



**World Meteorological Organization**



## **ASSOCIATED PROGRAMME ON FLOOD MANAGEMENT**



**FINAL REPORT**  
**(2001-2006)**  
July 2006



The Associated Programme on Flood Management (APFM) is a joint initiative of the World Meteorological Organization (WMO) and the Global Water Partnership (GWP). It promotes the concept of Integrated Flood Management (IFM) as a new approach to flood management. The programme is financially supported by the governments of Japan and the Netherlands.



World  
Meteorological  
Organization

Weather • Climate • Water

The World Meteorological Organization is a Specialized Agency of the United Nations and represents the UN-System's authoritative voice on weather, climate and water. It co-ordinates the meteorological and hydrological services of 187 countries and territories.



Global Water  
Partnership

The Global Water Partnership is an international network open to all organizations involved in water resources management. It was created in 1996 to foster Integrated Water Resources Management (IWRM).



# FINAL REPORT (2001-2006)

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    - 2.1.14 Pakistan: Lai Nullah Basin Flood Problem Islamabad - Rawalpindi Cities
    - 2.1.15 Turkey: Recent Flood Disasters In Northwestern Black Sea Region
    - 2.1.16 United Kingdom: Parrett Catchment Project
    - 2.1.17 USA: Flood Management - Mississippi River
    - 2.1.18 USA: No Adverse Impact: A New Direction in Floodplain Management Strategy
    - 2.1.19 Zimbabwe: Flood Management Practices - Selected Flood-Prone Areas Zambezi Basin
  - 2.2 New Case Studies
    - 2.2.1 Germany: Flood Management on the Rhine and Elbe Rivers
    - 2.2.2 Mexico: Flood management in Mexico (Spanish only)
    - 2.2.3 Ukraine: Flood Management within the Tisza River Basin
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  - 5.6 No. 6. Report of the Second Consultative Meeting (Geneva, November 2002)
  - 5.7 No. 7. APFM Annual Report for 2002-2003 (June 2003)
  - 5.8 No. 8. Report of the Second Steering Committee Meeting (Geneva, June 2003)
  - 5.9 No. 9. APFM Annual Report for 2003-2004 (June 2004)
  - 5.10 No.10. Report of the Advisory Committee Meeting and Management Committee Meeting (Geneva, June 2004)
  - 5.11 No.11. APFM Annual Report for 2004-2005 (June 2005)
  - 5.12 No.12. Report of the Advisory Committee and Management Committee (Geneva, June 2005)
  - 5.13 No.13. APFM Annual Report for 2005-2006 (April 2005)
  - 5.14 No.14. Activity Plan of the APFM Phase II in 2006-2009 (April 2006)
  - 5.15 No.15. Activity Plan of the APFM Phase II for 2006-2007 (April 2006)
  - 5.16 No.16. Report of the Advisory Committee and Management Committee (Geneva, May 2006)
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## 1. INTRODUCTION

The Associated Programme on Flood Management (APFM), a joint initiative of the World Meteorological Organization (WMO) and the Global Water Partnership (GWP), was established in order to promote the concept of Integrated Flood Management (IFM) and to show the practical steps for putting the concept into practice. IFM recognizes the benefits of the annual floods (i.e. smaller and more frequent floods), the importance of floodplains and the increasing demands of development they are facing, while at the same time recognizing the disruptive nature of floods. An IFM approach aims at maximizing the net benefits from flood plains and reducing loss of life due to flooding, flood vulnerability and risks, and at the same time preserving ecosystems and their associated biodiversity within the overall framework of Integrated Water Resources Management (IWRM). It conceptualizes integration of land and water resources development activities in a river basin.

The aim of IFM can be realized through river basin flood management plans. There are a number of key elements that should be considered while preparing such plans. These are:

- Adopt a best mix of strategies: both structural as well as non-structural;
- Manage the water cycle as a whole: considering all floods, including both extremes;
- Integrate land and water management: as both have impacts on flood magnitudes and flood risks;
- Adopt integrated hazard management approaches: considering risks due to all related hazards such as landslides, mudflows, avalanches, storm surges, and tsunamis and creating synergies.
- Ensure a participatory approach: to develop a sense of ownership and reduce vulnerability.

Therefore, IFM, like IWRM, advocates a multidisciplinary approach with participation of all stakeholders. The social, economic, ecological, and legal and institutional aspects of flood management have been dealt with sporadically and in a limited manner. As a result, these aspects are hardly accounted for in the flood management planning and decision-making in a balanced manner. There is a need to facilitate, both technically as well as financially, particularly the developing countries, in realizing the IFM so as to:

- Prevent flood hazards turning into disasters;
- Incorporate risk management principles in water management;
- Alleviate poverty through preventive and response strategies for vulnerable sections;
- Increase multidisciplinary approaches in flood management;
- Factor environmental considerations in flood management; and
- Enhance community participation.

The APFM through the concept of IFM is therefore an attempt to streamline the multi-facets of flood management issues into the decision-making of policy makers, flood managers, and various other groups involved in the development planning process in river basins. The objectives of APFM are to:

- Establish the principles of Integrated Flood Management;
- Help assimilate principles of Integrated Flood Management within the overall Integrated Water Resources Management;
- Develop capacities in the countries to integrate flood management into sustainable development processes; and
- Provide a platform for a common strategic vision on integrated flood management issues, and to promote the implementation of effective policies and strategies worldwide.

The Phase I of the programme was launched in August 2001. After inception phase of 8 months, it entered the implementation phase in April 2002 (duration 4 years). It was extended for a period of 4 months and ended at the end of July 2006. The programme was supported by the Government of Japan and the Government of the Netherlands. The APFM Technical Support Unit (TSU), housed in Hydrology and Water Resources Department of WMO provides full technical backup to the programme.



A major achievement of the Phase I has been development of the concept of the Integrated Flood Management approach through an analysis of existing flood control practices around the world and building of an atmosphere of cooperation among various disciplines and by providing platform for exchange of information and expertise in the areas of environmental, legal, social, and economic disciplines. Outcomes of these interactions are presented in the form of advocacy papers on “Environmental Aspects of IFM”, “Legal and Institutional Aspects of IFM”, “Social Aspects and Stakeholder Involvement in IFM”, and “Economic aspects of IFM”. Another major achievement has been adoption of the concept of IFM by the UN-Water as a main plank within its Water Hazard Risk Policy. A number of aspects of IFM have been field tested through 5 pilot projects in South Asia, South America, Africa, and Central Eastern Europe in ten countries.

The concepts developed under the Phase I of the programme will now be put into practice through field demonstration under the Phase II, focussing mainly on implementation of the IFM concept on the ground, thereby moving from Concept to Field Demonstration. It will focus on developing capacities in the countries by supporting local and regional actions that advocate, support or demonstrate the IFM principles. The primary focus will be on activities at the ground levels through field demonstration projects (pilot projects) to put the concept of IFM in its multidisciplinary approach into practice. This will be achieved in four definitive and mutually interactive steps running concurrently viz;

- Advocacy for IFM;
- Capacity development for adopting IFM approach;
- Field demonstration projects; and
- Provision of information and Helpdesk services.

This report is the Final Report of the Phase I of APFM, which documents the activities undertaken during the four year period (August 2001 to July 2006) of the Phase I. All of the outputs and summarised documents are attached as Products in a separate CD-Rom.



