Project description:

Background

Grasslands, and in particular natural grasslands with high biodiversity, are complex ecosystems that provide a variety of different ecosystem functions and services, which are essential for the maintenance of biodiversity, as well as for human well-being. The main threats to grassland biodiversity are related to the intensification of agriculture, urbanisation, climate change, invasive species and the abandonment of agricultural land, which leads to the overgrowing of fields by forest and to a loss of the ecological value of grasslands and the related farmland biodiversity. In order to target the problem of declining grassland biodiversity and related ecosystem services, two pilot areas (Sigulda and Ludza municipalities) have been selected for the project activities. Both areas have large expanses of unused agriculture land and are rich in biodiversity.

Objectives

The LIFE GRASSSERVICE project aimed to ensure the maintenance of ecologically-valuable grasslands by restoring and/or management grassland ecosystems and enhancing the use of grassland biomass in economically-sustainable models. Through grassland habitats management and the promotion of alternative uses of biomass (e.g. biofuel production), the project will also control invasive grassland plant species and contribute to increasing the...
share of renewable energy sources in the energy mix. Specific objectives included: assessing the biological and economic value of grassland ecosystems and services; developing area-specific technological solutions for grassland management and the sustainable utilisation of biomass; informing local stakeholders about the ecosystem services provided by grasslands and the alternative options for using biomass; and establishing cooperation networks between land owners and entrepreneurs engaged in the production of energy and other goods from grassland biomass.

Results

The LIFE GRASSSERVICE project restored 122 ha of grasslands and established 14 agreements with grassland owners for their long-term management, to maintain grassland biodiversity and to potentially provide biomass resources for biofuel or other alternative uses. The project tested different technological solutions for the production of biogas and biobutanol, and constructed a mobile biogas production prototype that was used to demonstrate the approach and to research technologies for biofuel production.

The project assessed grassland quality, the characteristics of grass biomass, and the economic value of grassland ecosystems in two project areas (Sigulda and Ludza municipalities) in Latvia. Assessments were carried out using field surveys, remote sensing methods, and existing data on biologically-valuable grasslands. They provided competent authorities and municipalities with results for planning, co-ordinating and supporting grassland management. Improved knowledge was gained about biomass resources and grassland restoration techniques. Co-operation networks were established to facilitate the long-term maintenance of grasslands and their biodiversity in the two areas, including the developed of registers of landowners and agriculture-related entrepreneurs. A web-based information exchange platform was also established in the two municipalities, for sharing information on leased agriculture land and land management services (722 user accounts in Sigulda and 804 in Ludza).

To test biofuel production potential, grass feedstocks were exposed to different physical-chemical processes and conditions for the production of biogas and biobutanol. These laboratory tests were conducted on raw grass, hay and silage samples, and optimal processing regimes were established. The results provided essential information for improving the design and construction of the biogas prototype and making adjustments to the existing biobutanol pilot facilities. Furthermore, the experience gained can be used to develop commercialised small-scale mobile biofuel production facilities, as well as industrial-scale plants. The project team constructed the biogas prototype with an innovative reactor design, which allowed biogas production with methane concentrations 13-15% higher than the biogas plants currently operating in Latvia using agricultural biomass feedstocks.

For selecting priority areas for grassland restoration, the project developed an innovative approach for Latvia. This involved delineating core areas of biologically-valuable grasslands, and connecting them by ecological corridors and stepping stones. Direct environmental benefits were achieved by restoring the 122 ha of abandoned grassland and removing shrub and tree overgrowth, and invasive plant species.
The project’s dissemination actions effectively reaching targeted stakeholder
groups, including around 250 stakeholders in Sigulda and around 350
stakeholders in Ludza municipalities. Two international seminars brought
together 80 experts in grassland management and bioenergy production from
several countries, while information events and visitors’ days attracted many
local stakeholders. Over 2 000 people, including entrepreneurs, municipality
officials and researchers, were involved in project activities, significantly raising
awareness on grassland ecosystem services.

By stimulating economically-viable grassland ecosystem management, the
project promoted restoration and maintenance of several habitat types listed in
Annex I of the Habitats Directive (6120*; 6210; 6270*; 6410; 6450; 6510). The
project contributed to the EC strategy for smart, sustainable and inclusive
growth, by aiming to increase the share of renewable energy sources in the
overall energy production mix, and is also relevant to other EU energy, climate
change and transport policy.

Project activities have improved the aesthetic quality of the landscape in the
Sigulda and Ludza municipalities to the benefit of citizens. In the long-term, new
business (e.g. based around small-scale energy supply technologies) could
provide local solutions for farms that do not use grass for livestock breeding.

Further information on the project can be found in the project's layman report
and After-LIFE Conservation Plan (see "Read more" section).

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Environmental issues addressed:

Themes

Habitats - Grasslands

Keywords

grassland ecosystem, protected area, biodiversity, biomass energy,
management plan, restoration measure

Natura 2000 sites

Not applicable
Beneficiaries:

Coordinator: Baltic Environmental Forum - Latvia
Type of organisation: NGO-Foundation
Description: The Baltic Environmental Forum - Latvia (BEF Latvia), a non-profit organisation, was established in 2003. It promotes environmental protection policy by developing co-operation and initiating dialogue between various institutions and stakeholders. Its activities also include capacity-building for environmental management, expert meetings, seminars and training on environmental management topics. BEF Latvia promotes wider access to information and a greater understanding of the principles and practical implementation of environmental protection and environmental policy.


Administrative data:

Project reference: LIFE12 BIO/LV/001130
Duration: 01-OCT-2013 to 31-DEC-2017
Total budget: 1,280,964.00 €
EU contribution: 640,482.00 €
Project location: Latgale (Latvia Latvija) Vidzeme (Latvia Latvija)

Read more:

Project web site: Project's website
Publication: After-LIFE Conservation Plan
Title: After-LIFE Conservation Plan Year: 2017
Editor: LIFE GRASSSERVICE No of pages: 0
Publication: Layman report
Title: Layman report Author: Edgars Bojars et al Year: 2017 Editor: Baltic Environmental Forum – Latvia No of pages: 12