



**World Meteorological Organization**



## **ASSOCIATED PROGRAMME ON FLOOD MANAGEMENT**



**ANNUAL REPORT  
Phase II**

**(2007-2008)**

June 2008



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 Switzerland.



World  
Meteorological  
Organization  
Weather • Climate • Water

The World Meteorological Organization (WMO) is a specialized agency of the United Nations. It coordinates the activities of the meteorological and hydrological services of 188 countries and territories and such is the centre of knowledge about weather, climate and water.



Global Water  
Partnership

The Global Water Partnership (GWP) 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).



# ANNUAL REPORT (2007-2008)

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## LIST OF SUB MATERIAL

- I. Flood Management Policy Series
  - (a) IFM Concept Paper (English, French, Spanish, Russian)
  - (b) Legal and Institutional Aspects of IFM (English, French, Spanish)
  - (c) Environmental Aspects of IFM (English, French, Spanish)
  - (d) Social Aspects and Stakeholder Involvement in IFM (English, French, Spanish)
  - (e) Economic Aspects of IFM (English)
  
- II. IFM Tools
  - (a) Formulating a Basin flood management plan
  - (b) Applying Environmental assessment for flood management
  - (c) Conducting Flood loss assessments
  - (d) Organizing community participation for flood management
  - (e) Reservoir operations and managed flows
  - (f) Urban flood risk management
  - (g) The role of land-use planning in flood management
  
- III. National and Regional support activities
  - (a) Minutes of Stakeholders in Kenya
  - (b) Workshop Guidance on Flash Flood Management – Recent experiences from Central and Eastern Europe
  - (c) Strategy for Flood Management for Kafue River Basin, Zambia
  
- IV. Training activities - Partnerships for the delivery of a comprehensive portfolio of capacity building measures
  - (a) Integrated Flood Management for Sustainable Development - An APFM & Cap-Net collaborative capacity building programme for flood-prone countries, cities, and communities
  - (b) Draft: Course Elements for a Training Course - Training for the Trainers Community Flood Management
  - (c) Education programme: Understanding floods, in collaboration with Project WET
  
- V. Dissemination of information
  - (a) Flood Management Reference Centre
  - (b) Newsletters (No.14, No.15, No16)
  
- VI. Linkage to other activities
  - (a) Memorandum of Understanding between the World Meteorological Organization (WMO) and Japan Institute of Construction Engineering (JICE)





## 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 help demonstrate the practical steps for putting the concept into practice. 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 within the overall framework of Integrated Water Resources Management (IWRM). It conceptualizes integration of land and water resources development activities in a river basin.

With its basic aims of sustainable development, through comprehensiveness of measures and strategies employed and the involvement of various stakeholders and disciplines, the IFM concept provides the rationale and means to shift away from the traditional 'flood control' approach that focuses on engineering measures. The aim of IFM can be realized only if flood management activities are undertaken within well-defined river basin flood management plans. The key elements that should be considered while preparing such plans are:

- River basin should form the planning unit.
- Risk management principles should guide the planning process.
- Multi-disciplinary and multi-sectoral perspectives need to be considered.
- All stakeholders should be engaged.
- Floods should be considered as part of the water cycle; and
- Equity and fairness in the development process are ensured.

During the phase I (August 2001- July 2006) of the APFM, the principles of Integrated Flood Management have been established through the IFM Concept Paper supported by Flood Management Policy Series. The programme has conducted various regional pilot projects, has collected and synthesized flood management case studies and established a website to offer a variety of information including various products and a set of databases on flood management. The outcomes of phase I are acknowledged and appreciated at various international conferences, workshops and meetings, which induce the dialogue and involvement of institutions and individuals and start a global network to create the required knowledge base to support countries in their efforts to adopt IFM.

The phase II of the programme (2006-2010) is in the process of consolidating these gains. It focuses on implementation of the IFM concept on the ground and seeks to develop capacities in the countries by supporting local and regional actions that advocate, support or demonstrate the IFM principles. The primary focus is on activities at the ground levels in supporting countries by providing guidance and organizing field demonstration projects to put the concepts of IFM, in its multidisciplinary approach, into practice. This is supported by a combination of training and awareness building at various levels addressing flood management issues within the integrated water resources management. The advocacy for IFM is being achieved through capacity development, implementation of field demonstration projects and providing long-term support in the form of Help Desk and information services. Major outputs of the programme would be:

- Field Demonstration Projects;
- National platforms for multidisciplinary dialogue;
- Network of institutions supporting multidisciplinary approach;
- Training, awareness building and advocacy material;
- Capacity building through Trainings of Trainers, Regional Workshops and Seminars;
- Information services in form of a Reference Centre on Flood Management;
- Decision making Tools in support of IFM; and
- Strategic advice on flood management projects in form of a HelpDesk.

This report is the second Annual Report of APFM Phase II, which documents the activities undertaken during the second reporting period - i.e. from 1 April 2007 to 31 March 2008. Some of the outputs and



summarised documents are given in Annex, meanwhile most of the output materials are attached as sub-material in a separate CD-Rom.



## 2. ACTIVITIES

### 2.1 FLOOD MANAGEMENT POLICY SERIES AND IFM TOOLS SERIES

#### *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 legal and institutional, environmental, social, as well as economic aspects to facilitate the implementation of IFM principles into the development planning practice of river basins (Sub-material I(a), I(b), I(c), I(d) and I(e)). The series of publications have been translated into various languages as shown below;

- IFM Concept Paper (En, Fr, Sp, Ru<draft>)
- Legal and Institutional Aspects of IFM (En, Fr, Sp)
- Environmental Aspects of IFM (En, Fr, Sp)
- Social Aspects and Stakeholder Involvement in IFM (En, Fr, Sp)
- Economic Aspects of IFM (En)

(Above publications are available from: <http://www.apfm.info/publications.htm>)

These publications have been translated into several additional languages, based on interest from partners. Those translations are generally undertaken through a License Agreement without resource inputs from the APFM. Currently the following translations are in progress or completed:

- IFM Concept Paper → Japanese (complete)
- Other Flood Management Policy Series volumes → Japanese (ongoing)
- Legal and Institutional Aspects of IFM → Serbian (complete)

#### *IFM Tools Series*

During the process of compiling policy series papers, requirement of several tools to implement the concept of IFM in the field were identified. Along with the issued tools (Sub-material II(a), II(b), and II(c)), a new inventory of IFM Tools has been prepared (Sub-material II(d), II(e), II(f), and II(g)). IFM Tools are guiding materials for flood management practitioners for various specific purposes, e.g. flood mapping, basin flood management planning, floodplain zoning and land use planning, flood loss assessment, flood forecasting and warning, environmental assessment, flood insurance and other burden sharing schemes etc. Those tools are intended to provide substantive guidance to the practitioner and provide a clear perspective of how the different tools fit together for an integrated approach to flood management.

Different IFM Tools are being developed with varied details. Some of the tools provide an initial understanding of the issues while the others may provide detailed operational guidance. These would largely be based on outputs from the applied research undertaken in the field around the world and would help the reader attain the multidisciplinary perspective. The tools serve as a resource guide/material for practitioners and not as academic state of the art papers. Other discipline specific tools, already available, would also be included for completeness and comprehensiveness. These tools can be categorized as follows:

- Category A: Introductory notes that address the multi-disciplinary perspective to the tool
- Category B: Detailed notes, which provide the reader with basic understanding of the concepts and initial guidance on the issue to be able to participate in a multi-disciplinary discussion
- Category C: Detailed Methodologies and Guidance Materials

Four tools were selected to be developed during this period, which are “Organizing community participation for flood management”, “Reservoir operations and managed flows”, “Urban flood risk management” and “The role of land-use planning in flood management”. These are developed by the TSU staff and are based



on assessing readily available literature, and draws findings from relevant works into the contents wherever possible. References used are mostly available on the internet and hyperlinks are provided in the “References” section. This approach corresponds to the needs of practitioners that may be confronted with immediate tasks such as flood loss assessment for easy access to relevant guidance materials. All these tools are branded as the “Flood Management Tools Series” and disseminated on the APFM website. As the “Flood Management Tools Series” is not planned to undergo extensive peer reviewing, it would be given a distinctive branding that distinguishes the tools series from the “Flood Management Policy Series”. These tools would be the living documents and would be updated based on experiences sharing.

### **2.1.1 Organizing community participation for flood management**

The tool provides general guidelines to effectively organize community activities to ensure stakeholders’ participation at various levels of decision making within the concept of IFM. Community activities play an important role as a front-line at each stage of flood management briefly described below are discussed in the tool:

- **Preparedness:** Community participation contributes to building consensus among stakeholders and creating linkage with other activities. It is important to let the community people come up with a collective understanding on their own vulnerability and capacity assessment, such as through flood hazard mapping.
- **Response:** The accumulation of individual activities expects synergy effects on group advantages while traditional activities and pre-existing resources can enhance community activities through providing opportunity in regular basis. Raising awareness such as through the ubiquitous flood sign, is critical for sustainability on community response.
- **Recovery:** Community participation can enhance the sustainability and build synergies between actions by individuals and support provided by external agencies for flood management especially at recovery stage. Local communities are in best position to understand the local situation and needs.

It has become apparent that top-down approaches to disaster risk management fail to address the specific needs of vulnerable communities. Principally, community participation for flood management can be organized by addressing community’s needs, which enhances its effectiveness, and efficiency. Strategic approaches to organizing community participation comprise of three elements: maximizing resources through integrated use of local knowledge, understanding each stakeholder’s expected role and degree of involvement, and motivating community participation through social-economic incentives and systematic training. Six steps can be adapted for organizing community participation, that is, (1) process design, (2) risk assessment, (3) problem analysis, (4) goal setting, (5) drafting an action plan, and (6) implementation. Continual efforts through experimentation and following the basic principles are required as there is no single approach that suits all situations to organize community participation.

The current version of the Tool is attached as Sub-material II (d).

### **2.1.2 Reservoir operations and managed flows**

This tool aims to provide guidance for reservoir operations and managed flows that optimize the benefits by reduction in flood peaks, maintaining benefits from ecosystems and ensuring sustainability of social and economic activities.

Reservoir operations for flood moderation, as one of flood management options, play an important role in protecting people and their socio-economic activities in flood plains from flooding. Reservoir operations, however, have the potential to alter flow regimes, fix river shape or separate river channels from its flood plains under new flow and sediment regimes. The need for sustainable development has highlighted the importance of minimizing the negative consequences of such flood control and protection measures on



natural flow regimes that have the potential to threaten human security, including livelihoods, and food and health security.

The central concern of this paper is to raise the awareness about different aspects of reservoir operation as well as to show possibilities of how flows can be managed successfully to minimize their possible adverse impacts. Elements of the tools are:

- Understanding changes in flow and sediment regimes by reservoirs,
- Identifying the issues that need to be factored for designing a managed flows programme,
- Introducing options to tackle these issues by modification of reservoir operations,
- Planning the managed flows, and
- Providing a framework for environment sensitive reservoir operations

The current version of the tool is attached as Sub-material II (e).

### **2.1.3 Urban flood risk management**

The main objective of this tool is to explain urban flood risks as well as to show possibilities of how they can be managed successfully. The tool is based on the holistic paradigm that only the combination of spatial, technical and organizational measures will lead to a more sustainable and effective management of urban risks.

Urban flood risks result from a combination of risk elements, comprising hazard, exposure and vulnerability. The recognition of these elements in urban context is essential to facilitate the understanding of flood risks. Municipalities are well advised to spend adequate resources for comprehensive flood risk assessments. Only if there is information which clearly indicates which neighbourhoods are most at risk, successful measures can be planned. Information about existing flood risks forms the basis for decision-making. After assessment of flood risks, analysis of options for the management of urban flood risks is required appropriately targeting reduction of all the three components, hazard, exposure and vulnerability.

- Hazards (e.g. storm drainage, multipurpose detention basin, dual drainage concept, upstream land use planning): Up- and downstream interactions have to be factored in urban flood risk management. For example, a very efficient drainage may constitute a severe flood hazard for downstream settlements. Finding an adequate compromise between storm-water drainage and source control needs consideration through consultation with all stakeholders.
- Exposure (e.g. flood plain zoning with consideration of flood risk as an integral part of long-term urban planning): Land use plans should be based on a best mix of regulatory measures, economic incentives, knowledge enhancement, and public investment with the objective of reducing exposure of economic activities to flooding.
- Vulnerability (e.g. flood proofing for physical vulnerability, CBOs for constitutional/economic vulnerability, early warning system for informational/motivational vulnerability).

Urban flood risk management has to be undertaken within a well defined framework that recognizes and makes use of the potential synergies that could be achieved through coordinated actions and addresses the conflicting requirements. First, the general conceptual framework related to IFM, total water cycle management, and land-use planning are discussed. The implementation of multiple purpose measures enables municipalities to achieve multiple goals (flood mitigation, water supply, space for recreational activities, groundwater recharge, improvement of urban aesthetics etc.). Second, flood management measures have to be planned across administrative and sectoral boundaries. Institutionalized links between concerned authorities facilitate cooperative planning. Finally, participatory planning as the basis for urban flood risk management is discussed.

The current version of the tool is attached as Sub-material II (f).



#### **2.1.4 The role of land-use planning in flood management**

The way land resources are utilized has a decisive influence on development path of societies. In many places the most valuable land resources in terms of soil fertility, urban development space, infrastructure location (e.g. transport links) etc. are liable to flooding. The tool helps provide a closer look at the major aspects that connect land use and flooding:

- The location of values and key components of the economy on flood plains provides economic benefits (i.e. the primary reason for developments being placed there) and at the same time creates risks for the society in terms of flood loss potential.
- The development of land has consequences on the hydrological processes on the one hand, (e.g., either by accelerating runoff through reducing the infiltration capacity of soils or obstructing the natural drainage system) and generation of sediment and pollutants that increase the damage potential of flood waters on the other hand.

