

# ENCORA - Theme 8

## Sustainable Coastal Engineering Techniques

initiative for a **Co-ordination Action** within the European coastal research **and** practitioners community

### WHY ?

Coastline retreat, often due to erosion, is a major issue for coastal managers and planners along many parts of world's coasts. In the EUROSION study commissioned by EU DG Environment the annual land loss in the European Union by coastal erosion has been estimated at 15 km<sup>2</sup>.

The phenomenon of 'Coastal erosion' can be split in two quite different topics, which each call for quite different coastal engineering counter measures.

Erosion of the mainland because of a severe storm (surge), a so-called episodic event, must be clearly discerned from erosion because of long-term, gradual, year after year processes. The latter type of erosion is often called background or structural erosion. This type of erosion might be due to (still) merely natural processes, or might in fact be considered as the response of the coastal system to human interferences in that system in the (far) past. It is expected that structural erosion will be enhanced by global sea level rise. The need for more and better protection schemes will consequently increase in future.

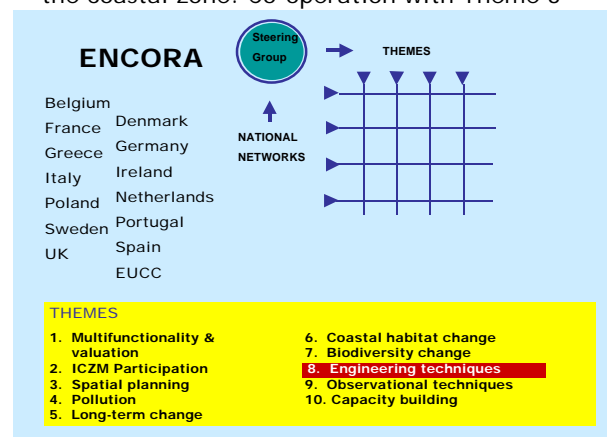
Existing types of 'hard' structures (seawalls, revetments, groynes, shore parallel detached offshore breakwaters) have been proven to 'work' well in many cases. However, also in many cases it turned out in practice that the application of 'hard' structures did not meet the expectations. Then in fact applying a solution with the help of 'hard' structures made an unfortunate choice.

The sometimes poor performance of the application of traditional structures to resolve a coastal erosion problem, has contributed to the continuous development of other and often innovative coastal protection techniques ('hard' and 'soft' techniques; e.g. artificial beach nourishments in the latter case).

A main issue of Theme 8 is to develop in co-operation with the partners some kind of a guideline (best practices) how to use coastal engineering techniques in the solution of real life coastal protection issues. Sustainable

solutions, which fulfil the (clearly to be defined) requirements, now and in future, are to be raised. Innovative techniques are fully taken into account.

An important success factor for Theme 8 is a fair insight in the coastal processes, which are responsible for the occurring changes in coastal morphology. To that end a close co-operation with especially Theme 5 (Long Term Coastal Geo-morphological Change) is foreseen. A sustainable shore protection solution has to meet various requirements. Some of these requirements are strongly related to the use of the coastal zone. Co-operation with Theme 3



(Marine and Coastal Spatial Planning) is obvious.

The theme integrates research and disseminates knowledge on Sustainable Coastal Engineering Techniques across the European countries.

### WHAT ?

Shore protection practices applied by the various partners will be evaluated with regular evaluation projects carried out by one or more partners as starting point. Other members of Theme 8 are invited to join such evaluation projects. Apparent best practices will be

identified. When promising results are achieved, and when the partners are convinced of the usefulness, a set of guidelines will be prepared.

Besides evaluation projects, also the results of new attempts to predict the behaviour of shore protection schemes with the help of computer simulations will be considered. Co-operation on this challenging field of research is stimulated by Theme 8.

## HOW ?

The basic task of the Theme leading institute is to identify ongoing projects carried out by the various partners and to stimulate co-operation.

Other co-ordination activities are amongst others:

1. Survey of existing tools,
2. Identification of new sustainable techniques,
3. Dissemination of results, e.g. by an informative website,
4. An annual workshop,
5. Training on the job: especially young researchers are, with the help of the Theme lead, stimulated to join ongoing projects basically carried out by one or more partners.

## WHO ?

The Section Hydraulic Engineering of the Faculty of Civil Engineering and Geosciences of the Delft University of Technology, The Netherlands will lead Theme 8.

Dr. Jan van de Graaff will be responsible for the Delft contribution of the project.  
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