

The Poelpolder Project (Het Nieuwe Water)

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The Westland area that accounts for 3000 hectare of glasshouse horticulture is even according to Dutch standards an extreme landscape. Once a landscape made by creeks behind the dunes, nowadays a landscape of glass. A landscape in which the rain cannot reach the soil, because it pours directly from the glass roofs into the ditches. The general plan for this area to improve this situation aims at large water basins for temporary overflows in periods of heavy rain. This would result in an even more industrial landscape. By creating a permanent capacity, based on the existing landscape conditions, the environment will be improved for sustainable housing, ecology and recreation.

Recent floods, whereby many hectares of glasshouse horticulture were inundated, made us more aware of the necessity to take measures. The biggest challenge for this area is the question how the excess water that pours down in this area in increasingly extremer weather conditions due to climate changes, can be collected and drained off.

The spatial pressure in this region is very high. This part of the country is below sea-level and very densely populated as a result of which there are no idle spaces that can be used for temporal storage of water. The drainage canals collect the water and lead it to the sea. It's an extensive branched network but without sufficient buffering. In case of heavy and sustained rainfall the water level rises above the limit of tolerance of 35 cm., which leads to flooded land.

At the same time there is a need for irrigation water in dry periods. For that reason water is stored in basins. Land is expensive in this intensive used area. So the growers are applying innovative solutions, such as floating greenhouses and cellars underneath greenhouses for storing irrigation water.

The national policy is aiming to increase the capacity of the land to store the peaks of heavy rainfall temporarily, in order to prepare the country for climate changes. This is done by enlarging the system of drainage canals and by creating lower areas for temporarily peak storage of water.

The aim to prepare the Westland area for changing climates is linked to other goals, such as increase the recreational and ecological quality of the area and to make the area more attractive to live in. This lead to the 'Poelzone Project'. The drainage canal Poelwetering is to be enlarged to collect the water and lead it to a new pump house at the seaside. At the same time, the Poelwetering will be provided by green banks to turn the Poelwetering into an ecological and recreational corridor from the river Maas to the North Sea.

A strategic element in the Poelzone Project is the 'Poelpolder'. A lower part of the area of about 60 hectares with its own regulated water level, surrounded by dikes and now still covered with greenhouses. The project aims to remove all the glass houses from the Poelpolder to change it into an ecological green area, which can also serve as an temporarily storage of water in case of emergency. In a situation of heavy rains which is foreseen to happen once in a period of 15 years the Poelpolder must be able to store 75.000 m³ water. To raise the money to realize the project, also about 1.200 houses will be built in the Poelpolder.

Development Company 'Het Nieuwe Westland', composed of local and regional administrators and the polder board, commissioned to design a Masterplan.

We first tried to design a basin of about 7,5 hectares, which can be filled with water once in 15 years and which could also serve as an attractive park. In times of heavy rains the park

would be covered with water with a depth of 1 meter. After the water is pumped out, a layer of mud would be left behind. Not a pleasant situation from a recreational or ecological point of view.

To decide where to locate the basin, a map showing the levels was used. The map showed that breaking the dikes would lead to a lake of about 40 hectares. This gave us the idea to change the polder into a lake; after all, a lake could be used for temporarily water storage too! With a limit of tolerance of 0,35 meter in water level, a lake measuring 22 hectares of water could store the 75.000 m³ water as well. So we changed the assignment into creating a lake, which can serve water management ecology, recreation and housing. By doing so, a lot of opportunities and advantages were created:

- The lake can be used 365 days a year for water storage, instead of once in 15 years, making the drainage canal system more solid.
- There is no more need for pumping water out of the polder and maintaining the dikes around it.
- It is more easy and safer to build houses on heightened land instead of near dikes.
- The new houses will be situated at an attractive lake, which can be reached by boat without the uses of sluices. Living with your yacht in the back of the garden.
- The lake and its banks give many opportunities for recreational use.
- The ecological potential of a lake including wetlands is very high.
- The lake will increase the quality of the water in the water system.

