



Strategy for the Faculty of Natural Resources and Agricultural Sciences for the period 2021-2025

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1. Faculty profile and role

Through research, education and environmental monitoring and assessment, the Faculty contributes to identifying, studying and contributing solutions to national and global societal challenges related to the primary sector (including aquatic systems), and sustainable use and management of natural resources. Within these activities, the Faculty is also a leading player in ecology, biodiversity and nature conservation. The activities are conducted in light of the University's strategy and Agenda 2030's sustainability goals.

The Faculty's activities are of high quality in both fundamental and application-related research, and are scientifically broad. Natural and social science research is conducted on equal terms, which offers good conditions for taking on challenges that require a system perspective, as well as cross- and multidisciplinary approaches. Well-established research collaborations, collaboration with stakeholders, as well as infrastructures in the form of field stations, long-running

experiments, long data series and advanced technical equipment strengthen the operations and contribute to their high quality.

The Faculty strives to deliver the competences needed for sustainable social development by continuously developing education. The content of education must include sectoral competences as well as system perspectives with a focus on major future issues, such as food security and society's progress towards sustainability. High quality is ensured by strong anchoring in the Faculty's research and environmental monitoring and assessment as well as sectoral relevance. A clear community connection and high quality make education attractive.

The Faculty cares about academic freedom and integrity; for example, researchers choose their own research questions and there is freedom to communicate and discuss the results of research within and outside academia. Academic values also dictate that different evidence-based interpretations of the results of research and its importance for society should be allowed and discussed.

The Faculty also safeguards the University's fundamental values in terms of scientific knowledge, creativity, openness and responsibility. Democratic structures, collegiate processes and mutual respect form the basis of a university's organisation and governance and, ultimately, of its autonomy and credibility.

2. Priority focus areas for the period 2021-2025

2.1 SLU:s next steps for sustainable development

Overall objective: In a changing world, SLU is a world-class university that plays a key role in the transition to a sustainable society.

The Faculty's areas of activity are clearly linked to the global sustainable development goals set out in the UN's Agenda 2030, and contribute to the achievement of the Paris Agreement, the EU's environmental policy objectives, national environmental objectives, and food production strategies in Sweden and the EU. The global goals balance the three dimensions of environmental, economic and social sustainability.

Population growth and changing consumption patterns both nationally and internationally are putting pressure on production resources and entail a risk of irreversible damage or impoverishment to our ecosystems and resource bases such as clean water and fertile soils, but can also create opportunities for innovation, new markets and economic development. In Sweden, the level of awareness and interest in sustainable production and consumption in politics and among the general public has increased, providing opportunities for innovative development and solutions linked to a circular and bio-based economy in agriculture, fisheries and food production.

The impact of climate change on terrestrial and aquatic ecosystems is a fact, and agriculture contributes significantly to this. This underlines the need for solutions in the sector to reduce the concentration of greenhouse gases in the atmosphere. Extreme events such as the 2018 drought and the 2020 pandemic clearly indicate that knowledge on transition and adaptation to new conditions is required to achieve greater resilience. Furthermore, the need for ecosystem-based management of resources for more sustainable use and for the conservation of biodiversity is also verified and significant.

Structural rationalisation and specialisation in Swedish agriculture and aquaculture is continuing, leading to fewer but larger and more intensively used farms, as well as more large-scale trapping methods for fish, which stands in conflict with small-scale use. This in turn means that specific production resources are concentrated regionally or locally, which can contribute to development in these locations, but in many cases it leads to centralisation and depopulation processes. At the same time, as a consequence agricultural and aquaculture resources are not being used to their full potential to create value throughout the country. There is an expressed political will in the food strategy to increase the value and competitiveness of food production in Sweden, as well as Swedish self-sufficiency. In the regulatory letter from the government, SLU is tasked with contributing to the rural development of Sweden.

Societal challenges and ongoing processes of change can lead to conflicting objectives, which underlines the need for system perspectives and interdisciplinarity to cope with the transition to more sustainable development. Because of the complexity of the challenges, different scientific disciplines need to work together across traditional boundaries to avoid sub-optimization and instead contribute to solutions that lead to increased sustainability in all three dimensions and resilience in society.

