

Activity Plan 2017 for the Strategic Research Area BECC (Biodiversity and Ecosystem Services in a Changing Climate) at Lund University and Gothenburg University

1. Vision and strategy

Our vision is for BECC to be an internationally leading research environment which, through interactions between excellent research environments at Lund University and Gothenburg University, conducts research and education addressing the global society's need for knowledge to integrate the value of biodiversity and ecosystem services in decision making in a changing world.

BECC strives to assess the impacts of climate change on biodiversity and ecosystem services, specialising in forestry, agriculture and subarctic ecosystems, but also how nutrient export from forestry and agricultural land affects aquatic systems. The focus is on Swedish conditions, but BECC maintains an international perspective through linkages to ecological, social and economic processes at the European and global levels.

BECC's strategy for 2017–2020 is:

- within the research area encompassed by BECC, to develop research in science, economics and political science to contribute to the research base for the integration of knowledge in decisions on administration and policy, by supporting the development of disciplinary research groups and internationally competitive interdisciplinary research.
- to strengthen leading research teams and develop new ones through international recruitment and the career development of young researchers.
- to increase international impact through participation in international research platforms, participation in global research syntheses and coordination of international research projects.
- to develop integrated research and cooperation with wider society to enhance research relevance and promote the adoption of research findings to support and underpin decision-making from the local to the global scale.
- to develop research study programmes through the ClimBEco graduate school and contribute to the incorporation of research perspectives in first and second cycle study programmes.
- to strive for male and female researchers to work with equal conditions and have the same opportunities for academic careers.
- to support the development and use of shared infrastructure, with particular focus on internationally outstanding infrastructures.

2. Research consortium

BECC is a collaboration between Lund University (LU) and Gothenburg University (GU) regulated by a special agreement (appendix 1).

The aim of BECC is to combine complementary expertise from the natural and social sciences at both universities, in order to predict the direct and indirect impacts of climate change on biodiversity, ecosystems and ecosystem services, and develop a scientific basis for the definition of strategies in the face of these impacts. BECC research therefore covers studies of processes on ecological and evolutionary timescales, direct and indirect impacts of climate on biodiversity and ecosystem services, assessment of ecosystem services, uncertainty management and societal strategies for managing biodiversity and ecosystems services.

BECC conducts research which supports regional, national and international decision-makers through scholarly evaluation of climate adaptation alternatives or mitigation of climate impacts which can be combined with the maintenance of biodiversity and ecosystem resilience. Through the use of both problem-solving and critical approaches, increased scientific knowledge and user benefits are achieved. The research is based on fundamental knowledge about ecological and societal processes, which means that BECC's long term success depends both on the development of disciplinary research and interdisciplinary integration of high quality.

During its first year, BECC has created a common focus and established new interactions between researchers from internationally competitive research environments within multiple disciplines at both universities.

By supporting research development, BECC provides leverage for the acquisition of external funding and increasing the visibility of ecosystems and climate research in participating departments and faculties. BECC continues to develop as a dynamic research environment which stimulates and supports multidisciplinary research by creating meeting places between researchers from different disciplines, offering incentives for long term collaboration between them and building up interdisciplinary expertise.

BECC's ability to handle future challenges depends on access to committed and researchers having specialised knowledge in a range of fields. BECC reinforces the development of its strong research teams and contributes to the development of new ones, *inter alia* by the identification of areas for international recruitment, in particular of complementary expertise, by supporting and encouraging young researchers in the preparation of competitive grant applications and by supporting the development of leadership among young researchers in order to ensure generational renewal. In this work, BECC has a clear gender equality perspective.

BECC takes an active role in developing a shared infrastructure, including the use of ICOS and MAX IV.

3. Organisation and leadership

Organisation

Organisationally, BECC is part of the Centre for Environmental and Climate Research (CEC) at the Faculty of Science, Lund University. CEC also comprises the related strategic research area, Modelling the Regional and Global Earth system (MERGE). BECC's activities take place both at LU and GU, as regulated in a collaboration agreement. GU also has close cooperation with MERGE.

BECC and MERGE have some shared activities which are coordinated through CEC, such as the graduate school, ClimBEco, and the stakeholder reference group. At GU, coordination is also ensured via a special steering group.

Management and board

The vice-chancellor of LU has appointed Henrik Smith as the coordinator of BECC and Benjamin Smith as the assistant coordinator. Håkan Pleijel has been appointed coordinator by Gothenburg University, with a special responsibility for coordinating the research within BECC at GU.

