Integrated Coastal Management: what, why, how and where?

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• What is ICM? (Definition and characteristics; evolution of concept & practices)
• Why ICM? (managing risks, coordinate multiple uses of ecosystem services, reduce transboundary conflicts, increase environmental stewardship, coastal policy and management fundamentals)
• How ICM functions? (governance, processes, capacity, finance, information, monitoring and evaluation; ICM cycle and system)
• Where is ICM practiced? (application, case studies, and scaling up)

Coastal Sea / Ocean

Interconnectivity: interactions from watershed-river-basin-estuary to coastal seas; Land-sea interface; Freshwater supply and coastal ecosystem health

Integrated Coastal Management (ICM): Interpretation

• Integrated—policy and functional integration
• Coastal —land- sea interface
• Management —regulate human activities towards achieving economic and environment sustainability and equity.
What is Integrated Coastal Management (ICM)?

**Definition**

ICM is defined as a coastal management system designed to regulate human activities for preserving ecosystem functions and services so as to achieve environmental and economic sustainability and other social goals of sustainable development.

### Characteristic Features of ICM (1)

- It adopts an integrative, holistic decision-making framework to address competing and conflicting uses of the coastal areas including those severely affecting sustainable development i.e. poverty, equity, environment, governance;
- It uses interactive, process-oriented approach to integrate cross-cutting issues; linking science and policy and emphasize local-level actions.

### Characteristic Features of ICM (2)

- It is incremental, programmatic/strategic, people-focus, involves stakeholder & create ownership
- It improves coastal governance through strategic planning, policy and management integration and interagency coordination
- It puts the basic coastal policy and management fundamentals in place to cope with economic and environmental changes.

### Evolution of ICM Concept and Practices

- **Forms**
  - (e.g. CRM, CZM, CAM, ICZM, ICAM, ICM, ICOM, IWRM, EBM, EM, EBM-ICOM)
- **Geographical Scales**
  - (e.g. local vs national/regional scale; habitat vs large marine ecosystem)
- **Level**
  - (e.g. community vs municipality/state or province)
- **Purpose**
  - (e.g. pollution, sustainable fisheries, MPAs, adaptation to climate change)
- **Stages**
  - (e.g. fixed site and then scaling up across boundary)
Integrated Coastal Management (ICM): Why?

1. Managing risks arising from natural and man-made disasters:
   - natural disasters (typhoon/hurricanes, storms, tsunami, floods, etc)
   - human-induced disasters (oil & chemical spills, red tides/harmful algal blooms)

2. Implementing environment related international conventions
   (local agenda 21, UNCED, WSSD, MDG, GPA, CBD, Climate Change, etc)

3. Strengthen coastal governance
   - coordinate multiple uses of ecosystem services;
   - reduce transboundary conflicts;
   - increase environmental stewardship;
   - increase cost-effectiveness in planning and management.

1. Managing Risks in Coastal Areas (a)

1. Managing risks in coastal areas (b)

Global volcanic and earthquake distribution mainly along the Pacific Ocean area (NASA, 2004.3.24)

1. Managing human induced risks (c)

Human use: settlement, cultivation, exploitation, development

Consequences:
- pollution
- ecosystem/habitat damage
- resource depletion
- loss of biodiversity
- natural disasters
- man-made disasters
- Health risks, lives & properties
- Economic losses
2. Why ICM? implementation of international conventions at local level—global concerns local actions

- UN Conferences/ Conventions and Action Plans (UNCED, WSSD, UNICPOLOS, CBD, IPCC, Agenda 21, GPA) for addressing pollution, managing natural resource, conserving biodiversity thru MPAs, climate adaptation and mitigation, etc
- International & UN Organizations (IUCN, GEF, UNDP, UNEP, UNIDO, FAO, IUCN, WWF, CI, etc)
- Financing and Aid Agencies (World Bank, ADB, USAID, EU, DANIDA, DANCED, UK, etc)

Why Integrated Coastal Management (ICM): It addresses coastal change (including climate change) issues

"ICM is referred to as the most appropriate process to deal with climate change, sea-level rise and other current and long-term coastal changes (IPCC AR4, 2007)"

3. Strengthening coastal governance

1. It addresses multiple sustainable coastal development issues
   - protect, restore habitats and conserve biodiversity
   - reduce pollution and improve environmental quality;
   - strengthen preparedness & speedy response to disasters to save lives and properties
   - enhance water supply and manage water resources
   - contribute to food security in coastal areas and preserve livelihoods of coastal poor.

