLC Secretariat Coordinator and researcher at IPB University, Indonesia, presented an overview of PNLC’s member institutions and coordination mechanisms. As a regional alliance of higher education and research institutions in the East Asian Seas region, PNLC has long been committed to supporting sustainable development of coastal areas through academic training, outreach, policy advice, technical assistance, and capacity building. Ms. Maida Aguinaldo, Training and Capacity Development Manager at PEMSEA, then introduced and demonstrated their development of the Sea Knowledge Bank.

The final workshop divided the group into three: (1) PNLC members interested in helping in the development of an ICM-MSP Course; (2) PNLC members who could help in other programs; (3) non-PNLC members. The summary results of the workshop are as follows:

Group 1: ICM-MSP Capacity Development in the Region

Programs / Activities	How can you be involved?	What support do you need?
Phase 2 Training of Trainer for ICM and MSP	Develop module into curriculum Clarify the course outline, learning objective, develop the modules. Formal curriculum makes more generic for different target groups 1. Authority to inspect on the 2. Define the risk assessments on the issues we are now facing	Capacity building program
Capacity Development Training for the trainers in different countries.	MSP Training Three different levels Government level Technical level Public awareness level	PEMSEA provide training coordinating Need capacity building
Communication	Pool of trainers Develop network of trainers	Platform for annual meeting Exchange and sharing experience

Group 2: How to Strengthen Member Engagement

Programs / Activities	How can you be involved?	What support do you need?
Training programs for local government leaders related to ICM: blue economy, blue carbon	Can be lecturers/instructors	Budget
Training programs for fishermen on marine law	Invite experts to deliver training course on ICM, GIS, marine law, blue carbon	Training documents

Training for university students (knowledge and practice) (i.e. rehabilitation, restoration of ecosystems)	Cooperate with NGOs or government on ICM assessment	Trainers and experts
Translate/publish books/website Data/information (in general)	Create jobs for local people in ICM sites (security officers)	Government support Policies and regulations to support

Group 3: How can other universities and institutions support or be part of regional initiatives on sustainable coastal, marine and water resource management?

Programs / Activities	How can you be involved?	What support do you need?
Program that includes: - Researcher (Trainers) - Political agency - Policy makers Communication/Engagement	Become institutional mediators (facilitate knowledge sharing)	Success story + ROI (Support foresight) Policy Executive power (in need), to move along the plans
Data Governance for ICM-MSP	Provide positive + potential output (show to agencies)	Provide tool to work with big data (i.e. fund), tech, experts Access to data Sharing among related parties/agencies
Capacity and Competence-building among middle manager		Technical Assistance -Experience-sharing -Scheme formulation
Involvement of community/industrial/businesses (J.V./MSMEs) - Business value co-creation and competencies - Eco-management		
Expand MSP development in targeted sites, beyond Terranganu		

Closing Program

27.0 After the certificates were distributed, Mr. Rudhi Pribadi, Senior Lecturer at the Faculty of Fisheries and Marine Sciences, Diponegoro University, Associate Professor Marie Francies Nievales from the University of the Philippines Visayas, and Associate Professor Chen Cheng Ann from the Borneo Marine Research Institute, Universiti Malaysia Sabah, delivered remarks representing all the trainees. They expressed sincere gratitude to the organizers, shared their appreciation for Xiamen's achievements in sustainable coastal development, and reflected on the fruitful outcomes of the training. They also expressed their hope to share the experiences and insights gained in Xiamen with a broader audience.

28.0 After the remarks from the three representatives, a closing message was given by PEMSEA's Ms. Aimee Gonzales through Ms. Nancy Bermas. Executive Director Ms. Aimee Gonzales, expressed sincere gratitude to all participants, resource persons, and organizers—particularly FISO and its support staff—for the successful completion of the five-day training. The message acknowledged the participants' dedication, emphasizing their role as future trainers who can support national and local governments in implementing integrated coastal, marine, and river basin management. Key takeaways included the importance of adapting ICM and MSP to national and local contexts while using PEMSEA's shared regional framework. Ongoing and future opportunities for engagement through PEMSEA's GEF-funded projects on marine protected areas and integrated river basin management across ASEAN countries were also highlighted. The message emphasized continued collaboration, especially with FISO and PNLC, to build a strong regional network of trainers supporting the broader application of ICM and MSP in East Asia.

29.0 Another closing message was delivered by Prof. Li Yangfan. On behalf of FISO and Prof. Xue Xiongzhi, Prof. Li Yangfan extended heartfelt thanks to PEMSEA and all participants for their strong support. He emphasized the critical role of capacity-building activities in promoting ICM and sustainable coastal development in the region, and expressed hope that the "Xiamen ICM Model" could serve as a valuable reference for other countries. He also expressed FISO's commitment to deepening its partnership with PEMSEA and establishing long-term collaboration mechanisms. Finally, he encouraged participants to actively share what they learned from the training and promote the localized application of ICM and MSP, expressing anticipation for future cooperation in advancing sustainable coastal development.

