HCMC UNIVERSITY OF NATURAL RESOURCES AND ENVIRONMENT
FACULTY OF MARINE RESOURCE MANAGEMENT

Co-funded by the
Erasmus+ Programme
of the European Union

MARINE RESOURCES AND ENVIRONMENT MANAGEMENT

Topic 4 - Management Of Marine Resources And Environment

4.2 Resource planning and management

MATERIALS

Co-funded by the Erasmus+ Programme of the European Union

1. Quản lý tài nguyên và môi trường biển, Nguyễn Kỳ Phùng, 2016

2. Quản lý biển, Lê Đức Tố, 2004

3. Quản lý tổng hợp vùng ven biển, Nguyễn Lân Anh, Trần Văn Phước, Nguyễn Trọng Lương, 2011

4. Quản lý nhà nước tổng hợp và thống nhất về biển, hải đảo, Đặng Xuân Phương,Nguyễn Lê Tuấn, 2014

5. Markus Salomon, Till Markus (eds.), Environmental Management and Governance: Advances in Coastal and Marine Resources [1 ed.], Springer International Publishing, 2015.

6. Markus Salomon, Till Markus (eds.), Handbook on Marine Environment Protection. Science, Impacts and Sustainable Management, Springer, 2018.

7. G Carleton Ray, Jerry McCormick-Ray, Marine conservation : science, policy, and management, John Wiley & Sons Inc, 2014.

8. Islam, Nazrul; Jørgensen, Sven Erik, Environmental management of marine ecosystems, CRC Press, 2018.

9. Darius Bartlett, Louis Celliers, Geoinformatics for marine and coastal management, CRC Press, 2016.

Basic concepts of coastal and marine management

Co-funded by the Erasmus+ Programme of the European Union

What is management?

: Is a continuous, repetitive process, adaptation and community participation and consists of a series of related tasks. All of these tasks must be done to achieve a series of desired **Goals and Objectives**

What is management?

Broad definition

Specific definition

Simple

Is "**organizing and controlling** activities according to certain requirements".

Is the characteristic for the process of **controlling and guiding** all parts of an organization, through the establishment and change of resources (human resources, finance, supplies, intellectuals and other values)

Co-funded by the Erasmus+ Programme of the European Union

What is "management"?

Single-sector management is management that only focuses on the interests of its own industry, paying little attention to the protection of the environment and resources of other industries or departments.

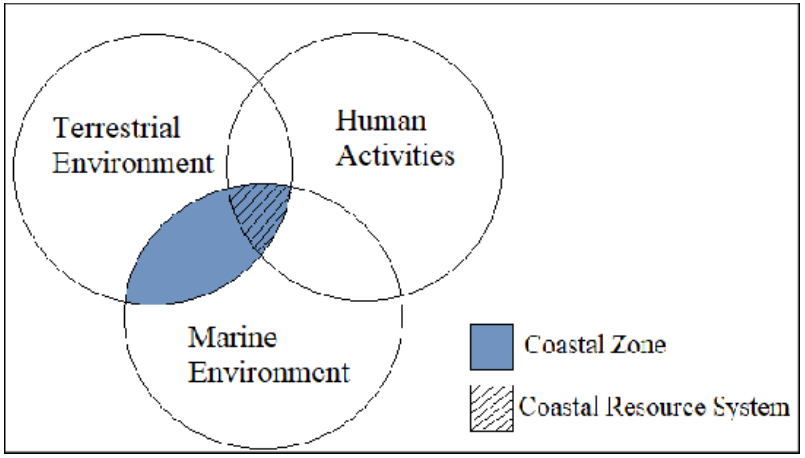
Thus, natural resources in the coastal zone are divided, the unified and complete function of the coastal natural resource system is broken, resources are reduced, and accidents are easy to occur.

→ As a result, the natural resources here are rapidly declining, are less likely to recover, and sometimes cannot be recovered. Such coastal development is not sustainable, affecting the strategic goals of the local, national or regional.

