Towards an open delta...

Research and design for sustainable urban landscapes in an open Dutch SouthWest Delta

Project description

The interaction of technology for land reclamation in the 16th century started a unique transformation in the delta, local planes were filled up and pumped and became polders. Examples of early harbor cities like Rotterdam and Dordrecht are today the first case studie. These planes were flooded in the 16th centuries of a coral trap. The planes are restored and filled for new settlement development, due to the hard edges of the planes. Dense is the densest settlement correlated with the dike-ring. The dike-ring is composed of a few adjacent planes and the new harbor landsform.

The landfills planes from ZW Delta, but technically the process came to an end in 2003 with a stop of settlement development in the delta. The Millenniuim report of 1999 about the future of coastal development projected the initiatives of the ZW Delta against probable major issues, removing the flood- proof levee and opening the Dutch soil and allowing the Dutch SouthWest Delta. However, the Dutch national initiatives are not properly integrated into the national planning. The process towards an open Delta was not clear.

The graduation project presents research by design for the SouthWest Delta: The Weerdenduyn Delta (2009), the most important plane for flood protection. The project is a mixed-use landscape, knit with nature, and an open Dutch SouthWest Delta. The open delta reduces, as proposed by Kuiper (Zandvoort/Denhaag Delt). And WNF (Open Deltawaarden), gradually reducing the delta dynamic in the present. The future of the ZW Delta is not only a floodproof levee but also provides a form of the urban landscape. It is a complex and structural approach by irregularly controlled sections in urban, cultural and natural areas. The new relation of delta cities with natural development combined with Dutch culture has a decentralization of urban planning. The project presents a new kind of urban scale, social initiative and the management of the new economic situation. The Delta Delta, where the ZW Delta is situated in the ZW Delta, it is possible to calculate. It is possible to see the future landscape of an open delta.
The process towards an open delta in combination with the extended creek network, based on historic creeks, will transform during the phases from a cultural urban landscape to an open ecological area. The highly urbanized delta cities will transform into attractive recreation routes.

Waterstorage of the creek network is crucial for the protection of adjacent areas. Rain water will be stored and eventually released into the delta as it faces a potential increase in the discharge and storage of this rain water. The Krammer Volkerak becomes a part of the delta polder, and the harbor re-introduces the characteristic and functional harbor canal (to the harbor). The L-shape in the church ring connects to the intertidal area and the re-vitalized harbor. The new housing area, a combination of the old harbor area and the industrial delta city, is developed on area. Although the harbor is very vulnerable towards flooding, a combination of water defense and sustainable urban relation(s) with nature provide solutions in which hard edges will be given back to nature in which soft and flat land forms enable nature to provide solutions and value.

Towards an (des)integrated dike line, the floodplains transform into an open nature reserve. The intertidal area functions as a breeding place for (migrating) birds in which the 'wierden' can transform during different phases from a natural forest to landscape that provides natural water storage, nature development and an area for 1-day-tourism. The 'wierden' can transform during different phases from a natural forest to landscape that provides natural water storage, nature development and an area for 1-day-tourism. The Krammer Volkerak becomes a part of the delta polder, and the harbor re-introduces the characteristic and functional harbor canal (to the harbor). The L-shape in the church ring connects to the intertidal area and the re-vitalized harbor. The new housing area, a combination of the old harbor area and the industrial delta city, is developed on area. Although the harbor is very vulnerable towards flooding, a combination of water defense and sustainable urban relation(s) with nature provide solutions in which hard edges will be given back to nature in which soft and flat land forms enable nature to provide solutions and value.
From inundation to intertidal area

The Dutch Southwest Delta is re-opened as part of the plan of ZW Delta and H+N+S Landscape architects. Tidal dynamics are restored and will provide a water level difference of 1.0m to 1.5m. The watergates built to let the area be inundated will now be set open to establish an ecological transformation in the inundation area or intertidal area.

The open delta in this phase is a controlled delta, where the (modified) Delta Works still provide water defense against the sea. With the re-opening of the delta the water in the Krammer Volkerak becomes salt/brackish and the problems with algae will be solved.

Living in the contact zone

The ecological transformation from a freshwater ecology to a brackish ecology continues and the process of sedimentation provides new flora (and fauna) in the Krammer Volkerak. Inhabitants of the modern castles will witness a process of changing vegetation. From ‘engels slijkgras’ to ‘strandkweek’ and ‘zeeaster’. The intertidal area could in this sense also be described as a contact zone between urban form and nature.

Living in a transforming landscape

The dynamic landscape of the intertidal area provides an ideal location for a living or landscape living. In the vicinity of the delta cities Oude Tonge and Ooltgensplaat modern castles will be built that in time embed itself in the landscape. Within 30 - 40 minutes of Rotterdam the housing is ideal for people looking to escape to nature.

Controlled tidal dynamics

The relation between open water, intertidal area and delta cities is restored. The city has, as in the past, a direct relationship with water. In this transformation the (old) water defenses on the island will be enhanced. The Delta Works till this phase has functioned as primary water defense to protect the delta during hazardous water levels.

Going to the contact zone

The transformation of the contact zone is a link water bridge to a brackish ecology zone. The (modified) Delta Works still provide water defense against the sea. The vegetation will change from a process of rich historical and cultural value to one subject to natural development. Inhabitants of the modern castles will witness a process of changing vegetation. From ‘engels slijkgras’ to ‘strandkweek’ and ‘zeeaster’. The intertidal area could in this sense also be described as a contact zone between urban form and nature.
Open delta

The Dutch Southwest Delta is completely open. With this open delta, the defensive function of the Delta Works has made way for the catchment of nature and sediment. The tidal dynamic has a fluctuation of 6,0m to 6,8m (3,0m to 3,4m above NAP) (Bath, The Netherlands is used as reference for this fluctuation). The fresh water storage on Goeree Overflakkee is essential.

Natural water defence

As the outer dike, the inner dike transforms from a hard border to an integrated element in the landscape. The water defence in the Krammer Volkerak is natural and relates the intertidal area with the polder area.

Attractive shipping route

The manipulation of the waterflow with groynes, islands are created that separate cargo and recreation shipping in the Krammer Volkerak. This generates more safety, but increases the attractiveness of the shipping route.

Living on a ‘wierde’

The design of landscape living on the Wierde is based on the case study research on ‘wierden’ of the Waddenzee. The form is not circular but is stretched to embed itself in the dike, the parcels follow this form. The pool and the garden/vegetation in the middle of the ‘wierde’ are characteristics that are used to relate to the study and ‘wierden’ in general. Public initiative is a key term for housing development on this earthen hill in a transforming and attractive landscape in the vicinity of delta cities.

Open delta

The vision of WNF to have natural water defenses, landscape living are integrated in this last phase. The sedimentation process is fully re-established. The defensive function of the Delta Works has made way for the catchment of nature and sediment. The sedimentation in the Krammer Volkerak continued. But with increased sedimentation there is a threat of silting up the area that unables shipping and decreasing water storage. To maintain an open shipping route groynes are used to narrow the shipping lane, providing a stable and high waterspeed that can transport sediment.

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