World Meteorological Organization

Global Water Partnership

THE ASSOCIATED PROGRAMME ON FLOOD MANAGEMENT

Global Coordination

INCEPTION REPORT

APFM Report No. 4

TABLE OF CONTENTS

8. PUBLICITY

8.1 Logo
8.2 Web page
8.3 Brochure
8.4 Future activities

9. ADMINISTRATIVE MATTERS

9.1 Steering Committee
9.2 Technical Support Unit
9.3 Financial statement
9.4 Future activities

10. FUTURE WORK PROGRAMME

11. ACKNOWLEDGEMENTS

ANNEXES

1. INTRODUCTION

1.1 The GWP/WMO Associated Programme on Flood Management (APFM) was launched on 1 August 2001 with an Inception Phase extending to March 2002, after which the Programme was expected to continue for at least a further four years.

1.2 The purpose of this Inception Report is to provide information on the activities undertaken since the launch of the Programme and to present a draft programme of work for the future.

1.3 The Report is addressed primarily to the APFM Steering Committee for its consideration. It is also submitted to the donors to the APFM in fulfilment of the requirement to report on progress. In addition, it serves to inform all interested parties of the purpose and nature of the APFM and its current and future activities.

2. BACKGROUND

2.1 Problem statement

2.1.1 Floods are a natural component of the hydrological regime. They can be a major source of water; they flush pollutants and sediment from river networks; and such natural fluctuations in water level are essential for the maintenance of many aquatic ecosystems.

2.1.2 It is also natural for rivers to overtop their banks with greater or lesser frequency and occupy their flood plains. The result is that floods cause property damage and bring death and injury to many communities. There is a real possibility that climate change will result in a general increase in flooding in the years ahead. In low-lying coastal areas this may be exacerbated by a rise in sea level and increased storm surge activities.

2.1.3 While there is no evidence as yet that the frequency or magnitude of flooding has increased world-wide, flood-prone areas are becoming increasingly more densely populated and thus more vulnerable. Consequently, a series of major flood disasters has occurred in recent years, with death and destruction being caused by events in every continent. The economic losses of the great floods of the 1990s were ten times those of the 1960s in real terms and Governments are now well aware of the impact this has on the communities affected and are urgently seeking for solutions.

2.2 Context

2.2.1 The Third Annual Consultative Group Meeting of the GWP (Stockholm, August 1998) raised the issue of flood management. This sectoral “gap” in relation to Integrated Water Resources Management (IWRM) was studied and recommendations were submitted to the Technical Advisory Committee (TAC) at its meeting in Warsaw in November 1998 which endorsed a flood initiative as a part of the Partnership’s future activities.

2.2.2 Soon thereafter South Asian TAC prepared a proposal for a project to be undertaken in South Asia. This was reviewed and further refined at discussions held in Dhaka in December 1999 and is now included in the AP Portfolio. Other regional TACs now also have plans for flood-related activities. Each of these naturally has a different focus depending on the situation and needs of the particular region. However, there is much to be gained from coordinating their activities and ensuring the exchange of information and experience between them.

2.2.3 At the TAC meeting in Manila in January 2000, a more detailed concept for a global project was endorsed. At its fifteenth meeting (Athens, May 2000), TAC discussed the project presented by WMO and IAHR and considered that the project should have a broader scope. The present project summary was prepared in response to this advice and to the comments of TAC at its sixteenth meeting in Stockholm in August 2000. During this meeting it was recommended that: "In view of WMO's mandate in relation to flood mitigation, the Organization be asked to take the lead in bringing together those concerned in the development of detailed plans for this AP and, if these plans are approved, to act as the Network Manager for the AP on floods".

2.2.4 TAC endorsement was obtained in November 2000 and in February 2001 the Programme was presented at the Financial Partner Group meeting.

2.2.5 During meetings held in Wallingford in February 2001 and in Washington in April 2001 it was confirmed that Japan and The Netherlands were ready to contribute to the funding of the project.

2.2.6 It was decided to establish an Interim Steering Committee for the Associated Programme to be chaired by GWP-TEC, WMO acting as the Secretary, and with representatives from Japan, The Netherlands, SAMTAC, CATAC, SASTAC, SATAC, the World Water Council and The Netherlands-World Bank Partnership (window on floods). Subsequent developments concerning the Steering Committee are reported under Section 9. 1 below.

2.3 Launch of the APFM

The initial funding for the Technical Support Unit (TSU) of the Programme was received from Japan in July 2001, which permitted work to commence on the Inception Phase on 1 August 2001.

3. GOALS AND OBJECTIVES

3.1 Goals

The goals of the APFM may be summarized as:

(a) To promote the inclusion of floods in all aspects of IWRM so as to safeguard and increase the quality of life of those threatened by floods, protect the environment, and maximize the use of flood waters for the benefit of society and the environment. In this context, consideration of floods should be seen as one component of overall risk management.

(b) To provide national governments, agencies and bi-lateral and multi-lateral donors with a sound system of methods, tools and policy options within which to respond to the flood problem in an integrated manner so as to save lives and protect infrastructure and property while contributing to sustainable development within river basins.

3.2 Objectives

3.2.1 Given the above goals, the objectives are stated as:

i. to develop and apply an approach to flood management which incorporates it as a component of integrated water resources management;

ii. to make available the tools that are necessary for the above;
iii. to provide a mechanism for coordinating regional activities on flood management; and
iv. to assist in the preparation of relevant projects at regional and national level.

3.2.3 Annex 1 indicates how the APFM activities described in this report are related to these four objectives.

3.3 Approach to integrated flood management (IFM)

3.3.1 These goals and objectives call for a certain approach to be taken to flood management, as outlined below.

3.3.2 Flood management is a broad concept that focuses on reducing flood hazards through a combination of policy, institutional, regulatory and physical measures (such as replanting upstream catchment areas), while recognizing that floods can never be fully controlled. This takes into account the beneficial use of floods, which are more difficult to quantify in human and economic terms but which sustain natural systems that also have economic, social, cultural and ecosystem values and functions. Consequently, when managing floods within IWRM, it is essential to minimize human suffering and property damage while maximizing the efficient use of the resources of the river basin. Therefore, trends in national flood losses are not the only guide to the success or failure of the national flood management strategy and for this reason flood management must be considered as part of IWRM and of all the socio-economic decisions related to floods.

3.3.3 While floods, with some rare exceptions, are caused by natural phenomena, their magnitude and impact is often influenced greatly by man's intervention. In urban areas, the major flood problems are usually related to flash floods and urban drainage.

3.3.4 In view of the above, those involved in flood management must establish an effective dialogue with those responsible for other practices such as socio-economic development, land management and the provision of meteorological services.

3.3.5 It is important to stress that the project is concerned primarily with disaster prevention and less with disaster response. Consequently, while it will cover such activities as the definition of areas likely to be flooded, the identification of transport routes that might be used during flood emergencies, and ways of reducing a community's vulnerability to the impact of flooding, it will not explicitly address emergency response measures themselves.

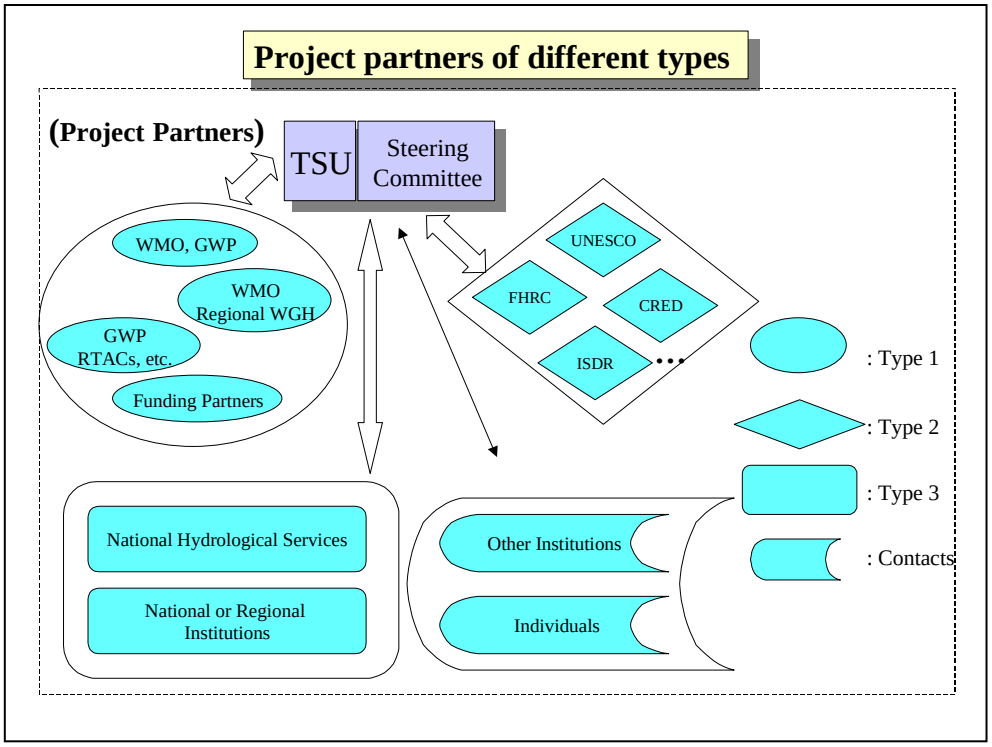
3.3.6 One important activity of the Inception Phase of the project has been the search for clear understanding of what is meant by incorporating flood management within IWRM. This is being developed in the form of a Concept Paper (see section 6.2 below) and presented under the heading Integrated Flood Management (IFM). Annex 2 summarizes the current interpretation of this term.

4. PARTNERSHIPS AND CONTACTS

4.1 Partners

4.1.1 One of the main objectives of the APFM is the provision of a mechanism for coordinating regional activities on flood management. Such coordination requires the establishment of a wide network of contacts involved in various aspects of flood management, and the identification of institutions (or "partners") that can be proactive in planning and implementing activities related to integrated flood management.

4.1.2 Sharing experiences, launching pilot projects together at regional level, obtaining specialized input, reaching wider audiences and accessing and learning from local knowledge bases are just a few of the numerous and multi-faceted activities that can be carried out with the collaboration of partners.



4.1.3 Partners can be defined and categorized in many ways. The APFM has classified its potential partners in the following manner, as illustrated in the figure above:

Type 1: WMO, GWP, GWP RTACs and WMO's Regional Working Groups on Hydrology (WGH) and potentially some other international bodies or initiatives: *partners whose work is linked very closely with the APFM and which have, or can be expected to obtain, funding for their activities. Those who directly fund the APFM are considered as "funding partners".*

Type 2: UNESCO, ISDR, FHRC, CRED, etc.: *partners who undertake activities that are related closely to those of the APFM, and who can be expected to work with the APFM on certain projects.*

Type 3: National Hydrological Services and other national or regional institutions: *partners who have indicated a willingness to cooperate with the APFM. The TSU will maintain contact, usually by e-mail and fax, with these institutions and they will be invited provide information to the APFM. APFM funds will not normally be spent on their activities.*

Contacts: Other institutions and individuals: *not considered as "partners" but whose names are held in the database of "contacts" and who can be invited to provide information to the APFM and participate in its activities and who are kept informed on developments from time to time.*

4.1.4 The Consultative Meeting on Building Partnerships, held from 19-20 February 2002 and attended by representatives of some of the bodies referred to above, helped the APFM identify partners of type 2. It also helped indicate some potential areas for future collaboration.

4.2 Other Associated Programmes and the Dialogues

4.2.1 Floods are a component of the hydrological regime and floodwaters are an essential part of the water resources of a region. As with other aspects of water resources, any action in relation to floods should be designed so as to minimize their potential for damage and to maximize their benefit to society and the environment. They must therefore be included in any scheme for Integrated Water Resources Management (IWRM). What is more, this calls for the integrated management of both water and land; for it is the changing landscape and society's continued encroachment onto the floodplain that exacerbate the flood problem.

4.2.2 In view of the value of flood waters as a source of water supply and recognizing the impact of major floods on agricultural and urban areas, the APFM has strong links with most other Associate Programmes (APs) and Dialogues (Ds). One major objective of this project is therefore be to ensure close coordination with the relevant activities under the other APs and Ds, for example by studying land management issues and considering the cultivation of flood resistant crops and irrigation systems.

4.2.3 Some APs have been specifically identified as potential partners of the APFM and have been contacted in order to coordinate possible joint activities. A full list of the current APs is given in Annex 3 and a brief summary of the aims and activities of the most relevant APs is contained in Annex 4.

4.2.4 As a separate, but closely related development, two new initiatives have been launched, principally to provide inputs to the 3rd World Water Forum (see 6.6 below). These are the Dialogue on Water and Climate and the Dialogue on Water, Food and Agriculture. Both are of relevance to the APFM and appropriate links will be established with them. Their aims and activities are summarized in Annex 4.

4.3 Contacts

4.3.1 It was felt that, while the formal channels of communication of the major partners would produce valuable inputs to the APFM in the form of documentation, comments, case studies and the like, much would be gained from making contact with a much larger community of institutions and individuals representative of a wider range of interest.

4.3.2 Accordingly a questionnaire was sent out inviting individuals to act as APFM "contacts" and provide a brief description of their responsibilities in flood management. This was sent to the Permanent Representatives of the 185 Member States of WMO to obtain contact information of institutions involved in flood management at the national level. The same questionnaire was also sent out by the GWP Secretariat and UNESCO, and the ISDR has used its newsletter to issue the same invitation. IHDP is expected to follow suit, but on a more individual basis.

4.3.3 A contact database was developed to enter the information thus collected. To date, there are 182 entries in the database.

