LIFE NOVADRAIN - Innovative drainage water solutions and spatial planning
LIFE13 ENV/DK/000668

Project description

Environmental issues

Beneficiaries

Administrative data

Contact details:

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Project description:

Background

Loss of nutrients from agricultural drainage and other drainage systems is a major problem, and in order to secure good ecological status in all European waters and improve biodiversity, new innovative solutions are needed. Drainage systems can speed up water runoff and action must be taken to prevent flooding and adapt to climate change. Moreover, leaks from landfills located near surface water systems affect water quality in dependent ecosystems. Such leakage presents a challenge to meeting the requirements of the Water Framework Directive and implementing river basin management plans. Low-cost solutions are needed.

In Denmark, major efforts have been made to restore former natural wetlands. More than 12 000 ha have been restored over the last 15 years. In other countries, such as Sweden, the focus has been on smaller subsurface-flow constructed wetlands (SSF-CW). Monitoring SSF-CW's has shown nitrogen removal of 400-2 500 kg per ha per year, and phosphorus removal of 18-48 kg per ha per year. These are quite high nutrient removal rates compared with restored natural wetlands with a typical nitrogen removal of 50-300 kg per ha per year. Currently, constructed wetlands within sub catchments in some countries are often created without an overall sub catchment/catchment planning strategy and thus are placed in unsuitable locations along watercourses. In the future, more strategic sub catchment/catchment tools will be needed for optimising measures to reduce nutrient losses, as well as reduce flood risks and improve the overall ecological status, with regard to both water...
quality and hydro morphology.

Objectives

The LIFE NOVADRAIN project aimed to demonstrate two new innovative drainage water filtration technologies that represent cost-efficient ways of meeting the requirements of the Water Framework Directive, the Habitats Directive and the Floods Directive. The filters would reduce the loss of nutrients from agricultural drainage and other drainage systems. The project would demonstrate that low-cost solutions for reducing leakage now, and under future climatic conditions. The project would target these issues by establishing ‘Intelligent Buffer Zones’ (IBZ) and SSF-CW and demonstrating the use of the most appropriate technologies on a catchment and field scale.

Expected results:
- Two new innovative technologies – IBZ and SSF-CW;
- Wetlands (SSF-CW) are demonstrated and documented;
- Nine IBZs and two SSF-CWs established in different landscapes and the location of the new measures demonstrated on field and catchment scale;
- Intensive monitoring carried out at three SSF-CWs and two IBZs over three years;
- Six IBZs used as demonstration sites, involving local stakeholders in different regions of Denmark;
- Improvement of water quality;
- Demonstration of the retention of water in drainage systems and several multifunctional eco-services;
- Cost-benefit analysis of the two new technologies in preparation for implementation in the water management plans of Member States. Cost-effectiveness for the individual farmer would also be integrated; and
- Introduction of the new technologies to relevant organisations in at least 10 Member States and their demonstration to at least 200 farmers and representatives from 25 organisations and government agencies.

Results

The project has withdrawn LIFE funding in July 2014.

Top

Environmental issues addressed:

Themes

Risk management - Pollution control
Land-use & Planning - Soil and landscape protection
Water - Water quality improvement
Industry-Production - Agriculture - Forestry
Water - Water resources protection

Keywords

drainage system, eutrophication, Agriculture, soil degradation, water quality improvement, wetland, water resources management, alternative technology, water pollution

Natura 2000 sites

Not applicable

Beneficiaries:

Coordinator: Knowledge Centre for Agriculture, limited partnership Company

Type of organisation: Training centre

Description: The Knowledge Centre for Agriculture (KCA) is a limited partnership and the main supplier of professional knowledge for the agricultural professions. KCA processes and conveys to its clients the latest knowledge from research institutions, companies and educational institutions, among others. KCA has a wealth of experience in finding innovative solutions that benefit agriculture, while also protecting the environment and preserving the landscape.

Partners: CDR(Central Denmark Region), Denmark

AU(Aarhus University), Denmark

Administrative data:

Project reference: LIFE13 ENV/DK/000668

Duration: 01-SEP-2014 to 31-AUG-2019

Total budget: 1,705,308.00 €

EU contribution: 837,653.00 €

Project location: Sjælland(Danmark) Syddanmark(Danmark) Midtjylland(Danmark) Nordjylland(Danmark)