

Conference Reports

Workshop on Integrated Water Resources Management in Latin America

Until the Renaissance, the Europeans believed that the Terra was at the centre of the Universe. It needed some science, confrontation, political devotion and a humble attitude to change this view, but the worldview changed and the people now appreciate the Terra as a component of a highly complicated and sophisticated planetary system.

It might appear rather rudimentary to draw an analogy of the water community of today and the pre-Renaissance Europeans, but the comparison might not be totally wrong. All water agendas stipulate perennially that water should be managed in a basin-wide context, all stakeholders in water management should be brought to one single Table etc. Integrated Water Resources Management (IWRM) is the overarching concept that entitles these and a number of other principles and is endorsed by all recent international recommendations related to water management. According to the IWRM Paradigm, the social, environmental and economic aspects should all be developed hand-in-hand in a sustainable manner, under the prevalence of good governance, participation of all stakeholders and in a basin-wide context.

The Instituto Pró-Ambiente (IPA), and the Agencia Nacional de Aguas (ANA) of Brazil, and the Inter-American Development Bank through the IDB-Netherlands Water Partnership Program, organized a workshop in Rio de Janeiro, 9–11 January 2006, on IWRM in Latin America. The Third World Centre for Water Management in Mexico provided the intellectual and technical programme support.

The objective of the workshop was to assess the current status of the implementation of IWRM policies, programmes and projects in Latin America. The following five items were used as entry points to the analysis and discussion:

- What do we mean by IWRM in Latin America?
- Identify the successful implementation of IWRM in Latin America (reasons for success and impacts of success).
- Identify problems and failures and the reasons for such problems and failures.
- Identify potential alternatives to IWRM within the Latin American context and any experience of their application.
- Assess the overall situation in Latin America and define key issues for a road map for the future.

These items were presented to two working groups, consisting of the workshop participants. A total of 24 leading experts attended the workshop, including a few from outside the region who reviewed the results of IWRM implementation from other parts of the world, brought the Latin American situation into a global framework and perspective, and presented experience which may be relevant for consideration for Latin America.

Leaning principally on the experience of the Inter-American Development Bank, the first paper was an overview of IWRM in Latin America, presented by *Luis E. García*. As Latin America and the Caribbean is the water-richest continent of this planet, water related conflicts have not been the norm there. It is only within the last few decades that certain quality and quantity conflicts have emerged. This has led to the replacement of the paradigm of maximizing benefits to certain uses to the reasonable, compromising use principle. IWRM has gradually entered into the picture, most remarkably after the Second World Water Forum in The Hague in 2000. *García* has identified the following issues as major hurdles of implementing IWRM: (1) the focus has been more on the constitutional level than practice; (2) it has been difficult to achieve the institutional and legislative reforms that would be required; (3) there is perennially more interest in water services than in WRM; (4) investments in infrastructure remain at a low level; and (5) there are serious shortcomings on data and predictive models, particularly on water quality.

Asit K. Biswas elaborated the IWRM concept from several viewpoints. He began with a review of international recommendations since Mar del Plata in 1977, and pointed out that in many ways the recommendations suffer from an 'ivory tower' dilemma. The practice is very diverse and challenges are many, and it is misleading to propose a single paradigm over and over again. At the local scale, many recommendations may work, but on a larger scale there are usually many problems. The water sector is not alone; the drivers usually come from outside. For instance, opening up trading between countries changes the priorities and policies far more than seems to be understood by the water sector professionals.

Benedito Braga and *João G. Lotufo Conejo* presented the implementation of the IWRM concept in Brazil, exemplifying its implementation in the São Francisco river basin. IWRM is fully incorporated in the Brazilian water resources legislation and is reflected in a national water resources policy. The national water management system provides integrating management mechanisms, the generation and monitoring of necessary data, and involves the different stakeholders at the national, regional and basin levels. Accordingly, the coordination and cooperation mechanisms are well established and successfully applied. Much emphasis is given to the intense participation of formal organizations and the civil society (NGO's, universities, research institutions) to ensure innovative thinking and problem solving, and a sustainable framework for action. Strategic Action Plans provide the basis for the river basin plans that are coordinated by the Agência Nacional d'Águas and are approved by the river basin committees. In this context, the case of the São Francisco river basin can be considered as very successful, reflecting institutional strength at the government and basin committee level. However, the federal nature of the country and the river basin management concept pose major challenges to be overcome in the near future. It should not be forgotten that transaction costs are high in terms of time and financial resources.

