

BIOWATER

A Nordic
Centre of
Excellence



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Integrating land and water management for a sustainable Nordic bioeconomy.

BIOWATER (2017-2022) is a Nordic Centre of Excellence, funded by Nordforsk. Through co-operation between scientists and stakeholders, BIOWATER will explore how the green shift will influence water quality and quantity. We have engaged stakeholders from both industry and public management at different levels, to assist us in these efforts.

How green will the green shift be?

The green shift is a commonly used word for the expected societal transformation from a fossil based economy to an economy based on renewable resources (bioeconomy). In a world with bioeconomy we will use renewable biological resources from land and sea – such as crops, forests, fish, animals and micro-organisms. More effective bioprocesses are expected to support a sustainable production of food, materials and energy.

The green shift will most likely mean that the current land use will change. We may use the forests in new ways, and the types of crops we grow may change. The management practices in both agriculture and forestry can become quite different from today. Together with on-going climate change this can have far-reaching effects on hydrology and water quality in both rural and downstream urban areas.

MAIN OBJECTIVES

BIOWATER aims to examine the effects of the green shift on land use change and industrial innovation, and to quantify the consequences of these changes on water quality and quantity.

BIOWATER has eight partners from four Nordic countries, and collaborates with five other European institutes.

We cooperate with a wide range of stakeholders in all four countries, both from industry and different management levels.

BIOWATER is also supporting several PhD students.



The green shift may result in changed forestry practices that again may affect water quality. Photo: Eva Skarbøvik.



Measures against pollution from agriculture, like this buffer zone in Norway, may become increasingly more important. Photo: Eva Skarbøvik



Recreation is one of many ecosystem services provided by freshwater. How will the green shift affect water quality? Photo: Eva Skarbøvik.

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BIOWATER and Stakeholder involvement

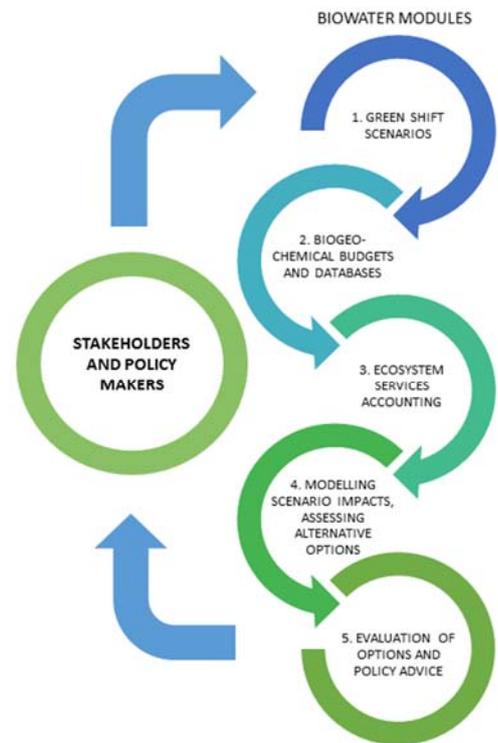
Stakeholders are important for BIOWATER, amongst others to ensure that the scenarios we develop are based on practical knowledge of land use and land management, as well as the newest industrial innovations.

We also believe that research into the consequences of the green shift on the environment should be of interest to stakeholders. In a changing world, being prepared is important both for management and business institutions.

Key questions:

BIOWATER is carried out in five modules (see the figure to the right). Some of the questions to be answered include:

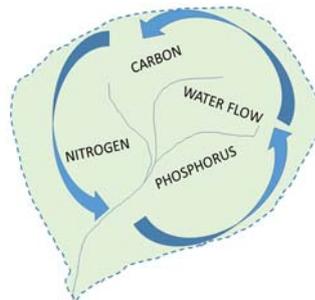
- How will the green shift in combination with climate change affect land use patterns in the rural areas of the Nordic countries?
- How will ecosystem services provided by water change as a result of the green shift?
- What effects will changes in agricultural and forestry practices have on freshwater quality and quantity?
- What will the consequences be for water managers and policy makers, and which alternative options exist?



BIOWATER is divided into five modules. Stakeholders play important roles both in setting the priorities, and as end-users of the results.

BIOWATER aims to quantify present and future changes in the budgets of carbon, nutrients and water quantity in three scales:

- Small intensively monitored catchments
- Larger river basins
- The Nordic region



The green shift

The green shift is a common word for the expected societal transformation from a fossil based economy to bioeconomy. Due to the green shift, current land use and management may change.

Bioeconomy

The term bioeconomy comprises the use of renewable biological resources from land and sea – such as crops, forests, fish, animals and micro-organisms – and effective bioprocesses to support sustainable production of food, materials and energy.

Ecosystem services

Freshwater ecosystems can serve us humans in many ways, for example as providers of food and energy, drinking water supply, and/or serve as sites for recreation and sports.

Scenarios

A scenario can, very simply, be defined as a description of possible actions or events in the future.

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Funded by:  NordForsk