

# Integrated coastal management

do we *really* have a choice?



Why is ICM successful?

What is needed?

How can ICM help us in the future?

CoPraNet

Coastal Practice Network

North East South West  
INTERREG IIIC



PROJECT PART-FINANCED  
BY THE EUROPEAN UNION



## Foreword

Europe's coasts are home to 70 million people. They attract most of our tourism for their beautiful scenery and natural richness. Their ports are a key part of the transport network and are centres of trade and industry. And of course coasts are the base for fishing, aquaculture and even energy generation.

But all this intensive use makes it a tremendous challenge to keep coastal areas attractive places to live and work. Coastal authorities are also concerned at the impacts of climate change, since coastal zones are especially vulnerable to flooding and erosion. Balancing the needs of development with protection of the very resources that sustain coastal economies requires an integrated approach that involves all stakeholders and takes a long-term view.

The EU Recommendation on integrated coastal zone management (ICZM) sets out some common principles on which sound coastal planning and management should be based. These principles have to be left fairly broad because of the diversity of environments, socio-economic realities and administrative systems in our coastal Member States. Because of all the different activities and actors involved, there is no one simple approach to more sustainable management.

However, the demonstration projects supported by the European Commission show that an integrated approach is possible in very different situations and can benefit coastal communities. One vital way of promoting good ICZM is by exchanging examples of best practice between all the different stakeholders. The Coastal Practice Network, "COPRANET", is a project co-funded by the EU that aims to do this, and as such is an essential component of the EU's ICZM policy.

Georges Kremlis  
Head of Unit  
European Commission  
DGEEnvironment  
Chairman EU ICZM Expert group

For more information see:  
<http://europa.eu.int/comm/environment/ICZM/home.htm>



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## EUCC - The Coastal Union

EUCC devotes itself to people and Nature in coastal areas and the sea. It wants to conserve the characteristic coastal landscapes, plants and animals and stop the trend towards a concrete coastline. The EUCC particularly keeps a watchful eye on tourism, erosion and fishery developments.

ICM in Europe has been extensively promoted by EUCC – since 1990. Milestones in this work include the European Coastal Conference (1991), the development of the European Code of Conduct for Coastal Zone (adopted 1999), the creation of a multi-lingual distance learning programme CoastLearn (2001), the establishment of a European Coastal Practice Network (CoPraNet) in 2003, the development of an ICM progress indicator set for the EU (together with the ETC-TE, 2004) and of an ICARM Marker Set (for UNEP GPA, 2006). See [www.eucc.net](http://www.eucc.net)

## Colophon

"Integrated coastal management – do we *really* have a choice?" is a publication of the Coastal Practice Network project, part-financed by the European Union (European Regional Development Fund) within the INTERREG IIIC West Programme.

**Text:** Alan Pickaver & Albert Salman

**Editor:** Katinka Broersen

**Design & Layout:** Marijke Kooijman & René van Rossum

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**Photos front:** Tenerife, Canary Islands, Spain (Photo: Robert Steenbergen)

**Insets:** Hawksbill turtle, Barbados (Photo: Coastal Zone Management Unit Barbados); Hurricane damage, Lithuania (Photo: Dalia Gudaitiene – Holiman), MEDSOS summer activities, Sifnos Island, Greece (Photo: Nikos Chrysoyelos)



# Our precious coast

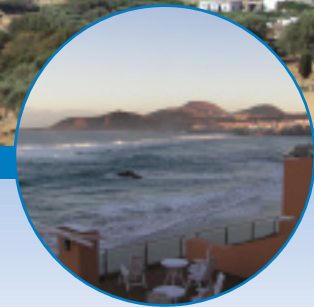


Sifnos Island, Greece (Photo: Nikos Chrysoyelos); insets: Gran Canaria, Canary Islands (Photos: Tarik Chekchuk)

People have always been drawn to the sea for the fertile lands of its coastal plains and for its abundant marine resources, for livelihood and for leisure. Coastal locations have always been key sites for the development of a broad range of vital human activities, both social and economic.

The coast offers scope for industry, urban development and residential activities, tourism and recreation, transport, fisheries, aqua- and agriculture, easy access to trade routes and, not to forget, defence, both military and natural. Around three-quarters of the global marine fish harvest is caught in coastal waters and tourism in the Mediterranean countries alone accounts for up to 15% of their Gross National Product. In addition, energy production in the onshore and offshore parts of the coastal zone continues to increase, with a corresponding expansion of harbour and processing facilities, support services and other infrastructure.

In fact, our densely populated coastal areas are the most exploited areas of the world and the rate of population growth in coastal zones is unprecedented. More than one third of the population of Europe is estimated to live within 50 km of the coast, with 120 million people living in coastal urban agglomerations. Globally, the situation is even more acute with some two-thirds of the world's population – around 3.6 billion people – living along a coastline. Within the next three decades, this number will increase by a further billion. Perhaps inevitably, coastal



exploitation has caused the decline of habitats and natural marine resources including fishery stocks. The demand for space and for the natural assets of the coastal zone is increasingly putting at risk vulnerable landscapes and the wealth of biodiversity which they provide. Seventy percent of European coastlines are highly threatened, the highest percentage of any eco-region in the world.

Yet coastal zones are naturally highly dynamic areas. They contain a large variety of the world's most productive habitats, covering inter-tidal flats, salt marshes, deltas and estuaries, mangroves, sea-grasses and coral systems, and they represent high ecological values. Many of these habitats also provide natural protection against flooding.

