



**Selected Case Study of CABRI-Volga Project Deliverable D3
"Environmental Risk Management in Large River Basins:
Overview of current practices in the EU and Russia"**

THE SCHELDT ESTUARY CASE: FROM CONFLICT TO COOPERATION

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Introduction

The Scheldt estuary situated in the northwest of Flanders (Belgium) and the southwest of the Netherlands is the downstream part of the Scheldt river basin. The total basin area amounts to 21,863 km² and is divided over France, Belgium and the Netherlands. From its source in Northern France to its mouth in the North Sea, the river has a length of 355 km. Downstream of the sluices of Ghent, about 160 km from the sea, tidal influences are already noticeable. From the border between Flanders and the Netherlands the river widens considerably and becomes the brackish estuary, called the Western Scheldt. The Scheldt estuary region is both an important agricultural and industrial area. It is of a high ecological importance. So, conflicting interests exist in the region with respect to water control and management. Moreover, since the 16th century the Scheldt estuary has been a source for political conflict between Flanders and the Netherlands.

Coordination of policies, measures and approaches is essential. Recently, a closer cooperation between the Flemish and Dutch governments developed and a joint initiative was started, The Scheldt Estuary Development Project (ProSes). Its main purpose is to make a solid, broadly supported Development Plan taking into account the different interests of participating parties. This plan is the starting-point for a joint policy-making by the Flemish and Dutch government, aiming at a more sustainable development in the Scheldt estuary.

This chapter presents a short overview of the different functions of the river, the main issues and the institutional framework established to underlie joint policy-making. It may contribute to the discussion on existing practices with respect to the Volga basin.

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Selected Case Study of CABRI-Volga Project Deliverable D3 "Environmental Risk Management in Large River Basins: Overview of current practices in the EU and Russia"



Fig. 34: The Zeeschelde (zone 3 and 4) and the Scheldt estuary (zone 1 and 2) region.

Main functions

The main functions of the Scheldt estuary are navigation, ecology, recreation and fishery. Because the estuary contains salt or brackish water, it is not used for drinking water.

Navigation. The estuary forms the maritime access to the port of Antwerp that is one of the largest ports in the world. Together with the port of Ghent (B), Vlissingen (NL) and Terneuzen (NL) the port of Antwerp is situated in the Rhine-Scheldt basin, which belongs to the most prosperous areas in Europe. The Western Scheldt, the canal Ghent-Terneuzen, the Sea Scheldt and the Canal Brussels-Ghent are important navigation routes from and to Antwerp. A considerable part of the fresh water discharge of the river Scheldt is diverted to the North Sea by several canals in order to improve navigation possibilities on these canals as well as for industrial purposes.

Ecology. The Scheldt estuary is one of the few remaining European estuaries that include the entire gradient from fresh to salt water tidal areas. The brackish tidal water areas and marshlands, such as the "Verdrongen land van Saefthinge" and the fresh tidal water areas in the upper estuary are unique and belong to the largest brackish marshes



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of Western Europe. All of the remaining salt marshes and mud flats in the Scheldt estuary fall under the protection of the European Habitat Directive.

Recreation and fisheries. Recreation in the Scheldt basin mainly concerns riverside recreation. In the Dutch part recreation is concentrated around the river mouth. Marinas are situated in Antwerp, Terneuzen, Breskens and Vlissingen. Because of the intensive professional navigation to the port of Antwerp, yachting is concentrated in the western part of the Western Scheldt. Recreational and commercial fishery activities take place in the relatively clean areas in the catchment's-area.

The Scheldt Estuary: main issues in integrated management

Accessibility. Since 1970, large dredging activities took place in the estuary to deepen the navigation channel. Sea vessels with a draught of up to 11.85 meters can now sail as far as Antwerp regardless of the tide. Ships with deeper draught must wait for a favourable tide to be able to sail over the various bars in the navigation canal. In the near future, shipping lines will make use of larger container ships and tighter time schedules in order to reduce costs. Therefore, a second deepening was conducted in 1998 and recently Antwerp requested for a further deepening of the channel in order to remain accessible for larger sea vessels.

Nature conservation. The total area of salt marshes, mud flats and shallow water has decreased dramatically during recent centuries. In the Dutch part of the estuary, the total area has been reduced by half since 1800. The area decreased from 15,000 hectares to 7000 hectares during this period, mainly as result of land reclamation. Straightening dykes has also eliminated backwaters in the estuary. In Flanders, the total area of salt marshes has decreased by nearly 25 percent since 1900, from almost 700 to 550 hectares. The estuary has too little space and too much tidal influence to allow such areas to develop or allow existing areas to be maintained. An unrestricted deepening of the channel will lead to a further serious decline in biodiversity in the area.