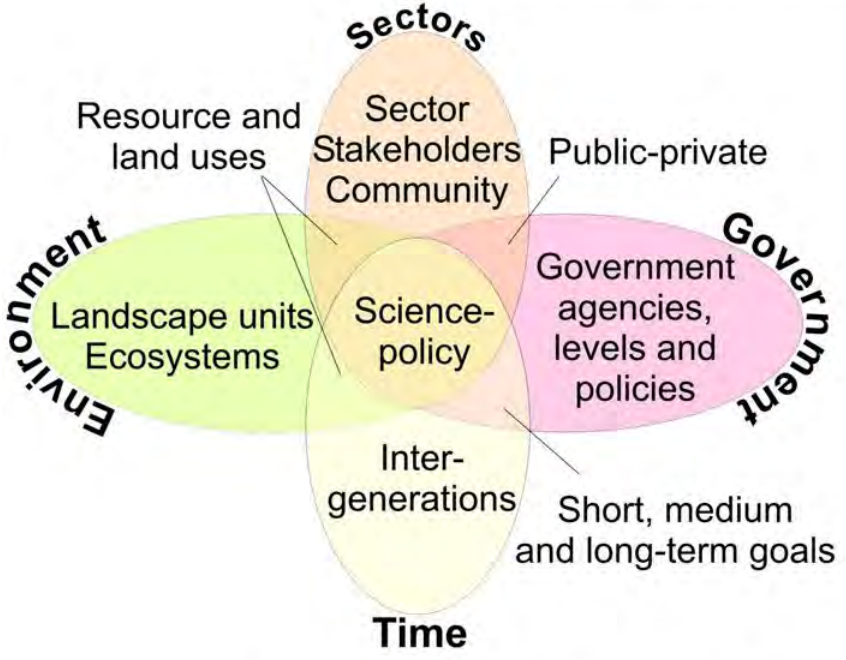
Co-funded by the Erasmus+ Programme of the European Union

Integrated Coastal Zone Management

Integrated Coastal management involves complex issues, desirable (and often conflicting) outputs to coastal resources, the different production possibilities spatially and temporally within each region, close or fragmented linkages with areas upstream and beyond, multiple sectors, and agencies with different responsibilities for management aspects (Bowler, Ehler and Basta, 1994).



M.E. Portman et al. / Science of the Tot

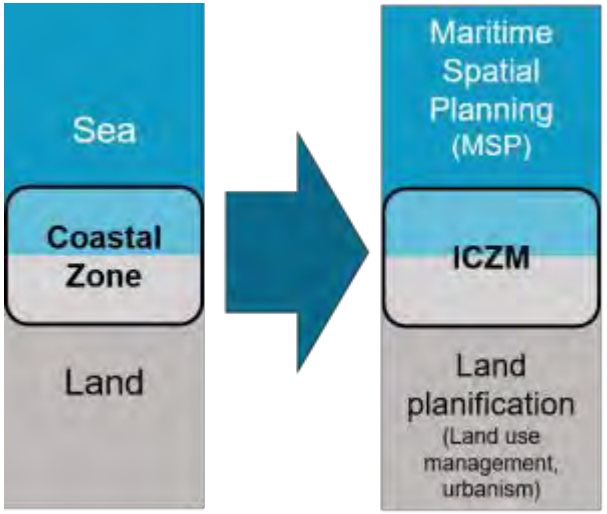


Co-funded by the Erasmus+ Programme of the European Union

Integrated Coastal Zone Management

Integrated Coastal Zone management involves decisions that will affect peoples lives. These effects can be positive or negative. However, it inevitably means that it will divide stakeholders into two groups.

- Winners – people who have gained from the decision which have been made either economically (property saved) or environmentally (habitats conserved), or socially (communities).
- Losers – people who have not had their property saved or see the coastline being "concreted over" through defensive measures, which they see as a negative environmental impact.