The board of BECC is appointed by the CEC board. The composition of the board reflects the subject areas encompassed by BECC. It meets regularly. For BECC and MERGE activities in Gothenburg, a joint steering group is appointed by Gothenburg University.

The coordinator for BECC at Gothenburg University sits on the BECC board at Lund University and the coordinator for BECC at Lund University sits on the BECC-MERGE steering group at Gothenburg University.

The board is supported by an external Scientific Advisory Board (SAB) which follows the activities and provides the board with advice on the ongoing development of BECC.

Thematic organisation

In order to facilitate interdisciplinarity and collaboration between researchers, since 2016 BECC's research has been organised in three overarching themes with three theme leaders (two from Lund and one from Gothenburg) per theme.

- Constraining the carbon cycle to characterise and mitigate climate change
- Mainstreaming [consideration of] ecosystem services into land use decision-making under global change
- Effective strategies for biodiversity conservation under the combined pressures from climate change and land use change

The themes promote research development within each area so as to enable BECC to achieve its overarching goals. BECC's researchers and doctoral students may be active in one or several thematic groups.

The tasks of the thematic groups are to:

- Synthesise the current knowledge and identify knowledge gaps by compiling knowledge from various research teams and disciplines;
- Concretise specific research needs and relevant opportunities to meet the challenge represented by the theme in the long term, by formulating and following up a research agenda for the theme including specific research goals and activities to achieve the goals;
- Provide advice to the BECC board about how BECC as a whole should develop its research agenda, recruitment needs, financial instruments and support functions, communication and external engagement, organisation and governance, in order to be able to contribute significantly to meeting the major challenge addressed by the theme;
- Interact with stakeholders to identify gaps in knowledge and develop applications which are relevant to various societal actors connected to the theme.

GOALS

- To develop management and support functions, so that the long term ambitions in the BECC strategy and action plan can be achieved in an efficient manner.
- To develop cooperation with MERGE.
- To investigate and decide on the form of the BECC Scientific Advisory Board.
- Together with the theme managers, develop BECC's long term research strategy as the basis for future decisions on recruitment, vacancy announcements, etc.
- To develop the forms in which the theme contributes to the development of BECC in cooperation with the board.
- To draw up an annual plan for BECC activities.

4. Strategic development of BECC research

BECC is developing its organisation to support researchers in their efforts to apply for and coordinate international (e.g. Horizon 2020) and national (e.g. MISTRA, KAW) interdisciplinary and disciplinary research projects. BECC is also working on increasing the visibility of researchers and their research, *inter alia* through engagement in international research platforms such as Future Earth. As a strategic endeavour, BECC will also work in various ways to influence research funding at the national and European levels.

Furthermore, BECC will work to reinforce the development of its existing strong research teams and foster the development of new research teams, for instance identifying areas for international recruitment, particularly of complementary expertise, by supporting and encouraging young researchers to apply for competitive grants (e.g. ERC starting grants), and by supporting the development of leadership skills in young researchers. BECC takes an active role in developing shared infrastructure. BECC also works to safeguard and use ICOS over the long term. Through MAX IV, new opportunities are offered to BECC researchers to analyse biogeochemical processes in detail.

BECC develops integrated analysis which spans biophysical and socioeconomic aspects of global change. BECC recruits and develops interdisciplinary expertise, by inviting leading international researchers within relevant fields, e.g. for stays as visiting researchers, by working with recruitment of leading researchers with relevant backgrounds and by supporting researchers who want to develop their research in an interdisciplinary manner.

GOALS

- To continue to analyse the development of external funding of the research areas encompassed by BECC and develop strategies for the long term reinforcement of the external funding to research including the coordination of major research programmes and projects.
- In cooperation with participating departments, to identify needs and work for the recruitment of teaching staff, development of infrastructure, etc.
- To enhance linkages between research teams within different fields, through a coordinated initiation of two-year postdoc positions.
- To support young researchers in obtaining their own grants, including ERC starting grants, through training and mentoring.
- To stimulate the development of research and synthesis within BECC, by funding Action Groups, which work for a limited time on initiating new activities which can result in applications, research syntheses, etc.
- Through information, support to participants in relevant activities and strategic investments, to increase the engagement of BECC researchers in Future Earth and Horizon 2020.
- Systematically work with nominations to KAW Fellows and national calls for the funding of visiting professors.
- Encourage and support the participation of BECC researchers in national and international conferences in which researchers and stakeholders meet.
- Work for BECC researchers' long-term use of major infrastructure such as ICOS, MAX IV, ESS and Skogaryd.

