



Knowledge for healthy soils

SNOWMAN Network Management paper

Final draft

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Edited by SKB on behalf of the ERA-NET SNOWMAN Core Group

Content

1	Introduction	3
2	Vision, Mission, Strategy of SNOWMAN.....	4
3	Organisation, tasks and responsibilities	7
3.1	Organisation of the Network.....	7
3.1.1	SNOWMAN Network steering group (NSG)	7
3.1.2	SNOWMAN Secretariat.....	7
3.1.3	Advisory Group	7
3.1.4	SNOWMAN Call steering committee	7
3.1.5	SNOWMAN task teams.....	8
3.2	Tasks and responsibilities	8
3.2.1	Network Steering Group	8
3.2.2	SNOWMAN secretariat	8
3.2.3	Advisory group	9
3.2.4	Call Steering Committee	9
3.2.5	Task team.....	9
3.3	Liabilities	9
3.4	Decision making process.....	9
3.5	Confidentiality of information	9
3.6	Communications	9
4	Membership of the Network.....	10
4.1	Full membership	10
4.2	Affiliate membership	10
4.3	Observers	11
4.4	Third money participants	11
5	Finances	12

Annex 1 The procedure for the implementation of a Call: Coordinated call roadmap
Annex 2 Example of a Voting matrix
Annex 3 Tasks of the Secretariat
Annex 4 Tasks of secretariat on behalf of Communication team

1 Introduction

There is a long tradition of networking in Europe along the theme of contaminated Soil and Groundwater. Supported by the EU framework programmes various network have been started and some of these are still active as self-sustained network. Research and a joint research agenda was always part of the activities of these networks. However, in CLARINET a first identification of national research funding organisations and their programmes was made. [1] The conclusion at that time was that there is a large overlap in research issues in the different national programmes.

This has led to the initiation of the ERA-NET SNOWMAN which started under the 6th Framework Program from the EU with a budget for five years (2003 – 2009) and will be terminated on June 30th, 2009. The aim of the ERA-NET period was to establish a network of research funders, which was able to execute joint calls for research projects. This aim was achieved by completion of the first call (2008) and the launching of the second call (2009).

Based on a consultation of the members and potential new member of the SNOWMAN network, it was clear that SNOWMAN should be continued after June 2009 as a self maintained funding network: **the network of research funding organisations and administrations in the field of Soil and Groundwater in Europe: *Knowledge for healthy soils***.

On July 1st 2009 SNOWMAN will start as a new network, based on the experience, documents and lessons learned during the ERA-NET period. This Management Paper gives an outline of the way this new network will function and its objectives.

SNOWMAN achievements

The aim of the ERA-NET project was:

- To establish a network of research funders in the field of contaminated Soil and Groundwater;
- To establish a common vision on cooperation of national research funding organisations in Europe;
- To establish a joint Research Programme based on the needs of different stakeholders;
- To establish a communication strategy with a focus on better use of research results;
- To execute joint calls for research projects.

Within the SNOWMAN ERA-NET these aims have been reached with the delivery of the following documents. They form the dowry for the new network:

- Vision paper (2003), this document describes the vision of the partners with respect to transnational research funding.
- Research programme (2009), this document was written after consulting all possible stakeholders.
- Communication strategy and Knowledge dissemination action plan (2007), this document needs further implementation in the upcoming period.
- Call 1 and call 2 documents, these documents will be revised before every call period, depending on the wishes of the funding partners.
- Evaluation report.
- Completed SNOWMAN projects of the first call.
- Launching of the second call.
- Recommended projects in the second call.

This paper describes the management of the SNOWMAN network by the organisational structure and the tasks and responsibilities of the various groups in this structure.

This paper is an annex to the SNOWMAN Letter of Commitment in which organisations confirm their participation in the network.

2 Vision, Mission, Strategy of SNOWMAN

Vision statement of the SNOWMAN Network

SNOWMAN is the network that assures future generations of healthy soils and groundwater.

The SNOWMAN Vision is described in the SNOWMAN Vision Paper. In this Vision Paper SNOWMAN has set goals for co-operation between the national research programmes in the R&D process. The goals are divided in the different steps of the RTD process: Funding, Programming, Execution, Implementation and Evaluation (Table 1: Goals for co-operation related to the RTD-process). The table shows the short terms goals and achievements of the ERA-NET phase and furthermore the mid-term and long term goals leading to a strategy for the SNOWMAN Network.

This strategy is translated into objectives. The proposed organisation, structure and activities of the network are based on this strategy.

Mission statement of the SNOWMAN Network

To develop and share relevant knowledge for the sustainable use of soil and groundwater.

This mission is to implement the common vision through the following strategic objectives for the network:

- **To implement the SNOWMAN Network Research Programme through transnational annual calls;**
- **To biannually update the SNOWMAN Network Research Programme;**
- **To implement the communication strategy and knowledge dissemination action plan;**
- **To increase the number of funders in the network;**
- To exchange existing knowledge and information;
- To establish common European research programming;
- To improve the objectives and procedures;
- To survey the relevance of social and economical sciences for SNOWMAN.