## 2. ACTIVITIES

### 2.1 Flood management policy series

The ‘*Flood Management Policy Series*’ has been established within the framework of the APFM. The series comprises of publications on various aspects of flood management policy, including economic, environmental, legal and institutional, as well as social aspects (earlier the working title of the series was simply “supplementary papers”) to facilitate the implementation of IFM principles into the development planning practice of river basins. The series is based on wide consultation process among expert from various disciplinary groups constituted for each publication, to guide and advise the preparation process. The preparation itself consisted of a wide review and consultation within the framework of conferences and direct correspondence with leading sector professionals in the area of natural resource management and development policy. Such quality assurance mechanism was a prerequisite to include a publication under this series. The series is published with a distinct design with the view to create a brand.

#### 2.1.1 Concept paper

The initial source and inspiration of the ‘Flood Management Policy Series’ has been the ‘Integrated Flood Management Concept Paper’, presents IFM as a viable development policy option within the overall context of IWRM. Based on inputs of leading experts in the field of flood hazard research, it was first published in 2003 after a thorough consultation and review process, among others during the Third World Water Forum. The concept paper has been published in English, French, Spanish and Japanese. The popularity of the paper required a reprint in 2004. The occasion was utilized to introduce a few modifications and was put out as the second edition. The IFM concept paper continues to play a central role in the outreach to flood managers, policy makers and development planners. In light of most recent catastrophic floods, the concept paper remains a valid and balanced source of inspiration for all target groups.

#### 2.1.2 Legal and Institutional Aspects of IFM

The paper on ‘Legal and Institutional Aspects of IFM’ has been the first publication under the ‘Flood Management Policy Series’. The paper aims at raising the awareness of policy makers about the need for an appropriate legal framework for IFM, thereby providing guidance to legal experts on how to incorporate IFM principles into legal instruments. Additionally, it intends to motivate and enable flood practitioners, stakeholder groups, including actors of the civil society involved in public opinion building such as NGOs and the media, to engage in dialogue with policy makers about the legal requirements for integrated flood management strategies and the best approach to a balanced legal framework for its implementation.

In working towards implementing IFM, it has become apparent, both in theory and in practice, that a broad range of interdisciplinary and multi-sectoral inputs are required, across many areas of expertise. In this context there is a real need for an effective coordinating mechanism – some vehicle or medium that could identify, gather and utilize the inputs from all actors and concerned stakeholders. At the heart of this publication is the notion that “law” can provide a framework for ensuring that this task is achieved.

The paper has been prepared and published in collaboration with the International Water Law Research Institute at the University of Dundee, Scotland. An international expert group constituted for this purpose guided the preparation process and the drafts were consulted with a wider group of experts in law and natural resources management. For reference a list of comments and suggestions from this group during the preparation and review process is presented in Annex I together with indications how these comments have been taken into account. The preparation of this publication has presented many challenges – how to approach floods and law in one coherent publication? The challenges, however, have been most welcome, and provided a platform for innovation. This is the first work to examine the role of law in the context of Integrated Flood Management. The final product has been primarily developed for, and is aimed at, the frontline, that is, those responsible for implementing IFM policies – policymakers, flood managers and legal





experts. The publication is written from practical perspective and is not an academic exercise. Therefore efforts have been made to present existing examples, among others through linking four country case studies into this effort. These case studies have meanwhile been published.

Equally important is the development of a Rapid Legal Assessment Tool (RLAT), which has been conceived to strengthen the guidance aspect of the paper. This guidance may be particularly useful for countries who decide to adopt an integrated flood management approach in their overall development policies and wish to reflect this in their legal and institutional arrangements. The RLAT is conceived to be applied by a group of experts in legal matters, hydrological sciences and development economy with a view to assess the compatibility of the existing legal and institutional arrangements with the principles of IFM. The ultimate aim in using the RLAT would be to identify the areas where reform to the legal and institutional system would be required and to create a basis for a substantiated consultation among decision makers and stakeholders about a possible reform process. The RLAT was reviewed in depth by Dr Slavko Bogdanovic, a legal expert from Serbia, by applying the tool in the Serbian context. The review showed that the application of the RLAT can be instrumental in initiating legal and institutional reform processes by broadly identifying gaps in the existing legal and institutional frameworks.

A first full scale application of the RLAT has been completed in India as one of the most flood affected countries by Mr. Videh Upadhyay, Advocate at the Supreme Court of India, and supported by the APFM. The assessment has yielded important recommendations. This result of the application of the RLAT in India could form the basis of a legal and institutional reform process in the country in future. The results, including a comprehensive collection of all relevant laws on the Indian federal level and the most flood affected states will be used in the future for high-level advocacy and training activities in the country.

The experience gained during this process also indicates that one of the most important issues in advocating for IFM, is to find a common language between different professional groups, to facilitate each groups inputs towards the aims of IFM, in this case flood managers and legal experts. In this respect it is believed that the paper on the “Legal and Institutional Aspects of IFM” is instrumental in bridging disciplinary boundaries, to enable a multidisciplinary approach to flood management. Copies of the final publication were distributed during the 4<sup>th</sup> World Water Forum in Mexico. The publication is available in Spanish and French also. Both in print hard copy as well as in electronic form. External parties have requested permission to translate and publish it into other languages.

### **2.1.3 Environmental Aspects of IFM**

It is widely recognized that there is a greater need for addressing environmental concerns for sustainable development. Flood management is no exception. Some of the underlying causes that make it difficult for flood managers to address the environmental issues could be traced to the communication constraints in mutually understanding the requirements of sustainable development from differing disciplinary perspectives, to different terminology being used by different disciplines, to differences in paradigms, and to a lack of appreciation for the issues raised by others.

The publication on Environmental Aspects of IFM provides a rational and balanced way of addressing environmental issues in flood management. It is primarily directed to flood managers, to enable them to understand the range of environmental issues involved in flood management. At the same time, the publication provides useful information for policy makers, environmental groups, NGOs and communities, to enable them to understand flood risks in relation to environmental concerns and sustainable development. It is aimed at improving communication and understanding among different disciplines, various stakeholders, and experts. It therefore, refrains from going into highly technical detail and uses language readily understandable by all the target groups.

An expert group meeting was organized on 6-7 October 2005 at WMO secretariat in Geneva to discuss issues such as balancing development imperatives, risk of flooding vis-à-vis preservation of ecosystems, how environmental considerations can be positively addressed by flood managers, etc. The experts came from



various regions of the world and discussed these issues from various disciplinary perspectives, ranging from Ecology, Hydrology, Sociology, Economy and legal affairs. These preliminary outputs were presented and discussed at a special session on IFM, during the Second International Yellow River Forum on 20 October 2005 in Zhengzhou, China (see section 2.4.3).

Based on the discussion at the expert meeting and outcomes of the special session, the draft publication was developed and widely circulated not only to the expert group, but also to various experts and organizations (e.g. IUCN, members of IAHR, sociologists, environmental and development authorities, etc.) for wider inputs from different perspectives. The final draft of this publication was peer reviewed and finally it has been published as the third publication of Flood Management Policy Series. The publication is also translated and now available in Spanish and French. In the process of compiling this publication there were real difficulties in mutually understanding the requirements of sustainable development from different disciplinary perspectives in the beginning, although it was soon apparent that ultimate goal being pursued was always similar. These experiences have enriched the publication. It has provided APFM a platform, which would strengthen the future activities addressing such issues during the second phase.

