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IWRM-NET

Towards a European-wide exchange Network for integrating research efforts on Integrated Water Resources Management

Thematic priority: Integrated water resource management

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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).	

PROCEEDINGS :

Regional Workshop for collaborating on IWRM Research: Southern Europe and Mediterranean region

The IWRM ERA-Net project - The strategic objective addressed by the project is developing long-term coordination among national / regional Integrated Water Resources Management (IWRM) related research programmes in Europe

The members of IWRM-net are a network of national/regional programme managers, wishing to enhance good practices, both by transfer of knowledge, and by developing new tools and expertise in IWRM and research management. The workshop was one of a series of four to identify short-term research needs for water management.

AIMS

To discuss the research needs within Spain, Portugal, France, Italy, Greece, and other similar countries and to include (but not exclusively) the following topics:

- **The development of decision-support systems**
  - for transfer of knowledge
  - for integrating different aspects of water management
  - for assessment and comparison of options
  - for participation, negotiation and consensus building
- **water scarcity and managing extreme events**
  - ephemeral streams
  - critical drought situations

Introduction

JOAQUIN ANDREU ÁLVAREZ - JUCAR RIVER BASIN AND IIAMA

Joaquin Andreu Álvarez introduced the Institute for Water and Environmental Engineering at the Technical University of Valencia and the Jucar River Basin Authority. For more information the presentation can be downloaded from the IWRM-Net website (http://www.iwrm-net.eu/spip.php?article157)

SETTING THE SCENE FOR TODAYS WORK

IWRM-Net is working towards trans-national collaborative research calls. The first call was launched in November last year and we have selected 3 trans-national projects for funding. The themes of the call were hydro-morphology and water governance. The next stage in the project is investigating in more detail the research needs for a second joint call. This will be towards the end of 2009 with the projects starting during 2010.

Opportunities for shorter timescale research may also present themselves to delegates through the IWRM-Network and the partners have agreed to provide information such as current research across Europe, joint call principles and draft

legal agreements but IWRM-net is unlikely to be able to provide administrative support (i.e. a secretariat) for smaller calls due to resource constraints.

IWRM-Net has available a database of research related to integrated water resource management and a knowledge management tool for analysis of the database. For more information visit the IWRM-Net website or contact Laurence Guedet of the International Office of Water. (l.guedet@oieau.fr)

IWRM-Net currently classifies research programmes in the database using two systems. The first uses thematics developed by the International Office for Water that relate to IWRM, such as socio-economics or water and land planning. The second is based on the various articles within the Water Framework Directive, such as programme of measures or sociology and public participation. SNIFFER has recently started to investigate the more detailed classifications created by the CIS working group in 2005 that looked at knowledge gaps the WFD. The three classification systems have been used for analysis of gaps in knowledge.

There are already a number of groups interested in these subjects and working in the region and these include the EMWIS group whose priorities are agreed by the EUROMED Water Directors. The group has organised a number of conferences which are listed here;

- Extreme Phenomena (Water Scarcity, Drought and Flooding)
- Non-conventional water resources (wastewater reuse, desalination)
- Sanitation and domestic pollution
- participatory approach in IWRM

EMWIS also proposes the importance of horizontal themes, which can work on a Pan-European basis, but their focus is on the Mediterranean region;

- Strengthening institutional capacity and training
- Exchange of Information and know-how
- Implementation of national information and regional information systems
- creation of an observatory of data and indicators at the regional level

The MEDA-Water programme is also working on similar areas that are suggested as areas for further development and support;

- Integrated management of local drinking water supply, sanitation and sewage
- Local water resource and water demand management (quality and quantity) within catchment areas and islands
- Prevention and mitigation of the negative effects of drought and equitable management of water scarcity
- Irrigation water management

Another group involved in water activities in the region, The Global Water Partnership - Mediterranean (GWP-Med) works on a number of themes and promotes action by facilitating a number of processes/initiatives in the Mediterranean Region. Indicatively these include:

- Promoting awareness and facilitating action towards sustainable water use and IWRM
- Enhancing the establishment of a water partnership across the Mediterranean

