



Governance Instruments for Technology-Enabled Ocean Management

Tools and policies guiding sustainable
ocean use

Session: Strengthening Governance for a Sustainable Ocean Economy

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Orientation: Why Governance Instruments Matter

Governance instruments for technology-enabled ocean management



Photo: Adia Pradana (YKAN)

Governance as Practical Levers

Governance involves real-world tools like policies, institutions, and financing that enable technology impact in ocean management.

Technology Requires Governance

Technology alone cannot resolve challenges such as weak compliance or fragmented mandates without governance decisions.

Workshop Focus on Instruments

The session introduces eight governance instruments with everyday analogies to help participants apply them effectively.

Scalable and Durable Innovations

Combining instruments across community to global levels ensures innovations in ocean management are sustainable and scalable.



Why talk about instruments (not theory)?

Definition of Instruments

Instruments are tangible tools that change behavior at scale, including policies, institutions, financing, and agreements.

Practical Entry Point

Instruments map to agency mandates and easily translate into actionable steps and responsibilities.

Shared Language Across Sectors

Focusing on instruments creates common understanding among diverse agencies with different expertise.

Governance Challenges & Solutions

Technology alone doesn't solve governance without a rulebook, budget, processes, and cooperation protocols.

The 8 instruments — at a glance

Multi-level Ocean Governance

Ocean governance operates across community, national, regional, and global levels addressing diverse stewardship and policy needs.

Eight Governance Instruments

Eight instruments include LMMA, Smart MPA, MSP, environmental levies, ministries, regional conventions, WTO fisheries rules, and BBNJ treaty.

Practical Governance Insights

No single instrument fits all problems; combining instruments enhances compliance, coordination, financing, and incentives.

Workshop Application

The instrument list serves as a menu to thoughtfully select and apply governance tools suitable for specific scenarios.



Photo: Adia Pradana (YKAN)

Community and National Instruments (1–5)

Instrument 1: Locally Managed Marine Area (LMMA)



Photo: Adia Pradana (YKAN)

Community-led Marine Management

LMMA's empower local communities to set and enforce rules for nearshore ocean resource use collaboratively.

Government Enabling Role

Governments support LMMA's by legally recognizing rights, providing co-management frameworks, and aiding enforcement.

Importance of Legitimacy and Participation

Effective LMMA's require legitimacy, inclusive participation, and clear rights to avoid elite capture and failure.

Technology Strengthens LMMA

Simple technologies like mobile reporting and low-cost monitoring enhance management when governance roles are clear.

Instrument 2: MPA Network

Definition and Technology Use

Smart MPAs enhance traditional marine protection with satellite imagery, vessel tracking, drones, and sensors for effective monitoring.

