ERAC-CT-2005-0260025
IWRM-NET
Towards a European-wide exchange Network for integrating research efforts on Integrated Water Resources Management

Thematic priority: Integrated water resource management

DELIVERABLE N°23

Map of national and regional research identification processes (Research need identification Good Practice guide)

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PU	Public	**X**
PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including the Commission Services).	
CO	Confidential, only for members of the consortium (including the Commission Services).	

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"Where is the life we have lost in living?
Where is the wisdom we have lost in knowledge?
Where is the knowledge we have lost in information?"

The Rock, TS Eliot, 1932

IWRM ERA-Net

European Research Area (ERA)

The objective of the ERA-NET scheme is to step up the cooperation and coordination of research activities carried out at national or regional level in the Member States and Associated States through:

- the networking of research activities conducted at national or regional level, and
- the mutual opening of national and regional research programmes in specific fields.

The scheme will contribute to making a reality of the European Research Area by improving the coherence and coordination across Europe of such research programmes. The scheme will also enable national systems to take on tasks collectively that they would not have been able to tackle independently. Both networking and mutual opening require a progressive approach. The ERA-NET scheme therefore has a long-term perspective that must also allow for the different way that research is organised in different Member States and Associated States[1]. The ERA-NET scheme is aimed at national and regional programme funders and programme managers and is designed to encourage the creation of close, long-term links between national research programmes with shared goals

Integrated Water Resource Management (IWRM)

IWRM-NET will tackle WFD implementation by examining Integrated Water Resources Management issues and identify both short term and long term research needs through a bottom up approach. 17 partners from 14 countries have agreed a shared vision for what IWRM-NET should offer by 2010:

- A privileged source of knowledge for IWRM research in Europe, in particular relation to the WFD.
- A forum for the future development and coordination of research needs, and a communications link between researchers, policy-makers and managers.
- A body that can bring together researchers and funders from different countries so that they can work on joint research activities.
- A place to exchange best practice.
- By improving the knowledge transfer amongst stakeholders in charge of IWRM, our network enables us to work on synergies between research needs and policy, and promotes interdisciplinary activities concerning IWRM across Europe.

Other environmental ERA-Nets

Within the Environmental sphere there are a number of Era-nets established including Biodiversa, SKEP, Circle and Crue. With considerable overlap in the information they require there has been some collaboration to consider how the era-nets can manage information for mutual benefit. Many of the era-nets have set up databases to manage the lists of research

[1] http://cordis.europa.eu/coordination/era-net.htm

programmes and projects that make up the baseline information for research managers and researchers. Sharing the information will avoid duplication across Europe and mean more efficient use of funding from the EU. It will also allow users greater access to a wider range of information.

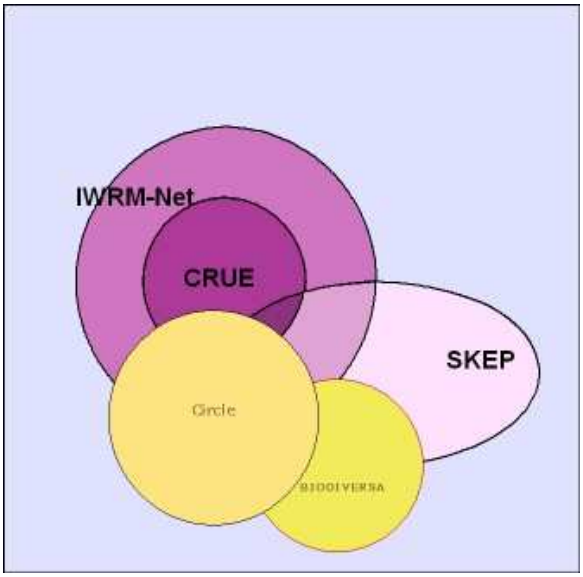


Figure 1 Environmental era-nets

IWRM-net is looking at the broadest range of issues relating to water resource management and CRUE could be conceived as a sub-set or specialism within this as it deals with purely flood risk management. SKEP perhaps has the broadest perspective as it stipulates simple environmental research as its interest. Biodiversa is looking at managing the knowledge of biodiversity and Circle is looking at the climate change, which will impact on many aspects of the other era-nets perspectives. These overlaps will need to be managed and should come into consideration when looking at integrating fields and specialisms within each individual era-net.

Collaborative Website/database...?

The data that IWRM-net needs to collect is about:

- the research programs information, which is the focus of our project and
- the organisations which are involved
- the projects which are issued from the programs
- The practices used before, during and after the program. They will be analysed afterwards in order to list the best practices.
- The bibliography issued from a project: It may concern reports and other documents issued before the program launch, during its realisation and during, project launching and after the program completion.

The Knowledge Process

Data, Information, Knowledge and Wisdom

DIKW is an **information hierarchy** where each layer adds certain attributes over and above the previous one. Data is the most basic level; Information adds context; Knowledge adds *how* to use it; and Wisdom adds *when* to use it. As such, DIKW is a model that is useful to understanding analysis and the importance and limits of conceptual works. DIKW is used primarily in the fields of Information science and Knowledge Management.
[Source : Wikipedia]

When considering the whole process of innovation, research and knowledge each programme of operation benefits from being divided into clear sections and managed as a project with aims, objectives and timescales so that it can be more easily managed. Within each operation there may well be a research programme, or associated programmes and projects, but the underlying link between them all will be the desire to improve knowledge as an end point.

In a European context there will be a range of terms used for similar activities within what is defined here as the knowledge process. Agreement on one term and clear definitions, while they may help, are not necessary as long as communication within the network allows a common understanding of the various terms.

Cradle to Grave conceptual model

In a recent publication from the SKEP era-net the idea of research management taking on the role of managing knowledge from cradle to grave was considered. Research management can either be seen as a project or as a process. Funding activity

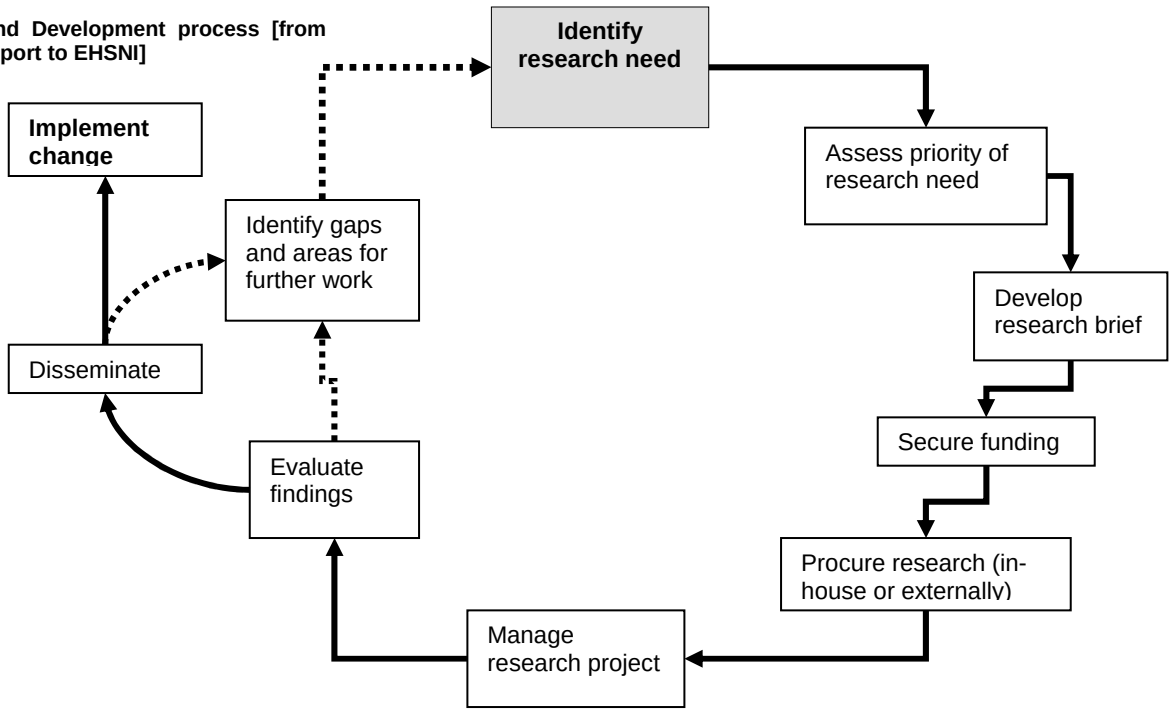


Figure 2 - Research and Development process [from Atkins(2006) – internal report to EHSNI]

through several individual research programmes is a continuous process where the programmes implement the research strategy of the funding organisation. However, each of the programmes, or temporally identified funding activities, should be seen as a single project that have a start and an end. This helps to make the programmes logical to the actors involved, and including various predefined phases to carrying out a programme and its planning is seen as indispensable[2].

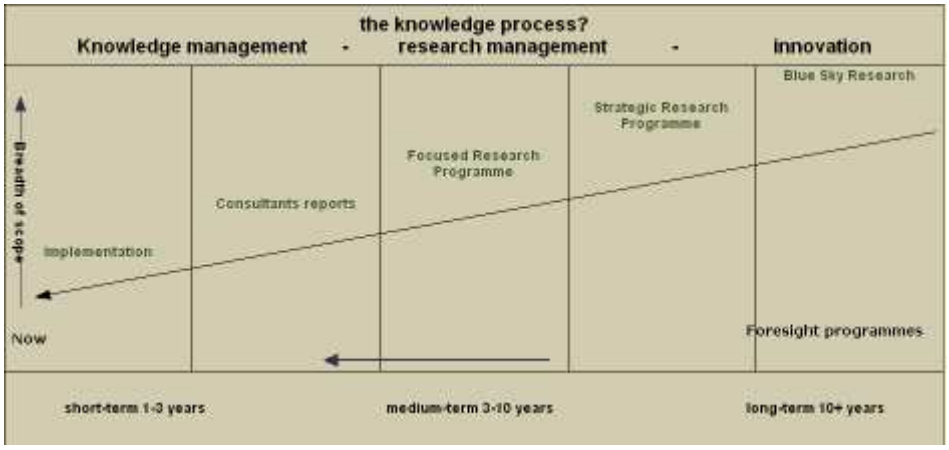


Figure 3 - Knowledge Process

What is Research?

"research (noun) - *a detailed study of a subject, especially in order to discover (new) information or reach a (new) understanding*"

In the process of undertaking research and the life cycle of a research project or programme there are a number of steps that need to be considered. Best practice will arise from understanding the purpose of each step and the most effective way of achieving that purpose.

What figure 2 does not consider is the subtle variations in scale needed to develop research programmes and to change organisational thinking in the form of 'knowledge management'.

In 1963 the Organisation of Economic Cooperation and Development (OECD) developed a system for classifying research. The Frascati research classification system divides up research into five categories (*for more information see appendix 1)* which are;

- Pure Basic Research
- Orientated Basic Research
- Strategic Applied Research
- Specific Applied Research
- Experimental Development

These classifications help us to understand the different types of research required to deliver different levels of information and knowledge. When put into a temporal diagram then we can start to see how the many processes link together, figure 3 shows the process of going from blue sky, innovative thinking to creating research programmes focused on a particular field and then subject to knowledge management to provide those tasked with delivering policy or implementing a 'product' the skills and knowledge to do so. It also suggests a timescale to achieve all these aspects, but this will depend on the complexity of the issue being tackled and the relative time-scales of research projects in that field. Those involved in research programme management

[2] Furman et al (2006) *Experiences in the management of research funding programmes for environmental protection Including recommendations for best practice*, Finnish Environment Institute (SYKE) (published as part of SKEP ERA-Net)

must understand and measure the value of these ideas and how they become accepted into normal practice in due time.

IWRM-Net will consider the whole knowledge management process, i.e. it will look to influence the innovation, research management and knowledge management/dissemination processes as in the above diagram, and ensure that this process is managed to the utmost efficiency for delivering sustainable water resource management.

Managing a Research Programme

There are a number of generic questions that must be answered in setting up a research programme - These include:

- What are the goals of the programme?
- Who will be the end users of the research information generated?

In answering these questions one can determine the type of programme required and the means of disseminating the information, setting it clearly within the framework of the knowledge process above.

Goals of research?

It is recognised across the board that clearly defined and achievable goals are needed to provide focus and clarity for managing a research programme. But the nature of the goals will depend on the 'level' of the programme.

