Perspectives on Integrated Water-Resources Management in a River-Basin Context

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Introduction

The water resources of Asia have been coming under increasing pressure on a number of different fronts. In general, these pressures have led to a decrease in the availability of water in terms of quality and quantity. In turn, because water is a critical element of life and many livelihoods, a decrease in the availability will affect all stakeholders. It has become increasingly recognized that no longer can a single sector pursue the management and use of water resources without either being impacted by, or affecting, the management and use of water in another sector. Furthermore, the intimate linkage of upstream and downstream conditions requires effective water management to be approached from a basin perspective. The recognition of the many linkages and interdependencies has led to the development of the concept of Integrated Water Resources Management (IWRM). This paper offers a review of these linkages, of the concept of IWRM, and how the many linkages lead to the need for IWRM. The paper closes with some guiding thoughts to consider in regard to IWRM.

Water Resources

Water as a natural resource is necessary for livelihoods, irrigation, production, hygiene, sanitation and life. The importance of water as a central element to life has been explicitly placed in policy statements of many donors and development agencies (WB 1993; ADB 2000; WSSCC 2000). Water resources play an especially critical role in agriculture, on which many of the region's poorest people depend. Agriculture is also the largest bulk user of water resources among all the users. However, agriculture is often the least influential sector in the management process, especially individual farmers. Water resources are impacted in a number of different ways including how water is used, how water is governed, and the condition of the ecosystem of which the water resources are a part.

Uses

Each use of water affects the quantity and quality available to be returned and made available for other uses. It is necessary to limit the harm done to both the quality and quantity of water.

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It has been recently stated that water "scarcity is caused by people not having access to enough water. It is not caused by there not being enough water " (Soussan 2002).

Governance

Governance deals with the authority and decision making that impact on how water is developed and managed (Global Water Partnership 2002). Of special importance is the range of stakeholders who have been empowered to participate in the decision-making process. Governance is a multidimensional concept involving the processes for water management, the people who are able to participate, and the stability of society and government.

Ecosystem

The ecosystem refers to the natural system through which water passes. The ecosystem and the water resources are mutually dependent. While the ecosystem depends on water flows as they occur over time, water resources depend on a healthy ecosystem. The ecosystem includes water, land and forest resources. Degradation of any part of the ecosystem can damage the water resources. Therefore, it is critically important to consider adverse impacts on these natural resources when making management decisions (GWP-TAC 2000).

Individual impacts in any one of the above categories can be linked with impacts in any other category. For instance, problems of pollution can be seen to be a result of water being used as a waste sink, as a result of poor regulation of pollution emissions, and as degradation of the ecosystem. The interaction of the many elements under each category has led to increased variability in availability, increased risk of water-related natural disasters, and decreased quantity and quality of available water. In fact, the linkage of these many impacts has been a primary motivating factor in moving to an IWRM approach.

The 1992 Dublin Principles are an early example of the IWRM approach. The principles illustrate the main issues confronting water management (Solanes and Gonzalez-Villarreal 1999). The principles are stated as follows:

- *Principle No. 1.* Freshwater is a finite and vulnerable resource, essential to sustain life, development and the environment.
- *Principle No. 2.* Water development and management should be based on a participatory approach, involving users, planners and policymakers at all levels.
- *Principle No. 3.* Women play a central part in the provision, management and safeguarding of water.
- *Principle No. 4.* Water has an economic value in all its competing uses and should be recognized as an economic good.

These four principles address issues of scarcity, the need to govern effectively, the need to involve stakeholders in management, and the need for instruments to regulate water use.

Integrated Management

"Integrated" is a word that is likely used more than it is understood. One dictionary entry lists the following three definitions:

1. Combined or composite: made up of elements or parts that work well together.
2. Combining dissimilar things: bringing together processes or functions that are normally separate.
3. Open to all people: open to everyone, without restrictions based on race, ethnicity, religion, gender or social class (Encarta 1999).

No single definition listed above may be discarded in discussing IWRM. Integrated management necessarily involves all relevant sectors such as agriculture, industry, environment, and domestic water supply. Integrated management strives to bring together a wide range of relevant institutions from the many sectors in a cooperative and coordinated manner. Finally, integrated management crosses all social barriers and actively seeks to involve all stakeholders.