Co-funded by the Erasmus+ Programme of the European Union

Integrated Coastal Zone Management

The coastal system to be managed is a complex and dynamic network of interrelationships between human activities, social needs, natural resources and from humans.

This system is driven by human activities in the form of social needs to use the natural resources of the coastal area to produce desired products and services, for example seafood, transportation marine transportation and entertainment.

One of the social needs may be to restore and/or maintain a coastal ecosystem in its "natural" state, i.e. a protected area.

Co-funded by the Erasmus+ Programme of the European Union

Integrated Coastal Zone Management

- Management of coastal areas must handle at least the following factors:
- Diverse needs and conflicts on coastal areas, from inside and outside the management area;
- Population growth and the needs of accompanying economic development in the coast;
- Random nature (probability) of natural phenomena; speed and intensity of natural processes;
- The resources are limited for management, because of the complex needs of society on products and services;
- The fluctuations of all related variables in ICZM;
- The potential climate change and its long -term effects on coastal ecosystems and human activities in the ICZM area.

Co-funded by the Erasmus+ Programme of the European Union

Several factors are involved in determining circumstances for ICM

Type	Describe the impact on the context
1. Management goals	Related to: 1) complexity, i.e. granularity of the output; 2) scope of planning, ie duration of implementation, number of variables to consider; 3) pressure on planning, i.e. the number of inter-regional economic impacts to consider
2. Government structure and/or institutions	Related to: 1) agencies responsible for analysis and management of ICM over time; 2) agency capacity, ie the number, type and professional experience in relevant agencies; 3) the implementation is, emphasizing the use of different execution tools; 4) the importance of the participation of the people in the decision process; the funding source for the implementation of management strategies

Co-funded by the Erasmus+ Programme of the European Union

Type	Describe the impact on the context
3. Available resources	In terms of: 1) professional staff available; 2) time available to use; 3) analytical tools, eg models; 4) equipment, eg compute services and monitoring tools.
4. Available data	Related to: 1) natural systems, e.g. surface waters, groundwater, atmosphere, ecological processes; 2) the process of generating and discharging pollutants, ie pollutant generation coefficients, space and time of activities, technological characteristics of activities; 3) pollution reduction costs

Co-funded by the Erasmus+ Programme of the European Union

Type	Describe the impact on the context
5. Understandings and perceptions about coastal areas	The perceptions and understandings of individuals and groups in the region, related to: 1) the disparity between perception and reality about the serious coastal management problem; 2) effective, efficient, reasonable and logical ICM strategies; 3) the difference between the desired condition and the actual condition
6. Regional boundaries	About: 1) boundaries of ecosystems or natural systems; 2) political powers; 3) economic boundaries; 4) service units, for example, water bodies and 5) scope

Co-funded by the Erasmus+ Programme of the European Union

Type	Describe the impact on the context
7. Natural geographical features, hydrology and climate	In terms of: natural geography, i.e. hills, plains and mixed areas; hydrology, ie groundwater and surface water; climate, i.e. temperature, light and precipitation
8. Features of animals and habitats	Abundance, life history, and biographies

Source: Bower, Ehler và Basta (1994)

Co-funded by the Erasmus+ Programme of the European Union

What does "integrated" mean?

Integrated (Cicin-Sain and Knech, 1998): "implement and monitor policies, investment strategies, administrative structures, and harmonized standards as part of a unified programme, and when If necessary, make modifications to ensure objectives. (Chua, 1996:4)

Under Agenda 21, which emphasizes the need for appropriate management of aquatic resources under national control and the importance of land-sea linkages, especially with respect to marine pollution from the mainland. Accordingly, coastal zone management is "integrated management and sustainable development of marine and coastal areas, including exclusive economic zones".

Co-funded by the Erasmus+ Programme of the European Union

What does "integrated" mean?

