

Self-assessment for Department of Environmental Science (ENVS)



December 2021

Introduction

Department of Environmental Sciences (ENVS)' self-assessment has been prepared in the period September - December 2021 as a bottom-up process that has included:

- Workshops in all sections: SWOT and dilemmas
- The management team: Synthesis of the sections' input to SWOT and dilemmas
- Group work at department seminar (all staff): Selection of the most important dilemmas and suggestions for action points / activities.
- Management group: Synthesis of input from department seminar and preparation of the self-assessment document
- Internal committees (Department Forum, Research Committee, Public Sector Consultancy Committee, Degree Program Committee, Business Committee, PhD Field Committee, and LSU) are invited to comment on the self-assessment. The comments will be included in the strategy process in the spring of 2022

The self-assessment and the underlying material from the process form the basis for the preparation of a new strategy for ENVS in the spring of 2022 together with the international evaluation of the department in spring 2019.

1. The current situation of the department

Department of Environmental Science (ENVS) has since 2014 been one of the fastest growing departments at Faculty of Science and Technology. This expansion has been planned as a part of boosting the "University style excellence" academic profile of the department by including more professors (and with them PhD students and postdocs). The strategy for this expansion was developed in 2015 and is described in the latest department strategy (2016-2020). This strategy has led to almost a tripling in the number of professors at ENVS to now 15. Among the professors hired in the period 45 % is female. The population of PhD students has in the same period increased from 10 to a steady level of +/- 30, and postdocs from 2 to 15. During the same period, the number of senior scientists, consultants and technicians has remained at a level comparable to the 2014 situation.

The department is working in the field of environmental science, and in the report from the international evaluation in 2019 the panel found *"...the research quality of the Department of Environmental Science is very good. In some specific areas, the department has shown to be one of the most influential research groups in the world. In most of the other fields where the department is working, the quality of the research is good to very good and, in most fields, internationally recognized."*

It is important to highlight that ENVS is one out of two departments at TECH that does not carry its own teaching program. Over the years 2015-2018, two MSc teaching programs in environmental science were developed for teaching in Copenhagen (Emdrup campus, AU). However, despite support from private and public bodies, these programs were not approved by the Ministry of Education (November 2018). The situation for ENVS regarding options for teaching has been

considered as a part of the self-assessment and strategy process and one focus point is that the location at Risø campus might hinder the development of an active student environment.

Research based advisory to ministries within the areas environment and climate is the main source of income to the department, and almost equally important is the substantial funding from public and private funding bodies. The increase of political and public foci on Green Transition and Climate Change is propelling new funding. However, the current economic situation of the department and the prospect of continued 2 % yearly cut down on the advisory contracts requires high overheads on the external funding of the research and on the additional advisory activities. This situation is hampering the department's possibilities to take in new projects especially from private foundations, which offers no or low OH and / or no coverage of senior VIP hours. Thus, the previous growth strategy needs to be replaced by a new focused funding strategy.

SWOT analysis

SWOT analyses on the current situation in the department related to the four focal points in the Tech Strategy have been carried out in all ENVS sections. The four focal points are shown below.

Focal point No. 1	Focal point No. 2	Focal point No. 3	Focal point No. 4
Prioritisation and development of new partnerships and organisational pathways	Recognised research, stronger entrepreneurship, public sector consultancy, and talent development	We meet our students where they are	Joint responsibility for openness, collaboration, co-ordination and development with trust and respect for each other

The full synthesis of the SWOT input from the sections is enclosed in appendix 1. Below the most important elements of the SWOT for each focal point is given:

Strengths

- *We have a strong science foundation to initiate collaboration to support research in green transitions (Focal point 1)*
- *The applied research of the department is internationally recognized, and world leading within specific areas of environmental research (Focal point 1)*
- *National public sector consultancy is world leading and quality assurance is ISO 9000 certified (Focal point 2)*
- *PhD students are part of research projects with relevant societal objectives, e.g. green transition (Focal point 3)*
- *Solidarity and respect, joint responsibility. Team work culture (Focal point 4)*

