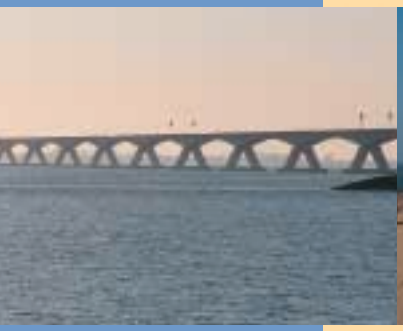
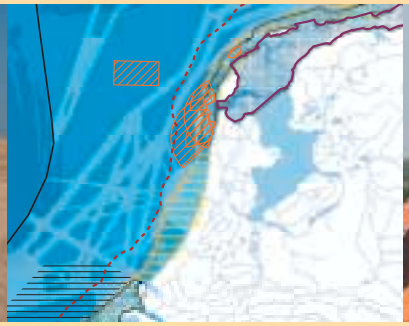
EU Recommendation concerning the Implementation of Integrated Coastal Zone Management in Europe






Report on Implementation in the Netherlands

EU Recommendation concerning the Implementation of Integrated Coastal Zone Management in Europe

Report on Implementation in the Netherlands

December 2005

Section 1

Introduction

Background to this report

This report has been produced at the request of the EU. In 2002 the European Parliament and the Council of the European Union adopted a *Recommendation concerning the Implementation of Integrated Coastal Zone Management in Europe* [2]. The Recommendation asked Member States to formulate national strategies for integrated coastal zone management (ICZM) and to report on progress in spring 2006. By complying with this EU Recommendation, the Netherlands is fulfilling a commitment made as long ago as 1992, during the UN 'Earth Summit' in Rio de Janeiro (see box on Agenda 21).

Agenda 21: integrated coastal zone management and the UN

The UN Conference on Environment and Development held in Rio de Janeiro in 1992 led to the agreement of a programme of action known as Agenda 21. In it, 178 governments committed themselves to "integrated management and sustainable development of coastal areas and the marine environment under their national jurisdiction". In practical terms, coastal states are asked to:

- provide for an integrated policy and decisionmaking process, including all involved sectors;
- identify existing and projected uses of coastal areas and their interactions;
- apply preventive and precautionary approaches in project planning and implementation;
- provide access for individuals, stakeholder groups and other organisations to relevant information and opportunities for participation in planning and decision-making.

Since then, the importance of integrated coastal zone management has been emphasised in three other international conventions (the UN Convention on Biodiversity, the UN Framework Convention on Climate Change and the UNEP Global Programme of Action for the Protection of the Marine Environment from Land-based Activities).

Reporting process

The implementation of the Recommendation has been coordinated in the Netherlands by the Ministry of Transport, Public Works and Water Management, working in close cooperation with the Ministry of Housing, Spatial Planning and the Environment, the Ministry of Economic Affairs and the Ministry of Agriculture, Nature and Food Quality, and in consultation with the coastal provinces, municipalities, water boards and civil society organisations. Consultative meetings were held to discuss the intended content and the draft document.

Contents of the report

Since this document is a progress report, its main purpose is to show the extent to which the Dutch coastal zone is being managed in an integrated and sustainable way *at the time of writing*.

To achieve this, the report adopts the system proposed in the EU Recommendation. It begins by taking stock of the current status of the Dutch coastal zone itself, using the 'sustainability indicators' formulated by an EU group of experts working together with representatives of all the Member States. Secondly, it takes stock of the organisational arrangements for coastal zone policymaking and management, and analyses the extent to which they promote integrated management. Finally, the report examines the influence of EU legislation on the current practice of coastal zone management in the Netherlands.

The report is not, therefore, intended to introduce new policies or a new strategy. However, section 4 does discuss which elements of current practice offer the best chance of making Dutch coastal zone management more integrated in character. The contents of the report are intended for the information not only of the EU and other Member States, but also of stakeholders in the Dutch coastal zone.

The European dimension

Following the Rio Earth Summit, the UN agreements on integrated coastal zone management (see box on Agenda 21) were quickly translated by the EU into a number of actions:

1994: The EU asked Member States to make greater efforts to achieve integrated coastal zone management (resolution 94/C 135/02)

1996: An ICZM demonstration programme was launched encompassing 35 projects and 6 thematic studies. Conclusion: integrated coastal zone management will eventually pay for itself, sometimes several times over.

2000: The European Commission published a position paper stressing the necessity for, and principles of, integrated coastal zone management and produced a proposal for an EU Recommendation.

2002: The Recommendation was adopted by the European Parliament and the Council of the European Union. Member States were asked to formulate national strategies and to report on them in 2006.

Definition of the coastal zone

What exactly does the coastal zone include? The EU Recommendation provides no definition and sets no limits. The Netherlands uses the definition employed in the National Spatial Strategy (2005): "the coastal sea, beach, dunes/sea dikes and the strip to landward of them which bears some functional or cultural relationship to the coast". On the seaward side, the 20-metre bathymetric line is regarded as the limit; on the landward side, limits can vary, depending on the function under consideration. From the nature conservancy point of view, the limit will often coincide with that of the dune area; where public safety is concerned, it will coincide with the flood defence zone. In the case of a function like tourism, however, the coastal zone may well be regarded as stretching far inland. Other countries use similarly flexible definitions.

The status of the Dutch coastal zone

General overview: pressure on space

The Dutch coast is largely the product of the natural processes occurring in this delta area, where the rivers Rhine, Meuse, Ems and Scheldt enter the North Sea. Whereas the inland areas of the Netherlands have been heavily influenced by polder development and other human interventions ever since the Middle Ages, it was not until the 20th century that man began to control the morphology and position of the coastline.

In the north, the coast is composed of the Wadden Islands, the intertidal area inshore of them and the diked coast of the mainland. Southwards, the provinces of North and South Holland have a coast consisting largely of areas of dunes punctuated by coastal settlements, dikes and harbours. Still further south, the coast of Zeeland is composed of dunes and dikes and so heavily influenced by the Delta Works that virtually all its tidal inlets have now been closed off by dams or semi-open barriers.

