

SpS 1 Special Session

SNOWMAN – AN APPROACH TO TRANSNATIONAL RESEARCH FUNDING

Nadine Dueso², Jörg Frauenstein³, Jon Greaves⁵, Bob Harris⁵, Maike Hauschild³, Nora Meixner¹, Johan van Veen⁴, Harry Vermeulen⁴, Stefan Vetter¹

¹ Bundesministerium für Land- und Forstwirtschaft, Umwelt und Wasserwirtschaft (BMLFUW), Stubenring 1, 1010 Wien, Austria, phone +43.1.711.00.6710, e-mail: stefan.vetter@lebensministerium.at, nora.meixner@lebensministerium.at

² Agence De l'Environnement et de la Maitrise de l'Energie (ADEME), 2, square Lafayette 49004 Angers, France, phone: +33.2.4191.4053, e-mail: nadine.dueso@ademe.fr

³ Umweltbundesamt (UBA), Wörlitzer Platz 1, 06844 Dessau, Germany, phone: +49.340.2103.3026, e-mail: maike.hauschild@uba.de

⁴ Stichting Kennisontwikkeling en Kennisoverdracht Bodem (SKB), Büchnerweg, 2800 AK Gouda, The Netherlands, phone: +31.55.549.3922, e-mail: h.j.vanveen@mep.tno.nl

⁵ Environment Agency of England and Wales (EA), Richard Fairclough House, Knutsford Road, Warrington WA4 1HG, phone: +44.121.708.4608, e-mail: jon.greaves@environment-agency.gov.uk

Keywords: Research Funding, Transnational Call, Soil-Water-Sediment System, Contamination, Pollution, Sustainable Land Management

Summary

Alternatives to Framework programmes are needed to increase funding for collaborative research in Europe. European Research Area Networks (ERANETs) are being supported by the Commission as one possible route. The ERANET project SNOWMAN is preparing a transnational co-ordinated call for research ***in the field of soil-water-sediment system with respect to contamination***. This special session will provide an opportunity for European researchers to learn about: the scale of the research programme proposed, its subject matter, the timescales, and how they will be able to bid for funding from the programme. Members of the core team will present information about the above and will invite the European research community in order to exchange helpful experiences and views for tailoring and finalising the call. This will be an excellent opportunity for researchers to learn about this exciting new initiative at first hand.

The special session encompasses four presentations and a discussion:

The ERANET project SNOWMAN: introduction, content, outline, foresight	Stefan Vetter, BMLFUW
A SNOWMAN's Navigator through European Funding Programmes	Nora Meixner, BMLFUW
SNOWMAN's Vision Paper	Johan van Veen, SKB
Roadmap of the SNOWMAN Call	Jon Greaves, EA
Discussion	Questions from the audience to the SNOWMAN core group

Introduction

The European Union as well as national research funders have spent millions of Euros for RTD within the last few years. However common strategies for funding mechanisms and an exchange of respective information between the different organisations are still rare. The Sixth Framework Programme for Research and Technological Development (FP6) introduced within the Specific Programme “Integrating and Strengthening the European Research Area (ERA)” a new initiative – the ERA-NET Scheme.

The main goal of the ERANET project SNOWMAN (Sustainable management of soil and groundwater under the pressure of soil pollution and contamination) is to analyse the possibilities for improving co-operation between the national RTD programs in Europe in the field of soil quality management under the pressure of contamination.

SNOWMAN partners

SNOWMAN Consortium partners are:

- Austria: Bundesministerium für Land- und Forstwirtschaft, Umwelt und Wasserwirtschaft (BMLFUW), (Federal Ministry of Agriculture, Forestry, Environment and Water Management),
- France: Agence De l'Environnement et de la Maitrise de l'Energie (ADEME),
- Germany: Umweltbundesamt (UBA),
- Netherlands: Stichting Kennisontwikkeling en Kennisoverdracht Bodem (SKB) and
- UK: Environment Agency of England and Wales (EA).

We plan to enlarge the consortium to include Sweden, Belgium and Poland in the near future.

Scope

Before discussing the scope of SNOWMAN some strategic questions must be answered concerning the relevance of the research field in the future. These questions are illustrated in figure 1.