The higher levels of research management often relate to issues relevant to the nation state as a whole, linking with economic growth and development policies. If we take the example of the German Federal Ministry of Education and Research it states aims and tasks as;

"We rely on the best our country can offer in order to create growth and secure it in the long term: That is to say, on the people living, teaching, learning and working in Germany. We want to improve their opportunities for participation and personal development. At the same time, we want to maintain Germany's competitiveness and create new jobs through innovative technologies and services."

At this level research in general has a purpose and the specifics for issues such as water management are not highlighted at this stage of the knowledge process.

Scottish Executive Environment and Rural Affairs Department Research Strategy for 'Environment, Biology and Agriculture' sets out a number of specifically water related themes, yet does not provide clear objectives for water at this level. The first point to note is that it is called a strategy rather than a programme. Is a strategy fundamentally different to a programme and does this alter the way that it is delivered. The targets of the strategy include

- By 2010: the proportion of SEERAD SRG funded research which is classified as policy relevant will increase to at least 75%
- By 2010: basic research will be less than 10% of the total programme.

It is within this strategy that a series of programmes exist, which includes 'Environment-Land use and rural stewardship' which lists the following objectives:

- building more sustainable farming systems
- protecting the nations soils
- enhancing water quality
- functional biodiversity, natural habitats and landscapes.

Another example from the UK, this time an Agency of the government – the Environment Agency has a strategy for 'Integrated Catchment Science'. This is split into seven work packages, the first four of which address technical science issues whilst the last three reflect generic work areas, as follows:

1. Understanding aquatic ecosystems;
2. Managing soils and sediments;
3. Identifying and understanding catchment pressures;
4. Restoring habitats/ecosystems and remediating historical pollution;
5. Socio-economic considerations;
6. Knowledge transfer;;
7. Pilots and demonstrations of catchment management.

The emphasis of current WFD and thus IWRM research on ecological aspects is clear and the need to ensure that sustainable development objectives are enshrined within high level research objectives is clear. In this way the 'research goals can apply to all aspects of research from biomedical technology to wastewater treatment plants and the policy language can remain consistent from national to local level.

Who is the research for?

Research needs to consider the relationship between the many stakeholders within the knowledge management process. A scientist will develop and produce the research in conjunction with stakeholders but once the information is provided many scientists do not undertake the role of ensuring the information is then used and developed into working practise. Ownership and responsibility for knowledge management is a something that is increasingly becoming part of a research managers job description and will considered within the IWRM programme.

A research programme controlled directly by a ministry or department of government will have clear objectives to achieve the goals set out by the Minister. The timescales will also be dictated by the periods of government, which are often short-term. Within this many nations will recognise the need for longer-term research goals and their needs to be a balance between the needs. British Geological Survey in the UK have a dedicated member of staff to manage the research process ensuring that it encompasses the whole spectrum from Blue Sky to operational/product development.

Example of program management issues from CRUE ERA-Net

Within the field of research for flooding the issues that need to be considered within any system of programme management were discussed as:

- Framework Conditions
- Research Needs
- Programme Design and management

Framework Conditions

- Geographical and climatic conditions
- Political targets and strategies
- Driving forces for IWRM research
- Regulations and laws
- Framework programmes or strategies
- Responsibilities

Identification of research needs

- Categories of research
- Approaches to driving forces
  - Problems revealed by actual events
  - Innovation
  - Scientific needs
  - Policy needs
- Methods
  - Inquiries
  - Interviews
  - Multilateral consultation
  - Involvement of stakeholders
  - External studies

Programme Design and Management

- Definition of programme content and scope
- Target groups funding
- Programme duration and financing
- Funding instruments
- Announcement/call/tender
- Programme publication and dissemination of results
- Programme steering group, evaluation and monitoring

In order to ensure an effective research programme it is recommended that the timescales and objectives are clearly set out at the beginning or if the programme is considerable, the projects within it are given clear objectives for short or long-term delivery. The UKTAG process for the Water Framework Directive has a short-term focus with an annual process for analysis of priorities and delivery of knowledge is needed for implementation within 1-2 years. This is successful as the WFD has very immediate deadlines and specific goals, yet within the WFD there are aspects of implementation that are not very well known such as the economic valuation of water resources and general knowledge needs to improve significantly. In order to achieve this, more long-term research programmes are required.

Within any research programme there are a number of issues that need to be considered and managed. Many of them relate to figure 1 and the stakeholders either above or below the programme who wish to influence the information and knowledge that emanates from the research.

Some research programmes are developed through the governance process and are designed as a process within evidence based policy making. Following on from this a government will produce the policy that will need either a strategy or regulations to implement it. Research programmes can be designed to support the decision-makers in the solutions to the problems.

The role of the research programme manager

In trying to understand the process and the research programme manager's role in this one must consider the whole range of stakeholders within this process. This will involve politicians, civil servants, scientists, consultants and programme managers themselves.

The role of the wider stakeholders and general public

Some research programmes do not engage with the wider public – relying on the fact that many people do not wish to be involved and they will instinctively trust the professionals to take the public and wider stakeholder view into account.

The role of the decision-makers/politicians

This role is often a very important one in that may research programmes are funded from the government purse in order to deliver the manifesto's chosen by the public in voting for the politicians of their choice. So there often exists a direct line between the Ministers and the research programmes with clear goals. In reality the structure of governance can vary greatly and this can effect the efficiency of delivery mechanisms. These variations in structure are discussed in the section 2.

Managing interaction between the three?

Evaluating efficiency and value

In order to evaluate a programme there are a number of criteria that must be assessed. The objectives of the research programme, which must be clearly defined at the start of the programme, should be the main measure against which the programme will be main method of assessment. The problems arise when considering the cradle to grave concept and the long-term knowledge management process, how does one assess the value of a certain idea? Which then will get taken to the implementation stage become operational practice or a marketable product etc. Many of the changes desired in foresight programmes and medium-term research are large-scale and complex with outcomes that effect large areas or centre of population. To measure changes attributable to a specific research programme can be very difficult and thus assigning value to such research becomes problematic. This can be overcome by agreeing that research programme should have certain outputs that over time can be assessed as to the effectiveness with which they deliver change. If these outputs are assessed over a long period then the methods can be refined and the whole knowledge management process monitored.

Integrated Water Resource Management uses a whole range of complex measurements to consider its achievement. The Water Framework Directive has set a difficult bench mark for Europe to achieve with 'Good Ecological Status' (GES). Members States are currently developing and implementing characterisation reports for water bodies and targets for GES. IWRM takes these concepts further to include many other aspects of water resources which would need to be measured. The knowledge management process will need to consider the information required to deliver the immediate requirements of the first round of river basin plans and then the longer term requirements of the second or third plans where the processes will be refined. The

Foresight programme must then consider the issues that we think will be problem in the future. It is these long-term ideas that need to be measured as objectively as possible in terms of value, in order to allow the most valuable ideas to then be refined by further research into working practice which delivers sustainable water use.

The Knowledge process for IWRM

The process of undertaking research is one that is getting increased attention across Europe as many organisations and countries are reviewing their research management processes to ensure that they get the most from it. In reviewing the current methods for research management across Europe the IWRM network recommends a number of methods and processes that highlight good practice. The report aims to provide the first level of support to research programme managers in their role within the process knowledge management, and looks to create a common level of understanding of the process of taking blue-sky research and developing the ideas into workable policies or operational guidelines that help achieve IWRM.

The Global Water Partnership report states that there are various tools and mechanisms available to implement IWRM listed under three headings, these are:

- Enabling environment
- Institutional roles
- Management instruments

The first question a research programme manager must ask is do we have the knowledge base within the region or country to use these tools and implement IRWM. If the answer is no then the design and management of a research programme must deliver the technical knowledge to the right people who will ensure that these tools are used to assist in the achievement of the IWRM goals. As stated earlier this is not a precise science and any number of mechanisms could be suitable for achieving IWRM, which may not be listed here. What is important is that there is continual cross-checking to make sure that a programme continues to consider best practice and developments in thinking but continues to strive for the goals defined by the nations understanding of IWRM.

DPSIR

The OECD developed a methodological framework in 1970? Assessing the pressures, state and responses provide a system for allowing an integrated approach to policy development within a specific area or environment. This has been widely adopted and in recent years developed further to include drivers and impacts so that the full methodology is now titled DPISR. Its focus is widely used in policy terms but has not been implemented within the research management community. It can be argued that policy drivers are setting the research agenda such as the Water Framework Directive and within these assessments of impacts will filter up from the monitoring programmes so many aspects of the DPISR model are already in place but this is not comprehensive. In order to fully implement a coherent, objective and systematic method of assessing research needs something similar to the DPISR model should be used. This will allow the development of research programmes to be based on an open and accountable decision-making process, using scientific methodologies to highlight areas of concern and also allow a longer-term

monitoring system to be in place for knowledge management i.e. comparisons can be made between the assessments made currently and 10 years ago to see where the issues remain the same or have been solved by research programmes and knowledge management.

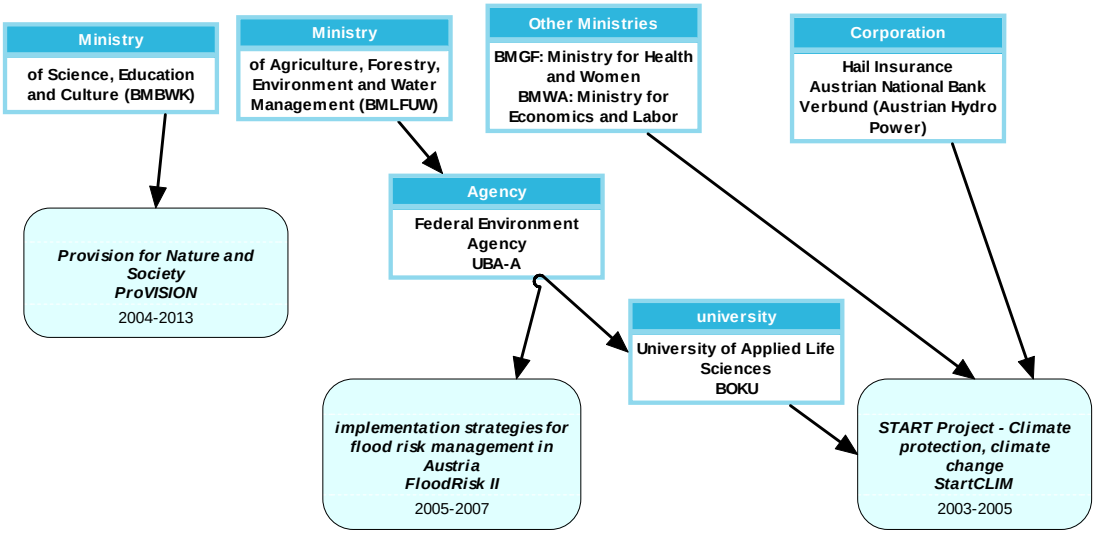
Definitions

Frascati Research Classification

- Pure Basic Research (carried out for the advancement of knowledge without working for long-term economic or social benefits and with no positive efforts being made to apply the results to practical problems or to transfer the results to sectors for its application)
- Orientated Basic Research (carried out with the expectation that it will produce a broad base of knowledge likely to form the background to the solution of recognised and expected current or future problems or possibilities)
- Strategic Applied Research (research where the work has practical aims, but no specific uses have been worked out for it yet. Strategic applied research can be initiated by researchers doing basic research where the research will probably have a practical use, but this has not been worked out yet. Alternatively, government departments can initiate strategic applied research by asking for it to be carried out. It can be difficult to distinguish between strategic applied and orientated basic)
- Specific Applied Research (applied research aimed at specific products, processes and systems)
- Experimental Development (using knowledge we already have to develop and test new materials, devices, products, systems, or services. This includes designing, building and using prototypes and pilot plants).

Organisation maps for member states research programmes

Austria



Research Management in Austria

The Austrian Ministry of Education, Science and Culture is the government institution responsible for educational issues, for the reform of the Austrian University system, for research policy and scientific research programmes as well as for the larger thematic area of cultural heritage including the reform of Austrian museums. The ministry develops, coordinates and finances major national research programmes such as the Austrian Genome Research-Programme “GEN-AU”, the sustainable development research programme “proVision” and research work in the field of social sciences. Furthermore, the BMBWK has launched several initiatives to improve chances and opportunities for female researchers, e.g. “fFORTE” which plans to raise the percentage of women scientists in the areas of research and technology.

