



The project partners



PROJECT WITH FINANCIAL SUPPORT
OF THE EUROPEAN UNION

ComCoast

Projects Kruibeke and Lippenbroek (B)



All ComCoast pilots

1. Rømø (DK)
2. Nessmersiel (D)
3. Polder Breebaart (NL)
4. Hondsbosse Zeewering (NL)
5. Ellewoutsdijk (NL)
6. Perkpolder (NL)
7. Kruibeke - Bazel - Rupelmonde (BE)
8. Hamme Lippenbroek (BE)
9. Abbotts Hall (UK)
10. Horsey Island (UK)

Flood Control Area Great-Kruibeke

The Seascheldt Department of the Waterways and Seachannel NV work together with the Agency for Nature and Forest to create the nature development. There is also a managing commission that monitors the creation of nature habitats in the area. This Commission consists of:

- the Seascheldt Department (Waterways and Seachannel)
- the Agency for Nature and Forest
- the Kruibeke Municipality
- The Farmers Guild East Flanders
- Kruin - the local Nature Association
- Department for Sustainable Agriculture
- Department for Environment, Nature and Energy Policy
- Province of East-Flanders
- Planning and Nature conservation Service

Hamme Lippenbroek

The construction of Hamme Lippenbroek was a joint venture of the Seascheldt Department and the Agency for Nature and Forest.



Local farmers, who lost their land to the flood control area in Kruibeke, help maintain the bird habitat.



Hamme Lippenbroek serves as an open air laboratory for the creation of tidal nature in polders.

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The most important milestones in the construction of the Kruibeke site

Decision on Sigma Plan, including the flood control area in Kruibeke	Decision of the Flemish Government to create the FCA KBR	Designation as European Habitat Directive Area	Designation as European Birds Directive Area by way of compensation for the creation of the Deurganck dock	Modification of the Region Plan + confirmation of nature development in the flood control area	Expropriation decisions	Emergency Decree: construction permits 'for which compelling reasons of great public interest apply'
1977	1994	1996	1998	1999	2000-2001	2001
Additional scientific research: how can we respond to pollution of the Scheldt water and the soil	Urban development permits + order to create 300 ha of mud-flat and salt marsh	Additional studies to solve local drainage problems along the Barbier stream	Establishment of the Land Bank: offer the farmers the choice between expropriation and land exchange.	Start of the works: construction of ground stock 1 using ground spoil from the excavation of the Kettenisse polder	Commencement of ring-dike works	Works stopped by mayor Denert
2001	02/2002	2002	2002	2003	18/03 2003	27/03 2003
The court rejects the order and prohibits mayor Denert from committing any further acts of delay	Maintenance contracts with farmers to convert fields into pastureland and be mindful of birds and nesting places	Start construction of the Hamme Lippenbroek pilot project. (finished march 2005)	Creation of the management committee on grasslands birds with all sectors involved	An 'Overall Plan': integrated plan of implementation and timing is drawn up	Environmental Effects Report procedure to obtain the remaining urban development permits	New building permits for the construction of the water inlet and outlet constructions, the realisation of the Bird Habitat Area and the completion of the Ringdike
28/03 2003	2004	09/ 2004	2005	2005	2006	2007

What is ComCoast

The countries bordering the North Sea wish to ensure that the coastal area remains safe and liveable, even if the climate changes and the sea level rises. Denmark, England, the Netherlands, Germany and Belgium are therefore pooling their resources in the fight against flooding. Within the ComCoast project, they are developing and demonstrating new methods for managing and developing the coastal zone. The goal is to make the coastal area a safer and more attractive place to live, to undertake new initiatives, and to enjoy recreational activities.

The countries named above intend to accomplish this by working together with local residents, entrepreneurs, government organizations and organized interest groups to find environmentally and economically durable solutions for flood safety which are also appropriate to the local social and cultural setting. Communication with residents and other interested parties is therefore an important element of ComCoast.

The Kruibeke and Lippenbroek sites are not official ComCoast pilots, but are very interesting learning sites nonetheless.

ComCoast is subsidized by the EU (programme Interreg IIIB North Sea).



Flood Control Area Kruikebe-Bazel-Rupelmonde

The Flood Control Area in Kruikebe, Bazel en Rupelmonde (FCA KBR) becomes the most important flood control area of the original Sigma Plan of 1977 – the plan designed to protect the Flemish Sea-Scheldt Basin. This is due to the large recovery surface area (about 600 ha) and the ideal downstream location. The FCA protects not only the three cities directly involved, but also the areas with a more upstream location and the tributaries.

Safety

The safety of the inhabitants of the Scheldt basin is of primary concern in the creation of the controlled inundation area. Also, extra opportunities for valuable nature and recreation in a unique scenery play an important part.

The abbreviation ‘FCA’ stands for flood control area. In concrete terms, this means that, in case of a storm surge, the storm tide of the Sea-Scheldt is truncated and flows over the overflow dike into the area in a controlled manner. A high ringdike around the FCA ensures that the Scheldt water remains in the inundation area. At low tide, the water flows back to the river through outlet locks, thus emptying the area. Because of this truncation, the water level in the Sea-

Scheldt and the tributaries upstream is less high and the villages are better protected. At present, the inhabitants of the Sea-Scheldt basin are protected from floods, the average chance of occurrence being once every 70 years. As soon as the FCA KBR becomes operational, the level of safety will increase to just once every 350 years. Also, local drainage problems are being solved through the project.