4.4 Other related programmes and links

The APs and RTACs represent the GWP links with the APFM. Other partners of various levels have provided information on their activities relevant to IFM. Those of WMO, UNESCO, ISDR, IHDP and FHRC are summarized in Annex 5.

4.5 Future activities

4.5.1 Efforts will continue to identify new partners at all levels, including expanding the list of "contacts".

4.5.2 Joint activities are now being discussed with the partners listed above and funds have been set aside for this – see Section 10. For example, it is anticipated that the APFM will participate in a meeting organized by the International Network of Basin Organizations (INBO) in Canada (Quebec); the development of training and information modules for local governments in coordination with the International Council for Local Environmental Initiatives (ICLEI); coordination meetings with the International Network for Capacity Building in IWRM (CAPNET) and Gender Water Alliance (GWA); and the development, in coordination with WaterNet, of a flood management module for the Master Degree programme on IWRM in Southern Africa.

5. REGIONAL ACTIVITIES

1 General

5.1.1 At its meeting in August 2001, the Interim Steering Committee advised that, during the Inception Phase, the APFM should work with four regions, namely: Central America (CA), South America (SAM), South Asia (SAS) and Southern Africa (SA), involving in each case their respective regional technical advisory committees (RTACs). The member countries of these RTACs are:

- CATAC: Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua and Panama
- SAMTAC: Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Paraguay, Peru, Uruguay and Venezuela
- SASTAC: Bangladesh, Bhutan, India, Nepal, Pakistan and Sri Lanka.
- SATAC: Angola, Botswana, Democratic Republic Congo, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Tanzania, Zambia, Zimbabwe

5.1.2 The presidents of the above-mentioned RTACs, designated 'focal points on flood management', who are also members of the Steering Committee are:

CATAC: Mr David Smith
SAMTAC: Mr Carlos Tucci
SASTAC: Mr Q.K. Ahmad
SATAC: Mrs Tabeth Matiza

5.1.3 Some regional bodies of WMO - which include the above-mentioned regions, and work in the field of IWRM - have established a coordination mechanism, by which the president of the RTAC corresponds with the chairman of the WMO Regional Working Group on Hydrology. This mechanism is in place in WMO's Region III (South America) and in Region IV (North and Central America). It has been suggested that in these two regions,

beginning with Region III, a direct coordination should be established in the field of floods between the focal points mentioned above and the relevant members of the WMO Working Groups.

5.2 Past specific activities

5.2.1 Initial contacts were established with the above-mentioned focal points. This led to the organization of the First Coordination Meeting of the APFM, Geneva, 21 to 24 November 2001. This meeting had two main subjects, the discussion of regional projects and the development of a concept paper on flood management in the context of IWRM - referred to within the APFM as Integrated Flood Management (IFM).

5.2.2 The Meeting was chaired alternately by Mr Q. Ahmad and Mr C. Tucci, both of whom are members of the Steering Committee of the APFM and the GWP flood management focal points of SASTAC and SAMTAC respectively. The other two focal points mentioned in paragraph 5.1.2 were unable to attend the meeting, but were represented by Mr David Smith (CATAC) and by Mrs Zeria Banda (SATAC). It was strongly recommended by the participants that the TSU should organize such coordination meetings on a periodical basis.

5.2.3 Throughout the discussion on regional plans, it was recognized that each region has its own very rich experience in flood management, from which lessons learned can be extracted, both as regards good and past practices.

5.2.4 The following points were regarded as matters of common interest for all regions:

(a) The importance of including development perspectives (social and economic activities, social welfare, etc) in any flood management programme, and not limiting thinking only to the geographical basin boundary.

(b) The importance of sharing information between upstream and downstream countries, an especially important factor in cases where dam operation in upstream areas is included.

(c) The importance of reviewing and disseminating information on past cases where plans failed, as well as successful cases. These should be compiled for the "ToolBox".

(d) The importance of ensuring the participation of all stakeholders, especially local communities and their residents.

CATAC

5.2.5 No information was available prior to the November meetings as regards activities on flood management in CATAC. During the meeting it was explained that a project proposal was being developed. The countries included in the proposal are: Honduras, El Salvador, Nicaragua and Costa Rica.

5.2.6 The meeting recommended the following:

(a) The project document should include a list of acronyms.

(b) Administrative questions should be channelled to the CATAC-CRRH representative on the APFM Steering Committee. Direct project concerns may be addressed to CEPREDENAC as project driver.

(c) The project document would benefit from explicit references to ramifications and collateral effects, such as concerns and actions in the field of geo-dynamics including unstable slopes and landslides due to excessive rainfall and flooding which may need to be monitored for the potential or actual effects of floods. Also, health issues should be included, such as developing public awareness in the context of flood control activities, both in terms of reducing or increasing vulnerability.

(d) It was suggested that CEPREDENAC - CATAC recommend to the Government of Honduras to request technical advisory support for hydrological assessment and human resources development from UNESCO (Water Sciences Division) and other available sources such as CATHALAC and IHE, Delft in The Netherlands.

(e) The project document should explicitly include an assessment of the extent and nature of public involvement/participation. This is an indicator of cost efficiency usually considered important by donors.

(f) Nevertheless, it is important to consider the implications of granting and assessing public participation, so as not to generate resistance from participating institutional counterparts.

(g) The need to address the complexity of multinational river basins for flood control was also acknowledged.

(h) One other issue discussed was the need to promote the logic of investing in integrated river basin management and flood vulnerability reduction, leading to the participation of a broader-range of stakeholders and explicit activities in relation to sustainable development.

SAMTAC

5.2.7 Floods have been an increasing problem in South America, leading to loss of human life, economic losses, and human suffering. SAMTAC promotes integrated approaches to flood management by involving local communities in flood control programmes. For example, pilot projects have been initiated in Argentina, Brazil, Colombia, Chile and Venezuela, which focus on multidisciplinary mitigation of urban floods.

5.2.8 The information in the previous paragraph was extracted from the GWP Web site in March 2002. It is clear that SAMTAC is allocating great importance to floods. In the meeting of November 2001, it was stated that Peru has replaced Venezuela in the plans for pilot projects. Half of the South American countries are participating in the SAMTAC activities on floods, but the focal point noted that other countries would also like to participate.

5.2.9 The following recommendations were prepared during the above-mentioned meeting:

(a) In South America there are great differences (climatic, topographic, hydrographic/fluvial, etc) between countries. It may therefore be beneficial to attempt a "sub-regional" classification which transcends national borders, when picking case studies, in order to maximize regional benefits from the study.

(b) It was suggested to involve concepts of vulnerability and resilience.

(c) Also it was suggested to recognize explicitly negative effects caused by ongoing practices and regulations.

SASTAC

5.2.10 Five countries are participating in the development of a project proposal in South Asia, namely: Bangladesh, India, Nepal, Pakistan, and Sri Lanka.

5.2.11 During the November Meeting, the following recommendations were made:

(a) The IWRM context should be made more explicit.

(b) Both loss reduction and capacity building at the local level should be addressed, within the broad vulnerability reduction context.

(c) Cultural imperatives as well as people's knowledge/experience in facing floods should be taken into account.

(d) Involvement of parliamentarians, relevant bureaucrats and journalists should be built into the process of consultations in finalizing the outcome of the study project.

(e) The budget should be recast, to reflect (d) above and other appropriate adjustments with no increase in the total.

SATAC

5.2.12 The countries involved in the preparation of a flood management strategy are all the SADC countries, including all the countries mentioned in paragraph 5.1.1 above, plus Mauritius and the Seychelles.

5.2.13 The recommendations made in the November meeting are the following:

(a) This would be a good pilot case as to how the global APFM can support stakeholders in a region, especially a regional policy and action programme.

(b) This strategy is a planning process, the output of which will be the development of projects. The APFM then would come in to help to ensure that the IWRM focus/requirements are met in each of the projects that are developed.

(c) The technical focus of the strategy (the inclusion of equipment with detailed technical specialities, etc) was questioned, especially the second element on early warning systems. It was recognized that the APFM covered both non-structural and structural measures and that regional requirements do differ. It is Southern Africa's view that these warning systems are needed, hence their inclusion in the strategy. Therefore it was recommended that setting strategies for early warning systems should be included within the GWP-Southern Africa programme to be implemented in conjunction with SADC, in line with the concept of Integrated Flood Management, their practical implementation being a matter for the national technical agencies responsible.

(d) The connection between the mitigation strategy and other socio-economic factors is already in place.

5.3 Future Activities

5.3.1 In the above-mentioned four regions, the activities will have to be adapted to the current degree of development of their projects on flood management. The governmental nature of WMO's partners, which in South America and in Central America are informed on the objectives of the APFM, and are wishing to participate, is a strength that could facilitate and enable the implementation of projects that would be developed within the context of the APFM. Additional information on future activities can be found in section 10. There are foreseen missions to countries of all the regions mentioned in paragraph 5.1.1. A coordination meeting on urban floods will be held in Porto Alegre in April 2002, with participants from the five South American countries involved in the project on urban floods. It is expected that 11 workshops will be held in these five countries. Support to these workshops is being provided by Japanese funds that are being channelled through the WMO Secretariat for their administration. These workshops are not included in Section 10, because their funding is formally independent of the global coordination activities.

5.3.2 As indicated in Section 10, the TSU will assist the RTACs to develop further their plans for future projects. This will involve visits to the regions by various experts and support for the convening of regional meetings. In some cases, an expert from one region will be assisted to visit another region.

5.3.3 During the Implementation Phase, some of the global funds are to be used for implementing "pilot studies", the aim and characteristics of which can be described as follows:

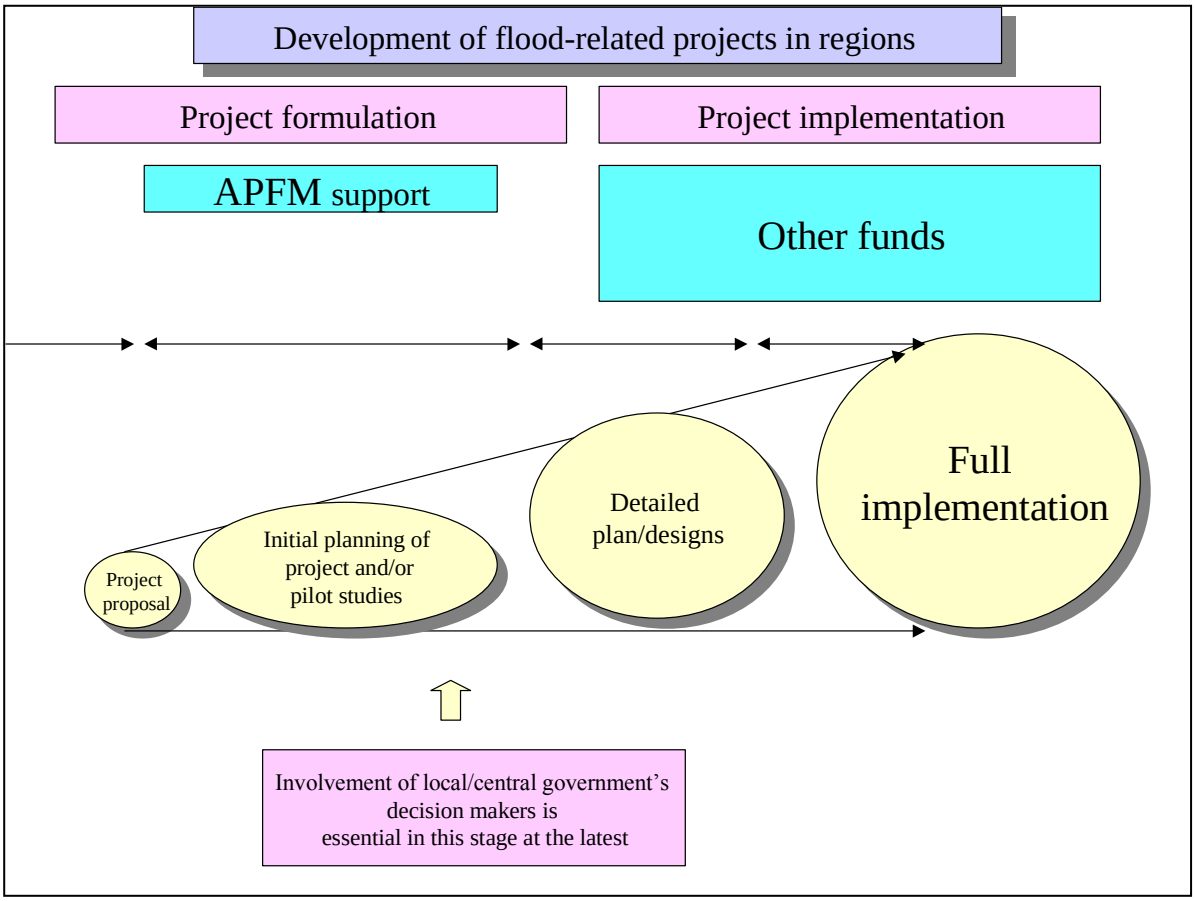
(a) model studies which relate to relatively small areas, due to limitation of funds, but are developed in full detail, covering as many aspects of IFM as possible;
(b) the results of these are to be used for refining this application of the IFM approach and related technical or administrative practices for persuading decision makers to adopt the IFM approach or to introduce the same approach on as wide a scale as possible
(c) the main element of the study could be, for example:
    i. new legislation system under certain natural or administrative conditions;
    ii. detailed city planning taking into consideration IFM aspects;
    iii. water supply/usage plan including the effective use of floodwaters; or
    iv. a wetland preservation plan utilizing floodwaters.