Given that much of the hinterland lies below sea level, a major function of the coast is to act as a flood defence, protecting millions of people and billions of euros of invested capital against inundation from the sea. At the same time, the coastal zone has vast economic value in its own right. Tourism is prominent along its entire length, but ports and harbours, shipping, oil and gas extraction, bulb cultivation, horticulture under glass, drinking water collection and fishing are also important

Land in the Netherlands below sea level

The coast and the protection of the hinterland

Approximately half of all the land in the Netherlands lies below sea level. However, this area accommodates more than half of the population and of the country's economic activity. These low-lying areas rely on the coastal zone (the broad areas of dunes along the coast of North and South Holland, and the dams and dikes in the Wadden Sea area and the southern Delta) to protect them against inundation from the sea. A statutory level of protection is laid down in the Flood Defence Act of 1996. In view of the expectation that climate change will lead to more rapid sea level rise, more frequent and severe coastal storms and heavier wave attack, this function of the coast is likely to become even more important in the decades to come.

functions, especially in the coastal areas of North and South Holland. The coastal zone also includes wildlife areas of international importance, not only in the delta area of Zeeland and around the Wadden Sea, but also in the coastal dunes of North and South Holland.
All these functions are in constant competition for the very limited space available in the coastal zone. Pressure on space is greater now than ever before. Coastal defences face fiercer attack by the sea, now that climate change predictions make it likely that sea levels will rise more rapidly and storms become more frequent and extreme. Space is needed to strengthen the defences now and in the future, but the same space is also being demanded by the expanding coastal settlements, which need to house their growing populations and accommodate increasing economic activity. The challenge is to use what space is available in a responsible way and to ensure that functions do not slowly squeeze each other out.

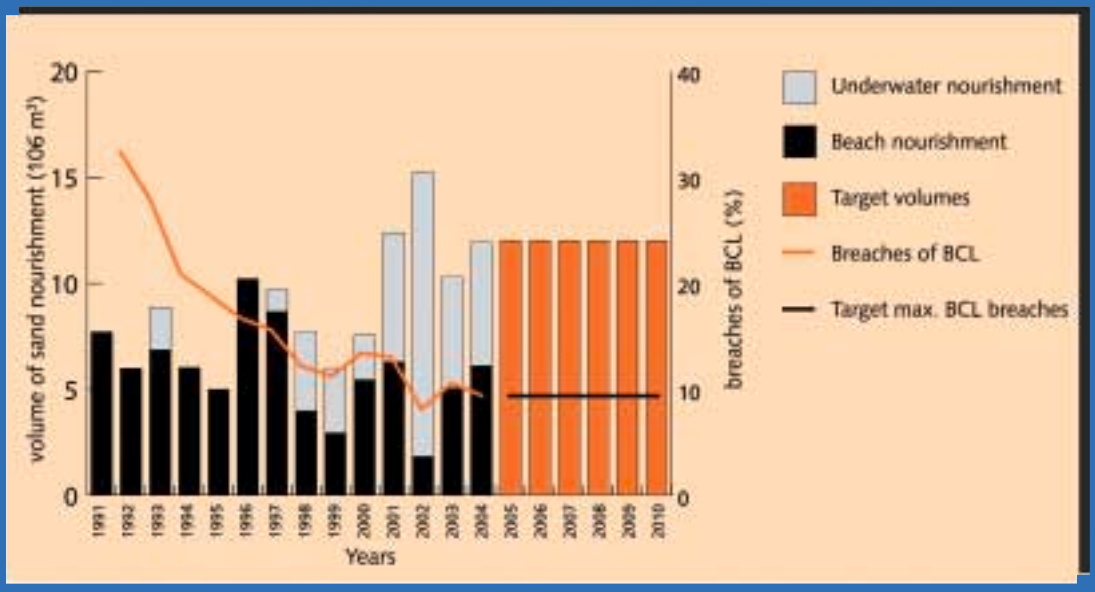
Integrated assessment

Research on the natural coastal system, the effects of human interventions *and* the possible necessity for them is nothing new. The Netherlands already has a number of long-running research programmes. However, these are still focused on individual sectors, such as sediment transport, erosion, dune growth and ecology.

To judge the sustainability of current coastal zone use, a more integrated approach is required. For the purposes of this report, the Dutch coastal zone has

Preservation of the Basal Coastline

Ever since 1990, action has been taken to halt the retreat of the Dutch coastline by means of sand nourishment. Each year, the current position of the coastline is compared with that in 1990 (known as the Basal Coastline) to determine where sand nourishment is required and what amount of sand should be added. Recent years have seen a sharp reduction in the proportion of the coast where the sea has encroached on the Basal Coastline.
Since 2001, sand nourishment has also been performed with a view to maintaining the overall availability of sand in the coastal system. This is necessary to protect the coast as a whole against erosion in the longer term. Every five years, the 'sand balance' is evaluated: the net balance of the gains and losses of all sediment transports in the coastal system. The annual nourishment programme provides for two kinds of sand nourishment: on the beach and on the underwater shoreface. Both kinds of nourishment contribute both to the dynamic preservation of the coastline and to the maintenance of overall sediment availability in the coastal system.



Sand nourishment operations since 1991 and their influence on the position of the coastline. In 2004, the number of places where the coastline had retreated from the Basal Coastline was equal to the agreed maximum of 10% of locations.

been assessed on the basis of a set of 'sustainability indicators' (see annex 1). These indicators have been developed by the group of ICZM experts set up by the European Commission and including representatives of all the EU coastal states. They give an impression not only of current land use, natural and cultural values and economic uses, but also of water quality along the coast and the vulnerability of the coastal zone to the effects of climate change [8].

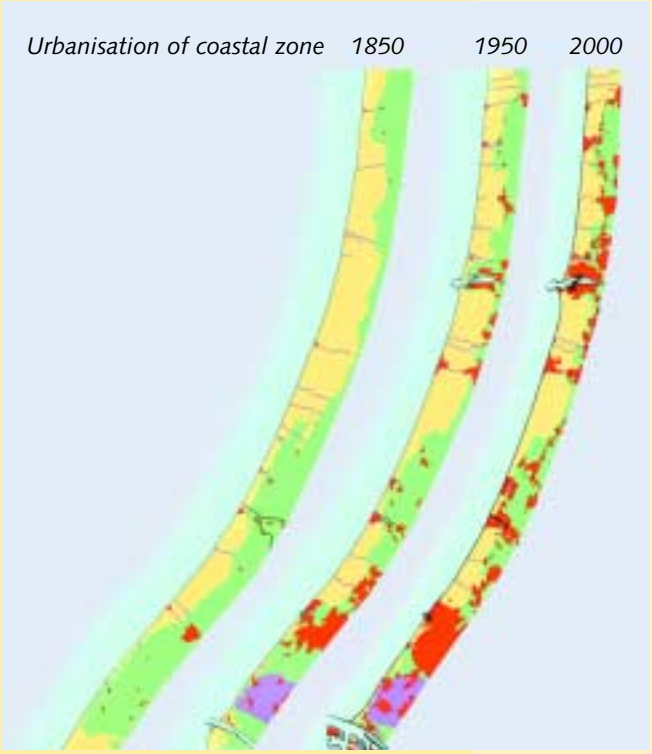
The results

In assessing the various 'scores', attention in this report focuses primarily on the extent to which the status of the coastal zone varies from that of the rest of the country. Where this is the case, specific attention may justifiably be paid to the coastal zone at national or European level.

