



World Meteorological Organization



ASSOCIATED PROGRAMME ON FLOOD MANAGEMENT



REPORT OF ACTIVITIES SINCE THE LAUNCH OF THE HELPDESK

September 2010



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.



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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 189 countries and territories and such is the centre of knowledge about weather, climate and water.



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 (2009-2010)

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LIST OF SUB MATERIAL

- I. Flood Management Policy Series
 - (a) IFM Concept Paper 3rd Edition (English, French, Spanish)
 - (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. National and Regional support activities
 - (a) The Study on Integrated Flood Management for Nyando River Basin in the Republic of Kenya

- III. 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) Outline of the Training Course for Integrated Flood Management Policy Course
 - (c) Education materials in collaboration with Project WET

- IV. Dissemination of information
 - (a) Flood Management Reference Centre
 - (b) Newsletters (No.20, No.21, No.22, No. 23)

- V. IFM HelpDesk
 - (a) HelpDesk for Integrated Flood Management (Concept Note)



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 an ad-hoc Annual Report of APFM Phase II prepared for the First Support Based Partners Meeting, which documents the activities undertaken during the reporting period from June 2009 (launch of the HelpDesk) to 30 September 2010. Some of the outputs and summarised documents are shown as Sub-material, meanwhile most of the output materials will be displayed as sub-materials at the meeting.



2. ACTIVITIES

2.1 FLOOD MANAGEMENT POLICY SERIES AND IFM TOOLS SERIES

Third Edition of Flood Management Concept Paper

The ‘*Flood Management Concept Paper*’, which was released five years ago in its second edition, has been revised as emerging issues are treated in more detail: risk management, urbanization, climate variability and change, and adaptive management. 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, the IFM concept paper has been released in its Third Edition during the reporting period (Sub-material I(a)). 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. The publication has been translated into various languages as shown below;

- IFM Concept Paper (En, Fr, Sp)
(Above publications are available from: <http://www.apfm.info/publications.htm>)

The IFM Concept Paper has been translated into Russian, but publishing has been delayed by License Agreement related issues.

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(b), I(c), I(d) and I(e)). The series of publications have been translated into various languages as shown below;

- 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:

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

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 (downloadable at the HelpDesk and APFM websites; a printout of these tools will be displayed at the meeting) , a new inventory of IFM Tools has been prepared (the latest draft of these tools will also be displayed at the meeting). 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 on a number of topics. 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

Three tools were selected to be developed during the last period (April 2009 to March 2010), which are “IFM as an adaptation tool for climate change (case studies)”, “Flood emergency planning” and “Management of sediment related risks”. These are basically developed by the TSU staff with peer reviews by outside experts, including universities and institutes. These tools are based on assessing readily available literature, and drawing 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 are disseminated on the APFM website. As the “Flood Management Tools Series” is not planned to undergo extensive linguistic editing, it would be given a distinctive branding that distinguishes the tools series from the “Flood Management Policy Series”. These tools would be living documents and would be updated based on experience sharing.

2.1.1 IFM as an adaptation tool for climate change: case studies (undergoing final editing)

A major element of climate change impact assessments undertaken within the 4th Assessment Report of the WMO/UNEP Intergovernmental Panel on Climate Change (IPCC) was pointing at the possible changes in flood frequency, magnitude and, subsequently, flood risk. The tool on IFM as an adaptation tool for climate change developed in 2008-2009 was to bring the different aspects of climate variability and climate change as it affects flood risks with the aim to show possibilities of how they can be managed successfully. The case studies are complementing the tool on climate change issued in 2008-2009 developing a similar approach. Collected cases from U.S., U.K, France, Germany, the Netherlands, China, Korea and Japan which have advanced experiences in development of adaptation strategy to climate change, elaborate the following aspects: how to assess flood risks for climate change and adapt to the risks; how legal and institutional framework support climate change adaptation; and roles and responsibilities for the adaptation. In principle, the tool is not seen as a technical manual but rather as a starting point for the adaptation to climate change through integrated flood management hence, case studies have emphasized the variety of approaches towards climate change adaptation in flood management practices. Wherever possible, references to more specific sources of information, predominantly online sources, are provided. As climate change impacts are better understood and experiences in dealing with them are gained, the tool will remain a living document in the true sense.

A broad audience is targeted by this tool, as the implications of climate change and variability on flood risks has to be dealt by various stakeholders. However, since flood management is primarily a public task with full involvement of stakeholders the target group are primarily the staff of the respective municipal authorities, national flood planners, emergency response authorities and the public at large. These include: flood managers, spatial planners, civil engineers, water supply and sanitation services, civil defense authorities and health and social services.



2.1.2 Flood emergency management (undergoing final editing)

Since absolute protection from flooding is a myth, flood emergency management is an integral part of flood risk reduction, which aims at managing and minimizing the damaging effects of flooding. This tool addresses the issue in flood emergency management, the contents of a flood emergency management plan and the preparation of emergency response plans at various levels, including the community level. The tool explains how the flood emergency management intervenes in the framework of risk reduction by reducing exposure to flooding under each stage of flood risk management.

The target group of this tool is primarily flood managers and in particular those who are involved in formulating flood management strategies and policies, having engineering backgrounds and needing rapid access to information to interact with emergency response mechanisms as part of their overall flood management strategy. The staffs of the respective municipal authorities, civil defense authorities and emergency response authorities, who are also essential players as well as adequately the public at large, will also benefit from the tool.

In the context of IFM, decision-making in flood emergency management must take into account not only flood risk alleviation, but also humanitarian and civil protection issues. Planning at all levels must be integrated so that the government's strategy, implemented through different departments, is coherent and harmonized. It must be applied at all levels of public planning, whether national, regional or local, and involve all relevant public agencies. Hence, horizontal and vertical interactions are keys for emergency planning.

With all the efforts in place, the remaining losses should be transferred, shared, or retained properly. The efforts should be made to reduce the residual risks that involve flood emergency management, such as early warning, evacuation and preparation for disaster relief and flood proofing, along with land use and spatial planning. With all the efforts in place for reducing flood risks, the retained risk should be managed properly by each community comprised of many different entities including the government at district levels, business and industry, NGO, and individual citizens. No matter which principles and procedures they have, they need to upkeep their respective operations and make decisions under risk based uncertainties.

2.1.3 Management of sediment related risks (undergoing final editing)

The sediment related disasters such as debris flows and landslides are often combined with 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. This tool addresses how these hazards have to be addressed in conjunction with flood issues.

Sediment-related disasters are defined as the phenomena that cause direct or indirect damage to the lives and properties of people, inconveniences to the life of people, and/or the deterioration of the environment, through a large-scale movement of soil and rock. Debris flows and landslides have a high damage potential to human activities and properties seriously and cause the loss of lives at the worst case when they happen near human living-area. Since debris flows and landslides happen unexpectedly and are difficult to predict, it is difficult to take precautionary measures and to establish early warning systems. Integrating land use planning is a pre-requisite in this endeavor. Debris flows and landslides have become a major source of risk for human living as a result of population pressure and related land use changes in landslide prone regions, most notably hilly and mountainous regions around the world. Debris flows and landslides, on the other hand, have been essential sources of sediment to downstream morphology and ecology of rivers, and provided potential land developing of alluvial fans and floodplains historically. The primary objective of this tool is to demonstrate approaches to address risks posed by landslides and mudflows as well as to provide guidance of how they can be managed to minimize loss of lives and livelihoods through

- Understanding characteristics of debris flows and landslides
- Identifying the benefits and losses through sediment phenomena in river basin
- Assessing sediment movement risks
- Introducing some historical experiences and options to tackle sediment-related disaster management
- Providing a detailed guideline for the management of debris flows and landslides



2.1.4 River restoration and wetland conservation (in process)

Traditional flood management has been concerned primarily with providing flood protection to farmers, urban dwellings and industry. The concept of draining water as quickly as possible downstream has been ingrained in flood management policies for decades. The visible result of such policy are rivers that have been transformed into straight channels, without active floodplain, and without taking advantage of the natural morphology of rivers and the services which well functioning ecosystems provide for livelihood. The effects of such single purpose interventions in the river system are reduced ground water recharge, a loss of habitat for those species dependent on diversified aquatic environment, reduced in-stream storage and loss of ecosystem services. Social and economic values change in the course of development, so once the above effects become evident, e.g. after a phase of rapid growth, the floodplain communities demand not only flood control but also a healthy, livable, and scenic river environment. Reserving parts of the floodplain as active flood storage, as well as river restoration projects have received a lot of local support in such situations. While the value to biodiversity, scenery and local tourism of such projects is undisputed, flood management practitioners have been struggling to separate facts and fiction in the public debate about the particular type and magnitude of different ecosystem services, especially those pertaining to the effect of different river/wetland restoration options on flood peaks. Experience has shown that retaining or restoring at least some of the natural structure and function of rivers and floodplains, and the wetlands associated with them, can be of great value in flood management programs, offering cost-effective solutions to some of the flooding problems while also generating significant environmental, social and aesthetic benefits. Implementing successful conservation and restoration projects serving multiple objectives requires that interventions are planned and designed with a broad set of stakeholders. The tool would assist practitioners through:

- Reviewing and describing options for conservation and restoration of rivers and floodplains that can potentially assist flood management practitioners in addressing various flood management objectives, such as reduction in peak flows and/or volumes, detention of flood peaks, retention of floodwaters and recharge of groundwater;
- Providing an overview of current practices that could help flood management practitioners in identifying and establishing the values of ecosystem services generated under different conservation, restoration and flood management scenarios;
- Providing ample reference to successful river and floodplain conservation and restoration projects that have helped in achieving flood management objectives or vice versa, and
- Providing examples of structures for the successful decision making processes and the tools and information required for integrating solutions across different objectives.

A contract has been issued to an external consultant for the development of the tool.

More inputs through collaboration with Japanese Ministry of Land Infrastructure, Transport and Tourism (MLIT) for their decade's efforts of Technical Criteria for River Works are expected. Inputs from GWP and Ramsar Convention could also be envisaged. Switzerland is also expected to contribute to the tool through its experiences and recent achievements in restoring river systems.



2.1.5 Transboundary aspects (in process)

As floods do not recognize borders, transboundary flood risk management is imperative in shared river basins, involving both Governments – as borders are involved – and their people – as risk is involved. However, transboundary flood management is not easy to implement, as joint monitoring, forecasting and early warning, coordinated risk assessment and joint planning of measures, and appropriate legal and institutional frameworks are all necessary. Transboundary flood management has been at the core of the work under the Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Water Convention) since its entry into force in 1996. Although the Convention does not address floods in detail, most of its provisions are fundamental to the management of transboundary floods. Above all, the Convention obliges Parties to prevent, control and reduce transboundary impacts, including those resulting from floods and from unilaterally decided flood protection measures such as dams. Since the Convention came into force, these core obligations have been elaborated in more detail and expanded in a number of guidelines. Several capacity-building activities have also allowed for strengthening capacity in the region and exchanging knowledge and experience. It should be noted that the European Union (EU)'s Directive 2007/60/EC of the European Parliament and of the Council of 23 October 2007 on the assessment and management of flood risks has also raised an issue for transboundary aspects. Since then, efforts in the areas of floods management mostly focused on exchanging experiences and knowledge between EU and non-EU countries. As was reported in the previous activities of APFM, a Workshop on Transboundary Flood Risk Management was organized on 22 and 23 April 2009 in Geneva by UNECE, the Governments of Germany and the Netherlands as well as APFM. The workshop aimed to take stock of current problems, recent progress and remaining challenges in transboundary flood management, all on the basis of concrete examples. The workshop was prepared in close cooperation with Parties and non-Parties, who elaborated the case studies by analyzing in depth flood management problems in the different basins. Moreover, a background study was prepared to guide the discussions. Based on this experience, the tool for transboundary aspects will show that in spite of the very different circumstances, there are common problems, objectives and approaches, as a number of useful knowledge for managing transboundary flood risk.

