



# Coastal protection

A comprehensive approach with social, economic and ecological dimensions

All over the world, coastal plains are at considerable risk. Coastal plains are home to very vulnerable ecosystems under particular threat of climate change, storms, tsunamis, and human intervention. Yet these areas also offer great economic opportunities. It is therefore important to develop coastal plains sustainably deploying a comprehensive approach with social, economic and ecological dimensions. Collaboration between governmental bodies and the private sector should be encouraged, and investment institutions should be involved from the outset. In that way, plans can be translated into concrete realisation projects.





### What's the issue?

The world's coastal plains are densely populated and often of vital economic importance. Globally, about 1.2 billion people currently live in coastal regions. However, population growth and migration are expected to boost that number to between 1.8 and a staggering 5.2 billion by 2080.

Located at the transition between freshwater and saltwater environments, coastal plains often have rich but extremely vulnerable ecosystems. The vulnerability of coastal plains is being increased by climate change and human intervention in natural systems. Coastal regions are affected by tsunamis, hurricanes, floods, drought, ecological degradation, erosion, and salination. Water quality in coastal plains is constantly threatened by large-scale fresh water extraction. This has the effect of drawing saltwater much further inland. In the dry season, when river flows are low, fresh water is often in short supply, leading to increasing salination. In addition, coastal plains frequently accommodate vulnerable ecosystems, such as mangrove forests, that are nevertheless vital for biodiversity and for protection against flooding and wave impact.

Furthermore, rapid economic development is occurring as people seek to utilise opportunities associated with the

development of cities, ports, infrastructure, tourism, agriculture, and industries (including gas and oil extraction). A comprehensive approach to the development of coastal plains, with social, economic and ecological dimensions, is urgently required for the protection of these regions.

### Custom-made solutions that respect local priorities

The Netherlands has considerable expertise in the field of coastal plain management. This expertise enables us to protect ourselves from the effects of climate change and forecast rises in sea level. Many of the world's coastal plains are complex regions in which numerous (conflicting) interests are at stake. Because coastal plains are often vital areas for economic activity, it is important that they are developed in a sustainable manner. A comprehensive approach is vital to such development. Coastal plains differ from one another considerably, meaning that custom-made solutions are needed, which respect local priorities. In this field of work, the focus is on sustainable (economic) development within the limits of the natural system's resilience. Development of that kind is pursued by promoting the use of sustainable strategic development plans on the one hand, and by concentrating on concrete realisation opportunities on the other.



TINEKE DIJKSTRA FOTOGRAFIE



JOOP VAN HOUDT

Sand suppletion off the Dutch coast (Building with Nature)

### A comprehensive development strategy

In the context of the International Water Ambition (IWA) of the Netherlands, there is particular interest in focusing on coastal regions around the world that face the problems outlined above. Attention will also be given to regions where the local governments recognise the urgency of the situation and are prepared to work with the Netherlands on the formulation and implementation of solutions. The priority is sustainable economic and social development, with the emphasis on the realisation of comprehensive development strategies. The activities may be directed towards a planning phase (strategy), in which a number of themes may be on the agenda:

- Efforts to improve flood protection and water security on the coastal plain
- Coastal protection and ecology (involving concepts such as Building with Nature)
- Comprehensive, sustainable development strategies with the emphasis on ports, infrastructure, and urban development
- Water and agriculture (often focusing on aquaculture)

Under the IWA banner, the intention is to focus more on plan implementation, so that coastal regions actually become less vulnerable to the effects of climate change. A wide variety of measures can be taken, including sand suppletion for attractive and wide coastlines, the construction of stable dykes, the development of mangrove areas, and other innovative coastal reinforcement measures. Where water technology is concerned, there is great demand for fresh water in the coastal regions. Such demand can be met by fresh water conservation and by innovative technologies, such as desalination plants.

### The goal of international collaboration

The main aim of collaboration is to contribute to the flood protection and water security in the world's coastal regions. Such regions are often part of urbanised deltas, where a preventive approach is appropriate. Collaboration between governments and private actors with a view to developing sustainable development strategies (e.g. coastal zone management programmes) is also desirable. As soon as the translation of plans into realisation projects begins, it is important to involve financial (investment) institutions. Such institutions can help to increase local capacity, to encourage local enterprise, and to arrange joint local funding. They can also assist the formation of smart coalitions and the creation of political and community support.

The approach has proved successful when:

- Investments in flood protection and water security receive broad local support and are managed on a sustainable basis, often inspired by innovative approaches.
- Protection against flooding in urban deltas has improved.
- Agricultural production is 25 per cent more water-efficient.
- The Netherlands is a successful participant in various international programmes.
- There is increased awareness and political support in connection with water diplomacy.



### **More information and contact**

The Delta Commissioner  
[english.deltacommissaris.nl](http://english.deltacommissaris.nl)

The Delta Alliance  
[www.delta-alliance.org](http://www.delta-alliance.org)

EcoShape  
[www.ecoshape.nl](http://www.ecoshape.nl)

Netherlands Water Partnership (NWP)  
[www.nwp.nl/en/about-us](http://www.nwp.nl/en/about-us)

The European Commission  
[www.ec.europa.eu/environment/iczp/home.htm](http://www.ec.europa.eu/environment/iczp/home.htm)

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