As coastal zones become more eroded by over-exploitation, hazards such as flooding and erosion are, however, becoming more widespread and increasingly severe for coastal populations, and this can only be expected to intensify as the effects of climate change become more and more apparent. Living along the coastline is not only a privilege: it also carries with it a responsibility to ensure that the benefits of today are still available for our children in the future.

View from Cacela Velha, Algarve, Portugal (Photo: Dave McAleavy)





# Do we have a **management choice**?

The deterioration of the coastline is largely because development has been dominated by different, competing, sectors, e.g. tourism, port and industrial development and fisheries. The conservation of species and sites has been mainly incidental and *ad hoc*.

Because such sectoral approaches to coastal development have sometimes proved to be unsustainable, local and regional authorities throughout Europe have started to make efforts to develop integrated planning approaches for the sustainable economic development of the coast and its limited resources.

In contrast to the purely sectoral approach, integrated coastal management (ICM) attempts to take into account the interests of all relevant stakeholders when decisions are being made in the coastal planning process. This is a large task, especially as local communities and the general public are regarded as interested parties, and the process of their involvement must not simply be consultative but truly participatory. Although this can mean that decisions take much longer to be reached, it generally avoids contentious disputes and bitter rows which might otherwise lead to courtroom actions.

ICM also demands good communication with the governing authorities, since it is essential that national governments - which set policy - know what regional governments are doing and that they, in their turn, know what actions the local authorities are taking. This information flow is two-way since, for ICM to work, the activities of the local authorities need to be passed back up the chain to the responsible central government departments.

In this way, optimum, sustainable levels of coastal use, development and conservation are established and maintained. Such an effective and harmonized management of coastal zones will, eventually, lead to an improved state for the coastal environment.

Fishing boats, the Netherlands (Photos René Beckerschmidt)  
Maasvlakte (Photo RIKZ, NL), Refinery Pernis, Rotterdam, NL (Photo Shell)





# ICM in the European Union

Concern about the deteriorating environmental, socio-economic and cultural state of the European coastline has led to a number of EU initiatives since 1995. The first of these was the Commission's Demonstration Programme for ICZM (1996 – 99) which embraced the Baltic Sea, North Sea and Atlantic seaboard and the Mediterranean Sea. It was a joint programme of three DGs viz. Environment, Regional Development and Fisheries and included 35 individual projects and six thematic studies. The aim was to test co-operation models for integrated management of the coastal zones and to stimulate a broad debate amongst the various stakeholders involved in coastal planning, management and use of coastal areas.

In 2000, on the basis of the results of this programme, the European Commission produced two important documents. The first of these is a Strategy for Europe concerning the implementation of ICM throughout the EU coastal states. This 38-point plan consists of a series of concrete actions building upon existing legal and non-statutory instruments, programmes and resources. It is a flexible, evolving approach, designed to cope with the specific needs of the different regions and prevailing local conditions.

The second document is a Recommendation on ICZM, which was called for as the first point of the Strategy and adopted by the European Parliament and Council in 2002. This means that all EU Member States are committed to the preparation of a national strategy for ICM. Since embracing the Recommendation, all Member States have started implementing, to a greater or lesser extent, its content. ICM is slowly, but surely, being put into practice in the EU.

County Down – participant of the EU Demonstration Programme and CoPraNet partner

below Photo: Dave McAleavy; right: Mountains of Mourne, UK  
(Photo: Down District Council)





# The Benefits of ICM:

## (a) Major profits, increased jobs and improved living standards



What government wouldn't welcome \$8 million in taxes as a return on just \$6m investment? Well, this actually happened in Canada as a result of an integrated coastal management programme on the east Coast. Not only that, but the investment made between 1997 and 2001 yielded \$22m in GDP, including a \$9m direct return. Economic studies carried out by independent auditors showed that the same work would have cost \$71m if it had been completed by government services alone.

Environment Canada's Atlantic Coastal Action Programme (ACAP) had been launched in 1991 because of an urgent need to restore the watershed and coastal areas of Canada's Atlantic coastline so that they could sustain coastal communities. Action was also needed to facilitate the protection and enhancement of the environmental quality of these areas. The taxes generated, 55% of which went to federal coffers and 45% to the regional treasury, were more than the amount originally invested!

This ACAP programme provided 482 person years of local employment in the 5-year period whilst another study showed that \$1.2m invested in on-the-ground science for the programme leveraged scientific activity valued at a total of \$5.5m during the same period.

Meanwhile, on the other side of the globe, the government of India took several steps to achieve integrated management of the Chilika Lagoon as well as to improve watershed management. This lagoon, situated on the east coast of India, is the largest coastal lagoon in Asia. It is a biodiversity hotspot containing marine, brackish water and freshwater ecosystems and providing habitats for a number of endangered species. Lack of adequate management has led to reduced fish productivity and the rapid growth of an invasive weed species, which in turn has

lead to increased poverty in the area. The implementation of an integrated management plan has led to complete recovery of the lagoon within five years. What's more, the average annual income per family increased by more than 50,000 Indian Rupees (approx. US \$1040) per year, giving the people a much improved standard of life.

These experiences fully bear out the conclusions of a financial assessment of the socio-economic costs and benefits of ICM in the EU (2000). The environmental services provided by the EU's coastal areas are worth around €18 billion. ICM initiatives implemented throughout the EU between 1995 and 1999 cost €22m. Even using very conservative estimates, the net value generated as a result of this investment was a minimum of €127 million.

