

Report from the meeting of NOVA Network Soils and Society “SoilSoc” in Iceland 16.-19.11.2003

In March 2006 Nordic teachers working in the field of soil sciences were invited to Helsinki by Kristina Lindström to discuss the need for tighter educational collaboration. During the meeting the NOVA Network Soils and Society “SoilSoc” was initiated and great number of ideas on possibilities to benefit from better communication and cooperation arose (for more information see report from the first meeting at Network website <http://www.mm.helsinki.fi/users/lindstro/NOVASOIL/index.htm>).

To conclude this work, define the structure and main focus of the network and continue the planning of a joint Nordic master’s program 17 teachers, researchers and students gathered in Iceland for one weekend in November (List of participants in the Appendix 1). The group of the participants included representatives from all five Nordic countries as well as covered all relevant branches in the interdisciplinary field of soil sciences. Including also students already in the planning phase of the suggested joint master’s program was seen crucial to create a program that really can attract students and provide them added value.

The outcomes of this meeting are summarised in this report.

Agenda

The meeting started on Friday with introduction to the special properties of Icelandic soils, Icelandic soil education and research (Appendix 3). The extreme need of LbH for collaboration in soil science education became apparent, since they at the moment have no resources to provide a full programme but have to send students to other universities to gain the degree. In a joint program they can nevertheless provide a valuable input in specific areas. One concrete example of their efforts are the plans to host a new summer course “Soil degradation, erosion and restoration” described in Appendix 4.

Saturday was fully dedicated to discussions about the purpose and structure of the network as well as the planning of a joint master’s program. The work started by gathering in three groups (Students, Soil (micro)biologists, Soil chemists/physicists and pedologists) to think about and summarise what the different participants and universities want out of the network and what possibilities are seen in this collaboration (summaries in Appendix 5). A bottom-up approach was seen necessary to **create a network that answers the true needs of the participants** and provides **added value both for students, teachers, universities as well the whole field of soil sciences**.

The participants had prepared the relevant issues at their home departments by discussing with local teachers and administrators (topics listed in the Appendix 6 Project plan, attached to the funding application to NOVA). The preliminary agenda of the

Saturday meeting is in the Appendix 7 and the outcomes are presented below and in the attachments.

Aims and activities of the SoilSoc network

Soils are among the most important natural resources of the world and are essential for the well-being of society. Soil science is a recognized field, which includes many sub-disciplines with extensive high-quality, internationally recognised research and teaching activities throughout the world, including the Nordic countries. However, although the Nordic countries together have expertise in most areas of soil science, no single country has comprehensive coverage of soil science. This has had a negative impact on the education in soil science in Nordic countries, and has impeded progress in many fields of agricultural and environmental sciences. At present, the diversity of soil science education available and the number of students enrolled in each Nordic country does not reach the critical mass to offer motivating learning environments. Therefore, it is important that the Nordic countries join efforts in providing the Nordic students with high quality education in all disciplines within the field of soil science. This will be the **role of the SoilSoc network** and the **purposes** are:

- To increase and improve Nordic interaction among students, teachers and researchers in the field of soil science.
- To improve the diversity and quality of graduate education in the field of soil science in the Nordic countries.
- To create a motivating environment for Nordic students in the field of soil science.

To reach the aims listed above we will focus on the following **activities**:

- Establish and benchmark a website that will serve as a forum for sharing all the relevant information on graduate courses and overall student mobility in the field of soil sciences in the Nordic countries.
- Provide an annual graduate level summer course in soil science, preferably interdisciplinary and problem based.
- Provide information on current research programs in the Nordic countries in the field of soil sciences to facilitate student mobility with regards to thesis work and practical training for graduate students.
- Create opportunities for sharing and exchange of teaching expertise.

Structure and administration of the SoilSoc network

A Board was compiled to carry the administrative responsibility of the SoilSoc Network. The SoilSoc Board has ten members, a teacher and a student representative from each member university. The teachers in the Board represent the four sub-disciplines and the fifth teacher is the Network Leader. Students can be either M.Sc. or Ph.D. students and

represent any of the sub-disciplines. The term of the board is three years to ensure sufficient continuity, the term of the first board being from 2006 till 2008. The position of the Network Leader is rotating between the member universities.

The tasks of the board include coordinating the collaboration, coordinating and organising courses and monitoring the progress and quality of the master's program. More specific tasks can be assigned to any board member including the student representatives. The SoilSoc Board is to meet once a year.

