

INTERNATIONAL FLOOD INITIATIVE

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United Nations
Educational, Scientific and
Cultural Organization

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THE CONTEXT

Flooding is one of the greatest water-related environmental disasters known to us – its human, material and ecological costs can be staggering. Floods affect an estimated 520 million people across the world yearly, resulting in up to 25,000 deaths in a single year. Along with other water-related disasters, they cost the world economy some \$50 to \$60 billion a year. An estimated 96 percent of deaths related to natural disasters in the past decade occurred in developing countries. The greatest potential flood hazard is in Asia, where, between 1900 and 2006, over 1200 floods claimed an average of 5300 lives per event and caused up to \$207 billion in economic losses.

The number of people vulnerable to devastating floods is expected to rise due to large-scale urbanization, population growth in flood-prone areas, land use changes, climate change and rising sea levels. New disaster risk reduction approaches are needed to build the necessary capacity to address these challenges.

On the other hand, floods are natural phenomena, which contribute to the biodiversity and sustainability of ecosystems and to many human activities. Both developed and developing countries have benefited from economic development in areas prone to flooding. Close to one billion people – one-sixth of the global population, the majority of them among the world's poorest inhabitants – now live on the flood plains. Developing countries with mainly agricultural economies depend largely on their fertile flood plains for food security and livelihood generation. The deltas of many river systems favor low-tech agricultural practices and provide livelihoods for millions. The wetlands in flood plains contribute to biodiversity and also create employment opportunities.

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WHAT IS INTEGRATED FLOOD MANAGEMENT?

INTEGRATED FLOOD MANAGEMENT (IFM) IS A PROCESS THAT PROMOTES A HOLISTIC RISK-BASED APPROACH TO FLOOD MANAGEMENT. IT AIMS TO REDUCE HUMAN AND SOCIO-ECONOMIC LOSSES FROM FLOODING AND USE OF FLOOD PLAINS WHILE INCREASING SOCIAL, ECONOMIC AND ECOLOGICAL BENEFITS. IFM SITS WITH LAND AND WATER RESOURCES MANAGEMENT IN THE BROADER CONTEXT OF INTEGRATED WATER RESOURCES MANAGEMENT (IWRM). IT INCLUDES INSTITUTIONAL ACTORS AT ALL LEVELS OF FLOOD MANAGEMENT AND RECOGNIZES THE CRITICAL IMPORTANCE OF STAKEHOLDER PARTICIPATION AND CULTURAL DIVERSITY IN PLANNING AND IMPLEMENTATION.

New approaches across sectors and disciplines are needed

A broad range of inter-disciplinary and multi-sectoral inputs are needed to develop the means to reduce the risks associated with flood hazards. Despite efforts to produce new approaches, many factors that force people to live in flood-prone areas, such as poverty, have not been taken into account. Current measures are often only applied in single sectors. The problem is further exacerbated by the lack of a clear understanding of how the impact of development, the magnitude of flood hazards, the shortage of resources and political will – factors that require enhanced coordination and engagement across disciplines – interact with each other.

We need a new approach that recognizes flood management as a critical part of the broader context of integrated water resources management (IWRM). The approach needs to take into account social and economic welfare and to ensure that resources are shared in an equitable manner without compromising ecological sustainability. Flood management – through investment and redirection of resources – offers significant economic benefits and potentially reduces loss of life.

IFI'S GUIDING PRINCIPLES

Living with Floods

The negative impact of floods can be reduced by better understanding the risks and modifying how they arise in a holistic manner. Flood risks result from a combination of flood hazards and societal vulnerability. This approach should also draw on resources at the community level and benefit from its traditional knowledge, as well as provide training and incentives to use the benefits from floods. The initiative will thus help communities and governments develop culturally-sensitive and sustainable flood management strategies.



Equity

The distribution of costs and benefits of flood management has both ethical and legal dimensions. Equity issues arise because of national borders and jurisdictions (transboundary flood management), upstream and downstream riparian rights, rural and urban interests, and more broadly, between those bearing the costs and those receiving the benefits. Integrated flood management must promote policy outcomes that seem fair and legitimate to all stakeholders. Since these also include future generations, strategies must also promote inter-generational equity.