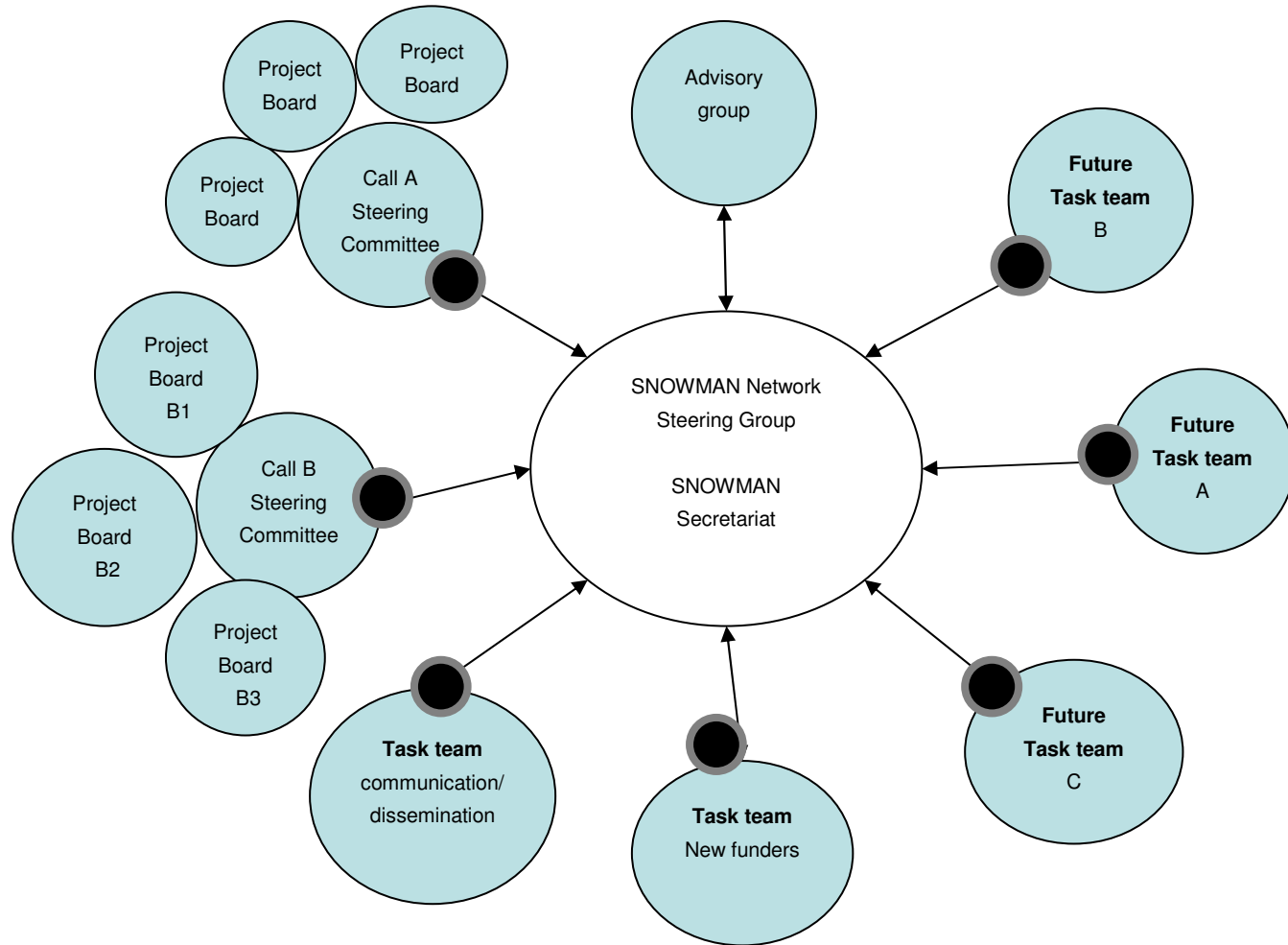
In the workshop of ongoing and potential funders in March 2009 it was suggested to the Steering Group of the SNOWMAN network to concentrate the activities in the start of the network on the first four objectives. This suggestion reflects in the task teams that will be established for the first year of the new network. This does not imply that the other objectives are less relevant.

In table 1 the goals for co-operation of the SNOWMAN ERA-net are presented. This table is part of the vision paper. For the short term the achievements of this period, presented in the Introduction of this paper are mentioned. For the mid-term and long-term the strategies of the new SNOWMAN Network are added.

