

# Executive Summary



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## 1. Coastal zones: valuable and vulnerable

The coastal zone incorporates one of the world's most diverse and productive ecosystems. It provides a significant proportion of global food production and supports many major economic activities. Half of the world population lives here even though it encompasses only about 15% of the land surface. Economic activity provides more than half of the world Gross Domestic Product. At the same time, it is under increasing pressure from rapid population growth and major coastal urbanisation. The natural resources and habitats suffer from eutrophication, pollution by waste and litter, from sediment depletion and over-fishing.

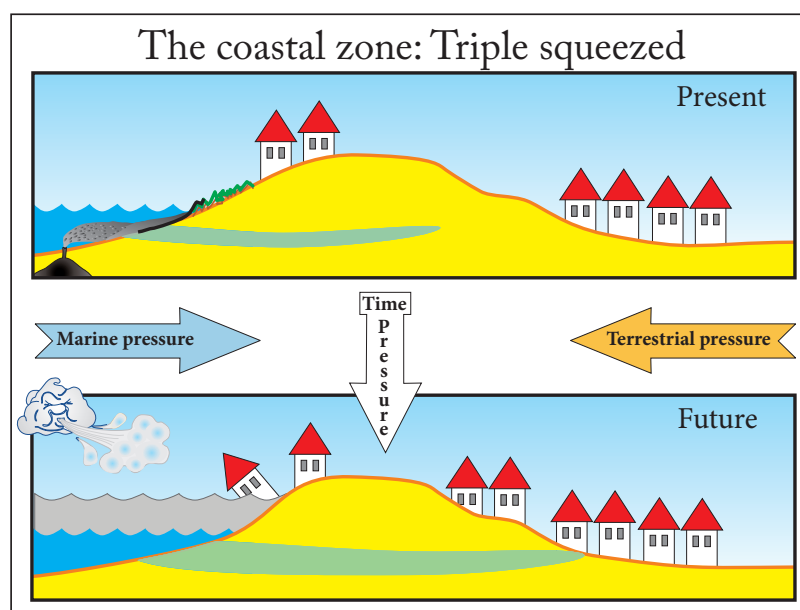
The anticipated impacts of climate change will exacerbate these terrestrial pressures and may adversely influence fresh water availability, affecting the livelihood of coastal inhabitants.

Anticipated impacts of climate change on the marine side of the coastal zone will include sea level rise, increased sea surface temperature, storm surges and typhoons, increasing flood risks, coastal erosion and saltwater intrusion. As these pressures intensify, deterioration of marine habitats, water quality and resource depletion will increase in case no adaptive, sustainable measures are taken.

Finding the balance between exploitation for short-term profit and developing long term, environmentally sustainable approaches to resource use is difficult. This book seeks to help find that balance.

## 2. Audience and action

This book is for coastal stakeholders and professionals who are or will be responsible for physical planning, applied research and management of their countries' coastal resources. In particular, the target group includes:



*The coastal zone is triple squeezed: from the land and sea, and the development in time. The coastal zone is in urgent need of adaptive, 'no-regret' measures, planned and implemented within an integrated framework (source: R. Misdorp and H. van Reeken).*

- Applied scientists;
- Policymakers;
- Non Governmental Organisations;
- Decision makers.

It aims to aid cooperation and show decision makers that integrated coastal management provides a means of achieving development that is economic profitable and environmentally sustainable.

Sustainable development of the coastal zone is an important topic in Europe. This is especially true for the Netherlands, where more than half of the densely populated and highly developed country lies below sea level. In order to protect this area from flooding, coastal erosion and salt water intrusion, coastal protection is an important component of management. In recent decades this approach has broadened to include integrated spatial planning, which together help define an Integrated approach to Coastal Zone Management (ICZM). The European Commission (EC) actively supports coastal member states in improving the Governance component of ICZM by providing integrated frameworks, institutional arrangements and legal provisions. Romania has similar problems and, as a new member of the European Union (EU), is developing within an EU framework ambitious ICZM programmes.