Five main regions can be identified within the sea-coastal zone:

1) inland areas
2) coastal lands
3) coastal waters
4) offshore waters
5) and high seas

Co-funded by the Erasmus+ Programme of the European Union

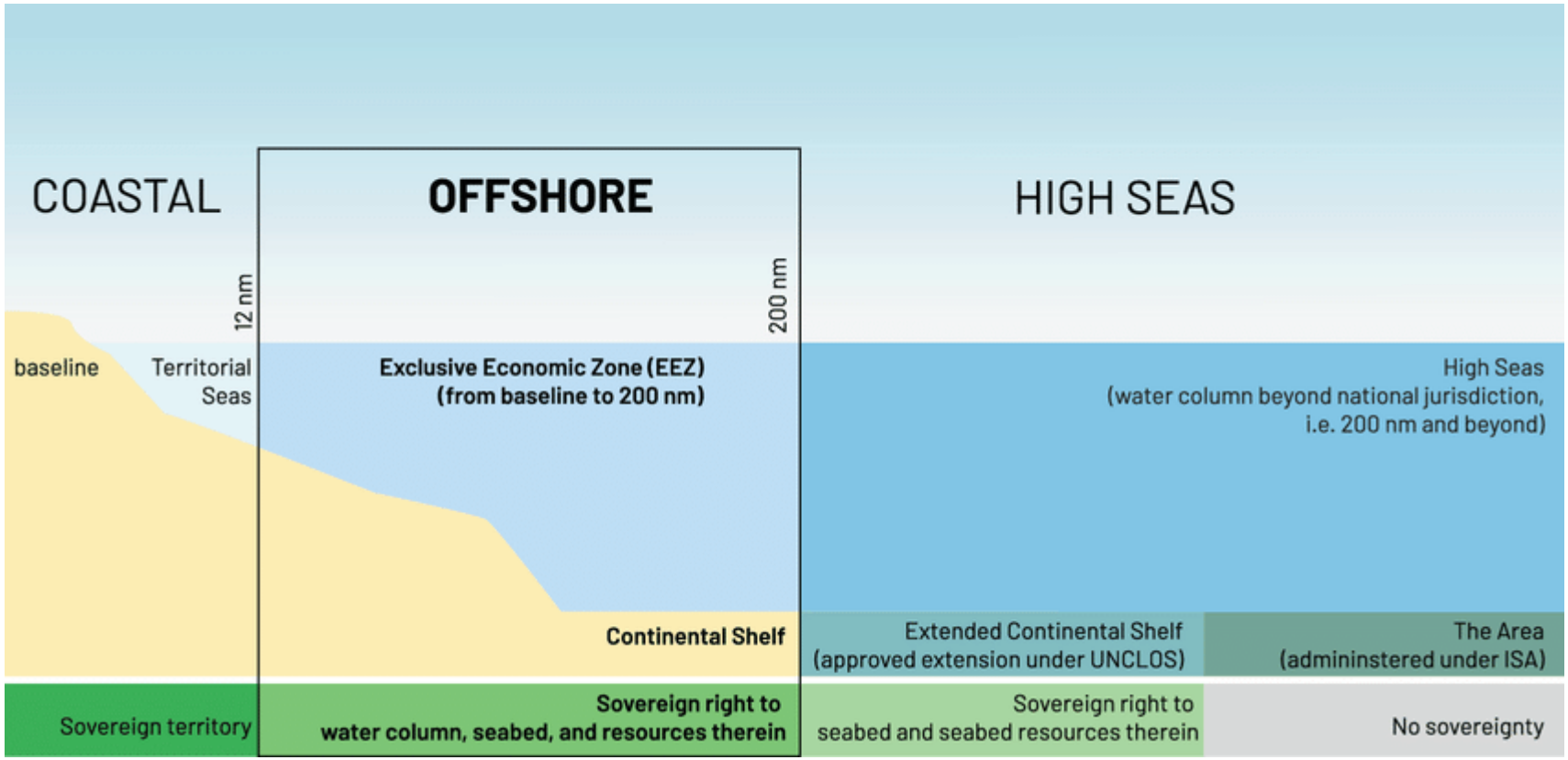
What does "integrated" mean?

