

# **A comprehensive summary with recommendations of the ENCORA Workshop on The Wadden Sea Environments bridging the gap between science, practice & policy**

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## **1. Summary**

### **1.1. Introduction**

The ENCORA Workshop on The Wadden Sea Environments was held in Klappholtal on Sylt, Germany from 29<sup>th</sup>-31<sup>st</sup> October 2007. The workshop aimed to bridge the gap between decision making, science & practice. The topics of the workshop were coastal protection and restoration measures against the background of climate change and the consequences for the Wadden Sea environment, with a focus on the planning perspective (20-30 years), while keeping in mind the expected long term development (100 years). This summary and the recommendations follow the four-wing approach developed by IMSA (see figure).

### **1.2. Indicators**

Currently the Wadden Sea system, as most sandy coasts in Europe, is not in an optimal condition. Morphological and ecological resilience and biodiversity are lower than might be expected at fully natural conditions.

### **1.3. Vision & governance**

The workshop at Sylt emphasizes the dynamic natural conditions as the major characteristic of the Wadden Sea system. To protect and enhance the natural functioning of the system, while taking into account the safety of Man, a series of measures is recommended. The trilateral community has to develop a coherent vision regarding the future of the trans-national Wadden Sea and the problems and challenges it is facing related to climate change.

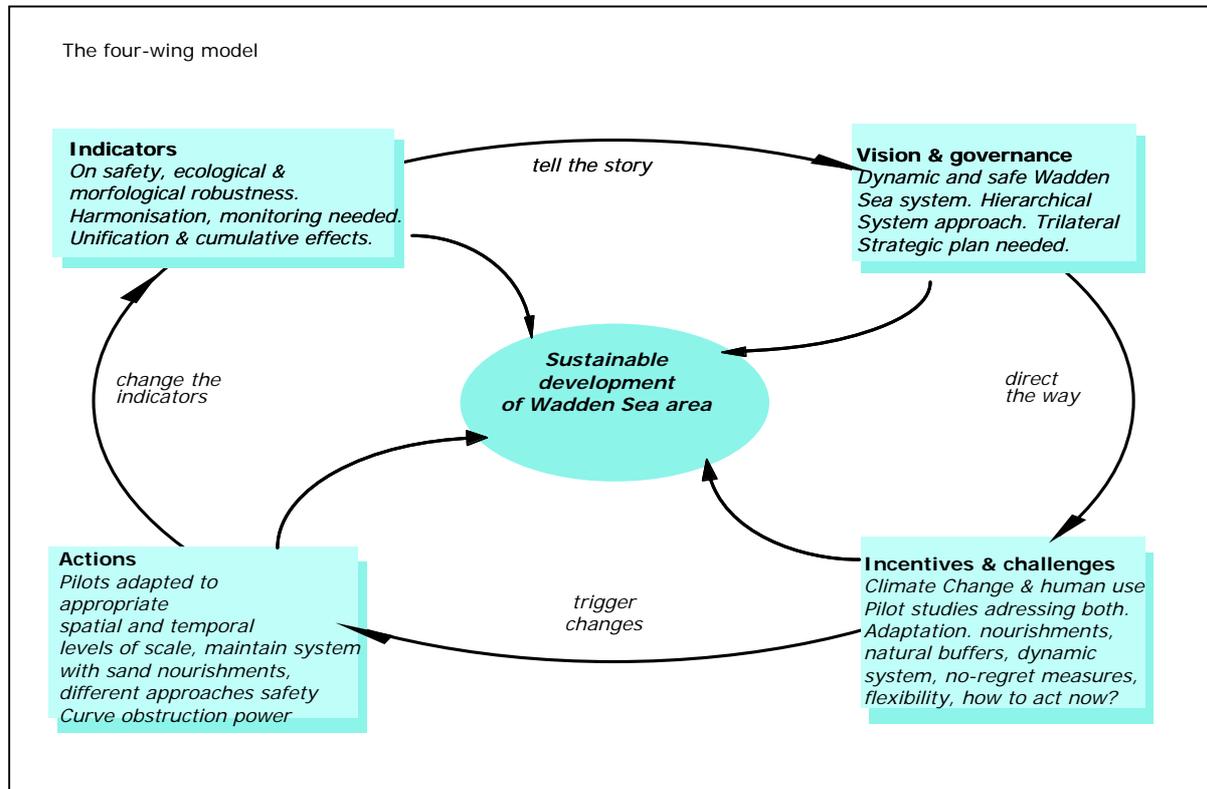
### **1.4. Incentives & challenges**

Challenges come largely from climate change: sea-level rise, extreme precipitation, rise of air and sea temperature, storminess, changing habitats, in combination with (past) Man-induced deterioration of the ecosystem. The next policy cycle should handle the design of large-scale plans. We conclude that there is time for experiments, given current expectations on sea-level rise. Even if the acceleration becomes faster, measures taken would follow a no-regret policy.

### **1.5. Actions**

The workshop at Sylt concludes that we cannot wait until all systems at all levels are fully understood, since in dynamic systems the number of variables and complexity of the

systems and safety issues cannot be understood in all details. However, it is felt that we know enough of the systems to be able to act. Therefore it is proposed to learn by doing, through carrying out a number of no-regret pilot projects to cope with the challenges ahead.



**Figure:** Four-wing model of IMSA, applied to the results of the Workshop.

## 2. Short review of workshop

**EncoraNL and Encora Germany had together taken up the organization of a three-day international workshop aiming to bridge the gap between decision making, science & practice.** The workshop welcomed a total of 33 participants from the three Wadden nations, Denmark, Germany and The Netherlands of which 8 were policymakers, 10 scientists, 8 practitioners and 7 young professionals (one from Greece, five from Germany, one from The Netherlands).