2.1.6 Guidelines on Flood Mapping (in process)

Flood Maps are tools to visually organize the flood information for use by decision makers and the public. They form the basis for developing flood risk scenarios based on various climate conditions, development alternatives, and 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 are (non-inclusive):

- Regulatory: Land use regulation and building codes
- Planning: Impacts of urbanization, 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 flood maps. Information regarding the risks needs to be communicated to planners, flood managers and the public at large. Flood maps may be developed following various methodologies, but the final product must contain adequate information for decision-making .

Following an “Expert Group Meeting on the preparation of Guidelines on Flood Mapping” in April 2008, the second expert group meeting was organized in Geneva, 4-5 December 2009. Nine international experts attended the expert group meeting. The meeting achieved its objectives in clarifying on the structure and major contents of the final product and agreeing on the finalization schedule.



Scoping the document resulted in several broad areas to be covered by the tool:

- Development of the flood mapping strategy
- Describe various approaches for developing flood maps in brief (e.g., Geo-morphological, Historical, Remote Sensing, Hydraulic)
- Methodologies/technology of Hydraulic approach
- Development of different types of maps
- Social, economic, legal and other issues related to development and dissemination, including communication of flood maps with the user communities

In the months following the first expert group meeting, contributions were received from various experts and compiled as an alpha version draft. An Editorial Board was setup to review the contributions and make the necessary adjustments before starting an external review process of the Guidelines. Due to the fact that the effort is mostly based on voluntary inputs of the members of the expert group, the receipt of contributions sometimes required patience. The draft contributions were of good quality and the critical mass of contributions is there for the Editorial Board to take up its main job in the coming months.

Following the second Expert Group meeting, a technical editor was identified to assemble and homogenize the different contributions. The Tool is scheduled to be completed by January 2011.

2.1.7 Flood proofing (in process)

As part of wider flood management strategy, living with floods becomes an important component. The building codes and regulations along with the land use controls can contribute to minimize losses of life and property by adapting housing standards and methods of construction. Flood proofing is one of structural measures which enhance resilience of semi-structural measures to mitigate or minimize the damaging impact of flooding by avoiding exposure to floodwaters. These policies should be managed comprehensively in the context of adaptive management for flood and be made accessible to the widest possible range of flood-affected communities. The supportive legal, institutional and environmental frameworks are indispensable. The tool developed in this category will provide an overview of good practices and lessons-learned on flood-adapted land use and housing.

2.1.8 Flash flood management (in process)

This tool introduces a variety of options for the implementation of non-structural measures which can reduce risks of flash floods. Flood forecasting and warning are expected to play an important role in flash flood management though there are difficulties to provide accurate and timely warnings, together with spatial planning, flood proofing, flood hazard mapping, local participatory approach and proper legal framework to integrate flood management planning and spatial planning. A first version of the tool has been drafted, and the final version is planned to be published later in the first half of 2011.

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 activities to help initiating and promoting IFM in a country or region;
2. New field demonstration projects to show 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 could be undertaken depending on the availability of APFM core funding. However, inputs were provided for the formulation of project proposals to be implemented with third party funding.

2.2.1 Kenya (ongoing – technical supervision)

Since the Flood Management Strategy in the Lake Victoria basin as a pilot project in Phase I of APFM, APFM has been contributing to the progress based on the strategy. Among the efforts, “The Study on Integrated Flood Management for Nyando River Basin in the Republic of Kenya”, supported by Japan International Cooperation Agency (JICA) since 2006, was issued in 2008. The executive summary of this study are attached as Sub-material II (a). The Master plan formulated in 2008 covers both structural and non-structural measures from short-term (by 2012) to long-term (after 2021). Under support of JICA, the five pilot projects were completed in 2008 and further project (2009-2011) for integrated flood management at 24 communities in Nyando River basin along Lake Victoria has initiated from 2009. These projects emphasize community participation and transparency of decision making.

The key achievement of this project where community-driven flood management organization was established is that the actions taken for flood management such as the construction of facilities, training for flood management and education for disaster prevention are done together with other community-based activities in an integrated manner so that those actions can be sustainable at the community level. From May 2009, the program has been launched based on the agreement between Kenyan government and JICA. 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 Mali (ongoing – technical supervision)

As a result of a kick-off meeting in September 2009, with the participation of representatives from the national directorates for agriculture, hydrology and meteorology, and the Institute of Rural Economy, consensus was reached on the general principles for the implementation and management of projects and including the criteria for the identification of the pilot areas and the nomination of focal point in the partner institutions. A working plan has been established jointly with national water directorate of Mali, detailing the activities to be carried out in 2010 for project implementation. The first step will be the collection of data on recent flood events from hydrological characteristics to estimate impacts on the agricultural sector. Data will be collected in the Ségou region, which has been chosen for both its importance in the agricultural production in Mali and for its representativeness of the various flood types that occur in the country. A data base will be created and upon analysis of the data the impacts on different socio-economic and environmental settings will be undertaken and a vulnerability analysis will be conducted. The development of an early warning system and the implementation of specific actions to reduce vulnerability will follow. Likewise, a training course on the evaluation of drought impacts on agricultural systems was organized in September 2009. Concerning the flood component, lacking an already established methodology for the assessment of flood impacts in agriculture, an expert mission in November 2009 discussed with the Malian counterpart the detailed implementation of this component, including identification of pilot area, inventory of flood events, classing of events, analysis of vulnerability and development of plan for its reduction, including the development of an early warning system. Field activities on the flood component started in March 2010 upon signature of an agreement between WMO and DNH, implemented by external consultants.

APFM is revising a project proposal from external consultant to keep it in tracks with the IFM concept

2.2.3 Zambezi Basin (ongoing – technical supervision)

WMO in collaboration with USAID/OFDA is developing a Strategy for Flood Forecasting and Early Warning in the Zambezi Basin. The proposed project is intended to assess the capacity for flood forecasting and early warning in the countries in the Zambezi River Basin and particularly in the Zambezi Basin area and formulate a consensus strategy. The project will be implemented through five main activity areas

including, Regional Consultation Meeting, National Consultations, Basin-wide meetings of riparian hydrometeorological and disaster management organizations, implementation of a demonstration project on flood forecasting system and analysis and recommendation and proposal for Basin-wide Flood Early Warning Strategy. The regional consultation meeting was organized from 1st to 3rd December 2009 at Maputo, Mozambique as the first activity of the project. The main objectives of the meeting were to bring together all interested parties to agree on a framework for flood forecasting and early warning system for the Zambezi Basin, to gather necessary information from the countries in the Zambezi Basin to support the development of the Flood Forecasting and Early Warning (FFEW) Strategy in the Zambezi basin and decide on the implementation of the Demonstration Project. Based on the discussions at the meeting a regional consensus on development of a flood forecasting and early warning system for the Zambezi Basin based on a strategy was achieved. The process for confidence building among countries in the Zambezi River Basin for real-time sharing of flood information was initiated. A road map for activities to be implemented under the project until December 2010 (and tentatively up to 2012) was established in pursuit of the aims of IFM.

2.2.4 Mauritania (ongoing – technical supervision)

On 1 and 2 July 2009 in Nouakchott (Mauritania) a national workshop was held on Integrated Flood Management (IFM) with the main goal to demonstrate the concept of IFM to the relevant state services, local administration and other stakeholders. The workshop had been organized following a request by the Permanent Representative of Mauritania with WMO as an element of a general strategy to improve national capacities to cope with flood events designed after extensive consultations between WMO and Mauritanian authorities. It also offered the opportunity to provide the first short course on IFM in French language as APFM capacity building activities. The workshop was attended by experts and officers of the Ministries of the Interior and of Infrastructure and Transport, members of the National Crisis Commissions, parliamentarian and local administrators of flood prone areas, representatives of the various relevant technical State services as well as of UN Systems and NGOs. As a follow up to the workshop, a project document has been developed to implement demonstration projects on IFM in selected areas in the countries, notably Tintâne and the catchments of Gorgol, Ghorfa and Niordé rivers. The focus will be on improved flood forecast through the integration of meteorological and climatological information and on strengthening the response capacity of the local communities. The project proposal for Flood forecasting and management in Mauritania, developed by an external WMO consultant, has been reviewed by the TSU, keeping it in tracks with the IFM concept. APFM will provide technical supervision when requested. Once the project proposal will be accepted by local authorities, funding will have to be secured from external resources.

2.2.5 IFM policy support for Afghanistan (on hold)

Based on a request received from an advisor to the Afghan Ministry of Energy and Water, was requested to engage in a policy making process in Afghanistan as a supplement to the already existing policies on IWRM. Process coaching and technical inputs would be the first pursued efforts. Depending on the further process the effort may result in a broader engagement. The process is currently on hold due to the unclear political situation. A request by USAID for rapid guidance on legal and institutional aspect was also fulfilled in July 2010. However, APFM involvement in the country is not expected in the near future

2.3 CAPACITY BUILDING

For the implementation of IFM in the field, capacity building of stakeholders is essential. In APFM Phase II major emphasis is placed on capacity building. Capacity building is undertaken at various levels and the contents and the applied methodologies differ accordingly. During the Phase I of APFM, policy series papers have been developed to enhance knowledge that will be required for flood management. Training courses and materials are under finalization for a *portfolio of capacity building measures on IFM*. Progress during the reporting period is described in the section below:



2.3.1 Partnerships for the delivery of a comprehensive portfolio of capacity building measures

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

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.

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 and financial support capacity of Cap-Net in support of capacity building for Integrated Water Resources Management with its network of capacity building institutions have proven to be strong assets in pursuit of the joint work programme of both institutions since 2007. The “Collaborative Work Programme” of Cap-Net and WMO on Integrated Flood Management was updated for the activity after 2010 on the allocation of activities and budget expected following the AC/MC Meetings.

The document is attached as Sub-material III (a). Development of 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*)
A modular course of three to five days has been created, including the Lesson Plans, PowerPoint presentation, group exercises, and video material. The Flood Management Policy Series serves as the main background reading material. For each specific course a number of local case studies are being prepared. A team of experts in South East Asia has compiled those materials for a consolidated regional training package to be published jointly with Cap-Net and others. Based on this development the final consolidation of the global training materials is being considered by the TSU and Cap-Net.
The outlines of the Training courses are attached as Sub-material III (b).
- National NGOs active in community outreach projects in water or disaster management, and subsequently district/municipal level authorities as well as community leadership in flood prone areas, particularly rural areas. (*Community flood management course*). Under this component it is envisioned to 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. During the reporting period efforts were undertaken to engage the Bangladesh Centre for Advanced Studies (BCAS) to serve as a partner in reshaping the materials already available from the APFM Regional Pilot Project on the “Community Approach to Flood Management” and shape it into a baseline training material that could be adapted to local circumstances. BCAS has sent to the TSU a first draft for review, and should submit a complete set of training materials within the next few months.
- Municipalities of urban agglomerations, in particular units responsible for urban drainage, spatial planning, as well as warning and emergency services (*Urban Flood Management course*): After translating the course materials on “Urban Flood Management” by Carlos Tucci from Spanish into English, a CD with the full contents was published jointly with Cap-Net. On the basis of this publication, an Urban Flood Management tutorial, in the form of an e-learning platform, is planned to be developed jointly by APFM and CapNet.