The following description seeks to capture the status of the Dutch coast at this particular moment in time. It cannot yet be used to derive positive or negative trends for all the indicators. However, the indicators do convey a clear impression of the specific character of the coastal zone.

Built environment and population

Because of the size of the virtually uninhabited dune areas, the proportion of the coastal zone that is urbanised (10%) is smaller than that of the rest of the country (14%). In this respect, the Netherlands generally – and the Delta and Wadden Sea areas in particular – are different from other coastal zones around the southern North Sea. There, the coast is generally more densely urbanised that the hinterland (16% compared with 10%), and the urbanisation of the coast is also proceeding at a faster rate. The same is true of population density: in 2004 it averaged 400 head



of population per square kilometre in the Dutch coastal zone and 490 per square kilometre in the inland areas. Moreover, population density is increasing at a slower rate on the coast than in the rest of the Netherlands. 8

The urban areas that do exist on the Dutch coast have a major function as regards tourism and recreation. This is reflected in the price of properties: the average house price is higher on the coast than elsewhere in the Netherlands, although prices are currently rising at the same rapid pace both on the coast and inland. Many residential properties on the coast are second homes or in use for holiday lets and are therefore occupied for only part of the year. The proportion of second homes varies but is always higher on the coast than inland (on average 5%, as against 1% inland). The contrast between regions is even greater. In Friesland and North Holland the average proportion of second homes is around 8%, whereas in Zeeland it is as much as 20%. In some municipalities, figures as high as 80% have been recorded. 8

Economic activity and the environment

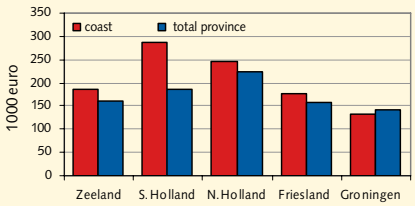
Other indicators show that tourism and recreation have a heavy influence both on the socioeconomic status of the coastal zone and on the environment.

Tourism is a mainspring of the tertiary sector of the economy (trade and services). The average number of tourist nights in coastal municipalities is as much as seven times that in inland municipalities. In terms of absolute numbers, multi-day tourism on the coast actually exceeds that in the four main cities in the Netherlands. Inevitably,

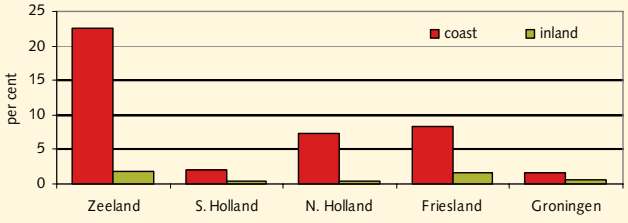
Indicators

Since the Earth Summit in Rio, a range of organisations (not just the UN and the World Bank, but also various national institutions) have developed hundreds of different indicators for monitoring the progress of integrated coastal zone management. In 2002, the EU group of experts on integrated coastal zone management selected a set of indicators which they expected to be relevant and useful to the Member States. It is composed of two different sub-sets: progress indicators ('how are policies and management coordinated and how integrated are they?') and sustainability indicators which can be used to assess the status of the coastal zone itself (including factors like land use, natural and cultural values, water quality and vulnerability to climate change). For a list of all the indicators, see annexes 1 and 2.

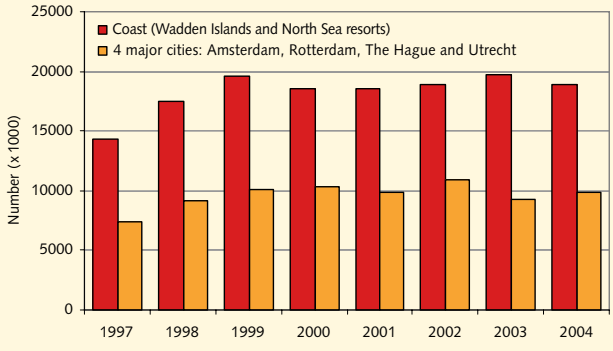
Average house prices in the coastal provinces, 2005



Proportion of second homes – coastal provinces, 2004



Tourist nights in the Netherlands



this has major consequences for the social networks of the coastal population, especially in places where the population is small anyway. Particularly in the Wadden Sea and Delta areas, the ratio of visitors to permanent members of the population is extremely high during the tourist season. For every permanent resident of the Wadden Sea area, there are 260 tourist nights each year. Figures in the same order of magnitude have been recorded for some coastal municipalities in Zeeland. [8]

In order to service the vastly inflated population during the tourist season without undue risk to public health or pressure on the environment, coastal municipalities have to invest extra resources in infrastructure and services (waste disposal, water supply, health care and recreation). To relieve the pressure, most Dutch coastal municipalities are now aiming to improve the quality rather than increase the quantity of their tourist facilities. In 2004, for example, 152 establishments providing tourist accommodation in de Dutch coastal provinces were awarded an international eco-label. Zeeland is particularly outstanding in this respect as compared with other coastal areas around the southern part of the North Sea, partly because campsites in the province have also been brought into this high-quality segment of the market. [8]

The increasing number of 'Blue Flag' beaches and marinas shows that the quality of inshore water is gradually improving.

Within the EU, the Netherlands has the second highest score for compliance with the Framework Directive guide value for bathing water quality. [8]

Significance and future use of indicators

Although the specific character of the coastal zone is clear from this initial stock-taking, the findings should be interpreted with a degree of caution. The differences between the individual coastal provinces are frequently greater than those between the coast and inland areas. For example, there are huge differences between the more heavily urbanised and inhabited coast of North and South Holland and the emptier and more natural coastal areas in the north of the country.

The set of indicators is, of course, open to improvement. For example, flood protection is not included in this set of sustainability indicators, but is regularly assessed in the Netherlands on the basis of careful monitoring of the coastline and other information (see box on Preservation of the Basal Coastline on page 6). In selecting a set of indicators for future use, the availability of the necessary information will be an important criterion. Whether or not identical to the present set, the chosen indicators can provide the basis for a regular national reporting system, based so far as possible on data which are simple to collect.

Organisation of coastal zone management and policy

Many management authorities

The Dutch coastal zone is managed by a multitude of public and private-sector bodies. Management authorities are frequently responsible for more than one function. For example, nature management in large sections of the dunes is in the hands of authorities whose primary task is the collection of drinking water. Rijkswaterstaat (the Directorate-General for Public Works and Water Management) is responsible both for the management of the North Sea and for the maintenance of the coastline. The water boards, under the supervision of the provinces, manage the coastal defences that protect the hinterland against flooding from the sea. Municipalities and provinces are responsible for spatial zoning to protect the interests of the various functions of the coastal zone.