Javier Blanco's presentation gave an overview of the organization of the environmental sector in Colombia. He summarized the current instruments in Colombia's legislation for IWRM, including planning, economic and administrative instruments. Watershed Management and Ordering Plans (WMOP), administrative permits for water use and pollution, as well as water use and water pollution charges, were critically reviewed. As implemented by regional environmental authorities, the major problems include:

- permits are being issued without any technical consideration or information about the overall impact in the resource;

- water charges, as economic instruments, do not contribute to any planning goals; and
- watershed Management and Ordering Plans are being formulated externally and without a real impact in the water management.

Blanco suggested how these could interact and be implemented in order that comprehensive and integrated water management could be undertaken by regional environmental authorities: linking the WMOP allocation goals with the Water Use permits and Water Use Charges; linking WMOP water quality goals with the water pollution permits and the water pollution charge; and the conservation priorities with payments of environmental services programs. Finally, the presentation identified the main obstacles and barriers for effective IWRM, such as the low operational capacity of the regional environmental authorities (insufficient staff as well as low technical ability), diverse political agendas (IWRM is not a political priority) and traditional sectoral, compartmental planning.

Olli Varis summarized the history of IWRM as it has been presented at the major international events (including the Mar del Plata, Dublin, The Hague, Bonn, Johannesburg and Kyoto conferences) during the past decades. The implementation of integrated water plans along the Senegal and Mekong River basins were analyzed and a massive gap that exists between theoretical and practical applications of IWRM was detected. Institutional settings, weak horizontal and vertical coordination, unrealistic plans, weak communication and consultation, transboundary complexities, incomplete understanding of the philosophy of IWRM, and the lack of an integrating water sector in the broader development agenda are identified as the main constraints towards successful implementation of IWRM along the two basins.

Christopher Scott analyzed Mexico's evolving water management framework, which is predicated on three principles: (1) integration of water resources planning and management; (2) decentralization of functions from the federal to the 'regional' level (defined on river basin lines); and (3) privatization of service provision, intended to increase revenue generation and investment. Scott presented a historical evolution of the water management system of Mexico since the 1940s. There has been crucial progress in many fields such as irrigation management transfer, river basin councils, user participation in groundwater management, and water and energy legislation. Despite this progress, IWRM remains a distant goal, principally caused by inherent institutional and procedural contradictions in water resource allocation decision making. In Mexico, the next steps, which are to open decision making to public scrutiny and devolve the allocation of water and financial resources, will become particularly difficult, more because of well-established institutional interests than for lack of an 'IWRM roadmap.'

Paula Silva continued on a more local level with an analysis of small-scale irrigation and concluded that the major problems of the implementation of IWRM locally include the following. A total of 81% of irrigation units do not have formal organizations, therefore, management measures such as improvement of efficiency, regulation and even the water rights issue face extreme practical complexities. Data discrepancies and shortages are also notable and local water accounting or even land-use management are held back.

Alexandra Pres summarized the theory for success and the major problems of IWRM implementation from the capacity building perspective, highlighting the complexity of the

concept, the fragmentation of institutional responsibilities and the lack of skills and awareness. Reality shows that IWRM concepts too often focus on where and what to implement, but not on who is implementing it: individuals and organizations are not static by nature and this is not taken into account. On that level, IWRM concepts are perceived as abstract, sophisticated and externally driven. Referring to the individual level, it is neglected that integrated approaches go together with interdisciplinary understanding and systemic thinking. With reference to organizations, it has been neglected that integrated approaches require well-performing organizations that are self-confident enough to start inter- and cross-sectoral cooperation. Thus, capacity building programs are needed that follow a systemic approach and focus on organizational performance improvement and networking, to create efficient institutions and to strengthen policy cohesion by dialogue.

Rachael McDonnell scrutinized the various components of IWRM and emphasized the very basic role of data and related information technology in the practical application of IWRM. Technologies such as modeling, scenario analysis, geographic information systems, spatial data models and many more provide rich and increasing possibilities for the management of natural resources. Open data and information sharing on the Internet and other cutting edge communication platforms provide far more possibilities than those that are already in use today. McDonnell argues that the low availability of data and use in key areas such as ecology as well as social land cultural issues, seriously hampers the factual implementation of IWRM.

A diagnosis of the implementation of IWRM in Costa Rica and other Central American countries was presented by *Virginia Reyes*. Although, regional initiatives have begun (e.g. Central American Integrated Water Resources Development Action Plan (PACADIRH), 1999; Preparation of the IWRM Central American Strategy, 2004), the application of IWRM and its implementation is only at an initial stage. An IWRM strategy is hardly implemented at all in Honduras and Guatemala, and partially implemented in Belize, Costa Rica, El Salvador, Nicaragua and Panama. IWRM principles are not included in water laws, if they exist. Water resources management is still sectoral, most often focusing on the agricultural sector and neglects that conditions of the countries have changed in recent decades. It is characterized by a lack of coordination and information, limited public participation and a weak political will. Nevertheless, the region is moving forward. A capacity building process has been developed in the region since 2002 and has led to the discussion of creating or updating the water laws and IWRM concepts.