The topics of the workshop were on coastal protection and restoration measures in the Wadden Sea environment with a focus on the planning perspective (20-30 years) against the expected long term development (100 years) in the context of climate change, and its consequences. In particular, the talks and discussions dealt with issues such as the sediment budget in the Wadden Sea (e.g. the question whether the Wadden area will keep up or not with the rising sea level), alternatives for coastal protection measures (such as retreat, accommodation, and combined measures), adaptation measures and strategies against sea level rise and increasing storm surges (such as opening wash-overs, and flooding embankments), and issues were discussed and worked on such as national aspects of implementing integrated coastal zone management (ICZM) in the three participating

Wadden countries, and how to involve the public in measures to counteract the consequences of climate change.

Apart from the increased networking experience by the mutual exchange among the three groups (science, practice & policy), the products generated by the workshop resulted in a draft document proposed to be included in the European Action Plans that will be communicated to the European Commission by the official Encora conference in Paris from 5 to 7 December 2007. This document provides recommendations for the practical implementation of the currently available policies and scientific results, and a list of crucial knowledge gaps that need to be closed, in relation to the workshop's topics.

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## 3. Recommendations

### 3.1. Introduction

An ENCORA Workshop on The Wadden Sea Environments was held in Klappholtal on Sylt, Germany from 29<sup>th</sup>-31<sup>st</sup> October 2007. The workshop aimed to bridge the gap between decision making, science & practice. The topics of the workshop were coastal protection and restoration measures against the background of climate change and its consequences for the Wadden Sea environment, with a focus on the planning perspective (20-30 years), while keeping in mind the expected long term development (100 years). In this paper an overview is given of results and recommendations, which followed from the workshop.

### 3.2. Indicators

#### 3.2.1. General

Currently the Wadden Sea system, as most sandy coasts in Europe, is not in an optimal condition. Morphological and ecological resilience and biodiversity are lower than might be expected at fully natural conditions. However, indicators are often measured in different ways and units from country to country and the implications of cumulative effects are not well known. Also, insights on the effectiveness for safety from flooding of dykes, forelands and nourishments differ from state to state. A common knowledge basis between countries and parties involved is needed for adaptive management of sandy coasts such as in the Wadden Sea area. Here the ENCORA project can play an important role.