Functions of 5 main zones within the sea-coastal zone:

1) Inland areas: affects the ocean mainly through rivers and dispersed pollution sources;
2) Coastal lands: wetlands, marshes, and the like - where human activities are concentrated and have a direct impact on adjacent waters;
3) Coastal waters: generally estuaries, lagoons, and shallow waters – where land-based activities are most affected;
4) Offshore waters: mainly waters up to 200 miles offshore within national jurisdiction;
5) And the high seas: is the sea beyond the limits of national power.

Co-funded by the
Erasmus+ Programme
of the European Union

What does "integrated" mean?



Co-funded by the Erasmus+ Programme of the European Union

What does "integrated" mean?

Although the natural processes in these five regions tend to be closely intertwined, it is difficult to consolidate governance regimes across these regions because of the nature of property, the nature of government interests, and the nature of government agencies often varies from region to region.

In general, in terms of properties in coastal waters, there is a tendency to continuously own:

- In the hinterland, private ownership prevails;
- In the coastal land, there is a mixture of private and public property;
- And in inshore and offshore waters, mainly in the public domain.

Of course this can vary from country to country according to cultural conceptions of private and public property. For example, in many islands in the South Pacific, coastal waters and land are often controlled by the community through village councils of elders (see South et al., 1994).

Co-funded by the Erasmus+ Programme of the European Union

What does "integrated" mean?

- In terms of the nature of the interests of all levels of government, local or provincial interests often predominate in the hinterland, while there is a mixture of local, provincial, and national interests in the land and coastal waters.
- Further, to the offshore and deep seas, national and international interests become paramount.
- The nature of government agencies also varies from region to region.

Co-funded by the Erasmus+ Programme of the European Union

What does "integrated" mean?

- On the mainland, there are often "multiple-purpose" government organizations at the local and provincial levels to focus on issues such as land use control and conflict using goals.
- In waters, there are often only provincial or national "single-purpose" agencies operating, each primarily focused on one marine use, such as fisheries activities or oil and gas extraction.
- Because of these differences, the management of these 5 areas may require common and combined methods and agencies, which nevertheless differ slightly. Therefore, it is necessary to focus on integration, on many fronts, in coastal and marine management - that is part of the ICM proces.

