

What is ICZM?

Basic elements of coastal cooperation

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The CCC-Production highlights in Parts I and II the results of a number of coastal projects which were or are actually being executed within an cooperative, integrated framework.

Part III deals with a number of ICZM concepts, planning tools and coastal measures. This chapter 'What is ICZM?', shortly discusses the basic elements of such an integrated framework.

Coastal characteristics

Coastal zones are diverse, valuable and productive areas attractive to people who live, work and recreate there. They occupy only 15 % of the land, but are home to about half of the world population. They are dynamic places with interactions between, land, sea, rivers and atmosphere and serve many important socio-economic functions. It is here that many human activities are concentrated, increasing the standard of living but at the same time causing serious environmental problems.

The narrow coastal zone can be considered as triple squeezed: from the land and from the sea side through socio-economic pressures and unsustainable resource use, and in time. The spatial squeeze will be felt more intensively by the coastal inhabitants in the future, because of global change e.g. anticipated impacts of climate change (Figure 1).

The coastal system is subsystem of the entire world ecosystem, including the land and the fresh water systems (Figure 2).

Understanding the interactions within the ecosystem is important to both scientists and policy makers and is the subject of scientific programmes such as IGBP (International Geosphere-Biosphere Programme), and ICZM programmes. Increased natural and socio-economic knowledge is more and more applied in integrated spatial planning, where marine planned activities and their impacts are connected with those in the terrestrial part of the coastal zone (see CCC I-2-3 North Sea and CCC I-3-1 EU-Plancoast).



Crowded sandy beaches squeezed between the land and the sea. Beach recreation and tourism are economically important contributing about 4 % to the world's gross domestic product, which in some coastal (island) nations can be as much as 50 % of the national GDP. (photo: Harry van Reeken)



Coastal wetlands, such as mangrove ecosystems, are very valuable resources providing a buffer against hazards such as typhoons and tsunamis, breeding and nursery grounds for many (commercial) fish stocks, acting as pollution sinks, providing natural herbs and medicines and subsistence livelihood for many coastal inhabitants. (photo: Tjark van Heuvel)

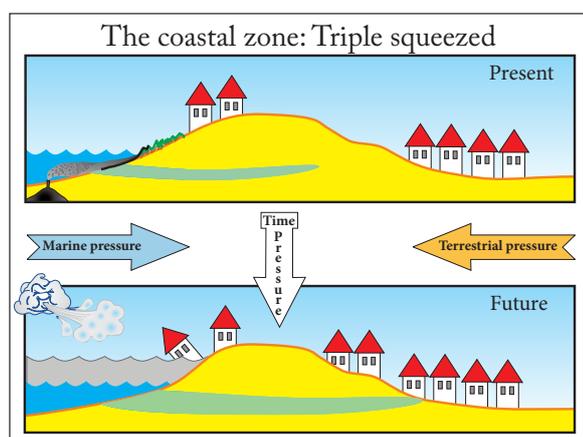


Figure 1: The coastal zone triple squeezed: from sea, from land and in time. (source: R. Misdorp en H. van Reeken)

identified as the most appropriate process to address current and long term coastal management issues, including habitat loss, degradation of water quality, changes in hydrological cycles, depletion of coastal resources, and adaptation to sea level rise and other impacts of climate change”.

The WCC’93 defined ICZM as follows: “ICZM involves the comprehensive assessment, setting of objectives, planning and management of coastal systems and resources, taking into account traditional, cultural and historical perspectives and conflicting interests and uses; it is a continuous and evolutionary process for achieving sustainable development” (see WCC, 1994).

A cycle of ICZM consist of a strategic (‘Governance’) and operational (‘Tasks’) level and four stages/ phases (Table 1). The ICZM cycle is an iterative process taking many years and with the involvement of many stakeholders. Understanding coastal, natural and socio-economic processes is fundamental to balanced decision-making.

Another form of cooperation, often in a smaller area, is called Integrated Coastal (& Marine) Area Management with examples in India (Chennai, CCC II-3-2) and in Rotterdam (CCC I-2-2).