Table 1: Goals for co-operation related to the RTD-process

	Funding	Programming	Execution	Implementation	Evaluation
Short term	1. Bundle, focusing national budgets	1. Share information on national research programmes 2. Sharing a common R&D agenda between the SNOWMAN partners 3. Improve involvement of end users in R&D.	1. Sharing procedures of funders 2. Creating a data base of evaluators and reviewers 3. Creating a data base of researchers	1. Start up of common dissemination plans	• Stimulate use of best practices
Achievements	1. 1st and 2nd Call	1. SNOWMAN Navigator 2. SNOWMAN Research Program 3. Consultation of all stakeholders in the making of the SNRP	1. 1st and 2nd Call 2. The data base of call 1 and 2 are available 3. The researchers in the proposals are filed	1. SNOWMAN Communication strategy	• Improved procedures for the second call • SNOWMAN Brochures)SNOWMAN report
Mid term	<ul style="list-style-type: none"> Open more funding options for national researchers Sharing procedures of national funders 	<ul style="list-style-type: none"> Avoid overlap of national programmes Improving involvement of stakeholders in R&D Coherence in European, national and regional R&D programmes Integrate social and economical sciences 	<ul style="list-style-type: none"> Decrease bureaucracy in national and international programmes Create a common forum for reviewing proposals 	<ul style="list-style-type: none"> Improve exchange of know how between national programmes 	
Strategy	<ul style="list-style-type: none"> Growth of the network with more funding organisations Continuous updating call procedures SNOWMAN as part of a larger ERA-NET 	<ul style="list-style-type: none"> Update the SNRP with all relevant stakeholders in an advisory group. Update the common vision as stated in the vision paper Application of the communication strategy Survey of relevance of social and economical sciences for SNRP. Exchange of existing knowledge and information 	<ul style="list-style-type: none"> Continuously evaluate the ongoing calls to explore the possibilities for decreasing bureaucracy Implementation of SNRP with annual calls. Install an advisory group 	<ul style="list-style-type: none"> Execution of the Knowledge dissemination plan. Evaluate and update the Knowledge Dissemination n action plan 	<ul style="list-style-type: none"> Continuously evaluate the SNOWMAN objectives and procedures
Long term	<ul style="list-style-type: none"> Enlarge the network with more funders Any national programme is open for international submission of proposals One European address to submit proposals 	<ul style="list-style-type: none"> Reaching a common vision on the research agenda on soil matters for FP Establish joint Research programming 	<ul style="list-style-type: none"> Keep researchers in Europe 	<ul style="list-style-type: none"> Increasing use of R&D results Becoming the main source of soil and groundwater quality knowledge 	
Strategy	<ul style="list-style-type: none"> Stronger cooperation with EU FP Open the network for any non EU country 	<ul style="list-style-type: none"> Interaction between EU/SNOWMAN programming 	<ul style="list-style-type: none"> Common Pot calls Improved Knowledge infrastructure 	<ul style="list-style-type: none"> Bridging the gap between knowledge supply and demand SNOWMAN is the source for knowledge for healthy soils 	<ul style="list-style-type: none"> An assessment of the relative quality of the soil research organisations

SNOWMAN Network Organization Scheme 1



3 Organisation, tasks and responsibilities

3.1 Organisation of the Network

3.1.1 *SNOWMAN Network steering group (NSG)*

The NSG consists of representatives of all full members. Per full member there is one representative in the NSG. The NSG meets twice a year, in June and November.

During the June meeting, the NSG members will elect a chair person for the period of one year, starting on January 1st of the New Year. However, the first period will start July 1st 2009 and ends December 31nd 2010. Therefore the first period will last 18 months. The June meeting will be organized back to back with the NSG and all task team members. [Annex: roadmap]
Each NSG member can propose new task teams. In a voting the choice for the new task teams will be made by the NSG. The NSG installs the task teams of the next year. In this meeting NSG will decide on the acceptance of new memberships and also welcome new partners.

In June the NSG members initiate the new call and nominate the CSC members in November. There is a back to back meeting with all task teams. During the course of the year, the NSG will have telephone conferences to discuss ongoing matters.

3.1.2 *SNOWMAN Secretariat*

One of the Network members will host the SNOWMAN Secretariat. The secretariat will support the NSG, the Advisory group and the task teams. The secretariat will be responsible for the day-to-day co-ordination of and administration for the network starting of July 2009. If the cooperation leads to mutual satisfaction, the secretariat may be hosted by this member for an indefinite period. The chair of NSG, task teams and Advisory group can ask the secretariat to undertake actions, however if these actions are not budgeted the chair of the NSG can decide on the execution of the action.

The secretariat will also support the CSCs and its chair per call of the network. All activities for the secretariat are in Annex 3.

3.1.3 *Advisory Group*

Every participating country can appoint members for the advisory group. They represent experts in the field of soil and groundwater or other stakeholders. Next to that the NSG can add members for the advisory group from e.g. the EU, Common Forum and other stakeholder networks. Membership is for the period of two years and may be prolonged. One member of the NSG is present in the meetings of the Advisory group.

The Advisory group advises then NSG on the updating of the SNOWMAN Research Programme and on the quality of the Network. Are the calls topics relevant, is the knowledge dissemination implemented are there possible new initiatives SNOWMAN should take action on.

3.1.4 *SNOWMAN Call steering committee*

In the CSC all funders participating in the ongoing call are represented. They can be full members or affiliate members. The CSC meets twice a year in June and in November. According

to the coordinated call road map (Annex 1) the previous call coordinator will prepare a voting matrix (Annex 3). Based upon the results of that voting there will also be a voting on who will be the Call Coordinator. All funding organisations of the call have a vote and are eligible to be the Call Coordinator.