The low lying and deltaic coastal zones of many Asian countries and island states are also critically vulnerable to the impacts of rapid socio-economic growth and climate change, including accelerated sea level rise when compared

to other areas of the world. The number of people at risk to flooding and the potential loss of rice production, for example, are amongst the highest in the world. In order to address these vulnerabilities, a number of Asian coastal countries have embarked on a holistic approach, started ICZM programmes and intensified (inter)national coastal cooperation.

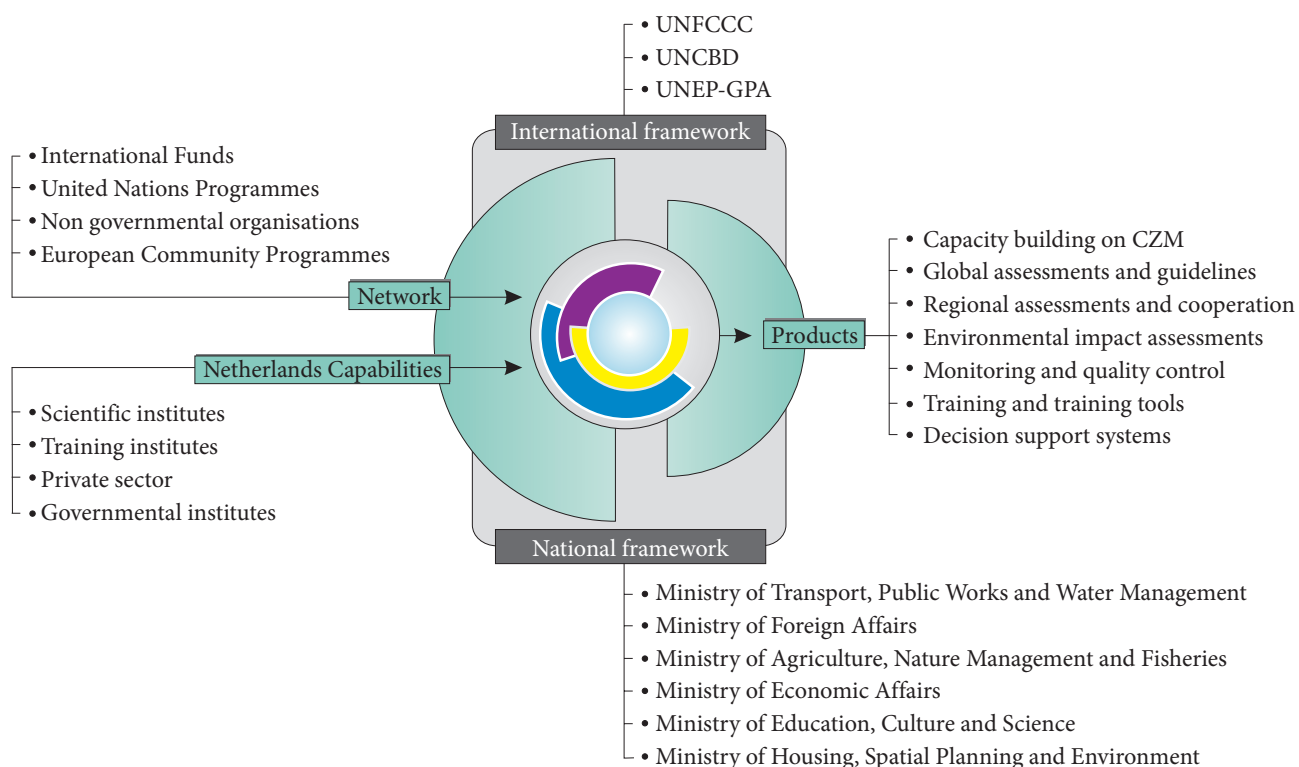
### 3. Structure

The book is structured in the following way:

