

Strategic plan 2017-2020 for the Challenge theme “Mainstreaming [consideration of] ecosystem services into land use decision-making under global change”

Grand challenge and vision

Climate change, land-use changes and other environmental changes may profoundly affect ecosystem processes and as a result have both negative and positive effect on the ability of ecosystems to deliver services to humans. In order for decision makers to be able to make sound decisions, robust decision support on the effects on ecosystem services, based on multiple approaches, is required. One of the grand challenges identified within BECC is:

to integrate the private and public value of ecosystem services into management and policy while accounting for the projected impacts of climate, land-use and other drivers of change.

To meet the grand challenge, an active role of scientists and policy makers in the science-policy interface is required. A central task is the analysis of the effects of different policy strategies on ecosystem services, using modelling, empirical research and metaanalysis. Here, issues of relevant scales for drivers, processes and consequences associated with ecosystem services, and how they relate to the scales for decision making, are of particular importance. The role of biodiversity for ecosystem services merits further investigation, in terms of the roles of functional and taxonomic diversity, and the relationship with conservation-relevant aspects.

A deeper understanding has to be reached of the motivations, behaviour and interactions of stakeholders and institutions facing different adaptation choices, and having different, sometimes conflicting, goals. Drivers of land-use changes have to be analysed and methods for cost-effective policies have to be developed. Tools are needed that can describe key aspects of change, and consequences of proposed adaptation measures, in terms of metrics of interest to decision-makers ranging from farmers and forest owners to regulators, policy makers, government agencies dependent industries, while accounting for governance factors that may help or hinder the realisation of adaptation goals.

The vision of the BECC Ecosystem Services theme is: *to be an internationally visible hub generating innovative interdisciplinary science studying and supporting the generation and use of ecosystem services and providing insights for decision making in a society facing global change.*

Long-term strategy: 2017-2021

The strategy of the Ecosystem Services theme for the coming five years, in order to meet the grand challenge and reach the vision, is to:

- assist researchers and research groups in taking the step towards working interdisciplinary with ecosystem services, and to make all BECC researchers, in all departments, all types of

environments, and with all available methods, become aware of how their work relates to ecosystem services, including, but not limited to, the risks and opportunities offered in this context by the increasing importance of ecosystem-based climate adaptation and the bioeconomy. This will be done by organising thematic workshops and seminars and multi-disciplinary syntheses where main research challenges are identified.

- increase the added value of the BECC stakeholder contacts, by encouraging and supporting projects and action groups where stakeholders are involved throughout the process.
- build capacity (i) among the next generation of researchers and practitioners to pursue excellent and innovative research on ecosystem services, and (ii) among business and administration to enhance the sound application of ecosystem service approaches. This will be achieved by proposing new theme-related courses (and striving to maintain existing ones) in the PhD Graduate school ClimBEco, increasing the transmission of theme-related knowledge and methodologies in undergraduate curricula, and arranging meetings and workshops for identifying and responding to training needs for actors in business and administration.
- maintain and further develop and strengthen the already strong interdisciplinary group in BECC working on ecosystem services in agriculture by identifying upcoming hot topics, research gaps and policy windows, and the best ways to address them.
- tie together the already strong but decoupled smaller groups working on ecosystem services in forests, with the long-term aim to be able to lead or participate in research programs on the topic, and to identify and fill-in competence gaps, e.g related to forest biodiversity and law. To achieve this, a workshop will be arranged as a starting point, and the theme will encourage proposals of action groups and research projects in this topic. The work on ecosystem services in agriculture will be used as a role model.
- explore and develop research about ecosystem services in arctic environments, based on the strong empirical and model based research performed in BECC on processes in arctic environments.
- facilitate governance perspectives in the work on ecosystem services, through working actively to incorporate awareness and knowledge about such perspectives in research. This can be achieved both through interdisciplinarity and through involving stakeholders from the governance sphere more actively in seminars and workshops as well as in research projects.
- facilitate landscape-perspectives in the work on ecosystem services, by supporting exchange between researchers using spatio-temporal data from contrasting land use types and supporting the operationalization of cutting-edge spatio-temporal data sources. To achieve this, a workshop will be arranged as a starting point, and the theme will encourage proposals of action groups and research projects in this topic.

- strengthen the research on the ecosystem services coupled to connections between agriculture, forestry and aquatic systems, as well as governance, in order to put BECC in the forefront in the area of ecosystem based climate adaptation. The theme will encourage proposals of action groups and research projects in this topic.
- further bridge the gap between different approaches such as dynamic modelling, agent-based modelling and empirical research, in order to be able to fully use the potential of the combined approaches in analyses of ecosystem services. This will be done by encouraging and supporting projects, action groups and seminars including multiple methods.
- develop the theme homepage, both an internal and an external version, in order to provide BECC researchers with background information on ecosystem services, examples of successful projects and information on on-going projects, action groups and forthcoming seminars and workshop, and to provide policy makers and the research community with links to relevant project homepages, external seminars and reports.

How will the work within the theme be organized?

There will be one theme meeting every spring, which will serve as a basis for the planning of the coming year, and thus focus on new ideas from the participants about research projects, action groups, seminars, courses, etc. On the yearly meeting in the autumn there will be opportunities to follow up on the theme activities decided on the spring meeting.

The main activities in the theme will, however, be performed in seminars, workshops, action groups and in projects. The contact between the theme members and the theme leader and assistant theme leaders will be continuous, and the theme leader will represent the theme in the board.

In the theme homepage, information about on-going and previous projects and action groups will be collected, and previous and future activities will be listed and documented, in order to make it easy for the BECC community, especially new employees, to get an overview of the theme activities.

Coordination with other themes

There are strong overlaps and opportunities for cooperation between the themes. There will be continuous contact between the theme leaders when questions that relate to more than one theme come up. The theme leaders will also meet at BECC board meetings.

How will the theme contribute to education?

On the spring meetings, one session will be open for ideas about PhD courses and courses on a basic level about ecosystem services, stakeholder interactions and topics related to that. The ClimBEco courses “Biodiversity and ecosystem functioning in agriculture and forestry” will be revised, to get more of an ecosystem service focus.