3.1.5 *SNOWMAN task teams*

The task team delivers an action plan to the NSG for approval. Annually the NSG decides which task team will be active. There will be a permanent task team for communication/dissemination. During the SNOWMAN Meeting in March 2009 it was decided that the first task teams to be installed would be:

- New funders*
- Communication/dissemination*

3.2 Tasks and responsibilities

3.2.1 *Network Steering Group*

The responsibilities of the Network Steering Group (NSG) are:

- To provide overall direction and co-ordination of the network
- To initiate joint calls
- To install and coach task teams
- To agree programme of events and activities
- To program and monitor the budgets
- To liaise with the EU
- To manage the dialogue with the outside world
- To fix the network fee
- To decide which information has to be published by the secretariat
- To decide on contacts with other network delegations, participation in conferences etc
- To accept new memberships and conditions for membership
- To amend/change the management paper

Responsibility of the chair

- To chair the meetings of the NSG
- To manage the secretariat
- To be the representative of the Network
- To coach the Network together with the secretariat

3.2.2 *SNOWMAN secretariat*

The tasks of the secretariat are:

- To implement the decisions of the Steering Group including the management of finances, the proposal of budgets, the monitoring of costs
- To organise the June and November meeting
- To manage subcontracts
- To arrange an annual audit by the Steering Group on budget and finances
- To support the activities of the advisory group and task teams
- To assist the Call Steering Committee as described in detail in Annex 1 / 3
- To manage and update the network homepage
- To manage and administrate the restricted areas
- Reporter, assistance to the chair
- Mailbox function, responsible for communication (f.e. newsletter, mailings etc.)

3.2.3 *Advisory group*

The responsibilities of the Advisory group are:

- To advise the Network Steering Group on the biannual updating of the SNOWMAN Research Programme
- To advise the Network Steering Group on the quality of the network
- To assist the Call steering Committee in the review of final project reports

3.2.4 *Call Steering Committee*

The responsibilities of the Call Steering Committee (CSC) are:

- To develop and implement joint calls along the procedure presented in Annex 1
- To involve the Communication task team in the dissemination of Research Results

3.2.5 *Task team*

The responsibilities of any task team are:

- To provide the NSG with an action plan for approval.
- To execute the action plan.

The task team Communication and dissemination of knowledge is a permanent task team. Its responsibilities include the development and the up dating of the network communication strategy.

3.3 Liabilities

The members of the SNOWMAN network are only liable for their own contracts. No member of SNOWMAN can be liable for actions or agreements made by other SNOWMAN network members. The liability with respect to projects will be fixed in the call procedures.

3.4 Decision making process

All decisions are based on consensus within the NSG and will be finalized during the NSG meetings. In case of forced termination of membership, a decision is taken by consensus, minus the vote of the funder involved. The decisions are being prepared by the chair and the secretariat.

The chair of the NSG fixes a mandate for the secretariat to take minor decisions that are necessary to run the secretariat.

3.5 Confidentiality of information

All information is non confidential, unless otherwise agreed upon by the NSG or requested by a member.

3.6 Communications

Based upon the Communication strategy document, the secretariat annually prepares the communication action plan, based on the input of the task team Communication. The NSG will decide upon this action plan.

4 Membership of the Network

To maintain a sustainable network it is crucial that the majority of all members are in some way active in the network. This means that SNOWMAN aims to have at least 80 % of its members participating in its calls and 90 % of the members active in either the call or in any of the task teams.

The SNOWMAN network allows three forms of membership:

4.1 Full membership

Conditions

- Membership is only open for research funding organisation or administrations
- Membership is on an organisational level
- Membership commences with the signature on the Letter of commitment
- Membership is possible for a minimum of one year (18 months for the first period from July 2009 to December 2010).
- The annual fee is affixed by the NSG. This fee is to be paid by bank transfer. In exceptional cases it is possible to pay in kind. A request to pay in kind is to be approved by the NSG.
- Termination of the membership has to be in writing to the secretariat 6 months before. The fee paid is not returnable.

Rights with regards to the network membership

- Appointment of Advisory group members
- A seat in the SNOWMAN Network Steering Group
- A vote in the election of the NSG chair
- All task teams are open for participation
- To initiate a call or another task
- Participating in updating the SNOWMAN Research Programme
- The right, not the obligation to participate in the annual call
- If the member is participating in a Call, a seat in the Call Steering Committee
- Participation in all SNOWMAN meetings
- Access to all research results from all SNOWMAN projects

4.2 Affiliate membership

Conditions

- Membership is only open for research funding organisations or administrations
- Membership is on an organisational level
- Membership is possible for a maximum of one year (18 months for the first period from July 2009 to December 2010), after that period the affiliate member has to decide to become a full member or an observe
- Free membership, unless the member wants to participate in a call. Than a contribution for the secretariat cost will be charged.

Rights

- Participation in a call

- If the member is participating in a Call, a seat in the Call Steering Committee
- Participation in SNOWMAN meetings on invitation
- Access to all research results from all SNOWMAN projects

4.3 Observers

Additional funding organisations may be invited by the NSG for any specific meeting.

4.4 Third money participants

Non research funding organisations may participate in SNOWMAN calls with “Third money”.

- Participation in the call with third money will lead to participation of that organisation in the CSC. Where an organisation takes part in a SNOWMAN research call using third party funds, the organisation's representative must have full authority to commit the third party funds within the call.
- Participation in a project with third money will lead to participation in the project board.

5 Finances

Expenditures

It is assumed that all members pay their own membership costs for travel and subsistence and their time for the execution of their task in the network.