- Introductory words and statements;
- Case summaries of coastal cooperation in EU, the Netherlands and Romania (Part I);
- Case summaries of coastal cooperation programmes and projects in eight Asian coastal countries and island states (Part II);
- Concepts, ICZM planning tools, adaptive coastal measures and training manuals - the 'What, Why and How' to plan and implement ICZM programmes (Part III);
- Summary of the book, include learning experiences and recommendations for future cooperation (Part IV);
- Lists of free-of-charge downloadable demos of ICZM planning tools, training manuals, and an alphabetic list of the 101 CCC authors and acknowledgements (Part V).

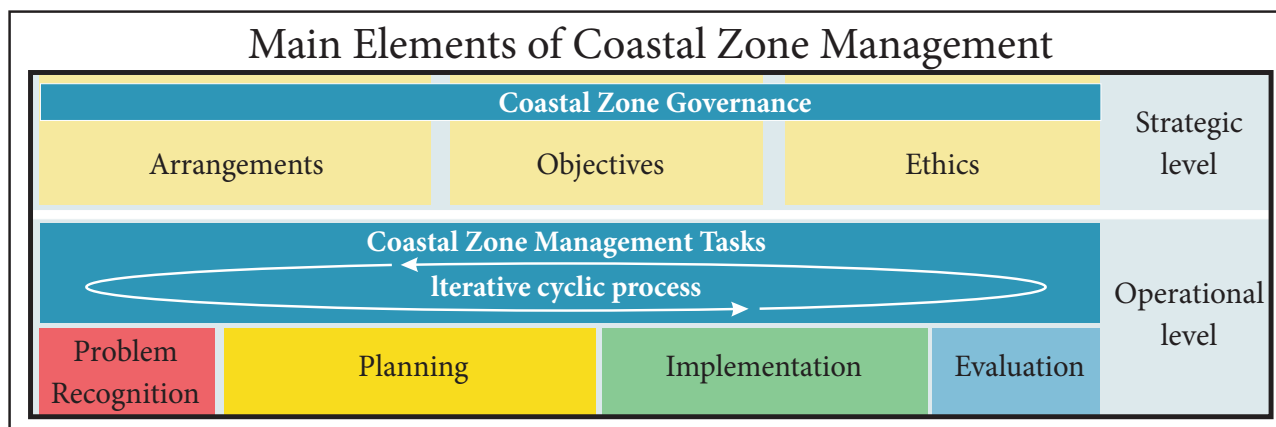
The full chapters of each of the case studies, the tools and training manuals can be found on the Climate of Coastal Cooperation (CCC) website:

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



*The international Coastal Zone Management – Centre (1993-2006), The Hague: its setting and activities*

## Main Elements of Coastal Zone Management



This book is based on actual project experiences and shows the benefit of ICZM in practice over the last decades.

**4. Integrated Coastal Zone Management (ICZM)**, as a tool for addressing both short and long term coastal management issues is not new. It was adopted by the:

- Rio de Janeiro Declaration (UNCED – Agenda 21, Chapter 17, 1992);
- United Nations Framework Conventions on Climate Change and Biodiversity (1992) ratified by the governments of almost all countries of the world. The assistance from so-called developed countries to developing countries is called for in these ratified UN Conventions;
- UN-Intergovernmental Panel on Climate Change (IPCC – First Assessment, 1990) and confirmed during
- the 1993 World Coast Conference in the Netherlands organised under auspices of the IPCC;
- The EU – ICZM Recommendations (2002).

The European Commission (EC) promotes coastal cooperation among other things between European regions by enlarging and exchanging scientific research on coastal processes relating to ICZM tasks. These tasks range from problem analysis to planning and implementation of coastal actions and an evaluation of their effectiveness. Monitoring the natural and socio-economic coastal system is an essential element in all phases of an ICZM programme.