Nature & Recreation

300 ha of the flood control area are designed as a mudflat and marshes area by means of a controlled reduced tide (CRT). Twice a day, at high tide, a limited (reduced) amount of water flows into the area, mimicking the natural tidal regime to create a matching landscape. This system is unique in Europe and is being tested in the Lippenbroek site in Hamme.

The flood control area in Kruikebe already is a recognised Birds and Habitat Directive Area. 150 ha of the site will become Grassland Bird Area, with open grasslands and meadows. The farmers who lost their land in the polder will ensure the maintenance of the grasslands in the near future. They will provide cattle for grazing or will mow the meadows at regular intervals. The difference in management will give rise to short and longer grasslands, thus enabling every bird species to find its favourite nesting place in the area. New lateral ditches keep the meadows wet and the cattle together. In addition, they guarantee that there is enough food for the birds and their chicks.



This new nature reserve will be widely accessible for the public. Asphalt roads, cobbled paths, corduroy paths and winding alleys, the Kruikebe site has something for everyone! Service roads running alongside all the dikes accommodate maintenance teams and strollers alike. Slow and fast traffic (mountain bikers, horsemen, cyclists) are separated wherever possible.

In the Northern part, amateur fishermen set their bait. They will likely also be allowed to cast their lines along the moats of the ring dike. Those who have more patience can entrench themselves at one of the fishing places near existing creeks in the area.

Hamme Lippenbroek



Hamme Lippenbroek is a small flood control area of about 10 ha. It was built as an open air labo to test the controlled reduced tidal system that will be build on a much larger scale in Kruikebe. This system mimics the natural tidal flooding inside the polder, situated far below the mean water level, thus creating the ideal circumstances for mud flat and marsh creation.

- 1 The sluices are set in such a way that the area within dike boundaries follows the natural rhythm of low tide and high tide. At low water, there is not a drop of water flowing in. (picture 1)
- 2 Twice a day, at high tide, the area kicks in. The higher the natural tide, the more water will flow through the sluice. Spring tide is when the most water is in the polder; but at slack water there is hardly any water flowing in. (picture 2)
- 3 Each time the water level of the Scheldt drops, the water flows away again via the discharging sluice. As a result, the polder is alternately under water and not under water – just like the plants on the river’s bank! (picture 3)

Conclusions after 1,5 year of monitoring

The system has been working since march 2006 and looks marvellous! The area is filled with reed, willow, creeks and Purple loosestrifes. It has become a popular feeding and nesting place for birds. Cyclists and hikers often pause at the site to enjoy the beautiful scenery and fish use the peace and quiet to lay eggs in the Lippenbroek water.

The impact on the water quality is even more spectacular! The incoming water of the Scheldt often has terribly low oxygen levels. After the powerful inlet, this number increases with minimally 60%. In the time between high and low tide, the rise grows stronger. This period of rest allows the sand particles to sink to the bottom and allows optimal contact between air, light and the clear still water. The mud flats and marshes also heighten the amount of silicium in the water, thus preventing overgrowth of algae. Since the water storage is the main function of the Kruikebe site, sedimentation and erosion are also important monitoring themes in this pilot site. Test banks show that the pits in lower areas fill up quite quickly. In other parts ground washed



away, thus forming a creek system. De central moat even got half a meter more profound. Although it’s to soon to draw final conclusions at this point, the evidence allows the assumption the theoretic models and predictions will prevail. Safety and Nature truely go hand in hand.

New insights and lessons learned

The Kruikebe and Lippenbroek project have provided insights which are important when implementing safety projects on the coast and in estuaries:

General

The implementation of a scheme is difficult when the local municipality is against the project. The construction of the Kruikebe site suffered severe delays thanks to protest actions, problems with building permits, etc. By engaging stakeholders only in a later phase, a part of their trust was already lost. Giving stakeholders the opportunity to think along and to decide along constituted a major step forward in mutual relations. It took a long time to regain trust and get the implementation planning back on track.

Flood protection zone

A flood protection zone near houses always causes fear. It is important to provide enough information and a single contact person that can reassure people involved. The combination of a safety project with nature by using a controlled reduced tidal system is very recommendable when compensation for lost mud flats and marshes is needed. The impact on the water quality was bigger then hoped.

Cost-benefit analysis

The results of a social cost-benefit analysis can help public-sector bodies in taking relevant decisions. A broad flood protection zone with a variety of uses can result in a positive balance for society.

Public participation and communication

The public participation and communication started too late in the process. A lot of trust was already lost and a ‘disbeliever’ took over the information-spreading. This created a lot of misunderstanding. The problem was solved by appointing a fixed spokesperson (the project engineer) and building an information shed where people could meet up on site to discuss the matters at hand. Through time and discussion, the trust was rebuilt.