Networked Management Approach

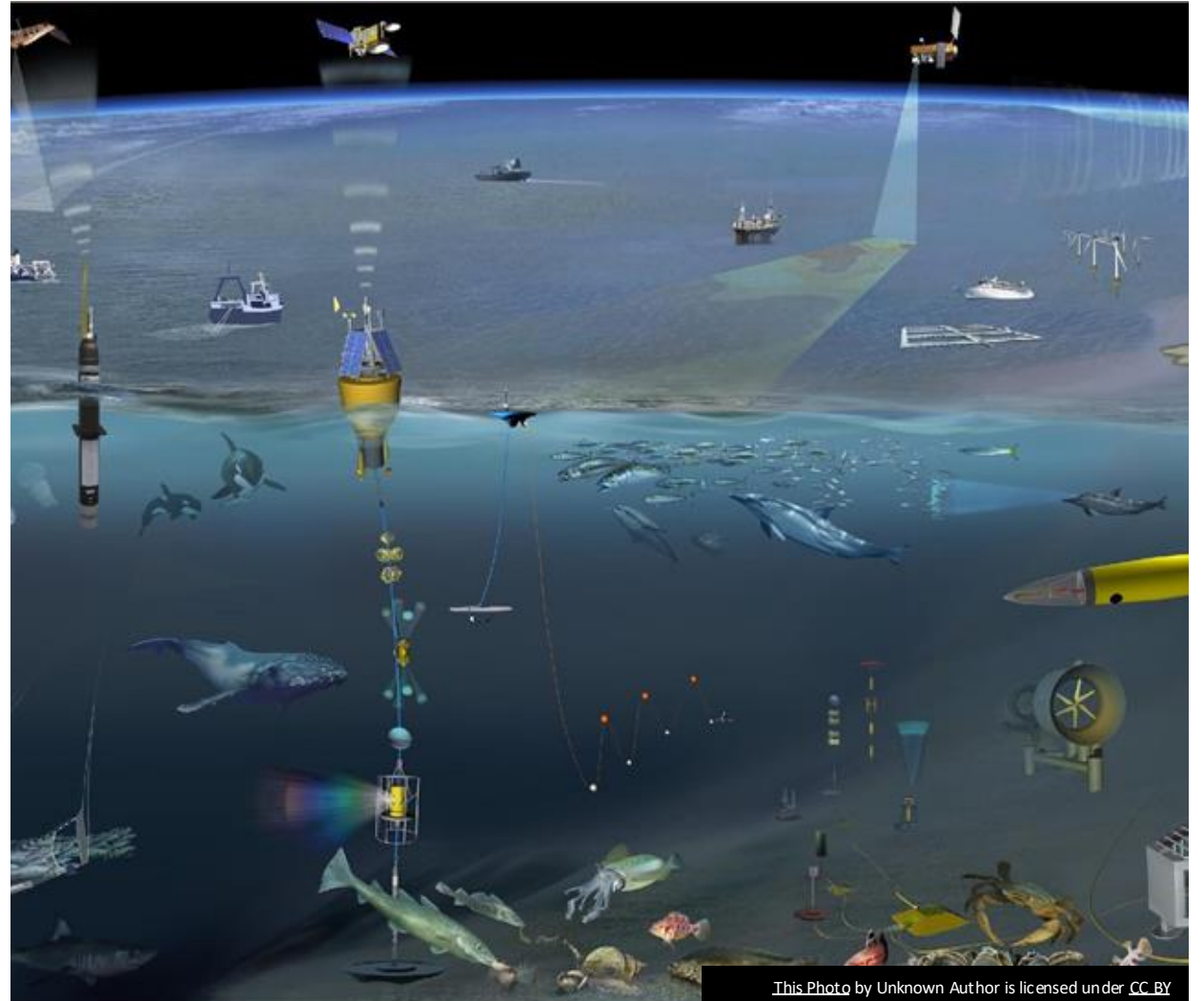
Multiple MPAs share data, standards, and enforcement practices to enable coordinated and scalable ocean conservation efforts.

Government Roles and Challenges

Governments set regulations, allocate budgets, and create protocols but face challenges in consistent enforcement over large marine areas.