Better understanding of these processes help improve planning practices in the different sectors and land use planning on the one hand and flood protection or flood risk management on the other. In view of this APFM has taken action to dedicate one volume of the Flood Management Tools Series to this issue. The Tool developed aims to:

- Identify the processes and policy principles that necessitate a linkage of land use planning in integrated flood management
- Provide an overview of land use planning instruments considered applicable in the flood management context
- Identify the challenges and opportunities to a closer linkage between the various sectors concerned
- Provide guidance as to how those sectors can work together

The Tool is primarily written for flood managers at municipal and higher administrative levels to facilitate the necessary dialogue with land use planners on local, regional and catchment levels, urban and agricultural planners, transportation planners, developers of individual land parcels etc

The current version of the Tool is attached as Sub-material II (g).

## **2.2 NATIONAL AND REGIONAL SUPPORT ACTIVITIES**

Supporting national and regional efforts in implementation of the IFM concept on the ground is one of the priorities of the APFM Phase II. Such activities are categorized as;

1. Technical support activity to help initiating and promoting IFM in a country or region;
2. New field demonstration projects to show the IFM on the ground; and
3. Continuous support for the pilot projects undertaken in APFM Phase I to enhance the outreach process of national and regional activities.

New field demonstration projects can be undertaken depending on the availability of APFM core funding. However, facilitation were provided for the formulation of project proposals to be implemented with third party funding.

### **2.2.1 Kenya**

APFM assisted the Kenyan Ministry of Water and Irrigation to develop a Flood Management Strategy in the Lake Victoria basin as a pilot project in Phase I of APFM. “Strategy for Flood Management for Lake Victoria Basin, Kenya”, APFM, in collaboration with the World Bank (WB), UNEP and Japan International Cooperation Agency (JICA), is now assisting Government of Kenya in implementation of the recommendations and proposed activities envisaged within the Strategy. WMO, JICA and Kenyan Ministry



of Water and Irrigation organized a national workshop, also inviting WB and UNEP, in August 2006. APFM contributed to the progress of the above mentioned JICA activity by helping them incorporate the IFM concept and strategy into their project. Partners' consultation meeting was held in January 2007 in Geneva attended by WMO, JICA and Kenyan Ministry of Water and Irrigation. Subsequently a stakeholders' workshop was held with about 90 participants, including Water Resources Management Authority- Lake Victoria South Catchment (WRMA-LVSC), and Water Resource Users Association (WRUA), at Kisumu on October 9, 2007. The main recommendations of the workshop are attached as Sub-material III (a). The need for a comprehensive approach has been reemphasized, ensuring stakeholder involvement and utilization of knowledge and experience gained so far. Most of the conceptual basics about Integrated Flood Management (IFM) and Early Warning System (EWS) were raised by participants to the workshop..

APFM continues to provide inputs to the JICA and facilitate the overall understanding of the concept by the central and regional officers in Water Resources Management Authority (WRMA) and Lake Victoria South Water Services Board (LVSWSB) who are responsible for planning and implementation of flood management in the region.

### **2.2.2 Central and Eastern Europe**

APFM's efforts in the Central and Eastern European Pilot Project set out to increase the preparedness and response capacity of local authorities and population in flash flood prone pilot communities in order to reduce the vulnerability of the affected population. Activities within the three pilot areas in Poland, Romania, and Slovakia were completed by summer 2006 and the undertaken activities and outcomes were presented in detailed reports for each of the three countries.

From the outset of the pilot project, it was envisaged to provide feed-back derived from the three countries with pilot activities to the regional level. Based on the national reports and additional inputs from Romania and Slovakia, a synthesis report has been prepared by the Office for Local Government Collaboration in the Polish Institute of Meteorology and Water Management. The Synthesis Report with the title "Guidance on Flash Flood Management – Recent experiences from Central and Eastern Europe" is attached as Sub-material III (b). This guidance document targets mayors, provincial administrators and the National Meteorological and Hydrological Services, with the aim of enabling and motivating them to undertake joint programmes for reducing the vulnerability of local communities to the impact of flash floods, within the overall water management and disaster management policies of the country.

The draft synthesis report formed a central input to the "Regional Workshop on Community preparedness and public participation for Flash Flood Management in Europe", held end of October 2007 in Krakow, Poland. The workshop was held under the patronage of the Mayor of Krakow and organized by WMO, the Global Water Partnership Central and Eastern Europe, the Institute of Meteorology and Water Management and GWP Poland. Some 40 participants from 12 countries attended, representing the National Hydrometeorological Services, municipal and district crisis services and water management institutions. The workshop was co-financed by APFM and the Global Water Partnership (through its Facilitation Fund).

Workshop participants adopted recommendations for reducing the impacts of flash floods and are addressed to decision makers in the national administrations, researchers and operational managers in the National Meteorological and Hydrological Services, mayors and local decision makers. TSU will continue to promote the implementation of these recommendations through various channels at the level of WMO and GWP. Several participating countries from the region are considering translating the report "Guidance on Flash Flood Management" into their respective national languages. The full workshop proceedings have been made available on the APFM website.

### **2.2.3 Seychelles**

In autumn 2006, the Ministry of Environment and Natural Resources of the Seychelles Government approached the APFM Technical Support Unit for assistance in dealing with the flood management tasks



assigned to the Ministry. In response, APFM guided and supported a flood management workshop on the Seychelles in April 2007, which involved representatives of all relevant Ministries and Departments of the Seychelles Government. It resulted in the formulation of a Brief Project Note titled “Building Capacities for Sustainable Flood Management on the Seychelles”.

The above-mentioned proposal is intended to address the capacity building needs in related Government Departments for applying an integrated approach to flood management in the Seychelles. The APFM has continued to work on generating interest of the international financial partners to provide funding for the development and implementation of the project proposal. In the reporting period the substantive elements contained in the proposal were presented to the Global Facility on Disaster Risk Reduction (GFDRR), with little success. Discussions on implementing certain elements of the proposal has been initiated with the International Centre for Water Hazard and Risk Management (ICHAHM), Tsukuba, Japan.

#### **2.2.4 Zambia**

WMO in close collaboration with a technical team of Zambian experts jointly prepared the strategy for Flood Management for Kafue River Basin in Zambia under the APFM. The work involved information gathering and interaction with regional stakeholders and policy makers through the organization of two workshops. The strategy was finalized in consultation with the Project Steering Committee consisting of experts from different concerned departments of the Government of Zambia.

Hon. Kenneth Konga, Minister of Energy and Water Development launched the strategy in August 2007 and acknowledged APFM’s role in developing such important document for one of the most flood affected regions in the country. He confirmed his government’s commitment to draw up an action plan for implementation within the available country resources without any delay or waiting for external support. The strategy is attached as Sub-material III (c).

### **2.3 CAPACITY BUILDING**

For the implementation of IFM in the field, capacity building of stakeholders is essential. Capacity building is planned at various levels and the contents and methodologies will differ accordingly. During the Phase I of APFM, policy series papers have been developed to contribute to the efforts in enhancing the knowledge that will be required for flood management. Training courses and materials are under preparation for a *portfolio capacity building measures on IFM*. The progress during the year under report are described in the following.

#### **2.3.1 Compilation and dissemination of presentation material**

The flood management policy series papers are primarily aimed at flood managers, their purpose being to enable them to understand the full range of issues involved in flood management. The introduction of these papers in form of power point presentations is considered as an entrance point to induce a multi-disciplinary approach to flood management. In addition to the Legal and Institutional, Environmental and Social aspects, the slide presentation materials for Economic aspects of IFM had been developed and are now available online on the APFM website as a self-study resource for flood managers, policy makers and students as well as for trainers as a resource.

#### **2.3.2 Training activities**

##### ***JICA Training course in Japan***

APFM participated and delivered lectures on the Integrated Flood Management (IFM) in two training courses – “River and Dam Engineering III” and “Flood Hazard Mapping” organized by Japan International Cooperation Agency (JICA) for flood practitioners and water resources managers from government organizations of 15 countries in October and November 2007 respectively. The course “River and Dam Engineering III”, under the supervision of Infrastructure Development Institute (IDI) of Japan provided



knowledge and skills of the planning and the design of river improvement and water resources management to participants from Cambodia, China, Georgia, Myanmar, Nepal, Sri Lanka, and Sudan.

“Flood Hazard Mapping” training under the supervision of the International Centre for Water Hazard and Risk Management (ICHARM) was attended by 20 trainees from Cambodia, China, Indonesia, Laos, Malaysia, Philippines, Sri Lanka, Thailand and Vietnam. The lectures covered various aspects of flood management including environmental, social, legal and economic based on the issues within the context of flood management activities in participant’s respective countries. APFM publications were used as a basic material. APFM pilot projects were also introduced, and explained to show real practices in the field.

APFM continues to contribute to these JICA training courses to bring the concept of IFM to flood practitioners from developing countries particularly from Asia. Through such trainings, participants will be able to extend their knowledge base to develop multi-disciplinarily approaches to flood management activities.

### 2.3.3 Partnerships for the delivery of a comprehensive portfolio of capacity building measures

#### *Extended vocational training (in-service) together with Cap-Net*

It is recognized that the first line of action in matters of capacity building should be aimed at the professionals. These are water resources and flood managers (e.g. river engineers), planners and policy makers in the areas of water system management, land-use, infrastructure, and urban drainage and spatial planning. Therefore the first element of the portfolio of capacity building measures in the APFM is targeted towards extended vocational training of in-service policy makers as well as flood and water resources managers.

In view of the shifting focus of the APFM towards field implementation of the IFM concept, Cap-Net has been identified as one of natural partners for capacity building, for jointly developing and implementing training courses. The knowledge and experience gained in implementing the APFM combined with considerable experience of Cap-Net in capacity building for Integrated Water Resources Management with its network of capacity building institutions would be useful in developing this activity.

The joint work programme “Integrated Flood Management for Sustainable Development”, an APFM & Cap-Net collaborative capacity building programme for flood-prone countries, cities, and communities has been followed up and updated for the period 2008-2009. The updated document is attached as Sub-material IV (a).

The following items of the work plan could be accomplished in the reporting period:

#### (a) Materials development

- Three days training course on “Integrated Flood Management” has been prepared including course outline, lesson plans, presentations and exercises in English and Spanish.
- Course reader on Urban Flood Management available in Spanish has been translated into English and reproduced as a CD.
- A proposal for training of trainers on Community-based Flood Management in Bangladesh has been developed.

#### (b) Training courses and workshops

- **Workshop on Integrated Flood Management in Bolivia:** The workshop was held in Cochabamba, Bolivia from 3 to 7 March 2008, co-organized by the Cochabamba Municipality, SENAMHI (Bolivia’s National Meteorological Service), Centro Agua from the Universidad Mayor de San Simon and WMO, and addressed to the Municipal Chief Technical Officers of several Bolivian municipalities who, according to Bolivian legislation, are responsible for flood management in their jurisdiction. The workshop, inaugurated by the Honourable Mayor of Cochabamba, was attended by



over sixty professionals, who decided to issue a statement declaring their willingness to adopt IFM and agreeing on a series of actions to be undertaken to achieve a rational flood management policy in Bolivia. The statement includes four project profiles: two of a general scope and two more specific: one for the River Rocha, which basin includes the municipality of Cochabamba and one for the city of Trinidad, affected by the floods of the river Mamore. During 2007 and 2008 the city was suffering from extensive flooding. Advice was given during the workshop on how to better address the study of the necessary aspects to be able to apply the IFM concept. It was also requested to analyse a report that is being prepared on the River Mamore.

- A three day-workshop titled “Integrated Flood Management: a multi-disciplinary approach for sustainable development” had been foreseen to be held in collaboration with the Indian National Water Academy and Cap-Net in Pune, **India** in March 2008. For technical reasons the workshop had to be shifted but the idea will be further pursued in 2008.
- Several ‘Urban Flood Management Courses’ in urban agglomerations of **South America** were supported as test trainings through Cap-Net.
- Several ‘Community-based Flood Management training courses’ for communities in rural **Bangladesh** were supported as test trainings through Cap-Net, without direct involvement of the APFM at the courses. In the preparation process APFM developed the outline of the training to the local organizers based on the experiences in the APFM Pilot Project in South Asia. The outline is attached as Sub-material IV (b).

#### ***Materials for Educators and Children with Project WET***

In matters of sustainability of programmatic outputs of the APFM, it seems necessary to transpose those outputs for use by the younger generation. This activity is targeted at providing scientific concepts for children at an early stage to help avoid misconception about the nature of floods, available flood management options, thereby avoiding risky development behaviour. These outputs targeted towards the younger generation, can also aid specialized services and institutions in their outreach to the public. It is recognised that such activity cannot gain central attention within the work of the APFM, as it requires specialised presentation style.

“Project-WET: Water Education for Teachers” is a US based non-profit Foundation water education program and publisher. The program facilitates and promotes awareness, appreciation, knowledge, and stewardship of water resources through the dissemination of classroom-ready teaching aids. Project WET have more than 20 years of experience in the field of water education for teachers and youths, and having developed a global water education delivery network designed to reach children through educators, currently active in more than 20 countries. They have a mutual interest in developing Educational Materials on floods for teachers and youths as this is a gap in their current portfolio of educational outputs.

In agreement on the outputs to be planned for and has been reached and a Letter Proposal has been issued for fundraising as the activity is mostly from third-party financial partners. The Letter proposal is attached as Sub-material IV (c). The core of the proposal is the development of a number of educational materials under the working Title “Understanding Floods Education Program for Teachers and Youth”. It will be printed and disseminated through Project WET’s Education Delivery Network. The first two core publications of the collaborative effort include:

- “*Understanding Floods Educators Guide*” targeted at teachers for use as teaching material; and
- “*Understanding Floods KIDs (Kids In Discovery Series) Activity Booklet*” for children/youth ages 8-12.