- Promoting wide stakeholder involvement and interaction (including national authorities, civil society, private sector, donor community) Stressing the interface between IWRM and climate change, with particular focus in the Mediterranean
- Exploring the interaction among the different water uses-users and the need to include other sectors of the national political economy in the IWRM planning and implementation process
- Facilitating the work of the Mediterranean Component of the EU Water Initiative (MED EUWI) by running the Initiative's Secretariat
- Leading the IWRM Component of the GEF Strategic Partnership for the Mediterranean
- Acting as the technical facilitator of the Petersberg Phase II/Athens Declaration Process, dealing with transboundary water resources management in Southeastern Europe
- Facilitating the Rabat Process on National IWRM Planning in the countries of North Africa

Finally the EU has set up an expert group on the subject of Water Scarcity and Drought that has the following themes to discuss;

- Identification of the extent and magnitude of the problems: zones concerned by water scarcity and droughts, causes of these phenomenon and their impacts (social, economic and environmental);
- Identification of the size of gaps in the EU legislation to address WS&D (prevention and mitigation measures)

All these current work areas will be considered when developing the research needs for this group.

PRESENTATIONS

Joao Lobo-Ferreira from the National Engineering Laboratory (LNEC) in Portugal introduced two projects that are currently underway. The first was 'Groundwater reserves increasing using artificial recharge for extreme droughts in ASEM countries'. And the second investigated the effects on water due to forestry and climate changes.

Tiago Capela Lourenço from the Faculty of Sciences at the University of Lisbon presented the CIRCLE ERA-net **CIRCLE´s Group Approach to Collaborative Project Calls.**

Teodoro Estrela from the Spanish Ministry of the Environment, Rural and Marine Affairs presented the current projects underway and **short term research needs in Spain.**

Eleftheria Sofialea from the National Technical University of Athens in Greece presented '**managing drought and water scarcity**'.

All the above presentations can be found at the IWRM-Net website (http://www.iwrm-net.eu/spip.php?article157)

The Delegates were divided into three groups to discuss research needs and provide a prioritised list. These research needs are described below;

Candela	Lucila	Allen-Williams	Peter	Midgley	Stephen
Brouma	Anthi	Ballesteros	Bruno	Andreu	Joaquin
Capela	Tiago	Duarte	Jose	El Kharraz	Jauad
Galbiati	Lorenzo	Santos	Maria	Giusta	Elena
Gourcy	Laurence	MARTINEZ	Ramiro	Lobo-Ferreira	Joao
Mateos	Rosa Mª	Morales	Guillermo	López Bustins	Joan Albert
Ribeiro	Luis	Safiolea	Eleftheria	Ferrer Polo	Javier
Estrela	Teodoro				
group1		**group 2**		**group 3**	

RESULTS FROM WORKING GROUPS

Group 1

After a short presentation of the ERANET initiative and the IWRM.net to the participants, two rapporteurs (Galbiati and Brouma) were appointed. Also one more participant (Prof Sahuquillo, UPV) was invited to participate in the discussion group. Participants were asked for specific subjects to address water research in the Southern Europe and Mediterranean region, considering their different points of view (administration and researchers).

Proposed topics broadly ranged from DSS research needs for IWRM, climate change impacts in water bodies with special emphasis in groundwater and considering quantity and quality, through the problem of water scarcity and extreme events (floods and droughts) as per WFD implementation and groundwater sister directive.

The group discussed in more detail the following broad needs: droughts, water scarcity (management oriented) and use of non-conventional resources as a very specific problem in the region; analysis and definition of ecologic flow regimens (rivers are heavily modified, being the majority ephemeral): how to develop tools for society involvement, acceptance and adoption of decisions. Regarding climate change research (short and long term) methodologies on extreme events and efficiency of water use, water management and governance are needed.

