

Congress Report

13th IWRA World Water Congress, Montpellier, France, 1–4 September 2008

IWRA's 13th World Water Congress took place in Montpellier, France from 1–4 September 2008. This leading international event on water and global changes provided a wealth of studies and experience on a broad spectrum of topics classified under eight main themes:

- Water availability, use and management
- Towards the future: water resources and global changes
- Climate change and disasters
- Development of water resources and infrastructure
- Water governance and water security
- Water conservation and demand management
- Financing water development
- Capacity building

Besides the ordinary oral scientific sessions, 14 special sessions and a rich variety of posters were presented. The special sessions included:

- Sustainable financing to ensure affordable access to water and sanitation: lessons from the OECD
- Assessment of climate change impact on the Arab Region
- Ten years of the Brazilian water law: achievements and new challenges
- Water in mountains
- Future trends of water and food security in Central Asia, with implications for reaching the millennium development goals
- Scientific and technological innovation in water management in Japan and the promotion of international collaboration
- Challenge Program on Water and Food: water, agriculture and poverty alleviation in basin focal projects
- Training needs in the water sector in Sub-Saharan Africa
- Risk management for water in the Mediterranean region—an example of actions in research development
- Imagining future waterscapes in the Mekong region
- Challenges and current trends in agricultural research for improving water use and management in cropping systems
- Normalization and innovation / research in the water sector—the bridges required in the European context
- Transboundary aquifers
- French Water Agency actions aligned with integrated water resources management and the European Water Framework Directive

As the scope of the congress was very broad, the findings were equally varied. The baseline is that water resources science today is at the intersection of natural sciences, environmental sciences, as well as of economics and finance. Social and political sciences have also entered the picture with increasing weight. At the top of the agenda is the need to find solutions to problems and not just provide diagnostic studies. Engineering solutions, human capacity building, financial approaches and links to politics are instrumental parts of meaningful water research within the context of global changes.

In what follows, the main issues deliberated at the congress are summarized. The eight main themes are used as the starting point, although some of the themes are combined, and the outcomes of the special sessions are embedded under the main themes.

Water Availability, Use and Management: Past, Present and Towards the Future

These topics ranged from diagnosis and forecasting of hydrological, ecological and water quality systems to the integrated management of aquatic and socio-political systems. Methodologies and approaches of research and management played an important role in many of the presentations. Those included computational and statistical approaches as well as complex management schemes, such as Integrated Water Resources Management and the European Water Framework Directive. A number of sessions were devoted to regional development in large geographic areas, many of them in a transboundary and international setting.

From Optimal Resource Capture to Political

In 1970s, the mainstream textbooks advocated the 'ideology' of optimal water allocation in which the costs and benefits were compared and optimization routines were proposed to search for the most economically profitable allocation of water. Rising environmental concerns, followed later by social concerns, first challenged this approach. The optimal allocation philosophy was often seen to favour those users whose activities could easily be measured in money and whose economic weight was large and visible. The environment, the poor and traditional societies had no place in this model.

Environmental values have been gradually incorporated into mainstream water resources management. The social concerns have followed, but still have a long way to go before they are fully mainstreamed, but the relatively broad interest in social impacts at the presentations in Montpellier was a clear sign that certain progress is taking place.

The next wave, already in motion, is the political and governance dimension of water management. The current decade has seen a soaring interest in issues such as international water politics, transboundary water management, the political economy of water and stakeholder dialogues. These concepts can evoke a great deal of emotion, while many links are being made between water politics, environmental concerns and social issues. This wave was much in evidence in Montpellier, where the number of special sessions and ordinary presentations related to water politics (in a broad sense) indicates that this topic is rapidly moving towards becoming a mainstream element in water resources management.

Large Water Systems, Global Changes

IWRA's Congresses have increasingly emphasized regional sessions and analyses of large river basins. In Montpellier, the variety and quality of such events and presentations was remarkable. In a related area, nationwide scenario and development studies were also quite numerous.

Together with the Global Changes theme of the Congress, we expected many papers related to major changes in the global economy, trade, demography, urbanization, human development, land use and climate change. Whereas those were present in numerous studies, I felt that, with the exception of climate change, these issues have not penetrated sufficiently into our field.

All the world's leading schools on international waters were in Montpellier. Political issues—often extremely sensitive ones—are now more openly deliberated than before. Water resources should be managed within river basins, but the borders of the basins rarely coincide with those of the national borders. In total, 45% of the globe's land area belongs to such basins and on the top come those that depend on international groundwater aquifers. The politics and challenges of rivers such as the Brahmaputra, Mekong, Amu Darya, Niger, Jordan, Nile and numerous other large and small basins were deliberated at the congress.

Climate Change and Disasters

With regard to climate change, the current challenge is to discover where the risks to water systems and water management are, and make a distinction between those aggravated by climate issues from changes due to other reasons. The underlying factor behind climate warming is the trapping of an increased amount of energy into the atmosphere due to growing concentrations of greenhouse gases and aerosols. The consequent growth of the energy content of the atmospheric-hydrological system tends, in most cases, to exacerbate many of the climatic phenomena. Storms and rainfall intensities are likely to become stronger, while droughts worsen. Arid areas may become drier and rivers in humid climates may become more flood-prone. Several analyses in Montpellier draw attention to the melting of glaciers in mountain regions as well as in other cold climate areas.

The methodological approaches varied, but perhaps the most typical was to commence with a diagnostic of existing time series and other data, which in some cases went back several centuries. Thereafter, predictions and policy implications (mainly adaptation) followed. Another methodological branch considers risk-analysis, but sound probabilistic studies remain very scarce and people tend to rely more on deterministic scenario simulations.