*Old, new and green Shanghai. (photo: Siemens AG Pictures of the Future)*

### 5. The international Coastal Zone Management Centre

(CZM-C, 1993 – 2006) was created as a response to the call for action during the 1993 World Coast Conference (WCC). Its aim was to help developing sustainable policies for coastal resources in the face of the potential adverse impacts of climate change. It did this by facilitating international cooperation through coastal networks, promoting integrated planning and the adoption of adaptive management. The Centre was situated in the Netherlands, generously supported by the Ministry of Transport, Public Works and Water Management (V&W), and five other Ministries including the Ministry of Foreign Affairs, which also provided funding and guidance through its Embassies.

Reorganisation of the tasks within the ministry (V&W), led to phasing out the CZM-C's activities. Parts of these activities now lie within the newly created Centre for Water Management and the Directorate General Waters of new Ministry Infrastructure and the Environment (former V&W). Some of the other tasks have been taken on by the Coastal & Marine Union – EUCC practising ICZM since 1991 also beyond the borders of Europe. It is therefore appropriate that the EUCC is publishing this CCC publication.

Quite a number of chapters are based on CZM-C's activities, thereby reflecting some of their valuable work.

### 6. Coastal Vulnerability Assessment a first step to ICZM

ICZM encompasses a wide range of disciplines, any of which may identify the need for an ICZM programme. Climate and climate change can have a profound impact on densely populated coastal zones and is one such trigger. A first stage of an ICZM programme may include a Vulnerability Assessment (VA). Following a request from the UN-Intergovernmental Panel on Climate Change the Netherlands assisted the production of a Common Methodology for such an assessment in 1991. It was adopted and provides guidance for coastal nations in estimating their coastal vulnerabilities to a 1m sea level rise and socio-economic development in relation to the present

situation. Two illustrative examples of this approach: “From VA to ICZM”, are found in the CCC chapters on Bangladesh and Vietnam.

More than 90 nations reported on and discussed their Vulnerability Assessments during the WCC’93. A Global Vulnerability Assessment (GVA) was also carried out, taking into account 179 coastal countries and using a selected number of Vulnerability indicators. This revealed that many Asian countries and island states are critically vulnerable to a 1m sea level rise, not least because of the rapid socio-economic development in their coastal zones. Because of this Asia has a prominent place in this publication.

### 7. Coastal cooperation and ICZM

Not all examples of successful integrated coastal cooperation follow the ICZM approach. Good examples of such cooperation are the integrated planning of the innovative Chinese coastal Eco-cities, involving many national and international partners. The Rotterdam harbour development is another, which includes many elements of an ICZM programme, but without the label. The main thrust of this CCC-Publication is to demonstrate that coastal cooperation pays off, with or without a formal ICZM framework.

### 8. Concepts and Cases

The coastal zone is subject to a multitude of complex functions with ICZM acting as a cyclical process involving the following concepts derived from the CCC cases:

- Increasing coastal resilience, which decreases vulnerability;
- Using soft solutions for coastal protection where possible and hard ones only where needed (Working with Nature concept);

- Increasing the area of valuable wetlands such as mangrove systems;
- Using innovative sustainable applied technology e.g. decentralised solar energy and sanitation techniques;
- Addressing both short and long term problems: Simultaneously the creation of short term adaptive solutions and drafting long term strategies in one project;
- Integrating the input of international and national authorities and experts in the analyses of coastal problems and the identification of sustainable solutions by the local authorities, NGOs and applied scientists. An example of successful application of vertical integration is found in Vietnam.

The setting of each coastal area is different requiring different ICZM approaches. This is clearly illustrated by the European and Asian cases included in this publication. The opportunities to exchange information on common problems and pressures, and the different ICZM approaches to solving these problems are considerable.

### 9. Tools and measures

GIS tools can support the planning phase of an ICZM programme. The tools described here by the developers simulate the effects of alternative spatial planning options and functional uses in the face of climate change. These include principles of ‘Environmental Impact Assessment’ and ‘Decision Support Systems’ such as those applied in India.