Weaknesses

- *We are detached from AU 8000C (Focal point 1)*
- *Advisory work are directly motivated in fulfilling international standards, thus with limited space for research (Focal point 2)*
- *No undergraduate students at Campus Risø, no master or bachelor education programme (Focal point 3)*

- *Lack of common or research disciplinary language across sections and disciplines (Focal point 4)*

Opportunities

- *EU Green Deal and green transition unleash demands for our competencies (Focal point 1)*
- *More international public sector consultancy (Focal point 2)*
- *More collaboration with private sector within research and consultancy (Focal point 2)*
- *Course development on all levels (bachelor, master, PhD, continued education/training), including yearly specialized courses and online courses, and global E-learning such as the risk master with other universities (Focal point 3)*
- *Improve our popular public communication and dissemination to become more visible as a leader in green transition (Focal point 4)*
- *Increased cooperation with other departments and faculties (Focal point 4)*

Threats

- *Continued 2% cuts limit opportunity to gear research projects (Focal point 1)*
- *Unsure implications of organisational changes in the Ministry of Environment (Focal point 2)*
- *No opening to develop own master programme. No teaching a risk: despite the low STÅ rates, lack of this basic activity and its funding (Focal point 3)*
- *Demand for funding increasing, high project load. Increased pressure on the scientists, jeopardize the quality of the research (Focal point 4)*
- *Stress (Focal point 4)*

2. The most important dilemmas

The work on dilemmas in the sections resulted in a list of 13 dilemmas. The list is enclosed in appendix 2. At the department seminar, 14 groups of employees composed across units and staff categories each chose what they could agree to be the three most important dilemmas to work with. Based on the results from the group work the most important dilemmas for the department are:

Dilemma 1: Higher cost coverage of salary of permanent staff

- Permanent staff need to focus on external research and advisory funding with higher OH to cover own salary, **and** funding for PhDs and Postdocs has in many cases to be covered by the same sources.

Details:

It is crucial to bring balance to the department's finances, and therefore it is necessary to focus on increasing the external covering of senior VIP salaries. All other things being equal, this means that the opportunities for funding PhD students and postdocs are reduced.

Dilemma 2: Being more visible on competencies within green transition

- ENVS has a rich diversity of interdisciplinary competencies and skills for green transition, **however** we are lacking time and resources
 - To share knowledge for creative development and innovation.

- To be sufficiently visible in relation to both decision-makers, relevant scientific communities and the general public e.g. on social media.

Details:

Bringing the department's knowledge and competencies into play for the benefit of the green transition requires that we focus on knowledge sharing, and that the outside world knows that we exist and how we can contribute. However, both knowledge sharing, communication and branding activities require time and resources, which - especially in a tight financial situation - are difficult to prioritize.

Dilemma 3: Lacking an education has multiple implications

- Since ENVS does not have an education, we **lack** access to talents (Ph.D., MSC); our younger researchers **lack** the opportunity to merit in teaching and therefore do not live up to the overall Danish rules to obtain tenure for young scientist, and our environmental expertise is not sufficiently utilized in educational contexts (which was the original intention of the university reform in 2007)

Details:

The lack of an ENVS master program is affecting the department in multiple ways, and it is of great importance to explore alternative possibilities for the department to get more involved in teaching.

Dilemma 4: Open digital data management and sharing

- Open digital data management and sharing are expected to increase, **and** to protect our unique and attractive data, we need a strategy and resources for digitalization and for outreach and competitiveness.

Details:

The department has a rich pool of data from monitoring, from experiments as well as databases developed from register data. The data are taken well care of but with an increasing demand for open source in data management and dissemination, we need a strategy for how to make data widely available and open source and at the same time protecting data for security and competitive reasons.

Dilemma 5: Working environment and working from home

- Balance between a strong professional and socially including working environment **and** maximum flexibility for working from home.

Details:

We have been working with this dilemma in the department since the summer 2020 after the first corona lock down – and we have not found the perfect solution yet. At the moment we are in a test period of flexible guidelines for working from home and it seems that these are working better in some sections and for some staff categories than others.