The coastal system captured in an abstract model thinking

Structured analyses of coastal systems form the basis for ICZM planning tools, facilitate decision-making and include four major interacting components:

- The *agents of change* are driven by the socio-economic demands, natural processes and impacts of climate change;

Integrated Coastal Zone Management

The densely populated coastal zones are valuable *and* vulnerable areas: a challenge to manage. Sustainable management of such complex systems requires a holistic, integrated approach to decision-making for long-term sustainable exploitation in the face of the challenges of global climate change.

This approach is based on spatial integration between the rivers, coasts and marine areas finding solutions to short and long term problems.

ICZM ‘formalises’ coastal cooperation, promoting the structured application of a management system for transparent governance and stakeholder involvement.

Space is becoming a scarce coastal resource, also in the USA. This led to adoption of the US Coastal Zone Management Act (a legal framework for the entire country) as early as 1972. The coastal states of the USA also set up CZM authorities and developed their own CZM programmes (<http://coastalmanagement.noaa.gov/>).

Many European and Asian coastal countries followed in planning ICZM programmes.

A definition and elements of an ICZM programme

Many definitions of ICZM exist. Most involve an integrated approach with both vertical and horizontal coordination. The 1993 World Coast Conference (WCC’93) recognised that: “ICZM has been

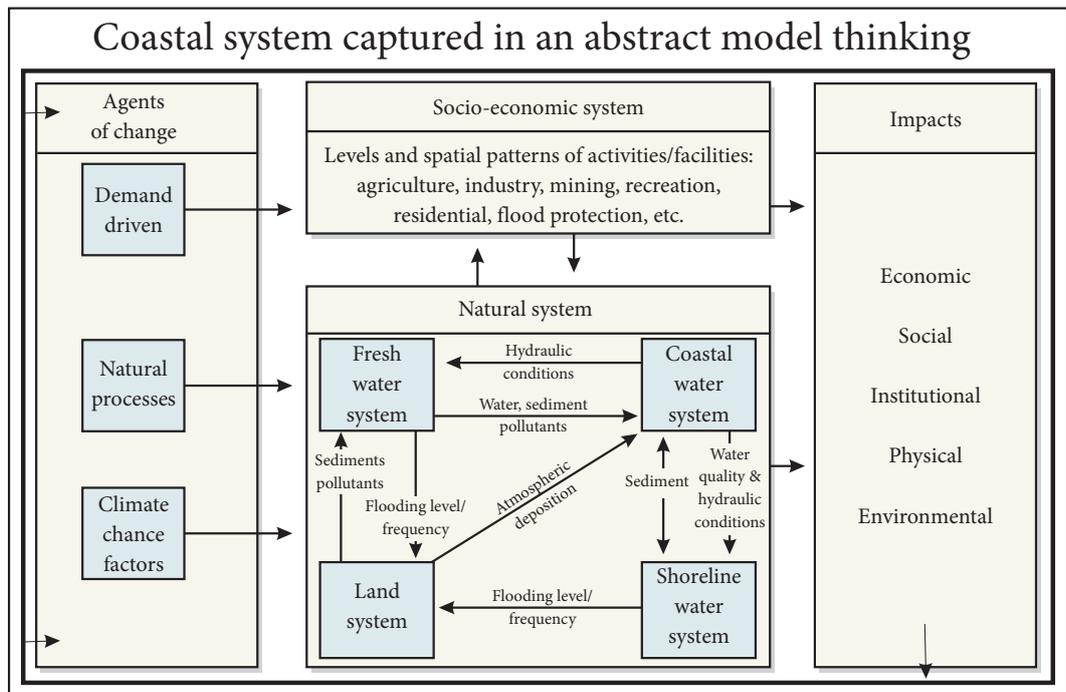


Figure 2: A coastal system representation with interacting (main) components. (source: WCC'93)

- The socio-economic system encompassing the many functional uses and activities;
- The natural coastal system, subdivided into four subsystems;
- Five fields of impacts looped cyclic back to the agents of change.

This conceptual model helps quantify the relationship between the dynamic, interactive and highly complex components of the coastal system.