The tools to support policy preparation were developed whilst undertaking ICZM tasks, with emphasis on training and capacity building. The reader can explore these interactive tools.



*The Netherlands - Oosterschelde: nature building - man made dunes and the Storm Surge Barrier in the background. (photo: //beeldbank.rws.nl, Rijkswaterstaat)*



This publication provides examples of adaptive, innovative, 'no-regret' measures based on the precautionary principle. Capacity building, awareness raising and education have also been adopted as essential elements in ICZM development programmes. There are four training manuals including subjects ranging from improving the management of Marine Protected Areas, experiences with Thai Aquaculture, a Coastal Defence Guide and Teaching Material on water and coastal management for primary and secondary school teachers. These manuals can also be downloaded.

#### **10. Benefits of ICZM, coastal cooperation and adaptive, no-regret measures**

Although pressures on the coastal zone may trigger an ICZM programme, probably the most convincing argument is that it can be both economically and environmentally beneficial. The secret lies in creating multiple-use, win-win, resilient and 'no-regret' solutions. Examples with a high benefit – cost ratio are shown in this publication and include several of the evaluated European Commission – ICZM projects, the Rotterdam sustainable harbour development, the large-scale mangrove planting in Vietnam and the conservation of habitats from mountain to the sea in the Seychelles.

The combined, active and supportive participation of donor Ministries, consultancies and knowledge institutes is also important, safeguarding the quality of work and providing the deliverables as specified in contracts with the recipient countries.

#### **11. What makes this CCC-Publication unique?**

There are many books written on ICZM. The 2002 worldwide review by Jens Sorensen identified more than 700 ICZM projects. He concluded that lack of communication between coastal stakeholders was one of the key issues, which hampered progress in achieving sustainable development of the coastal zone!

This CCC-Publication aims to exchange and transfer coastal management experiences. It promotes the exchange of information between you the reader and the CCC-authors and developers engaged in planning and implementing coastal activities. It provides information on the experiences gained from the many different coastal projects and programmes described. It is different in three ways from many of other ICZM publications:

Firstly, it provides conclusive evidence of the feasibility

and the effectiveness of coastal cooperation.

Secondly, it presents practical background information on coastal cooperation and the 'What', 'Why' and 'How' of ICZM. It is based on actual project experiences and shows the benefit of learning from ICZM in practice over the last few decades.

Thirdly, it is not just a book for reading quietly in a library. The CCC Book offers a summary of the cases of Part I and II, while the "Climate of Coastal Cooperation" website provides background information and more detailed project results of these CCC cases in the full Chapters. Furthermore, this website also gives the user access to the ICZM planning tools described by the developers. The demos of these tools and the training manuals can be downloaded free-of-charge. They provide a common platform for discussion, stimulating participation by the coastal stakeholders, NGOs and local authorities. Examples of coastal measures described range from 'low' to 'high tech' solutions and come from a wide variety of coastal situations making this CCC publication particularly valuable.

The List of Contents provides an overview of each contribution. The alphabetic List of Authors then facilitates the required communication, strengthening international cooperation. You are invited to explore the CCC website with its extended, full chapters, tools, training manuals and to forward your questions and views to the authors.

#### **12. The CCC authors – a coastal community in the making**

This Executive Summary presents an overview of the relevant steps of ICZM as well as results of coastal cooperation in practice. The authors come from many different fields of experience and expertise. These range from (former) Ministers and permanent secretaries, executive directors of international organisations and funding institutions, to representatives of many different NGOs, educators, coastal experts and stakeholders, governmental officials and university professors. They offered quite some time making this CCC publication possible. Their contributions are much appreciated and can be regarded as a demonstration of coastal cooperation in practice. It also shows that cooperation can make a difference.

The authors hope that the lessons from the case studies, the tools, manuals and measures prove to be valuable in their applicability to the reader.