The Federal Environment Agency Austria is the specialist institution of the Federal Government and provides expertise on the condition of the environment and environmental changes as well as on measures to avoid or reduce environmental pollution. It plays a key role in the implementation of federal environmental laws, EU directives and regulations; it provides expert advice to federal and other institutions; it designs and operates national environmental databases and it cooperate with various national and international institutions. (Web site: http://www.umweltbundesamt.at.)

The Austrian federal territory is located in three international river catchment areas. About 96% of the area are located in the catchment area of the Danube and empties into the Black Sea, about 3% empty via the Rhine to the North Sea, approx. 1% empty via the Elbe into the Baltic Sea. Every three years a report on the status of the protection of waters has to be submitted to the National Council. In the “Waters Protection Report” the pressures on water bodies are subdivided according to three aspects: 1) Pollution from point and diffuse sources 2) hydraulic installations liable to cause changes in the structure of water bodies, the connection to groundwater bodies and the interconnection with the surrounding area 3) other sources of pollution. According to the 2002 Waters Protection Report the water quality of Austria’s water bodies is altogether satisfactory.
99 % of the Austrian drinking water originates from groundwater. The obligation to keep domestic waters clean and to protect them is laid down in the Austrian Water Rights Act (Österreichisches Wasserrechtsgesetz). According to this Act the quality of groundwater and spring water must be so high that it can be used as drinking water. This Act falls within the competence of the Federal Ministry of Agriculture, Forestry, Environment and Water Management (Bundesministerium für Land- und Forstwirtschaft, Umwelt und Wasserwirtschaft) which is also responsible for the application of pesticides and fertilizers. As soon as groundwater is withdrawn for the purpose of drinking water the competence rests with the Federal Ministry of Social Security, Generations and Consumer Protection (Bundesministerium für soziale Sicherheit, Generationen und Konsumentenschutz).

Short-term research

The Federal Environment Agency, Austria is the programme manager of the “Start Project Climate Change (StartClim)” on behalf of the Federal Ministry of Agriculture, Forestry, Environment and Water Management. StartClim is extended on a year-to-year basis, with different scientific foci (2003 extreme weather events and their impacts on Austria, 2004 heat waves and drought, 2005 and 2006 health impacts and impacts on Austria’s most vulnerable economies e.g. tourism)
Further the Federal Environment Agency Austria is managing the programme “FloodRiskII (Implementation strategies for an integrated flood risk management in Austria) on behalf of the Federal Ministry of Agriculture, Forestry, Environment and Water Management. FloodRiskI was based on the 2002 flood event documentation. This analysis marked the next steps in creating basic provisions for strategic decisions of integrated flood management. (subprojects in fields such as meteorology, hydrology, geomorphology, natural disasters, economic aspects, the law, spatial planning and disaster protection). FloodRiskII goes towards the implementation of an integrated flood risk management with model river catchments (e.g. Danube and its alpine tributaries) in Austria

Long-term research

The Austrian Ministry of Education, Science and Culture is the government institution responsible for educational issues, for the reform of the Austrian University system, for research policy and scientific research programmes as well as for the larger thematic area of cultural heritage including the reform of Austrian museums. The ministry develops, coordinates and finances major national research programmes such as the Austrian Genome Research-Programme “GEN-AU” and research work in the field of social sciences. The sustainable development research programme “proVision” is managed by the Agriculture and Environment Ministry.

Belgium

First Political level	Federal Ministry	Wallonia (government)	Flanders (government)	Brussels-Capital (government)
Research funding bodies	Belgian Science Policy Office	*TBC*	*TBC*	*TBC*
Environment agencies	Fedral Public Service – Health & Environment,	General Division Natural Resources and Environment (DGRNE)	- Flemish Environment agency (VMM)	Brussels institute for the environment (IBGE)
Institutions at the regional level		Research Centre Nature, Forest and Wood	- VMZ - NV aquafin - Flemish institute of science and technology - VITO	
Provincial level			Coordination center for integrated coastal management	

WFD and IWRM in Belgium

In terms of water resource management policy-making competence has been devolved to the federal states since the 1980. Consequently, any analysis of water issues in Belgium has to consider three regional policies regarding Flanders, Wallonia and the Region of Brussels-Capital. In each region, water management is on the way towards integration. However, the respective policies of water supply and sanitation have been considered rather independently. In Flanders, sanitation activities are embedded in a global water quality policy, while in Wallonia a company supervises the whole water supply and sanitation sector, but operation remains in the hand of distinct operators. In Brussels-Capital, integration is yet to be completed.

Short-term research

The PPS Science Policy is a federal administration that is responsible for the preparation and implementation of research programmes in several fields (fundamental research, sustainable development, social cohesion, information society, space technology …) with the aim the development of a permanent knowledge resource within scientific and technical spheres at the service of the Federal Authority. The PPS Science Policy manages an annual budget of about 517 million euro. It is also responsible for 10 Research Institutions. The PPS Science Policy coordinates the Belgian participation to the management of European activities (6th Framework programme, COST, EUREKA, GMES, INTAS, …) with the Belgian Communities and Regions. Notwithstanding that water management issue is a main regional competence, the PPS Science Policy is the only government body that has a specific Multi annual research programme on terrestrial ecosystems, including freshwater ecosystems of temperate Regions. This programme is part of the head plan " A science for a sustainable development" aiming at improving scientific understanding as a fundamental basis for sound sustainable decision-making. The programme is developed within the framework of Co-operation agreements with the Belgian Regions and Communities in order to insure the necessary collaboration with the federated entities, in particular for supporting the implementation of the EU Water Framework Directive. More generally, the freshwater

programme lies within the scope of the UN Climate Change Convention , the Convention of Biological Diversity, the Ramsar Convention (wetland protection). The programme is implemented by calls for proposals open to universities and public research institutions. Since 2001, teams from European universities or public research institutions are able to join Belgian teams applying for funding and participate as a “minor” partner in the projects. Proposals are funded after a international peer review followed by a strategic evaluation by the steering committee of the programme, which is composed of participants from the concerned administrations. The yearly budget of the Multi annual research programme on freshwater ecosystems is approximately 1 Mio EURO. In Wallonia, the Environment Centre of the University of Liege manages the research programme for implementing the Water Framework Directive. The PIRENE programme listed above covers a wide range of issues relating to water resources including socio-economic issues. Integrated is provided through a broad range of stakeholders in the steering group, such as industry, ministries and municipalities.

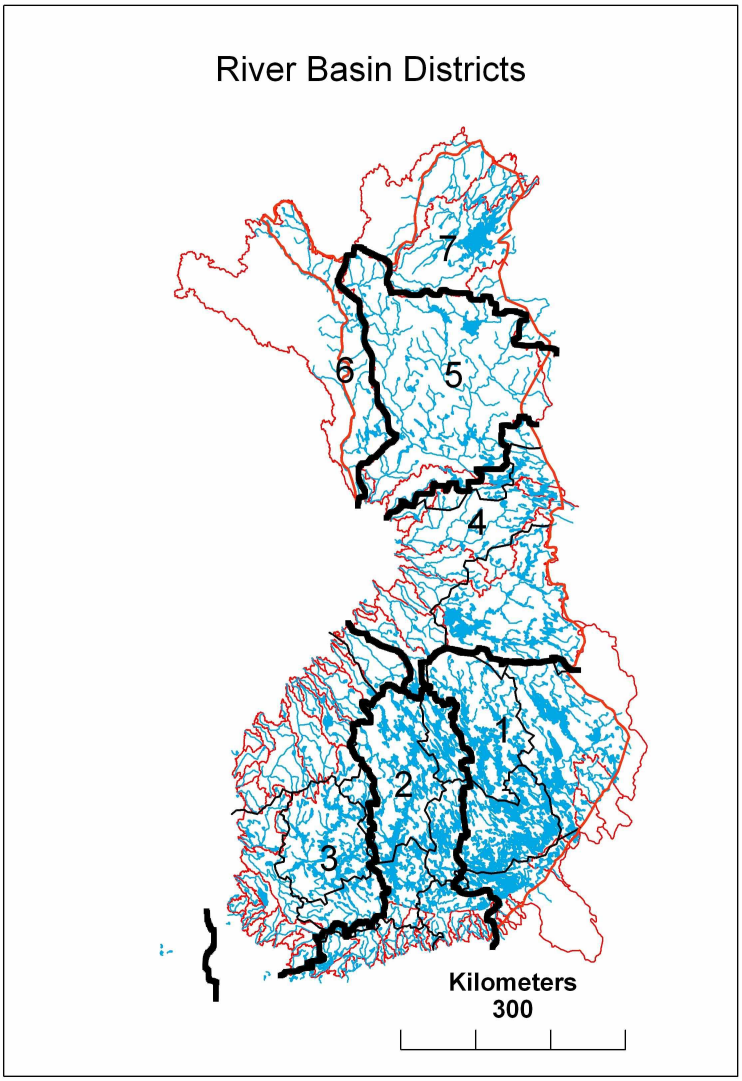
Regions are supporting specific applied research in support to their competences.

Long-term research
The Belgian Federal Science Policy Office, research programmes Department leads on the implementation of multi-annual research programmes, actions and networks on national or international levels
The programmes are implemented by calls for proposals. Proposals are funded after a peer review followed by a strategic evaluation by the steering committee of the programme, which is composed of participants from the concerned administrations. The priorities for the next years related to sustainable development are Transport & mobility, Agro-food, Health, Climate - incl. Antarctic research, Biodiversity - Antarctica & North Sea, Atmospheric processes, Terrestrial & marine ecosystems and Clean technologies.

Decision-making for research priorities

In terms of water resource management policy-making competence has been federalised since the 1980. Consequently, any analysis of water issues in Belgium has to consider three regional policies regarding Flanders, Wallonia and the Region of Brussels-Capital. In each region, water management is on the way towards integration. However, the respective policies of water supply and sanitation have been considered rather independently. In a region, sanitation activities are embedded in a global water quality policy (Flanders). In another, a company supervises the whole water supply and sanitation sector, but operation remains in the hand of distinct operators (Wallonia). In Brussels-Capital, integration is yet to be done.

Finland



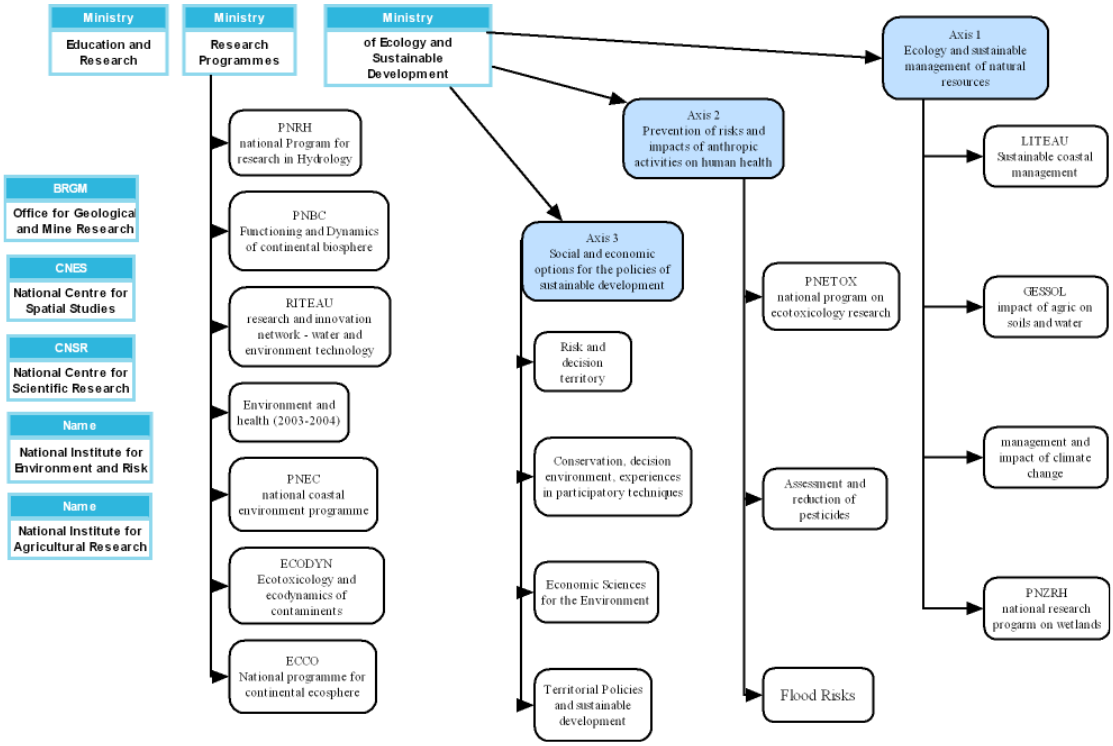
The Ministry of the Environment is in charge of water protection and environment policies including WFD reporting to EU.
The Ministry of Agriculture and Forestry is in charge of management of water resources.
Finland´s 13 regional environment centres are responsible for the planning of river basin management in their respective districts, with one regional environment centre appointed to co-ordinate the management of each of the RBDs, together with a steering group.
Finnish Environment Institute conducts Research and development projects and supports RBD's in implementation of WFD. Within the framework of UNECE working group on IWRM Finland promotes transboundary collaboration in Eastern areas.
WFD short term priorities
Support development and implementation of