The Faculty intends to

- conduct innovative research and research-related education and environmental monitoring and assessment in the Faculty's fields to meet society's challenges,
- protect and strengthen an academic approach to sustainability and resilience issues,
- promote excellence in research,
- promote sustainability and resilience perspectives in education at first, second and third cycle levels,
- strengthen cooperation between disciplines, across organisational boundaries and between areas of operation,
- improve the ability to deal with issues from a cross- and multidisciplinary perspective,
- improve the ability to utilize experiential knowledge among stakeholders in our areas of research and teaching in transdisciplinary collaboration (so-called "co-creation"), and

- promote greater dissemination of knowledge through research information and the expertise of graduates.

Subcomponent a) SLU:s degree programmes recruit enough qualified students and doctoral students to meet the needs of a sustainable society.

In their education, students should be taught to operate in an unpredictable future, where the ability to collaborate on complex problems with a system perspective is a central skill as are communicative ability and critical thinking.

The Faculty intends to

- actively participate in the development of SLU's programme offering and contribute to SLU's student recruitment effort,
- develop the Faculty's education so that they have a higher relevance to both the needs of society and those applying for higher education,
- strive for high quality in education by linking, to a greater extent, teaching to research, environmental monitoring and assessment and management of natural resources, so that high quality becomes an attraction factor, and
- strengthen the status of teaching within the Faculty.

Subcomponent b) There is an increased demand for scientifically based knowledge and decision-making data from SLU.

The combination of scientific breadth and depth in the Faculty's activities represents a potential for developing decision-making documents and policy documents. These may include ecological, social and ethical aspects, and complex issues can be highlighted from a system perspective in cross- and multidisciplinary approaches. The Faculty's collaboration is a meeting place for discussion, dissemination of information and identification of knowledge gaps.

The Faculty intends to

- realise the potential of the combination of cutting-edge expertise and breadth through increased and targeted activity in strategic collaborations, and
- to a greater extent integrate environmental monitoring and assessment activities with Faculty research and education.

Subcomponent c) SLU is an attractive cooperative partner and driving force for the green transition of industry and other parts of society.

The major transformation of society needed to achieve sustainability will bring significant changes to agricultural industries. The Faculty's infrastructure for research and environmental monitoring and assessment, including collaborative bodies (e.g. centres) and extensive cultivation and field research facilities, makes it

an obvious partner and source of knowledge for external stakeholders in research and development.

The Faculty intends to

- develop strategic cooperation with selected business partners,
- increase the capacity to contribute knowledge to society's transition to a circular and bio-based economy,
- maintain and develop the collection of environmental monitoring data and further refine these in the form of system analyses to provide guidance for policies and society, and
- develop existing collaboration bodies to better address challenges related to the green transition.

Subcomponent d) The ability to adopt a system perspective and to integrate all sustainability dimensions has been developed.

As an organisation, the Faculty is very well placed to contribute with science based knowledge needed for society's transition to sustainability in all dimensions of the concept. To realise this potential, there is a need for interest and skills at the individual level in relation to system thinking and interdisciplinary science, as well as organisational solutions that facilitate such approaches.

The Faculty intends to

- better use the matrix structure available in the form of platforms, centres and forums to strengthen the link between science, environmental monitoring and assessment, social sciences and technology,
- create opportunities to open new arenas for collaboration and discussion through both bottom-up and top-down processes, and
- help researchers successfully combine their scientific excellence with a subject-matter breadth ("T-shaped competence").

Subcomponent e) SLU leads the way by conducting ambitious internal sustainability work that includes all sustainability perspectives.

The Faculty follows and implements SLU's environmental policy and sustainability effort, and contributes with a fact-based knowledge base for their development.

2.2 SLU in the digital society

Overall objective: SLU contributes to the digital transformation and uses it to support the transition to a more sustainable society and increase the quality of our activities.

The digital transformation and its opportunities will affect society to an increasing extent and enable method development in all subject areas, as well as streamlining and improving the work of data management and communication. A continued strong position in the Faculty's research areas requires that the opportunities offered by new technologies be harnessed.

The Faculty intends to

- promote the realisation of digitalisation opportunities in research contexts,
- participate and cooperate with other authorities and actors within the Smart Environmental Information assignment,
- promote a critical review of the impact of digitalisation in agriculture and the sustainable use of natural resources, and
- work to develop knowledge and education on the role of digitalisation and automation in agriculture and the sustainable use of natural resources.