The composition of the **SoilSoc Board 2006-2008** is:

- Network Leader – Kristina Lindström, HU-AF, Finland
- Soil chemistry – Ole Borggaard, KVL, Denmark
- Soil biology – Sara Hallin, SLU, Sweden
- Soil physics and hydrology – Trond Børresen, UMB, Norway
- Pedology – Oláfur Arnalds, LbHI, Iceland
- Student representatives – Rannveig Guicharnaud (Iceland), Karin Enwall (Sweden), Linda Bergaust (Norway), Anu Mikkonen (Finland) and Julie K. Jensen (Denmark)

In addition there is a representative (node) for each sub-discipline in each country, who is not a member of the Board.

To form a Nordic network that connects all the relevant contacts in the field of soil sciences there are also Linked Nodes in partner institutions (non-NOVA universities, research institutes). Linked Nodes have no administrative power or duties, but recognising them is important for mapping the expertise different Nordic countries possess in the field of soil sciences. They can also provide places for practical training and projects for master's thesis, that way further aiding student mobility. Lists of the country nodes for each sub-discipline and suggested Linked Nodes are in the Appendix 8.

Joint Nordic Master's Programme Soils and Society "SoilSoc"

It became apparent that the participants from all five NOVA universities are in favour of starting a joint master's programme (MSc related NOVA Network Project [NNP]), but see it necessary to have a very open programme structure to avoid problems other NOVA programme attempts are facing in e.g. administration, course overlapping and course recognition. The **Joint Nordic Master's Programme Soils and Society "SoilSoc"** will create a frame for student and teacher mobility and benefit from it, but the administrative power will remain in the home universities.

Students will be enrolled according to the customs of their own universities and follow their curricula. Since the degrees received in any NOVA member university are recognised and appreciated by other Nordic partners, we see no added value in a joint degree – therefore students also graduate from their home universities, and participation in the SoilSoc programme will just be a mention in their degree certificate or diploma supplement. The program will anyway give LbHI the possibility to start soil science degree education and enable for example HU-AF to enrol also non-Finnish speaking master's students, for whom the course selection until now has been too limited.

The program will mostly consist of courses already existing courses taught in all NOVA member universities. The Faculty of Forestry at the University of Joensuu, Finland – hopefully able to join NOVA within the next two years – will also be included in the collaboration at an early stage since they are seen as a relevant partner and have been active in the SoilSoc network from its planning phase.

Network members will organise each year at least one graduate level intensive course (summer school) which will bring together the students participating in the programme and raise its profile. These courses are intended both for M.Sc. and Ph.D. students and they tackle a certain soil related problem society faces (e.g. erosion, soil contamination, climate change). The cases will be studied in an interdisciplinary manner, preferably utilising Problem Based Learning as the teaching method.

Student mobility will also be promoted by encouraging students to do work training and thesis work abroad so that they can fully benefit from all the expertise within the network. Information on possibilities for this kind of exchanges, all the course information as well as facts and hints on funding possibilities will be collected on the SoilSoc website. The idea is to create a portal in which all relevant information on soil science study mobility is behind just one click and presented in a clear and appealing manner.

Details on the “SoilSoc package” the students participating in the program will carry out will be defined separately in each NOVA university, but fulfilling the NOVA and Nordplus requirements in Definition of a Joint NOVA M.Sc. Programme (KUF decision 06-02-28) were seen to form no major obstacles. The packages will ensure sufficient amount of mobility and studies outside the host institution (either in English or using other Scandinavian languages) as well as multidisciplinary, e.g. courses outside students own sub-discipline. Each student in the program is to take part in at least one graduate intensive course organised by the SoilSoc network. When these requirements are filled the student gets a mention about concluding the programme either in degree certificate or diploma supplement, again according to the national practices.

Students specialise in their own sub-discipline unless otherwise decided with their professor, but the thesis work can be done at any of the NOVA universities or partner institutions. The SoilSoc program will in most cases have the role of a minor or side subject in the degree. The master’s theses will be done according to the national rules – writing it in English is recommended but not required. All theses completed by students in the SoilSoc program will be listed on the network website.

Members of the SoilSoc board have the responsibility to formulate the national requirements (according to NOVA Definition of programme) for the SoilSoc packages during spring 2007. There may even be several different package structure requirements within one NOVA member university, since even students from the same university can major in different subjects. The board members also find out how the SoilSoc collaboration can be marked in the degree certificate or diploma supplement. Package requirements are then agreed on by the network board and agreements on the cooperation signed as required by NOVA programme rules.

Planned annual courses

During the meeting on Iceland the interdisciplinary courses that will be organized by the SoilSoc network were discussed. Plans for the following years are presented below.