This was further verified by a study based on 21 of the EC ICZM Demonstration projects of 1966 - 99. It was shown that the value of the benefits achieved significantly outweighs the investment costs. In cases where the level of activity and commitment is relatively low, benefits outweigh costs by nearly 14:1. Even when the initial investments are greater the cost-benefit ratio is still almost 9:1. Either way, the results were deliberately conservative and did not take into account less tangible socio-economic gains such as improvements in decision-making processes, identifying priorities and more coherent spatial planning, and the resulting value of these savings. ICM can add an average 7% to the Gross National Product of a country within the EU. The more invested, in this case, the higher the return.

Storstrøm County – participant of the EU Demonstration Programme and CoPraNet partner, right: Cliffs of Møn (Photos: Storstrøm County, Denmark)







A profit making programme - The Atlantic Coastal Action Programme (ACAP), Canada - embracing the local community (left), the private sector (middle) and scientists (right) (Photo's ACAP)







## The Benefits of ICM: (b) *Lessening the impacts of natural disasters*

Natural coastal landscapes lessen the impact of disasters, mangroves, Sri Lanka  
(Photo: Coastal Resources Management Project Sri Lanka)

The sudden onslaught of extreme weather conditions has too often led to the destruction of large parts of our coastlines and the accompanying loss of human life. Sometimes this has been exacerbated by poor coastal management or even neglect. In such cases, most governments have reviewed their management strategies and opted for the introduction of ICM in an effort to lessen, or eliminate, the worst after-effects of extreme weather conditions. With foresight, such measures could be used in normal situations to the benefit of everyone.

### **Flooding**

Re-construction efforts in Thailand, Sri Lanka and south-east India, following the devastating tsunami in December 2004, will also be effected in a more integrated way. Perhaps no management, however good, could have stopped the damage and destruction following the earthquake, but much of the natural mangrove forests along the coast had been destroyed before the tsunami hit to provide human settlements on the edge of the coastal region and infrastructure immediately inland. Those areas with their mangroves still intact were far less affected by the tsunami than those where they had been removed to allow human settlements to develop. Integrated management during re-development will now be the order of the day.

Since the 1990's, north west Europe has seen an increasing number of managed realignment initiatives i.e. identifying a new line of defence and re-settling the populations into the hinterland as part of integrated coastal planning processes: sea

dykes are being moved inland resulting into a broader salt marsh zone that can act as a first barrier against the sea.

### **Cyclones and hurricanes**

Following the destruction caused by two cyclones and repeated floods in 1996, the government of Andhra Pradesh began an ICM programme that would minimise the impacts of cyclones. It incorporated a real-time early warning system as well as enhancing the sustainable development of the coastal zone.

Heavy winds are not uncommon in Europe and hurricane Anatole destroyed much of Lithuania's coastline in 1999, especially the developed sector around the tourist resort of Palanga. This was the trigger for an ICM programme focusing on the conservation and restoration of natural coastal landscapes; the development of tourism and other coastal uses are now strictly zoned.

Similarly, the removal of the natural wetlands of the Mississippi basin directly contributed to the 2005 flooding of New Orleans following hurricane Katrina. Equally, the use of a coastal barrier system for tourist development of Cancun (Mexico) contributed to its devastation by hurricane Rita, also in 2005.

### **Coastal erosion**

The economic loss of tourists to the beach-front and the decrease in land and property values along the coast due to severe erosion, coupled with the expense of maintaining coastal protection works which have led to that erosion, has caused Aveiro,



in Portugal, to re-think its coastal management policy. Consideration is being given to those measures that address the underlying cause of erosion, i.e. shortage of sediment supply, for example through artificial bypassing systems, identification of areas where natural coastal protection processes could be stimulated and control of illegal sand extraction activities. In some

cases the policy option of managed re-alignment also has to be considered. Without measures that work with, rather than against, natural processes, it is forecast that the coastline will retreat to such an extent that salt water will not only intrude into the Aveiro lagoon – one of the finest, most extensive wetlands in Portugal – but also the surrounding agricultural lands.



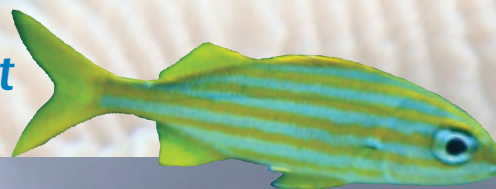
Banda Aceh northern shore before (June 23) and after (December 28) the tsunami of December 2004, (Photos UNEP)





# The Benefits of ICM:

## (c) Restoring the loss of natural habitat



Many countries have been driven to introduce ICM because of warning signs that their classical approach to coastal management is causing a rapid loss of biodiversity in their coastal regions.

### Marine Protected Areas

The 260 km long Belize Barrier Reef is the largest barrier reef in the Western Hemisphere. It consists of diverse coral reef ecosystems as well as extensive mangroves and sea-grass beds. When the reefs started to die as a result of pollution from sewage and fertilisers, while fishermen over-fished and depleted lobster and conch populations and tourists damaged and destroyed the reef

with their activities, the government decided to act. ICM was used as a means of introducing Marine Protected Areas (MPAs) to protect the reef system. The idea was to stop all extractive uses, protect certain vulnerable species or locally prohibit specific kinds of fishing. So far, Belize has named fourteen marine protected areas and the Belize barrier reef has been designated as a World Heritage Site. This protection has not only helped in the conservation of the coral reef but has enhanced fish productivity - benefiting the fisheries industry - and increased opportunities for nature-based tourism. As Nature Parks, the reefs are now generating much-needed income and becoming profitable.