5.3.4 Pilot studies may be integrated into RTACs projects, or may be carried out in parallel with RTACs activities, or if appropriate, part of RTAC project proposal itself could become pilot studies. The results of these studies may become inputs to the GWP ToolBox.

5.3.5 The pilot study process may be implemented in a series of steps, as follows:

(a) 2002-2003: Proposal, development and adoption of pilot studies
(b) 2003-2004: Implementation of pilot studies
(c) 2004-2005: Evaluation and advocation of the results
(d) 2005-2006: Adoption of results by certain decision makers

5.3.6 The following diagram illustrates the general development process for regional activities:



6. GLOBAL ACTIVITIES

6.1 Meetings

Five types of meetings will be convened under the APFM. These may be characterized as follows:

(a) Meetings of the Steering Committee
These will be held once a year, usually in March, and will allow the Steering Committee to review progress with the APFM, assist in laying plans for its future activities and offer appropriate advice to all concerned with the project. An Interim Steering Committee met in Stockholm on 17 August 2001. The first meeting of the full Steering Committee is being held in Washington on 24 and 25 March 2002.

(b) Co-ordination Meetings
These will be held at least once a year and will bring together various partners involved in joint action under the APFM to establish their future programme of work. The First Co-ordination Meeting was held in Geneva from 21 to 24 November 2001.

(c) Consultative Meetings
These will be convened as and when it is necessary to clarify particular issues and develop guidance material on specific topics. The first such meeting was held in Geneva on 19 and 20 February 2002 to consider the question of partnerships and the meaning of IFM.

(d) Regional Planning Meetings
These will be held in the regions to assist in developing plans for, and reviewing progress with, regional projects – see Section 5 above.

(e) Seminars, symposium and conferences
These may be convened or only co-sponsored by the APFM. The purpose would be to explain and encourage the application of IFM to groups drawn from specific regions or from a wider community. The contribution of the APFM to the 3rd World Water Forum (Kyoto, March 2003) could be included under the heading.

6.2 Concept Paper

6.2.1 The original intention of the Concept Paper was to issue a 10 to 15 page document which could be used to introduce the concept of IFM to a wide audience and serve as an initial guide as to what application of IFM meant in practice to those who wished to take the matter further. A first draft of such a paper was prepared by Dr. Colin Green and discussed at the Coordination Meeting in November 2001. This led to a second draft which was reviewed at the Consultative Meeting in February 2002. The result of this process was the realization that full justice to the topic could not be done with a brief paper.

6.2.2 As a consequence, it was recommended that the current draft of the Concept Paper be developed further, without a specific page limitation, so as to encompass the concepts summarized in Annex 6 followed by several illustrations which help understand the concepts. This would then also permit the inclusion of brief references to the various structural and non-structural options/techniques available for managing floods and flood plains as both resources and hazards. This would provide a text which might be considered as a "first edition" of what would become a continually evolving report. It could serve as a source for producing documents on APFM intended for more specific audiences and papers expanding on specific topics, such as economic analyses in support of IWRM encompassing IFM.

6.2.3 The immediate need for a statement on IFM would be met by the summary paper attached as Annex 2. This can be used in a brochure, included in the APFM web site and attached to other documents.

6.3 Case studies on flood management

6.3.1 Background

6.3.1.1 Floods, from time immemorial, have affected humankind in both positive and negative ways. Agricultural activities in ancient civilizations depended on the fertile silt transported by floodwaters and deposited along floodplains. Most ancient civilizations were located along the flood plains of major river networks. As human society evolved, expanded and grew in complexity, the pressure on riverine resources increased tremendously. Flood plains, catchments, river courses, etc., were all subject to modifications, of varying intensities, to cater to the demands of humankind. Such modifications affected the natural flow regimes of rivers. Although floods basically stem from natural causes, in the present day, floods and human activities are inextricable linked.

6.3.1.2 Floods today have been cloaked in the shroud of disasters because they negatively affect the lives and livelihoods of more and more people. Such an increase in the number of people affected does not necessarily imply an increase in the magnitude of the flood events. In fact the increase is almost always because the number of inhabitants and the number of activities located along floodplains and catchments have exceeded the safe carrying capacity.

6.3.1.3 The policy of treating floods as isolated events, and responding to their adverse impacts on an event-by-event basis, is not the most pragmatic approach to flood management. Floods should be viewed as one of the elements and processes that comprise a river system. In other words, flood management should be viewed within a context of integrated water resources management (IWRM) through the application of IFM.

6.3.1.4 It is not the intention of the APFM to develop a database of past floods. CRED and other institutions collect such data. The role of the APFM will be limited to passing on information about these sources of flood data and encouraging harmonization and co-ordination between the data centres concerned. The sole purpose in studying particular past floods within the APFM is to identify whether they were managed at all within the context of IWRM, and to draw relevant conclusions of use to the project.

6.3.1.5 In a bid to identify good practices in IFM that could be shared widely, it was decided to compile case studies on flood management. The case studies would not simply focus on the flood event but would ideally look at management structures in place at the time of the flood, steps taken in the aftermath of the flood, management strategies conforming to IFM, and lessons learned in general. Such case studies could prove invaluable in a future compilation of a 'Toolbox' of good practices in flood management.

6.3.2 Methodology

6.3.2.1 Initially, the idea was to survey "in-house" literature for suitable case studies. The objective was to identify potentially "good" case studies, and then send a questionnaire to relevant institutions in the countries concerned asking them to compile the case study according to the questionnaire.

6.3.2.2 Unfortunately, most of the material available "in-house" did not cover the aspects which the case studies should ideally cover. It was felt that we should identify regions/countries frequently prone to flooding and ask certain institutions in those regions to prepare suitable case studies conforming to guidelines drawn up by the APFM. The regions/countries thus identified were:

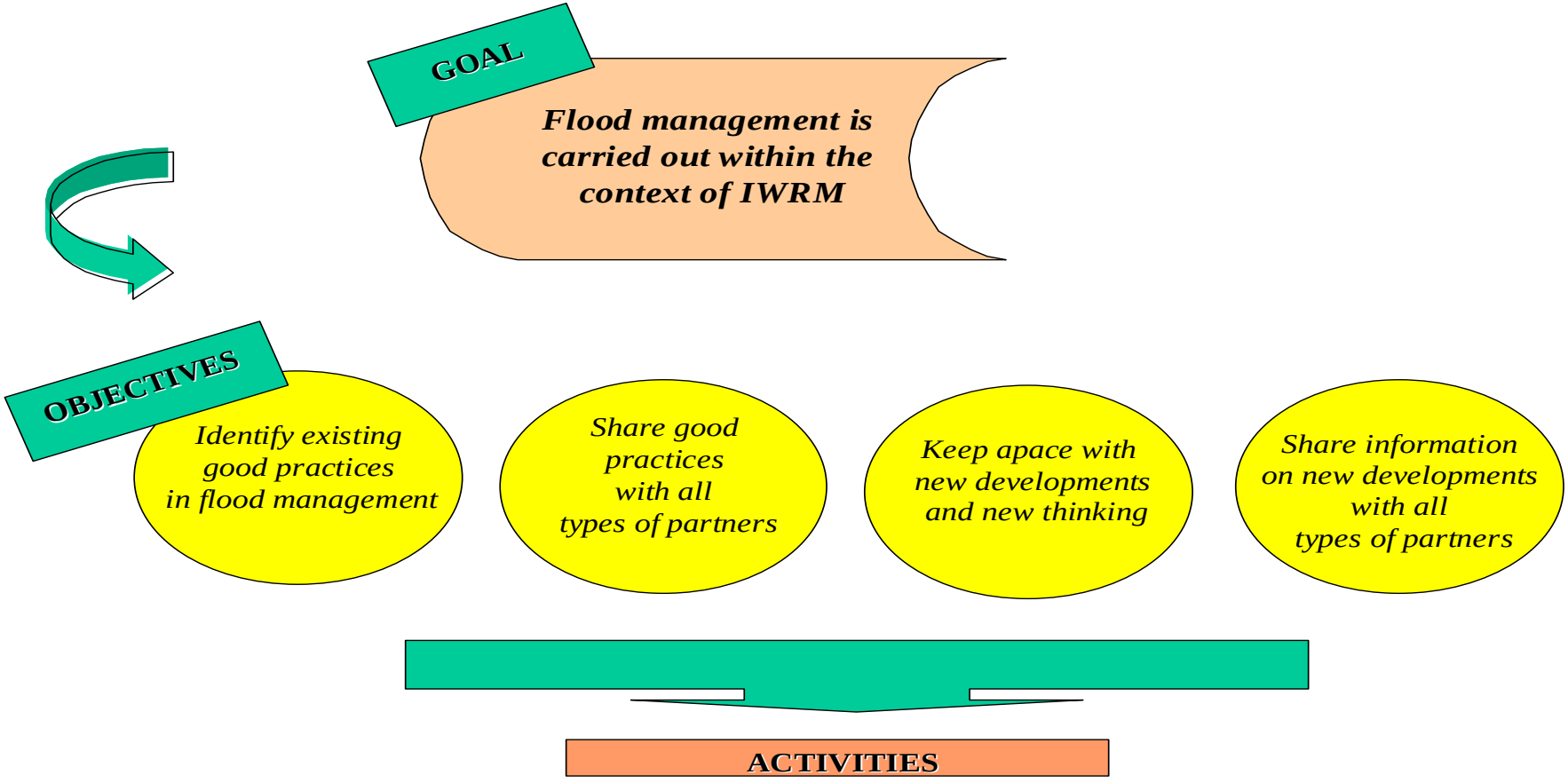
(a) China (Yangtze)
(b) Mississippi
(c) Rhine/Meuse[1]
(d) Mozambique

6.3.3 Future activities

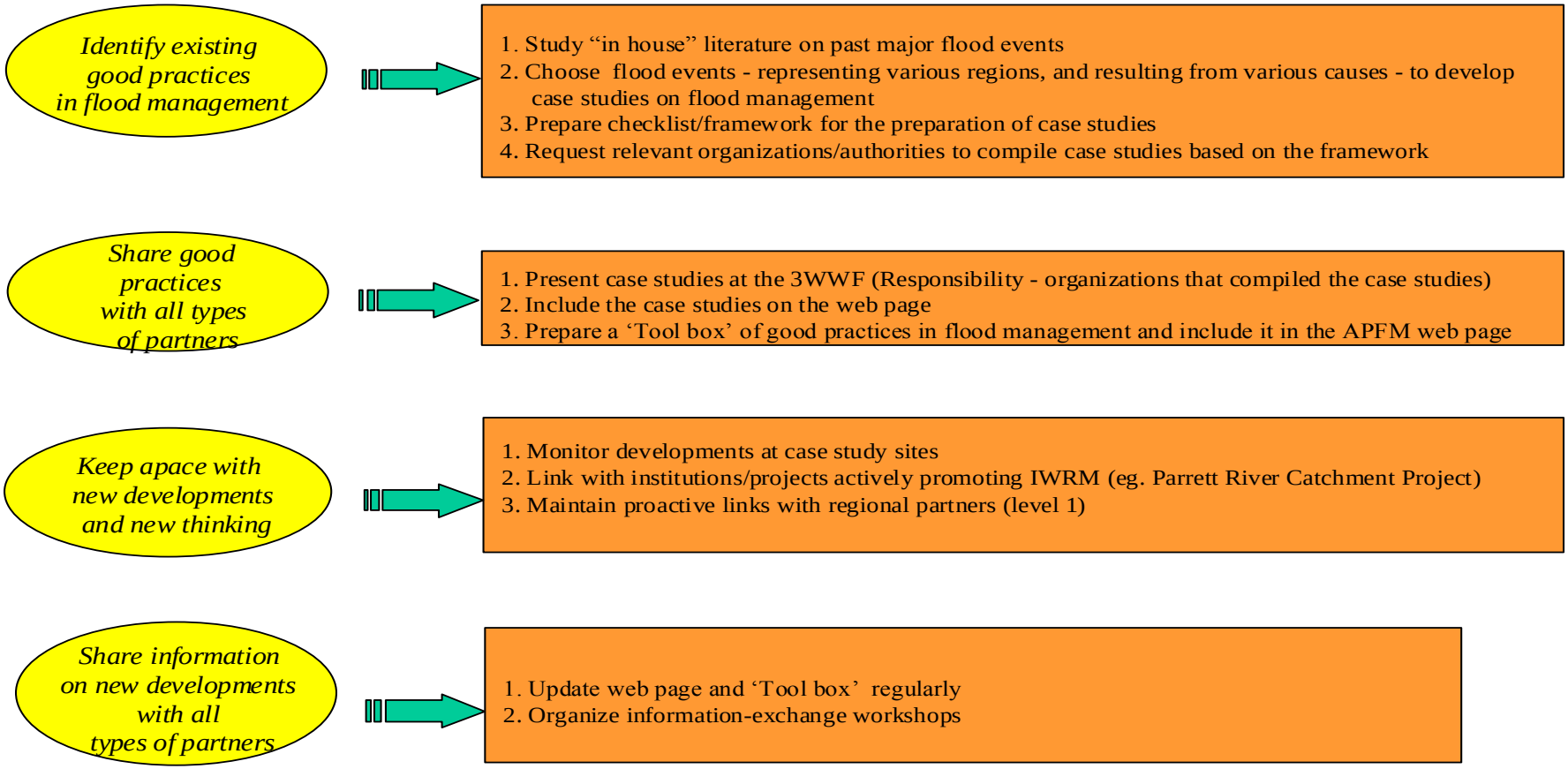
From the above-mentioned case studies only the fourth is in a region included in the Inception Phase. Case studies from all four regions mentioned in Section 5 will also be solicited. See the two figures reproduced below for an overview of the goal, objectives and activities comprising the project component on case studies.