A third element is being considered but as yet not taken up in form of learning materials for older students aged 16-18. USAID together with NOAA have responded to a call to financial partners to join the project with contractual arrangements underway. A joint materials development workshop with Project WET is foreseen in June 2008. The target date for launching the planned outputs is the 5th World Water Forum, to be held in 2009 in Istanbul, Turkey, within the Global Water Education Village.



### ***E-learning with Technical University of Hamburg-Harburg***

While direct trainings through various mechanisms are considered the most effective means to build capacities for IFM in the field, the use of the Internet as a means of training dissemination is also considered an important component. The outputs of the APFM are presently published through the internet, mostly in form of downloadable copies (PDFs). It is recognized that providing the APFM's outputs in a more accessible and didactically well-developed manner through web-based learning would greatly enhance the outreach of the programme. Such web-based learning (or e-learning) options could be used both, independently or as preparatory elements of face-to-face trainings offered.

There are several groups around the world that have implemented e-learning projects with flood management content. The E-Learning System for Flood Practitioners named "FLOWS – Living with Flood Risk in a Changing Climate" developed at the Technical University of Hamburg-Harburg (TUHH) distinguishes itself from other projects as the philosophy is based on the IFM concepts. The content of the e-learning system is open to the public, and has been developed by a project consortium involving various European Management Institutions encompassing best practices from a number of countries. APFM and TUHH, are jointly upgrading the system. The adaptation needs include a section on the Integrated Flood Management Policy concept and various other aspects. Through this support the section on the IFM Policy Concept has been incorporated by TSU while other adaptations are currently followed up by TUHH.

### ***Formulation of Master's degree programme with ICHARM***

The International Centre for Water Hazard and Risk Management (ICHARM) has supervised one month training course for flood hazard mapping to provide high level of knowledge and skills to the technical managers or engineers who worked for the flood management in public sector. Based on this, and with regard to the recent increase of flood disaster and resulting need for capacity building to mitigate such disaster, ICHARM and Japan International Cooperation Agency (JICA) has decided to launch the master course for "Water-related Risk Management" this year, which is accredited by the national Graduate Institute for Policy Studies (GRIPS). This course is designed to provide the knowledge and experiences of risk management and improve the capacity of trainees to promote Integrated Flood management in each respective country. The first course started on 9 October, 2007. During the initiation process of this master course, APFM has contributes to the formulation of the structure of the course and align it on the IFM concept. APFM will support this activity under the overall cooperation between APFM and ICHARM for capacity building.

#### **2.3.4 Support for developing country participants to attend ISFD4**

As part of its efforts to strengthen the capacity of flood managers from developing countries, APFM facilitated participation of five candidates from developing countries to attend the 4<sup>th</sup> International Symposium on Flood Defence (ISFD4), held in May 2008 in Toronto, Canada. International Symposium on Flood Defence is an exclusive three-yearly event that constitutes a unique gathering of flood managers, scientists and development managers. The theme of this symposium focused on the management of flood risk, reliability and vulnerability. The support is intended to provide an opportunity for such participants to bring to the attention of global audience opportunities, constraints and good practices in flood management in their countries, and to facilitate discussion at the symposium about various available flood management options for countries with different socio-economic framework conditions. The conference provided a unique opportunity to bring the interdisciplinary group of flood experts together to share critical knowledge from regional and international perspective. Presentation was made on behalf of APFM at the plenary session on the main-streaming climate variability and change in flood management.

One of the major outputs at the session was that the ISFD decided to rename itself into "International Symposium on Flood Management". It has also requested the International Flood Initiative, which has adopted propagation of Integrated Flood Management approach for its activities to incorporate this event into their regular plans. The next symposium in the series would be organised by ICHARM and would be held in Japan in 2011.



## 2.4 FLOOD MANAGEMENT REFERENCE CENTRE

Researchers, social scientists, hydrologists, engineers and development planners have been working over past couple of decades on various facets of flood management. There is no dearth of research findings, good practices and strategies. However, these activities have been carried out by the specialists in disciplinary isolation with little or no cross-disciplinary interactions. The result is that the available information tends to be confined to the realms of particular discipline without ready accessibility so essential for an interdisciplinary approach. The reference centre plays a vital role in establishing linkages among various disciplines, institutions, and actors involved in flood management. The Flood Management Reference Centre consists of four databases on Flood Management Institutions, Literature, Policy and Law, and Flood Prone Areas. These databases are being continuously updated. The number of entries and countries in each database, at the reporting time, is as follow;

|  | Number of countries | Number of entries |
|--|---------------------|-------------------|
| Institutions and Agencies involved in Flood Management | 111 (110)           | 381 (345)         |
| Literature on Flood Management                         | 50 (49)             | 228 (207)         |
| Flood Management Policy and Legislation                | 42 (27)             | 228 (140)         |
| Flood Prone Areas                                      | 24 (22)             | 30 (27)           |

\* the numbers in brackets are those reported for the annual report 2006-2007

Sub-material V (a) provides a detailed picture on the coverage of topics, regions and countries.

## 2.5 DISSEMINATION OF INFORMATION

### 2.5.1 Newsletter

APFM Newsletters have been published since June 2002 to disseminate APFM activities. The newsletter is disseminated in two formats: the PDF version, HTML version. The PDF version is updated at the newsletters page of the APFM website. The HTML version is sent to subscribers of APFM newsletters (number of subscribers is approximately 700 at the reporting time, the number of approximately 100 subscribers has been increased since last Annual Report Phase II (2006-2007)) via email. The subscribers can also download the PDF version as a printable format. Generally, “outcomes” of events and conferences which APFM participates in or organizes can be obtained at the events page of the APFM website. During the reporting period three newsletters (No.14, 15, and 16) have been published (Sub-material V (b)).

### 2.5.2 Conferences

#### *High-Level Expert Panel on Water and Disaster*

The High-Level Expert Panel on Water and Disaster was established based on the Hashimoto Action Plan at the 4<sup>th</sup> World Water Forum, aiming at two objectives. The first is to establish clear global-level goals to reduce loss of life and livelihood caused by water-related disasters with coordination of UN/ISDR and the Japan Water Forum. The second provides adequate and safe water and sanitation during and after disasters with coordination of the World Water Council. The first meeting was hold in Tokyo, Japan, September 2007, and the second was in Seoul, Korea, January 2008. While providing positive inputs mainly on the first theme of the meeting along with WMO’s representation, the APFM pointed out that it should be noted that the setting of clear-cut targets should be considered when a clear understanding in quantitative terms has been reached about the issues of disasters.



### ***The 1<sup>st</sup> Asia Pacific Water Summit, Beppu, Japan***

The 1st Asia Pacific Water Summit (APWS) was held on 3 and 4 Dec. 2007 in Beppu City, Japan, where high-level policymakers and various other notable guests were invited to discuss and share views on the ways to better manage water-related issues, thus contributing to concrete actions. One of main issues raised were anticipated adverse effects of climate change on water resources, including flood management. The APFM participated to one of the main themes of APWS titled "Water-related Disaster Management" organized by ICHARM. The "Policy Brief" was issued as key messages and recommendations to the participants, including Integrate Water-related Disaster Risk Reduction into national development plans, recognizing adaptation to increasing risks from climate change as a "highest" priority issue. The APFM also participated to the symposium titled "Integrated approach to water-related disaster management" just before the forum. The main focus was anticipated climate change. It was agreed that adaptation is as important as mitigation in coping with climate change, and that adoption of flexible adaptive measures is necessary to realize an integrated approach to water-related disaster management.

### ***ICID Conference***

The International Commission for Irrigation and Drainage (ICID) is a technical NGO represented by the Irrigation and Drainage departments of 120 countries. A majority of them are also responsible for flood management at the federal level. Concurrent with the bi-annual meeting of the Commission called Congress, the Working Group on Flood Management organises a symposium where flood managers from the countries participate and exchange experiences and develop guiding material. The group is largely following a mono-disciplinary approach. Presentation was made on behalf of APFM on the integrated approach of flood management during the last session of the Flood Management Group held in Sacramento in October 2007. Various publications of APFM were distributed and warmly accepted.

### ***Course-Workshop "Vulnerability and management of the risk produced by flooding"***

The course on *Vulnerability and management of the risk produced by flooding* was organized by UNESCO and CONAGUA (Mexican National Commission on Water) in Tuxtla Gutierrez, State of Chiapas, Mexico, from 12 to 15 November 2007. The course was attended by more than 50 participants from Mexico, Argentina, Bolivia, Chile, Costa Rica and Guatemala. WMO participated in the workshop as part of faculty and delivered lectures on topics: "Vulnerability and Flood Management" and "Governance and participation in flood management". WMO explained the concept of Integrated Food Management (IFM). WMO had the opportunity of informing the group various aspects of IFM. Due to the simultaneous flooding events in the south of Mexico, the media participated very actively in the workshop.

### **2.5.3 Website**

During the Phase I of APFM, the APFM website was established as the central access point for information on flood management in order to:

- promote the IFM concept;
- disseminate APFM activities in adopting IFM, such as field demonstration projects (i.e. pilot projects) and compilation of good practices and lessons learned from various regions of the world;
- provide for reference centre on flood management (i.e. a set of databases); etc.

The APFM website is continuously updated to fulfil these objectives. All the publications and materials produced so far, information of latest events and flood management reference centre are made available on the website. Since the launch of APFM website in December 2004, the number of visitors has been steadily increasing. As seen in the figure below, the gap of visitor number in July 2007 was forced to occur from the difference of statistic analytics solutions which the hosting companies offer (TSU changed the hosting server company because it had identified a new company which had a better hosting server service, and leasing costs were cheaper than the former). Different web analytics solutions may use a variety of methods to track visits to website. Therefore, it is normal to see the discrepancies between reports created by various products. However, the best way to think of metrics across different web analytics programmes is to think in terms of trends, as opposed to numbers by themselves. Several peaks of hits have been observed after major events

such as international conferences and issue of new APFM newsletters. The steady rise in number of visitors is clearly an indicator, that visitors tend to revisit the page, as otherwise the peaks around events would recede back to original values.

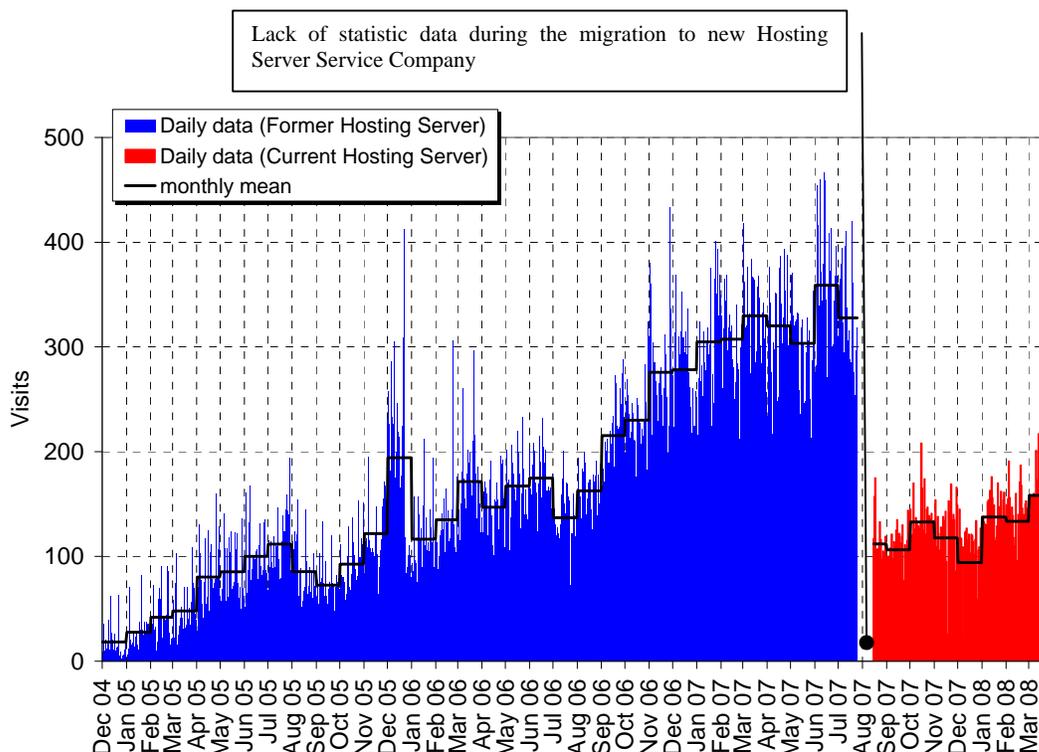


Figure 1: Sessions (from 1 December 2004 to 31 March 2008)

#### 2.5.4 Dissemination of publications

During the reporting period, the publications of Flood Management Policy Series (Legal and Institutional Aspects of IFM, Social Aspects and Stakeholder Involvement in IFM, Environmental Aspects of IFM) in English were delivered to several universities and institutions with curriculum relevant to Integrated Water Resources Management (IWRM) or Integrated Flood Management (IFM). The publications are also delivered to NGOs and government organizations. French version and Spanish version of publications are under dispatch to French and Spanish speaking countries. The number of countries, institutions, and publications in each publication, at the reporting time, is as follow (more detail information in ANNEX II);

|   | Number of countries | Number of institutions | Number of copies dispatched |
|---|---------------------|------------------------|-----------------------------|
| Legal and Institutional Aspects of IFM            | 130 (18)*           | 365 (79)               | 728 (157)                   |
| Social Aspects and Stakeholder Involvement in IFM | 130 (21)            | 373 (88)               | 808 (238)                   |
| Environmental Aspects of IFM                      | 130 (26)            | 389 (104)              | 855 (285)                   |

\* the numbers in brackets are those reported for the annual report 2006-2007



## **2.6 LINKAGE TO OTHER ACTIVITIES**

### **2.6.1 ICHARM**

The International Centre for Water Hazard and Risk Management (ICCHARM) is established at Public Works Research Institute (PWRI) in Tsukuba, Japan under the auspices of UNESCO in March 2006. The objectives of this centre are to promote research, training and information networking activities, focusing on the issues and problems related to water hazards and water-related risk management. The centre will provide and assist implementation of best strategies to localities, nations, regions, and the globe to manage the risk of water related disasters. The centre also serves as the secretariat of the International Flood Initiative (IFI), in which UNESCO and WMO are the key participating organizations. WMO is closely collaborating through APFM and is also represented in its Board of Governors. APFM had a number of meetings and workshops with ICHARM in August 2007 in Tsukuba, Japan to discuss future cooperation activities about developing IFM tools and training for capacity building.