#### **2.1.4 Social Aspects of IFM**

Flood management measures in the past have played an important role in protecting people and socio-economic development in the flood plains. However, they have largely been successful in only shifting the flood risks, thereby causing negative impacts on certain sections of society and have in some cases distorted the protected population's perception of flood issues. Particularly, structural flood protection works in the past have provided a false sense of security without factoring residual risks and have stunted community initiatives into passivity. Such a situation is largely attributed to the non-involvement of beneficiaries and other affected groups in the decision-making process. There is a growing concern about the sustainability of this approach and a need for the active participation of communities in flood management. The publication "Social Aspects and Stakeholder Involvement in Integrated Flood Management" addresses these issues.

This publication highlights the importance of factoring social aspects and the need for stakeholder involvement in formulation of flood management policies and in planning and implementation of the plans and measures. It also provides a closer look at various vulnerabilities of the society that have an impact on flood management issues. The vulnerability of society against flood hazards is a combination of a complex and interrelated set of dynamic factors. The paper addresses vulnerability and risk assessments, undertaken as a first step in the flood management process, which have to be based on the recognition of diverse socio-economic and cultural backgrounds and the needs of the population at risk and identified through long-term engagement of the community at various levels of decision making.

Flood emergency management calls for the active participation of community in pre, during and post flood stage since the community is the first to be affected, react and cope with the situation. The paper explains the requirement of flood emergency management at all stages with respect to the role of various stakeholders including Government institutions at all levels and NGOs.

The paper on "Social Aspects and Stakeholder Involvement in Integrated Flood Management" has been developed in collaboration with Asian Disaster Preparedness Center (ADPC). An expert Group Meeting was organized to discuss the content of the paper from 25 to 26, November 2005 in Geneva, which was followed by extensive consultative process. The paper is published as the fourth publication of Flood Management Policy Series and is also translated into Spanish and French.

#### **2.1.5 Economic Aspects of IFM**

The benefits and costs from any intervention for the mitigation of flood risks stem from a large number of primary, secondary, and tertiary sources. Unfortunately, these benefits and costs are not always direct and are thus sometimes beyond assessment. Direct and indirect methods are now available or used for estimating the environmental services, such as the benefits of replenishing wetlands, recharging groundwater and



supporting agriculture and fisheries systems, improved river water quality or the costs of losing an area of wilderness to development.

The publication on Economic Aspects of IFM provides a broad overview of the economic analysis required in making choices on the policy as well as project levels of flood management. Economic analysis helps to select not only the optimum level of adjustment to floods on the basis of risk safety trade-off decisions, but also an optimum combination of measures for a wide range of flood management strategies comprising both structural and non-structural measures, including the option to live with floods. This publication highlights the economic aspects relevant to IFM. This publication has been developed in collaboration with the IRMED, New Delhi, India.

## **2.2 Compilation of good practices in IFM**

In order to assess the current status of flood management practices, APFM collected a number of good practices in flood management with the aim to obtain information on relevant practices from countries in various regions of the world. These are made available on the APFM website to disseminate these good practices and practical tools.

Good practices in IFM have been compiled in the form of the full text, the summary, and the synopsis analyzing IFM elements: from Africa - Cameroon, Ethiopia, Mali, Mauritania, and Zimbabwe; from Asia - Bangladesh, China, India, Japan, and Pakistan (2); from North and Central America - Canada, USA (2); from South West Pacific – Fiji; and from Europe – Germany, Italy, Turkey, UK, Ukraine.

Four additional legal case studies from India, Japan, Serbia, and Switzerland have straightened the practical aspects of the publication on Legal and Institutional Aspects of IFM described in section 2.1.2.

The Overview Situation Paper (OSP) has been prepared based on the good practices collected. The OSP provides: an overall synopsis of floods, their nature, type and magnitude of damages caused; an overview of existing trends and approaches to flood management such as national policies, instruments, and organizational response for flood management; and the lessons learned from current flood management practices. The paper also contains findings on the identified drawbacks and gaps in existing practices with respect to IFM, and recommendations for the approaches required for putting into practice the IFM concept. These outcomes would form part of the helpdesk and information services to be developed during the second phase of APFM.

## **2.3 Implementation of regional pilot projects and capacity building**

A series of pilot projects have been implemented together with Regional GWP partners and WMO counterparts to test and demonstrate the applicability of IFM principles. The approach taken has build on the philosophy that all dimensions and institutional structures cannot be integrated at the field level in the pilot projects. Therefore, each pilot project has a specific flavour depending on which aspects of IFM are particularly addressed, i.e. which dimensions are being particularly addressed. Some focussed on participatory approaches by formulating flood management strategies through stakeholder consultation processes, others addressed the flood management issues of transboundary basins. A couple of others looked at the community approaches to flood management to use and develop local capacities to contribute to the aims of IFM. One of them focussed on the cooperation between communities at risk, civil defence authorities, hydrologists and meteorologists to provide more effective flood warnings in areas prone to flash floods.

The experiences and lessons learned from the pilot projects would be used to formulate project proposals to replicate the experiences on a larger scale to benefit entire countries or to have a regional impact. Outputs from all the regional pilot projects are made available on the APFM website.



### 2.3.1 South Asia

Flood management practices at community level is an important component of IFM, as these communities represent the ultimate beneficiaries of flood management practices and improving resilience of communities against negative aspects of floods that enables them to maximize net benefits from regularly occurring smaller floods. While emergency preparedness aspects of flood management are recognized and dealt with at community level, there is hardly any up-link of community-based activities to national flood emergency activities and to other communities in river basins.

The principal objective of the pilot project in South Asia was to enable flood-prone communities to develop and strengthen self-help capacity and community-based institutions to improve flood preparedness and management on community level. Under the general guidance and oversight of the project by WMO/APFM, the project had been implemented by three nationally respected NGO's in Bangladesh, India, and Nepal. The regional driver organization for the project had been the BUP in Bangladesh, cooperating with JVS in Nepal and IRMED in India. These NGO's were fully responsible to organize and implement all local activity necessary to achieve the project objectives.

Stakeholders were at the centre of all activities and had been involved in virtually all activities from the Participatory Rapid Assessment of local capacities, the establishment of the Community Flood Management Committees (CFMCs), planning and implementing of all activities at local level in the project, links to Local Government authorities, and the representation of their views and results ("Voice of the Communities") during the national workshops.

Main focus of the project had been on community level covering all relevant aspects of hazard- and risk awareness and recognition, pre-flood preparedness, response during flood events and post-flood recovery, documentation of lessons learnt and building resilient community organizations to implement flood management activities related to all aspects and sectors of community life in a holistic manner. CFMCs were established in selected communities in three countries where the project had been jointly implemented and these CFMCs had been registered at the Local Government level. Self-help capacity to manage floods on community levels has been improved. The main output of the pilot project had been the development of Flood Management Manuals based on the active interaction with the participating communities as well as the production of a Synthesis Manual. In the reporting period, based on the lessons learnt from the monsoon period 2004, extension officers were sent to all participating communities to assist them implementing flood management activities in the monsoon 2005 season.

The uplink to overall national IFM and disaster management activities has been undertaken through the organization of National Workshops on Community-Based Flood Management in Bangladesh, India and Nepal, including also the National Meteorological and Hydrological Services that provide crucial flood forecasting information. As a result of the national workshops, country representatives at the Secretary and Ministry level pledged to internalize the project approach and results into the overall national planning process and programmes for disaster reduction and flood management.