The Masterplan provides in an overall structure giving space to high and low density housing, floating houses, recreational banks and ecological corridors, linked to it's environment. It contains the following ingredients:

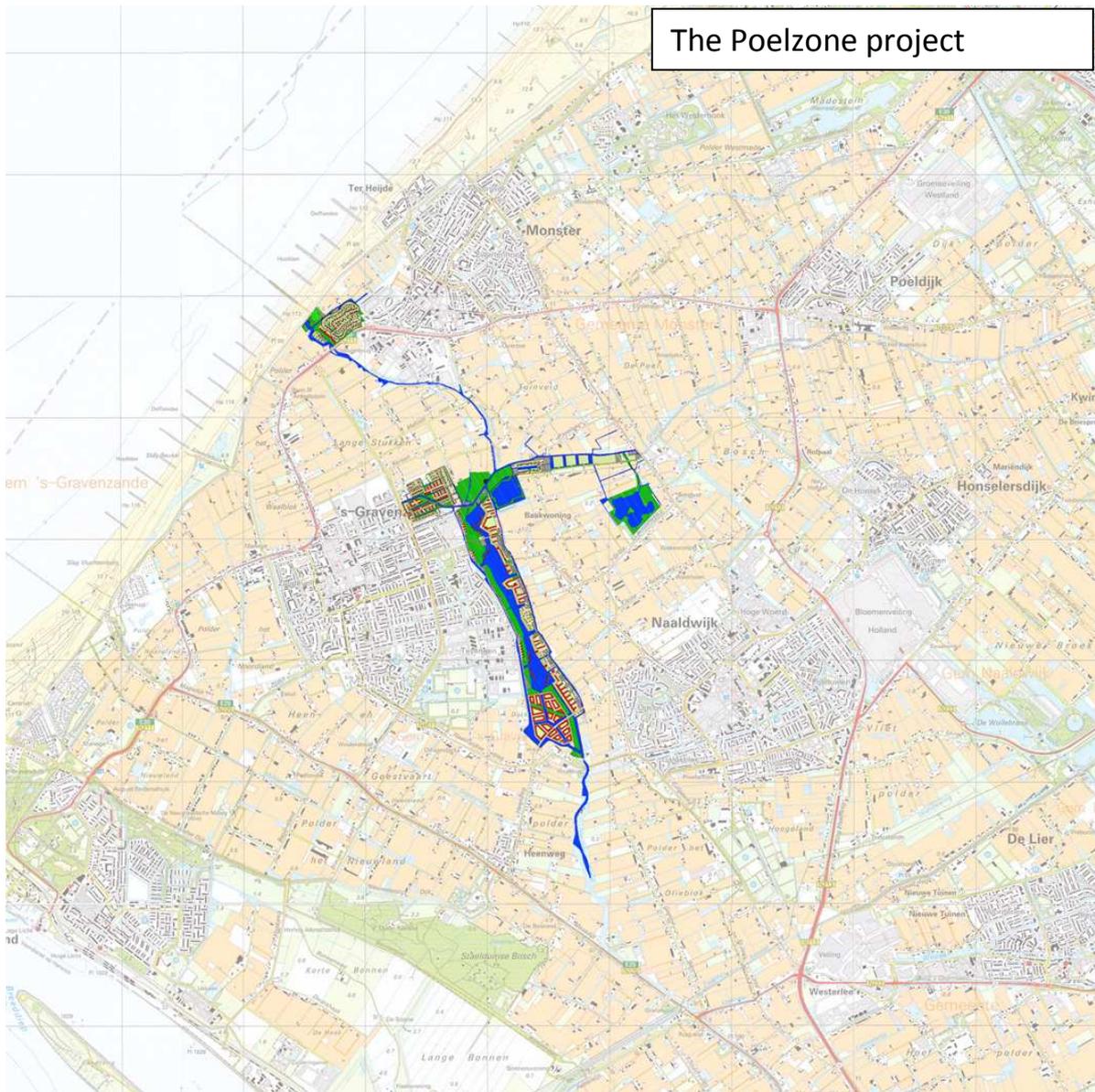
- The whole Poelpolder is considered to be a park, with place for recreation, living and nature, with the lake is the central theme.
- Housing will partially be provided by creating densely built area with canals and canal houses, like many Dutch fortified cities.
- The west bank will be arranged as an ecological corridor.
- The east bank will contain a promenade with housing in low density.
- The west side will join the adjacent area, which will serve as a green area.
- Living on the water will be possible, not only in new style house boats but also on floating platforms.

