

NETHERLANDS

Water management

Location

Bodegraven-Reeuwijk

Programming period

2014 – 2020

Priority

P4 – Ecosystems
management

Measure

M4 – Investments in physical
assets

Funding (EUR)

Total budget 1 203 255.0

EAFRD 547 377.5

National/Region. 547 377.5

Private 108 500.0

Project duration

2018 – 2020

Project promoter

Stichting Rijn & Gouwe-
Wiericke

Contact

vroege@kpnplanet.nl

annette.van.schie@hdsr.nl

Website

<https://www.hdsr.nl/>

The 'Future-proof peat meadow polder 'Lange Weide'', is the largest submerged drainage project in the Netherlands and a unique bottom-up initiative.

Summary

In livestock farming in the Netherlands, ditch water levels are reduced in order to preserve the carrying capacity of the parcels. This is causing soil erosion in the grasslands of Bodegraven-Reeuwijk. The ground level has fallen three metres in the past 900 years.



Submerged drainage is an effective measure to slow soil subsidence and this project supports a large-scale construction of such a system. The project also aims to widely share the knowledge gained. Thus, it is piloting an approach that could be applied in other comparable peat meadow areas.

Results

Installed 450 kilometres of submerged drainage to slow down subsidence in this peat meadow area.

28 landowners are taking part, including 13 farmers and 15 other landowners. This strengthens social cohesion in the project area.

A new drainage system has been installed across 310 hectares of one polder.

Land parcels are expected to erode less quickly than before. Previous applications of this type of action on individual parcels have shown a 30-50% reduction in ground level drop.

Context

The project area is located in the municipality of Bodegraven-Reeuwijk (South Holland) and within the management area of the water authority Hoogheemraadschap de Stichtse Rijnlanden (HDSR). Most of the project area consists of grasslands.

In the 'green heart' of the Netherlands, soil is eroding. This is the result of centuries of drying the peat subsoil. In livestock farming areas, ditches are used to artificially reduce the water surface level, in order to preserve the carrying capacity of land parcels. The result however, is that the ground level is dropping. As a result, the soil has already fallen three metres in the past 900 years. This had seemed to be an irreversible, unstoppable process, with major consequences for the future of the agricultural sector and the quality of the Dutch landscape.

The lowering of the water surface level, threatened to destroy the wooden foundations of houses in the Lange Weide polder. To prevent this, the district water board established floodwater facilities in zones in which the water level is kept high. However, because the ground level continues to subside, HDSR may need to reduce the water level in the agricultural area, or to lower the level in the high water zone. This choice has consequences for dairy farming, or for the wooden foundations.

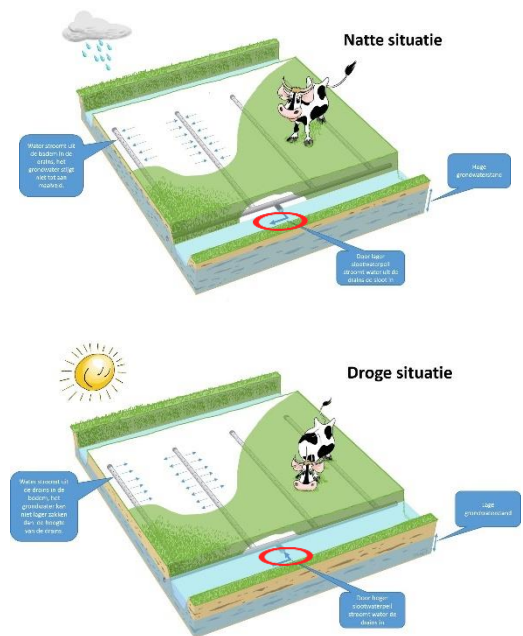
Objectives

The goal of the project 'Future-proof peat meadow polder Lange Weide' is to steer the groundwater level in the plots in such a way that soil subsidence is reduced. This will also serve to reduce greenhouse gas emissions and contribute to combating climate change. The project will help to provide and improve habitats for farmland birds and improve water quality and aquatic biodiversity. By reducing subsidence, sustainable agriculture will be able to continue in the peat meadows of the Lange Weide. In the long run this will limit the management costs for society.