Common concepts for coastal cooperation

There are a number of common concepts, which lay the foundation for coastal cooperation. Sustainable development of coastal resources, increasing coastal resilience, working with nature and working together, form the basis for effective integrated management. Using the analogy of 'Playing Rugby' (Figure 3): It is clear that a successful team is one where individuals work together. This holds true when undertaking ICZM. It requires meticulous teamwork, it takes time, the end result counts and

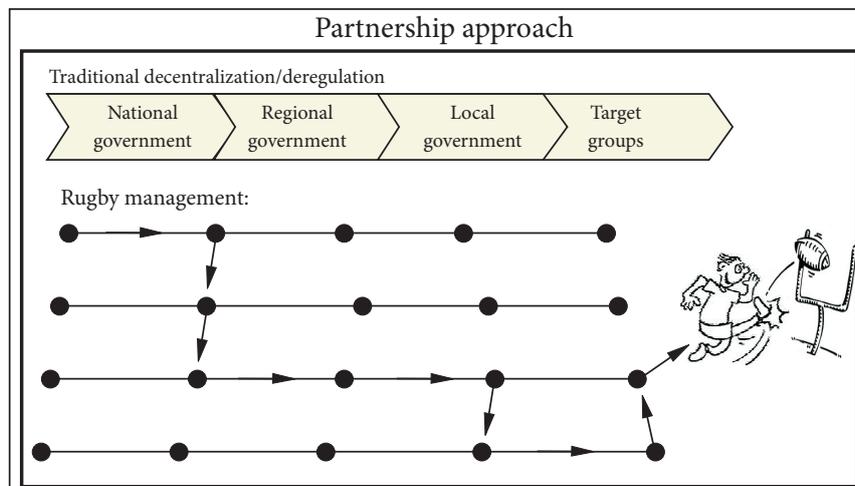


Figure 3: The Playing Rugby Management approach through team-playing: Scoring, reaching the goal is important, who scores is less important = the essence of coastal cooperation; by P.Winsemius, former Minister of Environment, The Netherlands. (source: WCC'93, adapted)

Main Elements of Coastal Zone Management

Coastal Zone Governance							
Arrangements			Objectives			Ethics	
Organizational structure	Legal framework	Tradition and social norms	Safety Resource Management Sustainable Development			Integration Harmonization Participation	
Coastal Zone Management Tasks							
Problem Recognition	Planning			Implementation			Evaluation
Problem Analyses	Data Collection	Policy Development	Decision Making	Plan Execution	Operation & Maintenance	Monitoring	Assessment & Outlook
Coastal Zone Management Instruments and Capacities							
Applied knowledge of coastal system	Physical, Chemical, Biological	Systems analysis: - Natural system - Socio-economic	Decision Support Systems	Regulatory & Non-regulatory Measures	Operational procedures - Enforcement	Objective oriented monitoring	Objective oriented evaluation
Public Consultations	Demographic, Economic	- User functions - Management system	Cost and Benefit analysis	Funding mechanisms	- Hazard Management	Research and analysis facilities	Open procedure with users
Education & Awareness Programs	Natural resources accounting	Multi disciplinary Cooperation	Open planning with users	Guidelines		Remote Sensing & GIS databases	Public consultations

Table 1: Main Elements of a Coastal Zone Management programme (source: CZM-Centre -1996)

it is not important who finally scores the goal. The rugby analogy emphasises the importance of joint responsibility for the result. Central management, provides the initial vision and leadership, retaining the main responsibility and most importantly helping the partners in passing the ball. These concepts are important for the successful implementation of any ICZM programme.

The CCC cases and planning tools placed in ICZM perspective

The activities, the cases and tools, which are described in the CCC-Publication cover many of the fields of ICZM. Most of the CCC Chapters cover one or just a few of the ICZM elements. Only a few of the CCC chapters cover (almost) all the fields. One of the examples of planning *and* implementation is the sustainable development of Rotterdam harbour (1993 – 2010). A complete ICZM cycle takes time, considerable effort, endurance and money. The last of these is not always available for the long period of time necessary to complete a cycle of an ICZM programme. However, once fully executed coastal cooperative programmes and ICZM reveal that these efforts are worthwhile in both an economic and environmental sense.

Conclusions

The natural and socio-economic processes in the coastal zone are complex and interactive. ICZM and coastal cooperation help to manage such challenging areas of work in a sustainable way. The CCC-cases and tools cover many of the identified ICZM fields of activities, some cover more than one ICZM fields, but only a few cover a complete ICZM cycle.

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