When an integrated approach is taken, the stakeholders affected both guide the management process and are impacted by the results of the management process. This creates a cycle of impacts, which may be beneficial or detrimental. Since all stakeholders are actively involved, the management process may be adjusted over time to bring about more favorable impacts. As all stakeholders are being impacted, it is also more important to consider the management objectives, such as efficiency, equity and environmental sustainability. It can be seen that management becomes a *process*, rather than a fixed plan.

IWRM

The Global Water Partnership has become a leading proponent of IWRM. In a recent publication this Partnership put forth the following definition of IWRM. The publication states that:

> IWRM is a process which promotes the coordinated development and management of water, land and related resources, in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems (GWP-TAC 2000).

It can be seen from this definition that IWRM subscribes to the idea that management is a process. In particular, water management must be carried out in a manner that explicitly recognizes the interdependency of water with the other natural resources. It further embodies the notion of managing water with the goal to maximize economic and social welfare while keeping an eye on equity and the environment.

Some of the key challenges that face the successful implementation of IWRM include issues of:

- securing adequate funding for development and management
- devising effective management of water pollution
- increasing access to safe water for drinking, sanitation and hygiene
- increasing productivity of water to achieve food security
- achieving a more optimal balance of efficiency and equity of water used within a basin
- reducing water-related risks and vulnerability (flooding, droughts and disease)
- promoting sustainable management practices to conserve natural resources and reverse degradation

While a precise solution to the above challenges remains unclear, it is increasingly clear that the highly sectoral and fragmented management approaches of the past are unable to meet these challenges effectively. IWRM is a new approach for managing water that explicitly incorporates the complexities and dimensions of effective water resources management.

Actions by International Agencies

Actions by many governments, donors, development agencies and NGOs confirm the recognition of a need to pursue IWRM. In general, several realizations have come to light. One is the recognition of the river basin as the most effective management scale for water resources. Within the basin, management must assume a much more integrated and comprehensive approach that addresses all sectors and stakeholders. It is essential that all stakeholders actively participate in the management process. Finally, there is the most critical need to motivate the political will to act.

For IWMI's part, the current involvement in the "Study on the Development of Effective Water Management Institutions" project is just one demonstration of IWMI's commitment to IWRM. IWMI is also one of three Global Water Partnership (GWP) Resource Centers. As a GWP Resource Center, IWMI works to match its resources with demands for its knowledge. In performing Resource Center activities, IWMI helps the GWP to meet its objective of supporting countries in their efforts to achieve sustainable management of their water resources.

A Word about Poverty

Recently, poverty reduction has become the primary goal of many development agencies. These agencies recognize poverty as a deprivation of both opportunities and access to resources (UNDP 1997; ADB 1999; WB 2000; Dutch Ministry of Foreign Affairs 2001). Strategies for achieving wide-scale poverty reduction are being developed and pursued with tremendous enthusiasm. Of particular relevance to the current seminar is the increased focus on the link between water and poverty. Water is linked to poverty through sanitation and hygiene (WSSCC

2000), access to irrigation (Hussain and Biltonen 2001), and vulnerability to water-related hazards (Soussan 2002). The proper management of water is more than preserving the environment or making efficient use of a scarce resource; it is most importantly about improving the lives of people, particularly of the poor. Recently, a Water and Poverty Initiative was begun with the aim to promote the importance of achieving water security to improve the lives of the poor.[2] The initiative seeks to do this by building awareness, exchanging experience and knowledge, and catalyzing pro-poor funding and policy development.

Guiding Thoughts for the Seminar and Beyond

The purpose of this seminar is to present and discuss our research findings on governance for IWRM in a river-basin context. The results of the research can indicate areas where generic lessons on good governance, which are based on real experience, can be gained. The seminar can also offer a better understanding of what "integrated management" really means. This integration requires a management process that includes numerous stakeholders, sectors, disciplines and objectives, and occurs across time and space. In looking forward, we need to develop the will and the way to put knowledge into action. Finally, the potential for better water management to improve the lives of the poor is significant. It should be remembered that through every aspect of water management addressed improvement can yield real benefits for those most in need.

[2]The Water and Poverty Initiative is being led by the ADB with activities leading to the 3rd World Water Forum.

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