Water quality. The water quality is moderate to bad, although improvements have been made over the recent years. About three millions households drain off their untreated domestic wastewater in the Scheldt or in its tributaries. Industry has made important efforts, but pollution with heavy metals and organic micropollutants is still significant. Agriculture is mainly responsible for the large nutrient load, particularly of nitrogen, into the Scheldt estuary.

Safety. In 1953, there was a disastrous flooding in the south-west part of the Netherlands, at which more than 1800 people drowned. This disaster formed the stimulus for a large-scale flood protection project called the Delta Plan. Since then, most estuaries in the Netherlands have been isolated from the sea by barrages and flood barriers. The only estuaries that have not been blocked off are the Nieuwe Waterweg and the Westerscheldt, in order to provide access to the port of Rotterdam and Antwerp. Dykes along these estuaries were made higher.

The region was again struck by a storm tide in 1976. This time the Netherlands remained unscathed, but major floods occurred along the Scheldt in Flanders. Shortly after this, Flanders instigated the Sigma Plan whose most important elements are the reinforcing of all dykes along the Scheldt and establishing controlled flooding areas. However, the Sigma plan has not been completely implemented yet and consequently



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 Overview of current practices in the EU and Russia"**

there is still a risk for flooding. Moreover, sea level rise due to climate change will eventually influence the safety against flooding in both Belgium and the Netherlands.

Institutional framework

Historical background

The Scheldt estuary has long been a source of conflict between the southern Netherlands (Belgium) and the northern Netherlands, which mainly had to do with the competition between the port of Antwerp and the ports of Amsterdam and Rotterdam. A number of treaties have been made and joint bodies have been established to deal with this conflict. The table below presents an overview of main historical events.

Fig. 35: The Scheldt estuary: Overview of conflict and cooperation between Belgium and the Netherlands from 1585 till present

Year	Event	
1585	Blockade of the Scheldt	Separation of the Northern Netherlands from Spain (independent war) Republic of the Netherlands Capture of Antwerp by the Spanish Occupation of the southern Netherlands Growth of the port of Amsterdam
1648	Treaty of Munster	Peace treaty between Spain and the Northern Netherlands (republic) Schelde remains closed
1795	French occupation of the Netherlands	Lifting of the blockade
1815	General act of Vienna congress	Southern and northern Netherlands united into one Kingdom Regulation of freedom of navigation on international rivers
1839	Separation treaty (including Scheldt statute)	Separation between southern and northern Netherlands. The state Belgium Application of articles of act of Vienna to rivers and waterways that form or cross the Belgian-Dutch border permanent committee for supervision on the Scheldt navigation
1863	Redemption of Scheldt toll	Unconditional freedom of navigation to Antwerp
1906	Issuing of first dredging	Belgium needs permission for dredging activities on Dutch territory
1948	Installation of Technical Scheldt Committee (TSC)	Permanent consultation on technical Scheldt issues
1961	Treaty concerning the improvement of the canal Ghent-Terneuzen	First Belgian-Dutch agreement concerning technical Scheldt issues
1963	Treaty concerning the connection between Scheldt and Rhine	Issue of inland navigation between Scheldt and Rhine is settled
1963-1994	Several consultations and agreements	
1994	Treaty of Charleville-Mezieres concerning the protection of the Scheldt	Establishment of International Commission for the Protection of the Scheldt (ICPS)



Selected Case Study of CABRI-Volga Project Deliverable D3 "Environmental Risk Management in Large River Basins: Overview of current practices in the EU and Russia"

1995	Treaty on deepening of the Western Scheldt	
1999	Initiative for a long-term vision by both countries	Assignment to TSC
2001	Treaty of Liege	Appointment of an international basin according to the EU framework directive
2001	Memorandum of Kallo	
2002	Memorandum of Vlissingen	Agreement on objectives long-term vision for 2030 establishment of project organization ProSes
2004	Development Outline Scheldt Estuary 2010	
2005	Outline approved by both countries start of implementation	

The Technical Scheldt Committee (TSC)

In 1948 the Technical Scheldt Committee (TSC) was established. It is directed by a Flemish and Dutch chairman and its primary task is to advise Flemish and Dutch politicians on technical issues such as water infrastructure and general management. The present tasks result from the treaty concerning the deepening and widening of the navigation route that was drafted in 1995. In 2001, Flanders and the Netherlands reached agreement on the development of a long-term vision for the Scheldt estuary (respectively the memorandum of Kallo 2001 and that of Vlissingen 2002). For the elaboration of this plan TSC established the project organization ProSes (www.proses.nl), which operates in an 'triangle' with TSC and the multi stakeholders' platform OAP ('Consultative Committee of Advisory Parties). The latter represents the participating governments, official bodies and interested parties. The figure below illustrates the institutional framework and relationships between the different actors.