The uplink to a wider regional perspective has been achieved through the organization of a regional workshop on the subject on 3-5 April 2006 in Bangladesh. A regional workshop was held in Bangladesh with the objective to promote the successful approach and results of the project to other countries, in the region, including Myanmar, China and Pakistan and to foster interest for the project subject with regionally active organizations and bilateral donors. The Synthesis Manual is used as reference manual to promote the outreach of the pilot project approach and results to other communities in different countries. As a result of the regional workshop, there has been an interest to implement the project regionally and two countries, namely Pakistan and China will develop an approach to implement the project nationally.



Hon. Abdul Moyeen Khan Minister for Science and Information and Communication Technology, Bangladesh, (second from left) inaugurating the Regional Workshop in Dacca.

The success of the pilot project lies in the political will demonstrated to implement the project approach nation wide and also in other countries in the region that were not covered by the project. There have been no major obstacles in the implementation of the project in the three countries. The linkage between community-based approaches and a close uplink to national activities related to flood management and disaster reduction is important to ensure the sustainability of the project results.

Sustainability of the outcomes of the project depends largely on the ability of governments to further provide minimum seed funding and to support a larger number of communities. All countries have pledged to multiply the number of communities that will benefit from the project in the coming years. Main outreach of the project at this point is the nationwide implementation of the project, introducing the project approach in other countries, create a regional network and further promote the project approach globally in cooperation with relevant organizations.

### 2.3.2 Africa (Kenya)

Kenya has been experiencing some of its worst flood events during recent years. During the last couple of decades, Kenya has experienced serious incidents of flood disasters, in different parts of the country. Recurring floods are experienced in the Kano plains of western Kenya in the lower reaches of river Nyando. Flood management has acquired importance in certain basins of the country. The Government of Kenya has recently taken certain concrete steps toward sustainable water resources development by adopting “The Water Act 2002”. This formulated a “national water resources management strategy” to protect, develop, use and manage the water resources of the country. In response to the request from the Kenyan Minister of Water Resources Development and Management, WMO assisted the Ministry of Water Resources to develop a Flood Management Strategy in the Lake Victoria basin as a pilot project under the WMO/APFM. The Strategy was developed based on the IFM approach.

The starting point in an IFM strategy is a reorientation of approach to floods and development. The strategy for flood management in Lake Victoria basin, therefore, simultaneously addressed the present problems of the poor flood plain dwellers and the imperative future development of the entire fertile land that is prone to frequent flooding. The project aimed at assessing the flood impact in the Lake Victoria Basin (within Kenyan territory) and to draw up an Integrated Flood Management Strategy for the basin in Kenya through a wide stakeholder consultation process. It also designed a Flood Forecasting System for the basin. The long-term view of the project is to strengthen national capabilities, so that eventually national experts can develop a flood management strategy for the entire country by using the developed Strategy as a model.

Stakeholders representing all interest groups, disciplines, professions, vocations, including women groups in the basin, were identified and consulted in the Stakeholders’ Workshops. They were given the opportunity to express their views on the proposed strategy and at the same time provide ownership in developing the strategy. The present status of development, the immediate plans under progress and the long-term needs and planning were addressed during interactions.



The Kenya Government through Ministry of Water and Irrigation has started the implementation of the Strategy for Flood Management in Lake Victoria Basin. A National Committee has been established to start the process and lay a firm foundation for implementation. The Ministry requested WMO to assist them in implementing the strategy within the available national resources and also to investigate the possibility of securing funds from the Development Partners for the full implementation of the strategy.

In response to an official request from the Government of Kenya to the Government of Japan, the Japan International Cooperation Agency (JICA) has agreed to extend support to conduct a feasibility Study on the Integrated Flood Management for Nyando River Basin. In addition to JICA other international agencies such as UNEP, World Bank and GTZ are involved in Kenya in water related programmes. In order to harmonize activities of different Development Partners and to envisage possible ways of consolidating their efforts to support Kenya Government in implementing the Flood Strategy, WMO and JICA organized a National Workshop involving different Ministries. The main objective of the workshop was to seek a synergetic approach to flood management in the Lake Victoria basin and to obtain inputs from stakeholders, policy makers and technical experts ensuring better cooperation and coordination amongst various stakeholders and technical and financial partners.



Hon. Martha Karua, Minister of Water Resources Management and Development of Kenya, being presented the Kenyan Strategy

### 2.3.3 Africa (Zambia)

Kafue Basin is the most sensitive basin in Zambia. It cuts the country into two: the Upper Zambezi in the west and the Luapula/Chambeshi and Luangwa basins in the east. The basin is the most urbanized in the country with all the major towns and industries located therein. Floods continue to be amongst the most damaging natural disasters. Flood devastation ranges from loss of lives to widespread destruction of crops and other economic activities, the most affected being the Kafue Flats in the basin.

The aim of the project was to assess the flood impact in the Kafue Basin and draw up an Integrated Flood Management Strategy and also design a Flood Forecasting System for the basin. The Water Resources Action Programme (WRAP), formulated by the Ministry of Energy and Water Development (MEWD) of Zambia sets out to develop and implement strategies for integrated water resources management (IWRM). As floods and droughts play an important part in determining sustainable development, there is need for them to be integrated within water resources management. Thus, a Flood Management Strategy has to be put in place and implemented to prevent flood disasters hampering the development process in the basin.

The project was implemented through a Team of national experts who carried out the activities according to specific terms of reference (TOR) under the overall guidance of a Steering Committee established by MEWD, consisting of different stakeholders and the TSU of APFM. The experts also contacted appropriate stakeholders and interacted with different government authorities and facilitated the implementation of the project within the MEWD. Many Ministries and government institutions were involved in the process.



The project was able to sensitize the public on the dangers and benefits of floods and ensure that the public was aware of the initiative for managing the floods in the Kafue Basin.

A Stakeholders' Workshop was held in Lusaka on the 29<sup>th</sup> of May 2006 where ministers and a wide range of stakeholders in the Kafue basin attended. These included Government Ministries and Departments, local authorities, parastatal organizations, academicians and researchers, nongovernmental organizations (NGOs), and farmers' and fishing associations in the flood prone areas. Based on information obtained from the workshop and the consultative meetings, a first draft IFM Strategy for Kafue Basin was produced

This draft strategy was discussed during the "Policy Makers' Workshop" which was attended by Permanent Secretaries, Directors and senior officials of the relevant Government Ministries and Departments, local authorities and parastatal organizations. A final document of the Integrated Flood Management Strategy for Kafue Basin in Zambia has been prepared. Government of Zambia will disseminate the policy both internally and externally.

### **2.3.4 South America**

The basic objective of the project is to manage floods in the river Quarai/Cuareim basin, a transboundary basin shared between Brazil and Uruguay, within a framework of integrated water resources management. At the same time, the project seeks to improve the capacity of the local population affected by flooding.

The pilot project was focused on the development of non-structural actions for managing floods within a transboundary context. The first priority was to define the mechanism for coordinated bi-national management and joint flood risk assessment in the basin. The following activities were carried out during this phase:

- Identification of public policies, legislation, and proposal for new management mechanism;
- Socio-economic characterization of the population affected by flooding in the cities of Artigas and Quarai;
- Analysis and diagnostic of the hydrometeorological network and of the floods and implementation of a shared database;
- Assessment of the flood plains in the rural areas and flood plain mapping of urban areas;
- Design and implementation of preliminary warning systems; and
- Awareness building and education and training.