Research priority areas (short-medium term):

- IWRM implementation tools
- Consider trans-basin/trans-boundary basins management
- Climate impacts and adaptation measures (quantity and quality)
- Methodology development for droughts and floods
- Methodologies for surface-groundwater interactions including the ecological aspects
- Research needs in hydro-morphology & ecology
- Society involvement in the decision making
- Long term experimental data monitoring/gathering. Need for future research
- Use of non conventional resources
- Efficiency of water use;
- How can be improved water management and water governance
- Ecologic flow regimes

Group 2

PART 1 – SUMMARY OF PRIORITY AREAS FOR RESEARCH

- Data collection and management in a standardised form allowing
- Sharing Knowledge in the South East European Region
- Through developing and integrating ICT systems to gain synergies both in real-time and non-real-time modelling
- Extremes:
    - Drought
    - Floods
    - Ephemeral streams
- Re-use and recycling of water and waste-water
    - Methods to recharge of aquifers in times of plenty
- Pollution
- Climate changes and effects on Land uses and Land Management
- Human Health aspects

PART 2 - THE GROUP'S INITIAL AND UN-PRIORITISED RESEARCH SUGGESTIONS, ROUGHLY GROUPED BY EXPECTED TIME FOR REALISATION:

Short term

- Drought Indicators: Improve and extend indicators to Mediterranean countries and then to rest of Europe
- Compile historical, spatial and temporal data on selected river basins to represent:
  Watersheds that currently or often have drought issues
  Watersheds that deal with water scarcity issues due to water usage
- Improve operational management of droughts
- Water quality monitoring and standardisation - physical, chemical, biological
- Data harmonisation and integration and presentation => modelling with GIS
- Defining Good Ecological Status
- Assessment of status of intermittent (ephemeral) water bodies, role of flash floods

Medium Term

- Drought effects in wetlands and relationship with stream ecology
- Use indicators developed by an Expert Network to compare and assess water resource management in selected basins
- Transfer knowledge of operational management of droughts
- Re-use – recycling of water and waste water
- Identification of ecological risks and issues resulting from
    - Floods
    - Droughts
    - Climate change
    - Pollution
      =>Defining Good Ecological Status
      =>Human health implications

- Developing and integrating Decision Support Tools in water resource and flood risk management taking advantage of ICT tools and developments in computers – eg:
    - Computer clusters
    - Grid computing
    - Agent-based models
    - etc
- Warning and alert systems – real and non-real-time modelling

Long term

- Use of Aquifers to mitigate effects of droughts.
- Improve knowledge of artificial water recharge from surface water surplus or ephemeral streams (floods and ephemeral springs)
- Contribute to the design of a drought alert system or improve water resources management nationally and internationally
- Develop models and scenarios for operational management of droughts
- Social and public acceptance of new water paradigm (charges and changes of behaviour): water rights and uses (Public, Industry and Agriculture)
- Integrate land cover scenarios along with climate change scenarios for future water resources management
- Integrate land cover management within catchment management

Working group 3

This group used the CIS classification as a guide to manage the ideas being presented. The following research needs were identified but not prioritised.

Physical Processes:

- How to avoid saltwater intrusion in stored water (as a means of managing drought)
- Improving knowledge of the buffer capacity of soil on pollutants.

Ecological Processess:

- To better understand the impact of drought on ecological processes.
- Improve the understanding of how wildfires and its impact on landcover affects water quality and quantity.
- How to reduce the siltation of dams following on from wildfires.
- Improve knowledge of how energy and water are interlinked.
- How to maintain water quality during the process of infill of dams and the measurement of quality (considering the fluctuations of the state due to the infill process)

Surveillance (monitoring):

- The harmonisation of surveillance of water scarcity and droughts and the use of indicators.

Impacts of Climate Change

- How will the changing land-cover (in particular forestry) impact on the water quality and quantity
- How will changing agricultural practices impact on water quality and quantity. (example of grazing higher and higher land in mountains and the impact of phosphates on springs and water sources)
- Adaptation measures for water quality and quantity

Data Management

- Improve the collation of data for water management
- harmonisation of data across trans-boundary river basins

Programme of Measures

- How can we use artificial recharge of waters as a drought management measure
- How to locate the ideal place for storing water in aquifers as a drought management measure (links to saltwater intrusion question)
- Better Implementation of DPSIR methodology
- Improving the operating tools for management and the utilisation of disproportionate cost.
- Improve the *integrated* management of river basins – confidence in decision-making and the assessment of risk.
- Improving the link between water treatment and the original quality of the water to improve efficiency of treatment and reduction in costs.
- Measures to assess the efficiency of water use.