Program of Measures
Ecological classification
Monitoring programmes
Risk assessment
Public participation practises
Funding agencies
1. Tekes is the main public funding organisation for research and development in Finland. Tekes funds industrial projects as well as projects in research organisations, and especially promotes innovative, risk-intensive projects.
2. The Academy of Finland provides funding for high-quality scientific research, serves as an expert in science and science policy, and strengthens the position of science and research.
Major research programmes
Finland's Programme for the Protection of the Baltic Sea (2002-201x)
On 26.4.2002, the Finnish Government made a decision-in-principle on steps to be taken to protect the Baltic, i.e., Finland's programme for the protection of the Baltic Sea. The main aim is to influence the state of the waters and the marine environment in the Gulf of Finland, the Archipelago Sea, the Åland Sea, the north Baltic proper, and the Gulf of Bothnia. The aim is for this influence to come both from Finland and from countries in adjacent regions.
http://www.ymparisto.fi/default.asp?contentid=73160&lan=en

The Finnish Environmental Cluster Research Programme (The fourth phase 2006-2009)
Programme is a collaborative programme between researchers, the business sector, public authorities and funding organisations. This programme aims at raising the level of environmental know-how, improving the state of the environment, and integrating environmental issues more closely into the Finnish system of innovation.
http://www.ymparisto.fi/default.asp?contentid=105793&lan=en

Joint research programme on water management in agriculture and forestry (2006-2009)
Some main objectives are: Development of water management measures for agriculture and forestry; Study of the ecological impacts of water loading from agriculture and forestry.
Major international ongoing IWRM -research projects
SCENES: Water scenarios for Europe and for neighbouring states (2007-2010). The SCENES project will develop and analyse a set of comprehensive scenarios of Europe's freshwater futures up to 2025. The qualitative scenario analysis will also focus on water quality, ecological and hydrological aspects, with special regard to the requirements of the WFD.
WATERSKETCH: The project endeavors to produce a blueprint, which will lead to improved river basin management in the Baltic Sea region (2004-2007). The project partners will take a close look at the spatial planning and implementation of the European Water Framework Directive (WFD) for selected rivers and develop strategies for sustainable use. http://www.watersketch.net/new/
TRABANT: Transnational River Basin Districts on the Eastern Side of the Baltic Sea Network (2005-2007). http://www.ymparisto.fi/default.asp?contentid=206575&lan=EN
REBECCA: Relationships between ecological and chemical status of surface waters (2003-2006). http://www.ymparisto.fi/default.asp?contentid=69677&lan=en
BMW: Benchmark Models for the Water Framework Directive (2002-2004).
http://www.environment.fi/default.asp?contentid=116046&lan=EN

France



WFD and IWRM in France
the principle of water resources management at the level of river basins has been established by the Water Act of 1964. The Assemblee nationale adopted a Proposal for a Water Act which is to replace the Act of 1964 (and the important amendments made in 1992). In fact, in terms of current practice, the basic structure of water resources management remains unchanged - The French Water Basin Agencies and the water Directorate of MEDD are involved in implementing the WFD

Priorities –
Economic Instruments
Public participation

IWRM research in France:

Water resource management in France is integrated, taking into account the ecosystem's physical, chemical and biological systems: surface and underground water, water quantity and quality and all uses. It uses decentralised management and local decision-making using water agencies, local authorities, industry and farmers. France also has consistent water use and land use policies.

In terms of research the government defines the main themes of research (the Ministry of Ecology and Sustainable development MEDD) within the framework of national decisions. From this the scientific councils analyse the research proposals in terms of scientific quality. The orientation committee selects the best projects of research and proposes a list to the financiers who agree on funding the best projects. The results are then disseminated via seminars, synthesis and teaching documents.

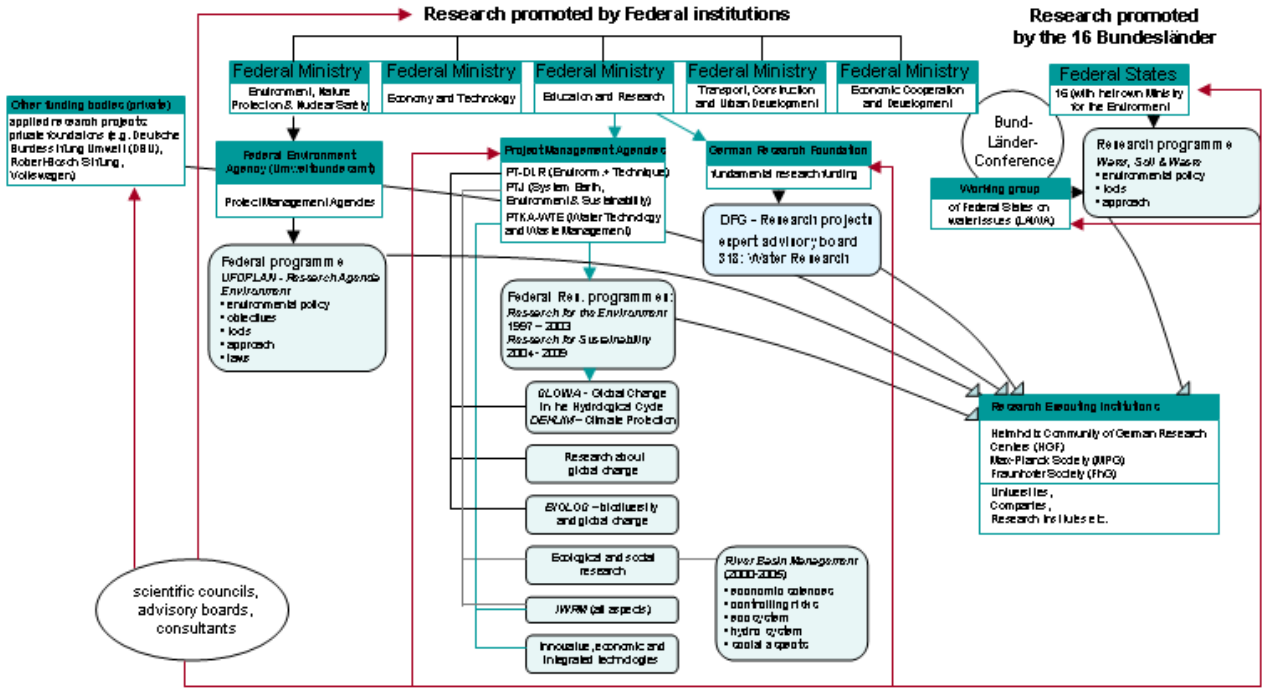
Short-term research
the government defines a national politic of research (main themes) Then MEDD will decide on the research programmes within the framework of national decisions. The scientific councils analyse the research proposals in terms of scientific quality. The orientation committee selects the best projects of research and proposes a list to the financiers who agree on funding the best projects. The results are then disseminated via seminars, synthesis and teaching documents. Of the 20 research programmes financed by MEDD, 4 are specifically linked to the WFD (Coastal Waters, Pesticides, Ecotoxicology & wetlands). Orientation committees for each of the programmes will gather the diversity of stakeholders and decision-makers concerned with public water management policies, ensuring that calls for proposals are useful for their implementation of WFD and the programmes specific needs. The scientific council that is also set up for each programme will evaluate each proposal for scientific quality and relevance. The orientation committee will make the decision on funding the proposals based in public policy criteria.
After the project has been funded the scientific council will evaluate the quality of intermediate and final reports.

Long-term research

The Prospective program of the MEDD was set up in 2006. This programme comprises the four following parts:

- Total change and long-term trajectories of the company and the environment.
- National Foresight for public policies regarding the environment.
- Sensitizing? the Foresight and methodological support with the actors of the public utility of the environment.
- Foresight for the programming of research on the environment and the durable development on a European scale.

Germany



Description : Germany

WFD and IWRM in Germany
The Federal Ministry for Environment, Nature Protection and Nuclear Safety deals with basic questions of water management through the Federal Water Act. Implementation of water management is devolved through the Federal States (Länder). The working group of Federal States then discusses issues and formulates solutions.
Research in this field is funded and promoted via the Federal Ministries and their Project Management Agencies listed.
Project funding is also provided by private foundations like Deutsche Bundesstiftung Umwelt (DBU = German Federal Foundation for the Environment), Robert-Bosch-Foundation or Volkswagen Foundation.

Priorities:
•Determination of MEP/GEP
•Exemptions
•Cost effectiveness of measures
•In general: Consolidation of the new developed methodologies in biological assessment in particular with respect to adaptations to the ongoing intercalibration process (long-termed)
•Technical and scientific steering of the intercalibration process
•Further development of the assessment methodology of natural and artificial lakes with macrophytes and Phytobenthos
•Further development of the assessment methodology of phytoplankton in dams and quarry ponds

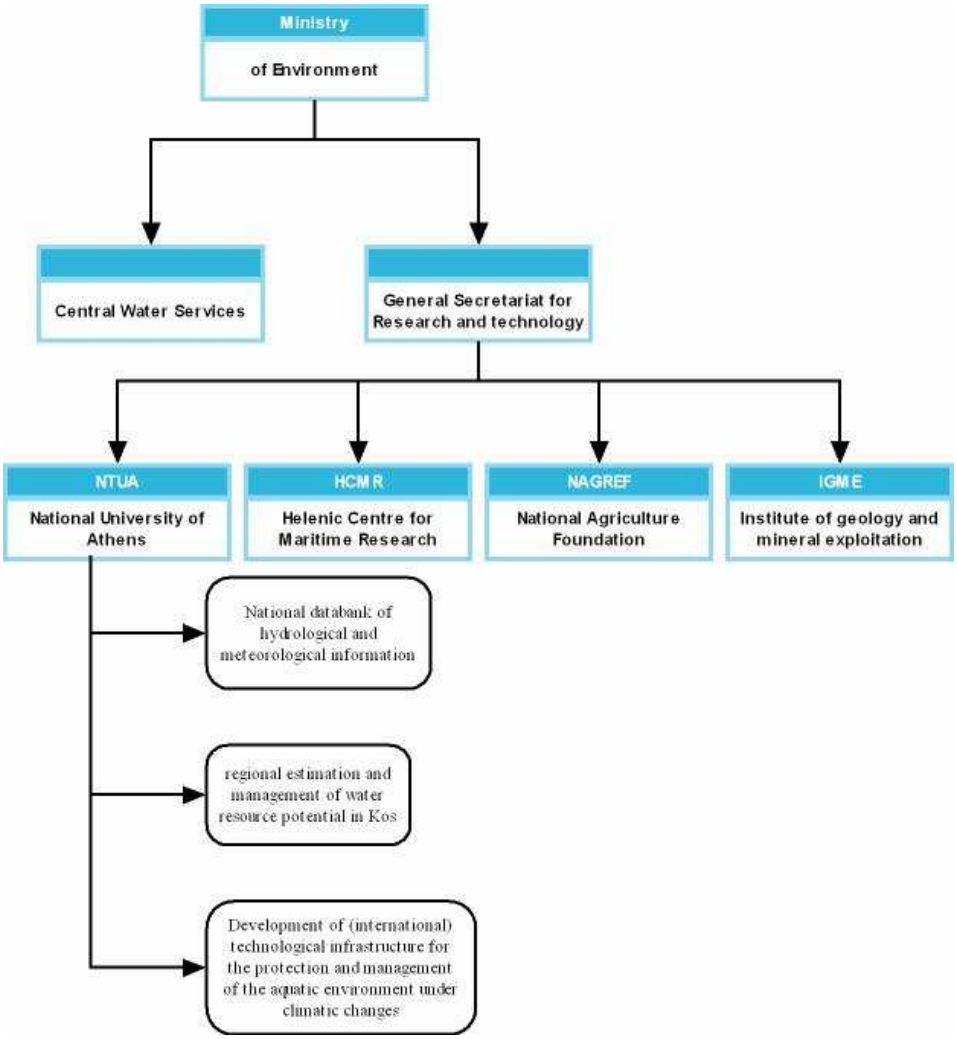
The Federal Ministry for the environment, nature protection and nuclear safety deals with the basic questions of water resources management as well as with trans-boundary cooperation in the field of water resource management as part of environmental policy. The Ministry is responsible for the federal water act. The implementation of water resources management regulations is exclusively a matter for the Lander and the municipalities.

