

Appendix 2. ES not included in the economic valuation

Qualitative discussion of effects that are not in the economic analysis, based on the environmental impact assessment report of the project (Soresma et al. 2007).

ES	Specific aspect	Effect
Lifecycle maintenance, habitat and gene pool protection	Maintaining nursery populations and habitats	The project is about the creation of estuarine nature, an important habitat according to the European habitat directive. The project area is located along an important bird route, mainly for waders, ducks and herons. The loss of crop fields will generate a temporal negative effect (loss of foraging areas), but it is expected that the project area will play an important role in the daily and annual bird migrations and as such optimize the large bird area at this part of the Schelde estuary. In case of good water quality and visibility fish species could be expected in the sheltered shallow water bodies in the project area.
Food provisioning	Sea fish & shellfish	Productivity in the estuary that is attributable to the nursery function of the created intertidal area.
Hydrological cycle and water flow maintenance	Drainage	The installation of a new pumping system (capacity: 3 × 300 l/s) has a positive impact on the drainage of the project area and also of the surrounding polders. But this has an economic cost.
	Groundwater	Negative effect on ground water system because area is drained during construction works, but effect is only temporary during the construction.
	Water levels	Positive effect on the water levels of the Schelde (decrease water level river), but effect is double with ES Flood protection.
	Dissipation	Positive effect on dissipation of tidal and river energy and on landscape maintenance.
Sedimentation and erosion	Erosion from creek formation	Creek formation in an intertidal area is important for proper drainage of the area, but reduces sedimentation related benefits.
Water quality regulation	Pesticide use	With the conversion of crop land, pesticide use in the area is reduced and the new intertidal area will serve as a buffer for nutrients coming from the surrounding agricultural land.
	Ground water quality	Impact on ground water quality is negative, but limited. Potential leaching of transport water in sand stocks (during construction works), and supply of contaminated suspended matter from contaminated flood Schelde water.
Physical and intellectual interactions with biota, ecosystems and land- & seascapes	Landscape and biodiversity suitable for research	Number of projects and scientific publications about the project to improve the understanding of natural processes and technological applications.
	Cycling	A cycling path will be created along the new dike (along the former Engelbertstraat), partially at the inner and outer side. This gives a good overview of the project area. Mitigation measures are needed to reduce the potential disturbance of breeding birds. Examples are the creation of a high shrub layer along waking and cycling paths, or even closure of potential breeding locations (riparian zone along the Schelde river) from the Kentish Plover (<i>Charadrius alexandrinus</i>) during breeding season (April-June). Therefore recreation in this part will be restricted during breeding season.
	Recreational shipping	The little Prosper yacht harbour will be lost.
	Ecolodges	Ecolodges will be built at the outer side of the Natura 2000 area and will attract only a few additional visitors who besides visit the area for nature experience and quietness. Therefore, this will not cause a lot of disturbance.
	Nature cottage	The expected number of visitors will cause disturbance in the immediate surroundings, mainly optical disturbance with effects for the Kentish Plover (<i>Charadrius alexandrinus</i>) population.
	Recreation path	A recreation path along the Leidingendam will offer nice recreation opportunities. However, mitigation measures are needed to reduce the potential (optical) disturbance at both sides of the dam where breeding birds could be disturbed.
	Observation points and information points	Observation points and information points will be created to increase the cultural history and to tell the story of the different embankments previous to the tidal marsh restoration project. Mitigation measures: strategic choice of locations for observation points with enough distance from Pied Avocet (<i>Recurvirostra avocetta</i>) colonies; screen the entrance to the observation points; or even closure of potential breeding locations (riparian zone along the Schelde river) from the Kentish Plover (<i>Charadrius alexandrinus</i>) during breeding season (April-June).

	Historic dike relicts	The existing dike pattern will be breached or removed, including the historic dike between both polders. However, remains of the dikes will act as interesting breeding islands, improving the bird attractiveness of the project area.
	historic farms	A few historic farms in the former polder will be lost.
Spiritual, symbolic and other interactions with biota, ecosystems, and land-/seascapes	unique polder landscape	Loss of the unique polder landscape and disturbance of the open landscape by building a new dike (negative for the residents close to the project area).
	estuarine landscape	The historical estuarine landscape pattern will be created with the project.
Shielding: Mitigation of noise & visual impacts	Noise from the construction works	Additional sounds (+236dB(A)) from machines for dike construction and removal of trees. Also from ca. 500 extra trucks passing every day for the supply and removal of construction materials and sand. This effect is considered as limited, since it is temporary and the distance to the villages is quite large.
Platform function	Mobility	Driving on the old dike is not possible anymore. However, an alternative route is foreseen.