The Project has had its final Workshop of the First Phase of the Implementation Stage on the 13<sup>th</sup> of December 2005. The flood forecasting capabilities improvement, the worth of some of the structural measures, namely dredging and other topics related to the activities that were carried out show improvements in flood management in the basin.

The project has had an important impact as an exemplary project within the La Plata Basin. The Committee that is coordinating Water Resources in the following five countries has made references to the project: Argentina, Bolivia, Brazil, Paraguay and Uruguay. The experiences and outcomes from the river Cuareim/Quarai pilot project may provide important input to flood management practices in these five countries.

### **2.3.5 Central and Eastern Europe**

In collaboration with the GWP Central and Eastern Europe (GWP CEE) hosted by the Slovak Hydrometeorological Institute (SHMI), the pilot project in the Central and Eastern Europe has focused on reducing vulnerability to flash floods. The project was divided in two phases: Phase I - Study of Historical Floods in Central and Eastern Europe from an Integrated Flood Management Viewpoint; and Phase II - Forward Integration of Flood Warning in Areas prone to Flash Floods.



### ***Phase I***

The phase I was coordinated by the Slovak Hydrometeorological Institute (SHMI) under the guidance of the TSU. SHMI also served as contract partner as the host of GWPCEE. Twelve flood events from seven countries in Central Eastern Europe were studied in the first phase and published in form of a summary report. The following countries participated in the first phase and thus contributed to a better understanding of the nature of the events as well as the available coping mechanisms: Bulgaria, Czech Republic, Lithuania, Poland, Romania, Slovak Republic, and Slovenia.

The collaboration between the National Meteorological and Hydrological Services (NMHSs) of the seven involved countries and of GWP, i.e. the regional and country water partnerships has proven to be an effective vehicle to implement the project. This particularly applies to the combination of strengths of both constituencies, e.g. by making use of the technical expertise of the NMHSs in flood forecasting and warning with the experiences in stakeholder involvement and public outreach of the GWP partners. Active involvement of the municipalities and associated civil defence bodies, as well as other local stakeholders has been ensured throughout the project, among others by incorporating their knowledge into the flood studies, review of existing flood warning systems, by organizing participatory flood hazard mapping exercises and by providing a public awareness raising campaign about flood hazards and preparedness measures in the pilot areas.

The project has first and foremost offered an opportunity for the involved institutions (NMHSs, GWP country water partnerships, civil defence authorities, regional authorities, municipalities) to draw closer to the potentially affected communities, i.e. users of their products. This has led, on pilot scales an insight into the information and preparedness requirements of local communities and the development of technical solutions adapted to the social realities. In some of the pilot areas this was required not least because trust in public authorities in particular about flood warnings had decreased after flood events of the past years.

Secondly, it has led to a closer cooperation and coordination for flood forecasting and warning services of institutions driven by user needs. One example has been that under the umbrella of the pilot project new institutional arrangements could be agreed between different levels of government to increase the effectiveness of the current warning system.

Thirdly, based on the flood events studies, and including the consultations with affected communities and other recipients of flood warnings, improved technical means of detecting the areas at imminent risk and warn more effectively, have been developed. The effectiveness of those can finally only be judged once the next flash flood has hit that area, yet efforts have been undertaken to urge participating communities to run regular emergency drills to keep up the preparedness levels of the respective authorities and the risk awareness of the population.

A general lesson about the promotion of IFM has been that flood management responsibilities are scattered under a multitude of institutions. Each of these institutions has a mandate to fulfill and is supposed to spend its budget on it. If gaps are to be addressed or an institution wants to move closer to the community needs, this requires initially extra budgetary funds. Once success stories can be developed on pilot scales, required institutional changes (laws, policies and administrative arrangements) can be implemented.

### ***Phase II***

In the second phase of the project immediate objectives and subsequent activities were formulated according to individual country needs. The overall objective of the second phase was to increase the preparedness and response capacity of the local authorities and population in flash flood prone pilot communities to forecasts and warnings issued by respective authorities in order to reduce the vulnerability of the affected population. Three countries, Poland, Romania, and Slovakia, have participated in the second phase. The overall coordination of all three pilot project components has been provided by the TSU.





Project outputs and learnings have been provided to the TSU in form of final reports. Due to earlier experiences with community involvement in flood management in some of the participating countries, the level of project deliverables varies between the components.

The countries have selected distinct approaches in using nationally available weather and water information systems and adapted and supplemented them to the local needs. Several innovative approaches could be tested within the project, such as the coupling (on the level of district crisis centres) of various information sources such as weather radar information with nationally and locally available synoptic observation networks. Furthermore, the warning dissemination process and response of local crisis intervention forces could be improved. As part of the project component in Poland, required institutional arrangements have also been strengthened by concluding a formal agreement between the local community involved and the next higher state administrative layer about roles and responsibilities in the flood warning process. Education and training activities have been carried out on the levels of involved local institutions.

It is interesting to note that during the project implementation period, and partly even during events organized as part of the project, flood events in the respective communities occurred on moderate scales. This has been taken as a clear message to sustain our efforts in the region. After implementing the project in three selected areas, outreach is planned in the second phase along following lines of action:

- Present the outcomes back to the region in form of a regional workshop or similar format.
- The results of the pilot project should be promoted on the national level, i.e. made accessible to all branches of the NMHSs, regional crisis centers and municipalities.

It is also essential to note that for the first time APFM has (for the project components in Poland and Romania) implemented project components through the National Chapters of the Global Water Partnership. This approach has proven as useful and pragmatic, in particular in view of the wide outreach possibilities to various relevant sectors required for the implementation and outreach of the project, as well as the substantial experience of GWP with stakeholder participation.

### **2.3.6 Central America**

In Central America efforts have been made to start up a pilot projects for last three years. To begin with efforts were made to setup a joint project team to work towards a pilot project in the transboundary river Negro between Honduras and Nicaragua with the help of local GWP partners. However, despite interest shown by the two country representatives, no agreement could be reached for a joint working arrangement. In order to generate further interest and facilitate the decision making APFM organised a workshop in Costa Rica where representatives from Costa Rica, Honduras, Nicaragua and Panama were present. As a result of the workshop some understanding was reached between Costa Rica and Panama to start a pilot project on the transboundary River Sixaola. However, it has taken a long time in reaching a decision regarding the area of activities that the two countries would take in the basin jointly to work towards a transboundary flood forecasting system which would not only involve cooperation on technical aspects of flood forecasting but also address the issues related to flood management and interaction with the communities to make the forecast more effective and useful. However, cooperation agreement has taken more time than expected and the pilot project could not be started on schedule. The pilot project would be taken up in the next phase after July 2006. The experiences in the Central America have shown the need for patience, persistence and understanding to work in transboundary rivers.

Guatemala has been subjected to large-scale landslides and flooding in the river basins flowing to the Caribbean Sea during the past. Last year Hurricane Stan hit this country and caused severe floods in the pacific coast accompanied with mudflows and landslides in the west highlands with catastrophic consequences to lives and livelihood, infrastructure, crops, cattle and other livestock. Government of Guatemala feels the need to develop a strategy for dealing with these disasters as part of their Poverty Reduction Strategy through development and integrated multi-hazard approach. APFM responded to the request of Guatemala and organized a workshop on Integrated Flood Management on 7th December with the



officials of INSIVUMEH (the National Forecasting and Warning Service), SEGEPLAN (Secretariat of Planning) and Ministry of Agriculture. The IFM concept was presented to the participants. A Japanese mudflow and debris flow expert from the Ministry of Land Infrastructure and Transport also participated.