As the EU Recommendation requests, a national stocktaking has been conducted to see how Dutch coastal zone policy and management are currently organised and to what extent these arrangements favour integrated management (or the opposite). The results of the stocktaking show that policy and management are organised in a number of different networks – some sectoral, others area-based – and that the content of the different policy frameworks is well coordinated. As a result, management has already become more integrated over recent years.

Organisation of coastal zone management

In view of the large number of parties involved, it is a logical consequence that decisions on coastal zone policy and

In practice: Integrated planning studies on weak links

The flood defences along the Dutch coast exhibit a number of weak links which must be strengthened now or in the near future to maintain the statutory safety level of inland areas. To deal with these weak links, integrated planning studies are being developed. The issue is not only how to strengthen the coastal flood defences, but also how to improve the spatial quality of the areas in question. These planning studies are being developed by the relevant provincial authorities. Each province has set up a project group which includes representatives of national government and the water boards. For each planning study, there is also a local project group in which the municipality is represented. The planning studies are expected to reach completion in 2007.

Hondsbossche Zeewering, one of the weak links.

management tend to be taken in multi-stakeholder platforms and consultative committees. These are sometimes area-specific, like the provincial consultative committees on coastal affairs, which are made up of representatives of the relevant provincial authorities and sometimes also stakeholder organisations. In other cases, they are organised along sectoral lines, like the consultative committee of nature conservancy organisations in North Holland. The status of such networks varies. Some have a formal legal identity; others do not. Many are permanent, but not all. Whatever the differences between them, what stands out is the apparent ease with which authorities and stakeholders in the coastal zone manage to work together, and their unanimous intention to practise integrated coastal zone management. That said, however, it must be admitted that flood protection safety is in practice often the main concern, alongside issues like nature management and access to coastal settlements. ❹

Organisation of policy

The same pattern of (sometimes virtually automatic) cooperation can be distinguished in the development of visions and policies. National government policies for the coastal zone are developed via a process of close cooperation between all the relevant ministries. As a result, the latest government policy document on spatial planning in the Netherlands – the National Spatial Strategy of 2005 – is the first to contain specific spatial planning policies for

In practice: The Wadden Sea

The Wadden Sea enjoys a worldwide reputation as an outstanding example of international cooperation on integrated coastal zone management. The tenth *Trilateral Governmental Conference on the Protection of the Wadden Sea* took place in early November 2005. Dutch, German and Danish ministers considered a report on the potential for integrated management of the Wadden Sea drafted by the Wadden Sea Forum. The forum includes representatives of stakeholder organisations and regional and local government in all three countries. The three countries plan to work together to develop a framework for the implementation of integrated management of the Wadden Sea area. This will be coordinated with their national strategies for the implementation of integrated coastal zone management.

Marina, Schiermonnikoog, off-season.

the coastal zone. The provinces (which are the authorities responsible for translating national government policy into regional spatial plans or environment plans) are now focusing increasingly on issues like coastal flood protection, specific building policies for the coastal zone and coastal recreation. ❸

Other than the National Spatial Strategy, the Third Policy Document on Coastal Areas of 2000 is the most important policy document in relation to the coast. Coastal zone management also has to take account of a host of other policy documents and pieces of European or national legislation dealing with specific areas or sectors, but the content of all these is closely coordinated. ❺

Implementation of policy and management

Despite policy coordination, conflicts sometimes occur in the course of policy *implementation* between, for example, coastal flood protection, nature development and the economic interests of coastal settlements. Analysis has shown that the implementation of integrated coastal zone management can be facilitated by:

– creating more scope in central government policy and national legislation for approaches tailored to regional circumstances;
– offering regional parties more concrete opportunities to coordinate action themselves and to provide integrated funding;
– factoring socio-economic aspects fully into decisionmaking. ❺

Observance of principles of integrated coastal zone management

The EU Recommendation lists eight general principles of proper integrated coastal zone management. The stocktaking considered the extent to which these principles are already being observed in practice in the Netherlands.

An analysis of five sample projects revealed that, although the principles had not been consciously discussed, they had been observed in practice. Those involved in the projects said that, in practice, integrated coastal zone policy was never an aim in itself; projects were born of specific problems requiring solution. The aim was often to produce an integrated solution and projects frequently addressed a number of different functions and interests. But none of the sample projects addressed *all* of the

Overview of policy development

1990: The First Policy Document on Coastal Areas (*Eerste Kustnota*) aimed to achieve sustainable flood protection and sustainable preservation of functions in the dune areas. Thanks to this policy document, the coastline was preserved and more space was created in broad areas of dunes for natural processes like sand drift and the development of tidal gullies.

1995: The Second Policy Document on Coastal Areas (*Tweede Kustnota*) endorsed the existing approach.

1996: The Flood Defence Act (*Wet op de Waterkering*) provided a statutory basis for the preservation of the coastline.

1998: The Fourth National Policy Document on Water Management (*Vierde Nota Waterhuishouding or NW4*) argued for resilient water systems.

1999: The preparatory interministerial study A Coastal Zone Perspective (*Kust op Koers*) explored the long-term policy issues for coastal areas: robust dunes, the maintenance of sediment availability and the quality of coastal settlements.

2000: The Third Policy Document on Coastal Areas (*Derde Kustnota*) translated the NW4 aim of 'more resilient water systems' to the coastal zone. The document recognised the existence of 'weak links' in the coastal flood defences (see page 11) and the risk of increasing storm damage in seafront settlements.

2000: Nature for People, People for Nature (*Natuur voor mensen, mensen voor natuur*) policy document argued for a more dynamic coast, with more room for natural processes and for a restoration of the estuarine character of the Dutch coast.

2002: The interministerial policy agenda Towards an Integrated Coastal Zone Policy in the Netherlands (*Naar integraal kustzonebeleid*) formulated the choices necessary to achieve integrated coastal zone policy, guarantee a sustainable coastal foundation zone and increase national awareness of the importance of the coast.

2005: Policy on coastal areas was included in the National Spatial Strategy (*Nota Ruimte*), an integrated policy document on spatial planning in the Netherlands.

sectors specified in the Recommendation. They tended, for example, virtually to ignore fisheries, industry and mining, and education, while concentrating on tourism and recreation, flood protection and wildlife.

Too abstract

As well as sustainability indicators (see section 2), the EU group of experts also produced a set of progress indicators designed to show the degree of integration being achieved in coastal zone policy and management (see annex 2). In the course of the analysis described above, these progress indicators were found to have been formulated in too abstract a way to permit them to be used to produce a clear assessment of existing projects. However, some interviewees did say that the indicators had prompted them to cast a critical eye over their own projects.

The eight principles of integrated coastal zone management suffer from the same problem: they proved to be too abstract to be really useful in assessing existing projects. In the case of a number of them, an additional problem is that area-specific knowledge is necessary to decide how to apply them. Even so, it is certainly useful to have an explicit discussion of the principles, especially at the start of a project. Doing so will help those involved to make more conscious choices as regards both content and process.