2. It resolves multiple use conflicts
   - Conflicts arising from multiple uses in the coastal and marine areas;
   - Conflicts arising from change of consumption and use patterns manifested by globalization and
   - Conflicts arising from increasing coastal urbanization;
### Why Integrated Coastal Management (ICM):

#### 3. Strengthening coastal governance

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<th>Why Integrated Coastal Management (ICM)</th>
<th>3. Strengthening coastal governance</th>
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<td><strong>3. It resolve transboundary issues</strong></td>
<td><strong>4. It provides an integrated planning and management framework for rural and urban coastal cities</strong></td>
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<td>• Cross boundary issues (pollution, biodiversity, fisheries,) within and across national jurisdictions;</td>
<td>• Increasing trend of decentralization of responsibilities by central to local governments;</td>
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<td>• Growth triangles environmental issues;</td>
<td>• Rapid rate of coastal urbanization resulting in imbalance of economic development, widening gap between rural and urban areas, increasing social disorders, etc;</td>
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<td>• Increased shipping movements arising from trade globalization: health, ecosystem and safety issues at ports</td>
<td>• demand for local actions</td>
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<td><strong>5. It provides the “soft approach” to coastal management</strong></td>
<td><strong>6. It can be applied in different local conditions</strong></td>
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<td>• paradigm shift from “hard” (engineering) to “soft” approach</td>
<td>• ICM application vary: demographic, socioeconomic &amp; ecological conditions</td>
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<td>• build public awareness, secure public opinion, promote integration, encourage stakeholders participation, develop new legislation and ordinances</td>
<td>• Administration of ICM influenced by: population density, space availability, priority and level of economic development: Europe, America, Asia, Africa, Latin America</td>
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3. Wise Use of The ICM Process

- mobilizes multi-disciplinary and interagency efforts to gather secondary and primary information for decision-makings
- enables the effective use of the key elements of policymaking and management framework for information gathering and analysis and transform into policy and management actions
- operationalizes the integrated policy and management framework through coordination mechanism
- renews political commitments, transforms institutional arrangements and establishes sustainability mechanisms.

4. Gather and analyse appropriate information
6. Transforming data to support decision making

- Collect/ Store: IIMS Monitoring
- Convert/ Analysis: IIMS Software
- Use: Policy, Management measures

Integrated Coastal Management (ICM): How?

5. Transforming data to support decision making

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<th>Knowledge</th>
<th>Data</th>
<th>Decision</th>
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<td>Uses Policy, Management measures</td>
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- Interpret: ERA, Resource Valuation, Social analysis, etc.
- ERAs, Resource Valuation, Social analysis, etc.

7. Understanding the application of the ICM system.

8. Adopt ICM Code for quality and environment management

ISO 9001: Quality Management System (QMS)
ISO 140001: Environmental Management Systems (EMS)

Level 1: Governance
Level 2: Strategic Action Programs
Level 3: Impacts (Recognition)

Integrated Coastal Management: How?
9. Adopt PEMSEA ICM SYSTEM

ICM program consists of:

1) A comprehensive, overarching Sustainable Coastal Development (SDCA) framework and platform for interagency cooperation and stakeholder participation
   a) governance component
   b) sustainable development aspects

2) A process for ICM program development and implementation
   --- ICM cycle

3) A standardized monitoring mechanism
   ---- State of the coast reporting

4) A code of conduct for ICM practices (ICM code) for quality assurance

Integrated Coastal Management System (ICMS)

The four pillars of ICM system are:

1) The SCDF --- provides an overarching framework intended to strengthen coastal governance and for achieving economic and environmental sustainability;

2) The ICM cycle --- stepwise approach in planning and managing the coastal areas through cyclical processes;

3) The ICM code --- ensure adherence to process, documentation and quality management of the coastal areas;

4) The SOC --- regulate performance to ensure meeting goals and targets

Integrated Coastal Management System (ICMS)

The four pillars of ICM system are inter-linked and closely coordinated in operation;

The elements of the ICMS are not static but dynamic so as to allow a certain degree of flexibility for adaptive management and ecosystem management in cases of environmental and management uncertainties.
Integrated Coastal Management (ICM) practices: Where?

Some successes

1) Human capital development at local especially community level;
2) Improved knowledge-base of the ecosystems;
3) Increased local government involvement and participation;
4) Linking science to policy making
5) Facilitating national coastal policy development
6) Strengthening environmental stewardship

Past ICM related practices

Factors contributing to failures (1)

1. Approach
• donor driven, project-based, short-term (3-4 years), very few sustained beyond funding support;
• lack project and stakeholder ownership, too much dependent on consultants or other external technical expertise;
• no standardized ICM approach or methodology, mainly depend on the capability of the consultants
• poorly documented process or outputs and outcomes;
• confusion in terms of concept, mode of operation and standard of practices

Past ICM related practices

Factors contributing to failures (2)

2. Attitude and system
• interagency rivalry or competition for budget and authority—protecting turf
• lack of or insufficient devolution of authority from central to local government
• concerned government official unwilling to "change" and prefer "status quo"
• concerned government official unwilling to see the "problem"
• ignorance on how to implement integrated management
• no culture for cooperation and sharing of resources
• over-relying on "hard" approach

Past ICM related practices

Factors contributing to failures (3)

3. Stakeholders participation
• insufficient public awareness, lack of an "informed public" to keep watch on government actions;
• insufficient involvement and participation of all concerned stakeholders
• lack involvement of the private sector and communities
• no common visions amongst the concerned key stakeholders
Integrated Coastal Management (ICM) has a relatively short history compared to many other sectoral management mechanisms, the concept of integrated management arises from the practical needs to resolve many competing, conflicting and sustainable uses of natural resources and to increase the cost-effectiveness of management interventions.

The concept and operation of ICM is evolving with experiences and time into a more process-based, target-oriented management system which has yet to reach its full functional maturity.