[1] It must be remembered that the Rhine flows through Switzerland and countries of the EU - all countries that heavily subsidize their agricultural activities. Changes in land use could, therefore, easily be effected (for the purposes of IWRM) through changes in subsidies. Such steps cannot be applied to, or replicated in, developing countries. Therefore, it may not be advisable to portray this case study as an ideal case for flood management within the context of IWRM.

Case studies



Activities


Identify existing good practices in flood management
1. Study "in house" literature on past major flood events
2. Choose flood events - representing various regions, and resulting from various causes - to develop case studies on flood management
3. Prepare checklist/framework for the preparation of case studies
4. Request relevant organizations/authorities to compile case studies based on the framework
Share good practices with all types of partners
1. Present case studies at the 3WWF (Responsibility - organizations that compiled the case studies)
2. Include the case studies on the web page
3. Prepare a 'Tool box' of good practices in flood management and include it in the APFM web page
Keep apace with new developments and new thinking
1. Monitor developments at case study sites
2. Link with institutions/projects actively promoting IWRM (eg. Parrett River Catchment Project)
3. Maintain proactive links with regional partners (level 1)
Share information on new developments with all types of partners
1. Update web page and 'Tool box' regularly
2. Organize information-exchange workshops

6.4 Good practices

6.4.1 In the context of the APFM, the “good practices” to be promoted are presented under Section 3 and Section 6.2. These two sections provide the rationale and this section concentrates on a brief description of what it is understood by good practice and the importance of promoting a change in the approach to flood management.

6.4.2 As defined earlier, Integrated Flood Management (IFM) is flood management in the context of IWRM. Adopting this approach has immediate consequences. First of all floods are no longer seen as disasters but as natural events, and therefore the appropriate objective is to maximize the efficient use of the basin and not to minimize or reduce flood losses. Trends in flood losses at international, national or basin level do not tell the whole story as regards the success or failure of the flood management strategy adopted. It can easily be shown that, in some cases, an efficient flood-management policy can even be accompanied by a rise in both flood losses and the cost of flood management.

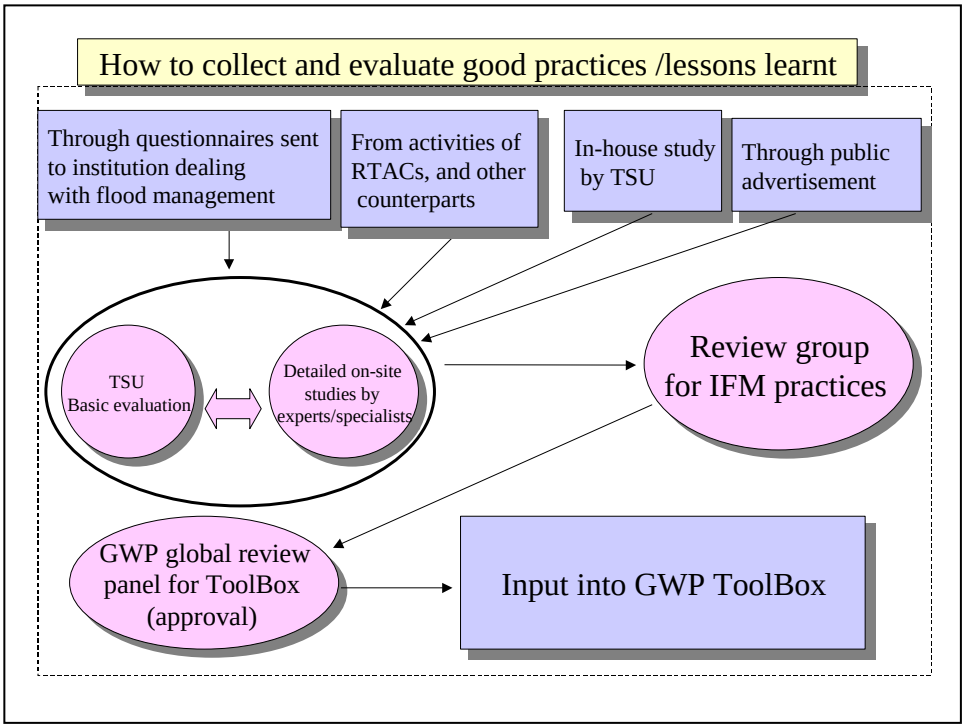
6.4.3 There is no standard for designing flood management strategies or policies. Each basin with its physical, social, economic and environmental characteristics is different and should be analysed separately.

6.4.4 As mentioned in the Section 6.4, it was difficult to find case studies on flood management in the context of IWRM. The process of obtaining information on good practices will be facilitated by the use of the concept paper - including condensed versions and summaries of it. Case studies of projects to be developed in the regions are more likely to be used as examples from which to extract lessons learnt. In some cases these lessons will not focus so much on overall policy but on sound measures - both structural and non-structural - that could be beneficial for regions with similar characteristics. These lessons learnt could also be related to institutional aspects, public participation, the decision making process and the like.

6.4.5 Another source of good practices will be the partners mentioned in Section 4. The RTACs, WMO's regional Working Groups on Hydrology, and the channels of UNESCO and FHRC, are included in this category. Other APs and the contacts mentioned in Section 4.3 could also contribute to the compilation of good practices.

6.4.6 It is foreseen that the lessons learnt, and hence the good practices, will be disseminated through various channels, including the APFM Web site and the GWP ToolBox (see Sections 7.2 and 7.3). These lessons learnt will be taken into consideration when the pilot projects mentioned in Section 5 are developed.

6.4.7 The illustration below shows TSU's present idea as to how to collect, evaluate and submit good practices to the GWP ToolBox. As mentioned under Section 7.3, GWP has already established a global review panel for the ToolBox linked to a formal process as summarized below. However, APFM is currently the only AP that explicitly deals with floods and, therefore, a range of practices - some successful, some less successful - will need to be evaluated. The APFM may need to establish its own review group to consider the practices before they are forwarded to GWP Secretariat.



Evaluation Process of the GWP ToolBox

1) Screening proposals - case proposal (one page summary) is screened first by the ToolBox core team

2) Review of case proposals- reviewed by a global review panel, with members from the GWP TAC, RTACs and other sector or regional specialists.

3) Review of full cases - full cases (full documents) are reviewed by three people from the global review panel.

6.5 Virtual Conferences

6.5.1 It is important that the APFM establish links with a wide range of individuals and institutions involved in IFM and that these links are used to feed the AP and to disseminate its findings. Virtual conferences (VCs) are excellent tools for this purpose and can be particularly valuable at the start of a project so as to obtain as many and as diverse a series of input as possible from which to derive the major factors of importance.

6.5.2 For this reason, the TSU was pleased to take up the option offered by the Secretariat of the 3rd World Water Forum (3WWF) to organize a VC on IFM through their Homepage.

Two ingredients are vital to the success of a VC:

(a) an interesting package to present to potential participants: a catchy title and a succinct, provocative introductory document/agenda on which to request feed back;

(b) an potential audience: who can be personally invited to participate. A brief version of the summary of IFM (Annex 2) is being used as the background paper. The VC title is "Floods: a curse or a blessing – or both?" The full set of contacts (see Section 4.1.3) plus a series of WMO's more formal national counterparts have provide the potential audience.

6.5.3 After the Consultative Meeting in February 2002, arrangements were made with the WWF3 Secretariat to launch the VC on IFM on 8 March 2002.

6.6 3rd World Water Forum (WWWF3)

6.6.1 APFM has recognized the importance of convening a session on IFM at the WWF3 in Kyoto in March 2003. The Forum will provide:

(a) a chance to present global and regional achievement of APFM and invite views from participants from many disciplines,

(b) an occasion on which to advocate the concept of IFM to experts from many countries and a range of backgrounds,

(c) an opportunity to seek for possible future partners.

6.6.2 The TSU has therefore informed the WWF3 Secretariat of its intention to hold a three-day session at Kyoto. However, it will be important to link, even combine, this with other relevant flood-related initiatives.

6.6.3 There is therefore an urgent need to elaborate a plan for the session on IFM with other initiatives.

6.7 Future activities

6.7.1 The activities described under 6.1 to 6.4 above will all continue throughout the project. Meetings will be held as needed. The concept paper and associated technical notes will be under constant review. The search for, and publication of, good practices with case studies will always be major features of the global activities under the APFM.

6.7.2 The first VC will be completed in the first half of 2002 and the WWF3 will be held in early 2003. Second and third VCs may well be convened in later years as the need and opportunity arises. The WWC has laid preliminary plans for the 4th WWF to be held in Montreal in 2006 - which may well offer an excellent opportunity to review and announce the achievements of the four-year Implementation Phase of the APFM.

7. DISSEMINATION OF KNOWLEDGE

7.1 Reports

7.1.1 The TSU prepares reports of all APFM meetings that are organized. During the Inception Phase, the following reports were prepared: Meeting of the Interim Steering Committee (August 2001); First Coordination Meeting (November 2001); and the Consultative Meeting on Building Partnerships (February 2002). These reports, together with reports of meeting that will be organized in the future, will be included in a special APFM series. The report of the First Session of the APFM Steering Committee (March 2002) will be the next report to be incorporated in this series.

7.1.2 A series of technical reports will also be issued, starting with the Concept Paper on Integrated Flood Management (IFM). Other reports will be produced in the regions in cooperation with other APs and other partners. During the first year of the implementation phase, material produced under the SAMTAC project may also be included in this series.

7.2 Web page

7.2.1 The APFM web page is described under 8.7 below. It will be used for the dissemination of the reports mentioned above and other knowledge acquired during the course of the APFM. The Web page will also provide links to other partners and announce global and regional activities.

7.2.2 The web page will also provide a common working space to experts involved in the work of the APFM to develop their projects. As suggested by the First Coordination Meeting, this working place will have a limited access.

7.3 GWP ToolBox

7.3.1 The purpose of GWP ToolBox is to provide water management professionals with clear examples of past practices and lessons learned from real life experiences of implementing IWRM. IFM, as flood management within the context of IWRM, will be an important topic to be included in the ToolBox. The ToolBox will therefore be one of the principal means of disseminating the outcome of the APFM.

7.3.2 Good and past practices, collected by the APFM as described in Section 6, will be written up following a standard format. The results will be analyzed and reviewed to select those that should be included in the GWP ToolBox.

7.4 Seminars

7.4.1 Seminars may be convened or incorporated into meetings, organized by APFM or any of its partners, in which the IFM concept will be explained and debated. During the process of developing regional projects, these seminars would be of utmost importance to orient the preparation of the projects and to have an impact at regional and national level.

7.4.2 The involvement of decision-makers in some of these seminars will be important not only to develop future activities within the APFM but also to promote a change in the existing approach to flood management and sustainable development.

7.5 Missions

7.5.1 Missions to countries will be an opportunity to present the concept of IFM and to promote its application. These missions could be linked to activities of the APFM, WMO and the activities of other APFM partners.

7.5.2 Some of the missions are expected to take place during the first year of the Implementation Phase. In relation to regular WMO activities, missions will be organized to the four regions mentioned in Section 5.

7.6 Future activities

All of the above activities - preparation of reports, up-dating of the Web page, submissions to the GWP ToolBox, seminars and missions - are expected to continue throughout the four years of the project.

8. PUBLICITY

8.1 Logo

8.1.1 The APFM logo (see below) was chosen from the numerous logos submitted in 2001 for the logo-competition organized for the Third World Water Forum and the World Water Council. The Secretariat of the WWF3 forwarded the contact information of the designer. Subsequent to brief negotiations, APFM purchased the rights to use the logo and modify it if desired.

8.1.2 The logo will be appropriately displayed on all APFM documentation, including letterheads, brochures, reports and other publications. It will also appear on all the pages of the APFM Web page. In most instances, it will appear together with both the GWP and WMO logos.

8.1.3 The TSU is developing a code of practice for the use of the logo.

8.2 Web page

8.2.1 A framework for the web page has been developed. A first draft of the home page is now available on CD. Once finalized, the web page will be hosted on the WMO server. The URL will be http://www.wmo.ch/APFM. The plan is to eventually present the web page and its principal contents in a number of languages.

8.2.2 The contact database of APFM will be accessible via the web page. All finalized documentation - such as the project proposal, Inception Report, Concept Paper and case studies - will be posted on the web page. A virtual workspace (forum), accessible only with a PIN code, will also be included so that APFM partners can contribute to on-going discussions. For technical reasons, there will only be one PIN code that will be shared with the relevant persons.

8.2.3 The web page will play an integral role in APFM publicity activities. It will serve as the main medium for information exchange. The contents of the web page will be updated every

two months (or more frequently if necessary). The content and form of the web page may be subject to change depending on the future direction of the project.

8.2.4 The web URL and a brief notification that the page is on-line will be published in the newsletters of the APFM partners.

8.2.5 Links to the APFM web page are expected to be included in the following home pages:

- GWP
- WMO
- UNESCO
- 3WWF
- WWC
- ISDR
- IHDP
- FHRC

8.3 Brochure

8.3.1 The APFM brochure will be in the form of a two-sided A4 page folded into three (leaflet style). It will briefly describe the philosophy promoted by APFM, and mention on-going/future activities and the partners involved. Contact information for the Technical Support Unit (TSU) of APFM will be included in the rear cover page. The front cover page will have attractive photographs and graphics that convey the philosophy of the project. Photographs will also be inserted or merged with the text.