Empowered participation

The importance of empowering individuals and communities that are directly affected by floods through participatory decision making is now widely seen as vital to successful integrated flood management.

Thus the coordinated participation of all stakeholders – through appropriate institutions and innovative governance frameworks – will be a key mechanism at all levels of flood-related activities.

Inter-disciplinarity and trans-sectorality

IFI will develop and enhance knowledge systems in all flood-related activities, such as monitoring, network design, improving statistical analysis of floods, real-time forecasting and flood modeling. The initiative will also focus on assessing community vulnerabilities, along with their respective causes – poverty, migration to urban centers and mega-cities, population growth, environmental degradation, and lack of experience and norms. All scientific knowledge, including the social sciences, and new technologies, particularly remote sensing and Information and Communication Technologies (ICT), will be harnessed as appropriate.

Although development activities within a basin are carried out under different sectors and administrative jurisdictions, the initiative will emphasize the integration of all stakeholders in flood management. IFI will establish links between the scientific community, decision-makers at all levels of government, international organizations, NGOs, the private sector and all stakeholders, increasing the effectiveness of processes and the acceptance of flood management decisions. Coordination is therefore essential for designing institutional reform and participatory processes that promote fair and effective flood management policies.



International and regional cooperation

The exchange and management of data, information and knowledge will be facilitated through cooperative networks, such as UNESCO's International Hydrological Programme's (IHP) National Committees and Water Centers under the

auspices of UNESCO, National Meteorological and Hydrological Services (NMHSs), WMO's Regional Training Centres, Advisory Working Group (AWG), and Commission for Hydrology (CHy), and UN/ISDR and IAHS National Committees. Other institutions, such as UNU, UNESCO-IHE Institute for Water Education, the International Centre for Water Hazards and Risk Management (ICHRM), the International Institute for Applied Systems Analysis (IIASA), the Global Runoff Data Centre (GRDC) and initiatives such as Flow Regimes from International Experimental and Network Data (FRIEND), Hydrology for Environment, Life and Policy (HELP), Predictions in Ungauged Basins (IAHS-PUB), the Associated Programme on Flood Management (APFM), the International Flood Network (IFNet), and the World Hydrological Cycle Observing System (WHYCOS) will cooperate in technical and

scientific capacity building. The development, promotion and transfer of appropriate technologies in flood management will also fall under this category.



SELECTION OF **MAJOR FLOODS** WORLDWIDE (2006)



Data from Dartmouth Flood Observatory.

STRATEGIC ACTIVITIES

The initiative will focus on research, information networking, education and training, empowering communities and providing technical assistance.

Research focused on the interdisciplinary aspects of flood management will promote and support sustainable development and management of river basins and serve the needs of local communities. This will require close cooperation between sectors and research communities as well as synergies with current international programmes.

Information networking which incorporates both existing networks and subject areas not yet networked will provide open access to data, knowledge and best practices. These will, inter alia, provide clearing house services for flood management-related technologies – at the household or regional level – as well as access to flood data and international bibliographic databases in several languages. Metadata networks that link the technical, relief and insurance communities will be developed.

Education and training will focus on education at all academic levels – from primary school to graduate seminars. On-the-job training will be available not only to the technical community, but also to a broader audience, which includes law-makers, politicians and the public at large. Knowledge institutions within the UN system will be encouraged to take part in this endeavor.

Empowering communities with good governance and participatory approaches in decision-making will provide the final link in achieving the initiative's objectives. This entails mobilizing individual and community resources to apply networking strategies to improving the governance of flood management in both rural and urban communities.

Technical assistance will develop local capacity and provide help where it is needed. Technical assistance activities will range from local support for empowering communities to helping national governments establish comprehensive national flood management plans, as part of the overall national integrated water resources management strategy.

Performance indicators will measure progress on these activities at the end of the project lifespan. Quantitative indicators will measure the reduction in flood casualties and economic losses along with improvements in ecosystems and flood plain use. Qualitative indicators could measure coping capacity and stakeholder involvement. Initiative-specific indicators will be developed to measure the availability and application of products developed by the programme, such as guidelines, workshops, and courses.

