

Holocene landscape evolution of the Waasland Scheldt polders in relation to human occupation and exploitation

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Keywords: landscape evolution, Waasland Scheldt polders, Holocene

Abstract

The Holocene landscape evolution of the Waasland Scheldt polders, and its effect on human habitation, has been visualized in different palaeogeographical maps. Two map series were produced: (1) pre-medieval palaeogeographical reconstructions (11000 BP – 1000 AD) based on geotechnical, geological and archaeological data, and (2) post-medieval landscape reconstructions (sixteenth to nineteenth century) based on historical maps, land registers and soil data. The basis for the Holocene reconstructions was provided by the top Pleistocene relief map, which was used to determine the maximum extent of the successive marine, peat and estuarine deposits. A solid timeframe was provided by relative sea-level curves and a dated peat growth evolution model (Holocene landscapes) or old historical maps (post-medieval landscapes). Palaeoenvironmental information from fossil pollen and plant remains provided information on the vegetation changes, particularly for the middle to late Holocene. Only through combined methodologies it was possible to obtain an accurate reconstruction of the dynamic landscape and interpret successive stages of human settlement and land-use.

At the start of the Holocene the landscape was marked by coversand, locally eroded by channels of the palaeo-Scheldt river; human occupation was concentrated along the edge of a sand ridge. Rising temperatures caused woodland development, with peat growing in the low-lying areas. Human occupation decreased considerably, the last hunter-gatherers settling on the higher banks of the (fresh water) Scheldt river. Further sea level rise during the Middle Holocene changed large parts of the area into a tidal landscape and human occupation returned to the few remaining coversand ridges. During the late Holocene peat took over the entire area; this probably explains the absence of Iron Age and Roman settlements. Peat growth probably continued till roughly 1200 BP. During the last millennium the transformation of the landscape was largely due to human interventions. The latter started with the building of small dams, but gradually larger dikes, ditches and roads were constructed, often to excavate and transport peat. Intensive land reclamation through embankment took place, and large parts of the earlier excavated peatland were drained and converted to agriculture land. By 1570 almost the entire area was embanked, and a large number of villages had been founded. During the next 50 years military inundations resulted in large-scale flooding of the area which was gradually re-embanked over the next centuries.