Since the establishment of the centre, ICHARM has been developing its activities and APFM has contributed to ICHARM by providing IFM inputs, for example, delivering the lecture at the “Flood Hazard Mapping” training course supervised by ICHARM as explained at 2.3.2. Recognizing the importance of incorporating IFM concept into the activities of IFI and ICHARM, greater synergy is being developed through cooperative activities by APFM and ICHARM.

### **2.6.2 JICE**

The Japan Institute of Construction Engineering (JICE), a Japanese non-profit foundation, conducts comprehensive, effective research and development of new construction technologies with a view to improve construction engineering practices. One of their focus being flood management and water resources development including coastal management, WMO and JICE have recognized mutual interest in promoting integrated approaches to flood management, through cooperative activities in developing concepts and operational tools for implementation of IFM and thereby contribute to the prevention and mitigation of natural disasters. JICE has been working with WMO and supporting APFM based on comprehensive agreement signed on May 2007 and yearly agreements between the two parties that specify the activities and the contributions of resources for the activities (Sub-material VI (a)). Since then, valuable collaboration has been made between the JICE and WMO, particularly in the preparation of advocacy materials to disseminate IFM concepts to policy makers, flood managers, disaster management authorities, local administrations and NGOs and through translation of these materials into Japanese.

For further strengthening the relationship between WMO and JICE to build on the gains of the existing collaboration and entering into a strategic partnership, both parties have agreed to establish a mechanism for providing necessary expertise and services for further development of the concepts and operational tools for the planning and implementation of IFM. Areas of cooperation should include:

- (a) Development of the tools;
- (b) Promote scientific research, in flood management and related areas through the promotion of joint studies;
- (c) Strengthening the existing channels of cooperation and communication to further exchange of scientific knowledge, skills; and
- (d) Publications of material on flood management and their transfer to the countries in need.

### **2.6.3 Collaboration with GRIP**

In collaboration with Global Risk Identification Program (GRIP), a joint initiative between UNDP and Prevention Consortium, Flood Risk Assessment methodologies are proposed to be developed. The main objective of GRIP is an improved evidence base for disaster risk management to enable the application and



prioritizations of effective disaster risk reduction strategies at the national, regional and global scales. The activities supported by GRIP consist of a set of projects, falling into five outcome areas:

1. Demonstration projects that integrate disaster risk analyses into decision-making in high-risk countries;
2. Capacity development for risk and loss assessment;
3. Improved risk assessments in high-risk countries;
4. An enhanced global database on disaster losses; and
5. Global Risk Update.

APFM proposes to work with GRIP to develop the risk assessment methodologies and subsequently developing the capacities in the countries for flood risk assessment.

#### **2.6.4 Moscow State University**

Opportunity for collaborative activity for the Russian speaking countries has been established through the Moscow State University for Environmental Sciences. APFM will be participating and present the IFM concept in a central conference of the Russian Water Sector, namely International Conference "Water Resources Systems Management in Extreme Conditions" that will be organised as a part of ECWATECH in June 2008. The IFM Concept Paper was made available in Russian with courtesy of the Moscow State University and a session is scheduled during the conference titled "Managing Floods for Sustainable Development and Climate Change Adaptation". Opportunity is being further explored to launch a capacity building initiative for Integrated Flood Management for the Russian speaking countries.

#### **2.6.5 Swiss Federal Office for the Environment**

The collaboration between the APFM and the Swiss Federal Office for the Environment (FOEN) has been substantially strengthened during the reporting period. Most significantly at a meeting in February 2008, the final details of the cooperation agreement between WMO and FOEN could be agreed. The signing of the agreement is planned to be undertaken in the imminent future. At this meeting the representative of FOEN reaffirmed the commitment to enter into a long-term partnership on flood management. The partnership is intended to strengthen the operations of the APFM in support of flood prone countries, both financially and technically. Substantive collaboration of FOEN also took place on an activity level of the APFM, particularly in two areas of work:

- The formulation of the "Guidelines on Flood Mapping" through co-chairing the expert group (first meeting in April 2008), as well as substantive technical inputs.
- The Workshop on "Community Preparedness and public participation for Flash Flood Management in Europe" in October 2007 (see section 2.2.2) through technical inputs

#### **2.6.6 Korean Institute of Construction Technology (KICT)**

KICT, Seoul has expressed interest in becoming a partner for the HelpDesk activities and would be developing some of the IFM Tools and providing help to the developing countries in different aspects.

#### **2.6.7 TUHH**

APFM and TUHH, are jointly working for web-based learning (or e-learning) options as independently or as preparatory elements of face-to-face trainings offered mainly in a section on the Integrated Flood Management Policy concept and various other aspects.



### **3. PROGRAMME PERFORMANCE**

#### **3.1 PROGRESS OF ACTIVITIES**

##### **3.1.1 Flood Management Tools**

IFM Tools on “Organizing community participation for flood management”, “Reservoir operations and managed flows”, “Urban flood risk management” and “The role of land-use planning in flood management” have been developed to guide the flood practitioners in their efforts toward the implementation of IFM. Progress under this activity can be assessed as planned.

##### **3.1.2 Support national and regional activities**

During this reporting period, APFM has continuously supported the outreach process of the pilot projects undertaken during Phase I to enhance its effectiveness and promote further implementation of the IFM in the field within the planned and available resources. The outreach process is primarily depends on the joint cooperation and resources provided by collaborating organizations and countries. The Strategy in the Lake Victoria basin is now being followed up by JICA under “Study on Integrated Flood management for Nyando River Basin in the Republic of Kenya”. WMO continues to support government of Kenya in this activity. In Central and Eastern Europe, synthesis report to reduce the vulnerability of local communities to the impact of flash floods in the world was prepared. This serves as the central input to the regional workshop and adopting it in the region.

APFM has also supported the efforts to initiate the IFM in Seychelles by organizing workshop and facilitate the process of active dialogue among institutions concerned. Following the workshop on IFM, Bolivia is being assisted to start flood management in a planned manner. It includes advice on institutional aspects, establishing flood forecasting services as well as planning the flood protection works. A platform for such a dialogue has been established. Many actions are being identified to build the capacity in the country to facilitate the process. Achievement in the item is dependent on the requests received and the financial resources.

##### **3.1.3 Capacity building**

The presentation materials have been developed and published based on the contents of flood management policy series papers prepared during Phase I with a view to facilitate presentation of the concept by the trainers at training workshops and thereby support enhancing people’s understanding of the issues and the multidisciplinary nature of flood management. It will provide opportunities to introduce various aspects of IFM in the capacity building activities such as IFM training and it also can be used for self- learning.

JICA training for “River and Dam Engineering III” and “Flood Hazard Mapping” was undertaken during reporting period and trainees were well appreciated the contents of the inputs from APFM. Several institutional partnerships especially those with Cap-Net, Project WET and TUHH have started to bear fruitful results and synergies for capacity building activities related to flood management. The promotion of cooperative activities will be continued to create the synergy of cooperation. Progress in this activity is assessed as satisfactory.

##### **3.1.4 Flood Management Reference Centre**

The Flood Management Reference Centre has been continuously strengthened especially the databases for Flood Management Institutions, Literature, and Policy and Law. The Question and Answer Section has been taken up but note yet published on several levels, namely Q&A related to the IFM Concept and the functioning of the HelpDesk. The Flood Management Reference Centre and the Q&A Sections will become parts of autodidactic mode of IFM Help Desk (see 4.3 Help Desk).



### 3.1.5 Dissemination of Information and linkage to other activities

APFM participated in three international conferences during the reporting period which provided excellent opportunity to disseminate information, get the comments and suggestions to further develop our activities, and raise opportunity for future activity. Three APFM newsletters were disseminated to provide latest activities and progress under APFM. The APFM Website is continuously updated and the number of daily visitors to APFM website continues to rise. Printed form of APFM publications are disseminated to various training institutions and universities that have relevance to IFM and IWRM. The APFM has intensified its linkages with key partners through the cooperative development of activities. Several capacity building activities are currently undertaken with establishing the cooperative scheme with other institutions. Such linkage will be institutionalized e.g. through Memoranda of Understanding between WMO and respective partner, with the aim of creating strategic partnership to form the planned IFM HelpDesk. This year, APFM has concluded MOU with JICE. Progress on this activity is assessed satisfactory.

## 3.2 FINANCIAL SUPPORT AND PERFORMANCE

The financial statement of the APFM Trust Fund with income and expenditure from April 2007 to March 2008 is summarized including last instalment from Japan, as of 15 April 2008 is given in the Tables on the next page.

### 3.2.1 Financial support

During the reporting period, CHF 388,294 was contributed by Japan to APFM as a direct financial support. Switzerland and Spain contributed to APFM activities through indirect financial supports. The general contribution from HWR was included for income of this period.

|  |                              |                 |
|--|------------------------------|-----------------|
| 1 <sup>st</sup> instalment from Japan: | CHF 271,470 (JPY 26,950,000) | July 25, Sep.25 |
| 2 <sup>nd</sup> instalment from Japan: | CHF 78,440 (JPY 7,700,000)   | Feb. 15         |
| 3 <sup>rd</sup> instalment from Japan: | CHF 38,384 (JPY 3,850,000)   | Apr. 15         |
| (Total contribution)                   | CHF 388,294                  |                 |
| (General contribution from HWR)        | CHF 12,000                   |                 |
| (Interest)                             | CHF 5,263                    |                 |
| (Total Income)                         | CHF 405,557                  |                 |

### 3.2.2 Financial performance

Against the available funds of CHF 405,557 (contribution plus interest) plus carryover of CHF 87,716, an expenditure of CHF 389,708 was made and a balance of CHF 103,565 is committed. A number of activities were undertaken through the regular WMO funds. Activities were mainly focused on the initiation of capacity building activities through creating cooperative schemes with other institutions. Support to national and regional activities was provided as requested, which is likely to pick up momentum and require resources for implementation.

Along with the APFM Trust Fund, the APFM activities were supported from WMO's regular budget and the other trust funds. The formulation of the "Guidelines on Flood Mapping", of which the first expert group meeting in April 2008, has been supported directly from WMO's regular budget (CHF 41,453). The workshop for capacity building on Integrated Flood Management in Bolivia in March 2008 was organized with support of Spanish government (CHF 20,000). The regional workshop for flash flood management in Europe, a part of the Central and Eastern Europe Pilot Project, got a financial support from GWP (USD 12,005). The WMO's regular staffs also support APFM activities.



### Income and Expenditure from April 2007 to March 2008

|   |  |
|---|--|
| <b>1-1. Opening balance</b>                                       | <b><u>87,716</u> (a)</b>                         |
| <b>1-2. Income</b>  |  |
| Contribution (including last instalment made at<br>15 April 2008) | 400,294  |
| Interest  | <u>5,263</u>                                     |
| <b>Total Income</b>   | <b><u>405,557</u> (b)</b>                        |
| <b>1-3. Expenditure (including support costs)</b>                 |  |
| Actual Expenditure (Liquidated)                                   | 319,242  |
| Unliquidated (Future Obligation)                                  | 48,242   |
| Requisition (Future Obligation)                                   | <u>22,224</u>                                    |
| <b>Total Expenditure</b>  | <b><u>389,708</u> (c)</b>                        |
| <b>1-4. Carry forward from this period</b>                        | <b>(a) + (b) – (c) <u><u>103,565</u></u> (d)</b> |

Note: This statement is based on the official financial statements shown in ANNEX III.



## **4. ACTIVITY PLAN**

### **4.1 IFM TOOLS AND IFM CONCEPT PAPER**

TSU will develop four tools “Flood risk sharing mechanisms”, “IFM as an adaptation tool for Climate Change”, “Flash flood management” and “Mud flows and land slides management” during next period. Manual on “Flood hazard mapping” will also be taken up. Certain other tools would be adapted from existing literature available with partners.

#### **4.1.1 Flood risk sharing mechanisms**

The tool seeks to bring out a suite of methodologies for sharing flood risk among different stakeholders. Flood risk is a function of the magnitude of the hazard expressed in terms of frequency and severity, exposure of the human activities to the hazard, and vulnerability of the elements at risk. Due to the scarcity of available resources, it is important that various sources of funding the structural as well as non-structural measures to manage these risks are explored. These sources could range from federal to state, to municipal, to individual. IFM is based on a multi-disciplinary approach and the non-structural measures in IFM, include flood insurance schemes, and other risk sharing mechanisms such as government compensation schemes or solidarity funds. A clear definition of principles of sharing of costs of reducing the risks as well sharing the loss burden after the risk materializes among all stakeholders, such as government, private firms and people is essential. This has to be supported by a participatory and unambiguous mechanism that should be incorporated in the institutional mechanism.