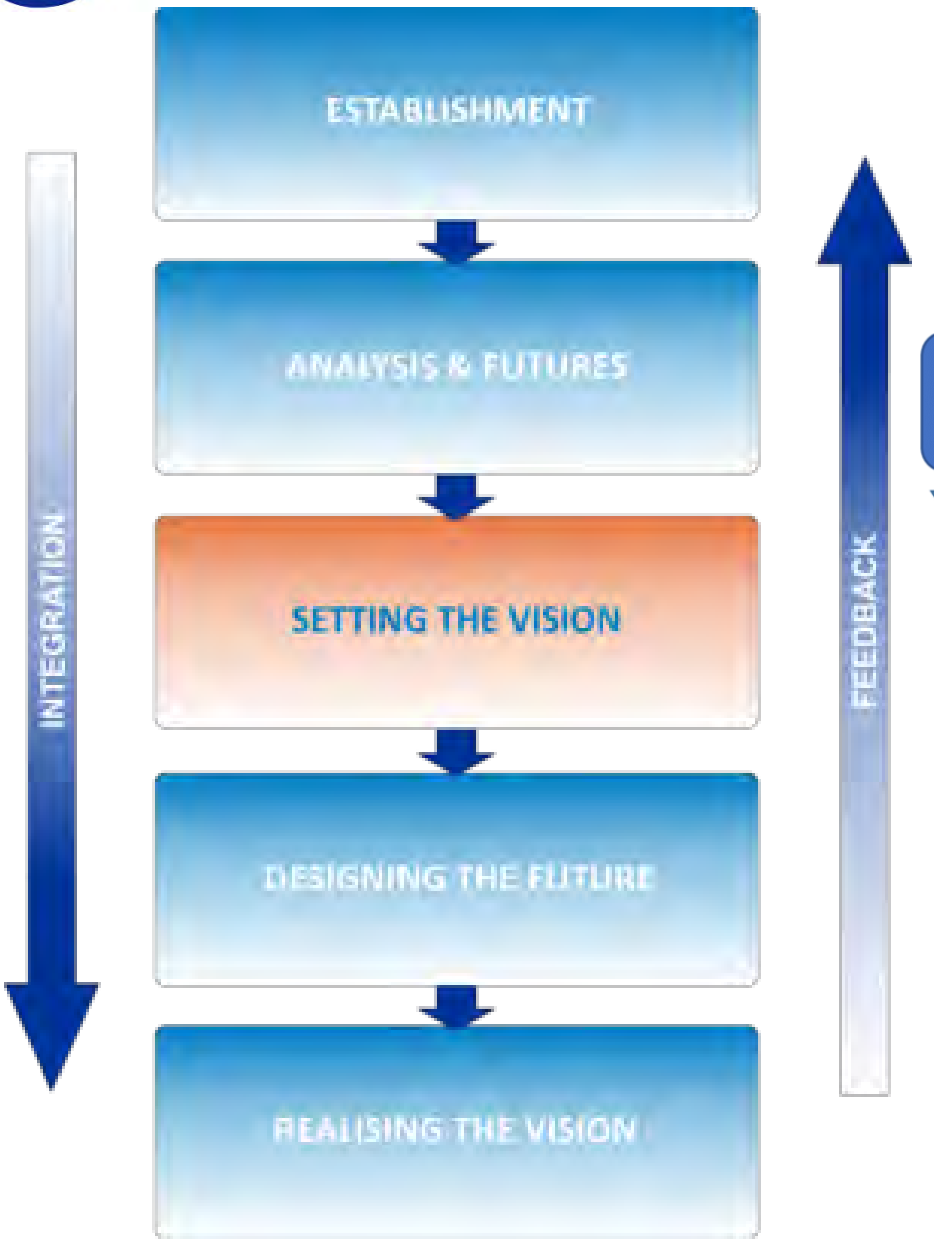
Co-funded by the Erasmus+ Programme of the European Union

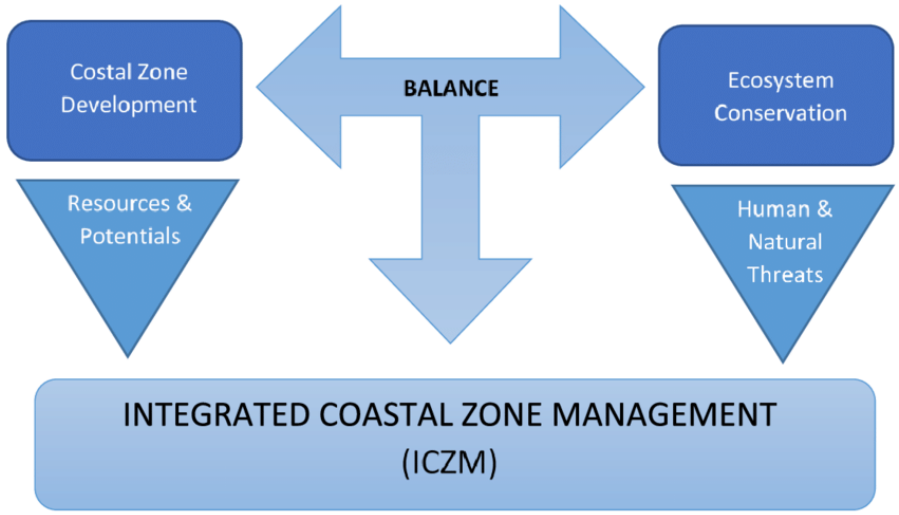
What is Integrated Coastal Zone Management?