The costs of the network are:

- The network secretariat
- The travel and subsistence costs of the advisory group

The partners of the SNOWMAN ERA-net project will explore the possibilities to adopt the tasks of the secretariat. Based on the results of this exercise, the organizations that are able and willing to host the secretariat will establish a quotation that will be sent to all the potential members.

Income

The incomes of the network are the annual fees for membership. The fee should be fixed by the NSG in the first meeting of the network.

For those organizations that are not able to pay a fee it is suggested that they pay in kind by adopting one of the tasks of the secretariat.

Annex 1 The procedure for the implementation of a Call: **Coordinated call roadmap**

This roadmap has been prepared having in mind that the network would have the objective to launch a coordinated call every year in January.

The idea is to have a regular “appointment” with the researchers who will be “ready” to prepare proposals during the first quarter of the year.

Task	Reference documents	Who?	Deadline
Preparation of the call voting matrix (call topics, interested funders, rough budget estimation) see annex 2	Research programme	Previous call coordinator	May n-1
Decision meeting on call topics and organisation <ul style="list-style-type: none"> - election of the call topics - identification of the funders' group - election of the call coordinator - Secretariat - agreement on the call roadmap 	Voting matrix completed	All potential funders	June n-1
The decision to have a new call is taken			June 30th n-1
Distribution of the “SNOWMAN” call package : letter of commitment, principles' paper, applicants' guide, application form, pre-announcement and announcement text	Previous call package	Call coordinator or secretariat to funders	June 30 th n-1
Preparation of the research questions	“Voted” matrix, summary of the 1 st decision meeting	All funders	July 1 st to September 15 th n-1
Check of the call package, proposals for amendments	Previous call package	All funders	July 1 st to September 15 th n-1
Information about the scope of the call to other potential funders, offer to participate	“Voted” matrix, summary of the 1 st decision meeting	Call coordinator or person from the network responsible for the enlargement of the group	July 1 st to September 15 th n-1
The call coordinator has identified new potential funders, has received proposals for the research questions and for amendments to the call principles and letter of commitment			September 15th n-1
Preparation of the call technical content and first up date of the call package	Proposals for research questions and amendments of the call package	Call coordinator and secretariat	October 1 st n-1
Decision meeting : <ul style="list-style-type: none"> - funders list; - budget for the call; - discussion / approval of the 	Draft call package sent prepared by call coordinator + secretariat	All funders	Mid October n-1

technical content; - discussion / approval of the call package.			
Amendments to the letter of commitment, the principles' paper and the pre-announcement text	Summary of the October decision meeting	Call coordinator and secretariat	Decision meeting + one week
Last comments period for the letter of commitment, the principles' paper and the pre-announcement text	letter of commitment + principles' paper	All funders	November 1 st n-1
Amendments to the applicants' guide, the application form and the announcement text	Summary of the October decision meeting	Call coordinator and secretariat	November 1 st n-1
Signing process for the letter of commitment starts	Letter of commitment + annex (principles' paper)	All funders	Mid November n-1
The call is pre-announced			Mid November n-1
Last comments period for the applicants' guide, the application form and the announcement text	applicants' guide, application form, pre-announcement and announcement text	All funders	December 1 st n-1
The letters of commitment are signed, the members of the Call steering committee are nominated			Mid December n-1
The call package is finalised			Mid December n-1
The call is open			January 1st n
Preparation of the peer review phase : updating of the peer review guide	Peer review guide	Call coordinator and secretariat	February 1 st n
Comments to the peer review guide, nomination of peer reviewers : 1 st step	Peer review guide, Nomination table	All funders	March 1 st n
First contact with peer reviewers to check their availability	Peer review guide (finalised), Availability form	Secretariat	March 31 st n
The call is closed			March 31st n
Eligibility check	Principles' paper, applicants' guide	Secretariat	Mid April n
Nomination of additional peer reviewers : 2 nd step		All funders	Mid April n
Fit to call check	Principles' paper	CSC	April 30 th n
Fundability check	Principles' paper	All funders	April 30 th n
Decision on the list of proposals sent to peer review	Results of the fit to call check and fundability check	CSC	

Peer review	Peer review guide	Peer reviewers	May n
Collection and summary of evaluation reports	Peer review guide	Secretariat	3 rd week of May – end of May n
Moderation meeting	Peer review guide	Peer reviewers	End of May n
Definition of national priorities	Principles' paper	CSC	1 st week of June n
Preparation of the recommendation meeting		CSC chair + Secretariat	1 st and 2 nd week of June n
Recommendation meeting	Principles' paper, evaluation summary reports from peer review and moderation meeting, national priorities scores and bonus points	CSC	Mid June
The CSC proposes a list of accepted proposals, rejected proposals and a reserve list			Mid June n
The funders are asked to confirm the recommendations and to nominate the project boards participants	Letter of confirmation	Secretariat / funders	July 1 st n (or September 1 st ?)
Contract negotiations	Principles' paper, applicants' guide	Funders	July to October n
All contracts are awarded			November 1st n
Contract monitoring	Principles' paper	Project boards + CSC	End of the last contract
Dissemination of research results	Principles' paper, communication strategy, dissemination plan	Project boards + CSC	

Annex 2

Example of a Call voting matrix: Call 3 voting matrix

To: The Research Funding Organisations on soil and groundwater.
From: The Core Group of SNOWMAN

In the SNOWMAN net work.shop meeting in Vienna (march 2009), we have discussed the objectives of the future network that will continue after the SNOWMAN ERA-NET as well as the future research programme of this new network.