The Republic of Palau has also used MPAs to protect its reef system. Their experience is that protecting the biodiversity in this way also preserves their traditional and cultural heritage, provides for sustainable subsistence and commercial fisheries, and offers high quality tourism and recreational activities.

In the Baltic Sea, there are 62 Protected Areas designated under the auspices of the Helsinki Convention (HELCOM). This is because over 80% of all biotopes in a surveyed area have been rated by experts as endangered, with 15% classified as "heavily endangered". Despite the low number of typical marine species, the Baltic Sea hosts a unique variety of plants, animals and





micro-organisms that are specially adapted to its brackish-water environment. Its unique ecosystems and biotopes also serve as vital breeding grounds, nurseries, shelters and food sources for many aquatic and terrestrial species.

#### Specialized ICM agencies

A different approach has been taken in Barbados, where scientific studies in the late 1970's and early 1980's raised a red flag with respect to the loss of coastal water biodiversity as a result of pollution and an unstable coastline. The government of Barbados embarked on an ambitious Coastal Conservation Programme which extended along the entire coastline. In 1995, it set up a specialized, statutory Coastal Zone Management Unit, with the long-term objective of developing and implementing a Coastal Zone Management Plan for the island.

The deterioration of Chilika Lagoon in India was countered by the setting up of the – non-statutory – Chilika Development Authority (CDA) by the regional government. It was mandated to restore the lagoon ecosystem and promote wise use of the natural resources through integrated management and community participation. It also had responsibility for research, assessment and monitoring of both the lagoon and the catchment areas and was required to link with various state institutions and non-governmental organisations to improve integrated management. Within just a few years, the lagoon was flourishing again.

Barbados landscape, coral and fish (Photos Coastal Zone Management Unit, Barbados)  
Hawksbill turtle (Photo: Stephen Frink)





# What is needed?

## (a) Political leadership



Quinta do lago, Portugal, above and below (Photos: René van Rossum)

**Strong political leadership is an absolute must if ICM is to be successfully implemented.**

The examples of Barbados, Palau, Portugal and Lithuania all involved strong government intervention which, with appropriate instruments and institutes in place, meant that policies could

be brought into force and implemented. This may be self-evident but most national governments have a number of priority issues with which they have to deal. ICM is rarely seen as an activity that will help generate a sound economy and create jobs. Governments, in general, tend to put such considerations above environmental ones, and many coastal issues are often of a conflicting nature. This situation is exacerbated in developing countries, particularly those in debt. Economic plans are often perceived to be in competition with ecological ones, even when economic development (e.g. tourism) may actually depend upon the conservation of the environment.

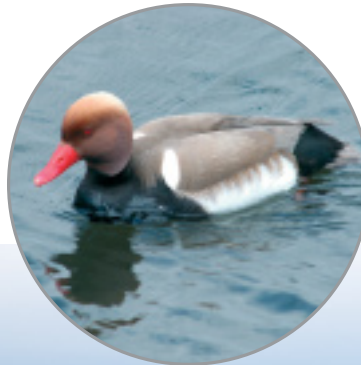
The Barbados example also shows that ICM may take a long time to produce results. It is generally recognised that successful implementation of ICM takes 10 – 15 years; the example from Barbados took nearly twice this long. Most government decisions, however, are based on 4 – 5 year election cycles, and little attention is paid to longer term issues like ICM despite the long-term gains from sustainable resource management. Changing leadership during election cycles sometimes also has the tendency to change the focus of long term resource management programmes.

For ICM to be successful, it is vital that politicians and senior policy makers develop and plan long-term management strategies of their coastal resources. The commitment and full involvement of all levels of government is essential for the initiation of ICM: without this political leadership it will be extremely difficult.

Little Egret



Red-crested Pochard



Greenshank



Little Bittern





# What is needed?

## (b) Adequate funding

Adequate funding of programmes, which may need to run for 15 years or longer, is an absolute necessity if they are to be successful. Although this may sound self-evident, it is generally not the norm. The flood protection scheme in the Delta region of the Netherlands, which started over 50 years ago and is still being funded today, is exemplary in this respect. However, it is the exception rather than the rule.

The EU's own Demonstration Programme is a much more typical example, with funding provided for short-term periods only. The Programme was set up to last three years, and in only two or three cases was the project able to survive following completion of the programme. In Dorset, the ICM initiative begun in 1993 flourished because regional financial structures were put into place which allowed it to continue to develop. This it did through the Dorset Coast Forum, a permanent, non-statutory discussion platform with representatives from a host of stakeholders including key funding organisations. This Forum has been key in the development of a long term strategy (to 2050) and has provided a mechanism which can help address otherwise politically difficult, sectoral questions. Ultimately, short-term projects need to be replaced by long-term programmes.

In many cases funding is not consistent with the needs of ICM. Whereas in Western Europe the complaint is inevitably that not enough funds are available for implementation, in developing countries there can often be too much money directed towards ICM. The level of investment there is not always appropriate for the work required. Part of the reason for this is that the World Bank and the Global Environmental Facility (GEF), because of their operational nature, refuse to fund small and flexible programmatic approaches, in spite of calls from NGOs (including EUCC) to do so. Yet their demands for large scale projects are



out of balance with the capacities of the countries they are supposedly helping. In order to be economically worthwhile, they need to fund at the multi-million dollar level. In Eastern Europe, some countries have been unable to cope with ICM at this level of funding, leading to contracts not being fulfilled and funds being withdrawn, resulting in disbelief in ICM as an instrument.