8.3.2 The brochure will be translated into French and Spanish, and possibly also into other languages.

8.3.3 The brochure will be disseminated widely amongst regional contacts, GWP and WMO regional bodies, and will be part of the information packs prepared by the APFM partners for distribution among delegates and participants at their meetings.

8.4 Future activities

The APFM Web page should be on-line by mid-2002 and the brochure should be printed by the end of the year. Work on the web page will continue throughout the life of the project so as to keep it up-to-date and include new contents and features to respond to the needs of the project.

9. ADMINISTRATIVE MATTERS

9.1 Steering Committee

The composition of the Interim Steering Committee was established in mid-2001. At its meeting in August 2001, it was decided that the composition of the full Steering Committee would be established during the Inception Phase. Over the months, the only change proposed to the composition of the Committee has been the replacement of Mr. Bert Diphoorn by Mr. Durk Adema. Accordingly, the composition of the APFM Steering Committee is taken to be that given in Annex 7.

9.2 Technical Support Unit

9.2.1 The APFM was officially launched on 1 August 2001 upon receipt of the first payment under the agreement signed on 13 July 2001 between the WMO and the Japan Institute of Construction Engineering. At the same time, a professional officer (Mr. K. Miyake), who works for the APFM on a full time basis, was employed.

9.2.2 The secretariat of the APFM project, referred to as the Technical Support Unit (TSU) of the APFM, is housed within the WMO Headquarters building. Personnel working as part of the TSU include WMO staff and APFM consultants. As of March 2002, these include:

WMO Staff

- Arthur J. Askew : Director, Hydrology and Water Resources Department (HWR), WMO Secretariat – Head of TSU (part-time)
- Wolfgang Grabs: Chief, Water Resources Division, HWR – Advisor to TSU (part-time)
- Gabriel Arduino: Scientific Officer, HWR – scientific support to TSU (part-time)
- Yvette Burnet: Senior Secretary, HWR – secretarial support to TSU (part-time)

APFM Consultants

- Katsuhito Miyake: Professional Officer, TSU – full time
- Nelun Fernando-Ekanayake: Project Officer – full time

9.2.3 It should be noted that as the APFM enters the Implementation Phase and the range of activities widens, the function of the TSU would need to be strengthened accordingly.

9.3 Financial statement

9.3.1 The first installment of CHF 180,000 from Japan was made on 26 July 2001. This is 50% of the agreed contribution to the APFM by Japan for the Inception Phase. This payment by installments is required by the financial regulations of Japan.

9.3.2 The WMO Administration opened an APFM Trust Fund with its own budget code so as to keep APFM funds explicitly apart from WMO's own funds.

9.3.3 All the expenditures from the APFM Trust Fund have been made according to WMO's financial rules and regulations, under the supervision of both TSU members and the WMO Finance Division.

9.3.4 The second installment of CHF 90,000 from Japan was made on 18 January 2002, approximately six months after the launch of the APFM. The remainder of the funds for the Inception Phase will be paid after Japan receives this Inception Report.

9.3.5 An agreement between WMO and The Netherlands was signed on 1 February 2002. The first installment of EUR 60,943 is expected to be received soon. This amount was about one tenth of the proposed total contributions for the whole APFM project period. The next installment from The Netherlands is expected to be received in the near future.

9.3.6 Due to the above reasons, it should be noted here that APFM activities for the Inception Phase have been carried out under restricted financial circumstances, CHF 270,000 being only 54% of originally planned CHF 502,200.

9.3.7 The table contained in Annex 8 represents the current financial statement of the APFM.

9.4 Future activities

9.4.1 The present composition of the APFM Steering Committee was established to reflect the major partners and interests of the AP. As partnerships and interests evolve, it is to be expected that the composition of the Committee will be reviewed and revised as necessary to reflect any changes in these factors.

9.4.2 As APFM enters its Implementation Phase, the scope of activities will be broadened, as stipulated in this report. The frequency of travel and meetings will be increased accordingly, especially taking into consideration the activities relating to WWF3 at the end of the first year. The extent of the APFM contribution to the Forum is yet to be determined.

9.4.3 Therefore, there is an urgent need to strengthen the function of the TSU, including the additional employment of consultants and general supporting staff.

9.4.4 The financial situation in the Inception Phase was very tight, as mentioned above. Therefore, the regular receipt of installments from the donors during the Implementation Phase will be important to ensure the success of the various planned activities.

10. FUTURE WORK PROGRAMME

10.1 The future programme of work under the APFM is expected to extend over a period of four years. It will need to evolve year-by-year in response to developments in the early stages. Therefore, it is not possible to lay detailed plans for the whole period from the very outset. However, the Inception Phase of the APFM has, as planned, permitted plans to be laid for the first full year of implementation and these are outlined below in general terms.

10.2 It is important to note that a major part of the APFM's activities are expected to be undertaken in collaboration with other bodies - as is to be desired of a "partnership". Therefore, exact terms of reference, dates and locations of the various items listed will need to be worked out with the other parties concerned - be they IGOs, RTACs or NGOs.

10.3 The items of future work are presented in Annex 9 under headings that relate to the "Activities" identified in the APFM project document and the four APFM objectives. The financial implications are summarized in Annex 10.

11. ACKNOWLEDGEMENTS

The Technical Support Unit would like to record its appreciation to the donors for their contributions without which the APFM could not have been launched, and to those staff of WMO and GWP who, though not members of the TSU, have been of such great assistance in ensuring that the APFM has established and maintained its momentum during its Inception Phase.

ANNEX 1

RELATIONS BETWEEN THE FOUR OBJECTIVES AND PAST ACTIVITIES

Objectives under section 3.2	Past Activities (Sections related to each objective)
Objective 1 **To develop and apply an approach to flood management which incorporates it as a component of integrated water resources management**	**4.Partnerships and contacts(all sections)**
	6.2 Concept paper
	6.1 Meetings - Consultative meeting
Objective 2 **To make available the tools that are necessary for the above objective**	**6.3 Past floods and case studies**
	6.4 Good practices
	7. Dissemination of knowledge(all sections)
	8. Publicity(all sections)
Objective 3 **To provide a mechanism for coordinating regional activities on flood management**	**5. Regional activities(all sections)**
	7. Dissemination of information(all sections)
	6.1 Meetings - Coordination meeting
Objective 4 **To assist in the preparation of relevant projects at regional and national level**	**5. Regional activities(all sections)**
	6.2 Concept paper

ANNEX 2

WMO/GWP Associated Programme on Flood Management

A SUMMARY OF INTEGRATED FLOOD MANAGEMENT (IFM)

A. Introduction

1. Recent years have seen a continuation of the steady rise in loss of life and damage caused by floods. Understandably, the response has been to call for increased efforts to protect life and property. However, given the density of population and level of investment on flood plains, such protection can only be achieved at great cost and often at the expense of denying the productive use of flood-prone land. Furthermore, small and medium sized floods can be a vital source of freshwater and can bring other benefits to the community and the natural environment.

2. Consequently, a new approach is needed, referred to here as Integrated Flood Management (IFM) in which consideration is given to the positive as well as the negative aspects of flood waters and to the valuable resource that is represented by the flood plains that these waters occupy on occasion.

3. IFM is therefore to be seen as flood management in the context of Integrated Water Resources Management (IWRM).

4. The term "flood" includes here all rises in water level and not only those that lead to an overflow by water of the normal confines of a stream, referred to in English as "flooding".

B. Rationale for an integrated approach to flood management

5. The Global Water Partnership defines IWRM as: "a process which promotes the co-ordinated development and management of water, land and related resources, in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems."

6. IWRM is based on the recognition that any single intervention has implications for the system as a whole. More positively, integrating management means that we may achieve multiple benefits from a single intervention.

7. The approach to flood management should be in the context of sustainable development, with a particular emphasis on poverty reduction.

8. Disaster prevention is a primary concern of IFM, although disaster response must also be considered.

9. Settling on flood plains has enormous advantages, as is evident from the very high densities of human settlement in, for example, The Netherlands and Bangladesh. Disaster mitigation by restricting the occupation of floodplains and wetlands limits the potential of these lands for socio-economic development. Not only is it economically advantageous for some people to settle in the floods plains, but in some countries the poor may have nowhere else to live.

10. Therefore, the objective in IFM is not simply to minimise the losses from floods, but to maximize the efficient use of the catchment as a whole. In this, an increase in occasional flood losses can be consistent with a long-term increase in the efficient use of flood-prone land. This reflects the adoption of the IWRM approach.

11. The whole hydrological cycle should be considered rather than differentiating between droughts, floods and water resources.

12. While floods, with some rare exceptions, are caused by natural phenomena, their magnitude and impact is often influenced greatly by man's intervention. In urban areas, the major flood problems are usually related to flash floods and urban drainage.

13. IFM should be founded on a broad concept that uses a combination of policy, regulatory, financial and physical measures which focus on coping with floods, recognising that they can never be fully controlled and can indeed have beneficial impacts.

C. Basic requirements for IFM

14. The aim of IFM is to put in place well-functioning integrated measures for flood management.

15. For this, the linkages between various relevant sectors become very important. In this sense, a sectoral management approach must be avoided. Thus, the most important key will be co-operation and co-ordination across institutional boundaries, noting that the mandates of many institutions will either cover only part of the river basin or extend well beyond the basin boundary.

16. At the core of integration is effective communication across institutional and disciplinary boundaries, which will take place only if there is a perception of common interest.

17. Another key is adopting a participatory and transparent approach which includes a representative range of stakeholders in the decision making process. The degree of public participation can differ from region to region.

18. However, it cannot be assumed that such stakeholder involvement will necessarily result in a consensus. Therefore, a methodology for managing conflicts, possibly a formal system of conflict resolution, needs to be developed.

19. Various levels of complexity should be recognized when integrating activities of concerned organizations, and simplistic solutions should not be recommended.

D. Approaches

20. The emphasis on flood management within the context of IWRM, will be on the adoption of flexible structural and non-structural solutions suited to each flood-prone region (characterized by their various physical, social, cultural and other aspects), recognizing the importance of evaluating differing options and their relative advantages and disadvantages.

21. Non-structural measures to be considered will include, for example:

(a) development of integrated land and water planning policies, including:
    (i) catchment management policies, incorporating source control;
    (ii) re-zoning of flood plains;

(iii) development of appropriate legislation.

(b) flood risk assessment;

(c) assessment of socially acceptable risk;

(d) flood forecasting and early warning, involving both Hydrological and Meteorological Services;

(e) public awareness and emergency preparedness;

(f) use of economic tools, such as compensation or flood insurance.

22. Structural solutions will be considered within a holistic approach, where they can be shown to be effective in economic and social terms and form part of an integrated approach to water management within the river basin.

23. Four basic requirements arise in managing floods within the context of IWRM, namely:

(a) management of the whole water resource;

(b) clear links between catchment management functions;

(c) a wide perspective which allows the situation to be viewed as one of opportunity and not just as a problem;

(d) adoption of multi-functional and multi-beneficial solutions.

24. The three main elements of catchment management (water quantity, water quality, and the processes of erosion and deposition) are inherently linked. Exploiting these linkages may lead to synergies. A wider perspective, such as that advocated by IWRM (considering groundwater and surface water), is required to take advantage of these potential synergies.

E. Major challenges to be overcome

25. If flood management is to be carried out within the context of IWRM, river basins should be considered as systems. Socio-economic activities, land-use patterns, hydro-geomorphological processes etc., need to be recognized as constituent parts of these systems.

26. A consistent approach needs to be applied to all forms of possible intervention.

27. Optimal solutions are difficult to define and apply in the face of uncertainty, including the additional uncertainty from global environmental change and non-stationarity. The challenge is, therefore, to seek for a response that is flexible and can be adapted to changing conditions.

28. In this context, a major challenge will be how to develop a consensus on the question of funding of overall activities when flood management is one of the main objectives, and to do this through dialogue among stakeholders.

ANNEX 3

CURRENT GWP ASSOCIATED PROGRAMMES

INBO – The International Network of Basin Organizations

ICLEI – The International Council for Local Environmental Initiatives

CAPNET – International Network for Capacity Building in IWRM

WaterNet – a regional network for education, training, and research on IWRM in Southern Africa

Mainstreaming Gender in Integrated Water Resources Management

Women Professionals in Water Management: Fellowship Proposal

The Mediterranean Hydrological Cycle Observing System: MED-HYCOS

The Southern Africa Hydrological Cycle Observing System: SADC-HYCOS

SAWINET – Southern African Water Information Network

GLOBWINET – The Global Water Information System

Flood Management – Global Coordination

The Ground Water Management Advisory Team (GW-MATE)

Sanitation Connection – An Environmental Sanitation Network

Water Utilities Partnership for Capacity Building (in Africa and South Asia)

East and Southern Africa Support Network for Participatory Hygiene and Sanitation (PHAST)

Water and Sanitation Program

International Programme for Technology and Research in Irrigation and Drainage (IPTRID)

WCA-InfoNET: Information Service on Water Conservation and Use in Agriculture

Dialogues:

Water, Food and the Environment

Panel on financing water infrastructure

Climate Change and Water

Water and Poverty

Dialogue on Effective Water Governance

ANNEX 4

ASSOCIATED PROGRAMMES AND DIALOGUES RELATED TO THE APFM

1. Summary of APs

1.1 INBO- The International Network of Basin Organizations

The overall goal of the Associated Programme is to upgrade and support the development of organizational initiatives for integrated water resources management in river basins/lake basins/aquifer level. The four main outputs are:

- direct cooperation established between existing, future or pilot water basin organizations through twinning agreements;
- mobilization within existing basin organizations of professional support capacities to facilitate the development of new basin organizations and the debate on their management options;
- a synthesis of available knowledge and know-how, of best practices, preparation of recommendations or guidelines and drawing-up of training modules;
- the networking of water documentation systems to share and provide access to useful institutional, legal, economic and technical information at the international level.