The objectives set forth by the Guatemalan authorities in relation to rural development in face of the flood risks matches with the objectives of IFM. The discussions narrowed down to the need for setting up a legal and institutional framework for enabling a coordinated and integrated approach to deal with various disasters within a multi-hazard framework. The activity would be followed up in the second phase, if the request is received from the country.

## **2.4 Dissemination of information and advocacy activities**

### **2.4.1 APFM newsletters**

APFM Newsletters have been published since June 2002 to disseminate APFM activities. The newsletter is disseminated in three formats: the PDF version, HTML version, and one-page hard copy version. The HTML version is sent electronically to subscribers of APFM newsletters via email for a quick look. The subscribers can also download the PDF version in a printable format, if they wish to go through and know about APFM activities in detail. The hard copy version is distributed at conferences and meetings. Generally, information about events and conferences, “outcomes” of the conferences, which APFM participates or organizes, can be obtained at the event page of the APFM web site. It can also be visited through a direct link from the event page to the topic articulated in the HTML version of the newsletters, so that visitors can easily get timely-information. During the Phase I, 11 newsletters have been published.

### **2.4.2 Information services**

The APFM website serves as the central access point for various programme activities and its information services, including the reference centre on integrated flood management. During the first phase of APFM, the following features have been developed and have become operational: renewal of the APFM website with downloadable material on APFM activities and publication; establishment of the Contents Management System (CMS) that can be used to create, edit, and update the web site through the Internet; installation of the newsletter module that can create a subscription system of the newsletters; establishment and operations of databases on flood management and organization of a virtual forum. Based on templates and contents revised during the last reporting period, this website is continuously updated and maintained.

During this reporting period set of databases on flood management policy and legislation, literature on flood management, and flood-prone area have been particularly added to and developed on the website. Database on institutions and agencies involved in flood management has been online since last year. These databases are being enriched further for flood managers, policy makers, communities affected by floods to obtain flood management information in a country. This would also form part of helpdesk services.

A virtual workshop was organized in November and December 2005, using the utilities provided on the website of the 4th World Water Forum (WWF). On this virtual platform, the baseline document on the framework theme of Risk Management was opened for discussion for incorporating a wide spectrum of views from a geographical, professional disciplines and geopolitical point of view. The virtual workshop had 55 participants generating comments during the 8 weeks of opening and even further and proved to be successful. Outcomes of the virtual forum were used not only for the session on Risk Management during the 4th WWF, but will also be useful for future activities of APFM.

### **2.4.3 Dissemination of information through meetings and conferences**

TSU and WMO staff participated in various conferences, workshops, and seminars to promote the concept of IFM and APFM activities, such as:



- the 3<sup>rd</sup> World Water Forum (WWW3) in March 2003, Japan
- the annual meeting of the Association of State Floodplain Managers (ASFPM) in May 2003
- the Pan African Implementation and Partnership Conference on Water in December 2003
- the Second Meeting of the UNECE Task Force on Flood Protection and Mitigation in April 2004
- the Follow-up Conference on the Budapest Initiative on Strengthening International Cooperation on Flood Management in the Framework of Sustainable Development in April 2004
- the 9<sup>th</sup> GWP Consulting Partners Meeting and Associated Programmes Day in June 2004
- the 39<sup>th</sup> Flood and Coastal Zone Management Conference of the Department for Environment, Flood and Rural Affairs (Defra) in June to July 2004
- the Third South Asia Water Forum in July 2004, World Water Week in Stockholm in August 2004
- the Conference on “Good Water Governance for People & Nature” in August 2004
- the Commission for Hydrology of WMO - Twelfth Session in October 2004
- the International Conference on Integrated Water Resources Management in December 2004, Japan
- the World Conference on Disaster Reduction in January 2005 in Kobe, Japan,
- the World Water Week in August 2005 Stockholm in Stockholm, Sweden,
- the Second Southeast Asia Water Forum in August 2005 in Bali, Indonesia,
- the 2<sup>nd</sup> International Yellow River Forum (YRF) on Keeping the Healthy Life of the River and Modern River Basin Management in October 2005 in Zhengzhou, China and
- the 4<sup>th</sup> World Water Forum (WWF4) in March 2006, Mexico
- the Flash Flood Forecasting Workshop in March 2006 in San Jose, Costa Rica.

#### 2.4.4 Network

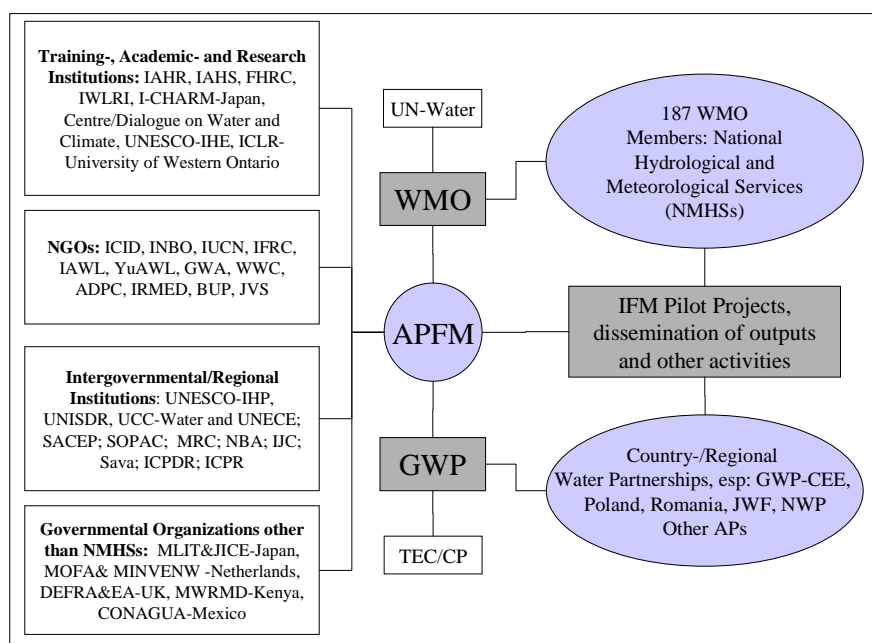
APFM’s network remains the strength and backbone of the programme’s activities and especially its outreach. After 4 years of implementation, it can be said that the APFM TSU forms the centre of an extensive global network of institutions and individuals that contribute to the implementation of the programme. Below are the list of various partners that APFM has been developing cooperative activities.