In practice: Restoration of saline gradients

Over the last fifty years, almost half of the Dutch coast's natural transitional zone between salt and fresh water – saltmarshes, mud flats and intertidal areas – has been lost. Dike construction, polder development and action to secure supplies of fresh water for agriculture and human consumption have been regarded as more important to the safety and development of the country than the natural values of these areas. In various places along the Dutch coast, however, the gradual transition between salt and freshwater environments is now making a comeback as polders are being returned to the sea and the development of tidal marshes is being encouraged. This not only allows valuable wildlife to return, it also makes the coastal zone more robust, productive and safe, and therefore better able to support all its functions. In 2004, the restoration of salinity gradients was made an official part of national government policy when the Ministry of Agriculture, Nature and Food Quality issued its Agenda for a Living Countryside (*Agenda Vitaal Platteland*). The Ministry of Housing, Spatial Planning and the Environment and the Ministry of Transport, Public Works and Water Management also subscribe to this policy aim.

Principles of integrated management

A *holistic perspective* that takes account of the (thematic and geographical) interdependency and diversity of natural systems and human activities relevant to coastal zones.

A *long-term perspective* that takes account of the precautionary principle and the needs of present and future generations.

An *adaptive management* approach to gradual processes, facilitating adjustments to keep pace with developments both in the problems themselves and in the knowledge concerning them. This implies the need for a solid scientific basis for the development of the coastal zone.

Recognition of the *local specificity* and great diversity of European coastal zones, so that specific solutions can be found and flexible measures taken to meet their concrete needs.

Using *natural processes* and respecting the carrying capacity of ecosystems, so that human activities can eventually become more environmentally friendly, socially responsible and economically sustainable.

Ensuring the *participation of all stakeholders* (economic and social partners, organisations representing the inhabitants of coastal zones, NGOs and industry) in the management process, for example by means of agreements and on the basis of shared responsibility.

Support and involvement of *all relevant administrative bodies* at national, regional and local level, with appropriate contacts being established or maintained between them in order to improve the coordination of existing policy measures. Partnerships should be made with and between regional and local authorities wherever appropriate.

Use of a *combination of instruments* designed to facilitate integration between the various sectoral policy objectives on the one hand and between spatial planning and coastal zone management on the other.

A strategy for integrated coastal zone management

The Recommendation asks all EU Member States to develop a strategy (or strategies) for the implementation of integrated coastal zone management. The Netherlands has decided not to develop a *separate* strategy for this purpose, but to make use of two existing building blocks:

— the National Spatial Strategy, which establishes a national strategy for integrated spatial planning policies generally;
— the Third Policy Document on Coastal Areas, which provides an integrated framework for coastal zone management and policies on coastal areas.

Strategy: Decentralise wherever possible, centralise only where necessary

The basic principle of the National Spatial Strategy is that the implementation of spatial policy should be decentralised wherever possible and centralised only where necessary. For the coastal zone as elsewhere, this means that a regional and local approach is to be taken to policy implementation and management, within the framework set by national government.

The underlying idea is that, if national government provides overall guidance but desists from more detailed control, other tiers of government will be able to take more responsibility and perform better. They will have more scope to work with other authorities, civil society organisations and local residents and businesses to devise effective solutions, exploit opportunities and adopt an approach tailored to local circumstances ❼. For example, they will be free to do justice to the differences between the Wadden Sea area, the coast of North and South Holland, and Zeeland.

This philosophy demands a new (but still active) attitude on the part of national government: it will impose fewer rules, but do more to help other authorities, for example through knowledge transfer to enable them to develop their own policies or implement policies independently. Vulnerable functions will, of course, always require a degree of central regulation and financial support from national government. But where functions no longer require such financial assistance, national government will reduce its regulatory activity and allow market forces to play a greater role. ❼

However, some things cannot be dealt with in a decentralised way. Certain coastal interests are of national importance: these include not just the safety of the hinterland, but also the protection of nature and landscape values. For this reason, the coastal zone has been made part of the National Spatial Structure (*Nationale Ruimtelijke Hoofdstructuur* or *RHS*) desig-

In practice: Decentralisation of spatial policy

In the Netherlands, the implementation of many different areas of government policy is increasingly being left to sub-national authorities. One such area is spatial policy. National government is now pursuing its policy objectives by encouraging the desired developments rather than by imposing restrictions and enforcing them via sanctions. One example of this approach is the Rural Areas Investment Budget. National government makes money available for the improvement of spatial quality in rural areas; to qualify for this funding, provinces have to produce coherent multi-year programmes for the implementation of national policy. This philosophy is also being applied at regional level. In Zeeland Flanders, for example, pilot projects are being run in the area of 'development planning', with government seeking to be a constructive partner for enterprising individuals and companies.

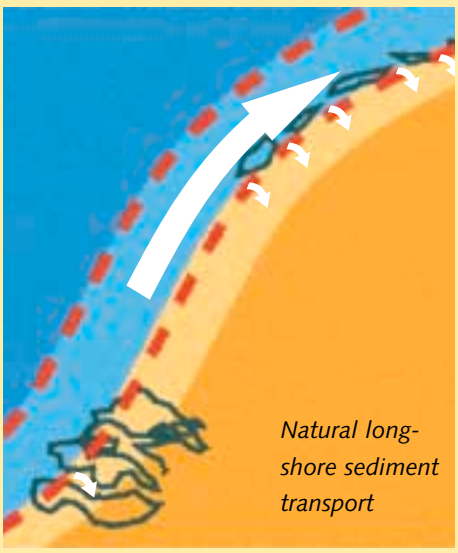
nated in the National Spatial Strategy. This means that national government will continue to be directly involved in certain concrete decisions regarding spatial development (often those connected with major investments). In such cases, the aim of national government will be "to ensure public safety from coastal flooding, while preserving features of national and international value, with area-specific identity being an important core quality". ❼ Partly for this reason, national government is taking a major hand in the planning studies on action to strengthen the weak links in the coastal flood defences. After all, these are places where both the safety of the hinterland and the quality of areas included in the National Spatial Structure are at stake.

Finally, national government is itself the authority responsible for the management of certain water bodies, such as the North Sea, for which an Integrated Management Plan (*Integraal Beheerplan Noordzee*) was issued in 2005.

Implementation of integrated management: sediment-based measures wherever possible

An important decision with implications for integrated management is to guarantee coastal flood protection so far as possible by employing sediment-based measures rather than artificial structures. The Third Policy Document on Coastal Areas sums this up with the slogan 'soft wherever possible, hard only where necessary'.

Since as far back as 1990, 'dynamic preservation' of the coast has been the credo.