Subcomponent a) Education, research and environmental analysis at SLU fully utilise the opportunities offered by digitalisation.

The Faculty sees great opportunities in using databases with, among others, environmental monitoring data and data from historical experiments for research and advanced environmental analysis. The Faculty will need to deal with initiatives from international actors who want to access large amounts of data to be included in "data lakes" for free or commercial use.

The Faculty intends to strengthen competence in key research subjects connected to digitalisation, but awaits SLU's digitalisation policy.

Subcomponent b) The content of the degree programmes is adapted to students' future professional roles in the digital society.

Education and training are constantly evolving to follow the development of digitalisation and the labour market's requirements. To ensure this, as well as teacher competence in education, a close dialogue between the Faculty Board and the Programme Board is required.

The Faculty intends to

- investigate the possibility of an agricultural data lab similar to the forest data lab in Umeå,
- contribute to the design and establishment of a master's degree in engineering to meet the skills needs of digitalised and automated agriculture, and
- contribute to students in all programmes receiving relevant general and specific competences related to digitalisation.

Subcomponent c) SLU is on the cutting edge of research related to digitalisation

within our areas.

Research into the potential for development of digitalisation is a very strong trend abroad, especially in the Faculty areas. New research fields and environmental monitoring methods are opening up and there are major innovation opportunities thanks to strong emerging agricultural technologies and new and large-scale access to environmental and societal data. The Faculty's subject areas can therefore both strengthen and develop research and environmental monitoring and assessment in both depth and breadth and address socially relevant issues to an even greater extent. The Faculty must strategically consider the potential of digitalisation in the recruitment of researchers and environmental analysis specialists, through competence development in the management and analysis of large data sets, as well as through the construction of necessary infrastructure. At the same time, competence and capacity building in digitalisation in research and environmental monitoring and assessment creates conditions for increasing the students' digital skills. This competence will be crucial for the attractiveness of graduates in the future labour market.

The Faculty intends to

- become a leading player in the collection and development of digital data in the Faculty's areas,
- become a leading player in the collection and development of digital data in cultivation technologies,
- promote the use of quality-assured data from both research and environmental monitoring and assessment,
- improve teachers' skills in digital technologies; and
- consider digital competence in teacher recruitment, where justified.

Subcomponent d) SLU has developed the infrastructure and system capacity and ensured the necessary competence and expertise to meet the opportunities and needs of the digital transformation.

The Faculty intends to

- ensure that all of the Faculty's funded infrastructures have good functionality in terms of data management and availability,
- to the extent possible, use national data storage and processing infrastructures, and
- implement sustainable data storage procedures.

2.3 One SLU

Overall objective: A stronger, unified SLU - both internally and in our external contacts.

Subcomponent a) Active and systematic work to promote a good work environment, gender equality and equal terms is conducted, wherein proactivity and internal learning are guiding principles.

The Faculty must offer a good working and study environment, where conditions are equal regardless of activity and location. Individuals must be offered good development opportunities. Anomalies must be brought to light and addressed. The Faculty emphasizes the importance of an inclusive and respectful treatment, between colleagues and in teaching¹. Clear rules regarding attendance, accessibility and communication are important for a good working environment.

The Faculty intends to continue to implement and develop its accessibility and e-mail etiquette².

Subcomponent b) SLU has stronger, cohesive environments, wherein our mission to conduct first-cycle education plays a larger role and has gained increased status.

There is a need to boost the current status of teachers at SLU. The Faculty is working on this through a long-term investment in more teacher positions with significant basic funding from the Faculty. Cohesive research and education are key – all teachers should also be researchers and vice versa.

The Faculty intends to attach greater importance to leadership in teaching in connection with salary setting and recruitment.

Subcomponent c) SLU has seized the opportunities offered by a geographical dispersed organisation by facilitating and strengthening collaboration across geographical and organisational boundaries, as well as between areas of activity.

There are significant opportunities in a geographically dispersed organisation. The ambition is that the negative consequences of this dispersal should be offset by the benefits that come with the same dispersal in terms of regional anchoring, understanding of the various regional conditions, and that the location itself entails that the Faculty overall covers a broader variation in terms of both abiotic and socio-economic factors. A regionally dispersed organisation places higher demands on leadership, and creates additional administrative costs.