90% of public expenditure in R&D are spent by the Federal Ministry of Education and Research (of which 66%), Ministry of Economics and Labour and the Ministry of Defence (33% between them). The research management and implementation is delegated to six autonomous organisations which receive funding jointly from Federal State and Landers. There is a clear distinction between research and funding organisations.

Short-term research
The Federal Ministry for the Environment, Nature Protection and Nuclear Safety promotes research on basic questions of water resources management as well as trans-boundary cooperation in the field of water resource management as part of environmental policy and funds.
The implementation of water resources management regulations is exclusively a matter for the Länder. Corresponding research is funded within the programme "Water, Soil & Waste" by the LAWA (working group of Federal States on water issues), with a focus on WFD. 90% of the public expense in R&D, however, is by the Federal Ministries of Education and Research (2/3), Economics and Technology and Environment, Nature Protection & Nuclear Safety. Most research funding is spent through a system of competition via calls for proposals, in which any public or private organisation can take part.

Long-term research is mostly undertaken by the Deutsche Forschungsgemeinschaft (DFG, fundamental questions) and the Federal Ministry of Education and Research (BMBF, applied research). All public funding bodies are advised and supported by expert boards or scientific councils and evaluate research proposals by external and internal experts or consultants.

Greece



WFD and IWRM in Greece…
National Strategy for Water Resources (NSWR) contains a wide series of projects, programmes and actions, according to the requirements of the WFD that will allow meeting set targets at national, EU and international levels, by fully implementing the WFD and law 3199/03.

Priorities…
•networks to monitor quality of marine environment, quality of coastal bathing waters, quality of underground water reserves
•proposed on monitoring sea and groundwater quality 2007-2013.
•Development of water pricing policies that enhance the sustainability of water resources
•Good practice guidance on the adequacy of controls on drinking water quality 2007-2013.
•Monitoring of sea water quality and marine environment.
•A National Programme for the reduction of dangerous substances pollution.

•Setting of new maximum permissible levels of harmful substances concentrations in water resources as the basis of a sound system for liabilities, water protection and promotion of remedial measures, are required. More specifically,
•Development of a new monitoring network for inland surface, transitional, coastal and ground waters, including the development of monitoring programs for biological quality parameters and the assessment of their ecological quality is proposed.
•Monitoring of sea water quality and marine environment , agricultural nitro-pollution 2007-2013.
•Development of Management Plans in Water Districts for each river basin of the country is proposed by the National Strategy for Water Resources (NSWR).
•Public participation on the management plans at a river basin level is high in the priorities for the next Programme Period 2007-201

Description of research management in Greece

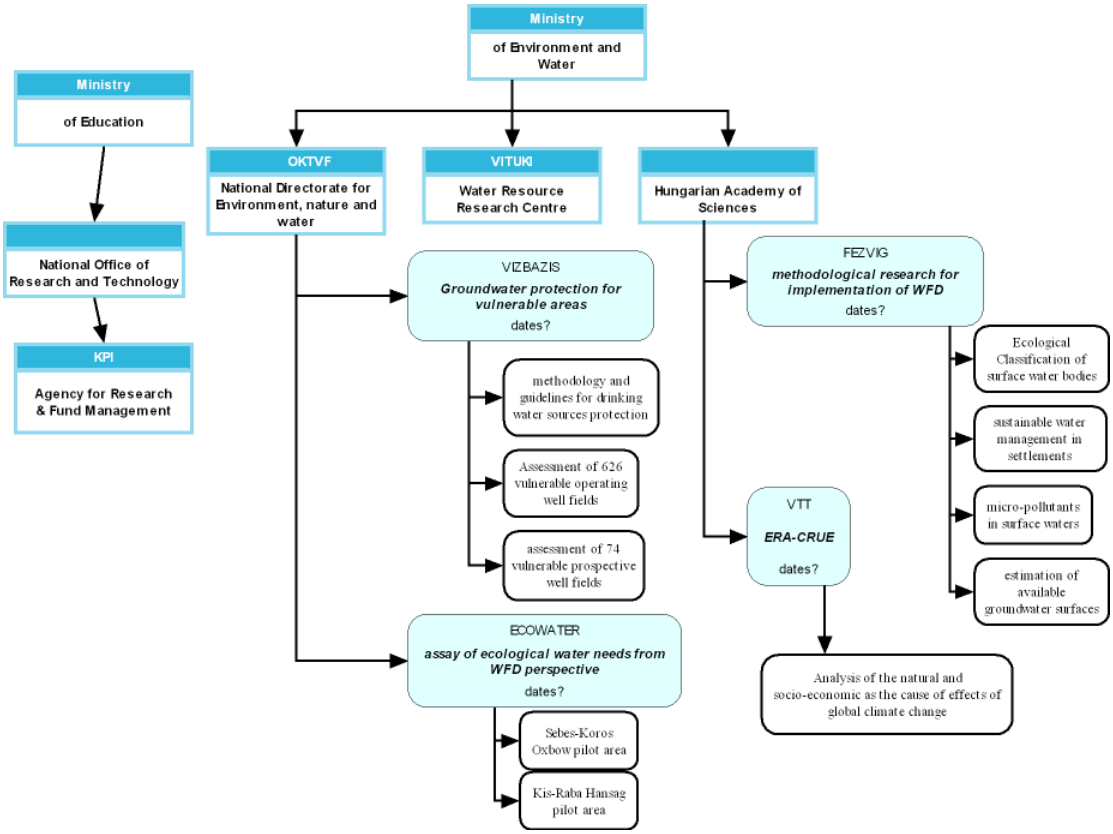
Water management in Greece is in transition currently from the Ministry of development to a special secretariat within the Ministry of Environment, as a central water service. Ministries assign projects (not research) to private companies, universities etc after tenders relating to the management plans for WFD from the Ministry of Development and projects relating to the harmonization of the WFD from the Ministry of Environment.

Research in Greece is funded either from the EU (DG ENv etc) or the General Secretariat for Research and Technology (GSRT). The GSRT is responsible for the planning, development and funding of various research and technology programs. Within the water sector the universities play a very important role, not only in conducting basic and applied research, but also in managing research projects.

Short-term research

Ministries assign projects not research to consultants, universities etc. The majority of the research in Greece is funded by the EU (DG research, DG Regional Policies) or from the General Secretariat for Research and Technology (GSRT). GSRT is responsible for the planning, development and funding of various research and technology programmes. It supervises 32 of the most important research centres and institutes. There are 3 institutes relating to water. The process is an open call from the GSRT.

Hungary



Description : Hungary

WFD and IWRM in Hungary…

The government agency primarily responsible for the policies on protection of freshwater resources is the Ministry for Environment and Water. The basic regulatory framework consists of the Water Act of 1995, and the legal instruments on environmental impact assessments. In addition, there are important general provisions on freshwater resources under the Act on Environmental Protection (1995).

The National Environmental Programme includes substantial provisions and measures for the conservation and management of surface and subsurface water resources. Some of the key targets and approved policy directions are: regulation development to encourage sustainable and economical water use; improvement of water quality for the main watercourses/water bodies (Danube and Tisza Rivers, Lake Balaton); gradual increase (to a level of 65%) of the number of settlements with sewers; at least biological treatment of wastewater from sewers; nitrate and phosphorous load reductions for highly protected and sensitive waters.

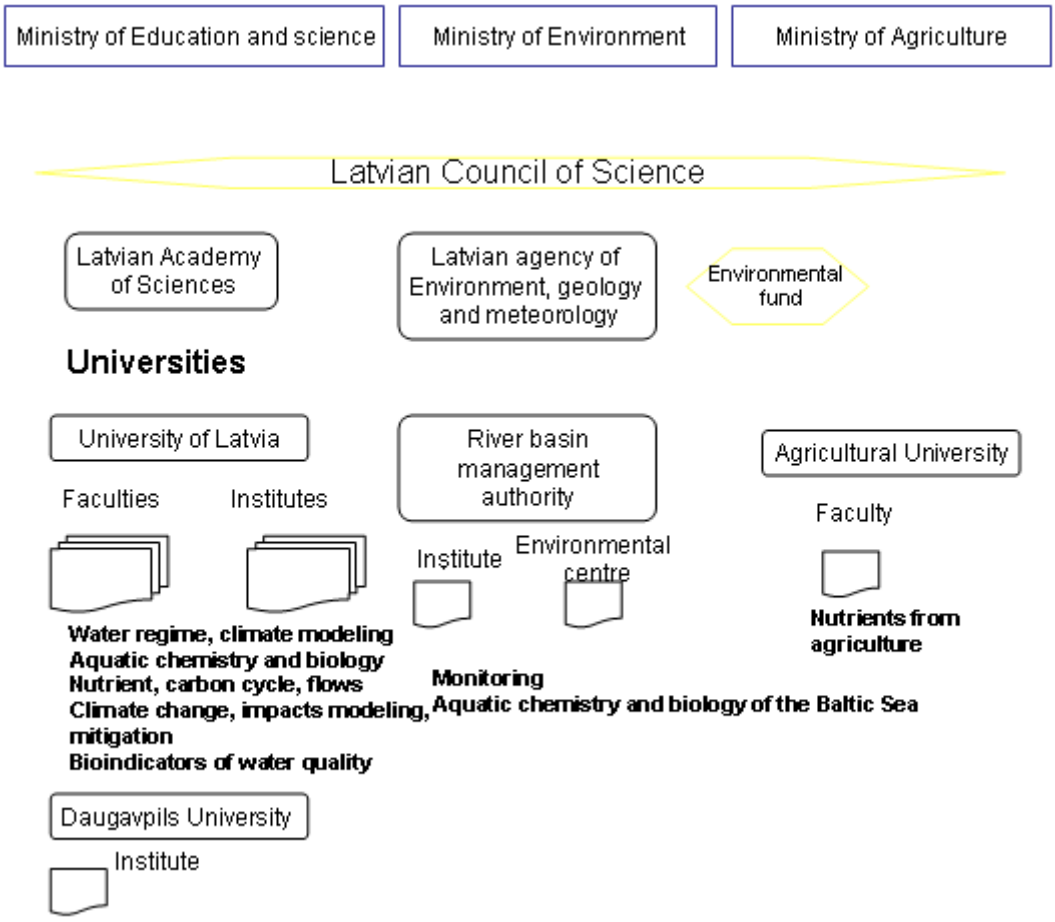
The regional functions of water management are performed by the 12 Directorates for Environment and Water organised by catchments.

The Ministry of Education (National Office of Research and Technology - NKTH) is involved in the general management of science, technology and innovation policy. The Ministry of Environment and water coordinates environment, natural protection and water related R&D. The national directorate for Environment, Nature and Water as the body responsible for preparation of river basin management plans manages the investigations of background research for planning programme of measures. The regional directorates also get involved in applied sciences relating to water management problems.

Short-term research
The Ministry of Environment and water coordinates environment, natural protection and water related R&D In 2000 it published a call for proposals for R&D actions in five thematic fields. One of the most important scientific priorities of the Programme is “Water Management” and “Quality of Water”. The national directorate for Environment, Nature and Water as the body responsible for preparation of river basin management plans manages the investigations of background research for planning programme of measures. The regional directorates also get involved in applied sciences relating to water management problems. Ministry of Education The National Programme for Environmental Research and Development is formulated jointly by the Ministry for Environment and Water and the NCTD. The programmes place special emphasis on improving the technical and technological conditions for environmental protection. Elements of these programmes include: development of environmentally sound public utilities; technologies for healthy drinking water supply; environmentally-sound technologies integrated into production; material, energy and water saving technologies; and environmental sanitation.

Long-term research
A Special Scientific Committee was established to deal with possible consequences of climate change. The Committee is an important advisory body elaborating long-term strategies and response measures to mitigate the adverse impacts.