- With FHRC to compile IFM concept paper and the paper on Social Aspects and Stakeholder Involvement in IFM
- With DFO to compile a flood inundation map in Kenya, utilizing satellite imagery
- With IWLRI to compile supplementary paper on legal and institutional aspects of IFM
- With UNECE to promote the issue of legal and institutional aspects of IFM
- With ADPC to compile supplementary paper on Social Aspects and Stakeholder Involvement in IFM
- With CapNet to develop IFM training module
- UNESCO-IHE in the field of training and capacity building
- With WMO Member Countries through APFM contact points for advocacy with national flood management institutions
- With ICID in developing flood risk management strategies with flood management institutions in the countries
- With the Swiss Federal Office for the Environment on the supplementary papers on environmental and legal aspects of IFM
- With the United Nations University - Institute for Environment and Human Security (UNU-EHS) in developing the paper on Environmental Aspects of IFM
- With UNEP Collaborating Centre on Water and Environment (UCC-Water) in developing the paper on Environmental Aspects of IFM
- International Association of Hydraulic Engineering and Research (IAHR) in developing the paper on Environmental Aspects of IFM
- The World Conservation Union (IUCN) in developing the paper on Environmental Aspects of IFM
- Ramsar Convention on Wetlands in developing the paper on Environmental Aspects of IFM
- Close collaboration planned with ICHARM in training and capacity development
- Collaboration with Niger Basin Authority to develop flood management strategies in Niger basin
- Proposed collaboration with the Danube River Commission
- South Asia Cooperative Environment Programme to develop pilot project in South Asia in Phase II

- Collaboration with Commission Nacional Agua, Mexico to implement flood management strategy in Mexico

The figure below indicates the network developed under the programme with governmental, non-governmental, intergovernmental and scientific communities. The indicated institutions have either directly contributed to the activities of the APFM or have been part of the outreach process. It is important to note that the unique setup of APFM as a joint WMO/GWP initiative has capitalized for APFM's activities, for example in the pilot projects in Central and Eastern Europe. It has been perceived that the strength of both networks and wider community of NGOs has contributed to the success of activities, where both technical expertise in areas related to flood management and expertise in stakeholder participation as well and public outreach is required. This combination and the direct links into the scientific community continue to strengthened APFM's role as an independent think-tank for flood management policy related to various regions of the globe. From a policy perspective, the outputs prepared under the APFM continue to provide a balanced picture in a policy field with opposing or sometimes extreme positions in the related community. The experience with combining these strengths forms the basis for future activities of the programme.

Next to GWP, a number of institutions, among others under the International Flood Initiative (IFI), play a crucial role as natural associates of the APFM as well as strategic partners for the future. This particularly concerns I-CHARM under the auspices of UNESCO, UNU-EHS and IFNet. Continued close coordination and collaboration is intended to maximize the benefits and synergetic action of those initiatives under IFI.



#### 2.4.5 Integrated Flood Management adopted as a major component of Water Hazard Risks policy by UN-Water

Advocacy of the IFM Concept to be adopted at various levels starting with the UN System down to the country level is very important for achieving the ultimate objectives of the programme. UN-Water, an inter-agency mechanism to coordinate various activities related to all water related issues being handled by different UN agencies, in its first UN-Water policy series paper on “Water Hazard Risks” has recognized Integrated Flood Management (IFM) to be one of the comprehensive processes within “Disaster Risk reduction and related strategies”, which go beyond traditional response to the impact of individual events and hazards. The paper deals with the current trends in flood management and other water hazards and traces the underlying causes of the growing concerns towards the impact, which the water related disasters have, on the sustainable development process. It recognizes that flood management strategies need to be multi-sectoral



and inter-disciplinary in nature and comprise a wide range of interrelated activities at the local, national, regional and international levels. The APFM considers UN-Water as its partner in advocating the IFM approach at various levels.

The International Flood Initiative, launched by UNESCO, WMO and other international non-governmental organisations has also formed IFM as its major thrust area. With the involvement of the governmental agencies in the pilot projects, the concepts forms important inroads as a policy concept.

**Integrated Flood Management**

Integrated Flood Management is a process promoting an integrated—rather than fragmented—approach to flood management. It integrates land and water resources development in a river basin, within the context of the IWKM. The objective is not only to reduce the losses from floods but also to maximize the efficient use of flood plains—particularly where land resources are limited—and improve the quality of life while mitigating the risks. In turn, increases in flood losses can be consistent with an increase in the efficient use of flood plains in particular and the basin in general.

Source: Concept paper on integrated flood management, The Associated Programme on Flood Management (APFM) Technical Document No 1, Global Water Partnership, World Meteorological Organization (WMO), 2003, Geneva, [www.apfm.info](http://www.apfm.info).

**BOX 5**

The diagram illustrates the concept of Integrated Flood Management (IFM) and its application. On the left, a red box contains the definition of IFM and its source. On the right, a larger box shows a page from a report titled 'WATER RISKS' with a purple and white cover. The page contains text and a small photograph of a flooded area. Lines connect the definition box to the report page, indicating that the report applies the IFM concept.



### 3. FINANCIAL PERFORMANCE

#### Activities

The contribution to this programme from the Government of Japan and the Netherlands was confirmed during the meeting held in Wallingford in February 2001 and in Washington in April 2001. The total budget estimated was 2,200,000 USD with the duration of 56 months. The initial funding was made by Japan in July 2001, which permitted work to commence on the Inception Phase on 1 August 2001.

During Phase I, CHF 3,320,040 (including due last contribution from the Netherlands CHF 36,046) was contributed by Japan and the Netherlands. Beside these contributions, Foundation of River and Basin Integrated Communications, Japan (FRICS) made contribution of CHF 187,995 for research activities through APFM Trust Fund, and therefore a total of CHF 3,508,035 plus interest was available during Phase I. The table of contributions to the APFM trust fund and consolidated APFM trust fund financial statement (July 2001 to July 2006) is given on the following page. In addition to the above, what does not appear on the financial statement is the WMO investment the phase I of APFM through logistic support and the human resources. This support is assessed on a conservative side at about CHF 200,000 per annum to the time of CHF 800,000.

Activities under the programme have been defined on a yearly basis under the guidance of the Advisory Committee (initially called Steering Committee) which consisted of two participants of WMO constituent bodies representing the member countries, representatives of GWP, and one representative each from the financial partners. The yearly budget allocation to various activities was made by the Management Committee consisting of one representative each from the two donor countries. Both the committees were chaired by Mr. Torkil Jønch-Causen, from GWP and served by Director, Hydrology and Water Resources Department WMO, as Secretary. The performance both physical and financial were regularly reviewed by the two Committees who have largely been satisfied by the performance (Refer to the Reports of the Steering Committee and Advisory committee).

The expenditures under the APFM Trust Fund have been carried out under the strict rules and regulations of WMO and all the transactions have been carried out in most cost-effective manner.

The first phase has generated a constructive, focussed and well directed debate on the flood management issues around the world and looking at the outputs and the interest already generated among the countries towards the outputs and activities of APFM, it is considered that the project has been largely successful.