30.0 The program formally closed at 5pm. A farewell dinner was again hosted by FISO.

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Annex 1. Training Programme

Training on Marine Spatial Planning (MSP) Application in the Scaling-up of Integrated Coastal Management (ICM)

1. Date

April 20-26, 2025

2. Venue

Xiamen, China

3. Organizers

Fujian Institute for Sustainable Oceans (Xiamen University) (FISO)/Sustainable Coastal Development Capacity-Building Research Lab (SCD Lab)
Partnerships in Environmental Management for the Seas of East Asia (PEMSEA)

4. Supporting Unit

China Oceanic Development Foundation (CODF)

5. Theme

MSP Application in the Scaling Up of ICM

6. Objectives

- To train PNLC members and marine-related professionals on the concept, principles and framework of ICM and MSP
- To develop a standard ICM-MSP course
- To form a team of ICM and MSP trainers in the region

7. Provisional Programme

Time	ACTIVITIES
Day 1-April 20, 2025, Sunday Venue: City Hotel Xiamen	
Whole day	**Arrival and Check-in at City Hotel Xiamen**
Day II-April 21, 2025, Monday Venue: Guangyi Hall, 3rd Floor, City Hotel Xiamen	

Time	ACTIVITIES
09:00-09:40	**Opening Ceremony** **• Welcome Remarks** **• Opening Remarks** **• Group photo**
09:40-10:00	Coffee break
10:00-10:10	**• Introduction to objectives, agenda and activities** **• Introduction of participants and expectations**
10:10-12:00	**Lecture I: Good Practices, Learnings and Achievements of China's Marine Spatial Planning** Prof. PAN Xinchun, Secretary General of China Oceanic Development Foundation (CODF)
12:00-14:30	Lunch
14:30-16:00	**Lecture II: Concept, Principles and Framework of ICM and its Importance in Sustainable Coastal and Marine Development** Prof. Ario Damar, Faculty of Fisheries and Marine Sciences, IPB University
16:00-16:20	Coffee break
16:20-17:50	**Lecture III: ICM Practices and Scaling up in East Asia: Linkages of MSP and ICM in a Source-to-Sea System** Ms. Nancy Bermas, Regional Project Manager, PEMSEA
18:00	**Welcome Dinner**
Day III-April 22, 2025, Tuesday **Venue: Room 219, Nan'an Building, Xiamen University Siming Campus**	
9:00-10:30	**Lecture IV: MSP as a Tool in ICM** **- Definition and principles** **- Importance and role in integrated coastal management - Key components and steps** Prof. XUE Xiongzhi, Dean, Fujian Institute for Sustainable Oceans (Xiamen University)

Time	ACTIVITIES
10:30-10:50	Coffee break
10:50-12:20	**Xiamen ICM Sites Overview** Ms. LUO Shuyu, International Affairs Specialist, Fujian Institute for Sustainable Oceans (Xiamen University)
12:20-14:30	Lunch
14:30 – 17:30	**Field trip I** Field Trip Sites: · Xiamen University-Baicheng Beach- Yundang Lake – Haiwan Park Focus: Pollution control and environmental restoration
Day IV-April 23, 2025, Wednesday **Venue: Guangyi Hall, 3rd Floor, City Hotel Xiamen**	
9:00 - 10:30	**Lecture V: Integrated Land-Sea Management for Marine Spatial Planning - Coastal Zone Planning of Fujian Province** Dr. KONG Hao, Associate Research Fellow, Fujian Institute of Oceanography/ Special Joint Researcher, Fujian Institute for Sustainable Oceans (Xiamen University)
10:30 – 10:45	Coffee Break
10:45 -10:50	Mechanics of the Workshop and Presentation of Outputs
10:45 - 12:00	**Lecture VI: Training Methods and Technologies** · **Introduction to Individual and Group Exercises: Training delivery and Training Course Development** · **Deskwork: Preparing for Training Delivery** Mr. Gil Dennis Raposa, Training Specialist
12:00 – 14:30	Lunch
14:30-17:30	**Field trip II** Field Trip Sites: · Gao Ji Causeway Focus: Ecological environment restoration · Xiamen Horticulture Expo Garden

Time	ACTIVITIES
	Focus: Xinglin Bay restoration, blue economy and tourism
9:00 - 10:30	**Lecture V: Integrated Land-Sea Management for Marine Spatial Planning - Coastal Zone Planning of Fujian Province** Dr. KONG Hao, Associate Research Fellow, Fujian Institute of Oceanography/ Special Joint Researcher, Fujian Institute for Sustainable Oceans (Xiamen University)
Day V-April 24, 2025, Thursday **Venue: Room A239, Jinquan Building, Xiamen University Xiang'an Campus**	
9:00-11:00	**Training simulation: Individual Presentations** (participants) Panel Feedback * With a 20-minute coffee break
11:00-12:30	Lunch
12:30 – 1:30	Continuation of Training Simulation
1:30-15:30	**Field trip III** Field trip sites: · Guanyinshan Artificial Beach Focus: Beach erosion and restoration · Wuyuan Bay Focus: Blue economy
15:30	Back to the hotel
Day VI-April 25, 2025, Friday **Venue: Guangyi Hall, 3rd Floor, City Hotel Xiamen**	
9:00-10:00	**Workshop: Developing/Enhancing the ICM-MSP Training Course** Panel Feedback
10:00 – 10:20	Coffee break
10:20 – 11:20	**Group Presentations on ICM-MSP Training Course Design Panel Feedback** Panel Feedback