#### **4.1.2 IFM as an adaptation tool for Climate Change**

This tool is focused on climate change rather than adaptive management in general, which has been recognized as an approach to deal with scientific uncertainties. It will consider various options on how to evaluate the effect of the climate change on frequency and severity of flood hazard. This tool will explore methodology to factor uncertainty into practical flood management. Based on the degree of uncertainty in the impacts of climate change, the flood management option would need to be modified. The adaptation would be based on the result of flood risk assessment and will discuss about;

- identification of the visible impacts on flood magnitudes and frequencies due to climate change,
- experienced and planned adaptation and its basic backgrounds, and
- recommended adaptation strategies.

Managing extreme flood as a result of climate change makes flood emergency management an integral part of adaptation. This tool can contribute as an input for the fifth World Water Forum, especially in the topic 1 (disaster mitigation) of the theme 1 (global change and crises management).

#### **4.1.3 Flash flood management**

Uncertainties involved in predicting flash floods pose a great challenge to authorities due to the short lead times threatening the safety of communities. The majority of flood related deaths are caused by flash floods. Through its pilot projects, the APFM has collected good practices and lessons about placing community needs at the centre of flash flood-related management policies through greater national and inter-institutional collaboration and community participation.

#### **4.1.4 Mud flows and land slides management**

The sediment related disasters such as mud flows and land slides are often combined with the floods, particularly flash floods. The mechanism of their origin is in a variety of forms and is not always fully understood. Developing a sustainable strategy to deal with it requires appropriate analytical understanding to formulate strategy combining structural and non structural measures. How these hazards have to be



addressed in conjunction with flood issues will be addressed. Efforts would be made to work with Sabo Department of MLIT and possibility of commonalities of approaches would be explored.

#### **4.1.5 Guidelines on Flood Mapping**

Flood Maps are tools to visually organize the information to be used by decision makers and the public. Flood maps form the basis for developing flood risk scenarios based on various climate conditions, development alternatives, social and economic conditions. In addition to the general objective of a flood map, special uses like tools for evacuation routes may be of utmost importance in cases of Tsunamis and floods in large flatlands. Some other functions of flood maps would be (non-inclusive):

- *Regulatory*: Land use regulation and building codes
- *Planning*: Impacts of urbanisation, other land uses and climate change
- *Rescue Operations*: Building shelters and earmarking escape routes
- *Flood Insurance*
- *Vulnerability Index*
- *Informational/Educational*: record of flood magnitudes in an area

The decision making process does not end with the preparation of a flood map. It is only the first necessary step. The information regarding the risks needs to be communicated to the planners, flood managers and the public at large. Flood maps may be developed following various methodologies, but the final product should contain the necessary information that allows making sound decisions. Flood mapping manual would form an essential element of assessing flood risks and would be taken up during the next reporting period.

#### **4.1.6 Preparation of a revised version of the IFM Concept Paper**

The second edition of the IFM Concept Paper has been released in 2004. Since then climate change has drawn extensive attention by the policy makers. Although this issue is conceptually covered in the concept paper, it requires to be treated in greater details. Urban floods also would require a little more treatment in the concept paper. Further, various experiences related to the concept have been gathered since then on the platform of APFM in form of pilot projects, discussion and debate at conferences and interactions with various partners. To capture the full range of experiences before the end of APFM Phase II, it is proposed to take up a careful revision of the IFM concept paper during the reporting period. The IFM concept has proven to be a robust policy concept in terms of being applicable under changing national priorities (such as the recent food security debate). This robustness must be maintained while deepening certain other aspects, such as the role of IFM as an adaptation tool to climate variability and change.

## **4.2 SUPPORT TO NATIONAL AND REGIONAL ACTIVITIES**

### **4.2.1 Conferences and Seminars**

#### ***The 5th World Water Forum, Istanbul, Turkey***

The 5th World Water Forum will be held in Istanbul, Turkey, from 16 to 22 March 2009. The World Water Forum is the main water-related event in the world, aimed at putting water firmly on the international agenda. The Forum offers the water community and policy-and-decision-makers from all over the world the unique opportunity to come together to create links, debate and attempts to find solutions to achieve water security. APFM will participate in the activities related to flood management organised at the forum not only for dissemination of IFM but also for stepping forward toward actual implementation of IFM, policy implementation, capacity building, and participatory activities. Possibility of organising a side event to launch the HelpDesk is being explored with the organisers.



#### ***ICID Conference (Lahore, Pakistan, October 2008)***

The International Commission on Irrigation and Drainage (ICID) will hold its 20th Congress in Lahore, Pakistan in October 2008 under the theme 'Participatory Integrated Water Resources Management - From Concepts to Actions'. A seminar is being organised where APFM will make presentation on the concept of IFM and proposed HelpDesk and thereby seek to achieve a closer liaison with the flood managers represented in ICID.

#### ***International Conference "Water Resources Systems Management under Extreme Conditions", Moscow, Russia, 4-5 June, 2008***

APFM is organizing a session on "Managing Floods for Sustainable Development and Climate Change Adaptation" within the International Conference "Water Resources Systems Management under Extreme Conditions", Moscow, Russia, 4-5 June, 2008. As part of the session the IFM Concept Paper is being made available in Russian with a view to further engage Russian water sector institutions into the IFM concept.

#### **4.2.2 Kenya**

A Master plan is to be formulated based on the strategy for flood management in March, 2009. The process of formulation involves stakeholders in every level of international, national, regional and community. The plan covers both structural and non-structural measures from short-term (by 2012) to long-term (after 2021). The pilot projects by JICA have been conducted to make the plan more practical. During the implementation of the plan, integrated flood management (IFM) and early warning system (EWS) will be tailored to the field requirements.

APFM will participate in the proposed workshop to be organized by JICA during August/September 2008 in Nairobi to have the presentations on action towards implementation of flood management from plan to practice phase and building the EWS. APFM could assist more the practical phase through establishing of IFM tools and HelpDesk, which are planned to adopt the IFM principles applicable to each field and facilitate applicability on EWS. Such activities can contribute to the applicability of the IFM guidance. The workshop will provide an appropriate opportunity to kick off these activities.

#### **4.2.3 Flood Management in Mali**

Discussions are underway with Italian Ministry of Foreign Affairs to fund and implement a project for assessing the impacts of floods and droughts on agriculture in Mali. The goal of the project is to reduce the vulnerability to the impacts of droughts and floods in agriculture and contribute to sustainable food security, poverty alleviation, rural development and quality of environment in Mali. The project will be implemented over a duration of two years and should contribute to a better knowledge of the impacts of droughts and floods on agriculture in Mali, to promote the resilience of communities and improve their decision making for risk assessment, prevention and mitigation through focused better understanding of processes and impacts of droughts and floods in agriculture; and utilization of improved tools for early warning and preparedness.

#### **4.2.4 Flood Management in Guinea**

A brief project proposal for IFM in Guinea has been formulated under the title "Enhancing flood preparedness of settlements at risk" with the National Directorate for Hydraulics – DNH within the Ministry of Hydraulics and Energy as the implementation partner. The proposed project seeks promote on a pilot area the implementation of the concept of IFM, through flood risk assessment and applying risk management principles in particular focusing on the preparedness of the population settled in flood prone areas. The proposed project would pursue the following objectives:

- Ensure the protection of riparian population and their goods from the adverse impacts of floods while maximizing the benefits of the economic use of flood plains;



- Address the immediate flood protection needs of a pilot area, in order to reduce the damages and losses caused by floods through the implementation of appropriate policies
- Development of a “risk culture” among those living in flood prone areas
- Limiting the encroachment in fragile riparian areas and the related risks to populations and environment.
- Provision to local authorities and communities at risk of tools to deal with flood risks.
- Contribute to the protection of watercourses crossing urban areas and rural settlement and their ecosystems.

The proposal has been submitted to the African Water Facility for possible funding. This option will be further pursued and additional financial partners identified as required.

#### **4.2.5 Flood management in Zambezi Basin**

Based on engagement of WMO in Zambezi Basin to establish a Flash Flood Guidance System, several countries of the basin have voiced interest on jointly developing a comprehensive flood management policy for the basin. The readiness of the basin countries to politically commit to such process is being explored. Once this would be confirmed APFM would initiate a process of formulating a project proposal and getting the necessary buy-in from the financial partners.

### **4.3 CAPACITY DEVELOPMENT**

#### **4.3.1 Development of training material**

##### *Vocational training materials together with Cap-Net*

Development of IFM Training Material in the framework of collaboration with Cap-Net is being undertaken on three topics for different target groups, namely

- Water/flood managers or policy makers at national level (*IFM Policy Course*)  
In the process of policy formation groups at several levels of administration play a role. On the one hand top-level policy makers would benefit from a broad exposure to the aims and principles of Integrated Flood Management. On the other hand, the actual drafters of the policy are usually to be found within ranks below the top policy level, i.e. in many instances water and disaster managers in “engineering dominated” water institutions.
- National NGOs active in community outreach projects in water or disaster management, and subsequently district/municipal level authorities as well as community leadership in floodprone areas, particularly rural areas. (*Community flood management course*)

Develop training course and materials suitable for adaptation to varied community realities related to the kind of water hazards occurring, as well as the local economic and social structure. Content of the material will focus on the establishment of local flood management cells or committees (CFMCs), responsible among others for community needs and capability assessment, flood awareness raising, flood management operations on the local level (flood preparedness, emergency response and rehabilitation), planning and interfacing with respective government institutions, etc.

- Municipalities of urban agglomerations, in particular units responsible for urban drainage, spatial planning, as well as warning and emergency services (*Urban Flood Management course*)

For all three topics, material has been created in form of lesson plans, presentations or course readers. The main focus of attention in 2008/2009 would be the consolidation of those materials in form of fully fledged training packages according to the standards applied by Cap-Net. Those training packages are intended as working materials for trainers, facilitators and trainees.



The advancement of collaboration with Cap-Net has further led to a request by Cap-Net for WMO/APFM to play an active role in a recent Cap-Net led capacity building initiative with the working title “IWRM and Adaptation Climate Change- acting today; preparing for tomorrow”. APFM has responded positively and assists Cap-Net in shaping the contents particularly from a flood management point of view to promote IFM as an element of a climate change adaptation strategy, but also to serve as a hub to WMO climate-related divisions. It is important to note that the World Climate Programme of WMO after an internal reorganization is now affiliated to the same Department as the APFM, the head of the TSU being also the Director of the Climate and Water Department. A first concrete event is planned to be staged in form of a global training of trainers in August 2008 in Panama together with a Cap-Net affiliated regional capacity building network (REDICA). APFM will provide technical assistance only. The training materials are further developed into a training package towards the end of the year.

#### ***Materials for Educators and Children with Project WET***

The core of the proposal is the development, printing and global roll-out through Project WET’s Education Delivery Network, of a number of educational materials under the working Title “Understanding Floods Education Program for Teachers and Youth”. The two core elements of the collaborative effort include:

- “*Understanding Floods Educators Guide*” for teachers use with students; and
- “*Understanding Floods KIDs (Kids In Discovery Series) Activity Booklet*” for children/youth ages 8-12.

TSU would continue to work with Project WET, and USAID/NOAA to finalize the contractual arrangements and subsequently roll out the materials. First step will be a materials development workshop in New Orleans in June 2008. The target date for launching the planned outputs is the 5th World Water Forum, to be held in 2009 in Istanbul, Turkey, within the Global Water Education Village.

#### ***E-learning in collaboration with Technical University of Hamburg-Harburg***

APFM and TUHH would continue to work together on an adapted version of the e-learning tool for integrated flood management, which would be jointly published. Revised content are being jointly agreed-on by APFM and TUHH through an informal editorial board. If and as required, additional partners could be invited to join that board with a particular view of adding value into the contents or outreach. Such e-learning environment would be made a “living system”, i.e. the content would be added on a regular bases. The E-learning system is planned to be released in 2008 and would serve as part of a “blended learning” approach which would combine “e-learning” as a preparatory step to the onsite trainings undertaken by APFM.

#### **4.3.2 Training courses**

##### ***Planned training courses in collaboration with JICA***

APFM will continue to organize the Integrated Flood Management (IFM) module in the trainings organized by JICA for “River and Dam Engineering III” and “Flood Hazard Mapping”. With regard to the recent increase of flood disaster and resulting need for capacity building to mitigate such disaster, APFM will continuously support on the master course for “Water-related Risk Management” started in October, 2007 under the overall cooperation between APFM and ICHARM for capacity building.

##### ***Following training courses are planned jointly with Cap-Net***

**Pune/Hyderabad, India:** In the framework of regular Flood Management Training courses of the Indian National Water Academy (NWA), the APFM is planning to co-organize the planned flood management workshop for various relevant governmental institutions in India. Initially foreseen to take place in March



2008, the workshop could not be held as foreseen due to technical problems on the side of the partners. The workshop would therefore be pursued in 2008/2009 as a joint WMO/NWA/Cap-Net workshop.

**Peru:** A Regional Training course on Integrated Flood Management for Latin America is planned in Lima, Peru in October 2008. The workshop would be organized as a Training of Trainers with some 10 Latin American countries, and is intended to serve as the basis to conduct roving seminars at the national level as a follow up. This course would be budget neutral to the APFM, as funding could be secured through a dedicated fund managed by WMO on behalf of the Spanish Government for the Iberoamerican countries.

**Panama:** TSU together with other sections in WMO will provide relevant inputs on 'Integrated Flood Management as a Climate Change Adaptation Strategy' to the Global Training of Trainers on 'Climate Change and IWRM' to be organized by REDICA (a Cap-Net affiliated regional capacity building network) in August in Panama supported by Cap-Net. The Training is staged as the first in a series of planned trainings on the same topic that will follow on the regional level.

