ICZM

The COAST Of ICZM

factsheet

Bite-sized introductions to Sustainable Development themes

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ERM

WHAT ?

We all know that the coast is where the land and sea meet. But what is less well known are all the ramifications of this meeting between the land and the sea. Most clear are the environmental ramifications, but within an ICZM context, we must also consider the socio-economic and governance connotations of this meeting between land and sea.

From an environmental standpoint, the meeting of the land and sea lends the coast a set of unique characteristics. Physical forces dominate the shape and land forms (geomorphology) that are found on the coast. Wind and waves can constantly change the shape and position of a coastline; they can move huge amounts of sediment onto, or from, a coast leading to accretion and erosion respectively. Daily tidal movement can also move sediment, and create landforms such as drainage channels on salt-marshes and intertidal coastal lagoons. The underlying geology combined with these physical forces lead to the general character of the coast.

Within this coastal mixing pot of sediment and energy a wide variety of animal and plant species are found. Most of these species are highly adapted to the coastal situation, and thus coasts are often of very high conservation and biodiversity importance. For example, in many coastal areas we can find salt- and desiccation-resistant plants species and sessile animals living on rocks and boulders that are adapted to being inundated during each tide. High species richness and productivity of biological matter typify coastal biological communities. In addition, due to the rapid changes in physical forces and sediment across small geographical distances, we tend to find many different communities within a small area of coast, compared, for example, to forest and grasslands where large tracts of similar habitat can be found.

The strong physical forces and highly dynamic nature of the coast, coupled with the diverse and productive ecology has implications for the socio-economic and governance aspects of the coast which we explore in the next section.

WHY ?

Like we know that the coast is where the land meets the sea, we also know that the coast provides us with many useful things. The physical-ecological nature of the coast is the prime reason why the coast is so useful for us. The coast holds many physical features (e.g. ports and harbours), physical resources (e.g. sand for construction), biological resources (e.g. fish and prawns) as well as direct benefits for tourism and recreation. In addition to these direct benefits, the coast is also home to many less obvious benefits. For example, sewage pumped into the sea can be diffused and cleaned by the coastal system, coastal power stations use sea water for cooling, we can even value the coast in terms of it ability for high rates of carbon sequestration to possibly limit global warming. It is no coincidence that over half the world's population live in coastal areas, as they are primarily there to benefit from the services and resources provided by the coast.

However, the high levels and diversity of services and resources of the coast mean that there are many activities and users operating on the coast. Unfortunately, some of these activities are not compatible, which means that instances of dispute and conflict are also high around coasts. The high levels of population and economic importance mean that coasts are generally complex in terms of socio-economic systems. For example, many fishing communities have a strong traditional element in their exploitation of fish stocks, access to resources can be a complex issue especially between, say, new tourist development and artisanal users of the coastal areas. For this reason the coast is often a common place to find the development of single-issue NGO groups. Governance of the coast can also be complex, partly due to multiple-users and a high resource base, but also because coasts have a high degree of local specificity. Most coastal areas, at the scale of an ICZM plan, are a unique blend of physical, socio-economic and governance aspects; thus one "solution" cannot fit all.

WHEN ?

Degradation of the coast is an ever-increasing problem, thus we need to understand the coast now! However, despite satellite technology, powerful state-of-the-art modelling and many other scientific developments, we are not in a position to understand all aspects of the coast collectively. At best we can probe various single aspects of the coast, for example sediment models, which show shoreline changes, and stakeholder analyses, which identify the influential stakeholders in coastal areas.

However, such approaches are limited by the high degree of variability and unpredictability of the parameters they utilise and generally provide poor predictive power for management decisions. We are not at this time in a position to develop a single model of the coast that includes the necessary level of complexity of the various layers of the coast: physical/biological, socio-economic and governance that can provide all the answers for ICZM style management. At best we have a number of tools which can help us understand and improve management of aspects of the coast.

If we can never achieve a full understanding of the coast, then maybe ICZM is an anathema! However, it is a fallacy that full understanding is needed to manage complex systems. In fact an approach, which is embodied in ICZM, has been developed to be used when we do not have complete understanding of the system; this approach is called adaptive management (AM). AM is a structured and iterative process of optimal decision making in the face of uncertainty with an aim of reducing uncertainty over time via system monitoring. The key facet of this approach is that monitoring provides feedback on the management decisions made during each cycle of the process, thereby providing incremental increased understanding of the coastal system. AM is often simply stated as "learning by doing".

WHO ?

We have previously identified the important different discipline areas involved in understanding the coast: environmental, socio-economic and governance. One person cannot understand all facets of a coastal area, and thus ICZM must be achieved through a multi-disciplinary team. However, for successful integration of the different disciplines, involved scientists need to be creative in finding links between disciplines; otherwise we end up with a diversity of views of the coast from different discipline perspectives. Any team studying the coast in an ICZM context should have elements of:

1. Environmental – this applies to the physical/geo-morphological aspects which shape the coast, as well as the biological resource base within the coastal setting.
2. Socio-economic – this applies to the sociological cultural aspects, as well as understanding about who and how people exploit resources and create the coastal economy.
3. Governance – this aspect includes relevant policy and law as well as organisational diversity and capability in relevant actors of the coast. It is fundamental to ICZM as it is necessary to understand the institutional context within which ICZM could operate.

HOW ?

You can start anywhere! The important thing is to organise and systematically store the information which is collected about the coast. A meta-database is a good idea as it gives an overview of the information you collect, especially as the information is likely to be in many forms, such as maps; demographic information; pictures; and detailed site- or village- specific studies. New information will be regularly produced and should be embedded within the database system.

WHERE ?

The Short and Medium-Term Priority Environmental Action Programme (SMAP) (http://www.smap.eu) is the most recent suite of projects to attempt to implement ICZM within the Mediterranean region. The Coastal Area Management Programme (CAMP) of PAP/RAC (http://pap-thecoastcentre.org/) is oriented at applying Integrated Coastal Zone Management (ICZM) as a major tool in selected Mediterranean coastal areas.

SD LINKS

The information collected to help understand the functioning of the coast is the prime driver to almost all the tools and techniques used to support ICZM and sustainable development.

SUGGESTED READING

http://scholar.google.co.uk/schhp?hl=en&tab=ws

http://www.coastweb.info/