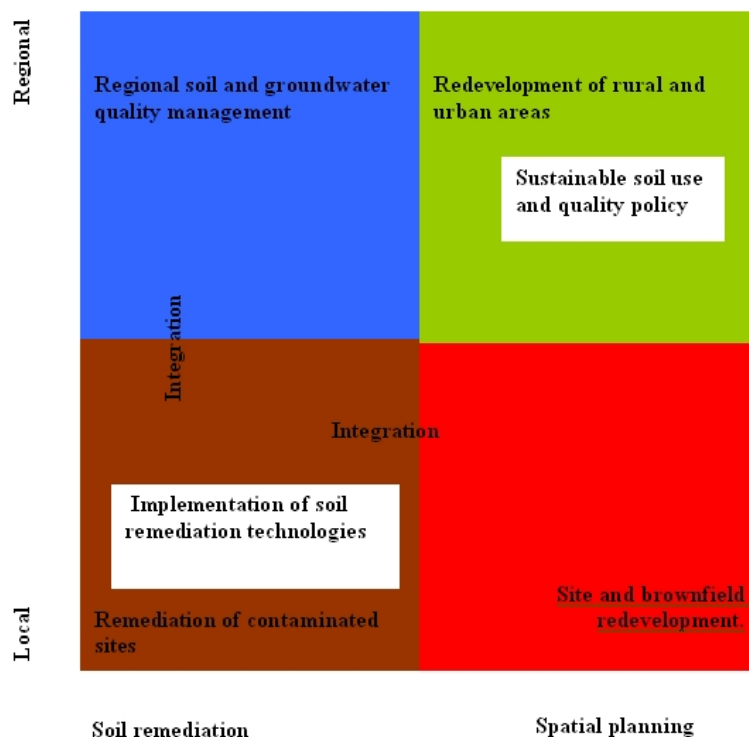


Fig 1: Research fields matrix [3]

Much research in the last 10 to 15 years has been related to the remediation of contaminated sites. In this area, implementation, demonstration and evaluation of developed technologies and approaches is the first priority. Over the last 5 years the integration of soil remediation in site development and brownfield redevelopment has also been an area of research. The integration of soil remediation in urban planning is an important goal. Aspects such as organization, co-operation and financing are becoming as, or more, important as technology. The integration of soil and groundwater pollution into regional soil and water quality management is starting to happen in some countries. The implementation of the Water Directive and Groundwater daughter directive will increase this integration during the next 5 to 10 years.

In the mid term and long term the focus of the research will be on soil quality management and sustainable soil use related to the (re)development of rural and urban areas. The research agenda of the research working group of the European Union Soil Thematic Strategy [1] follows that development. It is likely that the research agenda of FP7 on soil matters will also be focused on this issue.

Most of the formulated research needs in the former or existing networks concern the remediation of contaminated sites. A future development in this area is that, as remediation progresses, attention to soil protection, to prevent new contamination, will increase. At the same time long term remediation processes like natural attenuation, will increase attention on soil monitoring and quality management. Soil quality management could be integrated into general site management or be a part of HSE-management. Applied research and implementation and dissemination of knowledge is the main issue in this field. For the other fields more fundamental and strategic research is the main issue. Apart from natural sciences, social, economical and organizational sciences will be subject for study. A choice has to be made regarding which fields of research and applications SNOWMAN will concentrate on.