Latvia



WFD and IWRM in Latvia

Research needed for implementation of WFD and development of IWRM is going on in close cooperation with international research – FP 5, 6 projects (STAR, SWIFT, Eurolimpacs etc), INTERREG and Life projects.
Major activities are coordinated within:
National research program "Climate change and waters" – funded directly by Ministry of Education and Science and managed by LCS
Cooperation projects – Long-term ecological observations" and modeling in waterbodies"
~ 22 research projects
~ 8 monitoring projects
EU twinning and other pilot projects
Projects funded by agencies
Priority setting has been made accordingly to suggestions of National Council for Strategic Planning and approved by Council of Ministers. Environmental research on water issues is recognized as one of national research priorities

Research Management in Latvia

The Latvian Council of Science is the main public research funding authority in the country and plays an important role as a semi-governmental decision-making body. The Council distributes funding for projects among the branch commissions in the mentioned fields of science. Within the limits of the assigned funding, each branch commission every year distributes the money in the form of project grants on the basis of evaluation of the projects. If the examination is positive, the expert commission suggests the level of funding for the relevant project, the Council makes the final decision.

For 2005 the Council has decided to give grants to 679 of scientific fundamental and applied projects and 25 joint projects according to their scientific level. The total sum of funding amounts to 4.8 milj Ls (6.85 milj. EUR).

Institution type	Number of institutions	
	1996	1999
State research institutes	26	12
Other state research organizations	16	15
Higher Educational Establishment	11	12
University research institutes	7	20
Research units in the business enterprise sector	35	30
TOTAL	**95**	**89**

Currently in Latvia there are 12 state research institutes and 20 university research institutes each with an independent legal status. At present 25 of these are supervised by the Ministry of Education and Science, 5 by the Ministry of Agriculture, one by the Ministry of Economic Affairs and one by the Ministry of Welfare.

There are various other organizations with independent legal status whose primary function is not research. These organizations include the National Botanical Garden, The Latvian Academic Library, breeding and selection stations, engineering centres and others.

STATE RESEARCH INSTITUTES

In Latvia there are 20 university research institutes with independent legal status, 12 state research institutes and 15 other state research organizations. 25 of research institutes are supervised by the Ministry of Education and Science.

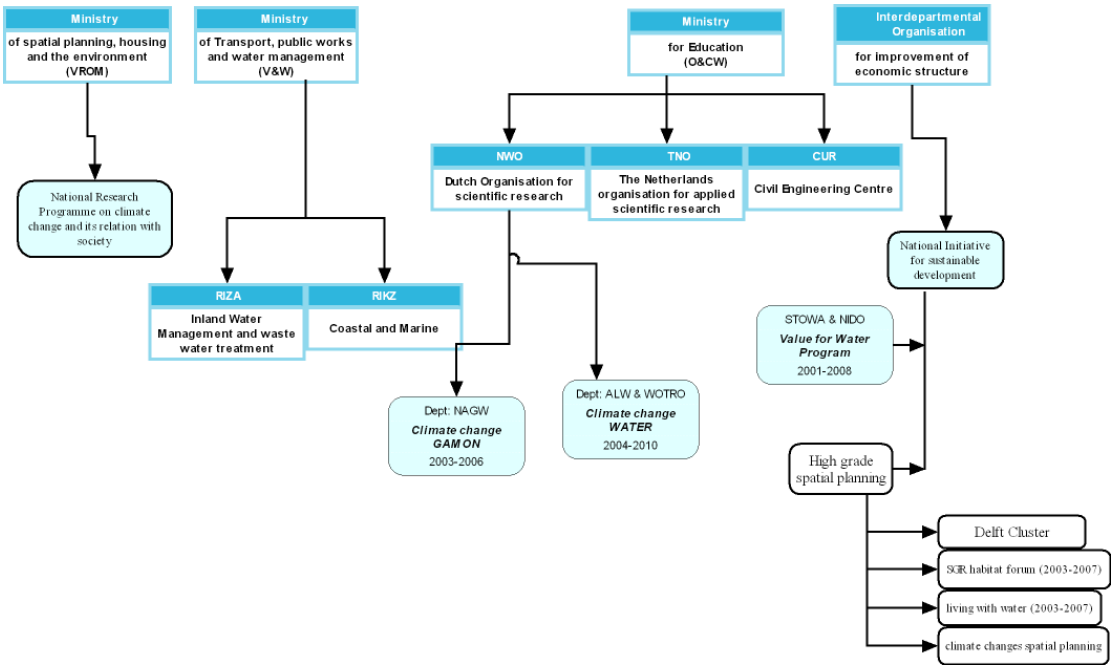
The main research potential is concentrated in the following state institutions

OTHER MOST IMPORTANT INSTITUTIONS

Technology centres are being developed in order to fill the gap between the system of higher educational scientific institutions and industry. The technology centre was created as a "business incubator" for the support and development of technologically oriented companies. The technology park was created to be a real company with business sectors; education and research structures, and some incubators in different fields for technology based "spin-off" companies.

Short-term research
The Latvian Council of Science is the main public research funding authority in the country and plays an important role as a semi-governmental decision-making body. The Council distributes funding for projects among the branch commissions in the mentioned fields of science. Within the limits of the assigned funding, each branch commission every year distributes the money in the form of project grants on the basis of evaluation of the projects. If the examination is positive, the expert commission suggests the level of funding for the relevant project, the Council makes the final decision.

Netherlands



The Netherlands

WFD and IWRM in the Netherlands

Water management is very decentralised. At the national level environmental management is led by the Ministry of spatial planning, housing and the environment. Water management is undertaken by the Ministry of transport, public works and water management. Within the provinces the responsibility for water management is devolved to the Watershappen and municipalities. In the majority of cases, water supply provision is now delegated to municipally-owned PLCs, which now cover an average of 64 municipalities. The Rijkswaterstaat, is the national government organisation responsible for supervision of the system, and for strategic policy.
The provinces are responsible for groundwater management, and also supervise the work and finances of the water boards. Water boards are now responsible for water-related land use planning, nature conservation and environmental protection and related tasks, including wastewater treatment plants (and sewerage networks connecting the treatment plants and the municipally-run sewerage networks) – but not drinking water supply.

The main research organisations are TNO – the Netherlands Organisation for Applied Scientific Research, CUR – Civil Engineering Centre and RIZA – Institute for Inland water management and waste water treatment. RIZA is the research and advisory body for the Directorate General for public works and water management for inland water in the Netherlands and a leading international centre of knowledge for integrated water management.

Portugal

Research Management in Portugal

The Science and Technology Foundation - FCT ("Fundação para a Ciência e a Tecnologia") is the Portuguese governmental agency for non-applied research funding and is integrated in the Ministry of Science and Higher Education. Its mission is mainly to manage, evaluate and fund research in all the fields of Science. The funding of research is done mainly by:

- Funding competitive proposals presented by institutions, research groups and individuals, on the basis of independent evaluations of merit, funding at the moment.
- 1 900 research projects in all fields of science, including biodiversity research.
- Funding research and managing programmes in marine science including marine biodiversity.
- Funding and managing of programmes for research on biodiversity conservation.
- Funding through co-operation agreements and other forms of partnerships with universities and other public and private research institutions in a total of 350 institutions in all scientific fields including several institutions totally or partially dedicated to biodiversity research.
- Funding for research fellowships in all fields of research: more than 4 000 research fellowships for Masters, PhD and Post-doctoral studies.

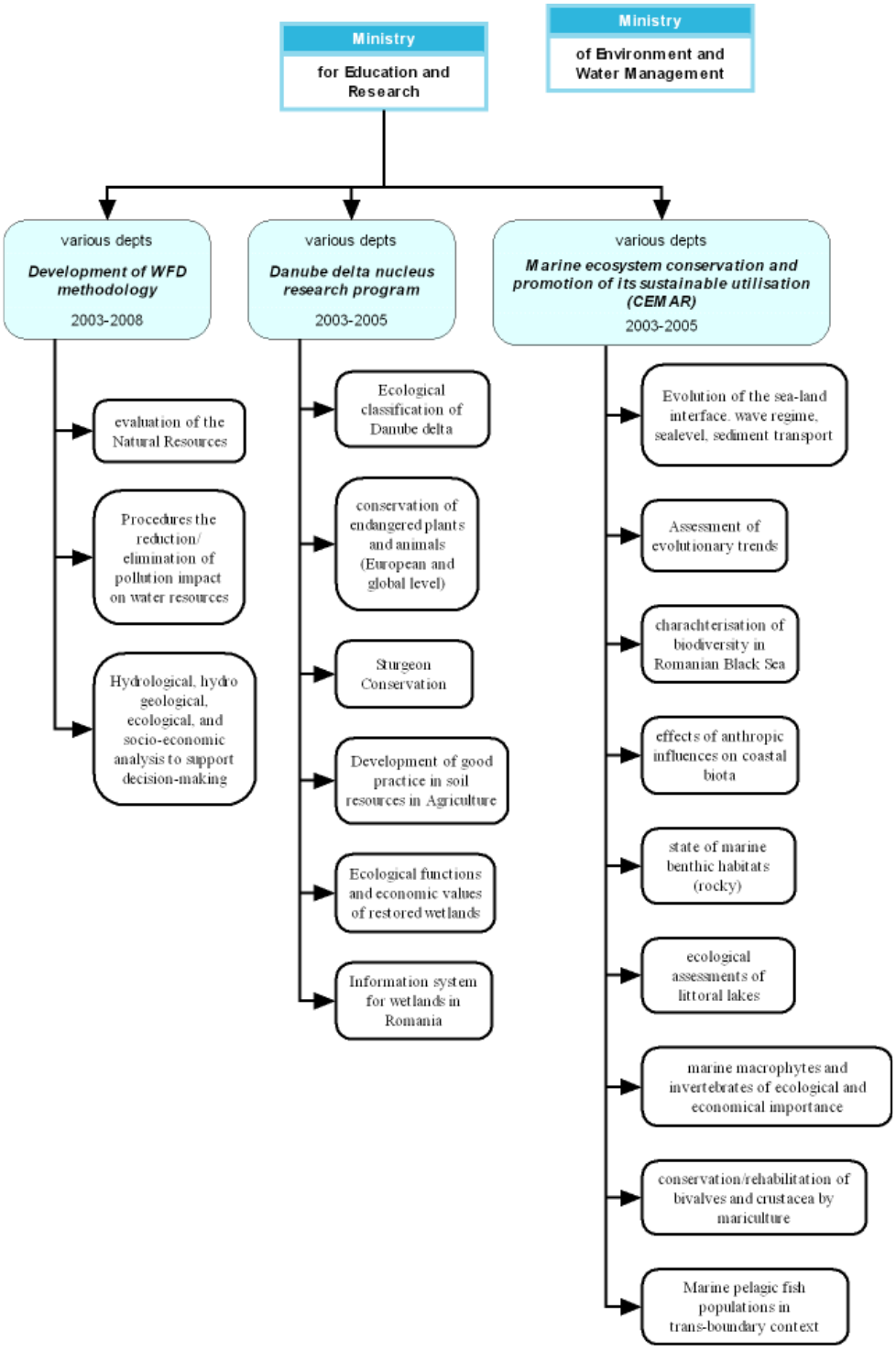
FCT also provides the institutional framework for the Research Councils that were recently created in Portugal and started recently to discuss priorities for research. The Research Council for Environment and Marine Sciences will be in the future the main responsible for setting up priorities and propose specific research programs in Biodiversity research.
FCT is integrating the Portuguese Platform for Biodiversity that will bring together researcher from all major institutions that deal with biodiversity, NGOs, conservation practitioner and representatives of the Institute of Nature Conservation (Ministry of Environment). It has also offered support for the EPBRS secretariat.
In 2002 FCT had an overall budget of 194.6 million euros

Decision-making for research priorities

Long-term and foresight programmes

IWRM research management

Romania



WFD and IWRM in Romania

Activity in the field of water management is now based on the new Water Law No. 107/1996. Starting from Constitution provisions and from the provision of the Law for environmental protection (No. 137/1995), this law establishes conservation and protection of water resources by maintaining an ecological balance, the application of

key economic factors in water system management and participatory decision-making for all stakeholders.