To implement the SNOWMAN Research Programme through transnational annual calls is the first of the 4 objectives having priority for this new network.

So, the SNOWMAN Core Group decided to initiate the preparation of a 3rd SNOWMAN coordinated call, based on the SNOWMAN Research Programme, with the target to launch this potential new call in January 2010.

The first goals are:

- to identify potential funders interested by participating in a new coordinated call,
- to identify potential topics from the SNOWMAN Research Programme which are of very short term interest for funders,
- to get a first and very rough idea of a potential call budget.

You'll find attached a "voting matrix" which will help us to answer these 3 questions.

Each funding organisation is invited to express its wishes for the next call by the following process:

- In the table you will find the themes and subthemes as identified in the SNOWMAN Research Programme, chapter 8.4 (in the appendix you will find the whole chapter with the detailed knowledge questions). The whole research programme is also attached to this e-mail.
- For each **sub-theme** we ask the funders to show their interest by answering the following question:
 - Are you interested in this research area, what is the level of priority?
 - 0 = no possibility to fund this topic
 - 1 = weak interest
 - 2 = interest
 - 3 = strong interest, high priority topic
 - If the answer is 1 to 3 you are asked to give a clue of the financial contribution to this research area. (It is clear that this is, at this stage, neither a promise nor an intention. It is just to have an idea what budgets might be expected)
 - < 100 k€
 - 100 – 250 k€
 - 250 – 500 k€
 - > 500 k€
 - You're welcome to include any comment you'd like to make about these research areas, your priorities (research questions of particular interest...)

The information collected through this “voting matrix” will be presented and discussed at the Funders’ Network Inauguration Meeting which will be held in June 18th 2009 in Vienna.

Then a decision will be taken to come forward with this idea of a third SNOWMAN coordinated call and the first decisions will be made on the call topics, the call roadmap (Cf. suggested roadmap included in the SNOWMAN management paper (annex 1)) and on the “funders group” responsible for preparing this call.

If a favorable decision is taken, the next step will be to precise the research questions.

The voting matrix: priorities of the Research Funding Organisations on soil and groundwater.

Research areas	Pri	B	Comments
	0 = no possibility 1 = weak interest 2 = interest 3 = strong interest	<100k€ 100-250 k€ 250-500 k€ >500 k€	
Transformation processes			
State			
Impact			
Response			
Biodiversity			
State			
Impact			
The impact of several driving forces on the hydrological system and responses			
State			
Impact			
Response			
Climate change and sustainable energy			
State			
Impact			
Response			
The impact of sustainable agriculture			
State			
Impact			
Response			
Contamination			

Risk assessment of contaminants			
Impact			
The role of the filtering capacity of soil for the attenuation and storage of contaminants			
Remediation			
Regional management of contaminations			
Relationship between soil functions and the role and response of the socio-economic system			

Appendix 1 The SNOWMAN Research Programme: general description of the seven areas of research

8.1.1 Transformation processes

This research area focuses on the function of the soil transformation processes, such as physical, chemical and biological processes, which are relevant to the functioning of the soil as a system. Research needs are related to:

State

- Do we have good indicators about the state and functioning of the transformation processes to evaluate whether there is a “healthy” soil?
- Can we bridge models about transformation processes from micro to macro scale?

Impact

- What is the impact of climate change on the transformation processes, such as the mineral cycles of carbon and methane?
- What are the effects of changes in land use on transformation processes?
- What is the role of transformation processes in the fate of persistent and emerging pollutants?
- What effect do different remediation technologies have on the transformation processes?

Response

- How can we restore and enhance transformation processes in urban areas (i.e. make a soil “healthy” again) or restore the functions after different remediation activities?
- Can we strengthen transformation functions with respect to climate change?
- Can we improve models for decision making towards responses of the transformation processes of the soil?
- Can we develop technology assessment tools with respect to the destruction or restoration of transformation processes?

8.1.2 Biodiversity

Biodiversity is an important characteristic of the soil because of the important role of soil in the functioning of the biosphere. Most research needs relate to a better understanding of the role and state of biodiversity.

State

- What are the key parameters in determining the state of biodiversity for a healthy soil?
- How can we monitor these parameters?
- How can we determine the activity of relevant organisms?
- What is the heterogeneity of the biodiversity, especially with regard to the rhizosphere
- What is the role of biodiversity in mineral cycles or the transformation processes in general?
- What is the role of the soil as a gene pool and how can we make use of or explore the potentials of this gene pool?

Impact

- What are the impacts of climate change, changes in land use or sealing on the biodiversity?

8.1.3 The impact of several driving forces on the hydrological system and responses

A specific characteristic of the soil system is its role in the hydrological system, the interaction between soil and groundwater and between groundwater and surface water. There is a tendency that the use of groundwater for different purposes is growing and also the competition between the different purposes of use is growing.