Activities

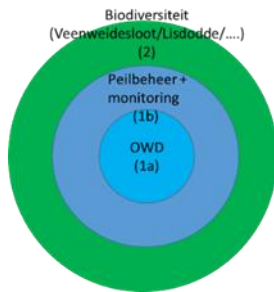
The project is part of a broader future-oriented area strategy that consists of various components. Part 1a of which relates to this project:

Part 1a (this project): large-scale construction of submerged drainage (OWD) covering a total of 450 kilometres on 310 hectares in one area of similar water level. It concerns all agricultural parcels suitable for this measure in the reference area on two reference parcels. This involves 28 landowners, 13 of whom are farmers. It is an efficient, collective approach with a relatively low overhead.



Part 1b: Submerged drainage has never been used in such a large scale in one polder. In consultation with the foundation and other stakeholders, HDSR will carefully monitor the effects on the water supply, water quality and ecology. This knowledge is used in the development of a prototype approach to serve all of these goals. The costs for this part are borne by the water board.

Part 2: in parallel with the construction of submerged drainage and the adaptation of water level management, the parties are working on plans for more biodiversity in the agricultural area, for example, through bulrush cultivation.



Start-up phase (2016-2018)

- Preparation, consultation;
- Assessment of the current situation (water quantity, water quality, groundwater level); and
- Preparations to adjust water level management.

The water board and farmers drew up the project with advice from the Peat meadows Innovation Centre (VIC), Bodegraven-Reeuwijk municipality, and others.

It was at this stage that it was decided where submerged drainage would be installed and what would be monitored. As a baseline measurement, the project began monitoring groundwater levels on three plots, water management (water level, flow rate and water intake at various locations), and water quality and ecology at 10 locations throughout the area. The altitude of the ground level was also measured.

Construction works (2018-2019)

- Construction/supervision of submerged drainage;
- communication;
- accountability; and
- monitoring.

On 30 August 2018 the first submerged drainage was officially installed. Submerged drainage will be installed across almost the entire project area – the largest such installation ever attempted. This is of great value as a pilot, since it will be possible to measure freshwater demand through the submerged drainage. It is well-known that freshwater demand increases when submerged drainage is used, but so far it has only been possible to estimate the extent to which this occurs.

Completion (2018-2020)

- completion and accountability;
- communication;
- monitoring and water level management;

Monitoring will continue until at least 2023. This is crucial in order to get a good picture of the effects of submerged drainage. Joint discussions on the results and adjustments the water level will continue.

Main results

It is expected that the submerged drains will improve the management of groundwater on farmland in the project area. It will reduce the consolidation of peatland in dry periods and when there a lot of rainfall, the submerged drains will enable the farmlands to be used for longer.

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The project is a good example of networking. The scale and complexity requires good organisation and coordination. Thus it is a good example of networking. This is a bottom-up project involving landowners, farmers and citizen in the agricultural nature association 'Lange Ruige Weide'. They are cooperating with great enthusiasm with the water authority HDSR, Bodegraven-Reeuwijk municipality, the province of South Holland and knowledge institutes.

The project is piloting an approach that could be applied in other comparable peat meadow areas.

It will conduct intensive research on water management to achieve the best possible water quality in as large a part of the polder as possible. This can contribute to improving the nutrient load of surface water bodies, in line with the EU Water Framework Directive.

Because submerged drainage leads to a reduction in soil subsidence, there is also a reduction in greenhouse gas emissions. Peat soils that fall through oxidation of the peat are a source of greenhouse gases such as CO₂. Reducing peat degradation will consequently reduce these emissions and help to tackle climate change.