**Selected Case Study of CABRI-Volga Project Deliverable D3
 "Environmental Risk Management in Large River Basins:
 Overview of current practices in the EU and Russia"**

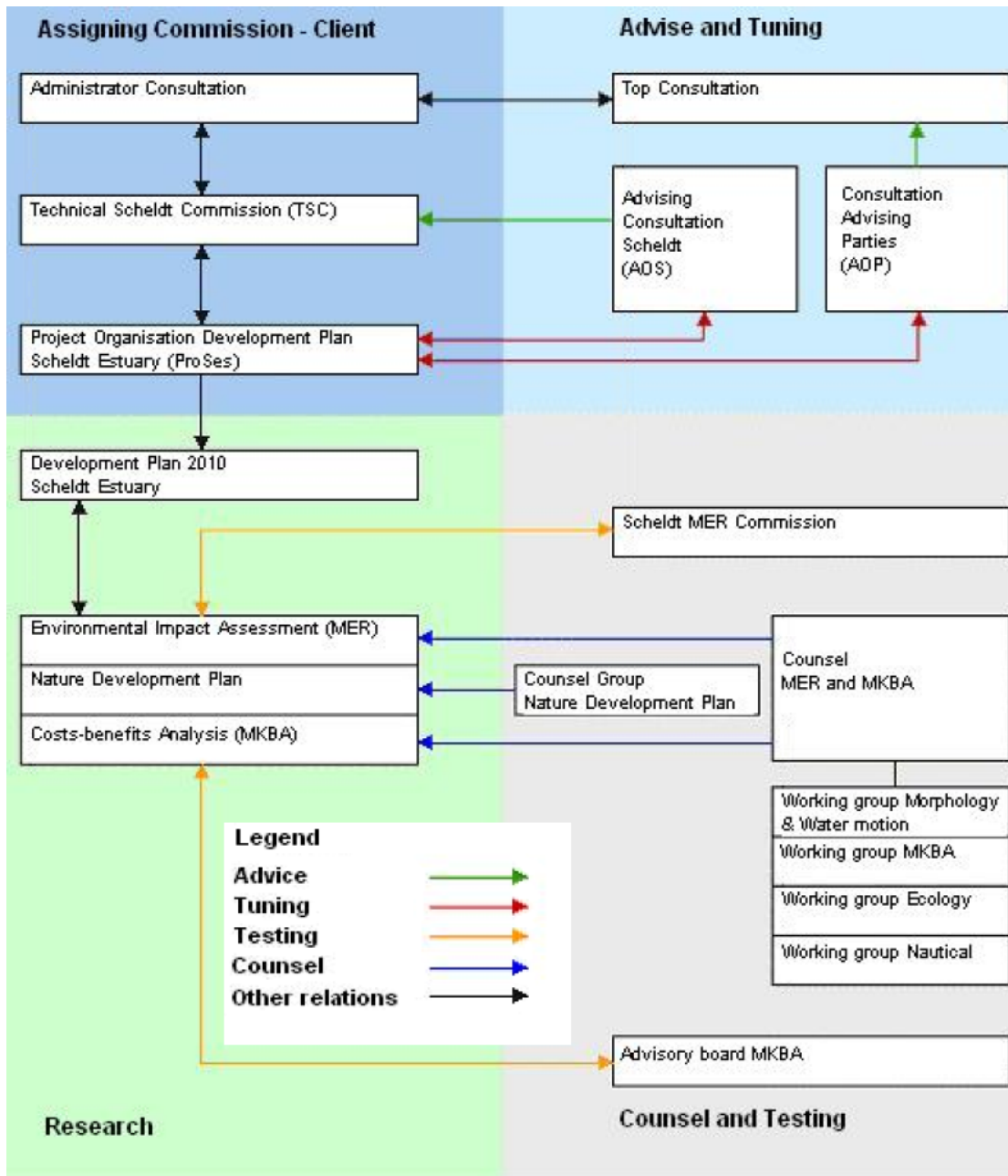


Fig. 1 The institutional framework for the development of the Scheldt Estuary Development Outline 2010.

ProSes and ProSes2010

The first task of ProSes was to make a solid, broadly supported Draft Development Outline aiming at a sustainable development in the Scheldt estuary till 2030. Several studies were carried out during recent years: a strategic environmental impact study, social cost/benefit analysis, a study on measures for developing the natural environment. During the preparation of the Development Outline, interested parties made contributions during e.g. workshops. They were regularly informed on the state of



Selected Case Study of CABRI-Volga Project Deliverable D3 "Environmental Risk Management in Large River Basins: Overview of current practices in the EU and Russia"

affaires via brochures, newsletters and the website. Furthermore, public hearings were held, in which draft versions of the Development Outline were presented. The responses were compiled and published, and used in formulating the final version. The 'Scheldt Estuary Development Outline 2010' (ProSes2010) was presented by the end of 2004 and approved by both governments in March 2005. It has three main foci:

- **Safety:** maximum protection against flooding in the region
- **Accessibility:** optimum accessibility to the harbors on the Scheldt estuary
- **Natural environment:** a dynamic, healthy natural environment.