State

- We require more data about the relation between groundwater and surface water quality
- What is the role of groundwater in drinking water production/

Impact

There are significant research needs regarding the effects of several pressures on the hydrological system and groundwater quality, such as:

- Energy storage (heat, cold) on the chemical equilibrium of groundwater and the groundwater level
- The use of geothermal energy
- Monoculture production (of biofuels) including secondary effects (use of pesticides) on groundwater quality and use of groundwater
- Climate change resulting in extreme variation in the intensity of rainfall (also droughts) and temporary flooding on soil and groundwater quantity and quality
- Agricultural practices on groundwater quality (phosphate, ammonia, nitrate) and changes in groundwater level
- Mining activities on groundwater level and flow and quality
- Sediments on groundwater quality
- Filtration of rainwater on groundwater quality
- Long droughts on the filtering capacity of the soil

Response

- We need decision support systems for using groundwater or surface water for different purposes
- Possibilities and effects of storage of water in deep aquifers
- Preservation and enhancement of storage of rainwater in aquifers in urban areas
- Methods for the enhancement of infiltration capacity
- Methods for the enhancement of biological processes to improve groundwater quality
- Management systems of resources and impacts, such as land use, sealing, infiltration, filtering and models to support management
- Decision support systems related to the competition of different groundwater usages
- Development of legal instruments to manage the use of groundwater for different purposes
- Approaches to improve the relation between river basin management and urban planning

8.1.4 *Climate change and sustainable energy*

Climate change and the policy to increase the use of sustainable energy is a driving force that influences several soil functions. For this reason, many research needs relate to the impact of these driving forces on soil functions. The effects on the carbon cycle is an issue that arises in several research needs. The effect of climate change on soil quality depends a lot on regional circumstances and are quite different in coastal zones, wetlands, hill sides or permafrost areas.

State

- What is the potential of soil and groundwater to store heat and cold
- Can we use historical data of soil and groundwater to study the long-term changes in carbon cycle
- What is the buffering capacity of soil to cope with climate change?
- Can we use labelled carbon to study the carbon cycle

Impact

- Of biomass and monoculture production on soil quality
- Of the use of organic residues of biofuel production on soil quality
- Of storing carbon in the form of biochar: stability, effect of accumulation of other components
- Of storage of heat and cold on groundwater quality and groundwater level
- Of the use of thermal energy on biodiversity and groundwater quality
- Effects in terms of time of buffering of greenhouse gasses in soil
- and the complete chain of production, also with respect to the impact on soil functions
- Can we change soils and areas from a carbon source into a carbon sink
- We need to develop management options of wetlands to reduce peat oxidation and enhance the formation of organic material
- Reduction of emission of greenhouse gasses like NO₂
- Models to predict the spread of heat and cold in groundwater
- LCA of production of bio fuels on contaminated land or combined with phytoremediation
- How to deal with the competition between the use of hydro power and restore natural rivers?
- How to adapt to climate change in coastal zones?

8.1.5 *The impact of sustainable agriculture*

There is a common awareness in many countries that we need to change the way in which we produce agricultural products (dairy products and crops) to maintain a fertile soil with a high yield without negative long-term effects on the environment. This issue is growing in importance because of the growing need for food and changes in consumption throughout the world. A specific aspect is the way we can involve farmers and agricultural practices into the development of sustainable agriculture.

State

- Can biodiversity be used as a parameter for sustainable agriculture
- Data about the loss of agricultural land due to urbanisation and contamination
- Robust methods to measure soil status by farmers

Impact

- Of changes in diet: increased consumption of meat and the effect on the need for agricultural land
- Of the production of transgenic crops
- Use and fate of pesticides
- Of compaction on soil quality and yield
- What is the impact of land use change on flooding

Response

- Development of more resilient and highly productive land and prevention of degradation of land by agricultural production

- Reduction of the use of pesticides and fertilizers through the role of biodiversity of soil
- Comparison and environmental impact assessment of different sources of nutrients (fertilisers, manure, compost, sewage sludge)
- Development of agricultural practices to reduce the emission of phosphate and nitrate and changes in groundwater quality
- Mining of phosphate from soil and groundwater
- Best practices to prevent soil deterioration or to reduce compaction
- The use of minor land with high input and output strategies
- How do we manage the competition between organic and conventional farming?

8.1.6 Contamination

Contamination is still a generalised field of research, not specifically in relation to soil functions, but to the risk to human health and ecological effects and approaches and technologies to reduce these risks.

Risk assessment of contaminants:

- Improvement of risk assessment methods
- Quantification of risks for human health from contaminated areas (cancer/TDI). How many individuals are affected, which individuals, can they avoid being affected?
- How large is the impact on ecosystems (ecosystem services)?
- How do the risks change over time? What is the effect of remediation measures?
- Development of methods for validation of exposure and load
- Tools for risk evaluation concerning ecological, economical and social/cultural aspects
- Fill the gaps in knowledge about important parameters in risk assessment models (human and eco toxicology of pollutants, physical/chemical data, abundance/behaviour of exposed organisms, etc.)
- What is the relation between risks from soil pollution and other environmental risks:
- Which part of human and ecosystem exposure is coming from contaminated land vs. other sources

Impact

- Of diffuse contaminations from agricultural practices
- What is the interaction between contaminated land – groundwater - recipients – catchments areas
- Fate of pesticides and emerging components
- Transfer of pathogens to groundwater
- How to estimate the total pollution load on a recipient
- What are long term effects on health?