Focus Areas

Vulnerability

- Methodologies to account for multiple stressors
- Estimating social, political, health, and ecological impacts
- Estimating economic impacts including benefits of floods
- Mechanisms (including financial) to increase coping capacity and resilience
- Indicator development

Flood Risk Management

- Multi-hazard analysis
- Data for risk assessment
- Hydrologic, hydraulic and economic modeling
- Flood hazard mapping
- Structural and non-structural measures

Governance and participation

- People networking
- Institutional reform
- Developing stakeholder processes

People-centered early warning and emergency management

- Effective forecasting and early warning
- Effective communication
- Preparedness
- Response to warning

MISSION STATEMENT

THE INTERNATIONAL FLOOD INITIATIVE (IFI) PROMOTES AN INTEGRATED APPROACH TO FLOOD MANAGEMENT TO TAKE ADVANTAGE OF THE BENEFITS OF FLOODS AND USE OF FLOOD PLAINS WHILE REDUCING THE SOCIAL, ENVIRONMENTAL AND ECONOMIC RISKS.

A Joint Initiative

UNESCO and WMO, building on past cooperative successes, launched the International Flood Initiative (IFI) to address existing management gaps through a holistic approach and to provide a platform for further collaborative efforts. IFI is also working in close collaboration with the United Nations University (UNU), the International Association of Hydrological Sciences (IAHS) and the International Strategy for Disaster Reduction (ISDR). UN agencies working on other aspects of flood management will also be invited to contribute to the initiative.

IFI will help meet the Millennium Development Goals (MDGs), contribute to the UN International Decade for Action "Water for Life" (2005-2015) and the UN Decade on Education for Sustainable Development (2005-2014), as well as address the issues identified in the Hyogo Framework of Action (2005-2025). In addition, the Johannesburg Plan of Implementation of the World Summit on Sustainable Development (WSSD) has highlighted the need to mitigate the effects of floods and droughts. The international community has committed to finding new approaches to risk management and addressing vulnerability, which include prevention, mitigation, preparedness, response and recovery.

OBJECTIVES

The overall objective of the initiative is to build the capacity necessary to understand and better respond to flood hazards, vulnerabilities and benefits.

The initiative will enable countries to:

- Improve data collection and analysis for flood management
- Broaden the knowledge-base with respect to the risks and benefits of floods
- Take advantage of the benefits of floods
- Build on and improve institutional frameworks for flood management
- Develop area-specific adaptation strategies
- Develop approaches to assess and reduce vulnerability
- Improve flood plain management in urban and rural areas
- Optimize a mix of structural and non-structural approaches
- Improve flood forecasting and early warning for both urban and rural areas
- Increase the effectiveness of forecasts and people-centered early warning systems
- Improve community responses to flood hazards
- Boost the capacity to cope with floods under climate change
- Develop participatory approaches to be used in a variety of contexts and cultural settings
- Increase flood awareness and preparedness in rural settings
- Incorporate flood management into school and university curricula
- Improve in-service training in all aspects of flood management
- Develop financial mechanisms for transferring risks and sharing losses from floods

The secretariat is based in the
International Centre for Water Hazard and Risk Management (ICHARM)
in Tsukuba, Japan:

**INTERNATIONAL CENTRE FOR WATER HAZARD
AND RISK MANAGEMENT (ICHARM)**

Public Works Research Institute (PWRI)
1-6, Minamihara, Tsukuba-shi, Ibaraki-ken 305-8516, Japan
Tel: +81-(0) 29 879 6809
Fax: +81-(0) 29 879 6709
Email: icharm@pwri.go.jp
URL: <http://www.icharm.pwri.go.jp/>

**INTERNATIONAL
HYDROLOGICAL PROGRAMME (IHP)**

UNESCO/Division of Water Sciences
1, rue Miollis, 75732 Paris Cedex 15, France
Tel: (+33) 1 45 68 40 54
Fax: (+33) 1 45 68 58 11
Email: ihp@unesco.org
URL: <http://www.unesco.org/water/ihp>

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In close collaboration with:



International Strategy
ISDR
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