The Development Outline does not deal with all of the problems in the Scheldt estuary. For instance, it does not address the issue of improving water quality. This issue is already being dealt with jointly by Flanders and the Netherlands, along with other Belgian regions and France, in the International Commission for the Protection of the Scheldt (www.isc-cie.com).

Implementation

At present, the first steps are made for the implementation of the resolutions made by ProSes2010. Table 3 gives an overview of the different project plans. A new joint project management team has been established to coordinate this process. In 2006 the governments are to sign the new treaties on financing of the resolutions, the order of significance of the resolutions to be implemented and on how they will further proceed to attain the target situation in 2030.

Concluding observations

The establishment of the Technical Scheldt Committee was a first important step in the normalization in the relationship between Flanders and the Netherlands with respect to water control and management of the Scheldt estuary. From 1995, the decision making process developed slowly, from a situation of conflict, distrust and contra-productivity to a situation of interactive policy making by co-operation between different actors of both countries. The triangle formed by ProSes, the Technical Scheldt Committee and the multi-stakeholders' platform (OAP) proved to be a successful concept for process directed decision making. 'Joint fact finding' plays a prominent role in this. In this way commitment of the different actors can be obtained, that helps keeping the decision making process under way.

Of course, there were tensions, particularly with respect to participation and communication. The interests of the port of Antwerp are different from those of nature conservation organizations or those of agriculture. A number of representatives of the port of Antwerp threatened with juridical steps. Similar contrasts exist with respect to the safety measures to be taken in the area. In Flanders safety projects are conducted by another organization which operates separately from ProSes. Large areas of agricultural land are claimed by ProSes in order to be transformed into flooding areas. As a protest, agricultural organizations in the Netherlands refused to become a full member of the multi-stakeholders' platform. The Dutch province of Zeeland felt that the advantages of the Development Outline 2010 do not outweigh the disadvantages for its province and, therefore had large objections against the Outline. Flemish agricultural organizations and Dutch industry felt under represented. Groups of citizens were unsatisfied with the communication about The Development Outline because it was not quite clear who was



**Selected Case Study of CABRI-Volga Project Deliverable D3
"Environmental Risk Management in Large River Basins:
Overview of current practices in the EU and Russia"**

responsible. However, despite all these difficulties the objectives of the ProSes2010 were obtained and the ProSes organisation is seen as highly successful.



**Selected Case Study of CABRI-Volga Project Deliverable D3
"Environmental Risk Management in Large River Basins:
Overview of current practices in the EU and Russia"**

Fig. 37:2 Overview of resolutions and project plans until 2030.

<i>Resolutions</i>	<i>Projects</i>
Safety	
<i>Increasing dyke heights and establishing controlled flooding areas along the Zeeschelde</i>	Flanders aims to establish 280 ha of controlled flooding areas by 2010.
<i>Common approach to safety</i>	Flanders and the Netherlands calculate the required level of safety in different ways. The Netherlands is presently examining whether the risk approach such as that used in Flanders is also desirable and possible in the Netherlands
Accessibility	
<i>Deepening and widening the shipping channel</i>	Flanders and the Netherlands have decided that ships with a draught of 13.1 meters must be able to sail as far as the harbour of Antwerp regardless of the tide. For this purpose, the authorities will lower the level of sills in the channel by 1,4 meters. At the border of both countries, the Scheldt will be widened from 250 to 370 meters over a length of 5 kilometers
<i>Flexible dumping locations</i>	All maintenance dredgings will be dumped back into the estuary. Careful selection of dumping locations is necessary to avoid silting-up of side channels and erosion salt marches and mud flats. The selection of dumping locations will be made more flexible in order to allow dumping to take place where it is most favourable for the vitality of the estuary.
<i>Monitoring</i>	A monitoring program will be established during and after deepening
<i>Acceptable risks</i>	The governments will improve the provision of information regarding safety policy to lower-level governments and the general public
Natural Environment	
<i>More room for estuarine developments</i>	In total, at least 1000 hectares of new estuarine environment will be added to the Scheldt
<i>Increased vitality</i>	To restore natural vitality where possible. For example, by alternative dredging and dumping strategies, constructing or removing breakwaters, excavating old marshes, and increasing or decreasing the depths of the channels.
<i>Multifunctional environment</i>	Combining natural environments with other objectives such as safety, agriculture, marine aquaculture, recreation and residential/employment initiatives



**Selected Case Study of CABRI-Volga Project Deliverable D3
"Environmental Risk Management in Large River Basins:
Overview of current practices in the EU and Russia"**