NEXTFOOD

Educating the next generation of professionals in the agrifood system

NEXTFOOD will contribute to a transition to more learner-centric, participatory, action-based and action-oriented education and learning in agrifood systems, which are becoming increasingly complex and require an increasing range of "hard" and "soft" skills. The objectives are to

- (O1) identify the skills needed for a transition to more sustainable farming and food systems,
- (O2) develop and test relevant curricula and training methods,
- (O3) assess existing policy instruments for the training and education sector,
- (O4) develop tools for evaluating quality of the training and education sector,
- (05) develop a platform for knowledge sharing.

NEXTFOOD will employ case-based action research to

(I) develop relevant and effective education and training programmes for a transition to more sustainable agrifood systems,
(II) generate new knowledge needed for similar achievements beyond the specific case.

The *case development (I)* will rest on a cyclic, iterative, participatory process consisting of

(1) observation and description of the current situation in each case,
(2) visioning of a desired future state,
(3) analysis to identify key issues, solutions, supporting and hindering forces etc.,
(4) elaboration and discussion of action plans,
(5) implementation of plans,
(6) iteration of steps (1–5) in a cyclical manner throughout the course of the project.

Simultaneously, *research (II)* will be done on qualitative and quantitative data generated during the case development process and analysed to answer research questions that are relevant beyond the specific case. This will produce new knowledge needed to drive the transition to the learning strategies required to educate and train professionals that can meet the very complex future demands in the agrifood sector.

The main research questions of NEXTFOOD are:

1. How can participatory and action-oriented learning strategies focusing on competences required to foster more sustainable agrifood systems, be designed and implemented?
2. What are supporting and hindering forces for such alternatives to establish and develop successfully?

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Case name and name of contact person/leader

Agroecology: action learning in farming and food systems

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Brief description of the case

A master's course in Agroecology (https://www.nmbu.no/course/PAE302), which in 2016 earned a national prize in Norway for excellence in higher education, constitutes the case. Its base is experiential, action-based and action-oriented learning where competence development and life-long learning by the student—the new agroecologist—is equally important as the subject—agroecology. Open-ended cases in the field are starting points for learning about agroecosystems (ontology) and arenas for learning and training of competences needed to make the cases more sustainable (epistemology). Theory plays a key supporting role to structure the students' case inquiry, help them make sense of their observations, guide their analyses, inspire their visioning, help them critically evaluate possible solutions and, especially, inform their development of competences and life-long learning skills. Students, professors, and agrifood system stakeholders co-create knowledge, and professors take more of a facilitating role for the students' experiential learning than acting as traditional classroom lecturers transmitting knowledge.

Students carry out two group projects during the semester, one in a "farming system" case and the other in a "food system" case based in an urban area, both part of the quest for a major change to improve ecological, economic and social sustainability. Students have two immersions in each of these field case contexts. First, the students observe and explore their cases, working with their team to develop a holistic understanding of the situation through methods learned and practiced in class. Upon returning to the university, the groups reflect on and analyse their experiences and prepare for a second visit to the case location. During the second visit, the students discuss their understanding of the case with key stakeholders. They can also organise and facilitate visioning sessions for their stakeholders, which are followed up by working out action plans to pursue the visions. This gives students the opportunity not only to learn about agrifood systems throughout the course, but also to develop tangible skills and professionalism including the ability to take informed and responsible action in collaboration with stakeholders.

The ultimate goals of the master's course are to reduce the distance between academia and society and to bridge the all too frequent gap between knowing and doing with regard to complex challenges such as sustainability of agrifood systems. After pursuing these goals for almost two decades, the following competences have emerged as particularly important for an agroecologist: participation, observation, dialogue, visioning and reflection.

In a participatory manner involving students, stakeholders and faculty, the case is continuously exploring theory and methods for fostering these key skills. This has resulted in several peer-reviewed publications. The core faculty also are involved in developing education based on similar principles in the other Nordic countries, Italy, Ethiopia, Uganda, India and United States. Thus, action research is being carried out, not only to improve the case as such, but also to gain insights that can be adapted and used elsewhere to pursue similar goals.

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How will the case contribute to achievement of the NEXTFOOD objectives by action research as the main strategy?

The case will be an arena for achievement of

- O1 through the on-going action research described above on key competences needed by agroecologists with an aim of facilitating a transition to more sustainable agrifood systems. O2 through the participatory exploration of theory and methods for fostering these skills and evaluating success.

How will the case study provide evidence to answer the NEXTFOOD research questions?

1. How can participatory and action-oriented learning strategies focusing on competences required to foster more sustainable agrifood systems, be designed and implemented?

The case includes empirical material collected during almost two decades. This includes the students' client reports from their farming and food system case inquiries. It also encompasses the documents in which the students reflect on the agroecology of the cases (ontology) and their inquiry and learning methods (epistemology). Moreover, results of the students' weekly and final course evaluations are available. Altogether, this material directly or indirectly reveals whether the curriculum and learning methods promote action competency in complex agrifood situations. A survey of alumni will also be carried out with regard to their present occupation and their assessment of how effective the learning methods of the course were to develop relevant knowledge and action competence.

Furthermore, the NEXTFOOD research question is also being addressed in the quest for continuous improvement of the case, as guided by an action research cycle that will be repeated throughout the duration of the project.

2. What are supporting and hindering forces for achieving such alternatives?

Over the years, the case has accumulated ample experience from introducing and maintaining systemically and holistically oriented experiential, action-based and action-oriented learning in a primarily discipline-, theory- and lecture-based university education environment. Valuable data have also been gathered on what it takes for students and faculty to step out of their comfort zone formed by traditional teaching and learning methods and on what stimulates them to take that step.

The research question is included in the action research process described above, and the further development of the case will thus generate more data for answering it.

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When do you plan do run the first cycle (starting and ending dates) of the educational activities (courses, seminars etc.)?

The course runs annually between August and December.

The first cycle, 2018:

August 3rd-7th: Final planning of the course.

August 13th: Course start. Students are introduced to key elements of the course.

September 10th: First "farming system" case visit.

September 24th: First "food system" case visit.

October 22nd: Second "farming system" case visit.

November 12th: Second "food system" case visit.

December 7th: Course ends. Final student reflection on the whole course.

December 10th: Course evaluation by the teachers.

What is the planned (expected) number of learners (students, farmers, etc.)?

16–24 students.

What is the level of the course(s)? (BSc, MSc, other)

M.Sc.

Who will be the teachers/learning facilitators?

In addition to the group of core teachers at the Agroecology section, throughout the various course activities, the students will have the opportunity to learn from the many stakeholders they encounter. These stakeholders range from farmers and farm hands to politicians and retailers, depending on the cases.

Throughout the semester, invited guests will host topic-specific sessions for the students. An example is a seminar held at the beginning of the semester by a psychologist, focusing on group dynamics and teamwork.

In this years' edition of the course, we will introduce and pilot a mentor program. The students will be mentored by primarily second-year students who will act as learning facilitators in addition to providing other types of support.

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A description of the 'learning arenas':
Where will the activities take place, what will be the processes to enable co-learning between teachers, learners (students, farmers, etc.) and research persons in society (farmers and others)?

Through the students' interactions with the real-life cases, they will encounter a plethora of learning arenas. First and foremost, the food and farming systems of inquiry present themselves as important arenas where co-learning is enabled between the students, the stakeholders and other people. The sessions at campus takes place primarily in classrooms with an emphasis on making the classroom an arena where teachers and learners actively participate in the learning process rather than it being an arena for linear knowledge transformation from teacher to learner.

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