**Indonesia:** a proposal has been received from a Cap-Net affiliated national capacity building network in Indonesia (Collaborative Knowledge Network Indonesia (CKNet- INA)) to hold a national training on Integrated Flood Management in December 2008. TSU has welcomed the idea to move on its Capacity Building Agenda in Indonesia as the first South East Asian country and will work with the partners to get the IFM concept fully embedded in the development of the course. Funding for this activity is foreseen to be provided by Cap-Net and the World Bank.

**Nile Basin:** a proposal has been received from a Cap-Net affiliated regional capacity building network in the Nile-Basin (Nile-IWRMnet) to hold a regional training on integrated flood management for the countries of the Nile Basin. TSU is working with the partners to ensure that the proposal meets the set quality criteria and that the target group can be effectively reached before taking final decision on running the training.

Under the newly established UN-Water Decade Programme on Capacity Development (UN-Water DCP) the APFM has proposed to launch a regional training on IFM for the Western and Central Asian countries, as neither APFM nor Cap-Net has adequate outreach capacities into this region at present.

#### **4.4 HELP DESK**

##### **4.4.1 Outline of Help Desk Concept**

There is an overwhelming need to facilitate the adoption of the IFM approach at the field level, and the capacities at the international level to provide competent, impartial and balanced guidance backed with adequate human and financial resources needs strengthening in form of a clear and accessible mechanism – The HelpDesk for Integrated Flood Management (IFM HelpDesk).

The experience in the field of IWRM has shown that acceptance of IWRM philosophy has not automatically translated into its implementation at the field level. One critical success factor identified is the lack of a clear knowledge base. It is realized that there is need for an international institution, which can be approached by a country requiring working guidance on comprehensive issues of flood management in an integrated manner. In order to help in adopting IFM approaches on the ground, it is proposed to establish the IFM HelpDesk during the second phase of APFM.

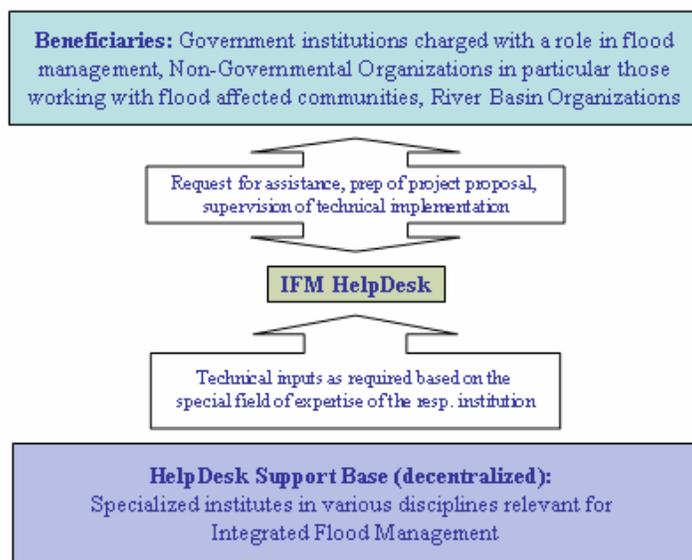
The IFM HelpDesk is *“a facility that will provide guidance on flood-related issues to countries that want to adopt the IFM concept in a ‘hand holding’ mode”, i.e. in close partnership and tailored to the needs of the particular partner, with the aim of helping the partners further in IFM implementation.*”

The IFM HelpDesk, coordinated by WMO will be based on a multi-disciplinary network of institutions with required expertise in various facets of Integrated Flood Management. The IFM HelpDesk will:



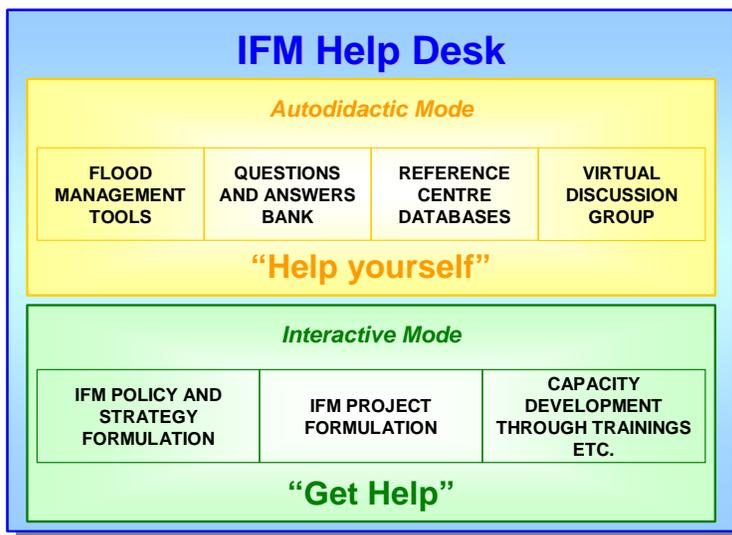
- Provide quick access to relevant flood management information;
- Provide guidance and momentum for reform activities for integrated flood management in the countries or river basins;
- Serve as a link between flood management practitioners or decision-makers in flood-affected countries and regions and required experts in various fields such as hydrology, institutional development, ecology, sociology and development economics, etc; and
- Serve as link between various technical and financial partners.

The IFM Help Desk is planned to be situated in WMO but depends on a strong decentralized network of experts and specialized institutes. This is necessary because integrated flood management depends on various inputs and Tools, excellence of which cannot be provided by one single organization. The mechanism is illustrated in Figure 2.



**Figure 2: Overview of the IFM Help Desk**

As illustrated in Figure 3, the HelpDesk is planned to function in two modes: the autodidactic mode (Self Help) and the interactive mode (Get Help).



**Figure 3: Overview of the IFM Help Desk**



#### 4.4.2 Institutional arrangements and mechanism for the HelpDesk

The TSU places emphasis on the establishment and consolidation of the support base of the HelpDesk, namely, those partner institutions expected to actively support the operation of the HelpDesk. This set of partners is derived from the expected needs under the HelpDesk, as well as the experience made by TSU in collaborating with various partners throughout the project term of the APFM. The approach taken in establishing the support base is based on the recognition that a small group of partners that have proven to be in the position to effectively deliver together in IFM policy and implementation should be established first. Based on the operational capacity of the HelpDesk after its launch additional partners would be considered for integration into the HelpDesk Support Base. The tentatively foreseen partners to become part of the HelpDesk Support Base include the following:

##### Non-governmental

- University of Dundee: Centre for Water Law, Policy and Science
- Public Works Research Institute, Tsukuba, Japan (through the International Centre for Water Hazard and Risk Management)
- Cap-Net (Capacity Building for Integrated Water Resources Management)
- DHI Water and Environment, Denmark
- Asian Disaster Preparedness Centre, Thailand
- UNESCO-IHE, Netherlands
- Project WET (Water Education for Teachers), United States

##### Governmental

- Japanese Ministry of Land, Infrastructure, Transport and Tourism through Japan Institute for Construction Engineering (JICE)
- Swiss Federal Office for the Environment (FOEN)
- Korea Institute of Construction Engineering (KICT)

It is important to note that some of those partners are foreseen as technical partners and some as technical and financial partners. Further, efforts would need be made to broaden the linkages of the HelpDesk to the bi- and multilateral development agencies.

Each partner would be linked to the HelpDesk by a specific agreement consisting of two parts: a generic part where the overall aims and objectives of the HelpDesk are provided together with the main elements of operation; and a part where the specific capacities and commitments of each partner are specified. In this context several institutional requirements are being pursued in the imminent future on the level of WMO.

- Presentation of the mechanism to join the HelpDesk as a supporting partner by expressing the intended contribution and agreeing to the terms and conditions formulated for that purpose. This also included eligibility criteria to ensure conformity with WMO' status as an intergovernmental body and quality management criteria.
- Reform of the APFM Trust Fund to accommodate the strategic direction under the HelpDesk (to take effect after APFM Phase II). It is viewed as vital for the operation of the HelpDesk that this Trust Fund would be equipped with some funds to allow a timely response for requests reaching the helpdesk under the "Get Help" facility. This would be necessary for example if fact-finding missions, initiation workshops or consultancies for the formulation of project proposals would be required.
- It is foreseen that at least one professional full-time staff would be required in WMO charged with the coordination work of the HelpDesk. Efforts are being undertaken to secure funding for this through WMO and the partners currently supporting the APFM.



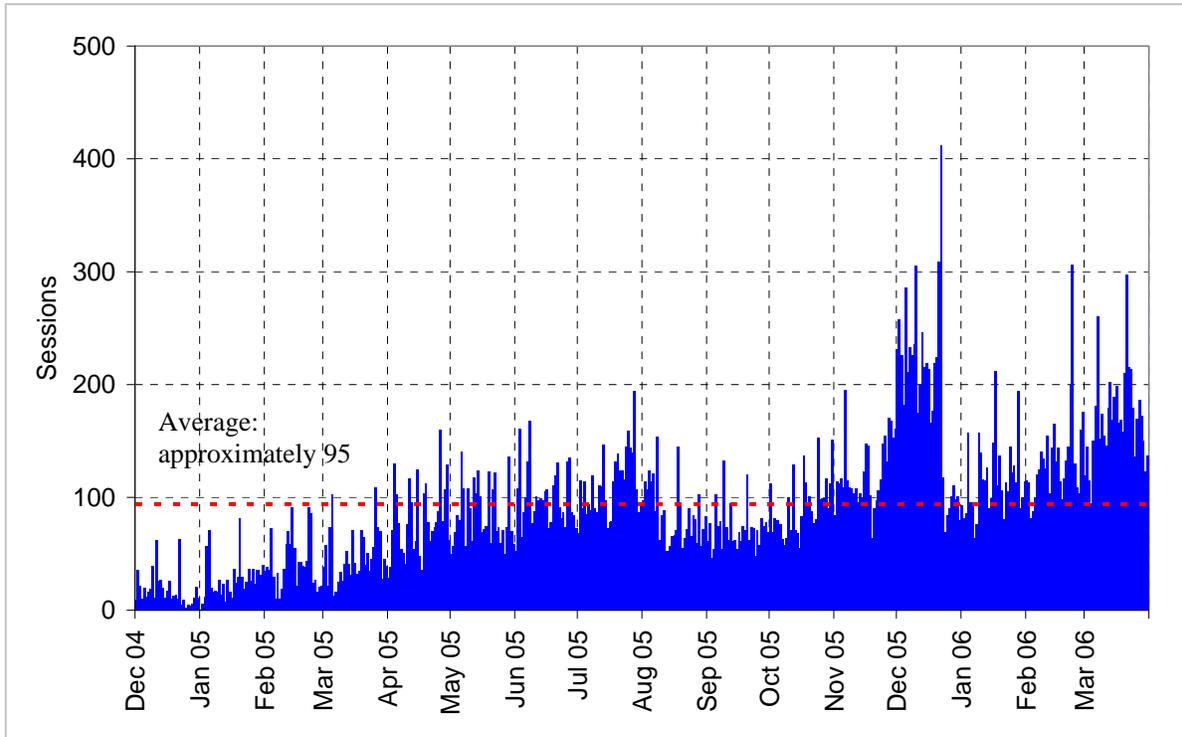
#### **4.4.3 Further process and launch of the HelpDesk**

The mechanism to join the Helpdesk is currently being negotiated on the level of WMO and should be available by summer 2008. In the second half of the year a workshop with all foreseen partners of the Helpdesk is planned to be held in Geneva to discuss the overall direction that is being taken by the HelpDesk, the roles of all partners, and the conditions for a smooth launch and operation. It is seen as mission critical to have before that workshop clarity about the administrative and financial mechanism backing the operation of the HelpDesk.

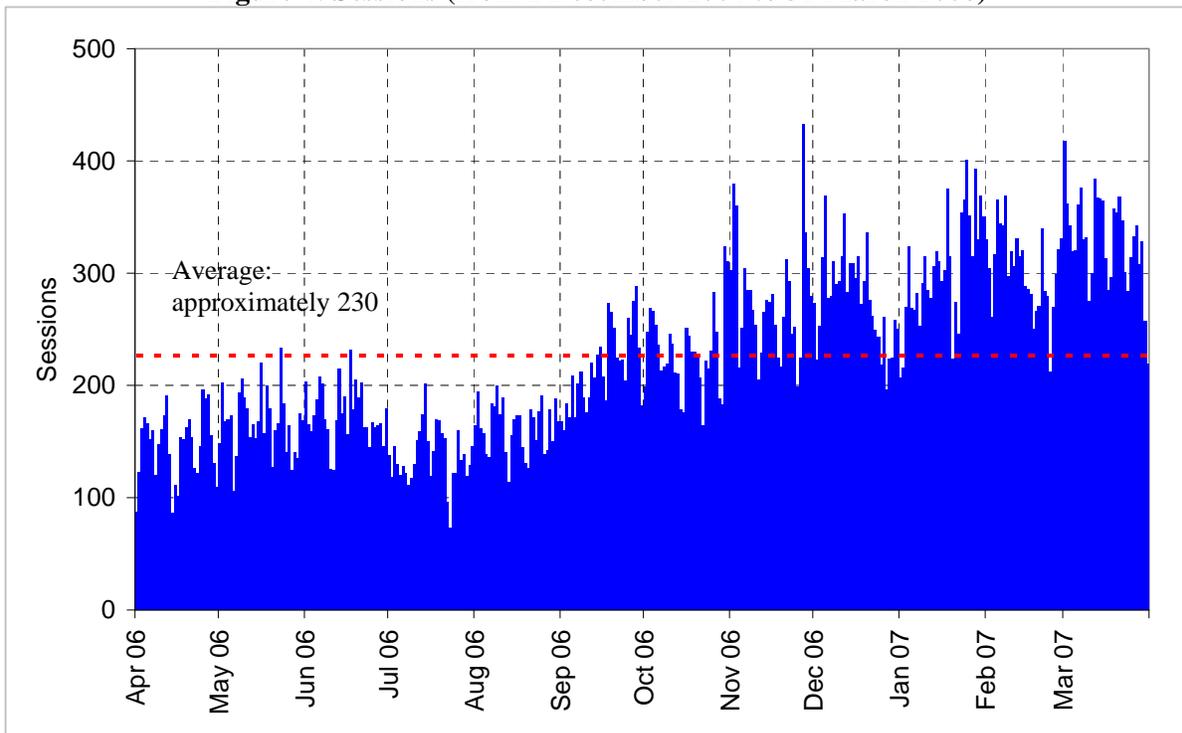
Subsequently, the formal linkages would be completed between the partners in 2008 to be able to officially launch the IFM HelpDesk at a session of the World Water Forum in March 2009. This will be an important element to make the availability of the HelpDesk known to the water community. During 2009 further efforts would need to be undertaken to make the availability of the HelpDesk known to the foreseen beneficiaries. The period between March 2009 and spring 2010 would be the period in which the operation of the helpdesk would be fine-tuned with the aim of being fully operational at the end of the APFM Phase II.