Importance of Governance

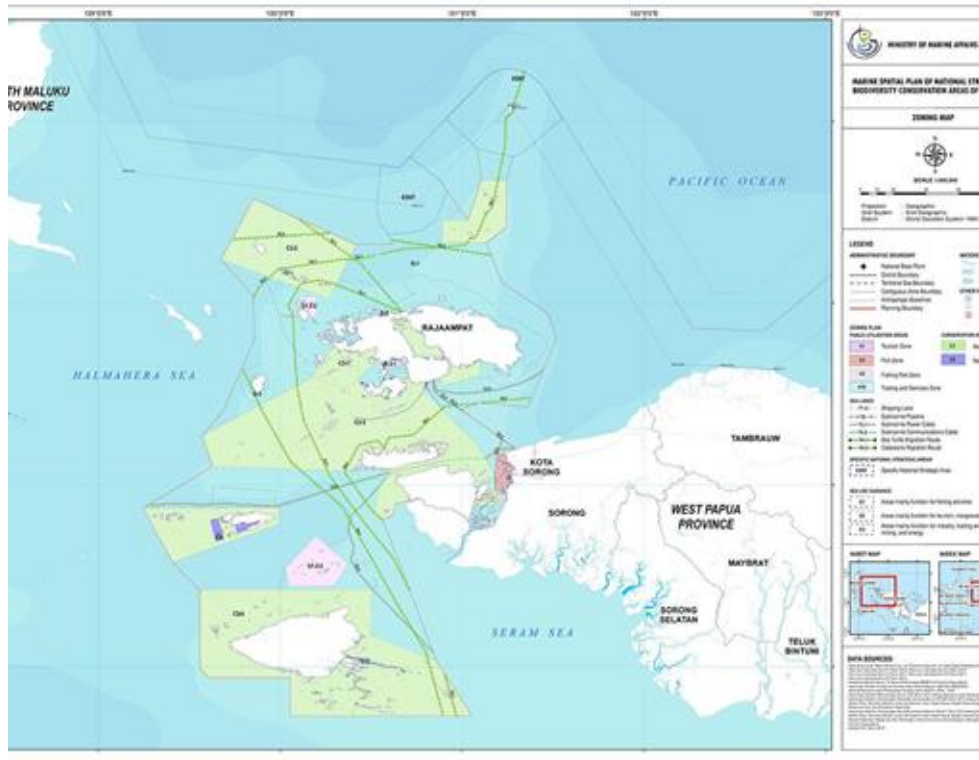
Smart MPAs need clear governance pathways for data use, accountability, and cooperation to translate technology into real protection.



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Instrument 3: Marine Spatial Planning (MSP)

Photo: Ministry of Marine Affairs and Fisheries, Indonesia



Definition and Purpose of MSP

MSP is a government-led zoning process balancing marine activities like fishing, shipping, and conservation.

Importance of MSP Coordination

MSP aligns competing mandates from transport, fisheries, environment, and energy agencies to reduce conflicts.

Government Roles in MSP

Governments gather data, define objectives, map zones, set rules, and establish review processes for MSP.

Challenges and Technology in MSP

MSP requires enforcement and data sharing; technology enables dynamic monitoring and transparent decisions.

Instrument 4: Environmental Levy / Tourist Tax



Photo: Adia Pradana (YKAN)

Purpose of Environmental Levy

Small fees from visitors fund ocean protection, coastal resilience, and marine waste management effectively.

Government Role and Governance

Governments set fees, manage collection, ensure transparency, and allocate funds to build public trust.

Challenges and Watch-outs

Levy design must consider political sensitivity, exemptions for locals, and transparent fund usage to maintain credibility.

Technology-Enabled Management

Stable levy funding supports satellite data, monitoring equipment, enforcement training, and shared data platforms.

Instrument 5: Ministry of Oceans



Purpose of Ministry

Consolidates ocean-related mandates from multiple ministries into one coordinated authority to improve coherence.

Benefits of Consolidation

Reduces fragmented mandates to prevent inconsistent rules, duplicated budgets, and weak enforcement across agencies.

Government Actions

Includes redefining mandates, aligning budgets, establishing joint procedures, and creating coordination mechanisms.

Technology Integration

Supports cross-ministry collaboration necessary for modern ocean management tools like vessel tracking and planning.

Regional and Global Instruments (6–8)

Instrument 6: Regional Oceans Treaty



Purpose

A platform where neighboring countries coordinate marine protection to manage pollution, habitat loss, and fishing sustainably.

Government Roles and Actions

Governments join treaties, align laws, establish monitoring, fund secretariats, and share data for joint action.

Challenges and Governance Needs

Effective governance requires clear commitments, practical plans, transparency, capacity-building, and overcoming data sensitivity.

Technological Support

Shared ocean data platforms and vessel tracking systems enhance regional cooperation and early warning capabilities.

Instrument 7: WTO Agreement on Fisheries Subsidies



Purpose of Fisheries Subsidies Agreement

The agreement targets harmful financial incentives that encourage overfishing and illegal fishing activities globally.

Government Implementation Actions

Governments review subsidies, improve transparency, strengthen compliance, and shift support towards sustainability.

Challenges and Considerations

Effective subsidy reform requires good data, political transparency, and support for affected livelihoods during transition.

