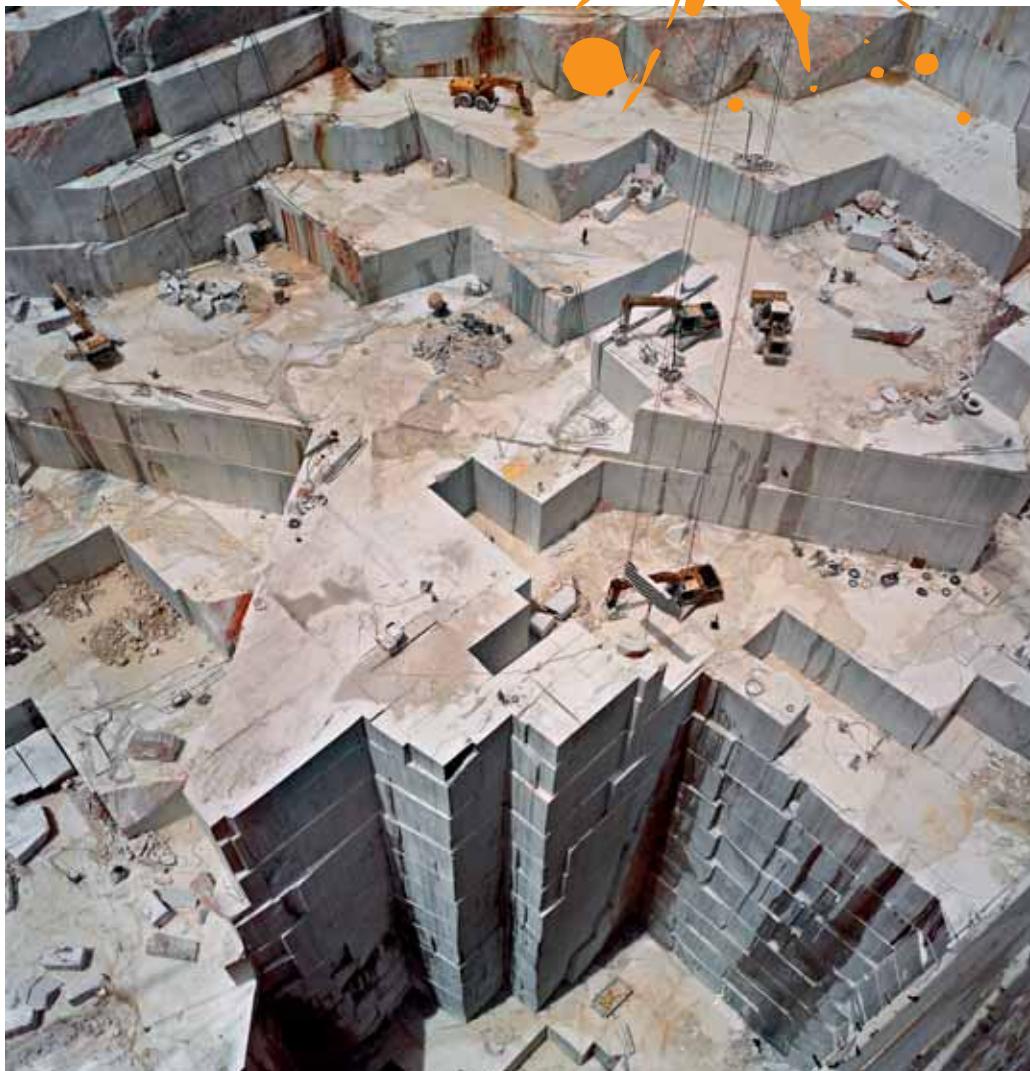


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Science Meets Practice: A Winter School Offers New Perspectives

SAGUF is engaged in a winter school aimed at enabling PhD students to successfully work at the science-society interface. The winter school integrates theoretical reflection with practical experiences.

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Es tut sich was in der **Nachhaltigkeitsforschung in den deutschsprachigen Ländern** – davon zeugen nicht zuletzt diese GAIA-Mitteilungsseiten: Die **SAGUF** stellt die PhD winter school „Science Meets Practice“ vor. Das **Departement Umweltsystemwissenschaften** blickt zurück auf 25 Jahre Umweltnaturwissenschaften an der ETH Zürich und behält dabei die Zukunft der Ausbildung im Blick. Die **DGH** präsentiert das Leuphana-Semester der Universität Lüneburg, in dem alle Studierenden verpflichtend das Modul „Wissenschaft trägt Verantwortung“ belegen. Das **BMBF** berichtet Neues aus den Forschungsprogrammen **FONA** (*Forschung für Nachhaltigkeit*) und **SÖF** (*Sozial-ökologische Forschung*). Das **Österreich-Konsortium** eröffnet Vorschläge für die Revitalisierung der einst pionierhaften Nachhaltigkeitsforschung in Österreich. Der **NaWis-Verbund** berichtet aus der Initiative *Transformatives Wissen schaffen*, die Best-Practice-Beispielen einer transdisziplinären Nachhaltigkeitswissenschaft ein Forum bietet.