Time	ACTIVITIES
11:20 – 12:00	**Lecture VII: Challenges and Best Practices in Training Development, Conduct and Evaluation** Mr. Gil Dennis Raposa, Training Specialist
12:00 – 14:30	Lunch
14:30-16:30	**Action Planning/Discussion:** How we could facilitate collaboration to pursue sustainable coastal and ocean development goals FISO/PNLC
16:30-17:00	**Closing Ceremony** • **Awarding of Certificates** • **Closing Remarks**
18:00	**Goodbye Dinner**
9:00-10:00	**Workshop: Developing/Enhancing the ICM-MSP Training Course** Panel Feedback
Day VI-April 25, 2025, Friday **Venue: Guangyi Hall, 3rd Floor, City Hotel Xiamen**	
Whole day	**Departure**

Annex 2. List of Participants and Speakers

No	Name	Position	Organization
Participants			
1.	Izni Azrein Bin Noor Azalie	Lecturer in human geography	University of Brunei Darussalam
2.	Nurafiqah Haji Ibrahim	Masteral Student, Research	University of Brunei Darussalam
3.	Lyna Khan	Lecturer and Researcher	Royal University of Phnom Penh
4.	Rudhi Pribadi	Senior Lecturer, Department of Marine Sciences, Faculty of Fisheries and Marine Sciences	Diponegoro University
5.	Isdahartati Ibnu Izhar	PNLC Secretariat Coordinator/ Researcher, Center for Coastal and Marine Resources Studies (CCMRS)	IPB University
6.	Cindy Syaza Fhadilla	Researcher	International Research Institute (LRI), IPB University
7.	Douangmala Kounsana	Head of Research and Academic Services	National University of Laos
8.	Hairul Masrini Binti Muhamad	Senior Lecturer	Borneo Marine Research Institute, University Malaysia Sabah
9.	Chen Ann Cheng	Associate Professor	Borneo Marine Research Institute, University Malaysia Sabah
10.	Sazlina Binti Md Salleh	Deputy Director/Assoc. Prof, Center for Policy Research	Universiti Sains Malaysia
11.	Johnny Ching	Deputy Provost for Research	De La Salle University
12.	Marie Frances Nievales	Assoc. Prof./Division Chair	University of the Philippines-Visayas
13.	Ruby Castrence Gonzales	Professor VI	Mindanao State University at Naawan
14.	Gloria Pang	Executive Planner	Planning, Policies, Urban Redevelopment Authority, Singapore
15.	Phongtheera Buapet	Lecturer	Prince of Songkla University
16.	Lucksanara Sudjai	Research Assistant	Burapha University

17.	Quang Chinh Trinh	Department of Science and International Cooperation	University of Danang
18.	Mateus Salvador	Department of Fisheries	UNITAL University
19.	Walter Oliveira Soares	Department of Fisheries and Marine Science, Faculty of Agriculture	Universidade Nacional Timor Lorosa'e (UNTL)
Speakers			
20.	Prof. Pan Xinchun	Vice President and Secretary General	China Oceanic Development Foundation (CODF)
21.	Prof. Ario Damar	Professor	CCMRS-IPB University
23	Ms. Nancy Bermas	Regional Project Manager	PEMSEA Resource Facility
24	Prof. Xue Xiongzhi	Dean	Fujian Institute for Sustainable Oceans (FISO), Xiamen University
25	Dr. Kong Hao	Associate Research Fellow/Special Joint Researcher	Fujian Institute of Oceanography (FJIO)/Fujian Institute for Sustainable Oceans (FISO), Xiamen University
26	Mr. Gil Dennis Raposa	Training Specialist	Consultant
Secretariat			
27	Maida Aguinaldo	Training Officer	PRF
28	Lin Xiaoyan	Office Director of FISO/ Executive Director, Department of Program Design and Marketing	Fujian Institute for Sustainable Oceans (FISO), Xiamen University
29	Ye Liangying	Executive Director, Department of Capacity Building and Communication	Fujian Institute for Sustainable Oceans (FISO), Xiamen University
30	Luo Shuyu	International Affairs Specialist	Fujian Institute for Sustainable Oceans (FISO), Xiamen University
31	Hu Xiaofen	Project Specialist	Fujian Institute for Sustainable Oceans (FISO), Xiamen University

Annex 3. Photos

Photos - Google Drive