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Urbanismo
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In 2028 the Volkerak-Zoommeer is no longer a freshwater lake. A diversity of problems with the present water quality have caused the government to rethink the implications of the Delta Project that closed off the lake from the sea. The waterbody and its surroundings are being transformed into a salt water lake, a process that will take many years to complete with the sea has started. The Volkerak-Zoommeer will become saline again and limited tides will be reintroduced in order to create a more robust water and ecosystem.

The transformation from a fresh to a saltwater system can be part of a new era in the continuous battle in the Netherlands to live with the water. For centuries the Dutch have been fighting against the sea and the rivers. The Delta Project was the last step in the Delta Plan which separates major areas of the delta from the dynamic sea and make the Volkerak-Zoommeer fresh. These interventions in the natural delta system have resulted in a simple and robust water system. The Volkerak-Zoommeer functions as a buffer and provides a fresh water acceptable. In order to keep the land optimized for different production sectors, the land is flushed with a high amount of water from the rivers in periods of drought, which causes problems for the water quality in the Volkerak-Zoommeer.

The first step to a more natural and robust water system is made with the decision for the transformation to a saline Volkerak-Zoommeer. However, in the plans of the government the Volkerak-Zoommeer is still a freshwater lake and a new strategy for the water system should be established. This way another artificial system is created and it is unclear this system will be sufficient on long term. Research should be done for alternative strategies.

In today's world market takes more from mother earth than natural resources can refill. To be able to maintain the current standards, we have to make the transition from a linear economy to a circular one. Can the Delta Plan, the iconic industry as a landscape machine' is in study to the potentials for the area where saline water not only comes back into the lake, but will be welcomed into the land again as well. This way the dependency on displacing freshwater supply can be reduced and a more sustainable situation can be created. This transformation from a fresh to a saline water system can be a metaphor for monoculture into a diverse landscape, rich with biodiversity, a sustainable economy and attractive for people to live, work and recreate.

Freshwater supply

The estuary

Average freshwater landscape into a saline landscape machine, independent of the fresh water supply, the saline water has to be able to flow into the polders. For this existing infrastructure can be used and adjusted. The Delta Plan, the iconic industry as a landscape' can be used as a natural engine to let the saline water flow in and out of the area. To transport and spread this water the historical creeks will be used, which date from the time the land was still a tidal area. Some of the creeks are still present in the landscape, some are gone that are left, but remains can also be found in the polders, their winding structure are in strong contrast with the linear lines from the roads and the straight agricultural allotment. Some of the creeks are still navigable and can be used for the transport of people. The formation of the landscape can become visible again, water can be transported into the area and at the same time a water network is created that is navigable. This can be used as an alternative transport network for recreation and for the transportation of goods.

The origin of the polder has had as result there are height differences in the area. The older polders are lower than the younger polders, the oldest polders are 6 m lower than the sea. In the current accretion polders, the sea had a longer period to deposit clay, as a result these polders are now situated above sea level. In the two areas, two different landscapes, based on the same principles arise.

Ecological processes

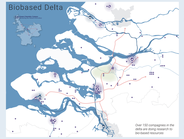
In the salt water system ecological processes happen that make it a very fertile area. A lot of organisms live here which have a positive influence on the environment and can be harvested for food or as raw materials for certain products. Examples of this are a wide variety of seaweeds, mussels, oysters, seaweeds and fish. At the same time the area is a popular breeding place for birds.

This ecosystem can be implemented in the landscape machine. Making use of these natural processes can cause a wealthy biodiversity and change the current monoculture white still being productive.

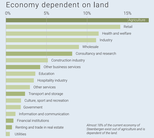
In the salt marshes, where the land is below 5 NAP, this ecosystem can grow in a natural way when the water is welcomed back in the area, but tuned to improve the harvest. In the lowest part with permanent water fish can swim, at the lower mudflats shellfish and seaweed can be cultivated. On the higher grounds plants like samphire, reed and marsh mallow can and the permanent dry areas can be used as a breeding area for birds, can cattle graze or saline crops been grown.

Economic history

Biobased Delta



Economy dependent on land



Living in the landscape machine

The area should be the only place for production and services, in this landscape machine, people have a place as well and should feel welcome. At the moment estuary like landscapes are not the most attractive places to live, the harsh climate is very dominant at the foot of dikes like the Vendroiten land van Dpathorpe and there are the Wadden Islands in the north. But most of these areas are difficult to access and hidden because of safety reasons and the high natural value.

The region of Steenbergen will be a new estuary where ecological values are accompanied with economic activities. The area will be a place where people live and work and where economic bring new life to the area and attract new people. Because the ecological and social development are tied together in this concept, it can be opened up for different kinds of people who want to live and work in a dynamic and inspiring environment in and with the area. The uniqueness of the area makes it attractive for tourists and recreation. Facilities like boat and bike rentals, hotel accommodations, wellness and culinary activities can be established.

The estuary is also a place to live. Generally speaking, you can distinguish three target groups who want to live in the area. The first group is the young family who want to live in more traditional family. The entrepreneur is a person who wants space to start up his business in the industrial, agricultural or tourism sector. The first type can settle on one of the islands in the estuary, the entrepreneur can find a suitable location where he can settle in the scale zoning. Existing farmyards can be expanded or transformed and new ones can be created within specified conditions. Recreational facilities can be strategically placed along the main structures, nearby villages to give a boost to these places.