Latin America has certain characteristics, which make it very special in its water requirements and water-related future challenges. First, it is the most water affluent continent. Second, it is by far the most urbanized part of the developing world. Therefore, the urban challenges as well as water quality challenges are seen as being particularly critical in Latin America compared to other issues.

Water pollution and insufficient sanitation and a wastewater treatment infrastructure is a prime challenge. This is particularly critical issue in large and dense urban agglomerations, but also should not be neglected in smaller urban areas. Environmental management and urban planning are closely linked, and also to social policies since the informal sector and slums are major problems in most of urban Latin America.

Water use inefficiency is also a large and growing issue, both in rural and urban areas. Traditionally, water has not been considered as a scarce resource, but with the very intensive agriculture and the growth of large urban areas this attitude must be revised. Again, the appreciation of water quality must follow.

There are many other important aspects of water challenges in Latin America, but perhaps the most pronounced ones are related to the side effects—both social and environmental—of the spread of large-scale infrastructure, the social disparities and ability gaps between different social groups which often have an ethnic dimension, and financial challenges which are most pronounced in urban water infrastructure.

Given that the concept of IWRM has an array of challenges particularly at the implementation level, where then would be the entry points of finding a better concept?

The workshop identified a number of such entry points, including the following:

- *Appreciation of multiple paradigms:* Water has so many functions in society and nature that the validity of one single paradigm such as IWRM is somewhat challenging. The UN system, for instance, while promoting full IWRM, promotes many other paradigms at the same time. For instance, the Millennium Development Goal (MDG) approach does not fit easily into the IWRM approach in many practical situations. Reaching the MDGs calls for prioritization and, moreover, they are very socially centred and less so to environmental sustainability, yet they do not really give a great deal to economic development. Thus the misfit to IWRM is obvious.
- *Targeted, sectoral policies:* The drivers to develop and manage water resources come mostly from outside the water profession. There might be health problems due to an improper urban or rural water infrastructure, a flooding problem due to changed land use or other local problems. To approach such everyday problems with Integrated Water Resources Management is rather out of context. Specific, targeted solutions are needed and viewing things from the IWRM perspective should not be the only way to go. This does not mean that the IWRM philosophy should not be in the background as one of the guiding principles, but it is crucial to take a flexible approach to IWRM as a tool to solve everyday water problems.
- *Regional development approach:* As water is a central component in many other sectors besides the water sector itself—including agriculture, health, forestry, energy and many others—the water policies must comply with the dimension of the policies of those sectors. Very often such policies are operational on a jurisdictional basis, or are related to a certain technical dimension, such as urban water infrastructure, or comply with the ownership of a resource such as land tenure, or are dominated by regional development needs. Brazil's North-Eastern Region and Argentina's Lima and Caño Negro Region are examples of successful cases of the regional development approach.

If all the complexity is removed from the definition of IWRM, it very easily falls into a simple rule of thumb. If an economically targeted water project, plan, policy, programme or strategy is imposed, social and economic concerns must also be taken into account. Equally, if an environmentally targeted approach is imposed, the social and economic concerns should be taken into account. Analogically, a socially targeted approach should be economically and environmentally viable. Would this simple reduction be worthy?

All in all, the water professionals should perhaps look a little way back into history and check whether the water management paradigms would need a renaissance in seeing water as a part of a very sophisticated system of governance and nature. In the IWRM rhetoric, the water sector is typically seen as too disconnected from other sectors. The water sector itself is a many-dimensional mosaic of activities, with no clear disciplinary boundaries.

Energy, agriculture, environment, health etc. sectors are part of the water sector, but they are also sectors in their own right, and parts of other sectors. Of course, an attempt should be made to try to bring these all together, but it should also be recognized that many other sectors are suffering from similar integration challenges—and water is an important component in some of them. Seeing the water issues in the broad, cross-cutting framework of other development issues—and integrating the visions and policies of the sector—would be the way forward for a better future through successful freshwater management. These fine ideas should not blind us from targeting the actions that are needed to solve everyday water problems, which the world abounds.

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Reflections on Water for Food and Rural Development at the 4th World Water Forum, Mexico 2006

Agriculture is the major user of freshwater in the world. It accounts for 70% of all uses of water worldwide today. About 90% of water used for agriculture is returned to the atmosphere in form of vapour as a result of crop plants evapotranspiration. All rain-fed and irrigated agriculture occupy about one-third of the land surface for crops and livestock production. Only about 17% of these lands are under irrigation and account for 40% of the total output.