- 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 Cap-Net led capacity building initiative with the working title “IWRM as a tool for Adaptation to Climate Change- acting today; preparing for tomorrow”. APFM has responded positively in assisting Cap-Net to shape 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. The manual has been finalized and published by CapNet and is available at the link <http://www.cap-net.org/sites/cap-net.org/files/IWRU%20TxlLR.pdf> . As per the Urban Flood Management, a self-learning tutorial on Climate Change Adaptation, in the form of an e-learning platform, is planned to be developed jointly by APFM and CapNet.. Moreover, a toolkit for Climate Change Adaptation will be developed, based on the output of the activities of the UN-Water Task Force on Climate Change adaptation in the water sector.

2.3.1.2 Materials for Educators and Children with Project WET (on hold – further activities could be started)

The materials were targeted towards the younger generation to aid specialized services and institutions in their outreach to the public. “Project-WET: Water Education for Teachers”, a US based non-profit Foundation, 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.

The publication of the two materials (attached as Sub-material III (c) under this category, “*Discover Floods Educators Guide*” targeted at teachers for use as teaching material; and “*Discover Floods KIDs (Kids In Discovery Series) Activity Booklet*” for children/youth ages 8-12, during the World Water Forum in Istanbul in March 2009 was a great success in terms of the amount of copies that was required for distribution. During the Forum and thereafter, various requests for translating the material in other languages (such as Turkish, Spanish, Farsi and Romanian) have been received and would be followed up in consultation between WMO, Project WET and its Education Delivery Network.

2.3.1.3 E-learning with Technical University of Hamburg-Harburg (ongoing)

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. It is recognized that providing the APFM’s outputs in a more accessible and didactically well-developed manner through web-based learning (or e-learning) options would greatly enhance the outreach of the programme. A list of available flood management e-learning offers is maintained on the APFM website under “Capacity Building”. The E-Learning Systems for Flood Practitioners named “FLOWS – Living with Flood Risk in a Changing Climate” and “EU Flood Manager” developed at the Technical University of Hamburg-Harburg (TUHH) distinguish themselves from other projects as the philosophy is based on the IFM concepts. APFM and TUHH, have been jointly upgrading the existing systems and incorporated the two systems into one, named “Flood Manager E-learning”. A section on the Integrated Flood Management Policy concept has been added and opened to the public in August 2010.

The e-learning platform will be update and strengthened on a regular basis, and a bulletin on the updates will be issued every six months. The hydrological part of the e-learning platform could be further developed; therefore APFM will revise and contribute to it in the next future (possibly linking it with Comet activities). APFM will dedicate a web page (or something more than the actual linkage to it) to the platform.

The e-learning platform will be checked for consistency with the IFM Tools, and whenever possible the tools will be referenced in the platform (and vice-versa). Moreover, a long term plan for producing e-learning tutorials on the IFM tools will be developed. TUHH will also be involved in the self-learning tutorial to be developed in conjunction with CapNet on adaptation to climate change in the water sector. For what concerns the development of the flood proofing tool, the TUHH FLORETO platform will be taken into consideration. A Urban Flood Management Manual developed by C22 Coast Group will be revised, once available.



2.3.2 Training activities

2.3.2.1 Region I – Africa

a) IFM training workshop for the Nile Basin Countries, Nairobi, Kenya (workshop held)

With the collaboration of FOEN, Cap-Net, NBCBN (Nile Basin Capacity Building Network) and UNESCO-IHE, the Training of Trainers (ToT) workshop on IFM was held in Nairobi, Kenya from 23 to 27 November 2009. The ToT was hosted by ICPAC (IGAD Climate Prediction and Application Center) with the support of KMD (Kenya Meteorological Department). Considering the importance of flood issues in the Nile Basin countries, WMO in response to a request from NBCBN agreed to organize in close collaboration with partners this ToT within IWRM concept for the Nile Basin. The ToT workshop was developed to familiarize participants from Nile Basin countries with the concept of IFM and prepare them to identify possible paths of actions towards implementation of the concept in their own field of work. It provided participants with in depth views of the social, economic, environmental and institutional dimensions of flood management and will allow them to develop an integrated perspective on floods, floodplains and development process in their own countries. Around 30 experts from Burundi, DRC, Egypt, Eritrea, Kenya, Rwanda, Sudan, Tanzania and Uganda agreed to coordinate the establishment of a group of experts to develop a programme for promoting and applying the IFM approach in the countries, as the focal point in each country.

b) IFM training course in Bahir Dar, Ethiopia (workshop held – strategy for IFM to be implemented)

The School of Civil and Water Resources Engineering of Bahir Dar University (based in the Amhara Region, near the Tana Lake) in association with WMO, Cap-Net and Nile IWRM-Net organized an international training on Integrated Flood Management (IFM) from 7 to 11 June 2010. This international training was held as a spin-off of the previous IFM training for the Nile Basin countries held in Nairobi from 23 to 27 November 2009.

The training was successfully held with the participation of both Ethiopian and 10 international participants from Burundi, Rwanda, Sudan, Tanzania, and Uganda. The Ethiopian participants included representatives of Bahir Dar and Addis Ababa Universities, as well as representatives of the Amhara Water Resource Development Bureau, of the Disaster Management and Food Security Sector (MOARD), and of the Mass Media Agency. APFM is now working to launch an IFM strategy for Ethiopia as a follow up of the workshop, and is seeking funds for this activity.

c) Uganda (to be held)

Following a request received in March 2010 from the Directorate of Water Resources Management of Uganda, APFM is planning to organize a national training course on IFM in Uganda. The training will be finalized to the development of a proposal for implementation of IFM at the national level, to be presented during a high level session to the local authorities. A project digest has been elaborated jointly with the Directorate of Water Resources Management, but due to the closure of the financial year the training has been postponed to early 2011 (possibly March, to be confirmed)

d) IFM national training course in Kenya (on hold)

Following the Nairobi workshop in November 2009, a project proposal for a training workshop on IFM for experts in the river basins in Kenya was sent to APFM by the Victoria Institute for Research on Environment and Development (VIREN) International.

The proposed training aimed at updating the experts in the different basins within Kenya on the Integrated Flood Management (IFM) so as to have a harmonized approach by all concerned institutions, experts and Government. The workshop was expected to take place in June 2010, but due to lack of funding it had to be put on hold.

Similar requests were received following the Nairobi workshop from Universities in *Sudan* and *Rwanda*. However, these requests could not be fulfilled because of the absence of an institutional counterpart to implement the activity. APFM is seeking an institutional support in those countries to carry on the requested activities.



e) IFM training for the International Federation of Red Cross – SADC region (on hold)

A workshop should have been organized in the course of 2010 for disaster management officers of the IFRC SADC sub-regional office, to introduce to them the concept of IFM in view of future cooperation. A training proposal was discussed and agreed with the requesting party, however the organization of the workshop was put on hold due to restructuring of the SADC sub-regional office of IFRC.

2.3.2.2 Region II – Asia

a) JICA Training courses in Japan (ongoing)

APFM participated and delivered lectures on the Integrated Flood Management (IFM) in a training course – “Comprehensive Management of River and Dam” organized by Japan International Cooperation Agency (JICA) for flood practitioners and water resources managers from government organizations of 7 countries in October 2009. The course “Comprehensive Management of Rivers and Dams”, 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 China, Indonesia, Iraq, Myanmar, Pakistan, Philippines and Syria. 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.

b) Training course on Integrated Water Resources management for Iran (workshop held)

A training course on Integrated Water Resources Management (IWRM) for Iran was organized jointly by JICA and the Japan Water Agency (JWA) from 24 November to 18 December 2009 in Tokyo, Japan. As part of the training course, a lecture on was held on 9 December on “Floods and IWRM” The lecture aimed to introduce the concept of Integrated Flood Management and activities of the Associated Programme on Flood Management (APFM) and was presented to 11 participants from semi-governmental organizations, dealing with water management. In the course certain activities related to flash flood management and community approaches to flood management were also emphasised. Participants voiced their satisfaction with the lecture and their interest to adopt IFM approach in their flood management activities

c) Training Workshop on IFM for Countries in Western Asia and Arab Region (workshop held)

The training workshop, jointly organized by UNW-DPC, the WMO and the Regional Centre on Urban Water Management - Tehran (RCUWM) took place from 11-14 May 2009 in Tehran, Iran. More than 29 participants, including top and mid-level managers and professionals in water resources management, disaster management, land-use management and spatial planning, met in Tehran to share their experiences and best practices regarding the national situation of Integrated Flood Management in their countries. The main objective of the training workshop was to familiarize participants with the concept of Integrated Flood Management and prepare them to identify possible paths of action towards implementation of the concept in their own field of work. The technical presentations and the practical exercises were designed to provide the participants with an in depth exposure to the social, economic, environmental and institutional dimensions of flood management and allow them to develop an integrated perspective on floods, floodplains and the development process in their own country.

d) IFM Capacity Building Programme in Malaysia (workshop held)

Co-organized by DID, APFM and Cap-Net, the IFM Capacity Building Programme for the Department of Irrigation and Drainage (DID) of the government of Malaysia took place from 10-14 August 2009 in Kuala Lumpur, Malaysia. About 50 top managers and senior engineers of DID, together with experts from other departments and NGOs participated in the training programme. A key issue of the training had been to introduce the concept of IFM into existing flood management and mitigation plans and to identify necessary measures to implement IFM in river basin planning, master plans and making it a part of institutional planning and operating procedures that require amendments with respect to the legal basis as well as flood management with respect to environmental issues, amongst others. Aiming to test IFM practices in the context of flood management in Malaysia, participants agreed to develop and implement pilot projects. Back-to-back with the training course a seminar was organized in which around 200 participants from central



government, federal states of Malaysia, local authorities, NGOs, consulting companies and universities were present on the occasion. In lively interactions between the presenters and participants, the requirements for the implementation of the IFM approach from legal and institutional, environmental, social and economical aspects were introduced by the APFM Technical Support Unit (TSU) and resource persons of Cap-Net and discussed.

e) Mekong Basin (to be held in collaboration with Cap-Net)

During the 2010 Mekong Flood Forum, TSU explored whether Member countries of the Mekong River Commission (Cambodia, Lao PDR, Thailand, Vietnam) are interested in a regional IFM workshop with possible follow up workshops through the national MRC committees. In light of an indication of interest, collaboration with established regional entities such as ADPC will be sought. The workshop, originally planned for mid November 2010, will most probably be postponed to February 2011.

f) IFM Regional Workshop in Hindu Kush Himalaya (to be held in collaboration with Cap-Net)

A training course involving Bangladesh, Bhutan, China, India, Nepal and Pakistan will take place during the last week of October 2010, in cooperation with ICIMOD as regional partner in the Hindu Kush Himalayan region. The training will cover a general introduction to IFM, with particular focus on Flash Floods.

g) IFM national training for Pakistan

The Water Resources Section of the Planning Commission of Pakistan requested through the HelpDesk a training on IFM following the 2010 floods. A project proposal has been elaborated and discussed with Pakistan, aiming in the long term at the development of an IFM strategy for the country. The training is expected to take place in early 2011.

2.3.2.3 Region III – South America

a) National IFM workshops in Uruguay and Argentina (workshops held)

Several workshops on Integrated Flood Management for Latin America were planned in Uruguay (in May 2010) and in Argentina (April 2010). The workshops were organized as national training events for practitioners. These workshops were a follow up of the workshop organized in Lima, Peru, in October 2008. These courses have been 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 Ibero-American countries.

b) National IFM workshop in Paraguay (workshop to be held)

WMO has been approached by the Permanent Representative of Paraguay with a request to organize training similar to the one held in Lima, Peru, in October 2008. The request is motivated by the absence of Paraguay in the Lima workshop, and by the need to further expand the trainees' network in the South American region. The workshop, to be tentatively held in March 2011, will be confirmed following the Regional Directors Meeting to be held in November 2010.