Economy

- What is the impact of drought on the economy

Participation

- Re-connect the responsibility for water quality with the suppliers
- Society involvement in decision-making and how to communicate decisions taken.

SUMMARY OF THE PLENARY SESSION

VALENCIA - RESULTS FROM WORKING GROUPS - COMBINED

Droughts, Floods and Ephemeral Streams

- Short term - Improve operational management of droughts and water scarcity
  - including use of non-conventional resources as a very specific problem in the region
  - Efficiency of water use;
  - Ecologic flow regimes
  - Floods
- Short term - Drought Indicators: Improve and extend indicators to Mediterranean countries and then to rest of Europe
- Short term - Assessment of status of intermittent (ephemeral) water bodies, role of flash floods
- How to avoid saltwater intrusion in stored water (as a means of managing drought)
- Medium term - Identification of ecological risks and issues resulting from
  - Floods
  - Droughts
  - Drought effects in wetlands and relationship with stream ecology

Improving efficiency of use and re-use of water and waste-water

- Medium term - Re-use – recycling of water and waste water
- Methods to recharge of aquifers in times of plenty

Transferring knowledge of water management practices

- Medium Term - Transfer knowledge of operational management of droughts
- The harmonisation of surveillance of water scarcity and droughts and the use of indicators.
- Short term - Water quality monitoring and standardisation - physical, chemical, biological

Integrating data collection and management

- Improve the collation of data for water management
- Harmonisation of data across trans-boundary river basins
- Through developing and integrating ICT systems to gain synergies both in real-time and non-real-time modelling
- Long term experimental data monitoring/gathering. Need for future research
- Data collection and management in a standardised form allowing better sharing of knowledge in the South East European Region
- Short term - Compile historical, spatial and temporal data on selected river basins to represent:
    - Watersheds that currently or often have drought issues
    - Watersheds that deal with water scarcity issues due to water usage
- Short term - Data harmonisation and integration and presentation
    - modelling with GIS

Developing societal perception of water resource management and providing tools for managers

- Re-connect the responsibility for water quality with the suppliers
- Society Involvement in decision-making and how to communicate decisions taken.
- Short term - How to develop tools for society involvement, acceptance and adoption of decisions.
    - IWRM implementation tools
    - Consider trans-basin/trans-boundary basins management
    - How can be improved water management and water governance
- medium term - Use indicators developed by an Expert Network to compare and assess water resource management in selected basins
- medium term - Developing and integrating Decision Support Tools in water resource and flood risk management taking advantage of ICT tools and developments in computers – eg:
    - Computer clusters
    - Grid computing
    - Agent-based models

Land cover change and water management issues

- Improving knowledge of the buffer capacity of soil on pollutants.
- Improve the understanding of how wildfires and its impact on land-cover affects water quality and quantity.
- How to reduce the siltation of dams following on from wildfires.
- Improve knowledge of how energy and water are interlinked.
- How to maintain water quality during the process of infill of dams and the measurement of quality (considering the fluctuations of the state due to the infill process)
- Analysis and definition of ecologic flow regimens (rivers are heavily modified, being the majority ephemeral):
- Research needs in hydro-morphology & ecology
- How will the changing land-cover (in particular forestry) impact on the water quality and quantity
- How will changing agricultural practices impact on water quality and quantity. (example of grazing higher and higher land in mountains and the impact of phosphates on springs and water sources)

PRIORITISATION OF THE SUMMARY RESEARCH NEEDS

The delegates came up with the following prioritisation of issues that were listed from the working groups. The subjects were taken as the areas where there were common issues within the three groups and provide a summary of the research needs.

Droughts, Floods and Ephemeral Streams	12
Improving efficiency of use and re-use of water and waste-water	9

Transferring knowledge of water management practices	8
Integrating data collection and management	8
Developing societal perception of water resource management and providing tools for managers	7
Land cover change and water management issues	4

NEXT STEPS

These conclusions will be integrated into a summary of European IWRM research needs which is being prepared by SNIFFER. This will be published through the IWRM-Net website. http://www.iwrm-net.eu/

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