

PARTNERSHIPS IN WEATHER, CLIMATE AND WATER FOR DEVELOPMENT

INTEGRATED FLOOD MANAGEMENT



Floods: Your problem, our concern

The number of people living in the path of potentially devastating floods is set to double – from one to two billion within two generations. Researchers attribute this trend to climate change, large-scale change in land use, population growth, and climate change, which is expected to affect flood risk both in terms of frequency and magnitude.

Floods can also generate opportunities such as increased agricultural productivity (providing nutrients and sediments) and fishery potential (providing an ecological trigger for spawning and migration), while at the same time recharge water sources (through recharge of groundwater, or restocking of man-made reservoirs) and rejuvenate the river ecosystem (providing seasonal variability and variable sediment, washing down pollutants and contaminants, flushing out organic substances).

The Associated Programme on Flood Management – a joint initiative of the World Meteorological Organization and the Global Water Partnership – promotes its concept since 2001 mainly through the HelpDesk function. This web-based platform is actively supported by a network of professional institutions that form the Support Base and provide technical back-up in areas including:

- Conduct high-level advocacy for flood management policy and strategy development;
- Provide technical advice in response to requests received by the HelpDesk;
- Facilitate workshops and training;
- Develop and produce flood management tools and e-learning options for capacity building;
- Formulate high-level objectives/scoping for flood management proposals with countries and river basins.

The Paradigm Shift

Traditionally, controlling floods has always been the main focus of flood management, with the emphasis on draining flood water as quickly as possible, or storing it temporarily, and separating the river from the population through structural measures such as dams and levees. Emergency management as a necessary response to the floods, as well as recovery measures, have been put as main challenges which need to be explored and implemented.

The concept of Integrated Flood Management has led to a paradigm shift: absolute protection from floods is a myth, and we should aim at maximizing net benefits from the use of flood plains, rather than trying to fully control floods. A proactive approach towards the management of floods over a traditionally reactive approach is rapidly gaining recognition among flood managers. The proactive approach does not treat floods only as an emergency or an engineering problem, but as an issue with social, economic, environmental legal and institutional aspects. The proactive approach is not limited to a post-event reaction, but includes preparedness (including flood risk awareness) and response measures to flood management at different stakeholders' levels.



The challenges of Flood Management

- Population increase and economic development: enlargement of human settlements within the floodplain can increase flood risk magnitude, due to construction of buildings or embankments in the floodplain occupying space that would otherwise have been left for water flow during a flood event. Moreover, economic development in flood plains increases vulnerability in terms of potential flood losses.
- Climate variability and change: it is widely accepted that climate variability and change tends to intensify the hydrological cycle, potentially resulting in an increase in magnitude and frequency of flood events. To this should be added potential sea level rise, affecting the flood risk of coastal areas and estuaries.
- Securing livelihoods: land use and land administration influence flooding because of its impacts on the hydraulic properties of the river and the overall catchment response. Large-scale land use changes, driven by farming, mining or urbanization, results in larger sediment yields which reduce the discharge capacity of the flood conveyance system. In addition, the overall ecosystem is not usually adequately taken into account in land use planning.
- Decision making on flood management among multiple stakeholders should not be dealt with unilaterally, but embrace the needs of different stakeholders to give them ownership of decisions and promote full integration of decisions into the day-to-day activities of the population living in flood prone areas.

Integrated Flood Management recognizes challenges of flood management and the limitations of traditional approaches and embodies a new approach that takes both development opportunities as well as flood risks into consideration. Given that people derive benefits from living in flood plains and take risks in doing so, ways have to be found to make life sustainable in the flood plains – even if there is considerable risk to life and property. Implementation of the principles of integrated flood management can help achieve this.

Making it a reality

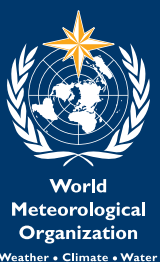
A checklist of elements needed to implement IFM is provided below. The World Meteorological Organization (WMO), through its Associated Programme on Flood Management and the IFM HelpDesk (www.floodmanagement.info), provides an easily accessible platform to acquire the basic know-how to set up:

- A well developed and robust scheme of IFM objectives at the policy and strategic level, anchored in a suitable legislation and institutional framework;
- A platform and framework for collaboration and organization among different sectoral institutions that are concerned by the management of floods in order to establish responsibilities and assess the different needs;
- Instruments for public investment, economic incentives, knowledge improvement and sharing, and enforcement of regulations;
- Community based approaches to increase population resilience to floods in terms of awareness, preparedness, response and recovery;
- A communication and educational strategy for mainstreaming flood management and anchoring it in the daily lives of populations in areas at risk.

Integrated Flood Management principles

Land use planning and water management must be united in one synthesized plan. Through synchronization of land and water management, authorities achieve consistency in planning and may improve river basin performance in several different ways concurrently. Integrating land use planning and flood management requires an estimation/appreciation of flood risk and increasing awareness not only among planners but at all stakeholders' levels:

- Manage the water cycle as a whole;
- Integrate land and water management;
- Manage risk and uncertainty;
- Adopt a best mix of strategies;
- Ensure a participatory approach;
- Adopt integrated hazard management approaches.



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The World Meteorological Organization's work is heavily dependent on collaboration with sponsors and partners. If you wish to support our work and become a partner, please contact us at dra@wmo.int