2.3.2.4 Region VI – Europe

a) Introductory seminar on IFM, Turin, Italy (workshop held)

On 9 November 2009, an introductory seminar on Integrated Flood Management was organized in Turin (Italy), in the premises of the Regional Museum of Natural Sciences. In response to a request submitted by the Piedmont regional authorities. Purpose of the seminar was to present the IFM concept to a broad audience composed by officer of the regional administration in charge of environment, land-use planning, flood forecasting and civil protection as well as other professional practitioners' (engineers, geologists) involved in the same activities, and already familiar, by training and working experience with engineering, hydrological and ecological aspects of flood management. After a general introductory presentation of the multidisciplinary requirements for IFM, the theoretical presentation was complemented by the description of case studies of implementation of IFM principles in Switzerland (by Mr. R. Loat from the Swiss Federal Environmental Office) and by a presentation on the uncertainties of hydrological modelling (by Dr. L. Franzini, visiting professor of the Turin Polytechnic University and Dr. D. Rabuffetti, from the Piedmont Regional



Agency for Environment Protection). The presentations were followed by an animated question and answer session in which various topics were further debated, such as legal implication of forecasting uncertainties, flood risk mapping, perception of flood hazards in the media and in the public, social implications of land use planning for flood management, legal aspects of flood forecasting.

b) Training workshop on Flood Risk Assessment Istanbul (workshop held)

As part of the WMO European commission Directorate General for Enlargement funded programme on disaster risk reduction in South East Europe Activity 2, WMO organized this training workshop on hydrological data, databases, metadata, and mapping and analysis tools for flood risk assessment. The workshop, targeted at technical experts from the National Meteorological and Hydrological Services and from water resources management and land planning authority of the South Eastern European countries, had the purpose of familiarizing participants with different methodologies, tools, and infrastructures for flood hazard data collection, analysis and management and flood risk mapping policy to support flood risk assessment, in the broader context of Integrated Flood Management, multi-hazard risk assessment and disaster risk management. DHI and Euroaque Consortium assisted in the delivery of the workshop in their capacity of Support Based Partners.

c) IFM Trainings for Ukraine and Moldova on the Dniestr (workshop to be held)

In the framework of the UNECE Pilot Projects on Climate Change adaptation in the water sector, WMO has been consulted to provide technical supervision and eventually provide trainings and assist in the development of an IFM strategy for the two countries to the pilot project on the Dniestr.

The project will aim at reducing risks from climate change on hydrological extremes, with special focus on floods. Droughts will also be included if the risk assessment shows that this is necessary. A main focus of the project will be risk analysis, vulnerability assessment and mapping, which has already partly been done in the Republic of Moldova.

The project, which was launched in May 2010, is expected to be implemented during the next three years. In the long term, APFM is ready to deliver training courses and assist in the development of an IFM strategies for Ukraine and Moldova during 2011.

d) IFM Training for the Sava river basin (workshop to be held)

As in the case of the Dniestr, APFM will deliver training courses and assist in the development of an IFM strategy in the framework of the UNECE pilot project on climate change adaptation in the Sava river basin. The involvement of APFM is expected in 2011.

2.4 FLOOD MANAGEMENT REFERENCE CENTRE

Researchers, social scientists, hydrologists, engineers and development planners have been working over a number of years on various aspects of flood management. There is a wide number 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 three databases on Flood Management Institutions, Literature, Policy and Law. These databases are being continuously updated. The number of entries and countries in each database, at the reporting time, is as in the following table.

	Number of countries	Number of entries
Institutions and Agencies involved in Flood Management	112	388
Literature on Flood Management	45	263
Flood Management Policy and Legislation	50	232

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

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 was published during the reporting period 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 have become parts of autodidactic mode of IFM Help Desk.

2.5 DISSEMINATION OF INFORMATION

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.

2.5.1 Newsletter

APFM Newsletters have been published since June 2002 to disseminate APFM activities. The newsletter is disseminated both in PDF and html formats. The PDF version is loaded on the newsletters page of the APFM website. The HTML version is sent via email to subscribers of APFM newsletters (number of subscribers is approximately 921 at the reporting time). 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 four newsletters (No.20, 21, 22 and 23) have been published (Sub-material IV (b)).

2.5.2 Conferences

World Climate Conference-3

A special side event for the IFM HelpDesk was held on 1st September 2009 during the World Climate Conference-3 (WCC-3). WCC-3 was convened to provide nations with the opportunity to jointly consider

and appropriate global framework for climate services that would help every country access and apply climate information. The event was moderated by Dr. Eugene Stakhiv, US Army Corps of Engineers, with five panellists representing academia technical experts, policy makers and development agencies. The main theme of panel discussion was “Role and Potential of Climate Information in support of Flood Management and the Role of the IFM HelpDesk”. The discussion recognized that climate variability and change may affect current flood management practices and call for innovative approaches. The event provided an excellent opportunity to promote HelpDesk services and activities.

World Water Week

As part of the Annual Stockholm World Water Week, a side event titled “Country Assistance for Robust Flood Management Policies: The HelpDesk for Integrated Flood Management” was organized together with the partners of GWP, Cap-Net/UNDP, the Stockholm International Water Institute (SIWI) and the Dundee Centre on Water Law, Policy and Science. The side event helped to further raise awareness amongst water professionals about the available support mechanism under the HelpDesk for countries and river basin organizations. As part of the ‘Water and Climate Days’ the APFM joined Cap-Net and a series of further actors in organizing a seminar “Integrated Water Resources Management (IWRM) as a practical approach to climate change adaptation”. During the seminar the newly available Training Manual and Facilitator’s Guide on the same topic was published. This training manual is available to assist capacity builders in developing training and educational programmes on the use of IWRM tools and instruments for adaptation to climate change impacts. The material is intended to increase our understanding of climate change impacts and what we can do now through better water resources management.

International Disaster and Risk Conference IDRC Davos 2010), Davos, Switzerland, 30 May to 3 June 2010

This meeting was the central global meeting to focus on the array of risks society is facing today and on effective strategies to manage and reduce these risks and disasters. A side event proposal has been accepted under the title “Flash Flood Prediction and Management” and was held on 1 June 2010 in Davos, Switzerland with participation of the mayor of Mitsuke-city, Japan. Extremely short time scales for forecasting and prediction of flash floods and uncertainties in defining the area of event are a scientific and operational challenge for meteorological and hydrological services that provide early warning to disaster management agencies and the general public. The session provided an excellent platform for interaction and the exchange of good practices between scientists and forecasters from national meteorological and hydrological services as well as professionals dealing with the management of floods, including flash floods. The session identified activities in science and research, forecasting and management of flash floods that can be taken up by concerned organizations and agencies to work towards improvement of forecasting prediction and management of flash flood as an essential component of integrated flood management.

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 meet these objectives. All 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 the number of visitors in July 2007 was due to differing statistical solutions applied from different companies hosting the APFM server. (TSU had changed the hosting server company because it had identified a new company which had a better hosting server service, at a cheaper overhead cost.). 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 a clear indicator, that visitors tend to revisit the page, as otherwise the peaks around events would recede back to original values.

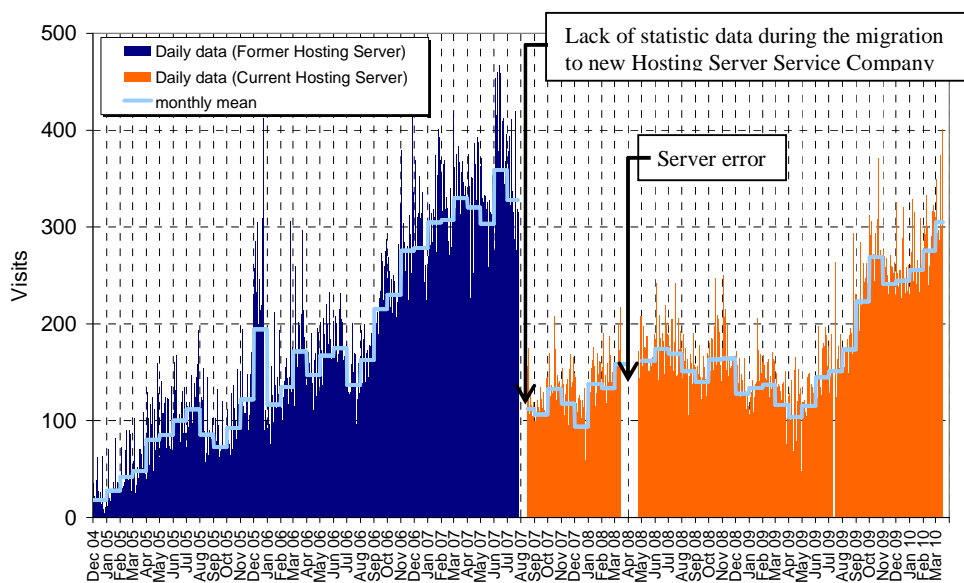


Figure 1: Sessions (from 1 December 2004 to 18 March 2010)

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 and Economic 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. At the international conferences or workshops these publications are also distributed. APFM CDs which includes all APFM website contents were also distributed. The following table shows the number of countries, institutions, and publications in each publication, at the reporting time.

	Number of countries	Number of institutions	Number of copies dispatched
Legal and Institutional Aspects of IFM	134	429	1,191
Social Aspects and Stakeholder Involvement in IFM	135	439	1,229
Environmental Aspects of IFM	134	455	1,315
Economic Aspects of IFM	37	61	438



2.6 IFM HELP DESK

As identified in the communication strategy, after the official launch of the IFM HelpDesk in June 2009 further efforts would need to be undertaken to make the availability of the IFM HelpDesk known to the foreseen beneficiaries. Close collaboration with all support base partners in the fine tuning of the functionality of the IFM HelpDesk would keep being pursued. The process of interacting with the support base partners and quality control of outputs will need further tuning, and this meeting should offer a good occasion to move in this direction. Further efforts will be undertaken to strengthen the direct linkages to the financial partners for follow up of projects and strategies developed under the IFM HelpDesk.

2.6.1 Outline of IFM 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 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, Integrated Flood Management HelpDesk (IFM HelpDesk) was established in 2009. The IFM HelpDesk is a facility that provides guidance on flood management policy, strategy and institutional development related to flood issues to countries that want to adopt the IFM concept. It is based on close partnership with the country and tailored to their specific needs, with the aim of assisting in IFM implementation.

The IFM HelpDesk, coordinated by WMO, is 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 in favour of IFM in countries or river basins in developing long-term flood management policies, strategies and institutional arrangements;
- Serve as a link between flood management practitioners and decision-makers and multi-disciplinary scientific expertise and best practice in various fields such as hydrology, river engineering, legal and institutional development, ecology, sociology and development economics.
- Provide a continuous and sustainable capacity development mechanism in support of IFM implementation.

Relevant constituent bodies of WMO took the following steps in relation to the establishment of the IFM HelpDesk:

WMO Congress

WMO Congress during its Fifteenth Session “appreciated the activities under the Associated Programme on Flood Management, which had helped achieve the objective of disaster risk reduction and provided technical support to countries in flood management policy formulation. It welcomed the establishment of the Help Desk services as a tool for providing support on flood management policy issues in collaboration with other partners.” Under Resolution 20 (Cg-XV) Congress decided “That WMO should continue its advocacy for a widespread adoption of an Integrated Flood Management approach at the basin, national and international levels”

WMO Executive Council

WMO Executive Council recognizing at its sixtieth session the “growing demand for continued scientific and technical inputs of the hydrological, meteorological and climatological communities into flood

management policies and practices. It appreciated the efforts being made by the Secretariat through the implementation of the Associated Programme on Flood Management to support the countries in developing flood management strategies.”