The RTD-process

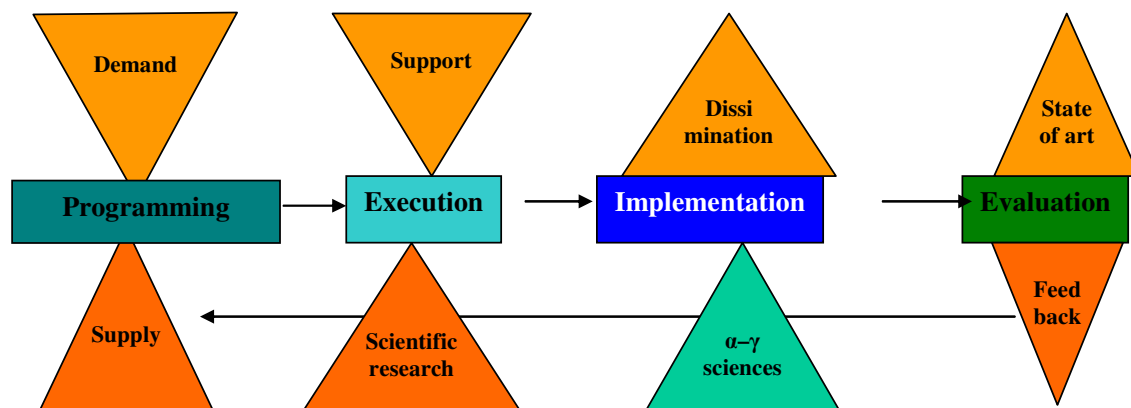


Fig. 2: Research process [3]

The complete cycle of research and development of know-how, the innovation process, starts with the formulation of research needs and ends in the practical evaluation of applied new technologies and feed back of the evaluation results to the end-user. In industrial research the number of organisations involved in this process is limited. An industry, or branch of industry, usually formulates the research needs, with evaluation and take-up also being carried out by them. One or more research groups or institutions can be contracted to execute the research. With issues involving society, in relation to environment or soil quality, many stakeholders can be involved. Governmental departments, regional and local authorities, site owners, environmental groups and citizens act as stakeholders on the demand side. Questions are often multi disciplinary, so on the supply side research groups are also involved. Know how has to be transferred to consultants and contractors. Evaluation of innovations are not only technical (does it work), but also social (do we accept it) or economical (do we want it).

The importance of these steps in the RTD process depends also on the type of research that is at stake (see fig. 2). For fundamental research the steps to implementation and evaluation are far away. Stakeholders of this research can be scientists themselves or governmental departments. They mostly

have a national or international orientation and a mid-term or long-term view. For strategic or applied research the stakeholders will be more regional or locally oriented and have short to mid-term views.

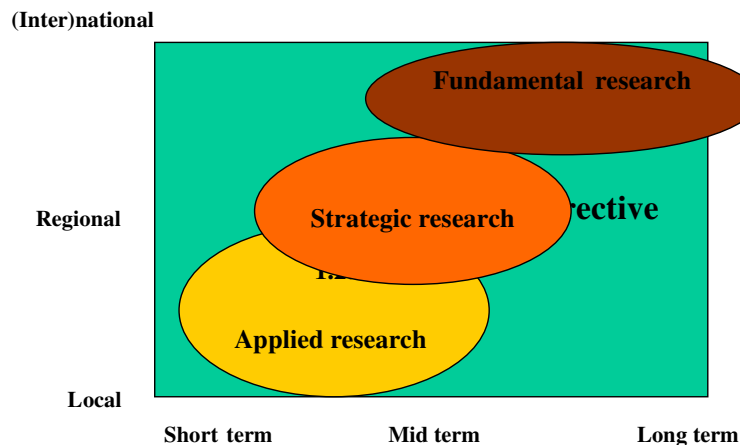


Fig 3: Research types [3]

These aspects have to be taken into account when talking about European cooperation in the RTD process. The funding of the different kinds of research is different in the partner countries. Existing European networks also work with different groups of stakeholders and types of research (e.g. NICOLE is a network of local problem owners interested in applied research). As much of the research is financed by central governments national or regional authorities are important stakeholders, especially for research for policy development, delivery and implementation. So, organisations other than the primary funders are often the main users of the research results and this has to be taken into account when stakeholder involvement must be increased.

In the field of contaminated soil and soil remediation strong networks of scientists, research institutes, authorities, consultants and end-users already exist. Former projects like CLARINET, NATO/CGMS or recent projects like CABERNET, EURODEMO and new initiatives like AQUATERRA build up strong European and international networks. Because of this, cooperation between research programmes in this field can be potentially successful.

Background

SNOWMAN is going to implement recommendations of the CLARINET network [6, 7]. In the CLARINET project an analysis was made of the European RTD programmes related to contaminated soil [2]. Some major findings of this analysis were:

- Budget of national RTD programmes are low (about 0.03% of contamination problem or about 1% of annual remediation expenses);
- Very little coordination between RTD programmes;
- Existing national RTD programmes are mainly not open for other countries;
- Dissemination of findings is very modest;
- No coordinated focusing of RTD programmes.