### Contributions to the APFM Trust Fund

| Budget Year          | Date       | Country     | Amount in CHF (Japan) #1 | Amount in CHF (Netherlands) | Amount in CHF (Both) | Remarks |
|----------------------|------------|-------------|--------------------------|-----------------------------|----------------------|---------|
| 2001                 | 27-Jul-01  | Japan       | 180,000                  |                             | 180,000              |         |
| 2001                 | 18-Jan-02  | Japan       | 90,000                   |                             | 90,000               |         |
| 2001                 | 11-Mar-02  | Netherlands |                          | 89,994                      | 89,994               |         |
| 2001                 | 12-Apr-02  | Japan       | 90,000                   |                             | 90,000               |         |
| 2002                 | 19-Apr-02  | Japan       | 80,160                   |                             | 80,160               | Frics   |
| 2002                 | 9-Jul-02   | Japan       | 53,977                   |                             | 53,977               | Frics   |
| 2002                 | 11-Jul-02  | Japan       | 360,000                  |                             | 360,000              |         |
| 2002                 | 26-Jul-02  | Japan       | 36,000                   |                             | 36,000               | Frics   |
| 2002                 | 26-Dec-02  | Japan       | 17,858                   |                             | 17,858               | Frics   |
| 2002                 | 20-Jan-03  | Netherlands |                          | 180,000                     | 180,000              |         |
| 2002                 | 28-Feb-03  | Japan       | 180,000                  |                             | 180,000              |         |
| 2002                 | 31-Mar-03  | Japan       | 180,000                  |                             | 180,000              |         |
| 2003                 | 25-Nov-03  | Japan       | 240,000                  |                             | 240,000              |         |
| 2003                 | 23-Jan-04  | Japan       | 120,000                  |                             | 120,000              |         |
| 2003                 | 4-Feb-04   | Netherlands |                          | 180,000                     | 180,000              |         |
| 2003                 | 24-Mar-04  | Japan       | 120,000                  |                             | 120,000              |         |
| 2004                 | 20-Aug-04  | Japan       | 256,000                  |                             | 256,000              |         |
| 2004                 | 25-Oct-04  | Netherlands |                          | 125,000                     | 125,000              |         |
| 2004                 | 27-Oct-04  | Japan       | 128,000                  |                             | 128,000              |         |
| 2004                 | 24-Dec-04  | Netherlands |                          | 125,000                     | 125,000              |         |
| 2004                 | 29-Mar-05  | Japan       | 128,000                  |                             | 128,000              |         |
| 2005                 | 11-Oct-05  | Netherlands |                          | 125,000                     | 125,000              |         |
| 2005                 | 20-Dec-05  | Japan       | 193,500                  |                             | 193,500              |         |
| 2005                 | 10-Feb-06  | Japan       | 96,750                   |                             | 96,750               |         |
| 2005                 | 30-Mar-06  | Japan       | 96,750                   |                             | 96,750               |         |
| 2005                 | <b>DUE</b> | Netherlands |                          | 36,046                      | 36,046               |         |
| <b>CONTRIBUTIONS</b> |            |             | 2,646,995                | 861,040                     | 3,508,035            |         |
|                      |            |             |                          | <b>INTEREST</b>             | 20,401               |         |
|                      |            |             |                          | <b>TOTAL INCOME</b>         | 3,528,436            |         |



**CONSOLIDATED APFM TRUST FUND FINANCIAL STATEMENT  
(July 2001 to July 2006)**

**1. Income (contributions + interest)**

|  |   |                  |     |
|--|---|------------------|-----|
| 1) July 2001 to December 2001  |   |                  |     |
| • Contributions  | 180,000   |                  |     |
| • Interest   | 1,654   |                  |     |
|  | <u>Total Income</u>   | 181,654          | (a) |
| 2) January 2002 to December 2003   |   |                  |     |
| • Contributions #1   | 1,597,989   |                  |     |
| • Interest   | 7,995   |                  |     |
|  | <u>Total Income</u>   | 1,605,984        | (b) |
| <i>#1 including contribution from Foundation of River and Basin Integrated Communications, Japan (FRICS) for research activities through APFM Trust Fund</i> |   |                  |     |
| 3) January 2004 to December 2005   |   |                  |     |
| • Contributions  | 1,500,500   |                  |     |
| • Interest   | 9,279   |                  |     |
|  | <u>Total Income</u>   | 1,509,779        | (c) |
| 4) January 2006 to July 2006   |   |                  |     |
| • Contributions  | 193,500   |                  |     |
| • Contribution due from the Netherlands  | 36,046  |                  |     |
| • Interest   | 1,473   |                  |     |
|  | <u>Total Income</u>   | 231,019          | (d) |
|  | <u><b>Total Income</b> (July 2001 to July 2006) (a)+(b)+(c)+(d)</u> | <u>3,528,436</u> | (e) |

**2. Expenditure**

|  |  |                  |     |
|--|--|------------------|-----|
| 1) July 2001 to December 2001  |  |                  |     |
| • <u>Expenditure #2</u>  | 115,547  |                  | (f) |
| <i>#2 This expenditure is not including the support cost (5,777CHF) for above period of the year due to oversight. Adjustment was made by the expenditure in the period from January 2004 to December 2005</i> |  |                  |     |
| 2) January 2002 to December 2003   |  |                  |     |
| • Expenditure #3   | 1,616,617  |                  |     |
| • Adjustment to Surplus / Capital #4   | (128,315)  |                  |     |
|  | <u>Total Expenditure</u>   | 1,488,302        | (g) |
| <i>#3 including expenditure for research activities through APFM Trust Fund against contribution from Foundation of River and Basin Integrated Communications, Japan (FRICS)</i>                               |  |                  |     |
| <i>#4 Adjustment for the expenditure for the period from January 2002 to December 2003</i>   |  |                  |     |
| 3) January 2004 to December 2005   |  |                  |     |
| • Expenditure  | 1,157,411  |                  |     |
| • Adjustment to Surplus / Capital #5   | (1,240)  |                  |     |
|  | <u>Total Expenditure</u>   | 1,156,171        | (h) |
| <i>#5 Adjustment for the expenditure for the period from January 2004 to December 2005</i>   |  |                  |     |
| 4) January 2006 to July 2006   |  |                  |     |
| • <u>Expenditure</u>   | 768,416  |                  | (i) |
|  | <u><b>Total Expenditure</b> (July 2001 to July 2006) (f)+(g)+(h)+(i)</u> | <u>3,528,436</u> | (j) |

*Certified correct  
Luckson Ngwira  
Chief, Finance Division  
WMO*





#### 4. Review of the performance

Under phase-I the Advisory Committee took an annual review during its annual meeting, which consisted of the representatives of the donors along with the ones from the two parent partner organisations, GWP and WMO. Some of the excerpts from the proceedings of the Advisory Committee Meetings of June 2005 are reproduced below:

“... The Committee appreciated the philosophy adopted in the implementation of the pilot projects and the field demonstration achieved so far and recommended to upscale these activities by involving the agencies such as GEF or JICA. The Committee commended the crucial role being played by APFM in initiating the activities on the ground to test and demonstrate the usefulness of IFM concepts.”

“... The Committee appreciated the success of the pilot project especially in the development process employed, which started from the village level and outreaches to the national level. The Committee noted with appreciation that the project was well structured, involving the counterpart organizations of WMO and GWP in the region and finally involving and connecting to the existing institutional structures and the government administrative mechanisms. The Committee emphasized the importance of spreading these approaches by making use of the GWP network including other Associated Programmes (APs) and sharing information through the GWP website and conferences.”

“... The Committee noted with appreciation that some of the policy series have developed practical tools and recommended that such efforts should continue. The GWP ToolBox would form a platform for dissemination of the tools and it was encouraged to make available all developed tools through the GWP ToolBox.”

“...The Committee expressed its satisfaction at the importance being given to capacity development for IFM and stressed the need to put in more efforts to achieve tangible results. The Committee also approved of the logical connection and collaboration with other institutions related to flood management such as IWLRI, ADPC and IRMED.”

“... The Committee discussed in details the importance of advocacy but was of the view that the good outputs from pilot projects and their upscaling combined with development of tools for the implementation would go a long way in advocating adoption of IFM approach. In this context the necessity to ensure close collaboration between relevant global flood related programmes, e.g. IFI, I-CHARM, IFNet etc. to avoid overlap in the activities were stressed.”