The Ministry of Agriculture, Forests, Waters and Environment (MAFWE) draws up the national strategy and policies in water resources management and protection. Within MAFWE, the State Water Inspectorate is responsible for the inspection and control of implementation of the legal provisions. The local Environmental Protection Inspectorates are responsible for issuing licences and permits as well as for inspection and control of water quality and emissions into water bodies.The National Administration “Apele Romane” is the authority in charge with the implementation of the 2000/60/UE Water Framework Directive.

During 2001, 11 River Basin Committees were established in Romania, at the level of each river basin, organized on the same river basins as National Administration “Apele Romane” Water Branches. The Committees join the principal actors of the water management and environmental protection, respectively representatives from the Ministry of Waters and Environmental Protection, the Ministry of Health and Family (nowadays there are two ministries: Ministry of Health and Ministry of the Labour, Social Solidarity and Family), County Administration, Municipal and Local Mayors, River Basin Authority and Water Management Systems, Environmental Protection Inspectorate, water users from industry and agriculture, environmental non-governmental organizations or similar associations.

Research Management in Romania

The Ministry of Environment and Water Mangement (MEWM) is the central public authority responsible for environmental protection and water management. The national water authority “Apele Romane” is the agency tasked to manage all waters under the authority of MEWM.

The Ministry for Education and Research has approved and finances 2 nucleus programs for IWRM research – the Danube delta and CEMAR. The Ministry of Environment and Water Management coordinates and finances the research related to WFD through four institutes; national institute for hydrology and water management Bucharest, national research and development institute for environmental Protection - Bucharest, national institute for marine research and development - Constanta and the Danube Delta National Institute for Research and Development - Tulcea.

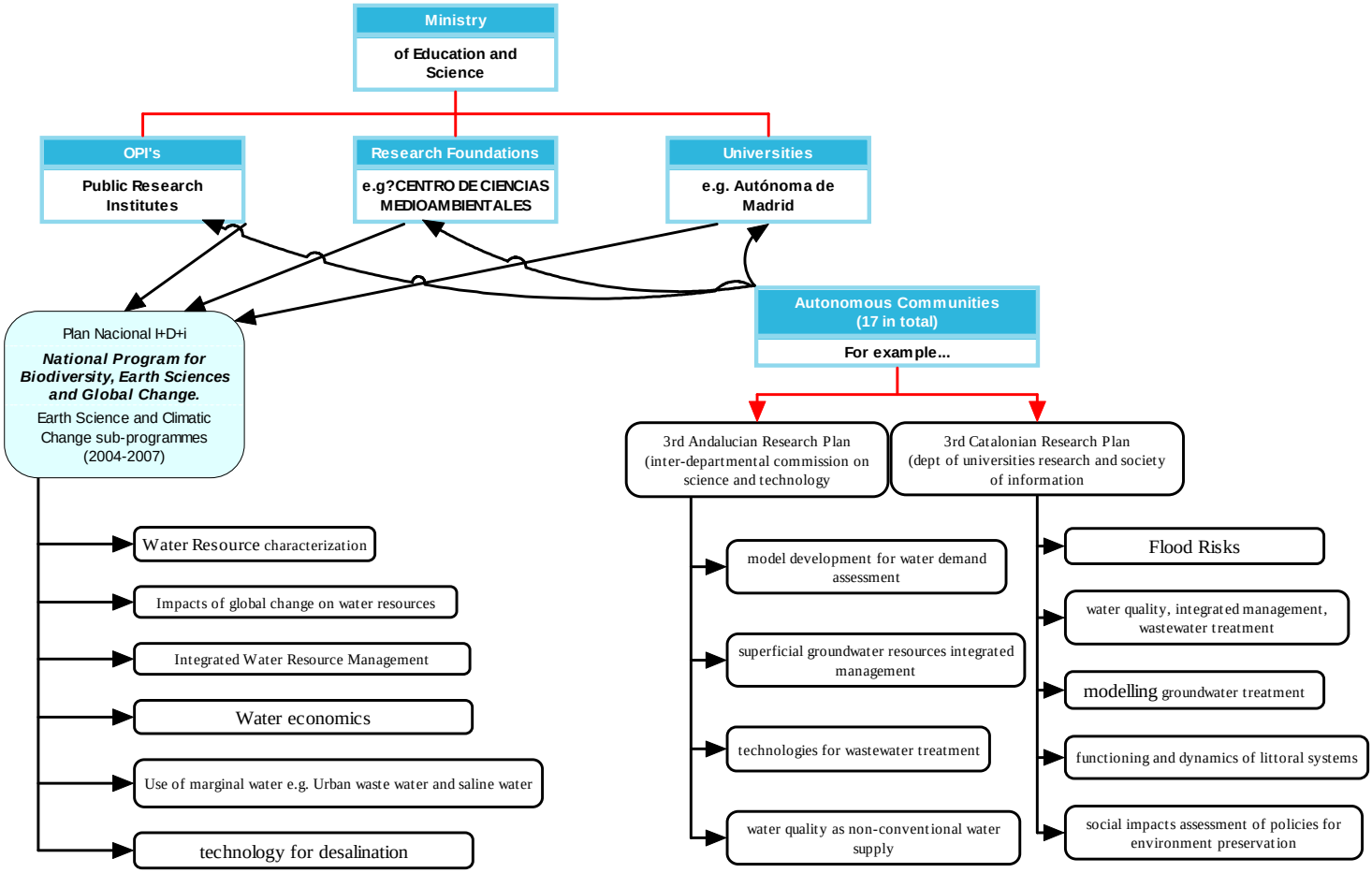
Decision-making process for research priorities

Long-term and Foresight programmes

IWRM research management

???

Spain



WFD and IWRM in Spain
The 1985 Water Law, revised in 2001 is defines the use of water resources in Spain. The State assumes competences regarding legislation, arrangement and concession of resources and hydraulic exploitation when water passes through more than one Autonomous Community (otherwise the AACC have these competences). It also establishes that the AACC assume competences regarding projects and construction of hydraulic exploitations, canals and irrigations when these are of interest for the Autonomous Community.
The National Water Council gives advice for planning projects. The River basin districts elaborate basin plans, manage public water supply and operate public infrastructures. Knowledge requirements are passed on to the Ministry. The Water Framework European Directive establishes a model based on the concept of river basins as basic management unit with their own authority, which existed in Spain many years ago.

Each of the Autonomous Communities has developed a series of regulations concerning management and exploitation of continental water resources, when these resources flow entirely inside the Autonomous Community territory. These

regulations concern different phases in the water management, i.e. hydraulic infrastructures, water supply and wastewater disposal. They do though assume State regulation when a legal gap exists.

Research Management in Spain

Research is undertaken through the Ministry of Education and Science at the national level and defined in the national plan, which currently runs from 2004-2007. Water research is basically carried out by state-owned research centres through universities & public research institutions

Short-term research

Water Research activities are carried out in Spain basically through University activities, Public Research Institutions (OPIs) the National Plan, and the Autonomous Communities research plans. Funding of research is basically achieved through research plans at national and autonomous level and research and development within the privately-owned companies is limited. Basic and applied research activities at universities are carried out around 25 research groups of the 54 Spanish universities. Also several University institutes on water have been created with or without financial support from other state-owned or private entities, often with important investments on equipment and facilities, but frequently without any specific research programme or with preferential interest in rendering external services. Most of university research groups have focussed their work on groundwater. As regards surface water research and hydrometeorology development has been more limited to university departments. Among the water-related research centres, it is necessary to distinguish between state-owned Centres from private. Among state-owned centres there are universities and university institutes as well as Public Institutions for Research (OPI). Several OPIs are interested in Water Resources. The most relevant are the Consejo Superior de Investigaciones Científicas (CSIC), although its activity is relatively new an limited and mainly focussing in hydrobiology aspects, desertification and basic hydrology. Also the CEDEX and CEH have been very dynamic concerning surface water, water resources studies and projects. The IGME focuses its activity on carrying on outsourcing studies especially related to groundwater resources. In the Public or similar sector, the most outstanding activities in recent years has been the outsourcing of studies by ENRESA, focussing in radioactive wastes. ENRESA, not being an OPI does not carry any work by itself but it manages it's owns budget. The contracts are not allocated under the usual criteria of call for tenders. A mixed non-profit association called CENTA was established in 1992 with the objective of contributing to the water sector in Spain. Its main activities are focused on research promotion and promoting the water sector and national technology.

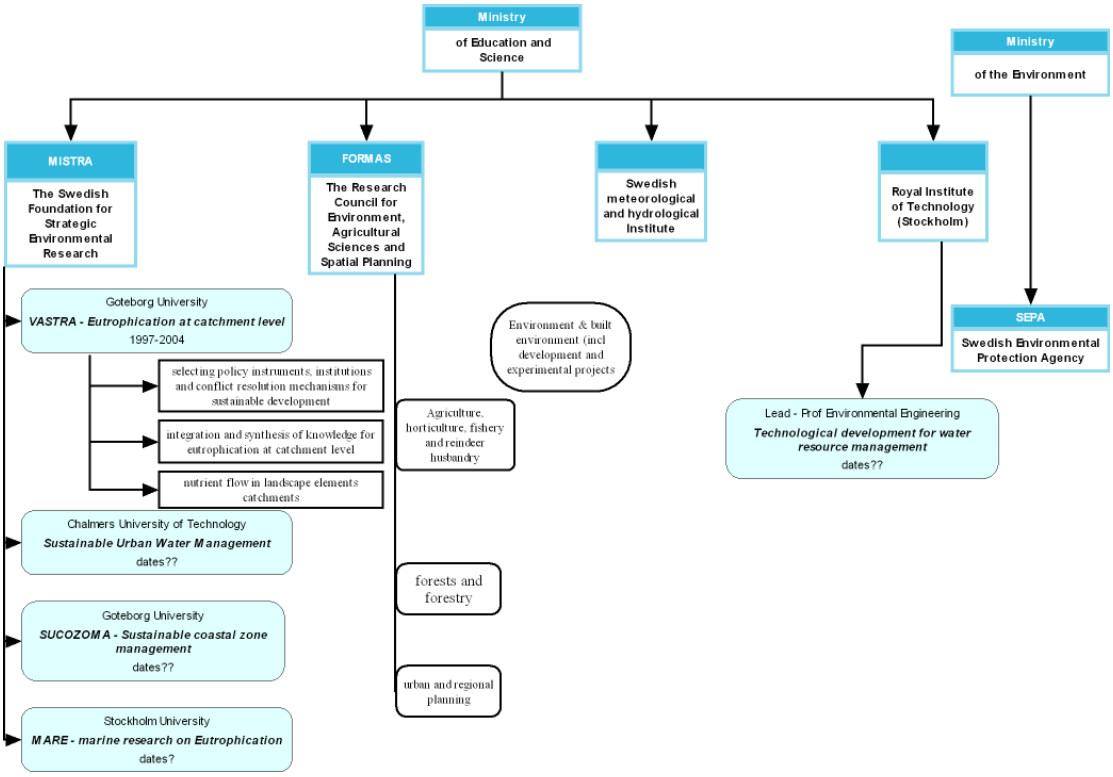
Funded water research projects through the National Plan during the last 8 year account for around 240 projects. Information regarding the approved projects is available at Financed research refers to Water quality, water management, ecologic aspects of water, socio economic aspects of water, flood and droughts mitigation among others. Research is undertaken through the Ministry of Education and Science at the national level and defined in the national plan, which currently runs from 2004-2007. This programme is in its final stages and the next programme is currently under development. Hence production of short-term research needs is difficult to produce documentation for and focus is being put into considering the future issues. Water research is basically carried out by state-owned research centres through universities & public research institutions. For the period 2004-2007, research in the field of water is included in the National Programme of Biodiversity,

Earth Science and Global Change; which includes the Earth Science sub programme. The priority of research topics include water resources characterization; water quality; global change effect in water resources; water management; water economy and hydrologic risks.

IWRM research management

The Ministry of Environment and the Territory and Biodiversity Secretariat are in charge of water resources. The National Water Council gives advice for planning projects. The River basin districts elaborate basin plans, manage public water supply and operate public infrastructures.

Sweden



Research Management in Sweden

Research policy is co-ordinated by the Ministry of Education and science, but with ¾ of all research in Sweden undertaken by industry this affects only the public funded research. Swedish research councils mainly support basic research, whereas the mission-orientated bodies finance research and development intended to meet the needs for new knowledge in specific sectors of industry and society.