Recommendations of this analysis were:

1. Providing a platform for research programme managers
2. More integration of European research activities by strengthening networks of European research institutes and stakeholders;
3. Promotion of European collaboration by EU research funds;
4. Joint approach in financing large research projects;
5. Networking of existing centres of excellence;
6. Increase mobility of researchers;
7. Coordinated research agenda and trans national RTD projects and peer review programmes
8. Stimulation of trans disciplinary research and stakeholder involvement;
9. More attention to knowledge dissemination.

After the finalization of the CLARINET project no further actions were taken to implement its recommendations. The SNOWMAN project is the first action to improve the cooperation between the national RTD programmes in the field of contaminated soils. This is the fulfilment of the first recommendation. The SNOWMAN project can also address recommendations 2, 3, 4, 7, 8 and 9. Recommendation number 6 is also a wish of the SNOWMAN partners, but it is doubtful that SNOWMAN can improve this mobility.

In the SNOWMAN project long term and short term goals and strategies were discussed to improve this cooperation.

Overview of European Funding Programmes

While CLARINET dealt with the EU 15, SNOWMAN surveyed the enlarged EU 25 plus some additional states. SNOWMAN asked for special funding programmes for research projects in the field of contaminated soil and groundwater. The whole data analysis can be found in the SNOWMAN report "A SNOWMAN's Navigator through Funding European Programmes" [5; in preparation]., but it is also recommended to search the EUGRIS homepage (<http://www.eugris.info/funding-asp>) where the SNOWMAN team published the data and is continuously updating it during the lifetime of SNOWMAN. The compiled data are accumulated in Tables 1 and 2.

Table 1: Countries that have/have not a research funding programme on contaminated soil and groundwater

specific funding programme(s) in the field of contaminated land exist	NO specific funding programme(s) in the field of contaminated land	no info available
Austria	Denmark	Bulgaria
Belgium	Finland	Estonia
Cyprus	Greece	Ireland
France	Hungary	Lithuania
Germany	Italy	Luxemburg
Netherlands	Latvia	Norway
Poland	Malta	Portugal
Romania	Slovakia	Spain
Sweden	Slovenia	
Turkey	Czech Republic	
United Kingdom		

Table 2: European research funding programmes for contaminated soil and groundwater

Country	Programme Name	Funding Organisation	Web Link
Austria	Contaminated Sites Remediation Act (ALSAG §12Z2)	BMLFUW	http://lebensministerium.at
Austria	Environmental Funding Law (UFG §29Z3 associated with ALSAG §11Z5)	BMLFUW	http://www.kommunalkredit.at/index.php3?r_id=85&f_id=5&LNG=DE
Belgium	AMINAL water-sediment research programme	AMINAL	http://www.mina.be/afdwater.html
Belgium	IWT research programme	IWT	http://www.IWT.be
Belgium	OVAM Contaminated land programme	OVAM	http://www.ovam.be
Belgium	VMM water-sediment research programme	VMM, Flemish Environmental Agency	http://www.vmm.be/waterbodems
Cyprus	RPF Framework Programme for Research and Technological Development	Research Promotion Foundation	http://www.research.org.cy
Europe	EC Framework 7 Funding Programme (Discussion Page)	European Commission	http://europa.eu.int/comm/research/future/themes/index_en.cfm
Europe	Framework Programme 5	European Commission	http://www.europa.eu.int/scadplus/leg/en/lvb/i23001.htm
Europe	Framework Programme 6	European Union	http://www.europa.eu.int/scadplus/leg/en/lvb/i23012.htm
France	ADEME programme on contaminated sites	ADEME	http://ademe.fr
France	RITEAU	French Ministry of Research - French Ministry of Industry - ANVAR - French Ministry of Ecology	http://www.riteau.org
Germany	KORA	BMBF	http://www.natural-attenuation.de/
Germany	REFINA	BMBF	http://www.bmbf.de/foerderungen/3162.php