The trend is clearly towards more analyses in which other changes are included, such as those related to economic sector activities, land use, social issues as well as demographic transitions.

Another trend is the widening of geographical coverage. Conventionally, studies on North America, Northern and Central Europe, Australia and Japan have dominated. The geographic coverage has recently become substantially more balanced. The Montpellier Congress witnessed the reinforcement of this tendency with a substantial number of studies on Africa, Latin America and the Mediterranean region as well as most other parts of the world.

Disparities in adaptation and mitigation capacity should be more profoundly recognized and emphasized. The Congress made an important leap forward in this regard. The same individuals, communities or countries that will be forced to adapt to climate changes are not usually the ones who should assume the responsibility for mitigating those changes. The worldwide disparity is massive, with the poor part of the human population in particular suffering disproportionately from changes without much capacity to mitigate the effects of climate change.

The human dimension should be reinforced within the adaptation and mitigation discourse. Community involvement, awareness, education and capacity building remain rare in climate change studies.

Development of Water Resources and Infrastructure

The world constructs more now than ever before. The world population grows by 70 million people per year. All of this growth ends up in urban areas, two-thirds of that in Asia and most of the rest in Africa. The global economy keeps expanding and housing, industry and infrastructure are developing at a remarkable pace. This helps millions out of poverty each year, but it also unfortunately polarizes many social settings and is even politically quite challenging.

Most of the papers under this title at the Montpellier Congress focused on the 'soft' side of the issue, namely data and information methodologies such as monitoring, modelling, Geographic Information Systems, Decision Support Systems and risk analysis. The human component, including social and political questions, also received attention.

Besides the social issues and other 'software' of water resources development, research must be done on the 'hardware'. Indeed, at present the water infrastructure development demands are enormous. The number of papers on this topic was smaller than expected, but the quality was good. More than half of them dealt with analysis and management of risks and disasters. Other perennial hot topics related to energy production, water supply, wastewater treatment, sanitation and agriculture. In addition, infrastructure issues were analysed in many papers categorized under governance or demand management.

Yet, I still feel that the issues related to water quality are still far too often disregarded in this context, despite growing concern. More attention is needed on the mounting deterioration of natural waters due to the improper treatment of waste waters, as well as the contamination of surface and groundwaters due to human activities.

Governance, Water Security, Capacity and Demand Management: Approaching the People in Charge

The Montpellier Congress had much to offer on 'water governance'. This broad theme ranged from local water governance to governance of international rivers, from human rights and local participation to governance of water quality. The bulk of the water politics related titles were treated under the governance theme.

Conventionally, the water resources management science has concentrated on the management of natural water systems with technologies and policies. The Montpellier Congress was a landmark in also linking this to viewpoints from the direction of human systems. Various governance and human capacity issues were represented far more than before. Water as a basic human right and the importance of open and equitable information

and public awareness have become hot topics. This tendency is equally clear whether discussing the implementation of European water policies or in improving the water supply of Vientiane or forging basin management policies for the Aral Sea or the Mekong River.

‘Conservation and water demand management’ was an overarching theme that brought together the role of the people, the environment and improved water use. Whereas the augmentation of water supply and rationalization of water allocation have been focal points in water resources management in the past—with added environmental and social constraints—looking at the water demand side seems to be gaining a strong position. The increasing application of market mechanisms in economizing water use and the conservation of natural water supplies in order to reduce the human water footprint, as well as working against ecological deterioration of water resources, have become mainstreamed. The roles of capacity building, education, institutional development, stakeholder involvement, good governance and technological progress are issues being emphasized today.

Financing

Whereas water services and water access have largely been seen as a public responsibility, the tendency today is to require municipal water utilities, irrigation water suppliers and other water service providers to recover costs. Determination and charging of water tariffs are issues that are sensitive to political conflict and tensions between various stakeholders. On the other hand, the adoption of economic instruments often clarifies responsibilities, increases efficiency and allows the cost recovery of the operation and maintenance of the water service and related infrastructure. Agriculture is by far the largest water user on this planet. Yet the implementation of economic instruments in agriculture is far more challenging than in the water supply or in industry.

Perhaps most often the bottlenecks of applying economic instruments are on the institutional and on the political side, in areas such as regulation, monitoring, social and political acceptance, and community involvement. Potential efficiency benefits of applying economic instruments are totally conditional to correct pricing and robust institutional control. Otherwise, the application of economic instruments may lead to inferior or questionable benefits.

The introduction of financial and economic instruments affecting traditional livelihoods, which dominantly consider water as a common property resource, is an extremely delicate process and should be done with the simultaneous introduction of financial systems such as micro-financing or insurance systems to balance out some of the risks due to natural climatic variability. Another challenge comes from the need to secure sufficient water for ecosystems.

Equally basic, and stressed by many in Montpellier, is that water pricing schemes must comply with cultural ethic and religious values. Value conflicts are very easy to build up but difficult to solve.

Where Next?

I started by defining water resources management as an intercourse between people and water. On the whole, my own feeling is that at the 13th World Water Congress in

Montpellier in September 2008, IWRA has taken a leap forward in the 'people' side, and moved more than a little towards the 'soft' direction. In particular, progress appears to have been made on the social impact side as well as in water governance, including institutional and organizational aspects, water demand management and water politics. Some of the conventional bulwarks of the field, such as physical infrastructure, data management and analysis, modelling, economic valuation of water through agriculture, the energy sector and water supply were present, but more and more looked at least partly through the glasses of the 'soft' aspects.

Olli Varis
Water and Development Research Group
Helsinki University of Technology
Espoo
Finland