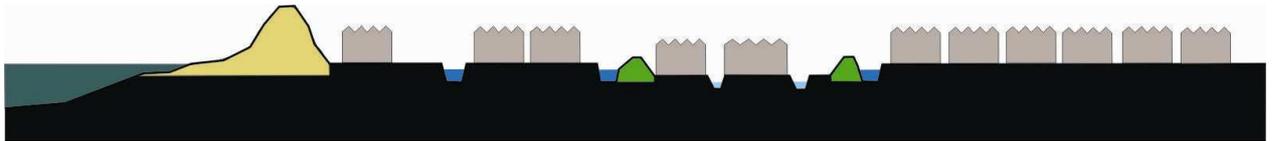
A design competition delivered a number of architectural solutions for the housing concepts. Realisation of the Poelpolder project is sponsored by the national government. Innovation will be the key word for the development. For instance, research will be done how to use the energy surplus of the greenhouses in the surrounding to heat the dwellings. Also geothermic energy will be applied for heating and to generate energy.

Recently, the masterplan has been elaborated into an urban plan by Koen Olthuis and a development plan. The start of building activities is foreseen in the end of 2010.



The Poelpolder (inside red line) in the Westland area





Cross section Poelpolder in Westland



Flooding bij heavy rains



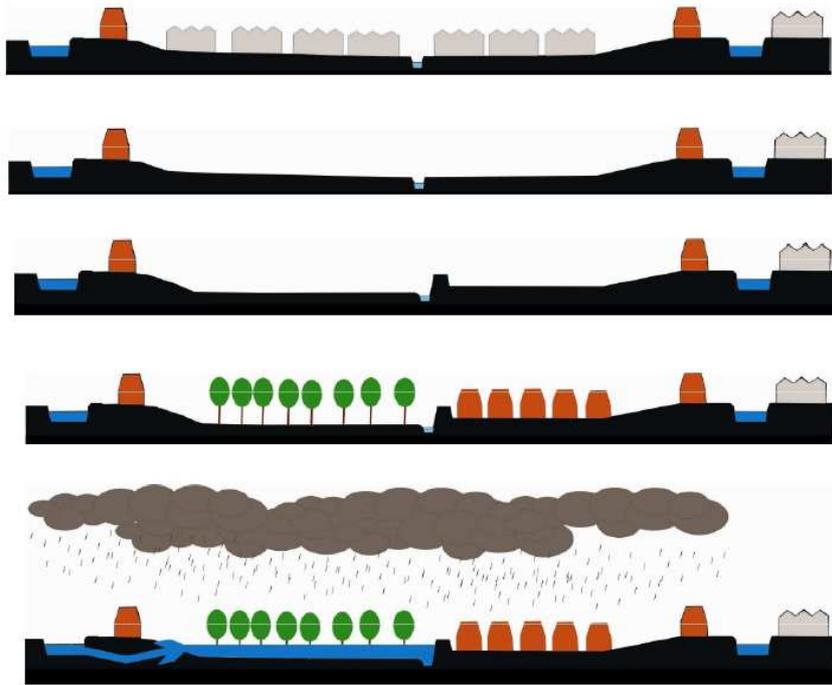
Masterplan Het Nieuwe Water (Ben Kuipers en Robert Schütte)