Germany	Research for the Environment	BMBF	http://www.fz-juelich.de/ptj/datapool/page/41/UmweltProgramm.pdf
Germany	RUBIN	BMBF	http://www.rubin-online.de
Germany	SIWAP - Förderschwerpunkt Sickerwasserprognose	BMBF	http://hikwww1.fzk.de/ptwte/w/SIWA/ptwtesiwa.html
Germany	UFOPLAN - Environmental research plan, subheading F2 soil protection and contamination	Federal Environmental Agency Germany	http://www.bmu.de/files/ufoplan2004.pdf
The Netherlands	Leven met Water / Living with Water	Foundation Leven met Water	http://www.levenmetwater.nl
The Netherlands	SKB	SKB	http://www.skbodem.nl/
Poland	Concept and principles of the system providing for functional utilisation of contaminated sites (subpart of the Strategic Governmental Program 'Environment and Health')	National Fund for Environment Protection and Water Management	http://www.ietu.katowice.pl/wpr/index.htm
Poland	Governmental Programme for Post-Industrial Areas	National Fund for Environment Protection and Water Economy	http://www.mos.gov.pl/index_main.shtml
Romania	MENER Environment & Energy - Resources	MINISTRY of Education, Research and Youth	http://www.energ.pub.ro
Sweden	Formas programme	Formas (Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning)	http://www.formas.se
Sweden	Hållbar Sanering (Sustainable Remediation)	Naturvårdsverket (Swedish Environmental Protection Agency)	http://www.naturvardsverket.se/hallbarsanering
Turkey	TUBITAK - MAG - Research Committee	TUBITAK	http://www.tubitak.gov.tr/ydabag

UK	Bioremediation Link Programme	The Department of Trade & Industry (DTI), the Biotechnology & Biological Sciences Research Council (BBSRC), the Engineering & Physical Sciences Research Council (EPSRC) and the Environment Agency (EA).	http://www.clarrc.ed.ac.uk/link/overview.htm
UK	'Infrastructure and Environment' programme and 'Engineering' programme	EPSRC (Engineering and Physical Sciences Research Council) ---	http://www.epsrc.ac.uk
UK	Soil Biodiversity Programme	NERC (Natural Environment Research Council)	http://soilbio.nerc.ac.uk/
UK	Soil Protection	Defra (Department of the Environment Food and Rural Affairs)	http://www.defra.gov.uk/environment/land/soil/
UK	Soil Sustainability	SEERAD Scottish Executive and Rural Affairs Department	http://www.scotland.gov.uk/Topics/?pageID=174
UK	URGENT (Urban Regeneration and the Environment)	NERC (Natural Environment Research Council)	http://urgent.nerc.ac.uk/index.html
UK	Water Quality and Catchment Management	SEERAD Scottish Executive and Rural Affairs Department	http://www.scotland.gov.uk/Topics/?pageID=174

The SNOWMAN call

The basis for the common research agenda for the partners of SNOWMAN is the **research agenda on contaminated soil** compiled by the research working group of the European Union Soil Thematic Strategy [1] (fig. 4).

Cluster		C1	C2	C3	C4	C5
		Processes underlying soil functions and quality	Spatial and temporal changes of soil processes and parameters (State "S")	Ecological, economic and social drivers of soil threats (Driving forces and pressures, "D", "P")	Factors influencing soil eco-services (Impacts, "I")	Strategies and operational procedures for soil protection (Responses, "R")
Threats (T4)		<i>Analysis of processes related to the 8 threats to soil and their interdependency</i>	<i>Development, harmonisation and standardisation of methods for the analysis of the state</i>	<i>Relating qualitatively and quantitatively the 8 threats to Driving Forces and Pressures</i>	<i>Analysis of the Impacts of the 8 threats, relating them to soil eco-services for other environmental compartments</i>	<i>Development of operational procedures for the mitigation of the threats</i>
		C1	C2	C3	C4	C5
Contamination	T4-1	sources, fate and behaviour of pollutants	development of fast and cost effective screening methods	harmonisation of methodologies for the identification and quantification of potentially dangerous chemicals	improvement and harmonisation of concepts and models for the transport of contaminants in soil and their transfer to other environmental compartments (water, air, biomass)	improvement of soil functions, contributing to natural attenuation
Contamination	T4-2		identification and quantification of new hazardous substances in soils	identification and quantification of social and economic driving forces on local and diffuse soil pollution and their impacts	development of concepts and models for the direct and indirect transfer of contaminants from soil to humans	quantification and improvement of natural rehabilitation processes
Contamination	T4-3		early warning systems for soil pollution, including bioindicators		improvement of risk assessment methodologies for remediation activities, with the final aim of developing a "fit-for-use" toolbox for risk-modelling, including the re-use of decontaminated soil	improvement of methods for alternative management options, taking into account environmental, social and economic conditions
Contamination	T4-4		definition of indicators for the assessment of soil quality		development of harmonised methods for defining "tolerable" loading on soil and groundwater systems	development of techniques, e.g. containment devices for safe storage, handling and transport of harmful substances
Contamination	T4-5		mobility and availability of contaminants to other environmental compartments			sustainability/persistence of remediation technologies and their environmental impacts
Contamination	T4-6					economic models for assessing the cost-benefit relationship for cleaning-up methods of contaminated soils