Equally important is the fact that the funds required for implementation of ICM are a factor of 10 or 100 times the amount required to produce the initial plans. This is often not factored in at the beginning, resulting in plans being left unused on office shelves.

Donors need to take a greater responsibility when committing to help, beginning small and expanding gradually, and recognising the longer time frame required for successful ICM. Any funding programme needs to include a means of moving towards sustainable long term financing. Ultimately, no matter what the initial source of money, it will be the responsibility of the national government to make sure the bills are paid when the grants have ended.

Veerse Dam and Oosterscheldt storm surge barrier (bottom) and Brouwersdam (top) are part of the flood protection scheme Delta Plan in the Netherlands (Photos: RIKZ, NL)





# What is needed?

## (c) International cooperation



**It's a common cliché that pollution, extreme weather, marine animals and migrating birds know no borders, yet neighbouring countries sharing a common shoreline repeatedly fail to co-operate. Too often bordering states pursue their own coastal management policies completely oblivious of, or indifferent to, what their neighbours are doing.**

In the Gulf of Maine a transnational approach has been taken to conserve one of the world's most biologically productive bodies of water for the benefit of all the surrounding communities. The Gulf of Maine region supports hundreds of species of fish and shellfish and more than 18 species of marine mammals at some time during the year (including the northern right whale, the most endangered of all the marine mammals found in the region). Many species of fish, marine mammals and birds lead transboundary lives in the Gulf of Maine. Fishing fleets from around the world have harvested the abundant supply of fish, resulting in a significantly diminished resource. Incidents of oil discharges and spills harming wildlife, as well as ship-whale collisions, are commonly reported as the shipping of petroleum products continues to be an important activity in the Gulf. Increased population – more than 5 million people reside in the coastal region – and economic growth has dramatically changed the land use in the area.

All this has stressed and degraded this unique environment and is threatening its quality and sustainability.

With the goal of marine, coastal, and riverine habitat restoration, 3 US States (Maine, Massachusetts, and

New Hampshire) and 2 Canadian provinces (Nova Scotia and New Brunswick) sharing one common international boundary, agreed in 1989 to embark upon a joint integrated approach to watershed, coastal and marine management. Through a formal agreement, the five jurisdictions agreed to work cooperatively for the conservation and protection of this shared ecosystem. The Gulf of Maine regime is not legally binding, and rather than effecting compliance through regulation it provides mechanisms for building consensus and co-ordination. This has resulted in trans-boundary, harmonised environmental law, policy and management.

Since 1978, The Netherlands, Germany and Denmark have worked together under the trilateral Wadden Sea Cooperation agreement to conserve the Wadden Sea, a natural area of outstanding importance. The inter-regional cooperation was approved at ministerial level in the framework of the Trilateral cooperation in 1997, lending its actions legitimacy as well as a greater sense of importance and validity. Whilst emphasis during the first decade was on the protection of birds and seals, the second decade moved much more towards a fully integrated management approach. Its strengths lie in the clear demonstration of political will among different international and national bodies to work toward a common objective for the sustainable utilisation of a coastal sea and its associated marine and terrestrial ecosystems.

Cooperation need not only occur between nation states. In order to harmonize the approaches to, and implementation processes for, marine protected areas (MPAs) in the Northeast Atlantic and the Baltic Sea, the regional Conventions of HELCOM and OSPAR have jointly developed a detailed work programme on MPAs, including a concrete timetable for implementation until 2010. This programme was adopted and endorsed by the region's environmental ministers at the joint meeting of both Commissions in Bremen, Germany, 2003.







Knot



Eurasian Curlew



Oystercatcher



Eurasian Spoonbill

Sanderlings (Photos: René van Rossum)





# What is needed?

## (d) Relevant information and effective communication



Fisherman (Photo COMREC)

it is vital to have an effective means to communicate relevant information to the stakeholders involved in the decision-making process.

In many cases, there might also be a lack of connection between the different – national, regional and local – layers of government. Equally, there might also be a block between those agencies which are responsible for implementing different aspects of coastal management. Mis-information or lack of information can also create problems between the various decision-makers and those experiencing the problems of the coastal zone on a daily basis. Clearly, too, the various stakeholders – all with their own interests – need to be fully informed at all stages

of the planning process to enable them to reach consensus. Such vertical and horizontal information flow is not easy to achieve but without it, effective ICM will not succeed.

There is a need for decentralisation, with more involvement of local authorities who are in a better position to engage with the community. It is only through decentralised implementation that the gap between the policy goals created at the national level and the activities implemented at the local level can be narrowed. However, local management efforts should be fully supported by the national government via national policies and budgets. The institutional framework should also recognise and support co-management, and empower resource users to take part in management and to enforce regulations.

[www.coastalpractice.net](http://www.coastalpractice.net)

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Season's Greetings

**CoPraNet**  
Coastal Practice Network  
Contribution to the Establishment of a European Coastal Practitioners Network

Project part-financed by the European Union European Regional Development Fund within the INTERREG IIC Programming



The quality of the information is also of great importance. Whilst there is a substantial amount of information available concerning the coastal zone, the texts are sometimes difficult to understand, if not incomprehensible, for those who need to read them; being too technical, too scientific or too bureaucratic in style.