3. The prioritised activities in Department of Environmental Science

In our work with the self-assessment, we have tried to be loyal to the description of the task in all the different steps and we have structured our process with respect to Techs ambition and focal points. Our prioritised activities address the main issues and dilemmas for the department:

Initiative 1:

- **Preparation and implementation of a new funding strategy; including:**
 - Securing more external funding of senior VIP salaries by only allowing project proposals not covering own salary if the senior applicant already has an (almost) full work program
 - Increasing number of advisory contracts with high overhead (116-18 %) by introducing a research bonus (hours for research activities) for contributing to commercial advisory tasks (already effective from Oct. 2021)
 - Increasing cost recovery in project proposals (full cost model) by introducing tailored requirement of recovery from private foundations and public research councils with low overhead. Guidelines for what is possible to include in applications to the various funding sources are being prepared.

Initiative 2:

- **Preparation and implementation of a communication strategy; including**
 - Definition of target groups and main messages (what do we want to communicate to who – and why?)
 - Selection / prioritization of communication channels (web, social media, newsletters)
 - Identification of resources and proposal of organization
 - Preparation of an action plan

Initiative 3:

- **Build up teaching activities; which might include**
 - Development of own PhD courses
 - Development of continued education courses
 - Collaboration about education / teaching activities with other Tech departments
 - Teaching in collaboration with local universities
 - Development of online courses at all levels

Initiative 4:

- **Preparation and implementation of a digital data management strategy; including**
 - Identify data from monitoring, from experiments as well as register databases
 - Status of data handling and strategies for open source
 - Strategy for enhanced handling and dissemination of data

Initiative 5:

- **Evaluation and adjustment of guidelines for working from home; including**
 - Discussions in the Local Liaison Committee and the Local Occupational Health and Safety Committee as well as in the sections to find a balance between a good professional and social working environment, and working from home.

4. Next step

The next steps for ENVS will be:

- Continuing work with further development and implementation of the funding strategy in initiative 1
- Evaluation of the guidelines for work from home in initiative 5 in the local committees and in the sections in February 2022
- Initiation of a process for ENVS Strategy 2022 – 2025. The strategy in particular will address:
 - Initiative 2 (communication), 3 (education and teaching) and 4 (data management)
 - The development of the department's research areas and interdisciplinary collaboration internally and externally
 - The development of the department's advisory tasks nationally and internationally

The strategy work will be continues as a bottom-up process:

- Development of strategy for each section
- Dialogue with and input from the committees based on focal points
- Synthesis from the section strategies combined with the focal points for the department.

Gantt with Initiatives 1-5	2022												2023					
	j	f	m	a	m	j	j	a	s	o	n	d	j	f	m	a	m	j
1. Preparation and implementation of a new funding strategy																		
Guidelines for cost recovery (Full cost research application)	x																	
Guidelines for covering basic funded hours	x	x																
Dialog with the staff on how this should be done, implementation	x	x		x		x		x		x		x		x		x		x
2. Preparation and implementation of a communication strategy																		
Identification of resources and proposal of organization				x	x													
Definition of target groups and main messages					x	x												
Selection/prioritization of communication channels					x	x												
Preparation of an action plan					x	x												
3. Build up teaching activities																		
Develop new PhD courses		x				x				x				x				x
Increase number of continued education courses and provide catalogue	x	x	x	x				x			x			x				x
Dialogue with management at other TECH department	x	x																
Developing of teaching in collaboration with local universities	x	x																
Development of online courses at all levels	x		x		x		x	x										
4. Preparation and implementation of a digital data management strategy																		
Identify data from monitoring, from experiments as well as CPR register databases	x	x																
Status of datahandling and strategies for open source		x	x															
Strategy for and needs for enhanced better handling and dissemination of data			x	x	x													
5. Evaluation and adjustment of guidelines for working from home																		
Discussions in relevant committees and in the sections	x					x				x								

The management group will follow the status of the different activities closely – particular the need to change the focus on the funding situation is to be monitored closely.