The Faculty intends to

- facilitate cooperation between researchers at different departments in the framework of cross- and multidisciplinary initiatives,
- stimulate cooperation across faculty and campus boundaries, and

¹ Values for SLU, SLU ua 2013.1.1.1-2727, https://internt.slu.se/globalassets/mw/org-styr/styr-dok/vision-strategi/vardegrund_for_slu.pdf

² Accessibility and email etiquette at the NJ Faculty, SLU ua 2017.1.1.1-1986, <https://internt.slu.se/globalassets/mw/org-styr/styr-dok/personal/policy-tillganglighet-och-epostetikett-vid-nj-fakulteten-170609.pdf>

- better integrate research, education and environmental analysis.

Subcomponent d) The harmonisation of procedures and processes has created equal opportunities, regardless of the part of SLU to which employees and students belong.

The Faculty supports the ambition to safeguard the quality of the University's processes, and the work to harmonise these in respects that are important for the work of the departments.

Subcomponent e) By combining the role of university and the role of expert authority, SLU has advanced the development of knowledge.

The areas of research, education and environmental monitoring and assessment need to be better integrated with each other and develop a systemic perspective. It should be possible to develop existing interaction with national authorities from demarcated projects into common roadmaps to achieve relevant environmental objectives.

The Faculty intends to

- through dialogue with the relevant authorities, develop future environmental monitoring and assessment based on politics, research and society's major future issues,
- through investment in method development, drive environmental monitoring forward,
- to develop education to a greater extent according to society's need for expertise, and
- to a greater extent design academic positions according to society's need for new knowledge.

3. The Faculty's additions to the objectives

In addition to the concretisations of goals and subcomponents described above, the Faculty intends to prioritise the following.

3.1 Subject areas

The Faculty's subject areas form the basis of the Faculty's academic organisation. A large part of the Faculty's annual government grants is allocated to the departments based on the departments' subject area, where the Head of Department decides on the use in consultation with the Professor responsible for the subject area (or equivalent).

The Faculty intends to boost the financing of subject areas with government grants. Strategies to achieve this may include to reduce the number of subject areas, or to

establish new Faculty part-financed, higher academic positions linked to a subject area. This will also result in increased responsibility for the subject areas to carry out certain activities and finance certain infrastructure.

When a Professor responsible for a subject area resigns or retires, the subject area's focus and existence must be reviewed.

3.2 Third-cycle education

Postgraduate education is a central part of the Faculty's research. A large part of this is financed by external research grants, which often do not cover the funding of a doctoral student during the entire study period. The Faculty's ambition is to reintroduce co-financing for externally funded doctoral students.

To increase diversity and gender balance among higher academic positions, it is important to have an inclusive and supportive postgraduate education. A postgraduate education that provides equal opportunities for all is therefore of great importance to the faculty.

3.3 Research infrastructure

The Faculty must continue to support the existing infrastructures linked to the Faculty's core areas that are deemed important and that enable research and education that would otherwise be impossible or too costly.

The management and organisation of SLU's field research stations at Lövsta, Röbbäcksdalen and Lanna must be assessed with the aim of clarifying the objectives of the operations and improving resource utilisation.

4. The Faculty's long-term competence provision

The Faculty Board adopted a policy for staffing of subject areas on 14 June 2017 (SLU.ua 2017.1.1.1-499). This policy is the basis of the long-term skills provision planning.

The Faculty has for a number of years systematically worked to ensure the quality of its recruitment process from a gender and equal opportunities perspective. Given the number of recruitments that will take place in the next few years, this effort will need to be intensified during the current period of the strategy.

A gender and equal opportunity perspective is not only about numerical gender equality, but above all about standards, power and structures within organisations that create unequal conditions

By focusing funding and the supply of competence on the Faculty's subject areas, the development towards stronger research groups is stimulated, where responsibility for tasks and funding is shared within the group to a greater extent.

By focusing recruitments and basic funding on subject areas, the Faculty Board also retains a significant ability to strategically control the direction of operations. The strategic value of the subject areas must be assessed based on Chapters 1 and 2 of this Strategy.