Technology Supporting Compliance

Advanced vessel monitoring systems and data platforms enhance subsidy transparency and sustainability compliance.

Instrument 8: BBNJ Agreement (High Seas Treaty)



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Purpose and Scope

BBNJ establishes a global framework to conserve and sustainably use marine biodiversity beyond national jurisdictions.

Governance Challenges

High seas lack governance, leading to overuse without shared rules and coordinated management.

Government Roles

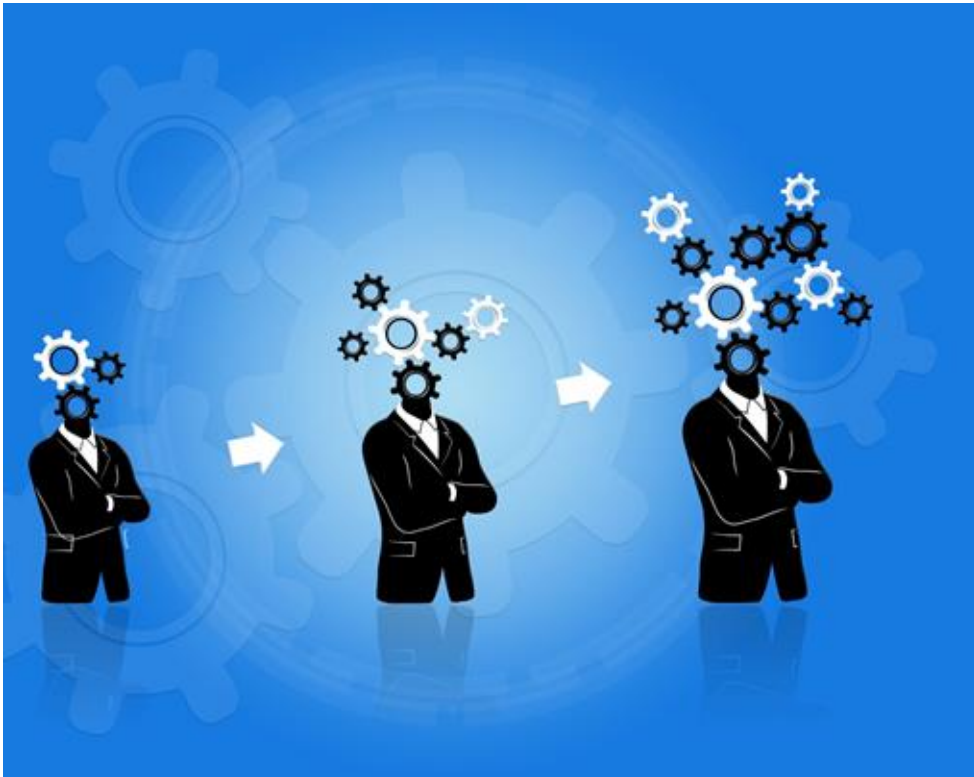
Countries ratify BBNJ, coordinate regionally, support research, and apply environmental assessments collaboratively.

Technology and Enforcement

Technology like satellites and vessel tracking enhances monitoring and enforcement under BBNJ governance.

Applying the Toolkit in the Governance Game

How to use the instruments in the game



Identify Governance Problems

Clearly name governance problems using accessible categories like weak compliance and sector conflict.

Select Appropriate Instruments

Choose one or two governance tools that directly address the identified problem effectively.

Consider Trade-offs

Evaluate costs, skills, and political implications of selected instruments before applying them.

Define Success and Evidence

Operationalize outcomes like compliance rates and conflict reduction to measure success.

Wrap-up and Readiness for Case Discussions



Key takeaway: Match the instrument to the problem (and combine when needed)

Tailor Instruments to Constraints

Governance success requires selecting instruments specific to each constraint and combining them when necessary.

Examples of Governance Instruments

From local co-management to international agreements, instruments address distinct failure modes and governance challenges.

Technology as an Enabler

Technology supports governance by enhancing transparency and compliance but depends on strong governance frameworks.

Practical Application Mindset

Encourage assessing real constraints and matching them with appropriate instruments during case discussions.