Science-society interfaces have been a central aspect in the 40 years of organisational history of the Swiss Academic Society for Environmental Research and Ecology (SAGUF). Since its foundation in 1972, SAGUF has supported exchange processes not only in the interdisciplinary field of environmental sciences, but as well with stakeholders from policy, industry and administration. The work beyond the boundaries of the academic community is challenging and needs serious attention in the training of young researchers. An annual winter school addressing this specific challenge has been developed with the help of SAGUF members.

Background and Embedding of the Winter School

The pleas for more interaction of scientists beyond science have become stronger recently and have been broadly discussed in the scientific literature (Cash et al. 2003, Ja-

sanoff 2010, Scholz and Stauffacher 2009, WGBU 2011). What roles do scientists play with respect to the challenges of sustainable development and urgent environmental and societal needs? How can scientists better interact with society and why should they do so? These are delicate questions, and a coherent understanding of this interaction and how it should appropriately be established is missing.

Roughly speaking, one can distinguish two extremes: At the one end, there are those promoting an improved provision of information and a better communication of results (e.g., Leshner 2007). At the other end, there are voices that call for more interaction between science and society. The aim of the latter – often implemented in transdisciplinary research settings – is the co-production of knowledge or mutual learning processes among science and society (Roux et al. 2006, van Kerckhoff and Lebel 2006, Wiesmann et al. 2011). Despite

this rather fundamental difference, both positions agree that, at present, interaction between science and society is insufficient and that both the university system and individual scientists are insufficiently prepared for meeting this challenge.

In the Swiss Competence Center Environment and Sustainability (CCES) of the ETH Domain, similar discussions became >

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manifest in 2009. One of the aims of CCES is "to achieve a visible societal impact".¹ It is evident that this necessitates close interaction with society – a challenge CCES explicitly addresses by establishing "a strong wide-ranging education and outreach program". In response, CCES initiated a new training programme for PhD students that brings together experts engaged in transdisciplinary and interdisciplinary settings as researchers and practicing intermediaries and communicators. A majority of these experts are members of SAGUF, an institution who has made major contributions to improving the science-society interface during the last decades (Stauffacher et al. 2009).

Preparation and Concept

To prepare and implement the programme, the expert team intensively worked together, extracting key content of their semester-long courses into a winter school programme spanning over two block weeks (see table for an overview of the structure and programme). Although the majority of lecturers had known each other for years, the winter school offered a nucleus for concerted work on a topic dear to all of them.

Conceptually, the team decided to work with a broad understanding of the science-

society interface, and to cover the whole spectrum of options laid out by the above mentioned different interpretations. The concept followed the functional-dynamic approach in the interaction of science and society (Stauffacher et al. 2008, Krüttli et al. 2010). The team further decided to offer neither a skills course nor a theoretically inspired seminar, but rather to combine both. Theoretical inputs, reflection and practical work were thus linked together. For the practical part, the team favoured involving real-world stakeholders over role plays with only the students. This increases the workload in the preparation and during the winter school, but allows for ad hoc and essential experiences both for participants and lecturers – and the stakeholders as well. In sum, the concept of the winter school enables the participants to understand and experience different forms of science-society interactions.

The practical work is performed by three groups:

- the "information group" uses established as well as new forms of communication, such as press releases, Web 2.0 contents and video;
- the "consultation group" organises and implements an "exploration parcours" as a method to elicit preference informa-

tion from different stakeholder groups (see Scholz and Tietje 2002); and

- the "collaboration group" organises and moderates a stakeholder workshop for exploring and facilitating the formulation of problem framings and views of different stakeholders groups (see Fry 2001, Pohl et al. 2010) and enhancing a collective search process for solutions.

The transition from theoretical and conceptual inputs to practical and implementation work is set out to be receptive to the ideas and motivations of the participants. The teaching arrangement is based on a partnership approach that involves changing roles: lecturers become coaching mentors; participants become active partners.