Fig. 4: Research agenda on contaminated soil [1].

During the SNOWMAN Think Tank workshop 50 research funders from 13 European countries looked for a common ground to prepare a transnational call [4]. The national research agendas of the participating countries have been matched with the items of this research agenda on contaminated soil (see fig. 5). The research agenda presented is definitely a real European research agenda, which finds accordance in almost all of the participating countries. Many countries are active or interested in almost all the various items.

	C1	C2	C3	C4	C5
T4-1	UK, AT, BE, NL, DE, SE, CY, FR, PL, RO, SP, TR	UK, AT, TR, ES, FR, BE, NL, DE, SE	UK, AT, CY, DE	UK, AT, TR, ES, FR, RO, BE, NL, SE	UK, AT, TR, ES, FR, BE, NL, DE, (SE)
T4-2		UK, AT, FR, RO, DE, SE	UK, FR, BE, NL	UK, ES, FR, RO, PL, BE, NL, SE	UK, AT, FR, BE, NL, DE, (SE)
T4-3		UK, AT, CY, FR, BE, NL, DE, SE		UK, AT, CY, ES, FR, PL, (BE), NL, SE	UK, PL, FR, RO, ES, BE, NL, DE, SE
T4-4		UK, AT, FR, RO, BE, NL, DE, SE		UK, AT, FR, BE, NL, DE	UK, PL, TR, RO, PL, TR, ES, FR, RO, DE, SE
T4-5		UK, AT, ES, FR, BE, NL, SE, DE			UK, AT, (BE), (NL), SE
T4-6					UK, AT, (BE), NL, DE, SE, CY, FR, PL, RO, SP, TR

Note: This blue colour indicates that there is general interest but no current programme.

Fig. 5: National research agendas matching the research agenda on contaminated soil [4].

Some of the research items in the boxes are related to each other. In that respect the common focus for research on contaminated soil can be based on three fields of research headlined under RESEARCH AGENDA FOR SUSTAINABLE LAND MANAGEMENT UNDER THE PRESSURE OF SOIL CONTAMINATION:

1. Principles of sustainable land management
2. Soil System Processes
3. Toolbox for sustainable land management approaches

On the short term SNOWMAN intends to announce a call for pilot projects with a 12-15 months duration each. Preferably each pilot project covers one of the three mentioned research fields above that have been identified as common fields of interest. Additionally, each of them represents one different step in the RTD process (fig. 2) such as programming, execution and implementation and a different research type (fig. 3).

SNOWMAN intends to fund only projects which have

- a transnational consortium,
- a strong stakeholders involvement even in the project consortium, and
- an excellent dissemination plan with different activities (not only scientific papers). The results and the achieved knowledge of the pilot projects have to be translated for different user groups (with the help of involved stakeholders) and translated to the funders national languages to be available to a broad audience.

Furthermore, on a medium term SNOWMAN intends to announce a call for research projects with a 24-36 months duration each.

Long-term co-operation goal

“A plan is a dream with a deadline”

The final goal for cooperation between research funding organizations within the SNOWMAN project is formulated as a dream: a salmon on the moon. This means that the final goal to reach must be ambitious, motivating and exciting. A plan is more realistic. It has requirements for results, costs and a

time-schedule. The long term goal of SNOWMAN formulated below is a description of the desired situation within a period of five to ten years from now.

