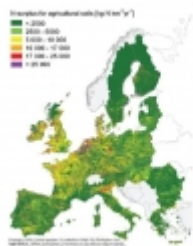


PROJECT

Agriculture
Climate
Land Use
Resource Conservation + Circular Economy
Soil

Resource Efficiency in Practice - Closing Mineral Cycles



[1]

Inefficient use of fertilisers leads to the accumulation of nutrients in areas of intense agricultural activities and can cause serious environmental problems in these areas and beyond. Those problems stem from the disturbance of natural mineral cycles, partly resulting from the extraction of elements in one location and being applied elsewhere. Furthermore, the production of fertilizers consumes natural resources, such as energy, water, and non-renewable mineral resources that contain necessary elements.

This project will identify the most promising and cost-effective measures at the regional and farm levels to increase the resource efficiency and use of nutrients (N, P, K) and help to close mineral cycles with a focus on saturated areas. Findings will be translated into relevant practical measures for the farming community in highly nutrient-saturated regions in Europe. A consortium composed of BIO by Deloitte and Ecologic Institute, with the contribution of several European research institutes, conducts this project on behalf of DG Environment.

Background

Nutrients such as nitrogen (N), phosphorus (P) and potassium (K) are essential nutrients for plants and intensively used as fertilizers

in agriculture. With an increasing demand for food, feed, and fibre, the demand for N, P and K has likewise increased. Although the increasing production necessitates a higher application of nutrients, current fertilisation practices use the resources inefficiently. This is firstly problematic due to the increasing scarcity of resources (P and K). Secondly, the inefficiency results in various environmental impacts, contributing to climate change, eutrophication, and acidification of water, to name only the most prominent ones.

Several EU policies are in place to improve one or several aspects of nutrient efficiency (e.g., Nitrates Directive, Water Framework Directive and daughter directives, Common Agricultural Policy). Measures to improve nutrient efficiency are well known at the EU level. Closing mineral cycles will be influenced by the strength of policies as well as the transfer of theoretical knowledge into practical approaches that can be implemented by farmers at the regional level, in particular in saturated areas.

Project objectives

This project aims to:

- Identify the most promising and efficient measures to improve the use of nutrients and to reduce their negative impacts by:
 - Identifying saturated areas for N and P with the objective to highlight region-specific measures and encourage close cooperation with the farm level
 - Analysing the impacts of agriculture in saturated areas and then qualifying and quantifying the cost of those impacts resulting from inefficient use of N, P, and K
 - Identifying potential solutions for the saturated areas to reduce the impacts of agricultural activities
 - Identifying good practices that could be implemented at the farm level given local conditions (climate, soil, existing legal requirements, etc.).
- Transfer the acquired information into usable practices for farmers, extension services, and regional decision makers in the identified saturated areas through an interactive and participatory process aimed at empowering them to take action at their respective levels.

Methodology

The first task of the project is to identify the effects of agriculture on water, air, soil, biodiversity, climate, and human health. Next, the costs of environmental and health effects will be assessed and possible solutions will be identified to reduce the impacts on saturated European regions. Region-specific good practices will be developed. The project focuses on the following regions:

- West Denmark,
- Southern Netherlands,
- Murcia (Spain),
- Lombardy (Italy),
- Brittany (France),
- Wielkopolska (Poland),
- Northwest Germany, and
- Southeast Ireland.

In an interactive process with the key stakeholders, which is the second task of the project, the findings will be transformed into usable and practical training materials to address the region-specific context and problems. In four regional conferences, trainings will be held to transfer knowledge into practice by reaching out to a broader target group of stakeholders than were involved in the preparation of the material.

Ecologic Institute's role

In the first task of the project, Ecologic Institute is contributing expertise to the themes climate change (renewable energy, reducing greenhouse gas emissions, adaptation) and soil (fertilisation and soil management) throughout the various activities outlined above. Ecologic Institute, due to its experience in stakeholder engagement processes, will lead the second task of developing the dissemination material and the organization of the regional stakeholder conferences as well as the final conference in Brussels.

Main Link

Final Report: Resource Efficiency in Practice - Closing Mineral Cycles

Related Articles

- Resource Efficiency in Practice - Closing Mineral Cycles
- Good Practices to Reduce Nutrient Loss in the Weser-Ems Region (Germany)
- Sustainable Management of Natural Resources in Europe
- Pressures and Measures in the RBMPs with a Focus on Agriculture
- Sustainable and Climate Friendly Soil Management (SmartSOIL)
- Options for Sustainable Food and Agriculture in the EU
- Mainstreaming of Climate Change into Rural Development Policy post 2013
- Preventing and Remediating Soil Degradation (RECARE)
- DYNAmic policy MIXes for Absolute Decoupling of Environmental Impact of EU Resource Use from Economic Growth (DYNAMIX)

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Links

[1] https://www.ecologic.eu/sites/files/project/2014/leipt_etal_2011_n_surplus_agri_soils-ilm.jpg