5. Promoting gender equality

BECC complies with the universities' approved gender equality policies, which aim to achieve a balance between the number of women and men in University business at every level.

All BECC activities are to focus on ensuring that female and male researchers work under the same conditions and have the same opportunities for career development. Among doctoral students, the proportion of women and men is equal and this has been the case since the inception of BECC. Currently, women make up around 30 % of researchers within the BECC consortium, which is unchanged since 2010. This means that it is particularly important for BECC to work with gender equality aspects with regard to the career opportunities for young researchers.

Gender equality aspects are to be taken into account in planned recruitments and BECC will actively encourage and support measures to recruit researchers and academics of the under-represented gender. In addition, BECC is striving for an equal gender distribution in the board, among theme managers, the Scientific Advisory Board, research programmes, future research leaders in BECC and invited lecturers.

BECC's recruitment strategy is to ensure the long term continuity of expertise within BECC's various subject areas. An important task is to continue to support the independence and development of young researchers as research leaders.

GOALS

- To conduct a gender equality analysis of BECC's development 2010–2016 and on the basis of that draw up a strategy to even out imbalances.
- To work on gender equality aspects in the recruitment of researchers and teaching staff funded by BECC.
- To promote good career opportunities and conditions for both women and men.
- To work for an equal gender distribution in the appointment of staff to various roles within BECC, such as invited lecturers and visiting researchers.
- Through themes and special initiatives, to support the academic development of young researchers.

6. Workshops and seminars

BECC enhances research by creating meetings between researchers, both from different research teams within BECC, and between BECC researchers and international expertise. To this end, seminars and workshops are organised and visiting researchers are invited.

Workshops may address one or several themes, but they can also be more general, targeting all the researchers associated with BECC. Each research theme is expected to organise at least one workshop per year within its topical area. In addition, BECC researchers have the opportunity to apply for funding for workshops, including major workshops with international participation. Co-funding from other sources is generally expected.

A major, so-called BECC super seminar will be organised in the spring with a topical focus. Internationally outstanding researchers in BECC's research field will be invited to participate alongside interested researchers within BECC. The seminar aims to highlight the relevance of the research conducted at BECC to meet important global challenges within the field of the environment and climate. Stakeholders can also be invited to take part in the seminar. The event will also allow for discussions on how BECC can better tackle these challenges.

Regular seminars are to be arranged to increase the knowledge of research conducted within BECC, of which some are organised by the themes.

An annual workshop bringing together all the researchers involved in BECC is organised by the BECC board during the autumn, for input in advance of the forthcoming year. Organising a major interactive meeting with many participants increases the opportunities for transfer of

knowledge and exchange. This allows the foundation to be laid for new projects and important perspectives are provided on existing activities.

GOALS

- To organise at least 6 BECC seminars, 3 of these linked to BECC's challenge themes.
- To finance/organise at least 4 BECC workshops, preferably in advance of relevant external funding calls.
- To organise a super seminar, preferably with a target group composed of both researchers and stakeholders.
- To organise a common research meeting together with MERGE in the spring.
- To organise the BECC annual meeting in the autumn.

7. Education

First, second and third cycle education

BECC encompasses research of high relevance to first, second and third cycle education, contributing to the provision of skills society needs to manage the impacts of climate change and land use on biodiversity and ecosystem services. This means that BECC is working to ensure that relevant research findings are integrated within first and second cycle education, enabling students to carry out degree projects connected to BECC research, and supporting the training of doctoral students in BECC-related fields. BECC also contributes to reinforcing the recruitment of students to first, second and third cycle education, by making its research visible to relevant target groups and applying for funding for doctoral studies.

Many BECC researchers are involved in first, second and third cycle education at their department both as lecturers on the courses, supervisors for degree projects and supervisors of doctoral students. BECC continues its work with collaborating with relevant first and second cycle programmes in several subjects with regard to Master's degree projects and for the development of cross-disciplinary courses on the Master's and PhD level. By working for an international Master's programme, BECC strives to transition its research development into an attractive study programme which can provide both society and research with professional experts. BECC takes into account the need for first and second cycle education in its recruitment strategy in cooperation with the involved departments.