2008: Soil degradation, erosion and restoration (LbhI, Iceland; see Appendix 4).

- Organiser: Ólafur Arnalds
- 10 days, within the NOVA window in August 2008
- MSc and PhD students

2009: Global change and biogeochemistry of soils – from field to laboratory (UMB, Norway).

- Organisers: Åsa Frostegård, Jan Mulder, Lars Bakken
- Summer course for MSc and PhD students

2010: Possibility to host a joint course in China

- Organisers: SoilSoc network members together with their partner universities in China
- Focus on soil problems of a fast developing and industrialising country (food production, soil degradation etc.)

Achievements and activities in 2006

During the meeting on Iceland the achievements and activities in 2006 were highlighted. Since the start of the SoilSoc network four activities have been accomplished:

- The planning of SoilSoc network was organized by Kristina Lindström during a NOVA-financed meeting in Helsinki the 2nd of March 2006.
- Two graduate student courses have been organized by teachers active in the network. Graduate course *Bioremediation of boreal soil* was hosted at the University of Helsinki June 5th till 15th. The course *Molecular techniques in environmental microbiology* will be held 5-9 December 2006 in Uppsala. The course is financed by the graduate school Focus on Soils at SLU, Sweden and organized by Sara Hallin.
- The first official SoilSoc Network meeting was held in Iceland 16-19 November 2006, during which the plans on Joint Nordic Master's Programme were finalised.

Required resources and funding

Since most of the courses to be included in the curriculum of Joint Nordic Master's Programme Soils and Society are already part of the regular activities the amount of additional funding remains small. Most of the costs are formed at the Initiation phase of the programme, when all before mentioned information needs to be collected, a comprehensive website constructed and the marketing of the program initiated. To accomplish this hiring a part-time network secretary will be necessary, and applications

to NOVA and Nordplus will be submitted during spring 2007 to cover the salary costs (estimated to be 1 year's salary split over 3 years). The network secretary can also be a student, and in the long term there is a possibility to assign the future updating of the website for the student members in the board.

The Board has a collective responsibility of applying for funding for the network, but general applications will be submitted by the Network Leader. Funding for specific courses will be applied by the respective course organiser.

Students participating in the programme or only on single courses are guided and encouraged to apply for Nordplus funding to cover the costs mobility causes. They can also apply for support from certain funds (e.g. universities and foundations), information on these will also be collected on the website.

Work plan and milestones

18.11.2006	NOVA SoilSoc Network established in a meeting in Iceland
21.11.2006	Plans for the Joint Nordic Master's Programme Soils and Society "SoilSoc" presented at a report to NOVA secretary and KUF meeting representatives
22.-23.11.2006	Plans for the SoilSoc network and programme presented at the "Days of Soil Science" hosted in Helsinki by Finnish Society of Soil Sciences
1.12.2006	Node structure completed
5.-9.12.2006	Plans on the SoilSoc network and programme presented at the graduate course "Molecular techniques in environmental microbiology" hosted by Sara Hallin at SLU
Spring 2007	SoilSoc package requirements completed, signed agreement on the program cooperation
Spring 2007	Application to KUF for financing the salary of the network secretary
1.6.2007	Network Secretary takes office and starts to construct the website
1.9.2007	Website – formal opening, network structure (list of all nodes including information on special expertises) and program description
1.11.2007	Website – practical information on funding possibilities, term structure of NOVA universities and other general information regarding student mobility
1.12.2007	Website – detailed course descriptions in a defined format
1.2.2008	Website – list of research programs/projects
Spring 2008	First year report to KUF, after that reporting according to NOVA rules

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| 1.8.2008 | Website – common electronic course evaluation form online |
| August 2008 | Graduate course Soil degradation, erosion and restoration at LbhI, estimated number of participants 20 |
| 1.10.2008 | Minimum 10 students in the programme, minimum 20 other students have taken part on the activities and benefited from the website |

Attachments:

1. List of participants
2. Financial report of the meeting, including preliminary budget
3. Program of Friday
4. Soil degradation, erosion and restoration – Graduate short course in Iceland
5. Possibilities in SoilSoc collaboration – summaries of the group discussions
6. Project plan (attached to the funding application to NOVA)
7. Agenda of the meeting
8. Node structure