#### 3.2.2. Recommendations EU

**To urge member states to start work on the development of a methodology for the assessment of cumulative effects of climate change along sandy coasts, starting with the Wadden Sea area.**

**In order to make risk management plans, EU member states need to make a proper assessment of the consequences of (regional) climate change (Sea Level Rise - SLR), different weather patterns (storm duration/set up, precipitation), different legislation, etc.**

### **3.2.3. Recommendations National**

The trilateral cooperation should develop a stronger commitment to monitoring and evaluation as vital tools for adaptive management.

Geo-morphological boundaries should be used or adopted to define the Wadden Sea area and its smaller sub-units (*including North Sea coast, islands, estuaries (both closed and open estuaries), tidal flats, channels, foreshore, beach and ebb-tidal deltas*).

Identical and comparable parameters should be used and indicators and observations harmonised in the whole Wadden Sea region on amongst others:

- Sand availability for coping with future SLR (on 3 time/space scale levels)
- Regional flood chances + damage estimates: unified dataset needed
- Ecological gradients, such as from high to low, from sand to mud, from fresh water to seawater
- Tidal area extent, number of breeding and migratory birds, number of seals, health status of seals, biodiversity

Unifying concepts for the wet and dry parts of the Wadden Sea ecosystem should be developed by integrating the scientific approaches of both types of ecosystem compartments into a common methodology.

To use the ENCORA Coastal Wiki as a common knowledge base:

- *easy to upload information*
- *connect to other existing networks.*

Small expert groups on specific topics should be established, e.g. where and under which conditions certain types of measures (such as opening wash-overs) could be realized in the different countries.

Emphasize the function of the Trilateral Wadden Sea Working group for unification of the different national efforts, and as a platform for small expert groups working on various topics (e.g. Coastal Protection and Sea Level Rise (CPSL)).

## **3.3. Vision & governance**

### **3.3.1. General**

The workshop at Sylt emphasizes the highly dynamic natural conditions as the major and robust characteristic of the Wadden Sea system. It is therefore recommended to protect and enhance the natural functioning of the system, taking into account the safety of Man. The trilateral community has to develop a coherent vision for the future options of the Wadden Sea in the light of the problems and challenges it is facing related to climate change and human utilisation while preparing a road-map for commitment.

### **3.3.2. Recommendations EU**

**EU should recommend the trilateral community to develop a coherent vision regarding the future of the transnational Wadden Sea, and the problems and challenges it is facing related to climate change and human use.**

**It has to be recommended to member states to take a hierarchical scale system-approach for all ICZM problems. For sustainable development of both safety, socio-economics and nature, take into account the following time-scales: centuries, decades & years. When dealing with an ICZM problem on a given spatial scale, always address**

***also the scale one level up (boundary conditions) and one level below (building elements)***

### ***3.3.3. Recommendations National***

To develop a plan how to implement the clear political will to keep the Wadden Sea in healthy conditions in terms of ecosystem functioning, and to develop intentions to cope with the difficulties and chances ahead. The trilateral Wadden Sea should be governed primarily as a one coherent natural area of major European if not global importance.

The trilateral cooperation needs to improve planning for the future, and define clearly how it wishes to achieve its long-term vision for the Wadden Sea (Mission and Strategy), through preparation of a (rolling) Strategic Plan. The Cooperation should move to a triennial planning and reporting cycle. A clear Mission statement should be defined around the principles of the Ecosystem Approach of the Convention on Biological Diversity (CBD).

Best practices, data and views on European legislation (Maritime Policy, Water Framework Directive, Flood directive, ICZM recommendation, Natura 2000 Habitat and Bird Directives) should regionally be exchanged in a structured and orderly way.

In national legislation the dynamic nature of the Wadden Sea should be acknowledged when concerned with the Water, Habitat and Bird Directives. The potential consequences of this dynamic character should be taken into account.

Problematic issues within the frame of ICZM should be identified and addressed beforehand. ICZM does not allow decision making! Therefore we need tools and rules for moderation processes.

## **3.4. Incentives & challenges**

### ***3.4.1. General***

Challenges result largely from climate change: sea-level rise, extreme precipitation, rise of air and sea temperatures, level of storminess, changing habitats, in combination with (past) man-induced deterioration of the ecosystems.