WMO Commission for Hydrology

Under Res. 4 (CHy-XIII) the Commission decided “To assist setting up of a HelpDesk for Integrated Flood Management for the benefit of Members in the areas of flood management policy and strategy, and capacity building in support thereof.”

The IFM Help Desk is hosted 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. And the IFM HelpDesk functions in two modes: the autodidactic mode (Self Help) and the interactive mode (Get Help).

The target audience of the IFM HelpDesk includes the following groups:

- National, provincial and local government agencies involved in decision making charged with a role in flood management (policy makers, flood management practitioners, development planners, disaster managers, National Hydrological and Meteorological Services, etc.);
- River Basin Organizations;
- Bi- and Multi-lateral Organizations involved in Technical and Financial Cooperation;
- Non-Governmental Organizations, in particular those working with flood affected communities;
- Voluntary Organizations and Community-based Organizations ; and
- Universities.

Requests from the latter two groups would need to be considered in light of number of requests received and the political environment in which proposals for intervention by the IFM HelpDesk are made.

2.6.2 Institutional arrangements and mechanism for the IFM HelpDesk

The TSU places emphasis on the establishment and consolidation of the support base of the IFM HelpDesk, namely, those partner institutions expected to actively support the operation of the IFM HelpDesk. This set of partners is derived from the expected needs under the IFM 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 IFM HelpDesk after its launch, additional partners are being and would be considered for integration into the IFM HelpDesk Support Base. The formal process of becoming a IFM HelpDesk Support Base Member consists of signing a “Letter of Engagement”. This instrument is designed to formalize to a certain degree the relationship between the APFM and the respective partner and to ensure a minimum contribution in-kind or otherwise to the IFM HelpDesk.

Sub-material V provides the IFM HelpDesk Framework Document and the (sample) Letter of Engagement.

The current list of IFM HelpDesk Support Base Partners as of September 2010 is listed below; and a separate list shows the status of activities to engage other potential Support Base Partners as of March 2010:

IFM HelpDesk Support Base Partners

- Asian Disaster Preparedness Centre (signed on 17 June 2009)
- Cap-Net/UNDP (signed on 19 March 2009)
- Czech Hydrometeorological Institute (signed on 17 June 2009)
- DHI Groups (signed on 18 August 2009)
- Deltares (signed on 19 March 2009)
- Global Water Partnership (signed on 27 March 2009)
- Hamburg University of Technology (signed on 30 June 2009)

- International Association of Hydrological Sciences (signed on 19 March 2009)
- JICE (signed on 7 December 2009)
- Japan Water Agency (signed on 30 April 2010)
- Korea Water Forum (signed on 17 June 2009)
- Korea Water Resources Association (signed on 17 June 2009)
- The International Centre for Water Hazard and Risk Management (signed on 21 March 2009)
- Stockholm International Water Institute (signed on 18 August 2009)
- UNESCO-IHE (signed on 19 March 2009)
- University of Dundee (signed on 18 August 2009)
- University of Nice Sophia Antipolis (as part of EUROAQUAE, signed on 25 March 2009)
- UNOSAT (signed on 31 March 2009)

Other potential partners

- AGRHYMET
- Australian Bureau of Meteorology
- Centro de Estudios y Experimentacion de Obras Publicas
- International Association of Hydraulic Research
- Institute for Water Resources US Army Corps of Engineers
- Nile Basin Capacity Building Network
- Ramsar Convention
- Regional Centre on Urban Water Management
- UN/ISDR
- UNECE
- University of Idaho
- CIMA Foundation
- WHO
- International Federation of Red Cross
- WaterAid

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 to be made to broaden the linkages of the IFM HelpDesk to bi- and multilateral development agencies.

2.6.3 Operational Status of the IFM HelpDesk

Since the official launch of the IFM HelpDesk at the UN-ISDR Global Platform on Disaster Risk Reduction on 17 June 2009, the number of requests for “Get Help” part and the state of response is shown below.

Request No.	Institution Country	Request Category	State of response	Status
1	University of Benin Benin	Rapid Guidance	A request for training information. TSU provided training modules with necessary website.	Completed
2	Progress and Business Foundation Poland	Rapid Guidance	A request for information on reservoir operation for flood control. TSU provided related IFM policy series and tool.	Completed
3	Sao Carlos School of Engineering-University of Sao Paulo Brazil	Capacity Development	A request for the collaboration with the university. TSU proposed a training course/workshop, but no institutional counterpart to support the implementation could be found.	Discarded



4	Ministry of Environment, Bayelsa State Nigeria	IFM policy, Law and Strategy	Responded to a question of the status on drainage plan in the Niger-Delta region was sent with necessary information for further HelpDesk assistance. However no institutional counterpart was found to support further implementation of an IFM strategy.	Discarded
5	Nile Basin Capacity Building Network Egypt	Capacity Development	A ToT Workshop was held in November 2009 in Nairobi for the Nile Basin countries - See 2.3.2.1 a) for details	Completed
6	Council for Scientific and Industrial Research South Africa	Rapid Guidance	A request for information on flood risk research and electric platform. TSU provided capacity building resources available on the websites of WMO and others.	Completed
7	ARPA Piemonte Italy	Capacity Development	A one day introduction to IFM was held in November 2009 - See 2.3.2.4 a) for details	Completed
8	Global Water Partnership-Caribbean Trinidad & Tobago	Rapid Guidance	A question about HelpDesk scheme. TSU explained the process of requesting support from HelpDesk.	Completed
9	Victoria Institute for Research on Environment and Development Kenya	Capacity Development	The organization of a training activity has been put on hold until resources have been mobilized. See 2.3.2.1 d) for details	Not implemented (lack of funding)
10	University of Kerman Iran	Rapid Guidance	A request for articles on flood risk management. TSU provided IFM tools and data sources on APFM website.	Completed
11	Water Resources Section, Planning Commission Pakistan	Capacity Development	A workshop on IFM concept and flood forecasting/warning will be held early 2011. See 2.3.2.2 g) for details	In process
12	International Relief and Development, Inc., Ministry of Energy and Water Afghanistan	Rapid Guidance	A request for information on national flood policy. TSU provided policy-related resources available on the websites of APFM and others.	Completed
13	International Centre for Integrated Mountain Development (ICIMOD) Nepal	Capacity Development	A ToT Workshop will be held in October 2010 in Katmandu for the Hindu Kush Himalayan countries - See 2.3.2.2 f) for details	In process

An important effort in APFM's outreach efforts has been to promote the availability of the IFM HelpDesk to the water and disaster management community. During 2009 further efforts were undertaken to make the availability of the IFM HelpDesk known to a wider community as potential beneficiaries from HelpDesk services. The World Water Week in Stockholm and the World Climate Conference-3 were used as additional forums to make the IFM HelpDesk known to the water professionals in form of side events. The period between June 2009 and spring 2010 was 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. The central domain name for the HelpDesk is "www.floodmanagement.info", which helps visitors to remember its name easily.

Besides the requests received through the HelpDesk, a series of other requests have been received by the TSU either through direct contacts from the requesting party, or through other WMO channels, as summarized in the following table:

Requests received by TSU members through direct contact				
Request No.	Institution Country	Request Category	State of response	Status
1	Japan International Cooperation Agency (JICA) Kenya	Technical supervision	Follow up of strategy development in Phase I. See 2.2.1 for details	In process
2	Japan International Cooperation Agency (JICA) Japan	Rapid Guidance Capacity Development	Annual training of IFM related issues. See 2.3.2.2 a) for details	In process
3	JICA and Japan Water Agency (JWA) Japan	Capacity development	Training on IWRM for Iran, with lecture on IFM. See 2.3.2.2 b) for details	Completed
4	Regional Centre on Urban Water Management (RCUWM) Iran	Capacity development	Workshop held in May 2009. See 2.3.2.2 c) for details	Completed
5	Department of Irrigation and Drainage (DID) Malaysia	Capacity development	Workshop held in August 2009. See 2.3.2.2 d) for details	Completed
6	University of Gezira Sudan	IFM Policy, Law and Strategy Capacity Development	A request to organize a training workshop has been proposed for the development of national IFM implementation plan to be presented to high level policy makers. The request was not fulfilled due to the lack of an official counterpart to support implementation. See 2.3.2.1 d) for details	Discarded
7	Bahir Dar University Ethiopia	IFM Policy, Law and Strategy Capacity Development	Workshop held in June 2010. Strategy to be developed. See 2.3.2.1 b) for details.	Completed (training) Ongoing (strategy)
8	Directorate of Water Resources Management Uganda	IFM Policy, Law and Strategy Capacity Development	Workshop planned in early 2011. See 2.3.2.1 c) for details	In process
9	Sava River Basin Commission (SRBC)	IFM Policy, Law and Strategy Capacity Development	Workshop planned in late 2011 - See 2.3.2.4 d) for details	In process
10	UNECE and OCHA (Office for the Coordination of Humanitarian Affairs)	Capacity development	Workshop planned in late 2011 - See 2.3.2.4 c) for details	In process
11	Mekong River Commission (MRC)	Capacity Development	Workshop scheduled for February 2011 – See 2.3.2.2 e) for details	In process



Requests received by HelpDesk through other WMO departments				
Request No.	Institution Country	Request Category	State of response	Status
1	Ministry of Energy and Water Afghanistan	IFM Policy, Law and Strategy	A request to develop a national IFM strategy and legal framework for implementation was received. The request was not fulfilled due to the lack of an official counterpart to support implementation. See 2.2.5 for details	Not implemented
2	Direction Nationale de l'Hydrologie (DNH) Mali	Technical supervision	See 2.2.2 for details	In process
3	USAID/OFDA Zambezi basin	Technical supervision	See 2.2.3 for details	In process
4	Permanent Representative of Mauritania with WMO Mauritania	Capacity development Technical supervision	See 2.2.4 for details	Completed (training) In process (tech. sup.)
5	International Federation of Red Cross and Red Crescent Societies (IFRC) SADC Region	Capacity Development	Request for a training workshop received, organization on hold due to internal problems in IFRC SADC region. See 2.3.2.1 e) for details.	On hold
6	NHSs Argentina and Uruguay	Capacity Development	Workshops held in April and May 2010. See 2.3.2.3 a) for details	Completed
7	Dirección de Meteorología e Hidrología de la DINAC Paraguay	Capacity Development	Workshop planned in early 2011. See 2.3.2.3 b) for details	In process
8	European Commission Directorate General for Enlargement	Capacity Development	Workshop held in September 2010. See 2.3.2.4 b) for details	Completed