1.2 ICLEI – The International Council for Local Environmental Initiatives

The mission of the ICLEI Water Campaign is to build a world-wide movement of local governments with their stakeholders' who are together committed to achieving tangible improvements in the sustainable use of fresh water resources' by protecting and enhancing local watersheds, reducing water pollution, improving the availability and efficiency of water and environmental sanitation services, and promoting public health. The main activities are:

- Municipal Water Agenda
  water use and pollution within the municipal corporation using a modified EMS approach
- Community Water Agenda
  involving community stakeholders in water management decision-making and action
- Watershed Agenda
  using local watershed boundaries to improve local water management enhancing local governments' role in regional watershed planning.

1.3 CAPNET – International Network for Capacity Building in IWRM

1.3.1 As an Associated Programme of the Global Water Partnership, CAPNET fosters human resources development for IWRM. It focuses on education, training and applied research, and encourages partnerships and networking at national, regional and global levels. CAPNET's objectives will be achieved through networking, awareness creation, training and education, and development of relevant materials/tools.

1.3.2 Although UNDP and the Netherlands are the initial sponsors of CAPNET, other multilateral, bilateral, non-governmental and private sector organizations are encouraged to join this multi-country, multi-donor undertaking.

1.4 WaterNet – a regional network for education, training and research on IWRM in Southern Africa

1.4.1 WaterNet is a regional programme to build and strengthen regional capacity for the integrated management of water resources in the Southern African region through education, training and research. WaterNet started its activities in September 1999.

1.4.2 WaterNet facilitates the development of a Professional Courses Programme and a regional Modular Master's Programme. It also promotes regional research activities and the creation of a Professional Association for Professionals in IWRM.

1.5 Mainstreaming Gender in Integrated Water Resources Management

1.5.1 Mainstreaming gender in IWRM – the Gender and Water Alliance Partners that have been involved in gender mainstreaming in the Vision to Action consultations and documents agreed in The Hague to form an alliance that will continue to assist implementation of the World Water Vision and Framework for Action on the ground. The Gender and Water Alliance is a network of persons and organisations representing all levels (from policy to grassroots) in the regions of Latin America and the Caribbean, Middle East, Africa, Europe, South Asia and East Asia.

1.5.2 The alliance will advocate change on the ground in areas such as gender sensitive information sharing, networking and capacity building. The alliance aims to make a concerted and sustained effort to bring gender and equity perspectives in integrated water management. It wishes to ensure that agreed principles are put to practice for meaningful participation of women and men irrespective of age, status, income, culture or religion in dialogue and decision making as an integral dimension of design, implementation, monitoring and evaluation of all IWRM legislation, policies and programmes.

1.6 Women Professionals in Water Management: Fellowship Programme

The project addresses the problem of the limited number of female professionals in the water sector through a targeted fellowship programme. It is designed to enable women to participate in water management courses and training programs. The programme main activities are:

- Selection, administration and co-ordination of fellowships for female professionals. Provision of logistical and technical support to women awarded with fellowships. Development of specific tailor-made courses for female professionals working in water management.

- Active dissemination and development of gender analysis concepts and tools as applicable to water management.

- Development of a network of female professionals working in water management.

- Development of interdisciplinary water management training and course opportunities in Southern institutions.

- The first fellowship students started their courses in September 2000.

1.7 The Mediterranean Hydrological Cycle Observing System: MED-HYCOS

1.7.1 MED-HYCOS Program is aimed at providing a scientific basis and a framework for co-operation in water resources monitoring, assessment and integrated water resources management at community, river basin, national and regional levels.

1.7.2 MED-HYCOS will contribute to the understanding of the dynamic of hydrosystems and to their interaction with climate – global change – and with the environment – impact of human activities – to optimize management strategies and to encourage intersectoral sharing of water resources data and information for development and natural capital management.

1.7.3 The MED-HYCOS program is designed to increase the capacities of the National Hydrological Services such as the principal data producers on national and regional level. In this manner the MED-HYCOS program will contribute to effective water resources assessment and monitoring in the Mediterranean region.

1.8 The Southern Africa Hydrological Cycle Observing System (SADC-HYCOS)

The objective of the programme is to enhance the effectiveness of real-time and near real-time hydrological monitoring across the SADC region and national water resources management. Six principal outputs are foreseen during Phase II:

- Widespread access to, and use of, real- and near real-time products of river information by water managers and other stakeholders at national, regional and global scales
- Enhanced data analysis modules within the HYCOS system which add value to raw data and express river information in formats easily conducive to applied water management
- Assumption of joint and several responsibility for the existing and expanded HYCOS system by SADC and by individual countries, with the necessary capacity in place to do so.
- A fully effective SADC HYCOS Regional Center, evolving from the existing HYCOS Pilot Regional Center
- An expansion (in accordance with national interests, sustainable capacities and priority gaps) of the number of river monitoring sites equipped with intelligent sensors and satellite transmission, covering additional key monitoring sites within the SADC region not equipped during Phase I
- Integration into the existing HYCOS system of near real-time information based on rapid processing of river information derived from monitoring sites upgraded with data-loggers, with appropriate rapid data transfer procedures in place within national monitoring agencies.

1.9 SAWINET – Southern African Water Information Network

SAWINET is an Information Network on Integrated Water Resources Management. It is funded by the German Federal Ministry for Economic Cooperation and Development (BMZ) and implemented by the German Agency for Technical Cooperation (GTZ), with the support of the Global Runoff Data Centre (GRDC) at the Federal Institute of Hydrology. The content of SAWINET presently focuses on three cross sectoral issues: water policy and legislation, valuation of water in alternative use contexts, and institutional development. SAWINET is being developed in cooperation with the Southern African Water Partnership.

1.10 GLOBWINET – The Global Water Information System

1.10.1 GLOBWINET provides information on:

- Transboundary River Basin Organisations,
- Water Law and Legislation,
- National Water Administration,
- The Water Resources Situation.

1.10.2 To date, two regional networks have been developed under the umbrella of GLOBWINET:

- the Southern African Water Information Network – SAWINET
- the German Water Information Network – GEWINET.

2. Summary of Dialogues

2.1 Dialogue on Water, Food and the Environment

Today, there is disagreement on how much water is needed to ensure food security for the world's growing populations and how much water is needed to sustain natural ecosystems. With both sectors competing for an ever-decreasing supply of fresh water, there is an urgent need for these groups to reach consensus on sharing water in a way that benefits both sides. This will require better decisions at the policy level that are equitable for the irrigation and environmental protection communities while improving the livelihoods and health of the poor. The International Water Management Institute (IWMI) is the lead partner guiding this dialogue.

2.2 Dialogue on Climate Change and Water

The impacts of climate change extend beyond simple increases in the variability of rainfall and water supply as it will have increasing human, ecological, and economic costs. Although water managers, hydrologists, and climate impact scientists will have a crucial role to play they will not be able to solve this problem alone. It is a social, economic and political issue that requires adoption of policies and strategies that best cope with the problems. The Dialogue will offer a mechanism to gather, store, and disseminate information that will serve as a reference point for policy development and better water management practices. As the knowledge base grows throughout the dialogue process, it will eventually lead to the formulation of practical information on a set of good practices suitable to a wide variety of conditions. This information will serve not only the water manager but also as an outreach and education tool to persuade governments and decision-makers to address the issues.

ANNEX 5

SUMMARIES OF PARTNERS ACTIVITIES RELEVANT TO IFM

WORLD METEOROLOGICAL ORGANIZATION'S FLOOD-RELATED ACTIVITIES

1. Aspects of flood management are reflected in several programme activities of WMO. In the Programme on Forecasting and Applications in Hydrology, hydrological modelling and forecasting techniques are applied for the mitigation of water-related disasters and in particular to floods. This includes expert advice on flood forecasting and hazard assessment as well as the planning of meetings on flood management in different regions of the world. One expert meeting on flood management and flood plain management was held in 2001 in Region II (Asia). A workshop on Flood Forecasting and Hydrological Warning Systems was also held in 2001 in Region III (Central America) and Region IV (North America).

2. In the Working Group on Hydrological Forecasting and Prediction of WMO's Commission for Hydrology (CHy), four experts are tasked to produce guidance material on short-term hydrological forecasting, medium-to long-term forecasting, risk management and probable maximum precipitation and flood estimation. Likewise, a project on risk management is in its early planning phase focussing on southern Africa.

3. From a flood management viewpoint the development of a Management Overview of Flood Forecasting Systems (MOFFS) by WMO is noteworthy. The objective of MOFFS is to rapidly identify and highlight deficiencies in the facilities and performance of individual flood forecasting systems, in order that appropriate management actions may be taken to improve flood forecasting systems prior to the next flood event.

4. The World Hydrological Cycle Observing System (WHYCOS) aims to support the real-time acquisition, storage and dissemination of mainly hydrological data and information which can be used for flood forecasting and disaster preparedness and prevention activities. WHYCOS is implemented in a series of regional projects. Some of the projects in planning and implementation are in: the Hindu Kush Himalayan region to build up a flood information system (in progressing planning phase); the Mekong River Basin to support flood management (in collaboration with the Mekong River Commission); in Southern Africa the second phase of SADC-HYCOS is expected to have flood forecasting as one focus; and La Plata Basin (Region III) where a Memorandum of Understanding on Flood Management was signed with the La Plata Basin Commission. All these regional projects also aim to develop forecasting products and include a strong capacity building and support component for the concerned National Hydrological Services.

5. The connection between climate variability and hydrological extremes is reflected in the World Climate Programme – Water (WCP-Water). This programme is jointly implemented by WMO and UNESCO and aims to provide hydrological information for decision making and the management of hydrological extremes in particular floods and droughts. Mainly through WCP-Water, WMO also participates in the Dialogue on Water and Climate, jointly initiated by the World Water Council (WWC) and the Global Water Partnership (GWP). This activity aims to develop awareness and preparedness to develop adequate policies and associated management strategies to mitigate negative

effects of climate variability and change, where floods are amongst the high priority aspects.

6. The Tropical Cyclone Programme (TCP) of WMO aims to assist member countries in upgrading their capabilities to provide better forecasts of tropical cyclones, related flood and storm surge forecasts and more effective warnings. In addition, the establishment of national disaster preparedness activities is encouraged. In this programme, the direct linkage between effective meteorological forecasting and flood forecasting is extremely important, and the hydrological components in the TCP aim to support member countries in developing and improving their flood forecasting and disaster preparedness services.

7. Flood related activities of WMO are supplemented by specialized publications such as the *Comprehensive Risk Assessment for Natural Hazards (WMO/TD No. 955, Geneva 1999*) and a report on *Forecasting Dangerous Hydrological Phenomena – Activities and Technologies of Hydrological Forecast Centres (in preparation).*

8. In addition to its own programme activities, WMO cooperates with other regional bodies in hydrological forecasting such as the UN Economic and Social Council for Asia and the Pacific (ESCAP) and the Asian Disaster Preparedness Centre (ADPC). UNESCO and WMO jointly implement the programme "Hydrology for Environment, Life and Policy" (HELP), which aims to provide a framework for the development of sustainable policies and management strategies. The policy development component in integrated water resources management is also the main motivation for WMO to contribute actively to the aims and objectives of both the WWC and the GWP.

9. The Technical Cooperation Programme (TCO) assists member countries develop and implement regional projects and programmes in the areas of meteorology, hydrology, the environment and related issues through appropriate political and economic support from members. The TCO's Emergency Assistance Fund – called the "WMO Disasters Assistance Fund for Meteorological and Hydrological Services" – was established with the purpose of assisting members rehabilitate and restore observing networks, data collection and processing facilities, etc., in cases where natural disasters have severely disabled the meteorological and/or hydrological infrastructure.

10. The Public Weather Services Programme of the World Weather Watch (WWW) strengthens the capabilities of WMO Members to meet the needs of the community through the provision of comprehensive weather related services, with particular emphasis on public safety and welfare.

11. WMO has also developed tools that could be used for effective flood management. For example, the Management Overview of Flood Forecasting Systems (MOFFS) is a useful tool to identify and highlight deficiencies in the facilities and performance of individual flood forecasting systems.

12. The Hydrology and Water Resources Programme financially supports the following regional training courses focusing on operational hydrology and water management.

(i) The Latin American Course on Operational Hydrology (Caracas, Venezuela)
(ii) The Postgraduate Course on Applied Hydrology and Information Systems for Water Management (Nairobi, Kenya)
(iii) The Course on Hydrological Forecasting (Silver Spring, U.S.A.)

OVERVIEW OF UNESCO'S FLOOD MANAGEMENT ACTIVITIES

1. The International Hydrological Programme (IHP)

The International Hydrological Programme is the major instrument of UNESCO to carry out its water-related activities. After the successful International Hydrological Decade 1965-1974 conducted by several UN agencies, IHP was instituted in 1974 under the aegis of UNESCO, where its Secretariat has been located ever since. It is an intergovernmental programme with 160 Member States. Every two years the IHP Intergovernmental Council meets to set policy guidelines and to make major decisions on its implementation. The Fifth Phase of IHP has concluded very recently and the Sixth Phase has just started. The plans for the successive phases are made in full consultation with the Member States and reflect the current needs of the countries; that is, it remains relevant.