GOALS

- To work towards an international Master's degree programme built upon research carried out within BECC and MERGE.
- To disseminate information about BECC seminars to students in the first, second and third cycles.
- To work towards getting more students in the first and second cycles at the departments involved in BECC to write their degree projects within the research field.

ClimBEco graduate school

ClimBEco is an interdisciplinary graduate school on climate, biodiversity and ecosystem services initiated by BECC and MERGE. The graduate school contributes a structured platform for doctoral students in ecology, geosciences, political science, environmental economics and related studies primarily at LU and Gothenburg University. Courses within ClimBEco are designed both to develop interdisciplinary training and synthesis and to provide specialised intradisciplinary understanding. ClimBEco's recurrent summer and winter meetings stimulate scholarly exchange between doctoral students, supervisors and invited guests, which create opportunities to establish networks through these exchanges, capable of contributing to the school's interdisciplinary content and progressive spirit.

GOALS

- To reinforce interfaces between BECC and ClimBEco so that BECC's future development is reflected in ClimBEco.
- To disseminate information about BECC seminars, workshops and other activities to doctoral students active in ClimBEco.
- To stimulate researchers in BECC to organise more BECC-relevant courses in ClimBEco.
- To work to secure increased funding of doctoral students, e.g. by applying for external funding.

8. Communication and external engagement

BECC develops research in dialogue with stakeholders, both to promote the relevance of the research and to ensure that BECC research is used to a greater extent as a basis for decisions with consequences for biodiversity and ecosystem services. Through its role as an umbrella organisation for a large number of research teams, BECC can mediate, stimulate and facilitate contacts with stakeholders to identify new research issues, produce research syntheses, establish joint research projects and disseminate research findings. In this work, BECC benefits both from Gothenburg's environmental sciences centre (GMV) and LU's Sustainability Forum.

All researchers active in BECC, regardless of assignment or position, have a shared responsibility for communicating research both to other researchers and to users. Many BECC researchers are active both within policy areas and the public debate. The activities range from popular science lectures, through the compilation of knowledge documentation and participation as experts in various advisory bodies to participation in global UN panels such as IPCC and IPBES. BECC supports the ambition of researchers to actively communicate their research in these various ways.

BECC continues its work on developing the dialogue with high-level representatives of public authorities, companies, lobby groups and other actors from the local to the European level. Stakeholder dialogue occurs through events such as seminars, workshops and meetings to inform stakeholders about BECC's research findings and to integrate stakeholder perspectives into the research process. BECC also encourages the development of

cooperation projects together with stakeholders, for example within the framework of Climate-KIC.

BECC and MERGE have a joint stakeholder reference group with representatives from public authorities and major lobby groups with an interest in research and climate, biodiversity and ecosystem services. The aim is to (i) identify knowledge gaps and needs for research-based knowledge in society, (ii) increase the visibility and use of BECC/MERGE research.

Being an integrated research initiative, BECC can also reinforce the exposure of the research included to funders and colleagues, nationally and internationally, thereby reinforcing the opportunity for research collaborations and research funding.

GOALS

- To disseminate information on research, activities and events within BECC through newsletters, online and through other channels to the research community, research funders, stakeholders and citizens.
- To promote the legitimacy and utilisation of research-based knowledge as a basis for decision making by enhancing the connection between research and policy development locally, nationally and internationally.
- To support the participation of BECC researchers in stakeholder- and policy-relevant interactions by financing travel costs in exchange for their reporting back to BECC.
- To support the participation of BECC researchers in joint activities with public authorities, companies and other organisations, e.g. within the framework of Climate-KIC.
- In early 2017, to decide on goals and methods for further work with the stakeholder reference group including its composition and resource requirements.
- To communicate BECC's work and findings as an aspect of building and reinforcing the profiles of both universities within the field of climate and environment research.
- To monitor developments in society, academia and public policy, in order to increase the use of BECC research in relevant policy processes and to identify opportunities for transdisciplinary research.

9. Follow-up

Follow-up of BECC activities takes place annually, in part to report the activities to the universities, but mainly to provide a basis for monitoring our own activities and where necessary for making adjustments in BECC's strategy.

BECC's research and other activities are reported annually in the form of:

- A general financial report;
- New findings (publications, peer reviewed and others);
- Ongoing, completed and initiated activities (research, visiting researchers, graduate school, stakeholder interactions and other communication);
- Participation in conferences, workshops and stakeholder-oriented activities

GOALS

- To implement a follow-up of 2016 activities and finances.

Appendices

- Cooperation agreement LU-GU (Appendix 1)