SOILSOC Meeting in Iceland November 16th till 19th - participants

Country	Institution	Name	e-mail	Position
Denmark	KVL	Ole K. Borggaard	Ole.K.Borggaard@kemi.kvl.dk	Professor
	KVL	Ole Nybroe	Ole.Nybroe@ecol.kvl.dk	Associate Professor
Finland	HU	Kristina Lindström	kristina.lindstrom@helsinki.fi	Docent, Univ. lecturer
	HU	Anu Mikkonen	anu.s.mikkonen@helsinki.fi	M.Sc. student
	HU	Salla Hartikainen	salla.hartikainen@helsinki.fi	Ph.D.student
	University of Joensuu	Tarja Lehto	tarja.lehto@joensuu.fi	Senior Assistant
Norway	UMB	Trond Børresen	trond.borresen@umb.no	Professor
	UMB	Jan Mulder	jan.mulder@umb.no	Professor
	UMB	Åsa Frostegård	asa.frostegard@umb.no	Professor
	UMB	Linda Bergaust	linda.bergaust@umb.no	Ph.D.student
Sweden	SLU	Sara Hallin	sara.hallin@mikrob.slu.se	Associate Professor
	SLU	Karin Enwall	Karin.Enwall@mikrob.slu.se	Ph.D.student
Iceland	LBHI	Ólafur Arnalds	oa@lbhi.is	Professor
	LBHI	Rannveig Guicharnaud	rannveig@lbhi.is	Ph.D.student
	LBHI	Thorsteinn Gudmundsson	thorstein-g@lbhi.is	Professor
	LBHI	Berglind Orradottir	berglind@lbhi.is	Researcher
	LBHI	Brita Berglund	brita@lbhi.is	Researcher

Possibilities in SoilSoc collaboration – summaries of the group discussions

Students

- Benefit and learn from all the expertise in different Nordic countries – exchanges required to be able to specialise in specific topics
- Connections to scientists and students abroad formed already during studies
- Website important for getting the information on courses and relevant details (including funding possibilities) to help mobility – possibility to go exists already, but more information and better marketing would help!
- Intensive courses on graduate level, that both M.Sc. and Ph.D. students should be able to take part in the same courses
- Raise the profile of Scandinavian collaboration and soil science know-how
- Students should be involved in the planning
- Going abroad important to learn new things and ways to think, but mobility must be voluntary
- You bring the new ideas and things you learned back to your own country, also students not taking part in the program benefit (internationalization at home university)
- Possibility to do M.Sc. thesis and training abroad
- Courses should anyway be open for all
- Make mobility easy and attractive for students, and more of them will go!

Soil (micro)biologists

- Good website crucial for gathering and sharing information
 - Courses
 - Common information
 - Course catalog
- New graduate course (1 per year)
 - Share the information on these, even
- Research project catalog
 - What's hot right now
 - Master's project possibilities
- Teacher mobility
- Distinct nodes/contact persons (both students and researchers) easy to contact
- Challenges:
 - Formal program can be drowned in byrocracy
 - Differences in terms and degree structure
 - Rigid national rules for degrees
 - Qualification for the program

Soil chemists/physicists, pedologists

- Purpose of the network: more students, more courses => create critical mass
- Motivating environment for students
- Meeting the requirements for internationalisation of higher education
- Appealing courses both for MSc and PhD, not just for soil scientists, raising the profile of soil science, interdisciplinary
- Facilitate graduate student research cooperation in Nordic countries
- More fieldwork
- Soil science in broader societal context
- NOVA windows: weeks 2 & 3, 33 & 34

NOVA SoilSoc network meeting 18th of November 2006-11-16

Agenda

1. **Purpose** of the network

- Discuss in smaller groups what you expect from the network as a student/teacher/researcher, what are the possibilities and wishes from the point of view of your own group, what added value could be reached with tighter Nordic collaboration on this field. Write the things down.
- Discuss together, decide what is the main purpose of the network, short term and long term aims

2. Network **structure**

- Discuss and agree on the network structure, nodes on different levels.
- Should linked/external nodes in partner institutions (relevant non-NOVA universities and research institutions) be included?
- Leadership, rotating leadership is preferred
- Administration
- Mapping of expertise
- Name of the network, name of the MSc related NOVA Network Project (NNP)

3. Joint **MSc program**

- *Definition of programme*: look at the NOVA definition in groups with people from the same country, how does it fit into your MSc curriculum and plans?
- Discuss the overall aims and structure of the programme, following and completing the list in the *Project Plan*. The challenges other NOVA MSc programs are facing will also be reviewed.
- Structure of the SoilSoc studies

4. **Information** and communication

- within the network
- to attract and involve linked nodes
- for students

5. **Work plan** (following the NOVA documents *Applying for a MSc related NOVA Network Project (NNP) funding* and *Guidelines for qualitative evaluation of NOVA projects*)

- time frame, milestones
- budget, resources required, where from and how to apply for funding
- personal responsibilities
- reporting