**ANNEX I VISITORS TO WEBSITE**

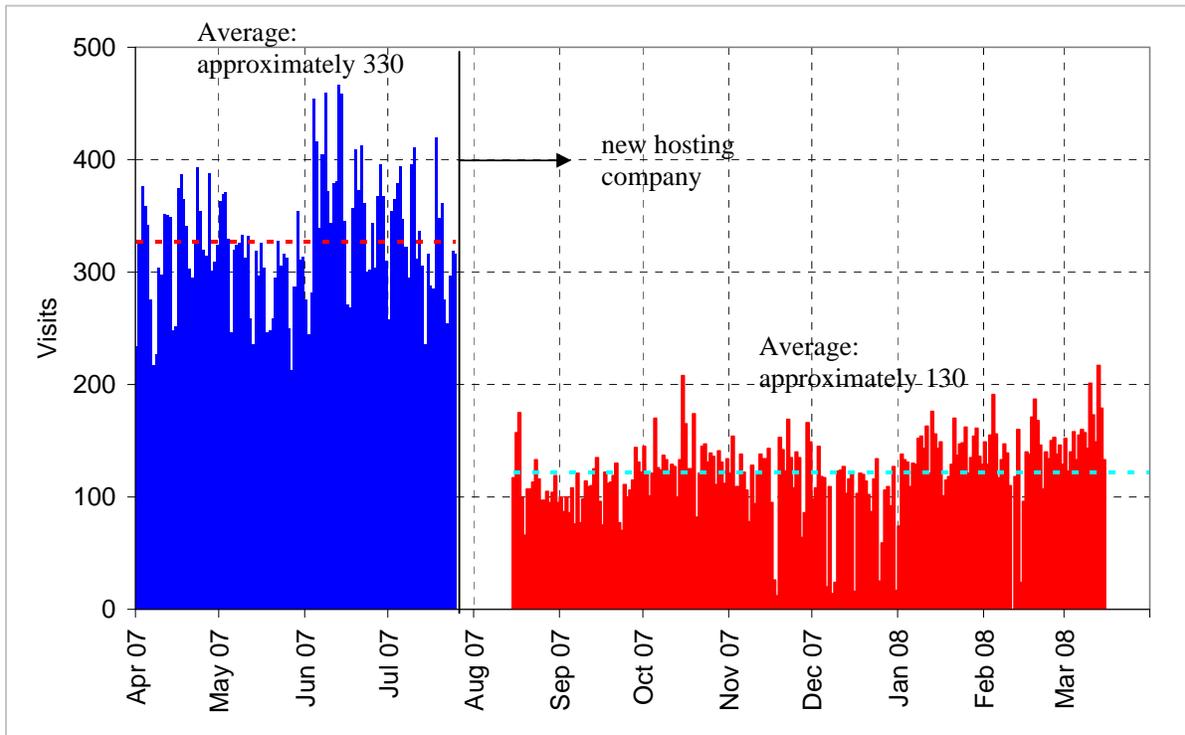
**1. General visitor statistics (Traffic)**



**Figure 4: Sessions (from 1 December 2004 to 31 March 2006)**



**Figure 5: Sessions (from 1 April 2006 to 31 March 2007)**



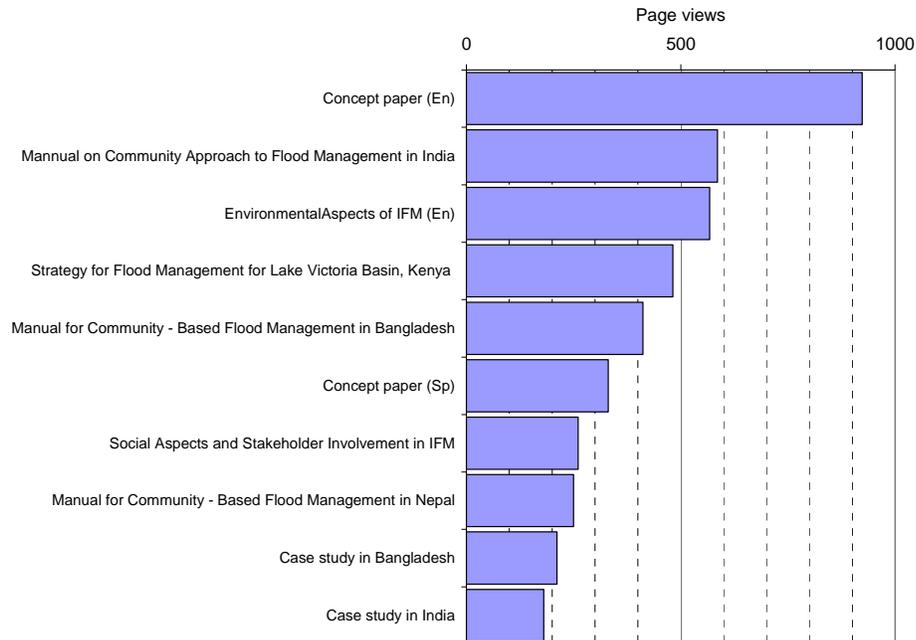
**Figure 6: Sessions (from 1 April 2007 to 31 March 2008)**

**2. The number of access (PDF files only)**

1) from Apr 2006 to Mar 2007 \*hosted by Bluewin

**Table: Top 10 of access (PDF files only) on the APFM website (monthly average)**

|    | Page names / File names                   | Link   | Requested (monthly average) |
|----|---|--|-----------------------------|
| 1  | /pdf/concept_paper_e.pdf                  | Concept paper (En)   | 923                         |
| 2  | /pdf/pilot_projects/manual_india.pdf      | Manual on Community Approach to Flood Management in India    | 586                         |
| 3  | /pdf/ifm_environmental_aspects.pdf        | EnvironmentalAspects of IFM (En)                             | 568                         |
| 4  | /pdf/strategy_kenya_e.pdf                 | Strategy for Flood Management for Lake Victoria Basin, Kenya | 481                         |
| 5  | /pdf/pilot_projects/manual_bangladesh.pdf | Manual for Community - Based Flood Management in Bangladesh  | 412                         |
| 6  | /pdf/concept_paper_s.pdf                  | Concept paper (Sp)   | 331                         |
| 7  | /pdf/ifm_social_aspects.pdf               | Social Aspects and Stakeholder Involvement in IFM            | 261                         |
| 8  | /pdf/pilot_projects/manual_nepal.pdf      | Manual for Community - Based Flood Management in Nepal       | 250                         |
| 9  | /pdf/case_studies/cs_bangladesh.pdf       | Case study in Bangladesh                                     | 211                         |
| 10 | /pdf/case_studies/cs_india.pdf            | Case study in India  | 180                         |



**Figure 7: Top 10 of access (PDF files only) on the APFM website (monthly average)**



## 2) from Aug 2007 to Mar 2008 \*hosted by New company

**Table: Top 10 of page views (PDF files only) on the APFM website (monthly data)**

|      |      |   |   | August 2007    |
|------|------|---|---|----------------|
| Rank | Hits | item  | URL   |                |
| 1    | 663  | IFM Concept Paper (En)                              | /pdf/concept_paper_e.pdf                                  |                |
| 2    | 605  | Case Study in Mexico                                | /pdf/case_studies/cs_mexico.pdf                           |                |
| 3    | 460  | FM Policy Series; Legal Aspects of IFM (En)         | /pdf/ifm_legal_aspects.pdf                                |                |
| 4    | 426  | FM Policy Series; Social Aspects in IFM (En)        | /pdf/ifm_social_aspects.pdf                               |                |
| 5    | 417  | Strategy for FM for Lake Victoria Basin, Kenya      | /pdf/strategy_kenya_e.pdf                                 |                |
| 6    | 265  | Case Study in India                                 | /pdf/case_studies/cs_india.pdf                            |                |
| 7    | 262  | FM Policy Series; Environmental Aspects of IFM (Fr) | /pdf/ifm_environmental_aspects_Fr.pdf                     |                |
| 8    | 259  | Case Study in Pakistan                              | /pdf/case_studies/cs_pakistan_chenab.pdf                  |                |
| 9    | 252  | Manual on Community Approach in Nepal               | /pdf/pilot_projects/manual_nepal.pdf                      |                |
| 10   | 247  | FM Policy Series; Legal Aspects of IFM (Sp)         | /pdf/ifm_legal_aspects_Sp.pdf                             |                |
|      |      |   |   | September 2007 |
| Rank | Hits | item  | URL   |                |
| 1    | 1277 | IFM Concept Paper (En)                              | /pdf/concept_paper_e.pdf                                  |                |
| 2    | 859  | Case Study in Mexico                                | /pdf/case_studies/cs_mexico.pdf                           |                |
| 3    | 682  | FM Policy Series; Environmental Aspects of IFM (En) | /pdf/ifm_environmental_aspects.pdf                        |                |
| 4    | 577  | FM Policy Series; Environmental Aspects of IFM (Sp) | /pdf/ifm_environmental_aspects_Sp.pdf                     |                |
| 5    | 554  | FM Policy Series; Legal Aspects of IFM (En)         | /pdf/ifm_legal_aspects.pdf                                |                |
| 6    | 551  | FM Policy Series; Social Aspects in IFM (En)        | /pdf/ifm_social_aspects.pdf                               |                |
| 7    | 485  | Manual on Community Approach in India               | /pdf/pilot_projects/manual_india.pdf                      |                |
| 8    | 483  | Case Study in India                                 | /pdf/case_studies/cs_india.pdf                            |                |
| 9    | 475  | Case Study in Bangladesh                            | /pdf/case_studies/cs_bangladesh.pdf                       |                |
| 10   | 442  | IFM Tools; Environmental Assessment                 | /pdf/ifm_tools/Tools_Environmental_Assessment_for_Flood_N |                |
|      |      |   |   | October 2007   |
| Rank | Hits | item  | URL   |                |
| 1    | 1573 | IFM Concept Paper (En)                              | /pdf/concept_paper_e.pdf                                  |                |
| 2    | 1255 | Case Study in Mexico                                | /pdf/case_studies/cs_mexico.pdf                           |                |
| 3    | 803  | FM Policy Series; Social Aspects in IFM (En)        | /pdf/ifm_social_aspects.pdf                               |                |
| 4    | 748  | Case Study in Bangladesh                            | /pdf/case_studies/cs_bangladesh.pdf                       |                |
| 5    | 696  | FM Policy Series; Legal Aspects of IFM (En)         | /pdf/ifm_legal_aspects.pdf                                |                |
| 6    | 624  | FM Policy Series; Environmental Aspects of IFM (Sp) | /pdf/ifm_environmental_aspects_Sp.pdf                     |                |
| 7    | 591  | Case Study in India                                 | /pdf/case_studies/cs_india.pdf                            |                |
| 8    | 583  | Manual on Community Approach in India               | /pdf/pilot_projects/manual_india.pdf                      |                |
| 9    | 579  | IFM Tools; Basin FM Plan                            | /pdf/ifm_tools/Tools_Basin_Flood_Management_Plan.pdf      |                |
| 10   | 538  | FM Policy Series; Social Aspects in IFM (Sp)        | /pdf/ifm_social_aspects_Sp.pdf                            |                |
|      |      |   |   | November 2007  |
| Rank | Hits | item  | URL   |                |
| 1    | 3718 | Case Study in Mexico                                | /pdf/case_studies/cs_mexico.pdf                           |                |
| 2    | 1359 | IFM Concept Paper (En)                              | /pdf/concept_paper_e.pdf                                  |                |
| 3    | 852  | Case Study in Bangladesh                            | /pdf/case_studies/cs_bangladesh.pdf                       |                |
| 4    | 711  | FM Policy Series; Economic Aspects of IFM (En)      | /pdf/ifm_economic_aspects.pdf                             |                |
| 5    | 638  | IFM Concept Paper (Sp)                              | /pdf/concept_paper_s.pdf                                  |                |
| 6    | 594  | Legal Aspects of IFM Case Studies                   | /pdf/ifm_legal_aspects_casestudies.pdf                    |                |
| 7    | 590  | FM Policy Series; Social Aspects in IFM (En)        | /pdf/ifm_social_aspects.pdf                               |                |
| 8    | 531  | Case Study in India                                 | /pdf/case_studies/cs_india.pdf                            |                |
| 9    | 484  | IFM Tools; Basin FM Plan                            | /pdf/ifm_tools/Tools_Basin_Flood_Management_Plan.pdf      |                |
| 10   | 480  | FM Policy Series; Environmental Aspects of IFM (Fr) | /pdf/ifm_environmental_aspects_Fr.pdf                     |                |
|      |      |   |   | December 2007  |
| Rank | Hits | item  | URL   |                |
| 1    | 1145 | IFM Concept Paper (En)                              | /pdf/concept_paper_e.pdf                                  |                |
| 2    | 890  | FM Policy Series; Economic Aspects of IFM (En)      | /pdf/ifm_economic_aspects.pdf                             |                |
| 3    | 859  | Case Study in Mexico                                | /pdf/case_studies/cs_mexico.pdf                           |                |
| 4    | 631  | Manual on Community Approach in India               | /pdf/pilot_projects/manual_india.pdf                      |                |
| 5    | 478  | FM Policy Series; Legal Aspects of IFM (En)         | /pdf/ifm_legal_aspects.pdf                                |                |
| 6    | 472  | Manual on Community Approach in Bangladesh          | /pdf/pilot_projects/manual_bangladesh.pdf                 |                |
| 7    | 423  | Legal Aspects of IFM Case Studies                   | /pdf/ifm_legal_aspects_casestudies.pdf                    |                |
| 8    | 339  | IWRM and FLOODS                                     | /pdf/iwrm_floods.pdf                                      |                |
| 9    | 326  | Case Study in India                                 | /pdf/case_studies/cs_india.pdf                            |                |
| 10   | 319  | Case Study in Ethiopia                              | /pdf/case_studies/cs_ethiopia.pdf                         |                |