ANNEX I VISITORS TO WEBSITE

1. General visitor statistics (Traffic)

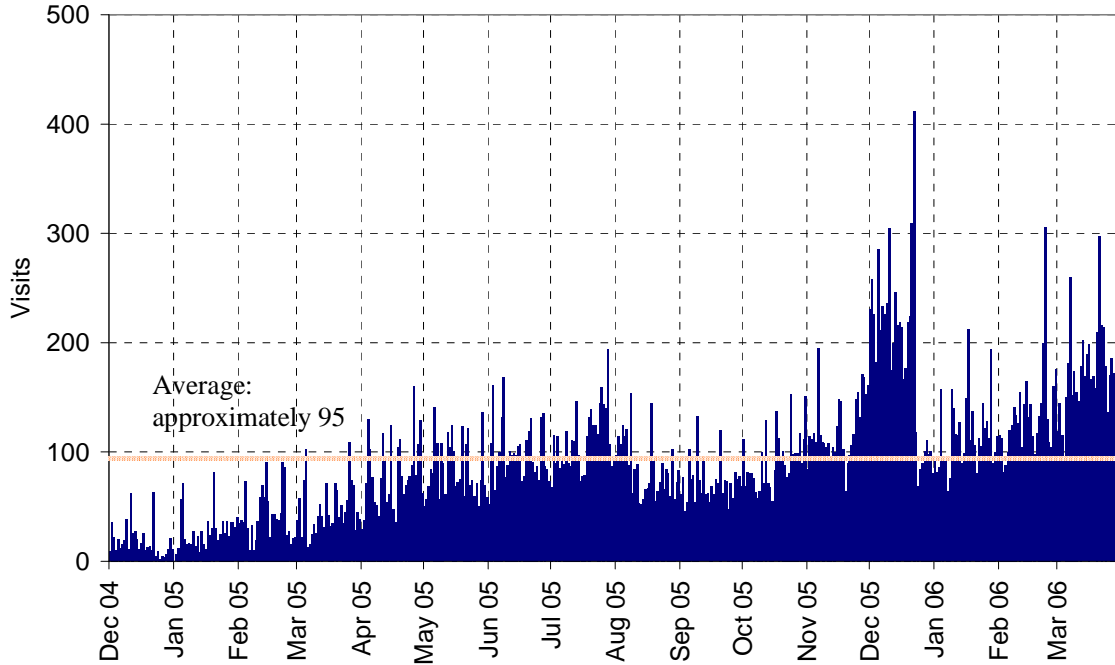


Figure 2: Sessions (from 1 December 2004 to 31 March 2006)

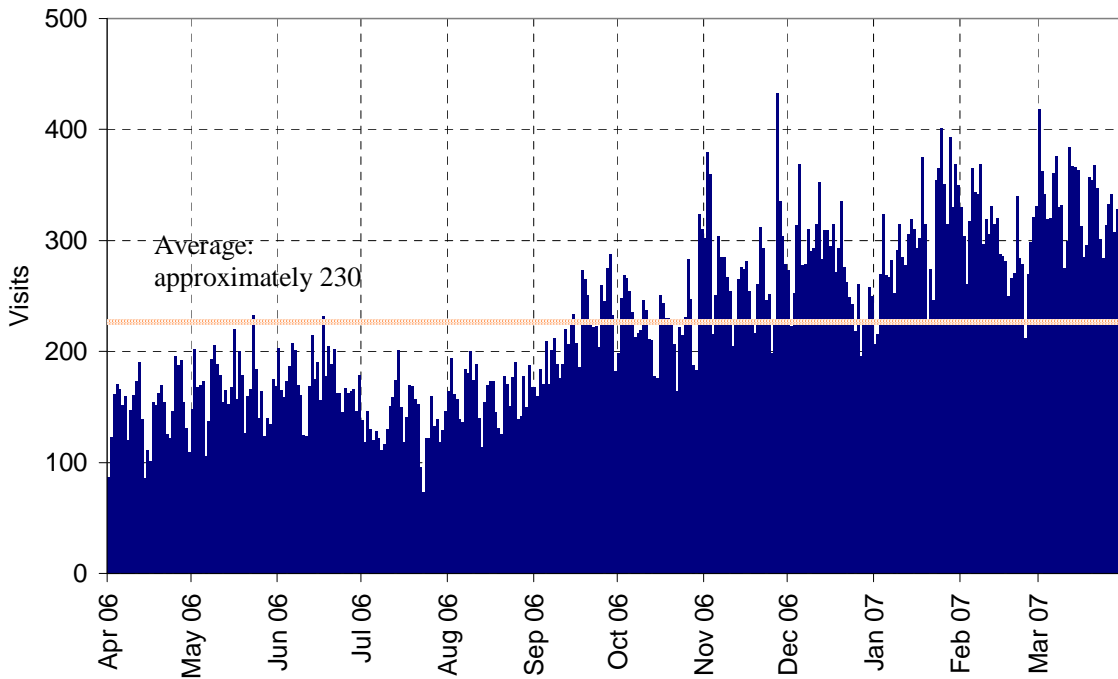


Figure 3: Sessions (from 1 April 2006 to 31 March 2007)

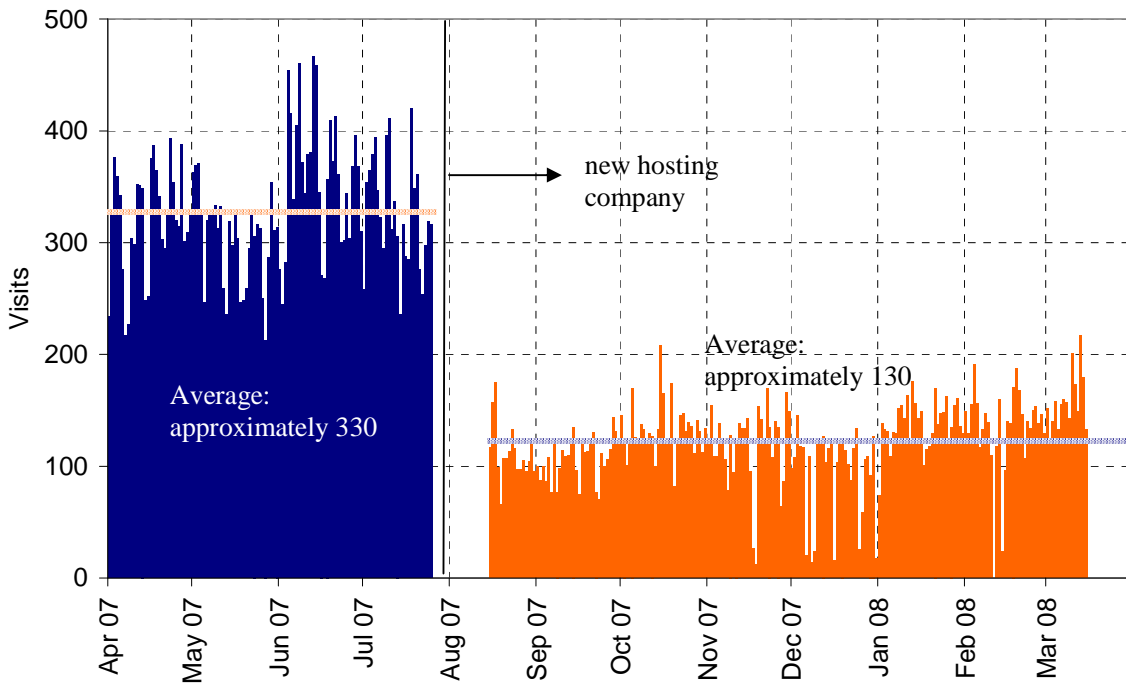


Figure 4: Sessions (from 1 April 2007 to 31 March 2008)

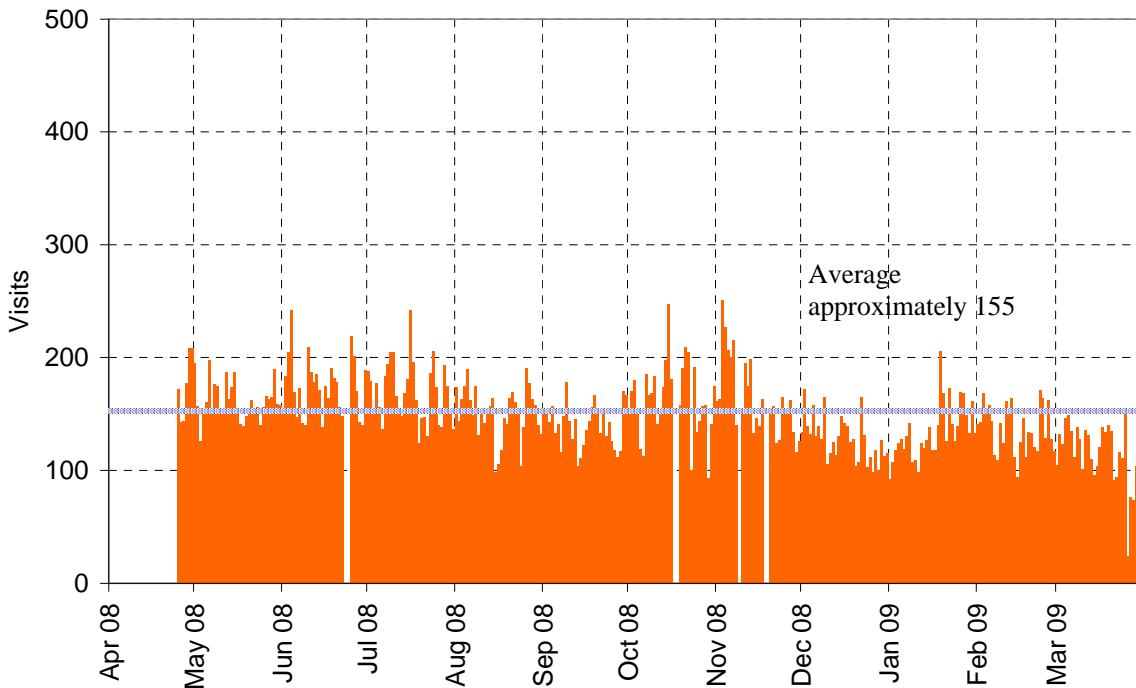


Figure 5: Sessions (from 1 April 2008 to 31 March 2009)

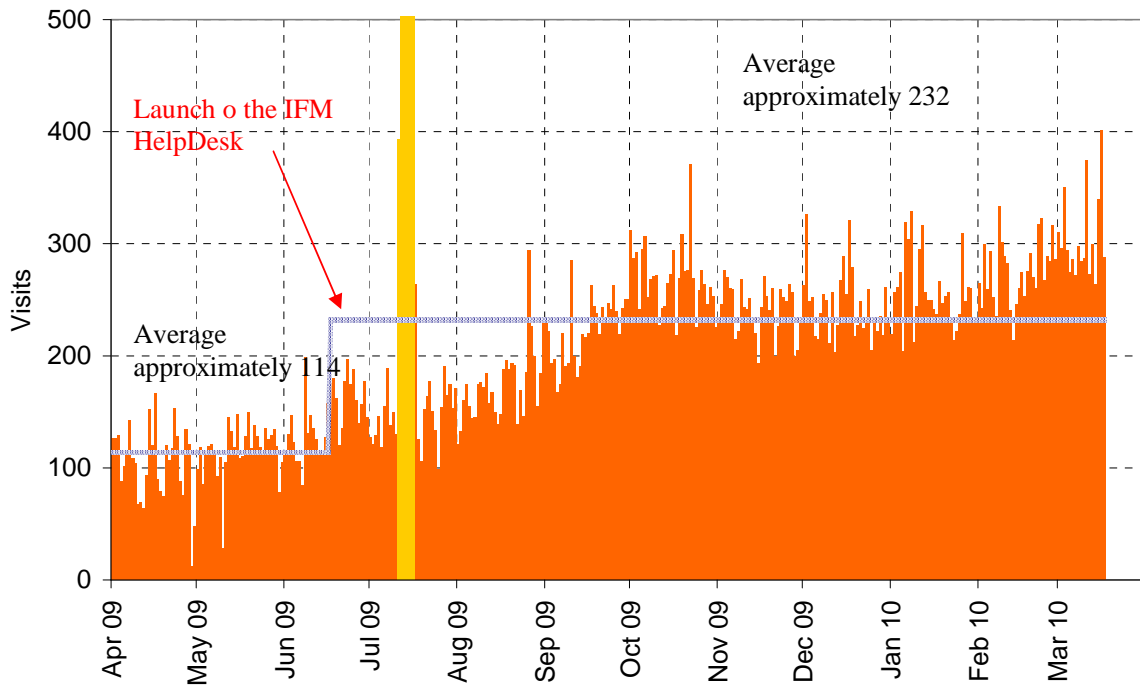


Figure 6: Sessions (from 1 April 2009 to 18 March 2010)