Field of cooperation

The scope of the coordinated call is formulated as “sustainable land management approaches under the pressure of contamination”. This field covers all the four squares the fig. 1 with the restriction of the pressure of contamination. Sustainable soil quality management covers more than contamination. Sustainable land management is also a part of agriculture, forestry, preservation of natural areas, urban and rural development, water management. The focus of SNOWMAN is the soil and groundwater system and compounds from outside that form a pressure on the system, or compounds which form an emission from the soil and groundwater system to other systems. That means that other fields of research in the European research agenda, like erosion, compaction floods, landslides and sealing are not incorporated in the scope of SNOWMAN. Decline in organic matter, biodiversity and salinisation are included because these are important issues for the functioning of the soil-groundwater system. The advantage of the focus of SNOWMAN is that the community of soil system research is well known, it has a clear identity and existing cooperation activities.

The long term goal is to realise coherence in European national and regional R&D-programmes, with a common vision on the research agenda on soil matters for FP7. As the scope of the coordinated call is a starting point, the common vision can be elaborated and communicated to the European Framework programme 7. This common vision has to be revised regularly, perhaps every two years.

Funding

In the long term national research funding organizations will also fund a coordinated European programme in which projects are funded out of a common pot. Participating countries can carry out projects and national researchers can be financed by the participating countries out of a common pot. There is no relation any longer between then nationality of the researcher and the nationality of the funding. This situation implies, apart from the organization of the calls and evaluation of proposals, accepted procedures for financial accounting and control of the coordinated call and the projects.

Dissemination

Dissemination depends on the type of research and the target groups. Time and translation are important aspects of dissemination. Dissemination of fundamental or strategic research is less dependent on the context of application and international dissemination activities can be successful. Dissemination should not be limited to results of research from projects of the coordinated call, but also to national research within the focus of SNOWMAN. EUGRIS serves as a very valuable and easy-to-handle dissemination platform because anyone interested can find research/funding information easily and also place information there within minutes. CONSOIL could serve as a platform for presenting results from projects of the coordinated call, but each participating country will organize a symposium on a relevant issue of the common agenda open all participating countries. The SNOWMAN project group coordinates these symposia.

Results from applied research are more dependent on the context of application. Translation of results to different contexts is necessary. Participating countries have to organize this translation and dissemination by themselves. Nevertheless it is possible to formulate more general “state of art” information, especially for the toolbox. For end users European state of art information for techniques, instruments, and models, applicable under specified circumstances, can be very important. The EURODEMO project [9] could be a start to formulate European state-of art information. EUGRIS [8] could be a platform for supplying this information.

The way to operate is continuously improving the several aspects of cooperation, building confidence and trust, improve communication and information and reduce the “distance to target” continuously.

References

- [1] Blum, W., Büsing, J. Escaille, T. de I (ed.) (2004): European Union Soil Thematic Strategy – Working group Research. Summary report, June 2004. Available from: <http://forum.europa.eu.int/Public/irc/env/soil/home>
- [2] Van Veen [2003]: “An Analysis of National and EU RTD Programmes Related to Sustainable Land and Groundwater Management”, Austrian Federal Environment Agency, 2003 on behalf of CLARINET.
- [3] Vermeulen, H., Veen, J. van, Reijssen, I. van (2005): The Research and development process – the SNOWMAN Vision paper. In preparation.
- [4] Wallner & Schauer (ed.) (2005): Proceedings from SNOWMAN Think Tank Workshop, Vienna, January 2005. Available from: <http://www.eugris.info>
- [5] Dueso, N., Frauenstein, J., Greaves J., Harris B., Hauschild M., Meixner N., Vermeulen, H., Veen, J. van, Vetter S. (2005): “A SNOWMAN’s Navigator through Funding Programs” Available soon from: <http://www.eugris.info>.
- [6] Kasamas, H., Vegter, J. (2001): Scientific and Research Needs for Contaminated Land Management. Land Contamination & Reclamation, Vol. 9, Number 1, p. 79-85.

Reference web sites

- [7] CLARINET - The Contaminated Land Rehabilitation Network for Environmental Technologies in Europe, <http://www.clarinet.at>
- [8] EUGRIS – Portal for Soil and Water Management in Europe, <http://www.eugris.info>
- [9] EURODEMO – European Co-ordination Action for Demonstration of Efficient Soil and Groundwater Remediation, <http://www.eurodemo.info>