- Integrated management refers to the coordination of all parties responsible for the tasks necessary to plan and implement activities, such as coastal zone management, including the holding and allocate resources on which the parties depend.
- Integrated management is an ongoing process through which decisions are made for the protection, development and sustainable use of areas and resources.
- Integrated management recognizes the relationship that exists between different uses and potential impacts on the environment. It is designed to overcome the inherent fragmentation of management approaches by industry, analyze aspects of development, conflict of use, promote alignment and harmony between different activities.

Basic concepts of coastal and marine management

Co-funded by the Erasmus+ Programme of the European Union





Co-funded by the Erasmus+ Programme of the European Union

What is Integrated Coastal Zone Management?

Integration needs to be focused on the many aspects that are part of the ICM process:

1. Inter-sectoral coordination: The coordination between different sectors includes "horizontal" coordination between marine and coastal economic sectors (such as oil and gas exploitation, fisheries, tourism, marine mammal protection...) and the coordination between marine and coastal economic sectors and land-based economic sectors that have an impact on the marine and coastal environment, such as agriculture, forestry, and mining. Interagency coordination also focuses on conflicts between government agencies in different sectors.
2. Coordination between levels of government, or coordination between different levels of government (national, provincial, local). National, provincial, and local governments often play different roles, take care of the different needs of the population, and have different visions. These differences often hinder the achievement of balanced harmonization in policy development and implementation across national and subnational levels.

What is Integrated Coastal Zone Management?

3. Spatial coordination, or coordination between the land and ocean of the coastal zone. There is a close relationship here between activities on land and what happens in the ocean, such as water quality, fish productivity, etc. Similarly, activities in the ocean must rely on or dependent on the coastal area.

4. The coordination between management and science, or the coordination between different sciences of importance in coastal and marine management (natural sciences, social sciences, and construction) with management agencies. Although these sciences are essential for informing coastal and oceanic managers, there seems to be little link between scientists and managers here.

Co-funded by the Erasmus+ Programme of the European Union

What is Integrated Coastal Management?

For good sea and island management, it is necessary to focus on integration on many fronts, which is a part of the ICM process:

International coordination.

The coordination between countries is necessary when countries adjacent to enclosed and semi-enclosed seas or have international disputes over fishing, cross-border pollution, establishing maritime boundaries, maritime roads for ships to pass, and many other issues.

EBM Ecosystem-based management for Aotearoa

A holistic and inclusive way to manage marine environments and the competing uses for, demands on, and ways New Zealanders value them.

Collaborative decision-making
Collaborative, co-designed and participatory decision-making processes involving all interested parties.

Tailored
Place and time specific, recognising all ecological complexities and connectedness, and addressing cumulative and multiple stressors.

Co-governance
Governance structures that provide for Treaty of Waitangi partnership, tikanga and mātauranga Māori.

Human activities
Humans, along with their multiple uses and values for the marine environment, are part of the ecosystem.