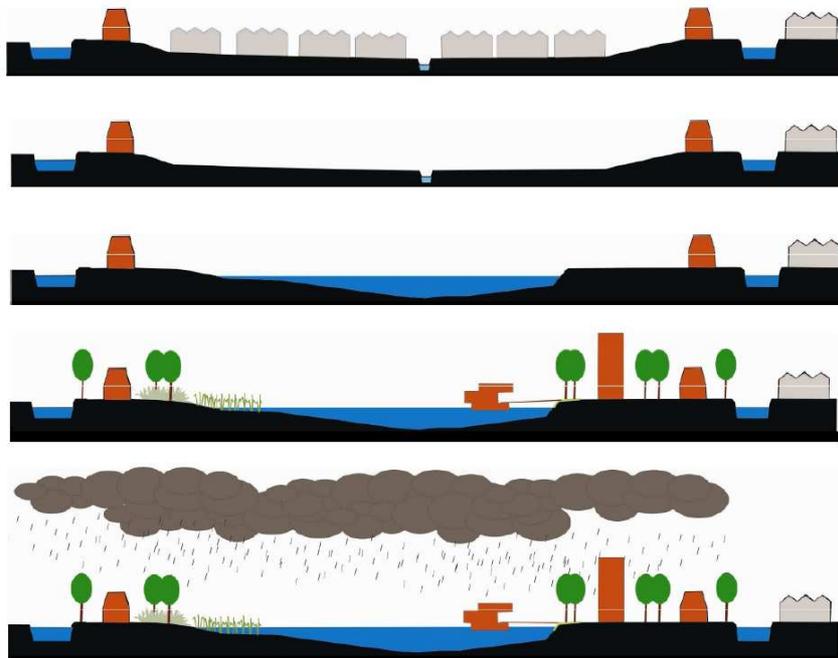
Uitwerking masterplan door Waterstudio



Impressie mogelijke uitwerking waterstadje (Kuipers/Schütte/3TO)



Changing the Poelpolder into a temporarily waterstorage in accordance with the assignment.



Changing the Poelpolder as part of a solid watersystem as designed in masterplan Het Nieuwe Water.



■ drijvend wonen

Model I

Door drijvend te bouwen kan het vestingstadje worden uitgebreid met een havenkant met behoud van de waterberging. De vestingwal / ecologische zone wordt mee uitgebreid om het vergrote stadje. In de havenkant die ontstaat wordt een drijvend bouwblok gemaakt (bijvoorbeeld met pakhuiscachtige woningen), een drijvend appartementenontwerp en steigers met 'traditionele' drijvende woningen ter vervanging van drijvende woningen langs de ecologische zone. Consequente van de uitbreiding is de verkleining van de plas. Dit model levert per saldo meer woningen op.

Model II

Aansluitend op het havenkant van model I kan een bouwblok van het vestingstadje als drijvend bouwblok worden uitgevoerd. Door de noodzaak van de aanleg van water neemt de bebouwingcapaciteit iets af. Dit kan wellicht worden gecompenseerd door een extra intensieve bebouwing van het drijvende blok.

Model III

Aanvullende op de havenkant (model I/II) worden ook aan de zuidwestrand bouwblokken drijvend uitgevoerd. Het verlies aan bouwcapaciteit door de aanleg van water wordt (grotendeels?) gecompenseerd door omlaag te bouwen tot aan de waterkant (hade-woningen) en door een kleine uitbreiding van het vestingstadje. Om kadewoningen te kunnen maken is de ontsluiting over het midden van de blokken getrokken in plaats van langs de buitenrand. Overvogen kan ook worden aan de kades drijvende woningen toe te voegen, waardoor bij de entree een grachtenmilieu ontstaat. Het appartementengebouw op de uiterste zuidpunt is als drijvend bouwblok uitgevoerd.

Study for floating houses in 'the fortified city'



Possible future images