Natural longshore sediment transport

This means that structural erosion is prevented by the use of regular sand nourishment. As a result, beaches are now actually broader at many points along the coast. Since 2001, erosion of the underwater shoreface has also been treated by sand nourishment. In the long term, this is the most effective way not only to ensure coastal flood protection but also to preserve the various use functions and the natural dynamism of the system. ❶ In planning a programme of sand nourishment, national government works hand in hand with provincial consultative committees on coastal affairs, which include representatives of nature and flood defence management authorities. In their day-to-day management of the coastal zone, these parties support 'dynamic preservation' by allowing sand and sediment to drift and move naturally.

The National Spatial Strategy ❼ endorses this approach and adds to it a three-step strategy for the management of the *coastal foundation zone*, which supports all the functions of the coast and in which according to the National Spatial Strategy the aim should be integrated management. The three steps in this implementation strategy are:

1. Maintaining sediment availability and enabling unhindered longshore and cross-shore sediment transport.

2. Where human intervention is necessary, achieving this so far as possible via sediment-based measures.

3. Using artificial structures to stabilise sand and sediment only as a last resort.

Public and stakeholder organisations

A major precondition of successful integrated coastal zone management is awareness of the various interests at stake in the coastal zone and a good public support base for a process of decisionmaking that seeks to strike a fair balance between them. Various stakeholder organisations around the Dutch coast play a major role in this respect. Their work is to some extent subsidised by government and ranges from organising an annual 'Week of the Sea' festival to producing a website offering educational materials (www.kustwijzer.nl) and a newsletter about the Dutch coast and the North Sea.

The same organisations also play a part in the development of policies for coastal areas and the implementation of planning studies and projects. The same is true of private-sector organisations like the Dutch nature conservancy association (*Vereniging Natuurmonumenten*) and the WWF, which sometimes have their own overarching visions for the coast and the North Sea. In the case of the Wadden Sea, stakeholder groups in the Netherlands, Germany and Denmark have even produced a transboundary vision for the implementation of integrated coastal zone management.

At regional and local level, individual members of the public and local action groups also participate in plan development, for example via information evenings and public participation meetings.

International consultation

All the coastal states in the EU face the task of developing integrated coastal zone management. Through cooperation on Interreg projects, EUROSION etc., the Netherlands and surrounding coastal states are exchanging experience. The same thing is happening via the EU group of experts, routine consultations between the North Sea states, and the annual meeting of the North Sea Coastal Managers Group.

Coastal foundation zone: Land and sea

To guarantee the future success of integrated coastal zone management, it is important that the term 'coast' should be given a broad interpretation, as it is in the National Spatial Strategy. To emphasise that the coast is a single dynamic system within which functions are interdependent and coherent management is a necessity, the Strategy document defines a 'coastal foundation' zone. This encompasses the entire area of sand and sediment, above and below the waterline, that supports functions in the coastal zone. National government is responsible for ensuring that sufficient space is reserved in the coastal foundation zone, now and in the future, for any reinforcement of the coastal flood defences that may be necessary to guarantee the long-term safety of the public. On the seaward side, the coastal foundation zone extends down to the 20-metre bathymetric line. On the landward side, it includes all the dune areas and the hard coastal flood defence structures built on them. In the case of dikes and narrow strips of dunes, the landward edge of the zone coincides with that of the flood defences, plus the extra space reserved to take account of the expected rises in sea level over the next two hundred years. Where the strip of dunes is wider than the flood defences, the zone extends in practice to the landward edge of areas protected under the Nature Protection Act (*Natuurbeschermingswet*), the National Ecological Network (*Ecologische Hoofdstructuur*) and the EU Birds and Habitats Directives. The provinces and municipalities determine the formal landward demarcation of the coastal foundation zone in their regional spatial plans and local land use plans, in consultation with the authorities responsible for managing the coastal flood defences.

Measures for the implementation of the national strategy and expected effects

Because the implementation of an integrated coastal zone management strategy is closely connected with the implementation programme for the National Spatial Strategy, no new measures are being identified for it. Regular evaluation on the basis of the sustainability indicators should be sufficient to monitor the efficacy of this approach. The trends identified in section 2 are expected to continue over the next few years.

In practice: Long-term vision for the Scheldt Estuary

In 2000, the Netherlands and Flanders adopted a joint vision for the management of the Scheldt estuary in the period through to 2030. The document addresses various functions: access to the Scheldt ports (in particular Antwerp), flood protection and nature conservation (the dynamic system of multiple channels and the existing estuarine habitats and species). It has since been translated into measures for the next five years. Planning procedures are under way with a view to widening the fairway and implementing nature development and flood prevention projects, based in part on the principle of allowing more 'room for the river'. In addition, the Netherlands and Flanders have agreed that all future decisions must be supported by a joint programme of long-term research and monitoring. For instance, work is being done on a joint assessment framework, information management, models for sediment transport and the changing morphology of the estuary, and clear-cut habitat criteria for estuarine fish species.

Integrated Management Plan for the North Sea through to 2015

In 2005, national government produced an integrated management plan for the North Sea (*Integraal Beheerplan Noordzee*). This provides an overview of all national and international policies for the North Sea, and of the consequences of these policies for the management of the North Sea over the next ten years. The aim of the management plan is "a healthy, safe and productive sea". According to the plan, the North Sea provides sufficient capacity for the parallel development of the various functions over the next ten years. National government is to regulate development by issuing permits on the basis of an integrated assessment framework. The plan also identifies several areas of special ecological interest, including parts of Dutch coastal waters. There are to be special nature conservation measures in these areas and the Netherlands also intends to seek an international basis for this protection (within the EU and OSPAR).

EUROSION

Erosion is one of the greatest threats to European coasts. The main factors are advancing urbanisation, declining sediment availability and the shrinking size of nature conservation areas. In 2004 the EUROSION project concluded that human interventions often have an unnecessarily severe impact on the coastline because designs fail to take sufficient account of the extra erosion likely to be caused. And where account *is* taken of erosion, the time horizons and topographical scales employed are so limited that any 'solutions' merely transfer the problem elsewhere. EUROSION produced four recommendations:

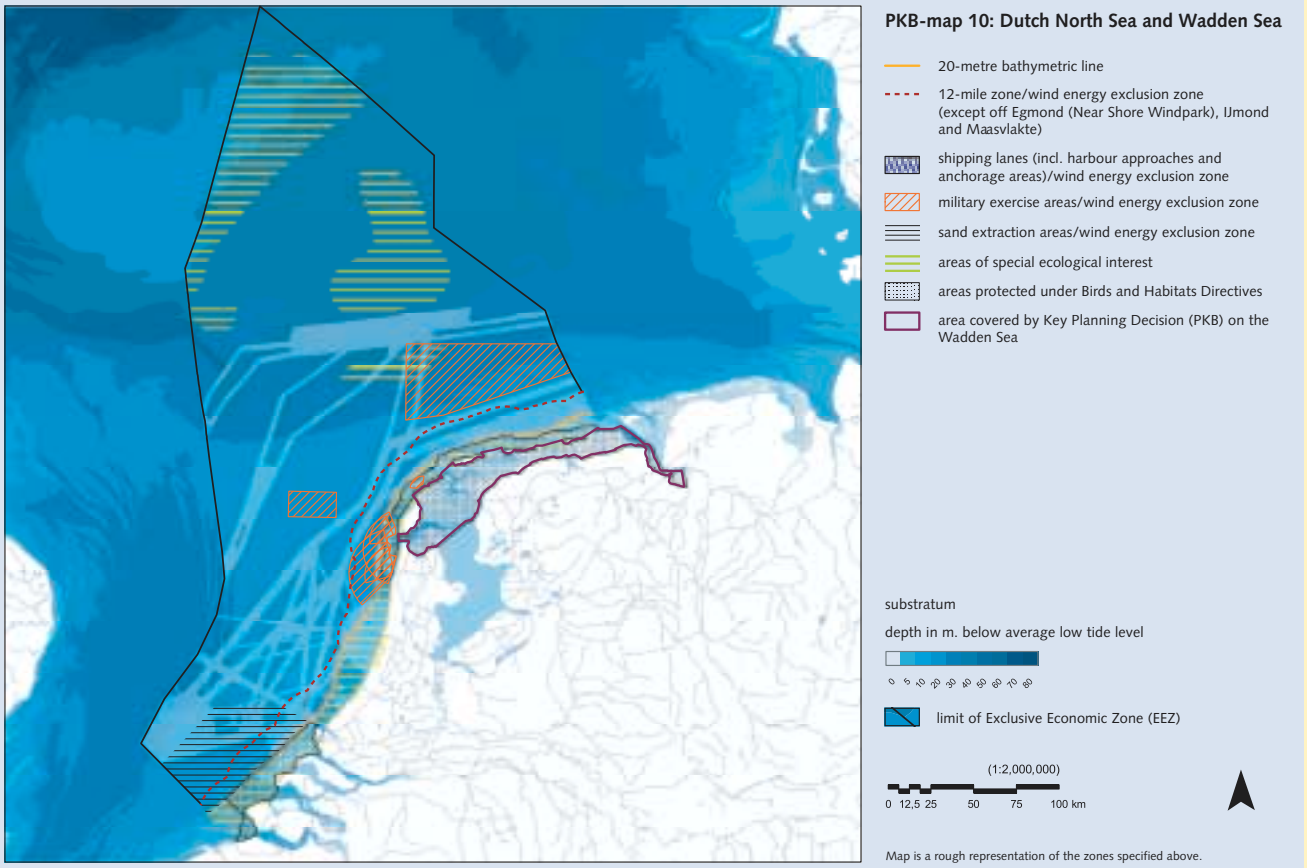
— to secure the resilience of the coast and strengthen the related knowledge base;

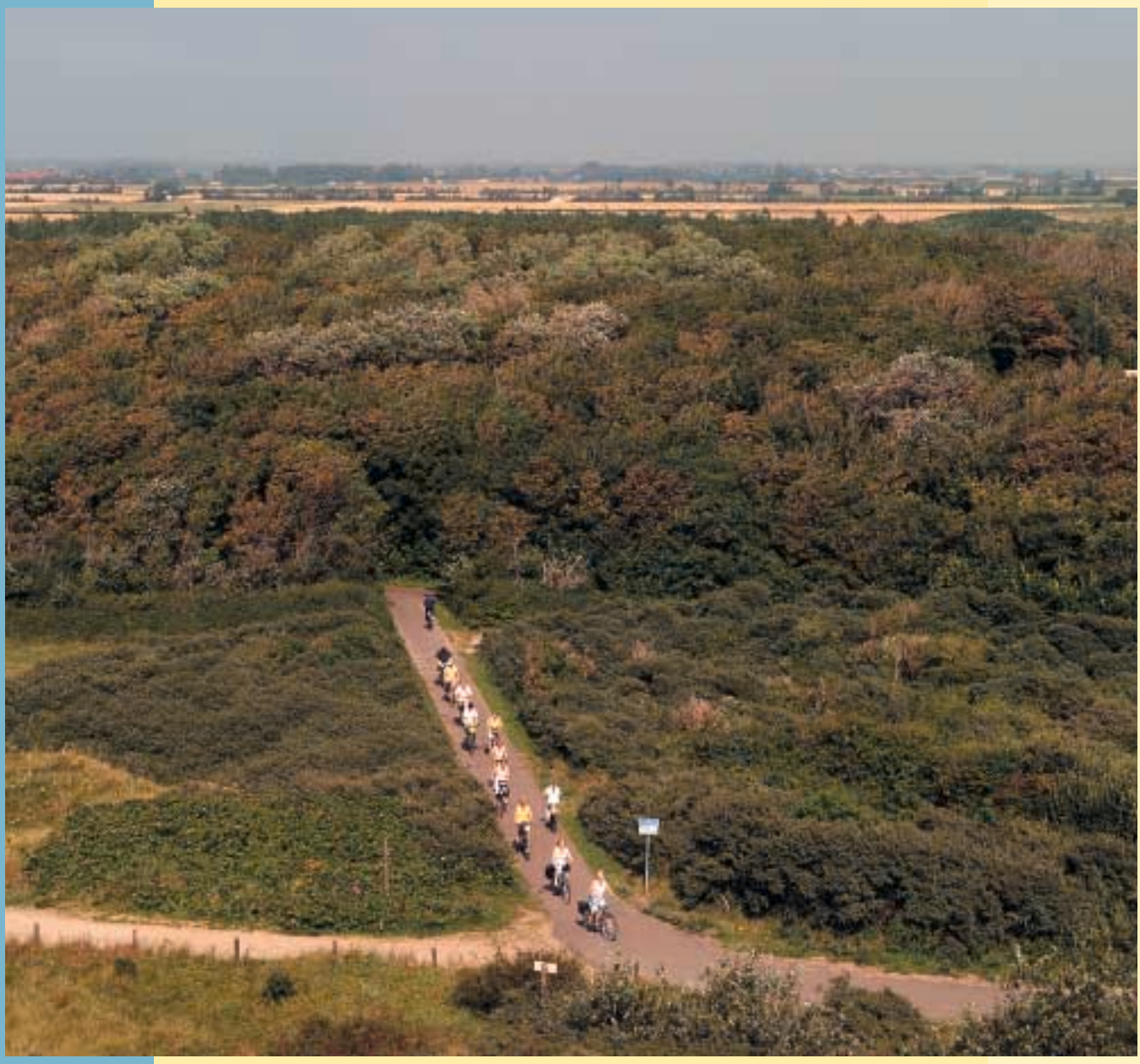
— in the case of planned interventions, to identify who is responsible for what and who is to bear any risks involved;

— to ensure a fair distribution of rights and responsibilities in this respect;

— to increase understanding and knowledge of erosion via up-to-date data systems.

