Integrated Flood Management: balancing risks and opportunities

The number of people living in the path of potentially devastating floods is set to double to two billion within two generations as a result of population growth, changes in land use, economic development and climate change. This has the potential to lead to the loss of more lives and livelihoods from flooding and increase the likelihood of disasters impeding development in low-income countries. However, while being threats, floods also generate opportunities. In many countries, flood waters are an essential water resource, floodplains (replenished by floodwaters) contribute significantly to agricultural production and freshwater inflows to estuaries are important to fisheries. An approach called Integrated Flood Management (IFM), which integrates land and water resources management in a river basin has thus become established over the last decade to maximize the efficient use of floodplains and minimize loss of life and so balance the risks and opportunities.

From reaction to action

Traditionally, control has always been the main focus of flood management, with the emphasis on draining flood waters as quickly as possible, as well as structural measures such as dams and levees. However, absolute protection from floods is a myth. A proactive approach towards the management of floods is rapidly gaining recognition. This considers the broader social, economic, environmental, legal and institutional aspects and emphasises flood risk awareness and preparedness and response measures. That is, a full understanding of floods not only among planners but among all stakeholders, including local communities.

The Associated Flood Management Programme of the World Meteorological Organization (WMO) and the Global Water Partnership operates a HelpDesk (www.floodmanagement.info) to provide pragmatic, demand-driven guidance on issues including legislative and institutional framework; public investment; community-based approaches to increase population resilience to floods in terms of awareness, preparedness, response and recovery; communication and education.

Pilot projects set an example

An important aspect of integrated flood management is coordinating the needs of different stakeholders. For example, in Kenya, flood management for the Lake Victoria Basin must simultaneously address the problems of the poor flood-plain dwellers and the future development of agriculturally fertile land that is prone to frequent flooding. The Government of Kenya has therefore been working towards a National Flood Management Strategy through a WMO pilot project. A similar project has been undertaken for Zambia's Kafue Basin.

In Asia, a pilot project led to the establishment of Community Flood Management Committees in selected communities (three in India and two each in Bangladesh and Nepal). Manuals describing specific activities for community based flood management have been prepared and translated into local languages. During the monsoon season in 2004, the manuals were field-tested, and found to be extremely useful to reduce loss of lives and property in the communities covered by the pilot project.
A pilot project in the Central and Eastern Europe focused on impacts of, and responses to, various flood events, in particular flash floods. This contributed to a better understanding of the nature of the events as well as the available coping mechanisms.

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Integrated Drought Management

Drought is a slow evolving but undoubtedly one of the most far-reaching of all natural disasters. From 1991 to 2000 alone, drought has been responsible for over 280,000 deaths and has cost tens of millions of US dollars in damage. Water scarce areas are more vulnerable to droughts. For example, Sub-Saharan Africa suffered its worst dry-spell of the century in 1991-92 when drought covered a region of 6.7 million square km and affected about 110 million people. Africa and parts of western Asia appear to be particularly vulnerable to increasing water scarcity.

The Intergovernmental Panel on Climate Change Fourth Assessment Report in 2007 states that the world has become more drought-prone during the past 25 years, and that climate projections for the 21st century indicate increased frequency of droughts in many parts of the world. Whether due to natural climate variability or climate change, increasing frequency of droughts point to the need to develop better drought management strategies that are based on scientific knowledge as well as to ensure broader social responses to manage the risks and mitigate the effects of drought.

The responses to droughts in many parts of the world are mostly reactive in terms of crisis management and are known to be untimely, poorly coordinated and not integrated. Consequently, the economic, social and environmental impacts of droughts are increasing significantly worldwide.

The successes of the Associated Programme on Flood Management over the last 10 years in bringing together scientists and practitioners from various disciplines together to develop integrated approaches to flood management, has encouraged WMO and the Global Water Partnership to extend this experience in dealing with drought issues in an integrated manner though the proposed new Programme on Integrated Drought Management (IDMP).

IDMP will contribute to the global coordination of drought-related efforts with regard to better scientific understanding for drought management; drought risk assessment, monitoring, prediction and early warning; policy and planning for drought preparedness and mitigation across sectors; drought risk reduction and response.

The intent is to support actors and partners in various sectors, disciplines, and institutions to provide better drought monitoring and prediction on a global and regional basis, and to use the information effectively in the development of short-term and long-term drought management plans and actions. The Programme will be demand-driven, tailored to specific regional and national needs and requirements.

The programme's overarching approach centres around four key principles:

- To shift the focus from reactive (crisis management) to proactive measures through mitigation, vulnerability reduction, and preparedness;
- To integrate vertical planning and decision making processes at regional, national and community levels into a framework of horizontally integrated sectors and disciplines such as agriculture, water management, energy;
- To promote the development of a reliable knowledge base;
- To build capacity of various stakeholders, and to support drought management efforts through a demand-driven response mechanism.

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