Decision-making process for research priorities

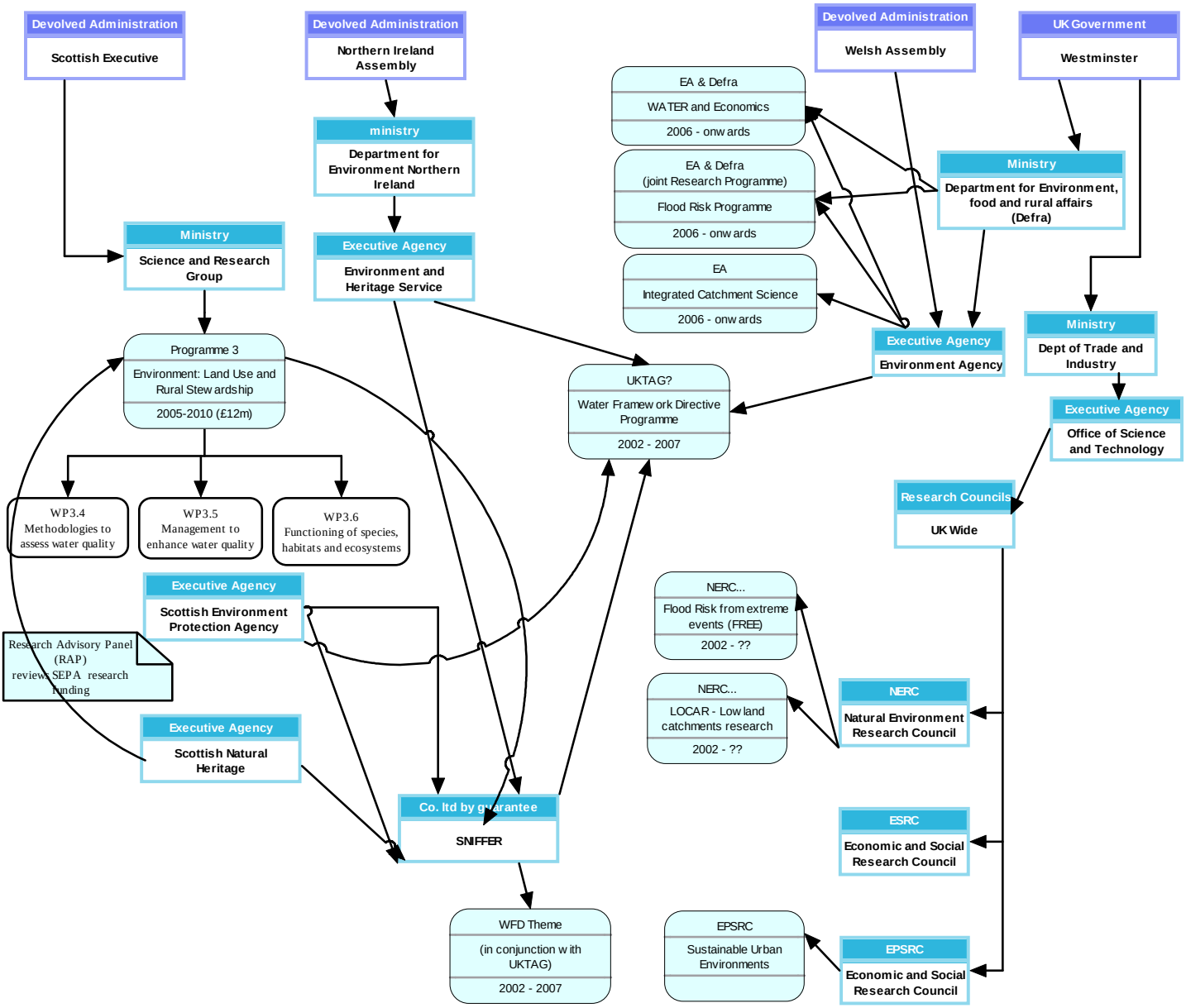
Public funding of R&D takes the form of allocations either directly to universities and colleges through research councils and mission-oriented bodies.

Long-term and Foresight programmes

IWRM

The Ministry of the Environment is responsible for the resource conservation and SEPA is the enforcement agency. The Ministry of Agriculture supervises the quality of drinking water and the Water and Waste Water Association co-ordinates the municipal authorities in the delivery of water services.

United Kingdom



Research Management in the UK

WFD and IWRM in the UK

The UK classifies its research for the WFD into the following headings, all of which come under the banner of river basin management planning.

Characterisation
Planning Process
Environmental Objectives
Programme of measures
Monitoring

In the UK the Technical Advisory Group (UKTAG) works on managing and delivering research relating to the water framework directive. As part of this process it undertakes a process to assess its research needs, through consultation with the technical experts and members of UKTAG. The UKTAG work programme has identified the following research areas as priority for delivery by December 2007.
Classification tools (to support development and implementation of UK classifications schemes, monitoring programmes and assessment methodologies)
Measures development
Further characterisation activities (these may also inform classification and programme of measures)
WFD communications (not a priority in 2006)

Research for the WFD
The deliverance of the WFD is defining the short-term research needs, focusing on the first river basin management plan. This is managed by the UKTAG and then implemented within the devolved administrations agencies. Medium term research becomes more divided into the various research programmes which cover sustainable development, or land use and rural stewardship for example. This is usually managed and implemented within devolved administration structures, such as the Scottish Executive, Department for Environment Northern Ireland or the Environment Agency England and Wales.

Applied, often shorter term, research:
Most government departments and agencies have programmes of research focussed on meeting the evidence and innovation needs of their policy development and implementation. These research programmes are managed in a variety of ways, but many use steering groups or committees to maintain alignment with policy and user needs. NGO's and other more commercial organisations also sponsor relevant programmes of research. The Environmental Research Funders Forum (ERFF) has done some work to assemble a searchable data-base of environmental projects, but there is no overview of all IWRM relevant research in UK.

Long-term research:
Fundamental research across the whole of the UK is mostly sponsored within universities and specialist units by the UK Research Councils (RC's). The Natural Environment RC (NERC), Economic and Social RC (ESRC) and Biology and Biotechnology RC (BBRC) are most closely related to IWRM. RC's are now being encouraged to align some 'directed' research programmes with users' needs. Moving away from more broad ranging, programmes. More focused policy driven research is often undertaken by devolved administrations and the various departments and agencies within the devolved structure.

TITLE OF PROGRAMME

Flood Risk Management

Country

Scotland

Timescale

Funding currently until August 2008

Who sets the needs/objectives?
(Programme managers, Ministers, expert committees)

Steering group
Consisting of, Scottish Executive, Scottish Environment Link (NGO), Glasgow City council, Rivers Agency NI, Scottish Environment Protection Agency, Scottish Water, Scottish Natural Heritage.

Are there different levels for objectives/needs? (i.e. a hierarchy?)

Initial discussions centred on the development of a strategic programme but due to the lack of any formal research programme for flooding, the funders decided to focus on priority business needs.

Are the objectives scientific or policy based?
Does this depend on the level of the needs/objectives?

Predominantly scientific. Any policy research needs are normally dealt with by the Scottish Executive directly.

What is the process for identifying the needs

Brainstorming session - Individuals on the steering group were asked to identify research needs which were then reviewed by the group as a whole.

Questions and review written into a table along with prioritisation and actions.

An annual conference is used to provide focus. The Conference themes focus on the drivers for research and the workshops/break-out groups will discuss these themes to highlight and identify the research needs. For the coming year.

How are the research needs/objectives reviewed? *are they reviewed formally at a later date i.e. annually?*

In the first stage they are reviewed by the steering group as a whole while being complied as minutes of the steering group meeting (see above)

What are the timescales for review?

What are the needs/objectives?

Is this question necessary?

Do you think that there are any specific requirements in the process of research needs identification for IWRM?

Other information

All the projects identified through the brainstorming process have been taken forward by SNIFFER as part of the FRM programme. Only one was deemed not to be applicable for SNIFFER as it was a policy related research question and was taken forward by the Scottish Executive.

One project has since been scrapped due to a lack of data. Meteorological data was required which was subsequently found to be unavailable. While the programme has been very successful it has highlighted the possible need to understand data availability in identifying research needs?

TITLE OF PROGRAMME

UK Research Programme

Country

United Kingdom

Timescale

1996 – 2008 (currently, could be extended)

Who sets the needs/objectives?
(Programme managers, Ministers, expert committees)

Criteria for research projects set out in the programme information - funds were specifically for *UK research* within the above four topic areas:

- Land quality (including soil and contaminated land issues);
- Process industries regulation (including air quality and IPPC);
- Radioactive substances regulation;
- Waste management and regulation; and
- Cross-cutting issues such as human health and climate change.

The UK programme steering group (UKSG), comprises representatives from SEPA, EHS and the Scottish Executive. The steering group is supported by a FRM project officer hosted by SNIFFER.

Are there different levels for objectives/needs? (i.e. a hierarchy?)

Are the objectives scientific or policy based?
Does this depend on the level of the needs/objectives?

UK research programme prioritisation criteria

Following on from the presentations the UKSG scored each of the proposals on the basis of the UK research programme prioritisation criteria:

- **UK relevance** (score: yes or no)

- **Urgency** e.g. any set deadlines we need to work to? (score: 1 to 5)
- To what extent does the proposal address the **business needs** of SEPA
- and EHS? (score 1 to 5)
- Likelihood of **success** of project (score 1 to 5)
- Likelihood of **uptake** by the business (score 1 to 5)

The UKSG scores were averaged per proposal and a prioritised list of proposals produced as detailed in Annex 3.

What is the process for identifying the needs

An invitation to submit proposals for the up and coming programme is forwarded to SEPA and EHS staff in May of the previous year i.e May 2006 for 07/08. Copies of all the submitted proposals were posted on an on-line discussion forum hosted on SNIFFER's website between August and September – see http://www.sniffer.org.uk/members_ukgen.asp . Staff from SEPA and EHS were then invited to submit comments and issues (supportive or otherwise) on the submitted proposals

The UK programme steering group (UKSG), which comprises representatives from SEPA, EHS and the Scottish Executive, met to prioritise the proposals on 27 September 2005 at SNIFFER Offices in Edinburgh. All proposers were invited to give a 5/10 minute presentation on their proposal to the UKSG. Colleagues and other interested SEPA and EHS staff were also invited to attend.

The UKSG scores were totalled per proposal and a prioritised list of proposals produced.

How are the research needs/objectives reviewed? *are they reviewed formally at a later date i.e. annually?*

Most of the research needs are undertaken each year, and so uncompleted projects a will be carried forward to the next year. The process of inviting projects for review is continued every year.

What are the timescales for review?

Yearly.

What are the needs/objectives?

Is this question necessary?

Do you think that there are any specific requirements in the process of research needs identification for IWRM?

Other information

TITLE OF PROGRAMME

WFD United Kingdom Technical Advisory Group (UKTAG)

Country

United Kingdom

Timescale

2001-2008

Who sets the needs/objectives?
(Programme managers, Ministers, expert committees)

UK implementation steering group made up of members from the UK environment and conservation agencies

Are there different levels for objectives/needs? (i.e. a hierarchy?)

Yes. Below the Implementation committee the task teams set specific research agenda's and needs for a specific theme within the WFD with the chair of each task team setting the research agenda with expert opinion from the task team members.

These task teams bring the prioritised needs to the implementation steering group, which are then again prioritised.

Then the leads of each agency and SNIFFER produces a spreadsheet of detailed research needs to analyse achievability of research. That group will then agree on the funding.

Are the objectives scientific or policy based?
Does this depend on the level of the needs/objectives?

With the overarching policy basis defined by the WFD legislation in the UK it then delivers a scientific programme to solve the issues arising. Translation of science into policy

What is the process for identifying the needs

Members of UKTAG are asked to complete a template for research proposals. All proposals are then discussed within the task team meetings.

Individuals from task teams fill in a questionnaire (attached) these are presented to the Chairs of the task team and the group prioritses. (then process continues as

above.

How are the research needs/objectives reviewed? *are they reviewed formally at a later date i.e. annually?*

The process is repeated every year. Those not funded last year have to be re-submitted and will not automatically be considered.

What are the timescales for review?

Initial notification in December.
Call for research needs launched in January
Final Agreement April
Projects funded April to March

What are the needs/objectives?

Is this question necessary?

Do you think that there are any specific requirements in the process of research needs identification for IWRM?

Other information

Projects can be funded for more than 1 year, by being labelled as a priority for the following years. i.e. it does not automatically get the funding due to nature of public funds and the annual spending process.