The role of the filtering capacity of soil for the attenuation and storage of contaminants:

- Which soil types are good and which are bad in terms of filtering and storing pollution? What are the potential long-term releases of which contaminants?
- How does soil work, which kind of soil interfaces with different pollutants?
- How resilient is the soil filter capacity in the long term? Can you improve resilience? What is destroying the filtering capacity?
- What is the behaviour of heavy metals in the unsaturated soil? Which processes effect mobilisation and demobilisation?
- How does the soil ecosystem influence the filtering capacity and groundwater quality?
- How can we change the scale : from the local scale (site scale) to the regional scale : which tools, extrapolation methods, models ? How do we link soil (local) models to water catchment models?

Remediation

- New remediation alternatives
- Enhancement of the implementation of remediation technologies
- Tools for comparison of the sustainability of different remediation solutions

Regional management of contaminations:

- How do we shift from a site-specific approach to an area approach.

- Development of sustainable management systems of contaminated land in urban areas
- Management of brownfield sites
- How to deal with contaminated sediments?
- Management of multiple pollution sources
- How to manage historical contaminations that cannot be removed
- Development of tools for prioritisation of remediation
- Methods for the discrimination of sources of pollution in a specific area
- What are the costs for management of diffuse polluted land? What are the economical aspects of risk evaluation /risk management?
- How do we calculate the societal costs for land use restrictions?
- The development of methods for comparison between different investments: remediation projects/environmental projects/other societal projects

8.1.7 Relationship between soil functions and the role and responses of the socio-economic system.

There are several research needs to change soil quality management from a specific sectoral policy and management issue into an integrated factor in social and economic decision processes.

- Approaches to improve the awareness of citizens and policy makers about the value of soil transformation processes
- Methods to improve the awareness of the value of biodiversity and environmental services of the soil
- How can we increase the societal awareness about the main dilemmas relating to food production
- How do we express environmental and social quality in economic assessments
- Methods to determine the value of soil transformation processes depending on land use
- Methods to determine the value of biodiversity
- What are the societal costs of land use restrictions
- Development and implementation of administrative systems for soil contaminations and restrictions of land use
- Integration of soil and groundwater quality management into spatial planning
- Regional management of all related approaches, aspects and interests in soil quality

Annex 3 Tasks related to the Call Secretariat**Frequency**

- B = Only once
- C0 = periodically per call
- C1 = Once per call
- C2 = Twice per call
- C6 = Half a year per call
- 0 = Periodically
- 1 = Monthly
- 2 = Bi-monthly
- 6 = Half a year

Task	Frequency
Involvement in preparation of Call Principles	B
Collecting "lessons learned"	0
Preparing the meeting minutes	0
Servicing the funded projects (contact to coordinators, information exchange)	C0
Project monitoring (keeping the deadlines, contacting coordinators, information transfer to CSC)	C0
Call time planning and monitoring	C0
Participation in conferences and workshops related to the call	C0
Participation in conferences and workshops related to the funded projects	C0
Assisting the Call Coordinator	C0
Assisting the CSC	C0
Servicing potential research projects	C0
Presentations and lectures	C0
Preparation of meeting documents	C0
Servicing the Call funders	C0
Servicing the call reviewers	C0
Updating the Call documents (Applicants' Guide, Application Form, Application Form – Budget parts)	C1
Preparing Call preannouncement	C1
Preparing Call announcement	C1
Updating Call reports (midterm, final)	C1
Preparation of the peer review (documents, dates, monitoring, contacting reviewer, telephone conferences, reviewer meeting, etc.) and involvement in its execution	C1
Preparation and execution of the recommendation meeting (documents, dates, etc.)	C1
(at least) Involvement in the call evaluation and production of related reports	C1
Publication of Call results	C1
Preparing letters and data(bases) to be used in the call	C1
Acknowledgement of receipt to coordinators of proposals	C1
Eligibility Check	C1
Letters regarding proposal evaluation results sent to research coordinators (all three groups: recommended for funding, reserve list,	C1

rejected)	
Consortia agreements: Collecting and monitoring	C1
Press kit preparation, ordering, etc.	C1
Collecting the funders' letters of commitment, sending signals to start	C1
Involvement in updating the Research Agenda – leading to a call agenda	C1
Involvement in updating the Model Contracts	C1
Organisation and preparation of meetings and telephone conferences	2
Homepage updates: Funded project pages, project file upload (reports)	C2
Preparing and updating information sheets of funded projects	C2
Receiving interim reports of the projects and directing these to the CSC	C6

Annex 4 Tasks of secretariat on behalf of Communication team

Frequency

- B = Only once
- 0 = Periodically
- 1 = Monthly
- 2 = Bi-monthly
- 6 = Half a year

Topic	Task	Frequency
Com	Homepage setup	B
Com	Setting up restricted area for new working groups	B
Com	Homepage administration	0
Com	Administration of call related restricted area working groups (CSC, reviewers)	0
Com	Brochures and information for the audience (dissemination and attracting new members)	0
Com	Homepage + EUGRIS + mailing list news messages	1
Com	Network/call newsletters	1-2
Com	Homepage updates (general)	6
Com	Preparing and updating posters	6