National Spatial Strategy map showing spatial zoning of the Dutch North Sea





Interreg: International cooperation at a sub-national level

Cooperation between EU Member States is not confined to the national level. Various combinations of sub-national government authorities in the North Sea Region are working on specific aspects of integrated coastal zone management as part of the Interreg programme, which is financed by the EU Structural Fund. Projects include:

NORCOAST: planning and coastal zone management

SAIL: development of the coastal and maritime economy

COMRISK: comparison of current strategies to reduce the risk of storm floods in coastal lowlands

SAFECOAST: possible future strategies to reduce the risk of storm floods in coastal lowlands

COMCOAST: innovative solutions for flood protection in coastal zones

MESSINA: methods of cost-benefit analysis in relation to coastal erosion

TIME2C: exploring cooperation under new structural funds (2007) by sharing experience with Interreg III.

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Annex 1

SUSTAINABILITY INDICATORS for integrated coastal zone management. Produced by the European Commission.

Indicators	Measurements
1 Demand for property on the coast	– Size and proportion of the population living in the coastal zone – Value of residential property
2 Area of built-up land	– Percent of built-up land by distance from the coastline
3 Rate of development of previously undeveloped land	– Area converted from non-developed to developed land uses
4 Demand for road travel on the coast	– Volume of traffic on coastal motorways and major roads
5 Pressure for coastal and marine recreation	– Number of berths and moorings for recreational boating
6 Land take by intensive agriculture	– Proportion of agricultural land farmed intensively
7 Area of semi-natural habitat	– Area of semi-natural habitat
8 Area of land and sea protected by statutory designations	– Area protected for nature conservation, landscape and heritage
9 Effective management of designated sites	– Rate of loss of, or damage to, protected areas
10 Change to significant coastal and marine habitats and species	– Status and trend of specified habitats and species – Number of species per habitat type – Number of Red List coastal area species
11 Loss of cultural distinctiveness	– Number and value of sales of local products with regional quality labels or European PDO/PGI/TSG
12 Patterns of sectoral employment	– Full time, part time and seasonal employment per sector – Value added per sector
13 Volume of port traffic	– Number of incoming and outgoing passengers per port – Total volume of goods handled per port – Proportion of goods carried by short sea routes
14 Intensity of tourism	– Number of overnight stays in tourist accommodation – Occupancy rate of bed places
15 Sustainable tourism	– Number of tourist accommodations holding EU Eco-label – Rate of overnight stays to number of residents
16 Quality of bathing water	– Percent of bathing waters compliant with the guide value of the European Bathing Water Directive
17 Amount of coastal, estuarine and marine litter	– Volume of litter collected per given length of shoreline
18 Concentration of nutrients in coastal waters	– Riverine and direct inputs of nitrogen and phosphorous to inshore waters
19 Amount of oil pollution	– Volume of accidental oil spills – Number of observed oil slicks from aerial surveillance
20 Degree of social exclusion	– Indices of multiple deprivation by area
21 Relative household prosperity	– Average household income – Percent of population with a higher education qualification
22 Number of second homes	– Ratio of first to second homes
23 Fish stocks and fish landings	– State of the main fish stocks by species and sea area – Recruitment and spawning stock biomass by species – Landings and fish mortality by species – Value of landings by port and species
24 Water consumption	– Number of days of reduced supply
25 Sea level rise and extreme weather conditions	– Number of 'stormy days' – Rise in sea level relative to land
26 Coastal erosion and accretion	– Length of protected and defended coastline – Length of dynamic coastline – Area and volume of sand nourishment
27 Natural, human and economic assets at risk	– Number of people living within an 'at risk' zone – Area of protected sites within an 'at risk' zone – Value of economic assets within an 'at risk' zone

Annex 2

PROGRESS INDICATORS for the implementation of integrated coastal zone management. Produced by the European Commission.

Phase	Action	Description
I Laying the basis for ICZM	1	Aspects of coastal management are taking place.
	2	Decisions about planning and management on the coast are governed by general legal instruments.
	3	Aspects of the coastal zone, including marine areas, are regularly and routinely monitored.
	4	Planning on the coast includes the provision, where appropriate, for the protection of natural areas.
	5	Funding is generally available for the implementation of coastal management plans.
II A framework for ICZM exists	6	Existing instruments are being adapted and combined to deal with planning and management issues on the coast.
	7	Ad hoc demonstration projects are being carried out that contain recognisable elements of ICZM.
	8	A formal 'state of the coast' report has been written with the intention of repeating the exercise every 5 or 10 years.
	9	A coastal management plan, embracing a long term perspective, has been developed, with relevant issues identified and an implementation strategy drawn up and adopted.
	10	An ICZM strategy (including the marine environment) has been produced which takes into account both the inter-dependence and disparity of natural processes and human activities.
	11	A sustainable development strategy is in place which includes the precautionary principle and an ecosystems approach, and which treats coastal areas as distinct and separate entities.
III Vertical and horizontal integration exists between coastal planning and management agencies. Most of the time, decision-making includes relevant stakeholders and coastal communities	12	All relevant parties concerned in the ICZM decision-making process have been identified and involved.
	13	Sufficient human resources, with a specific responsibility for ICZM, are placed at each administrative level from national government to coastal municipality.
	14	An adequate flow of relevant ICZM information from the national to the local authority, and back again, is reaching the most appropriate people at each administrative level.
	15	There is sufficient support and involvement of the relevant administrative bodies, nationally, regionally and locally, to allow and improve co-ordination.
	16	Examples of best ICZM practice are available and being used for specific solutions, and flexible measures, to ensure the diversity of Europe´s coasts.
	17	Scientific and technical information is being made available in a form understandable to lay people without losing its coherence and validity.
	18	Adequate mechanisms are in place to allow the general public to take a participative and inclusive (as opposed to consultative) role in ICZM decisions.
	19	Routine (rather than occasional) co-operation across local, regional or national boundaries is occurring.
	20	An efficient means to resolve conflicts between stakeholders is in place.
	21	A comprehensive set of indicators is being used to assess whether or not the coast is moving towards a more sustainable situation..
IV Efficient, adaptive, participatory, integrative planning and management is in place	22	A long-term financial commitment is in place for the implementation of ICZM.
	23	An assessment of progress towards meeting sustainability goals is being made continuously.
	24	Monitoring of the coastal zone sees a positive trend towards greater sustainability of coastal resources, an improvement in the state of the coast and in coastal habitats and biodiversity.
V Full implementation of ICZM	25	All of the above actions have been implemented with problem areas given special attention.
	26	Re-evaluation of progress in implementing ICZM begins again automatically.

colophon

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