Clearly, effective integrated management requires coordinated actions and shared roles and responsibilities among a number of governmental and non-governmental agencies in multiple tiers of governance. Designing such a system involves the development of workable communication strategies that include articulately written information.

In Tanzania, where the coastal area of over 2300 kilometres is of critical importance to the development of the country, three levels of institutional structure have been created under the National Environment Management Council, which reports directly to the Vice-President's office. The National Steering Committee's main responsibility is to provide policy oversight and guidance on the overall activities conducted. It is comprised of the Permanent Secretary for the Environment who appoints members to the Committee and serves as its Chair. It includes three coastal district representatives; one member from the private sector, one member from non-governmental organizations; and nine members from central government. Central government representation is drawn from the ministries responsible for

lands and human settlements; fisheries; forestry; tourism; agriculture and mining. Other members are the Director General of the National Environment Management Council; the Director of Division of Environment and a representative from the ministry responsible for local government. In this way, economic opportunities are being developed for the benefit of the nation and for the coastal people, in a manner that links growth to wise management and protection of the resource base.

A different approach has been taken in Sri Lanka to manage the Muthurajawela Marsh, a coastal wetland close to Colombo, which covers an area of over 3000 ha and has a very rich biodiversity. Yet it is subject to intense and growing pressures and has been seriously degraded as a result of untreated heavy industrial and domestic waste discharge into the marsh coupled with drainage for encroaching agricultural and residential land use. To reverse the destructive consequences of human activities, a number of measures have been taken by the Sri Lankan government including a locally-based, geographically-specific planning process that allows for the comprehensive management of the natural resources with highly participatory practices and the active involvement of the local community as the main stakeholder group. It involves co-management of resources whereby government institutions and other planning agencies assume the role of facilitator, serving as 'catalysts' and helping communities to engage in resource management, as well as providing technical support.



Boats on the Hikkaduwa beach, Sri Lanka (Photo: Coastal Resources Management Project Sri Lanka)



# What is needed?

## (e) Full participation

Full participation of all stakeholders, including the general public, is considered to be a cornerstone of ICM.

One of the most successful measures to include a broad stakeholder involvement is the establishment of fora or partnerships. For most of the large estuaries in the UK - the Thames, Severn, and Mersey - as well as Morecambe Bay and the Dorset Coast, partnerships have been set up which are largely responsible, despite being non-statutory, for ICM measures. These partnerships act by providing a neutral forum for local authorities, national agencies, industry, voluntary bodies and local communities to work together for the good of the coastline. In general, these partnerships provide a framework for the management of the estuary by co-ordinating and facilitating a programme of projects. They provide the means for joint working, organisation of regular events and workshops and seeking to further the interests of local communities, local economies and the environment. When local communities are faced with national government decisions in which they have had no say, lack of understanding can quickly lead to distrust and feelings of resentment. A successful ICM programme need not necessarily have the best technical content, but it does require public approval whilst meeting the needs of a large number of stakeholders. Those who depend upon the coastal zone are often the ones most aware of its value although they may still prefer short-term exploitation.

Ultimately it is the public's attitude that determines society's response to management decisions. Efforts to protect and develop



CoPraNet workshop in Co. Down, UK (Photo: Dave McAleavy)

an area in a sustainable way can only succeed if all those who work and live in the area are committed to this objective. When it does not "buy into" the decisions taken by being actively engaged in the decision-making process, the public can often substantially delay, or even prevent, ICM initiatives. Creating public awareness and fostering public participation may mean that more time is required for decisions to be taken, but experience shows that such an approach is ultimately more cost-effective. The absence of public awareness and the loss of confidence in management decisions and the regulatory process can create enormous constraints to ICM implementation. Spatial development planning without the support of the local community may be a doomed exercise, yet there is still a widespread lack of public participation in coastal management world-wide.

Nature education, "crab dance", Sifnos Island, Greece (Photo: Nikos Chrysoyelos)





# Is ICM being implemented and is it working?

Although ICM has been recognised as the most effective management process for incorporating conservation and sustainable use of marine and coastal biodiversity aspects into the planning process, it is still not being widely implemented. It is therefore crucial to know whether and how well, or how efficiently, ICM is being put into practice and what effect such management is having on the coastal environment.

Recent work in the EU has seen the development of two Indicator Sets that allow such evaluations to be made. These indicators, together, will allow countries in Europe and elsewhere to determine the extent of their national implementation of ICM and to assess whether that progress is leading to improved sustainability of the coastal resources.

The Indicator Set to measure progress in the implementation of ICM breaks down the process into a series of successive actions which are needed to pass from a situation where no ICM is being used to one where it is being fully implemented at national, regional and local levels. This allows the trend in implementation within any one country to be compared over a period of time.

However, just measuring the progress of implementing the ICM cycle will not necessarily be indicative of how successful ICM is

in reversing the decline in Europe's coastal regions. In order to ensure that ICM is actually leading to the sustainable use of coastal resources it will also be necessary, therefore, to concurrently measure whether there has been any improvement in the state of the coast. Only then can it be stated with any degree of certainty that enhanced implementation of ICM is leading towards local, regional and national sustainability. An Indicator Set to measure sustainable development of the coastal zone has therefore also been developed and will show, over time, whether there has in fact been a move towards sustainability of coastal ecosystems and biodiversity and within coastal communities.