The next policy cycle should handle the design of large-scale plans for restoration and adaptation (spatial scale corresponding to a temporal scale of centuries); we conclude that there still IS time for experiments, given current expectations on sea-level rise. Even if the acceleration is faster, measures taken should follow a no-regret policy.

### ***3.4.2. Recommendations EU***

**EU to ensure that coastal protection and nature restoration are to go hand in hand with climate adaptation.**

**EU member states should realize that the backbone of the sandy coastal system is sand. They are therefore advised to make sufficient reservations for the sand needed for sustainable nourishments in the coming centuries (fairly low-level practice but very useful) and to address alternative nourishment-methods for all parts of sandy coastal systems to compensate for sea-level rise in the most adequate way.**

**Climate change calls for behaviour of natural systems as buffers (also defined as natural climate buffers). In a natural system erosion is as common as sedimentation (which naturally is good for ecology).**

**EU should stimulate adaptation to climate change in the Wadden Sea area – which is urgently needed – by applying no-regret measures.**

***No-regret measures are necessary measures applied in a way that they will not damage the system, or that are reversible, while taking uncertainties into consideration.***

### **3.4.3. Recommendations National**

Make an inventory (three countries) of systems down to subsystem level, for categorization of these systems in climate susceptibility / vulnerability classes.

More flexibility of Man is needed in climatically sensitive and dynamic systems such as the Wadden Sea:

- We call for special attention to Water, Bird and Habitat Directives-based legislation to deal with the dynamic character of all European sandy coastal zones, in terms of geomorphology as well as ecology.
- We recommend to all Wadden Sea governments to get proper governance structures in place, responsible for the Wadden Sea, which are able to take appropriate decisions and are not hindered excessively by obstruction powers.
- Training of government officials for involvement of general public in early stages of plans to change the “environment”.

## **3.5. Actions: Act now!**

### **3.5.1. General**

The workshop at Sylt concludes that we cannot wait until all systems at all levels are fully understood, since in dynamic systems the number of variables and complexity of the systems cannot be understood in all details. However, it is felt that we know enough of the systems to be able to act. Therefore it is proposed to learn by doing through carrying out a number of no-regret pilot projects to cope with the challenges ahead.

### **3.5.2. Recommendations EU**

**In general, but also for the Wadden Sea area, it is recommended that medium-scale pilot projects and no-regret measures should be started to learn and to demonstrate, for both acting on sea-level rise and restoration of natural gradients:**

- ***Explore ways of dealing with increased energy pressure on dykes due to higher waves or longer exposure***
- ***Explore natural mechanisms for capturing sediments***
- ***Think in geo-morphological units when restoring the landscape***
- ***Increase the quantity and quality of ecological gradients (transition zones of different habitats)***
- ***Refer to priorities; use natural potential to allow dynamic development, e.g. wash-overs.***
- ***Explore possibilities for restoration of the sediment balance (medium-scale pilot projects)***

**EU is to urge member states to raise public awareness**

- ***Involve the general public on a regular basis to raise the awareness for climate change in ICZM by providing adequate information and let them also talk and develop plans how to deal with climate change (100 yr plan).***

**EU member states are asked to curb obstruction power by ICZM**

- ***Stakeholder obstruction power, which blocks adaptations needed, should be avoided beforehand by making use of the voluntary, in-official and un-***

***bureaucratic tool of ICZM in order to react more effectively to the effects of climate change.***

**Don't wait for more research results, assume scenarios and go on while elaborating further results by pilot projects.**

### ***3.5.3. Recommendations National***

To start medium-scale pilot projects, preferably win-win projects for geomorphology as well as ecology and possibly safety and economics (tourism, recreation), and to share good and bad experiences of pilot projects among the different countries.

To start pilot projects taking an alternative approach to safety, in order to develop several ways to deal with climate change effects, such as sea-level rise.

Incorporate a hierarchical scale approach into decision making for morphological restoration and safety measures.

Scientists, politicians, practitioners and general public should participate on a regular basis in the ICZM process. Pilot projects should be started only after informing the general public.

Develop a clear and sustainable plan of action to be implemented within a clearly defined time frame; then involve stakeholders and general public. Once you start you should finish.