## January 2008

| Rank | Hits | item  | URL  |
|------|------|---|--|
| 1    | 1784 | IFM Concept Paper (En)                              | /pdf/concept_paper_e.pdf                       |
| 2    | 1117 | FM Policy Series; Economic Aspects of IFM (En)      | /pdf/ifm_economic_aspects.pdf                  |
| 3    | 904  | Case Study in Bangladesh                            | /pdf/case_studies/cs_bangladesh.pdf            |
| 4    | 813  | Case Study in Mexico                                | /pdf/case_studies/cs_mexico.pdf                |
| 5    | 673  | FM Policy Series; Social Aspects in IFM (En)        | /pdf/ifm_social_aspects.pdf                    |
| 6    | 527  | FM Policy Series; Environmental Aspects of IFM (Fr) | /pdf/ifm_environmental_aspects_Fr.pdf          |
| 7    | 505  | Manual on Community Approach in Bangladesh          | /pdf/pilot_projects/manual_bangladesh.pdf      |
| 8    | 482  | FM Policy Series; Legal Aspects of IFM (En)         | /pdf/ifm_legal_aspects.pdf                     |
| 9    | 481  | IFM Tools; Flood Loss Assessment                    | /pdf/ifm_tools/Tools_Flood_Loss_Assessment.pdf |
| 10   | 429  | Manual on Community Approach in India               | /pdf/pilot_projects/manual_india.pdf           |

## February 2008

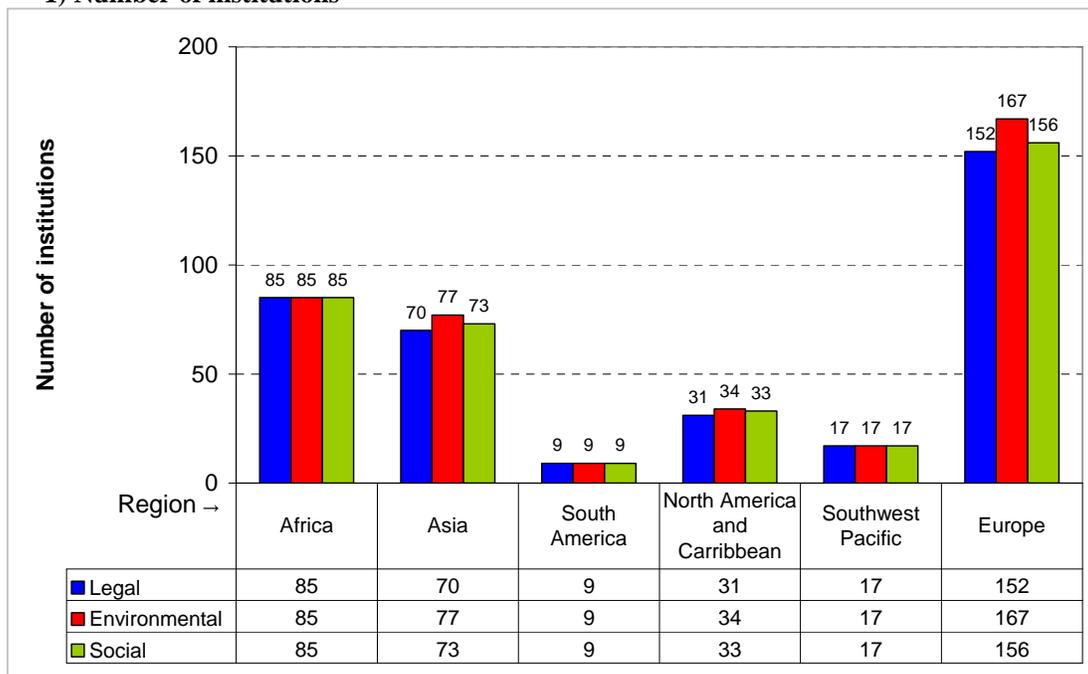
| Rank | Hits | item  | URL  |
|------|------|---|--|
| 1    | 1458 | FM Policy Series; Economic Aspects of IFM (En)      | /pdf/ifm_economic_aspects.pdf                        |
| 2    | 1097 | IFM Concept Paper (En)                              | /pdf/concept_paper_e.pdf                             |
| 3    | 802  | Case Study in Bangladesh                            | /pdf/case_studies/cs_bangladesh.pdf                  |
| 4    | 705  | Case Study in Mexico                                | /pdf/case_studies/cs_mexico.pdf                      |
| 5    | 595  | Synthesis Report of Flash Flood Management in CEE   | /pdf/pilot_projects/APFM-CEE-Synthesis_web.pdf       |
| 6    | 503  | Manual on Community Approach in Bangladesh          | /pdf/pilot_projects/manual_bangladesh.pdf            |
| 7    | 463  | FM Policy Series; Legal Aspects of IFM (En)         | /pdf/ifm_legal_aspects.pdf                           |
| 8    | 399  | FM Policy Series; Environmental Aspects of IFM (Fr) | /pdf/ifm_environmental_aspects_Fr.pdf                |
| 9    | 395  | Manual on Community Approach in India               | /pdf/pilot_projects/manual_india.pdf                 |
| 10   | 382  | IFM Tools; Basin FM Plan                            | /pdf/ifm_tools/Tools_Basin_Flood_Management_Plan.pdf |

## March 2008

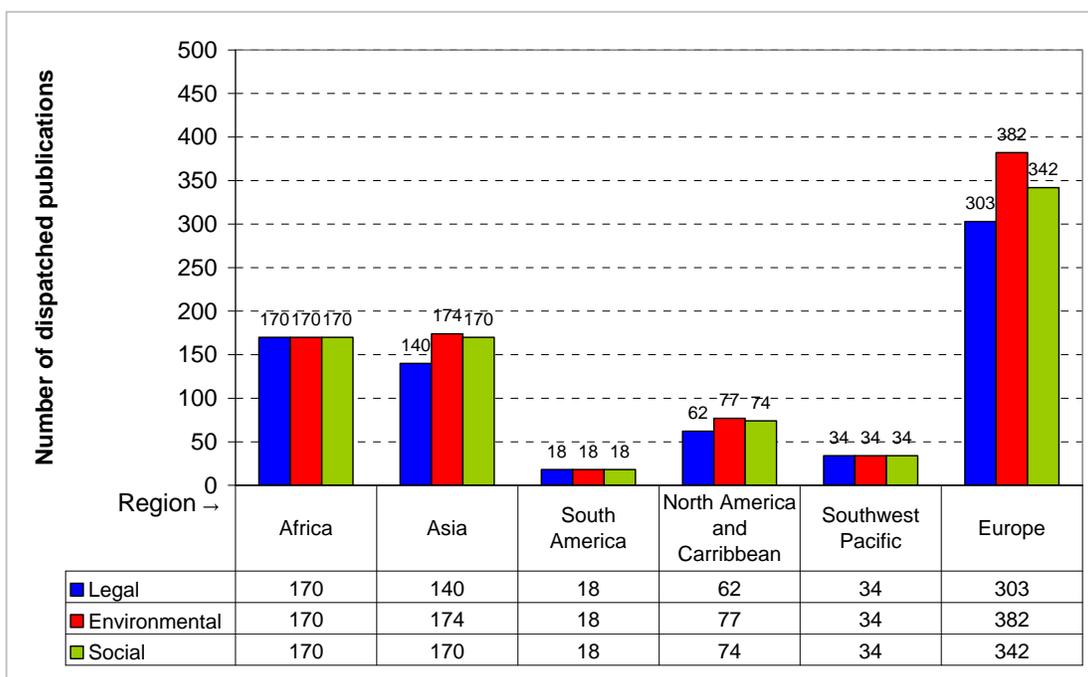
| Rank | Hits | item  | URL  |
|------|------|---|--|
| 1    | 601  | IFM Concept Paper (En)                              | /pdf/concept_paper_e.pdf                                   |
| 2    | 542  | FM Policy Series; Economic Aspects of IFM (En)      | /pdf/ifm_economic_aspects.pdf                              |
| 3    | 502  | Manual on Community Approach in India               | /pdf/pilot_projects/manual_india.pdf                       |
| 4    | 411  | Manual on Community Approach in Bangladesh          | /pdf/pilot_projects/manual_bangladesh.pdf                  |
| 5    | 394  | Case Study in Bangladesh                            | /pdf/case_studies/cs_bangladesh.pdf                        |
| 6    | 346  | FM Policy Series; Environmental Aspects of IFM (Fr) | /pdf/ifm_environmental_aspects_Fr.pdf                      |
| 7    | 308  | CEE workshop presentation                           | /pdf/cee_workshop/Session5_1_Flood_crises_preparedness.pdf |
| 8    | 308  | FM Policy Series; Legal Aspects of IFM (En)         | /pdf/ifm_legal_aspects.pdf                                 |
| 9    | 250  | FM Policy Series; Environmental Aspects of IFM (En) | /pdf/ifm_environmental_aspects.pdf                         |
| 10   | 240  | Case Study in Bangladesh                            | /pdf/case_studies/bangladesh.pdf                           |

## ANNEX II DISSEMINATION OF PUBLICATIONS

### 1) Number of institutions



### 2) Number of dispatched publications



Legal: Legal and institutional Aspects of Integrated Flood Management  
 Environmental: Environmental Aspects of Integrated Flood Management  
 Social: Social Aspects and Stakeholders Involvement in Integrated Flood Management

**Figure 8: Number of institutions and publications that APFM publication has been dispatched**


**ANNEX III APFM (PHASE II) TRUST FUND FINANCIAL STATEMENT**
**From July 2006 to March 2008**
**APFM TRUST FUND FINANCIAL STATEMENT  
(as of 31 March 2008)**
**I. Income and Expenditure from July 2006 to December 2007**

|      |   |                    |             |
|------|---|--------------------|-------------|
| 1-1. | Opening balance   |                    | \$ (a)      |
| 1-2. | Income  |                    |             |
|      | Contributions   | 691,340            |             |
|      | Interest  | 6,719              |             |
|      | <b>Total Income</b>                                       | <b>698,059 (f)</b> |             |
| 1-3. | Actual Expenditure (including support costs)              | 599,481 (g)        |             |
| 1-4. | Closing balance carried forward to the 2008-2009 biennium | (e) + (f) - (g)    | 197,818 (a) |

*Congfai Xiong*  
  
 Liaison Officer  
 Chief, Finance Division  
 (198)

**II. Income and Expenditure from January 2008 to March 2008**

|      |  |                    |             |
|------|--|--------------------|-------------|
|      |  |                    | CHF         |
| 2-1. | Opening balance  | 197,818 (a)        |             |
| 2-2. | Income   |                    |             |
|      | Contributions (including last installment made at 15 April 2008) | 116,824            |             |
|      | Interest   | 1,309              |             |
|      | <b>Total Income</b>  | <b>118,133 (b)</b> |             |
| 2-3. | Expenditure (including support costs)                            |                    |             |
|      | Actual Expenditure (Liquidated)                                  | 51,928             |             |
|      | Unliquidated (Futures Obligation)                                | 48,242             |             |
|      | Impairment (Futures Obligation)                                  | 22,224             |             |
|      | Prior year income/expenditure                                    | 0                  |             |
|      | <b>Total Expenditure</b>   | <b>122,394 (c)</b> |             |
| 2-4. | Carry forward from this period                                   | (a) + (b) - (c)    | 183,565 (d) |

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 Trust Manager  
 Chief, Budget Office  
 (198)



From July 2006 to March 2007

APFM (Phase II) TRUST FUND FINANCIAL STATEMENT  
(as of 31 March 2007)

Income and Expenditure from July 2006 to March 2007

|  | CHF                                    |
|--|--|
| 1-1. Opening balance   | <u>0 (a)</u>                           |
| 1-2. Income  |  |
| Contributions (including last installment made at<br>3rd April 2007) | 408,110                                |
| Interest   | 2,765                                  |
| <b>Total Income</b>  | <b><u>410,875 (b)</u></b>              |
| 1-3. Expenditure (including support costs)                           |  |
| Actual Expenditure (Liquidated)                                      | 196,382                                |
| Unliquidated (Future Obligation)                                     | 106,204                                |
| Requisition (Future Obligation)                                      | 20,573                                 |
| <b>Total Expenditure</b>   | <b><u>323,159 (c)</u></b>              |
| 1-4. Carry forward from this period                                  | <b>(a)+(b) - (c) <u>87,716 (d)</u></b> |

*Certified correct*

Tomiji Mizutani  
Chief, Budget Office  
WMO