These two indicator sets – one measuring progress and one measuring sustainable development of the coastal zone – are inextricably linked and their use should be seen as part of the overall coastal management process. Used together, they can give an indication of the degree to which the implementation of ICM is correlated with a more sustainable coast. That is, decisions using an integrated approach should lead to a positive improvement in the state of the coast with concomitant progress towards sustainable development and increased or *status quo* biodiversity values. The indicators measuring sustainable development will in turn provide the necessary feedback to give policymakers an indication of the need for further action in ICM.

Tavira, Portugal  
(Photo: Dave McAleavy)





# How can ICM help us in the future?

## Off-shore wind farms

Increasingly, off-shore wind-energy is being seen as a major resource that can diminish our reliance on traditional, unsustainable forms of energy like oil and coal. ICM offers the only really practical means of integrating windmill farms with all the other multi-uses of coastal and open-sea waters.

Germany's wind power industry is forging ahead with some of the first marine wind parks in the North Sea and Baltic Sea as opposition to land-based wind parks is growing from various quarters, including a tourism sector worried about Germany's scenic landscapes. At the moment there are 30 off-shore project applications, some for parks with more than 100 turbines, and the first are likely to be built in 2006. Some of the biggest windmills ever to be built - 183 m high - would be located in open sea as far as 45 kilometres offshore, a feat never before attempted. Since the wind is stronger at sea, the energy potential is relatively attractive. With opposition already mounting, floating windmills are being designed which can be re-located and which require no sea-bed drilling.

The approval procedure takes into account regulations concerning the exploitation of resources as well as vessel traffic routing and risk of shipping accidents. In addition, the interests of environmental protection, fisheries, the German Navy and those of the operators of submarine cables and pipelines are considered. Developments are not allowed in shipping lanes, National Parks and marine areas under nature protection schemes. In contrast, the first wind mills and wind parks in the UK and The Netherlands are (and will be) located much nearer to the shore, in more sensitive coastal waters and impacting the free horizon at sea.

## Sediment and Space for sustainability

The EUROSION study (2004) has shown that all European coastal states are to some extent affected by coastal erosion. About 20,000 km (or 20%) of coastline face serious impacts and some 15 km<sup>2</sup>/year are lost or badly affected. Over the past century, limited knowledge of coastal sediment transport processes at local authority levels has often resulted in inappropriate measures being taken to mitigate coastal erosion. In many cases a course of action may have solved coastal erosion locally but has almost certainly exacerbated problems at other locations – up to tens of kilometres away – or generated other environmental problems. In 2001, about 7600 kilometres of coastline were under coastal erosion mitigation schemes using both permanent concrete and rock constructions to "fix" the coastline – seawalls, groynes, detached breakwaters or revetments – and soft engineering techniques – e.g. sand nourishment.



(Photo: René van Rossum)

Sand nourishment, Scheveningen, NL (Photo: Robert Steenberg)





Now a new approach to address coastal erosion is emerging which consists of abandoning lands at risk and relocating the assets further inland. This has been stimulated by the EC's EuroSION project, which paid particular attention to the mitigation of erosion in an ICM context. Such an approach has been implemented in the UK (Essex and Sussex) and France (Criel sur Mer). Here, the cost of traditional protection would have largely exceeded the value of assets to be protected in the long term (over the life expectancy of the assets), making managed realignment a more reasonable option from an economic point of view. Furthermore, managed realignment may constitute a sound environmental solution as cliff erosion is not stopped and continues to provide sediments further down-drift. Former piecemeal responses to coastal erosion have been replaced by pro-active measures based upon an ICM approach.

**Environmental costing**

Over the years, there has been a failure to appreciate the real, though often intangible, economic value of natural coastal resources in competing free-market economies. Economic development normally prevails when management decisions are made, highlighting the lack of awareness of the value of natural resources, and how much sustainable economic development depends on a healthy environment. Yet figures published by independent auditors show the environmental services of the coastline of Europe as a whole, in terms of positive environmental benefits, would have a value of around \$240 billion each year.

Elsewhere, economic valuations have provided some surprising results which have encouraged the undertaking of conservation measures. In an effort to introduce integrated management of Muthurajawela Marsh, the Sri Lankan government used economic arguments to justify why it should remain "simply" a marsh. It was calculated in 2003 that the monetary worth of the wetland area was over \$7.5 million per year in both direct and indirect benefits. This translates into an annual average worth of \$250 per person in an area where rank poverty is the norm and salaries may be 10 times less than this amount. While coastal areas should not be conserved and managed based solely on their economic values, their worth in monetary terms can provide a compelling argument for their conservation.

Coastal erosion world wide:



Maceda, Portugal (Photo: A. Mota Lopes)



Colombo-Dickovita, Sri Lanka (Photo: Coastal Resources Management Project Sri Lanka)



Furadoura, Portugal (Photo: A. Mota Lopes)

Ameland, the Netherlands (Photo: Natuurcentrum Ameland)





# River Basin Management



Cormorant in Oder Delta (Photo: Bert Verver)

**Recent work in the German-Polish Oder delta has shown that the major issues in this coastal region reflect the growing need for both coastal area and river basin cooperation and management.**

This is because many of the problems are caused by the interaction between the Oder river and the Oder delta. Intensive agriculture, industries and cities far from the coast cause heavy pollution which directly or indirectly reaches the Oder river. As the river flows into the lagoon carrying these pollutants, it causes hypertrophic, degraded waters which in turn affects fisheries resources. In the other direction, the land can flood when strong, on-shore northerly winds drive storm water levels up to a metre high land-inwards. Backwater pushes the saline water tens of kilometres up the river, beyond Szczecin, until it eventually bursts its banks. It is mainly the coast that suffers from activities along the river since the river basin is extensive and the downstream coastal area very small by comparison.