Landscape lovers are idealists and pioneers. They are independent of their location within the estuary and they are willing to live in temporary accommodation. The temporary character of the development speaks to them and they are very aware of their environment. They are adventurers that dare to try a different form of living and love the space and silence around them. Dependent on their desires, it is possible to live solely or together

Dynamic landscape

West Brabant was a dynamic area in the past where the sea changed the form of the land whose it still is in dynamics.

Salinization risk

West Brabant have a risk of salinization because of the huge amounts of salt in the ground water and stored in the ground.

Salinization process

Steenbergen is situated on the edge of the sand and clay grounds. When the Volkerak Zoommeer is saline again and the salinity in the groundwater increases because of the higher clay presence, in periods of drought, the saline ground water comes up as seep and form a risk for the agriculture.

Landscape machine

The landscape machine is a term, originated from the Wageningen University. The essence of the landscape machine is the creation of a living landscape with productive qualities. The landscape machine has three interventions in mind: 1. Water quality improvement, 2. Water plus energy or purification of contaminantes. These aspects are important in order to create a landscape machine

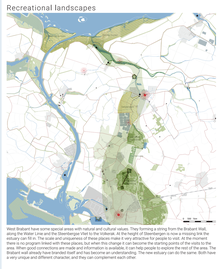
1. It has to be a productive landscape that resolves a malfunction with the help of design.
2. Machine is meant as a system based on ecological processes that are used and maintained by people who live and work in it.
3. The metabolism or in and output of the system can be measured

From the urban perspective a fourth aspect can be added: people. In order to create a living landscape, it should be a landscape where people are welcome and be part of. The landscape machine not only can help malfunctions in ecological processes, it also can have a positive influence on the quality of life.

The study started with Brabepunt that consists of multiple organisations and municipalities around the Volkerak-Zoommeer. During the study, the research has zoomed in to West-Brabant, with central the municipality of Steenbergen. It is an area that exists for 70 percent out of agricultural land with large fields of grain, potatoes and sugar beets. This monoculture has a negative impact on the quality of the water and the biodiversity and the aspect of spatial quality. The villages in the area have, like in more rural areas difficulties to maintain their facility levels and a pleasant living environment. The estuary as a landscape machine has the promise to revitalize the area and provide it with new qualities.

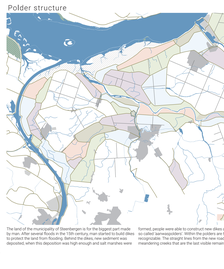
Structural vision

Recreational landscapes



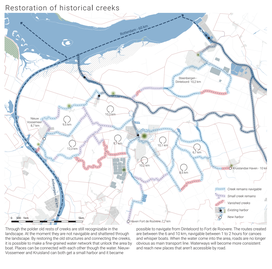
West Brabant have some special areas with natural and cultural values. They forming a string from the brabant wall, along the Water Line and the Steenbergse Vliet to the Volkerak. At the height of Steenbergen is now a missing link the Steenbergse Vliet is not accessible and the Volkerak is not accessible for people. The area is very open and there is no program linked with these places, but when this change it can become the starting points of the visits to the area. When good connections are made and information is available, it can help people to explore the rest of the area. The landscape machine can be a place where people can experience the new estuary can do the same. Both have a very unique and different character, and they can complement each other.

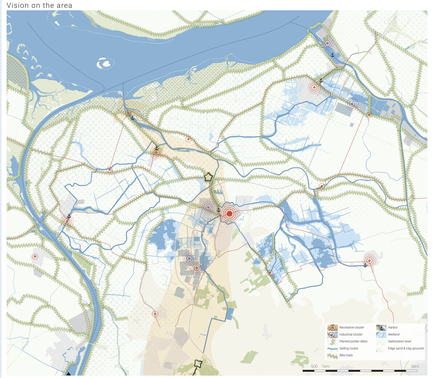
Polder structure



The land of the municipality of Steenbergen is for the biggest part made by man. After several floods in the 15th century, man started to build dikes and drained the land to create farmland. Because the land was created by deposited, when this deposition was high enough and salt marshes were formed, people were able to construct new dikes and claim new land, the so called saltenwaqkers. Within the polders are two contrasting structures present. The older polders are lower than the younger polders and have a meandering creeks that are the last visible remains from the salt marshes.

Restoration of historical creeks



Through the polder old veins of creeks are still recognizable in the landscape. At the moment they are not navigable and shattered through the landscape. When these creeks are made navigable and connected to each other it is possible to make a fine grained water network that unlock the area by boat. Places can be connected with each other though the water. Nieuw-Vossemeer and Kruisland can both get a small harbor and it became possible to navigate from Dinteloord to Fort de Roosven. The routes created are between the 5 and 10 km, navigable between 1 to 2 hours for canoes and small motorboats. Because the routes are short, it is not economically obvious as main transport line. Waterways will become more consistent and reach new places that aren't accessible by road.

Vision on the area