Implementation

As of today, the CCES winter school was offered twice. The first winter school 2011 was a pilot running with a group of 16 international participants from the ETH Domain as well as from Swiss, German, and Austrian universities, and has been evaluated as highly successful, while showing room for improvement. The comprehen-

¹ www.cces.ethz.ch

TABLE: Overview and general structure of the CCES winter school "Science Meets Practice"

FIRST WEEK		Monday	Tuesday	Wednesday	Thursday
am		welcome, speed meeting, expectations	selected concepts about knowledge interfaces	media training – principles and skills	coached group work
pm		meet the experts	<ul style="list-style-type: none"> ■ a functional-dynamic view on science-practice interfaces ■ introduction of three tasks 	<ul style="list-style-type: none"> ■ knowledge management – bridging different views ■ group formation 	<ul style="list-style-type: none"> ■ coached group work ■ implementation plan
evening		evening walk	stakeholder constellation	videos <i>From Farmer to Farmer, NFP 61</i>	
IN BETWEEN THE TWO BLOCK WEEKS: preparations for stakeholder interactions					
SECOND WEEK		Monday	Tuesday	Wednesday	Thursday
am		group work	<ul style="list-style-type: none"> ■ implementation "exploration parcours" with practice partners ■ producing information and communication material (e.g., press release) 	<ul style="list-style-type: none"> ■ implementation "stakeholder workshop" ■ producing information and communication material (e.g., video, web release) 	<ul style="list-style-type: none"> ■ coaches' feedback ■ feedback on tasks ■ personal reflection
pm		<ul style="list-style-type: none"> ■ progress review by all three groups ■ group work 	feedback from practice partners and coaches	feedback from practice partners and coaches	<ul style="list-style-type: none"> ■ final discussion and feedback ■ outlook ■ evaluation
evening		group work	group work	party	



sive evaluation allowed for a structured learning for the lecturing team and resulted in adjustments to the programme. For the second winter school in 2012, the number of applications exceeded the number of offered places (25), and a selection had to be made.

The participants in both winter schools were at various stages in their PhD or Post-doc projects and covered a wide field of disciplines tackling environmental issues or sustainable development. For both groups, encounters with their peers were extremely rewarding, as were the experiences with the production of information outputs as well as organisation and implementation of the stakeholder meetings.

The concept of the course proved fruitful both with respect to the broad coverage of various possibilities to bridge science and society, but also with respect to the integration of theoretical reflection with practical experience. We expected the latter to be challenging – and indeed it turned out that participants received the concept with reservation and at times with resistance. Some students had rather assumed to receive recipes or tools. However, after the actual experience of having interacted with real-world stakeholders, the vast majority of participants considered the theoretical embedding of their practical work as essential for success.

The quotes of two participants may reveal some of the essentials of the winter school:

"I met a lot of people, learned about concepts, met participants, coaches, and stakeholders; but I think the benefit of the winter school cannot yet be measured. It is more of a process that just started and that I expect to be fruitful in the future."

"For the first time, I experienced a very dynamic learning process interacting with other participants and coaches from diverse fields."

The winter school also fulfilled stakeholder expectations: "The afternoon in the winter school for me represented the successful implementation of efforts to link science more closely to practice – and to learn from each other. An encouraging approach" (original in German, translated by the authors).

Doubts remained with the participants whether the investment in the processes of creating, organising and managing the science-society interface may indeed jeopardise their individual academic careers. A critical reflection on the roles of science and scientists is certainly necessary here. The lecturing team is convinced that the skills and competences taught – spanning from communication to collaboration – are essential for societally relevant sustainability research. This reflects a shared mindset among the lecturing team, a majority of whom can draw on and benefit from the competence developed over many years from interacting within and inspired by the activities of SAGUF.

Conclusion and Outlook

The past two winter schools have been both challenging and rewarding for the lecturing and coaching team. Challenging, because the institutional and disciplinary backgrounds of students were highly diverse; rewarding, because exactly this enabled an intensive and educational exchange of views and perspectives. The open mind-set and mutual respect of all individuals involved make such interactions highly rewarding (see Zingerli et al. 2009).

Decisive for success was a core team of experienced lecturers who know and trust each other; a dedicated person to coordinate, coach and guide the students throughout the programme; a supportive advisory board with key faculty from the ETH Domain; a well-equipped and nicely located seminar place outside the regular university setting; an existing network of stakeholders; and last but not least groups of highly motivated PhD students and Postdocs with various backgrounds.

The winter school will be offered again in 2013.² This continuity will contribute to the education of a new generation of researchers informed about the functions of the science-society interface, existing communication and interaction tools, and committed to integrate societal perspectives into their scientific work. From SAGUF's point of view this is a promising achievement – institutionalising science-society interfaces as an important element in research related to sustainable development.

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² www.cces.ethz.ch/winterschool