This should come as no surprise, since the coastal area is a natural component of the whole river system from the source to the sea. This link between river and sea has been recognized in new European legislation. The Water Framework Directive calls for comprehensive water management planning and all Member States must produce river basin management plans, stretching into marine waters, before 2010.

River Basin Management inter-links two schools of water planning: River Water Management and ICZM. It is not a new management concept, but rather a process of linking the management activities in the river basin and the coastal zone, although only where linked issues make this necessary and appropriate. While the two management approaches have developed more or less separately, the situation of the real world calls for the creation of much closer links.

Halting the destruction of coastal areas cannot be realised only through an integrated management approach that looks solely at the coastal zone. In Texas, the shrimpers demanded that more fresh water be allowed to flow to the Gulf of Mexico to allow their fishery to recover. The river authorities responded and the Texan shrimp industry is now back on its feet and, once again, giving good harvests. At the other extreme, virtually no river water at all reaches the coastal estuaries fed by the Colorado River in the USA and the Yellow River in China, with the result that both estuaries are now ecologically dead.

Future management of the coast must also acknowledge the role of the rivers and their catchments such that the appropriate measures are taken.

Oder Delta (Photo: EUCC-Poland)





# And what do the **CoPraNet** partners think?

## **Sefton Metropolitan Borough Council (UK):**

*"The coastal policies for Regional Spatial Strategy were amended to include reference to the EU ICZM Recommendation and the North West Coastal Forum is now considering using the EU ICZM Progress Indicator Set to aid development of a regional ICZM strategy, both as a direct result of awareness gained from participation in the CoPraNet".*

## **Council of Zandvoort (Netherlands):**

*"Through participation in CoPraNet our Council has received international recognition in our bid for the highest quality for people and nature-friendly tourism. This has immensely improved the image of Zandvoort and not just for tourism"*

## **Regional Development Co-ordination Commission for Central Portugal (CCDR-C):**

*"The CCDR-C is developing new strategies for the Central Region of Portugal and results from the CoPraNet are being used to develop new programmes for the coastal zone in the Central Region. It is expected that our policy instruments, like the Coastal Zone Master Plan for Central Portugal, will be improved with the experiences of CoPraNet, when its revision occurs. The experience gained by the staff of CCDR-C helps the development of the daily activities in what concerns the management of the coast."*

## **Municipality of Calvià (Spain)**

*"Through CoPraNet, we are using the QualityCoast ecolabel in the beach of Palma Nova and have extended ICM to 34 of Calvià's beaches."*

## **Instituto de Hidraulica e Recursos Hidricos (IHRH) (Portugal)**

*"For us as an Institution from a University, CoPraNet is an excellent opportunity of translating research into practice and to better inform decision makers. This will bring measurable improvements in the quality and efficiency of on-the-ground management decisions by improving the knowledge base which, in turn, will lead to better and more informed decisions".*

## **Storstrøm County Council (Denmark)**

*"Working in a County administration in Denmark and trying to realise the idea of ICM can be a lonely job. The CoPraNet network is the lifeline where we can get the right information, have contacts to others working with the coast and together to develop new ideas and methods".*

## **Rivages de France (France)**

*"More and more, the public is convinced about the preservation of our shores. Few local actors have the tools to answer to this expectation. CoPraNet is a good platform for providing the best practices through its partners' networks. Our wish is to capitalise on this experience of the 3 year project to improve the coastal management in France".*

Sifnos Island, Greece  
(Photo: Nikos Chrysoyelos)





# Be at the forefront of coastal management

A Coastal Practitioners Network (CoPraNet) has been established to bridge the gap between planners, managers and the research community throughout Europe. Building upon the EUCC network of 2750 coastal and marine experts, CoPraNet is developing and exchanging information on best practice in the coastal zone in the areas of sustainable tourism and coastal erosion and beach management. It will also serve to reduce the differences in regional coastal development by bringing together partners with many different experiences in a network embracing research, advisory and implementing organisations.

An important tool to share ICM experiences is the multilingual CoPraNet website – [www.coastalpractice.net](http://www.coastalpractice.net) – in English, Danish, Dutch, French, German, Greek, Portuguese, Spanish and Swedish.

Without such a Europe wide cooperation, it will not be possible for coastal regions and local authorities to successfully develop integrated coastal management planning approaches to lead to a sustainable economic development. Whereas currently good examples of best practice developed in a particular European region are often not introduced elsewhere because other regions are unaware of its existence, the network provides a necessary and effective means to exchange information, adapt it if necessary and then implement it.

CoPraNet wants to greatly expand the current network with Associate Partners to realize the European Commissions aim to have a European coastal practitioners network that can be fully self-supporting by the end of the CoPraNet project. Joining the expanding Coastal Practice Network will enable you to be involved in the equalisation of sustainable tourism management practices in Europe, the introduction of better coastal, environmental, management practices, and the improvement of information flow to coastal stakeholders. In short, you will be in the forefront of the implementation of coastal management throughout Europe.

If you wish to join the Coastal Practice Network, or invite your colleagues to do so, please use the online registration form at [www.coastalpractice.net](http://www.coastalpractice.net)

**Integrated coastal management?  
Yes, we *really* do have a choice.**