The Fifth Phase (1996-2001), IHP-V, designated *Hydrology and Water Resources Development in a Vulnerable Environment,* set out to stimulate a stronger interrelation between scientific research, application, and education. The emphasis was on environmentally sound integrated water resources planning and management, supported by a scientifically proven methodology. The Sixth Phase of IHP (2002-2007), IHP-VI, designated *Water Interactions: Systems at Risk and Social Challenges, is based on the fundamental principle that freshwater is as essential to sustainable development as it is to life and that water, beyond its geophysical, chemical, biological function in the hydrological cycle, has social, economic and environmental values that are inter-linked and mutually supportive. Some of the interactions to be further investigated or to be focused include those between: (I) surface water and ground water; (ii) atmospheric and terrestrial part of the hydrological cycle; (iii) fresh water and salt water; (iv) global watershed and river reach scales; (v) quantity and quality; (vi) water bodies and aquatic ecosystems; (vii) science and policy; and (viii) water and civilization.*

The flood management activities carried out under IHP-V related mainly to the urban environment plus some specific interventions such as in the case of the floods in Mozambique, while in IHP-VI, specific focal areas on *Extreme events in land and water resources management, on Methodologies for integrated river basin management and on Urban and rural settlements* have been opened. These three focal areas will contain aspects relevant to APFM.

2. Flood Management- related activities

New paradigms for the successive phases of IHP

It has been recognized that the traditional, technical approach in water management, has progressively been completed by multidisciplinary, holistic approaches integrating the social, political, institutional and environmental dimensions. Consequently, UNESCO saw that the design of the goals, methods and outputs of IHP plans reflect the above-mentioned evolution. In that perspective, UNESCO in the last years has developed activities focusing on:

- non-structural, cross-cutting approaches and tools for flood mitigation
- integration of societal factors in flood-related vulnerability analysis
- flood management information systems
- public participation in flood mitigation and control, including (early) warning systems
- involvement of users in the design and implementation of mitigation-related solutions & policies

- development of post-disaster feedback analysis ("lessons learned")

Some activities illustrating UNESCO's approach

Events:
- "International Workshop on Non-structural Flood Control in Urban Areas (Sao Paulo, Brazil, April 1998). Congregated over 60 specialists from all over the world.
- "Participatory processes in water management", UNESCO Conference, VITUKI, Budapest, June 1999.
- Workshop on "Mitigation of Flood Hazards in Urban Areas", Stockholm Water Symposium, August 1999.
- "Early warning systems for the Lower Mekong Floods", Mekong River Commission Conference, Phnom Penh, Cambodia, February 2002

Publications:
- "Fighting floods in cities" and "Fighting flood in neighbourhoods", UNESCO-The Netherlands cooperation in framework of IDNDR, 1995.
- Proceedings of the International Workshop on Nonstructural Flood Control in Urban Areas, 1998.
- "Guidelines on nonstructural measures in urban flood management", Technical Documents in Hydrology No. 50, IHP, UNESCO, 2001
- "Public participation in the design of local strategies for flood mitigation and control", Technical Documents in Hydrology No. 48, IHP, UNESCO, 2001

Missions & Technical Assistance:
- "Flood management information systems & Involvement of communities in flood mitigation", Post-floods assistance mission to water authorities in Mozambique, 2001 (including "lessons learned" mission to Hungary and France)
- "Vision for the Volga River and the Caspian Sea", Basin-wide, interdisciplinary approach and prospective planning for sustainable development, starting 2002.

Planned and on-going activities 2002-2003 IHP-VI Focal Area 2.1 Extreme events in land and water resources management:
- Workshop and CD-Rom on the application of trend detection methodologies of high quality runoff data sets as a follow up to joint WMO/UNESCO December 1998 workshop/ publication May 2000 (in collaboration with WCP-Water and FRIEND);
- IHP contribution towards the Dialogue on Water and Climate (in collaboration with WCP-Water and HELP);
- Support for FRIEND participants at the International Conference on Flood Estimation, Berne, Switzerland, March 6-8, 2002;
- Establishment of an expert group to develop a strategic plan for the study of extreme events, including taking into consideration the recommendations of the Berne Conference;
- Activities recommended by expert group on extreme events (in collaboration with FRIEND and WCP-Water);
- IHP representation at the Second Steering Committee meetings of WCP-Water, Geneva, January 23-25, 2002, where the following decisions were taken:

    - The production of the CD ROM and the testing of trend detection methodologies using both GRDC and FRIEND data sets in collaboration with the Netherlands initiative on Dialogue on Water and Climate.
    - Regional FRIEND groups were encouraged to provide analyses of high/low flows for GEWEX Continental Scale Experiment (CSEs) background assessment of existing data sets.
    - Acceptance of the contribution of selected HELP basins (San Pedro, Thukela, Walawe) towards the case study component of the DWC.

- A session entitled Changes in Climate-Related Hydrological Extremes in Vulnerable Basins was proposed for the EGS-AGU-EUG Joint Assembly, Nice, France, April 2003. This special session would focus specifically on assessing inductions of change in the frequency and magnitude of climate-related natural disasters and hydrological extremes in basins vulnerable to natural disasters. Specific criteria of interest include indications of change, courses (e.g. climatic variability, land use change), impacts of change, assessments and adaptive strategies for extrapolation elsewhere.
- An expert workshop on the Hydroclimatological Considerations in the Frequency Analysis of Floods and Droughts, late 2003, hosted by the University of Barcelona, Spain.
- The tabling of the topic “Selective Disaggregation of Data Bases for the Testing of Uncertainty of Outputs in Less Data Rich Basins” as future activity of WCP-Water linked with climatic variability. The planned activities connected with climate-water-health, and climate-water-risk management in agricultural practices will be re-considered at the 3rd Steering Committee meeting. And

- Contribution towards the International Symposium on Hydrological Extremes Theoretical and Applied aspects of Forecasting and Computations, St Petersburg, October 2003.

UNITED NATIONS INTER-AGENCY SECRETARIAT FOR THE INTERNATIONAL STRATEGY FOR DISASTER REDUCTION AND ITS CONCERN WITH FLOOD MANAGEMENT

The International Strategy for Disaster Reduction, which was adopted at the Programme Forum for the IDNDR held in July 1999 and endorsed by the ECOSOC and the General Assembly, constitutes the framework for the activities of the United Nations system in the coming years. The main objectives of the strategy are:

(a) to enable communities to become resilient to the effects of natural, technological and environmental hazards, thus reducing the compound risk posed to social and economic vulnerabilities within modern societies; and

(b) to proceed from protection against hazards to the management of risk, by integrating risk prevention strategies into sustainable development activities.

The mandate of the ISDR is to increase the profile of disaster reduction by limiting or avoiding social and economic losses and build disaster resilient communities. This endeavour can be best achieved by bringing people and organizations from various relevant sectors together in a multi-disciplinary, and inclusive professional relationship. The ISDR Secretariat plays a bridging and facilitating role to pursue the principles outlined in the "*Framework for Action for the implementation of the ISDR*" (endorsed at the third Task Force meeting in May, 2001)

The Secretariat of the ISDR is promoting the objectives of the Strategy, through a range of functions which include the formulation of policies in respect to disaster reduction, inter-agency coordination, advocacy and the promotion of increased awareness of the importance of disaster reduction. In this context the Secretariat engages the Inter-Agency Task Force (IATF), its 4 Working Groups and also maintains links with UN organizations, regional institutions, the scientific community, the public and private sector, civil society organizations and the media.

Relevant activities for the APFM:

- The backstopping of the Inter-Agency Task Force on Disaster Reduction (IATF) established pursuant to UN General Assembly resolution 54/219 and Secretary General's report 54/497, in order to serve as the main forum within the United Nations system for devising strategies and policies for the reduction of natural hazards and to identify gaps in disaster reduction policies and programmes and recommend remedial action;

- The promotion of Disaster Reduction as an integral part of sustainable development (environment protection, social and economic development), both in substance and partnership. The aim is to include disaster reduction as an element for sustainable development in the Johannesburg WSSD agenda and follow-up Programme for Action, as well as a cross cutting issue in all other relevant areas of action (poverty eradication, human settlements, ocean, climate, fresh water, mountain protection, combating desertification and drought, etc.);

- The process to review and monitor progress in countries and regions on the achievements of disaster reduction. The results will be presented in regular reports and processed in a database format and available for retrieval and analysis on the web site. The trend analysis in this reporting process will help countries and agencies to improve their internal strategies and institutional plans and activities in the area of disaster reduction;

- The Working Group on Risk, Vulnerability and Impact Assessments, chaired by UNDP, has identified four priority areas of action to concentrate on. To enhance broad participation and effective co-ordination of information management and dissemination, one task manager was been assigned for each sub topic: 1) Indicators (task manager: ICSU); 2) Review of practices on the application of tools for risk/vulnerability/impact assessments at the local level (UNCHS-Habitat); 3) Improving Global Disaster Impacts Data (the World Bank); and 4) Webpage (ISDR/UNDP).

- The ISDR Early Warning Programme, including the activities of the Working Group on Early Warning convened by UNEP, which serves as a body of knowledge on early warning, to support a continuous dialogue and 'best' practices, particularly in developing countries, and works on the improvement of the effectiveness of existing coordination mechanisms among international and regional agencies, together with, and between, individual national scientific and technical agencies responsible for early warning;

- Other relevant activities include the elaboration of risk reduction methodologies and guidelines, as well as the revised and expanded disaster reduction terminology, and the ISDR Secretariat disaster reduction and awareness raising campaigns.

THE INTERNATIONAL HUMAN DIMENSIONS PROGRAMME ON GLOBAL ENVIRONMENTAL CHANGE (IHDP) AND INTEGRATED FLOOD MANAGEMENT

IHDP is an international, non-governmental and interdisciplinary research programme, founded by the International Council for Science (ICSU) and the International Social Science Council (ISSC) in 1996. IHDP fosters high quality research to address the most pressing questions on the human dimensions of Global Environmental Change (GEC). These involve how individuals and societal groups:

- contribute to
- are influenced by and
- mitigate and respond to

changes that take place on local, regional and global level. These changes affect the quality of human life and sustainable development on a world-wide scale. IHDP's work is guided by a Scientific Committee and co-ordinated by the IHDP Secretariat, located in Bonn, Germany. The four core research projects of IHDP have their own International Project Offices spread out around the world.

There are not so many activities within IHDP which would have Integrated Flood Management as a major focus but there are some cross-cutting themes and research projects which may be of relevance. The overarching aspect is of course that the research we foster has a strong link with some type of global environmental change. This not only includes climate change, but also large-scale land use changes and other widespread phenomena. The global water cycle itself is now under so much human influence that one can start to discern changes in it across many regions and possibly even on the global scale. In situations of managing floods according to the approach of IFM, IHDP researchers could provide input on the additional uncertainties related to flood frequency and intensity stemming from future climate change and land use changes, the increased vulnerability that this would bring for human population, and possible adaptation strategies.

Perhaps most interest to the APFM are some activities in the Land Use and Land Cover Change (LUCC) project (www.geo.ucl.ac.be/LUCC). This project aims to improve understanding of the dynamics of land-use and land-cover change and their relationships with global environmental change. It has a very interdisciplinary agenda and works with case studies, development of models and integrative analysis. Climate change, food production, availability and quality of water are among the issues addressed by the project. LUCC has a number of endorsed projects listed at their website, one of which is "Societal and Institutional Response to Climate Change and Climatic Hazards: Managing Changing Flood and Drought Risk" led by Tom Downing at Oxford.

The Global Environmental Change and Human Security (GECHS) project (www.gechs.org) strives to provide interdisciplinary and integrative perspectives on the relationships between environmental change and security. It uses a working definition of human security that connects the theoretical with the practical. Human security is achieved when and where individuals and communities:

- have the options necessary to end, mitigate, or adapt to threats to their human, environmental, and social rights;
- actively participate in attaining these options;
- and have the capacity and freedom to exercise these options.

Issues such as the role of co-operative agreements over water management, effects of land degradation and global warming on human life and security are some of the areas addressed.

The **Industrial Transformation (IT) project** . (http://www.vu.nl/ivm/research/ihdp-it) strives to understand the societal mechanisms and human driving forces that could facilitate a transformation of the industrial system towards sustainability. The main areas of research include: "Cities" – where the aspects of water and transport come to the fore; "Food production and consumption systems". Food production and consumption systems consume significant proportions of water. In addition, food production activities are most often located on flood plains.

For similar reasons the **Global Environmental Change and Food Systems (GECAFS)** project (www.gecafs.org) which is a joint project with the International Geosphere-Biosphere Programme (IGBP) and the World Climate Research Programme (WCPR) may be of interest for the APFM. This project is just in the process of launching regional research projects and key issues will be identified at the first workshops in 2002. The focus of the Asian project will be the rice/wheat production systems in the Indo-Gangetic region.

The **Water Joint Project** (WJP) of the four Global Environmental Change programmes (IHDP, IGBP, WCRP and DIVERSITAS) is still only at the earliest planning stage and possible links would have to be explored at a later stage.

FLOOD HAZARD RESEARCH CENTRE AND ITS WORK IN FLOOD MANAGEMENT

The Flood Hazard Research Centre is an inter-disciplinary centre and a world centre of expertise in the socio-economic assessment of flood management options. It is very much focused on policy relevant research. The 'Blue', 'Red' and 'Yellow' manuals, prepared at the Centre, form the basis of the economic appraisal of flood and coastal defence projects in the United Kingdom. The Centre also took a lead role in preparation of the Ministry of Agriculture, Fisheries and Food's Flood and Coastal Defence Project Appraisal Guidance: 3 Economic Appraisal. In turn, the Centre has undertaken more than 40 cost-benefit analyses of flood alleviation schemes, including of Metropolitan Paris, on the Yangtze, in Hungary and Argentina.