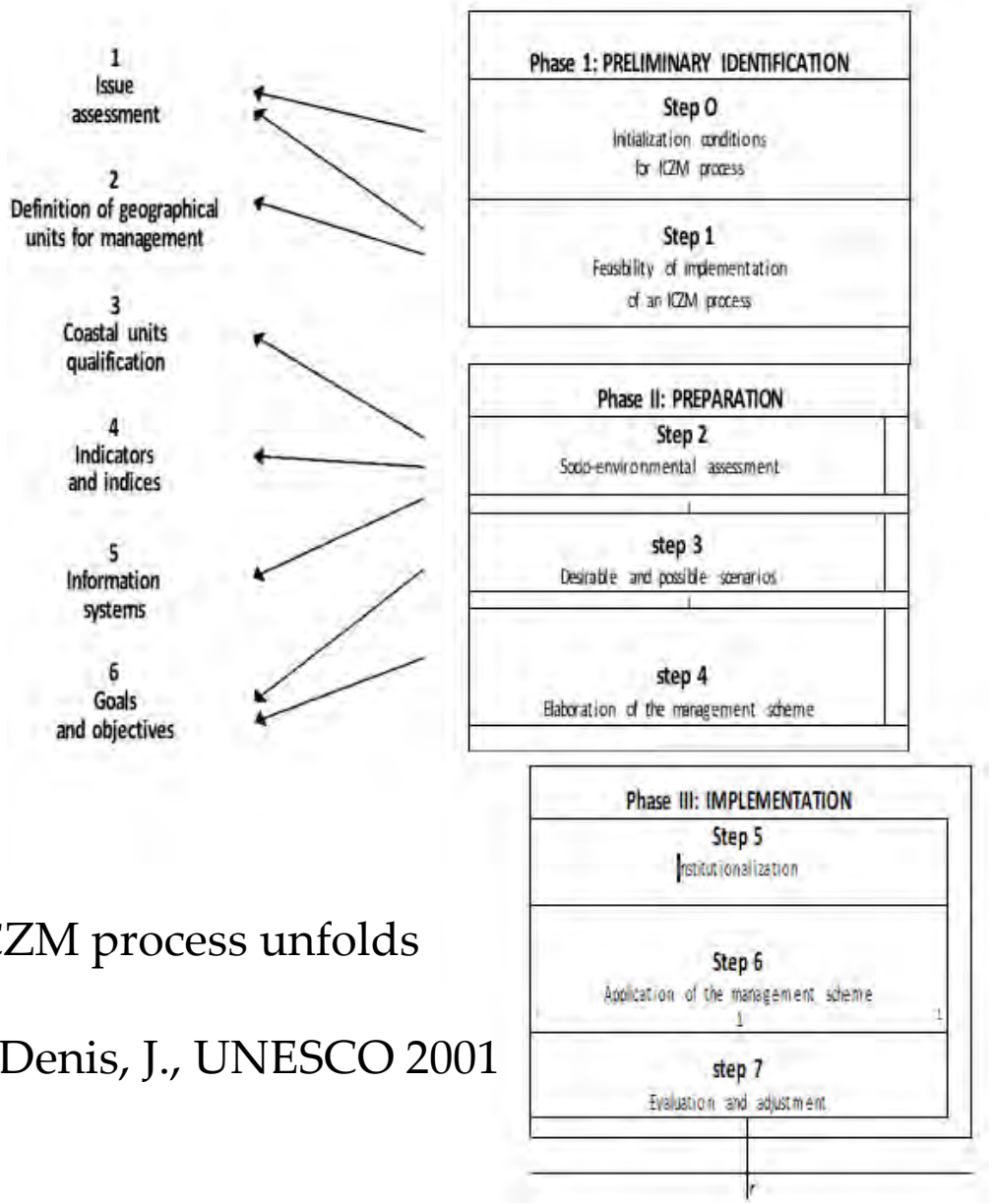
Sustainability
Marine environments, and their values and uses, are safeguarded for future generations.

Adapts
Flexible, adaptive management, promoting appropriate monitoring, and acknowledging uncertainty.

Knowledge-based
Based on science and mātauranga Māori, and informed by community values and priorities.

National Science Challenges | SUSTAINABLE SEAS | Ko ngā moana whakauka

Co-funded by the
Erasmus+ Programme
of the European Union



How the ICZM process unfolds

Henocque, Y.; Denis, J., UNESCO 2001

Co-funded by the
Erasmus+ Programme
of the European Union

HOMEWORKS

1- Students make their own management plan for a sea area in Vietnam (e.g. Phu Quoc, Van Phong)