2. The number of access (PDF files only)

1) from Apr 2009 to Mar 2010 (as of 18th) *hosted by New company

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

April 2009			
Rank	Hits	item	URL
1	2444	Urban Flood Management (Sp Low quality)	/pdf/Urban_Flood_Management_Es_low.pdf
2	1520	IFM Tools; The Urban Flood Risk Management	/pdf/ifm_tools/Tools_Urban_Flood_Risk_Management.pdf
3	1410	Integración de los distintos elementos en la GIC – ejemplo de Perú	/pdf/peru_workshop/20_example_in_Peru.pdf
4	1064	IFM Concept Paper (En)	/pdf/concept_paper_e.pdf
5	869	IFM Policy Series; Social Aspects in IFM (Sp)	/pdf/ifm_social_aspects_Sp.pdf
6	660	Case Study in Bangladesh	/pdf/case_studies/cs_bangladesh.pdf
7	629	Manual for Community-based Flood Management in Bangladesh	/pdf/pilot_projects/manual_bangladesh.pdf
8	549	Case Study in Mexico	/pdf/case_studies/cs_mexico.pdf
9	469	IFM Policy Series; Economic Aspects of IFM (En)	/pdf/ifm_economic_aspects.pdf
10	374	IFM Policy Series; Environmental Aspects of IFM (Sp)	/pdf/ifm_environmental_aspects_Sp.pdf
May 2009			
Rank	Hits	item	URL
1	2102	Integración de los distintos elementos en la GIC – ejemplo de Perú	/pdf/peru_workshop/20_example_in_Peru.pdf
2	1716	IFM Tools; The Urban Flood Risk Management	/pdf/ifm_tools/Tools_Urban_Flood_Risk_Management.pdf
3	1501	Urban Flood Management (Sp Low quality)	/pdf/Urban_Flood_Management_Es_low.pdf
4	1456	IFM Policy Series; Social Aspects in IFM (Sp)	/pdf/ifm_social_aspects_Sp.pdf
5	915	IFM Concept Paper (En)	/pdf/concept_paper_e.pdf
6	706	Manual for Community-based Flood Management in Bangladesh	/pdf/pilot_projects/manual_bangladesh.pdf
7	652	Case Study in Bangladesh	/pdf/case_studies/cs_bangladesh.pdf
8	569	Urban Flood Management (En Low quality)	/pdf/Urban_Flood_Management_En_low.pdf
9	557	IFM Policy Series; Legal Aspects of IFM (Sp)	/pdf/ifm_legal_aspects_Sp.pdf
10	517	Urban Flood Management (En High quality)	/pdf/Urban_Flood_Management_En_high.pdf



June 2009

Rank	Hits	item	URL
1	2997	Integración de los distintos elementos en la GIC – ejemplo de Perú	/pdf/peru_workshop/20_example_in_Peru.pdf
2	2132	IFM Tools; The Urban Flood Risk Management	/pdf/ifm_tools/Tools_Urban_Flood_Risk_Management.pdf
3	1168	FM Policy Series; Social Aspects in IFM (Sp)	/pdf/ifm_social_aspects_Sp.pdf
4	985	Urban Flood Management (Sp Low quality)	/pdf/Urban_Flood_Management_Es_low.pdf
5	794	FM Policy Series; Legal Aspects of IFM (En)	/pdf/ifm_legal_aspects.pdf
6	777	IFM Concept Paper (En)	/pdf/concept_paper_e.pdf
7	749	Case Study in Mexico	/pdf/case_studies/cs_mexico.pdf
8	733	FM Policy Series; Social Aspects in IFM (En)	/pdf/ifm_social_aspects.pdf
9	620	FM Policy Series; Legal Aspects of IFM (En) Case Studies	/pdf/ifm_legal_aspects_casestudies.pdf
10	560	FM Policy Series; Environmental Aspects of IFM (En)	/pdf/ifm_environmental_aspects.pdf

July 2009

Rank	Hits	item	URL
1	2204	IFM Tools; The Urban Flood Risk Management	/pdf/ifm_tools/Tools_Urban_Flood_Risk_Management.pdf
2	1904	Integración de los distintos elementos en la GIC – ejemplo de Perú	/pdf/peru_workshop/20_example_in_Peru.pdf
3	1834	Urban Flood Management (Sp Low quality)	/pdf/Urban_Flood_Management_Es_low.pdf
4	1485	FM Policy Series; Social Aspects in IFM (Sp)	/pdf/ifm_social_aspects_Sp.pdf
5	1075	FM Policy Series; Legal Aspects of IFM (Sp)	/pdf/ifm_legal_aspects_Sp.pdf
6	658	Case Study in Bangladesh	/pdf/case_studies/cs_bangladesh.pdf
7	656	IFM Concept Paper (En)	/pdf/concept_paper_e.pdf
8	648	FM Policy Series; Environmental Aspects of IFM (Sp)	/pdf/ifm_environmental_aspects_Sp.pdf
9	644	Integración de los distintos elementos en la GIC – ejemplo de Perú	/pdf/peru_workshop/19_example_in_Peru.pdf
10	620	FM Policy Series; Legal Aspects of IFM (En) Case Studies	/pdf/ifm_legal_aspects_casestudies.pdf

August 2009

Rank	Hits	item	URL
1	2090	FM Policy Series; Social Aspects in IFM (Sp)	/pdf/ifm_social_aspects_Sp.pdf
2	1712	IFM Tools; The Urban Flood Risk Management	/pdf/ifm_tools/Tools_Urban_Flood_Risk_Management.pdf
3	1453	Integración de los distintos elementos en la GIC – ejemplo de Perú	/pdf/peru_workshop/20_example_in_Peru.pdf
4	793	Urban Flood Management (Sp Low quality)	/pdf/Urban_Flood_Management_Es_low.pdf
5	778	IFM Concept Paper (En)	/pdf/concept_paper_e.pdf
6	631	FM Policy Series; Environmental Aspects of IFM (En)	/pdf/ifm_environmental_aspects.pdf
7	589	IFM Tools; The Role of Land Use	/pdf/ifm_tools/Tools_The_Role_of_Land_Use_Planning_in_FM.pdf
8	588	IFM Tools; Flood Loss Assessment	/pdf/ifm_tools/Tools_Flood_Loss_Assessment.pdf
9	588	IFM Tools; Reservoir Operations and Managed Flow	/pdf/ifm_tools/Tools_Reservoir_Operations_and_Managed_Flows.pdf
10	527	Urban Flood Management (Sp High quality)	/pdf/Urban_Flood_Management_Es_high.pdf

September 2009

Rank	Hits	item	URL
1	3428	IFM Tools; The Urban Flood Risk Management	/pdf/ifm_tools/Tools_Urban_Flood_Risk_Management.pdf
2	2346	Integración de los distintos elementos en la GIC – ejemplo de Perú	/pdf/peru_workshop/20_example_in_Peru.pdf
3	1410	Urban Flood Management (Sp Low quality)	/pdf/Urban_Flood_Management_Es_low.pdf
4	1109	FM Policy Series; Social Aspects in IFM (Sp)	/pdf/ifm_social_aspects_Sp.pdf
5	1052	Urban Flood Management (En High quality)	/pdf/Urban_Flood_Management_En_high.pdf
6	936	Case study in Turkey	/pdf/case_studies/turkey.pdf
7	889	IFM Tools; The Role of Land Use	/pdf/ifm_tools/Tools_The_Role_of_Land_Use_Planning_in_FM.pdf
8	861	IFM Concept Paper (En)	/pdf/concept_paper_e.pdf
9	842	IFM Tools; Reservoir Operations and Managed Flow	/pdf/ifm_tools/Tools_Reservoir_Operations_and_Managed_Flows.pdf
10	725	FM Policy Series; Environmental Aspects of IFM (En)	/pdf/ifm_environmental_aspects.pdf

October 2009

Rank	Hits	item	URL
1	3755	IFM Tools; The Urban Flood Risk Management	/pdf/ifm_tools/Tools_Urban_Flood_Risk_Management.pdf
2	2672	Integración de los distintos elementos en la GIC – ejemplo de Perú	/pdf/peru_workshop/20_example_in_Peru.pdf
3	2088	Urban Flood Management (Sp High quality)	/pdf/Urban_Flood_Management_Es_high.pdf
4	1472	FM Policy Series; Environmental Aspects of IFM (En)	/pdf/ifm_environmental_aspects.pdf
5	1266	Urban Flood Management (En High quality)	/pdf/Urban_Flood_Management_En_high.pdf
6	1253	IFM Concept Paper (En)	/pdf/concept_paper_e.pdf
7	1064	FM Policy Series; Social Aspects in IFM (En)	/pdf/ifm_social_aspects.pdf
8	1017	FM Policy Series; Economic Aspects of IFM (En)	/pdf/ifm_economic_aspects.pdf
9	962	FM Policy Series; Environmental Aspects of IFM (Fr)	/pdf/ifm_environmental_aspects_Fr.pdf
10	935	Case Study in Mexico	/pdf/case_studies/cs_mexico.pdf



November 2009

Rank	Hits	item	URL
1	4860	IFM Tools; The Urban Flood Risk Management	/pdf/ifm_tools/Tools_Urban_Flood_Risk_Management.pdf
2	4440	Integración de los distintos elementos en la GIC – ejemplo de Perú	/pdf/peru_workshop/20_example_in_Peru.pdf
3	2231	Urban Flood Management (Sp High quality)	/pdf/Urban_Flood_Management_Es_high.pdf
4	1527	Urban Flood Management (En Low quality)	/pdf/Urban_Flood_Management_Es_low.pdf
5	1364	FM Policy Series; Environmental Aspects of IFM (Sp)	/pdf/ifm_environmental_aspects_Sp.pdf
6	1275	Case Study in Bangladesh	/pdf/case_studies/cs_bangladesh.pdf
7	1176	FM Policy Series; Social Aspects in IFM (Sp)	/pdf/ifm_social_aspects_Sp.pdf
8	1120	FM Policy Series; Environmental Aspects of IFM (En)	/pdf/ifm_environmental_aspects.pdf
9	1108	IFM Tools; Reservoir Operations and Managed Flow	/pdf/ifm_tools/Tools_Reservoir_Operations_and_Managed_Flows.pdf
10	998	IFM Tools; Environmental Assessment	/pdf/ifm_tools/Tools_Environmental_Assessment_for_Flood_Management.pdf

December 2009

Rank	Hits	item	URL
1	4682	IFM Tools; The Urban Flood Risk Management	/pdf/ifm_tools/Tools_Urban_Flood_Risk_Management.pdf
2	2214	Integración de los distintos elementos en la GIC – ejemplo de Perú	/pdf/peru_workshop/20_example_in_Peru.pdf
3	1422	IFM Tools; FM in a changing climate	/pdf/ifm_tools/Tools_FM_in_a_changing_climate.pdf
4	1290	Urban Flood Management (En High quality)	/pdf/Urban_Flood_Management_En_high.pdf
5	1110	IFM Concept Paper (En)	/pdf/concept_paper_e.pdf
6	1092	Case Study in Bangladesh	/pdf/case_studies/cs_bangladesh.pdf
7	1081	Urban Flood Management (Sp Low quality)	/pdf/Urban_Flood_Management_Es_low.pdf
8	1029	IFM Tools; The Role of Land Use	/pdf/ifm_tools/Tools_The_Role_of_Land_Use_Planning_in_FM.pdf
9	1026	Urban Flood Management (Sp High quality)	/pdf/Urban_Flood_Management_Es_high.pdf
10	957	FM Policy Series; Legal Aspects of IFM (En)	/pdf/ifm_legal_aspects.pdf