Agriculture was covered at the 4th World Water Forum under the framework theme of: Water Management for Food and the Environment with the realization that a healthy environment is a prerequisite for healthy agriculture. Degraded lands, poor quality or scarce water resources limit agriculture productivity or totally curtail it under the severe conditions. To meet the population needs for food to feed everyone on earth on a sustainable basis the world food production must continue to increase at the rate of at least 2% annually and to reach double present day levels by the year 2050. This target has to be achieved with the same amount of water and land resources available today. This is a formidable challenge. It will require financial and technological resources. These resources are only available for the 1 billion people of the world who are well off. It is harder for the 2 billion under the emerging economy. However, it is impossible to reach this target for the 3 billion making up the world's poor living on less than \$2 per day without an infusion of capital and technology from the well-off populations.

The focus at the Forum was on reducing water consumption for agriculture, and emphasized higher water productivity, demand management, reallocation of saved water for other uses and managing any resultant conflicts in the process. This focus reflected the

interest and bias of those present or represented at the Forum: mainly urban, developed countries, scientists, officials and members of the civil societies of similar backgrounds. These voices, together with the vociferous advocates of water rights and anti-globalization, filled all the space and time available at the Forum, leaving no room for the real stakeholders, with their down-to-earth concerns and everyday main issues, to be presented or heard.

There was a marked absence of these stakeholders and they had no voice at the Forum.

Who Are these Silent Stakeholders?

At the bottom of the scale, there are 900 million people living in abject poverty, who go to sleep hungry every night due to lack of food, and who have no access to clean drinking water and sanitation. They are joined by 300 million more without access to drinking water and sanitation and 1200 million more with no sanitation. All together they are joined by 800 million living on less than \$2 per day. They represent the more than 3 billion (half the world's population) living in poverty. None of them came to the Forum, none could afford the trip, they were not able to speak, and no one invited them either. Their issues and concerns are simple: to break away from the perpetual yoke of poverty, to secure food and access to clean water and adequate sanitation, and to achieve better health and education for their children. They need the tools to do so and they are willing to finish the job if given the right tools.

The Millennium Development Goals (MDG) designed to tackle some of these challenges are receiving faltering support, while even if fully implemented would still leave a large segment of the world's population facing the same problems.

It is natural that the weak have no voice. The strong and powerful had no voice either. This sounds like a kind of paradox

Who are these powerful absentees? These are the large corporations actively involved in the food chains of the world: agriculture input industry (sales of the top 10 amount to \$37 billion) including Syngenta, Bayer, BASF, Monsanto and DuPont; food processor and traders (sales of the top 10 are \$363 billion) including: Nestle, Cargill, Unilever, Archer Daniels Midland (ADM) and Kraft Foods; and food retailers (sales of the top 10 are \$777 billion) including: Wal-Mart, Carrefour, Royal Ahold, Metro AG and Tesco.

Equally silent and somewhat absent from the debates are the governments of developed economies, whose interventions in subsidizing their national agriculture sector are causing a great distortion and not helping any of the billions of poor at the bottom of the scale. They may be helping the rich to get richer, with the agriculture subsidies reaching \$300 billion/year at present. The major actors are the European Union (EU) through its Common Agriculture Policy (CAP), which accounts for half of the budget of the EU reaching \$100 billion of subsidies to European farmers in 2002; and the USA through its USDA subsidies to American farmers reaching \$40 billion in 2002 and still rising. In the USA alone the top 10% of recipients of the subsidies amount to 313 000 farms receiving more than \$104 billion of subsidies in 1995–2004, accounting for 72% of the total subsidies during this period. Taking all OECD countries, this type of support is estimated to represent 31% of total farm receipts, with 18% in the USA, 36% in the EU, 70% in Japan and 75% in Switzerland. The result of that is often illustrated by the example that a

cow in Europe receives more than \$2 per day in EU support through CAP. This is more than 3 billion people earn in income for their livelihood in the developing world. Pork-barrel politics is alive and well and doing its part of the business-as-usual scenario (BAUS). Under the BAUS, each cow in the EU will get their daily support of more than \$2 per day, the rich will get richer and the poor 3 billion will receive no relief now or in the near future. No commitments were made at the Forum to meet the needs of these billions; no commitments were made to fill the food gap, the water gap or address environmental sustainability. By comparison, in 2004 the total Official Development Assistance (ODA) of all OECD countries reached only \$79 billion while military expenditure of the same countries exceeded \$750 billion.

The business unusual scenario (BUS) calls for bold action by the rich nations to extend generosity, goodwill and leadership in the removal of human hardship and miseries faced by these billions by offering assistance in financing and technology for agriculture and water development matching the level of agricultural subsidies in their home countries. This will eradicate poverty, make clean water accessible for every one and make hunger and starvation a thing of the past.

The world water community has to learn the lessons and bring the world to deal with the vital issues of the core stakeholders with clarity, diligence and a sense of priority.

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