January 2010

Rank	Hits	item	URL
1	3588	IFM Tools; The Urban Flood Risk Management	/pdf/ifm_tools/Tools_Urban_Flood_Risk_Management.pdf
2	1648	Case Study in Bangladesh	/pdf/case_studies/cs_bangladesh.pdf
3	1597	Urban Flood Management (Sp High quality)	/pdf/Urban_Flood_Management_Es_high.pdf
4	1260	IFM Tools; The Role of Land Use	/pdf/ifm_tools/Tools_The_Role_of_Land_Use_Planning_in_FM.pdf
5	1227	Manual for Community-based Flood Management in Bangladesh	/pdf/pilot_projects/manual_bangladesh.pdf
6	1091	IFM Concept Paper (En)	/pdf/concept_paper_e.pdf
7	1044	Integración de los distintos elementos en la GIC – ejemplo de Perú	/pdf/peru_workshop/20_example_in_Peru.pdf
8	883	IFM Tools; The Role of Land Use	/pdf/ifm_tools/Tools_Reservoir_Operations_and_Managed_Flows.pdf
9	824	IFM Tools; Reservoir Operations and Managed Flow	/pdf/Urban_Flood_Management_Es_low.pdf
10	798	Case Study in Bangladesh	/pdf/case_studies/bangladesh.pdf

February 2010

Rank	Hits	item	URL
1	3577	IFM Tools; The Urban Flood Risk Management	/pdf/ifm_tools/Tools_Urban_Flood_Risk_Management.pdf
2	1847	Urban Flood Management (Sp High quality)	/pdf/Urban_Flood_Management_Es_high.pdf
3	1513	IFM Concept Paper (En)	/pdf/concept_paper_e.pdf
4	1453	Case Study in Bangladesh	/pdf/case_studies/cs_bangladesh.pdf
5	1292	Integración de los distintos elementos en la GIC – ejemplo de Perú	/pdf/peru_workshop/20_example_in_Peru.pdf
6	1103	FM Policy Series; Social Aspects in IFM (Sp)	/pdf/ifm_social_aspects_Sp.pdf
7	1063	IFM Tools; FM in a changing climate	/pdf/ifm_tools/Tools_FM_in_a_changing_climate.pdf
8	981	Manual for Community-based Flood Management in Bangladesh	/pdf/pilot_projects/manual_bangladesh.pdf
9	832	IFM Tools; The Role of Land Use	/pdf/ifm_tools/Tools_The_Role_of_Land_Use_Planning_in_FM.pdf
10	818	Urban Flood Management (En Low quality)	/pdf/Urban_Flood_Management_En_low.pdf

March 2010

Rank	Hits	item	URL
1	2415	IFM Tools; The Urban Flood Risk Management	/pdf/ifm_tools/Tools_Urban_Flood_Risk_Management.pdf
2	1274	FM Policy Series; Social Aspects in IFM (Sp)	/pdf/ifm_social_aspects_Sp.pdf
3	1018	IFM Concept Paper (En)	/pdf/concept_paper_e.pdf
4	875	Case Study in Bangladesh	/pdf/case_studies/cs_bangladesh.pdf
5	831	Integración de los distintos elementos en la GIC – ejemplo de Perú	/pdf/peru_workshop/20_example_in_Peru.pdf
6	704	Manual for Community-based Flood Management in Bangladesh	/pdf/pilot_projects/manual_bangladesh.pdf
7	660	IFM Tools; The Role of Land Use	/pdf/ifm_tools/Tools_The_Role_of_Land_Use_Planning_in_FM.pdf
8	653	FM Policy Series; Economic Aspects of IFM (En)	/pdf/Urban_Flood_Management_Es_high.pdf
9	559	IFM Tools; The Role of Land Use	/pdf/ifm_economic_aspects.pdf
10	535	Urban Flood Management (Sp Low quality)	/pdf/Urban_Flood_Management_Es_low.pdf

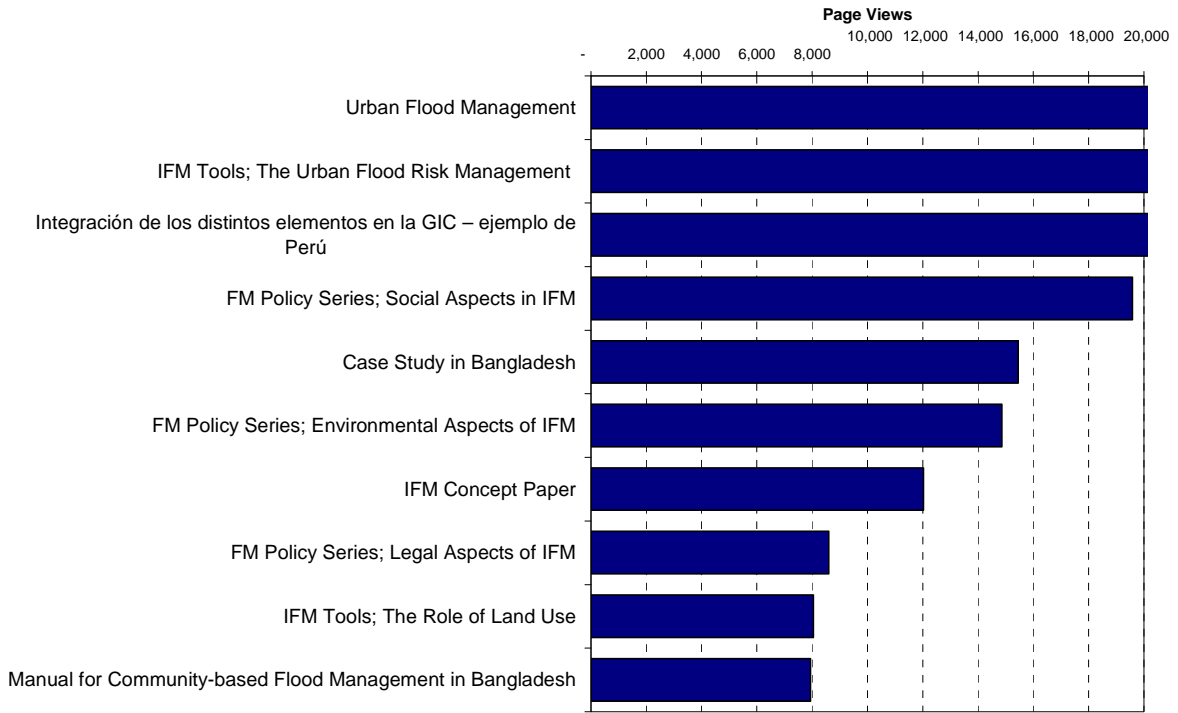
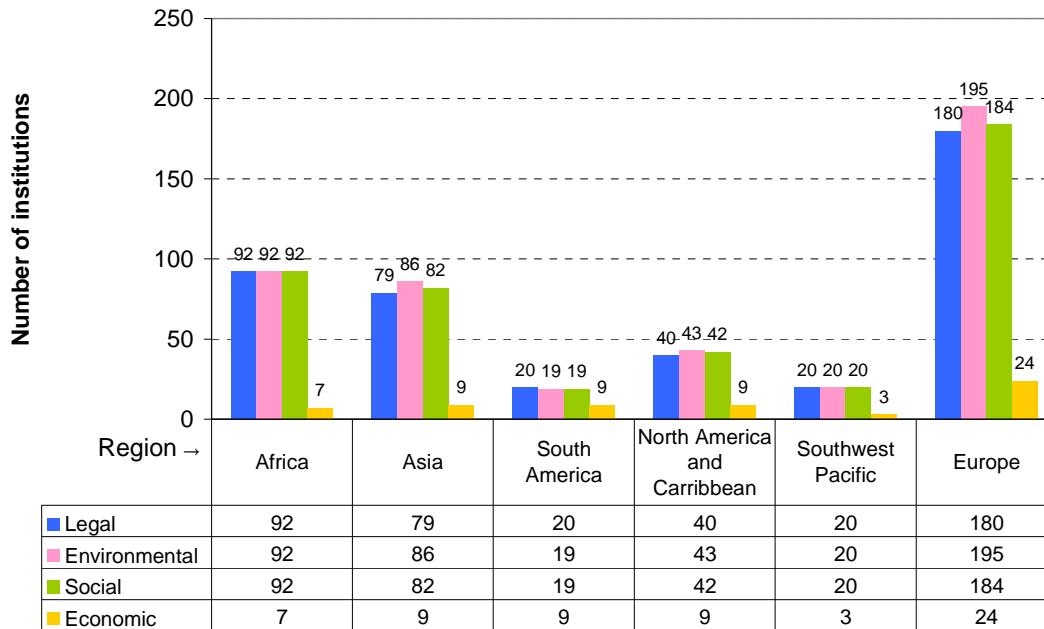


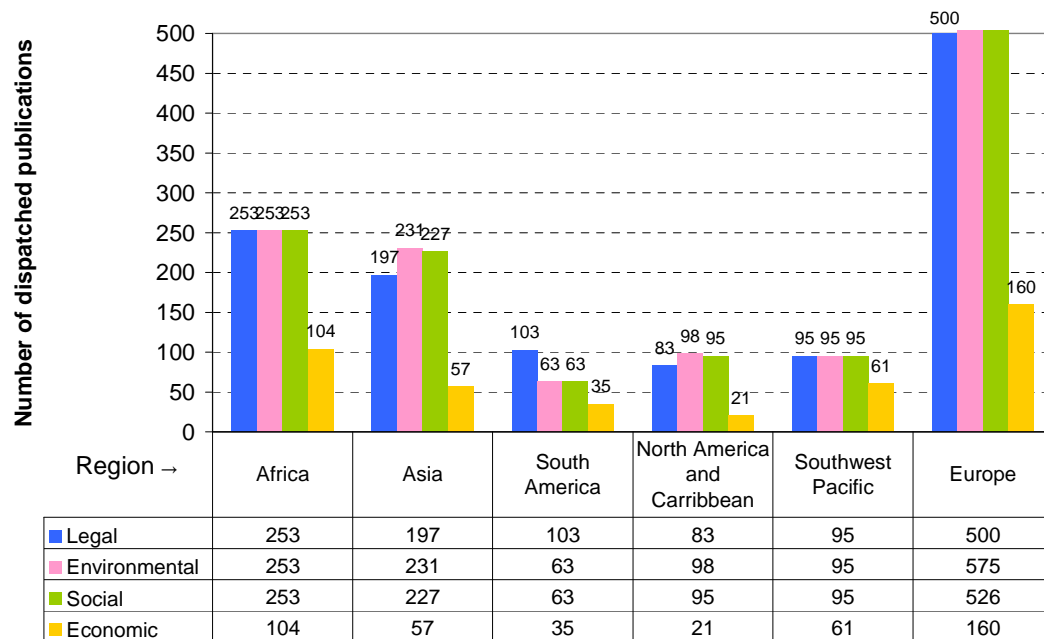
Figure 6: Top 10 of access (PDF files only) on the APFM website (monthly average)

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
 Economic: Economic Aspects of Integrated Flood Management

Figure 7: Number of institutions and publications that APFM publication has been dispatched