The Centre also prepared the thematic review on flood control, together with the annex on the economic appraisal of flood alleviation options, for the World Commission on Dams. Recently, it developed for the United Nations Environment Programme a methodology for assessing vulnerability to flooding. It led the EUROFLOOD project for the European Commission.

Recent research projects have included:

- Assessments of the effectiveness of flood warning systems
- An international comparison of institutional and funding strategies for flood management
- A comparison of insurance and compensation strategies for flood losses in different countries
- An assessment of the benefits of telemetering rainfall gauges
- An assessment of the social impacts of flooding
- An evaluation of health and other impacts of flooding on households
- The development of methods to incorporate the uncertainties associated with climate change into decision making

Earlier work has included:

- A reliability engineering analysis of flood warning systems
- Post-Project appraisal of flood alleviation schemes
- The development of methods of evaluating the indirect benefits of flood alleviation schemes
- An assessment of willingness to pay to reduce the risk of flooding from sewers
- The possible use of economic instruments in catchment management

It has developed a number of tailored software packages for assessing the benefits of flood alleviation schemes; for coastal protection projects; and also to enable Multi-Criteria Analysis to be used to explore the consequences of adopting different options.
In the UK, the Centre has undertaken many studies for the Ministry of Agriculture, Fisheries and Food; the Environment Agency and the National Audit Office. Outside of the UK, it has undertaken studies in Ireland, Portugal, France, Hungary, Egypt, Yemen, Iran, India, Bangladesh, China, South Africa and Argentina.

In addition to postgraduate courses, it runs a series of training courses for the Environment Agency, and also two open training courses on the project appraisal of flood and coastal defence projects, one specifically covering the UK and a wider course that takes a global perspective. In addition, it has mounted a series of tailored courses, most recently for the Taihu Basin Authority in China.

Over the years, the Centre's research has extended between flood management into all aspects of catchment management. Work has included:

- Drought management and risk sharing
- The economic assessment of improvements in river water quality
- Willingness to pay for improvements in drinking water services
- Losses from interruptions in potable water supply
- Institutional aspects of irrigation management
- Perception and preferences for river corridors, and of river water quality
- Economic assessment of sewerage schemes and of no-dig techniques
- Best practices in integrating land and water management
- Public participation
- Dam safety management
- The economic assessment of the benefits of streamflow gauging
- Coastal zone management and climate change
- The possible use of tradable abstraction licences
- The benefits of alleviating low flows in rivers
- The lessons to be learnt from the privatisation of the sewerage and water companies in England and Wales

In 2000, the Centre was granted a Queen's Anniversary Award for Further and Higher Education.

ANNEX 6

CONCEPT PAPER

Principal topics

1. IRBM, IWRM and IFM

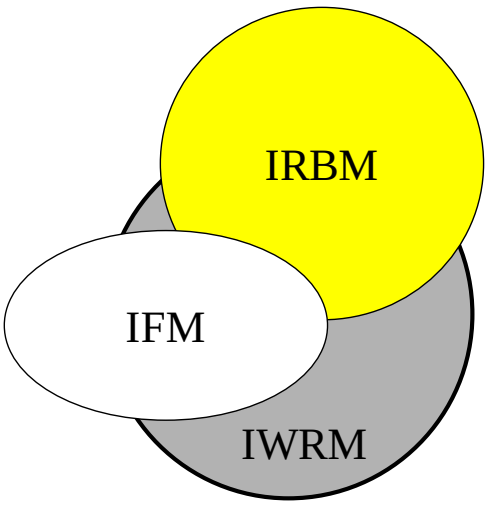
(i) Integrated River Basin Management (IRBM) can be taken to include all coordinated activities which take the river basin as their defining area of interest.

(ii) Integrated Flood Management (IFM) is a useful term, but it needs to be defined and, within the APFM, it is taken to refer to flood management within a context of Integrated Water Resources Management (IWRM), where IWRM is as defined in GWP Note No. 4, namely "IWRM is a process which promotes the co-ordinated development and management of water, land and related resources, in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems".

(iii) The English language word "flood", as used in APFM, includes both "crue" and "inondation" in French and "crecidas" and "inundacion" in Spanish: the first as a natural rise and fall in flow and as a source of water; and the second as a natural hazard. Therefore, the ambiguity of the word "flood" in English is helpful to the IFM concept by making it more inclusive. However, it presents us with a challenge in defining terms and avoiding sliding into one of the two directions to the detriment of the other. It also poses real problems for translation into French and Spanish, and possibly other languages.

(iv) The possible occurrence of extreme events should be borne in mind when drawing up IFM plans. Therefore, IFM should not reject measures such as evacuation drills, flood rescue plans, etc., - although these fall outside the direct ambit of IWRM. Such a rejection would jeopardize the integrity of FM.

(v) The following illustration captures the essential thinking of IFM:



(vi) Floods, and the vulnerability to floods, pose threats to sustainable livelihoods. APFM should try to emphasize the role of IFM in development planning, poverty reduction,

etc., because poverty increases vulnerability to floods. IFM should aim at maximizing the positive impacts and minimizing the negative impacts of floods and, thus, contribute to poverty reduction.

(vii) APFM should not disregard existing practices in flood management, but should highlight the benefits that could be gained through the adoption of IFM. It should be recognized as part and parcel of the evolution of flood management practices.

(viii) Finally, the best means of defining IFM is to develop its concepts and principles and put them into practice and **not** dwell too long on theoretical definitions.

2. Institutional arrangements for flood management

(i) The institutional "structure" should be seen as important, even vital, to the success of IFM – provided that "structure" is taken to include not only the institutions but also their interaction/cooperation.

(ii) Institutions (their design, framework, etc.) should be perceived as tools required to achieve the ultimate goal of IFM.

(iii) Recognition should be given to the fact that the development and implementation of hazard (disaster) mitigation and water resources management practices were not integrated in the past, which led to problems that now necessitate a new integrated approach.

(iv) At the core of integration is effective communication across institutional boundaries. Such communication can only take place if there is a perception of common interest.

(v) We should seek for "good"/"sound" practices in integration.

3. Stakeholder involvement

(i) Governments are responsible for flood management strategies at the higher level. They are also responsible for ensuring accuracy in the implementation of plans.

(ii) NGOs could be responsible at the local level for the facilitation of community participation in decision making through community-based awareness creation programmes and training programmes. They could also act as the nodes through which community plans/decisions are channeled to the higher level.

(iii) APFM should encourage public participation, adoption of the participatory decision-making approach, etc. However, it must be recognized that the degree of participation will differ from region to region.

(iv) Ostrom[1] has found that it is necessary to have, among users of a common property resource, the following:

- Common understanding of the problem
- Common understanding of alternatives for action
- Common understanding that the transaction costs for cooperation are lower than the benefits from collective action

[1] Ostrom, E. 1992. The Rudiments of a Theory of the Origins, Survival and Performance of Common-Property Institutions. In Making the Commons Work-Theory, Practice and Policy, edited by D.W. Bromley. San Francisco: ICS Press.

- Common perception of mutual trust and reciprocity

These conditions can be applied to govern participatory management at any level, even globally.

4. Economic aspects of flood management

(i) IFM must encompass both the positive and negative consequences of flooding. Quantitative and qualitative indicators to assess the positive impacts of floods need to be developed, so that both the positive and negative consequences can be presented in comparable terms. For example: populations affected for good or ill; lives lost and lives saved/improved; damage estimates as well as net benefits of using floodplain land; and the flood as a water source.

(ii) Water should be recognized as a social, cultural and economic good. APFM should avoid highlighting the aspect of "water as an economic good" as this could lead to a misinterpretation where a situation of "prices always work and nothing else does" arises.

(iii) If APFM is concerned with trying to avoid floods being seen only as disasters, how suitable is it to consider socially acceptable risk? On the other hand, if governments are to provide the legal framework (eg. The redistribution of tax payers' money) and take on the role of facilitator/evaluator of, for example, inter-sectoral integration, then such analyses cannot be disregarded.

(iv) Similarly, there needs to be a clear understanding of "who should bear the cost of flood management", because it is difficult to plan and even more difficult to implement plans without financial backing.

5. Knowledge

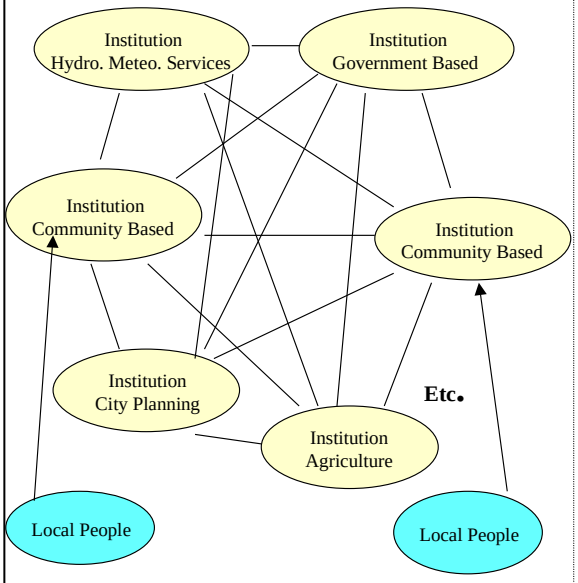
(i) The acquisition and flow/dissemination of knowledge is essential, not only for the development and application of sustainable policies and practices, but also for ensuring the true participation of all stakeholders.

(ii) The practice of introducing new technologies/practices to a region without first obtaining a good picture of the prevailing local technological base, indigenous knowledge and managerial practices should be discouraged. In other words, it is dangerous to "parachute" in a technology, such as traditional structural flood mitigation methods, on the assumption that it is universally suitable.

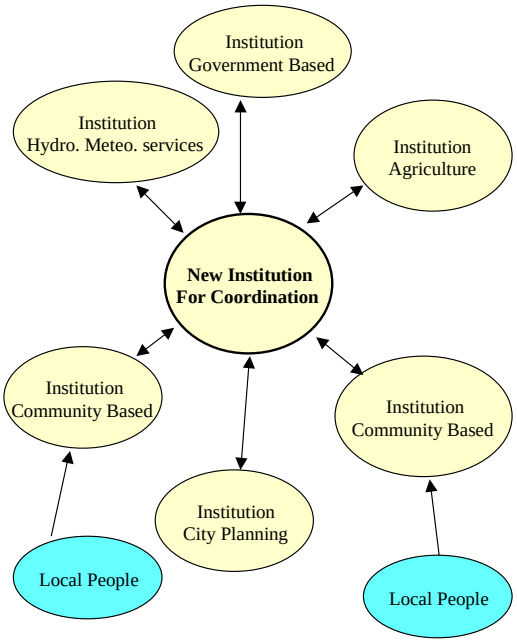
(iii) The identification of the APFM as a resource centre/clearing house for flood management data is indeed welcome, and its role in this context needs to be developed. The need for such a central coordinating body stems from the fact that the data entered in the numerous flood databases that already exist is not uniform, is spatially and temporaly fragmented, and varies in reliability. APFM should distinctly portray itself as a 'reference centre' as opposed to a 'central collector'.

(iv) It is worth encouraging organizations, which currently compile/reference data on past major flood events, to develop their database formats so that they include broader sets of information on aspects such as vulnerability and water resources.

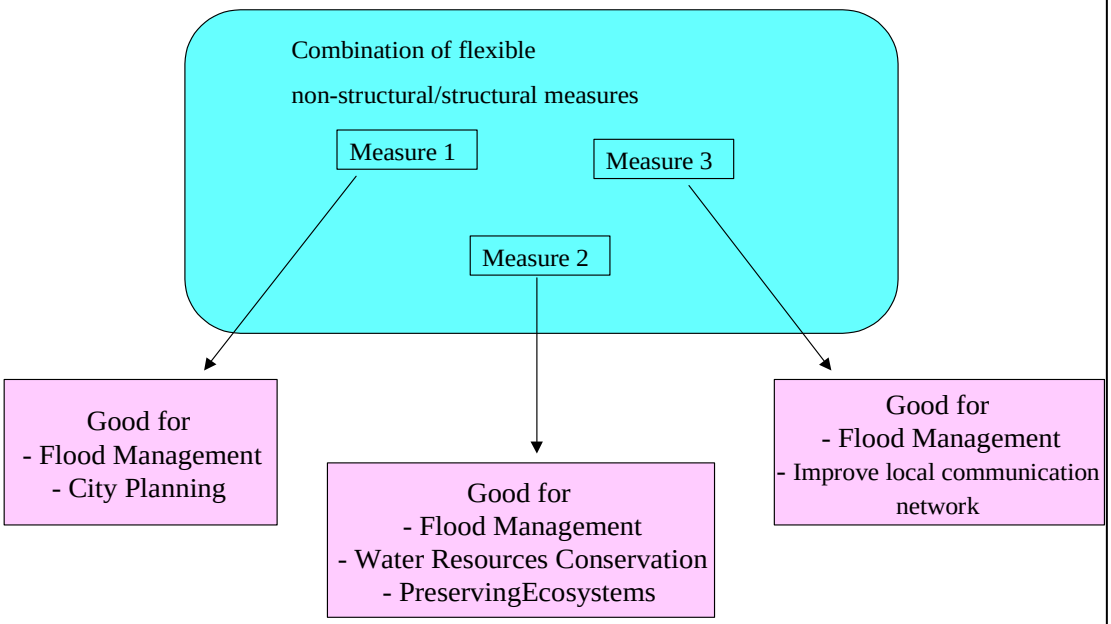
Well functioning inter-linkage between institutions



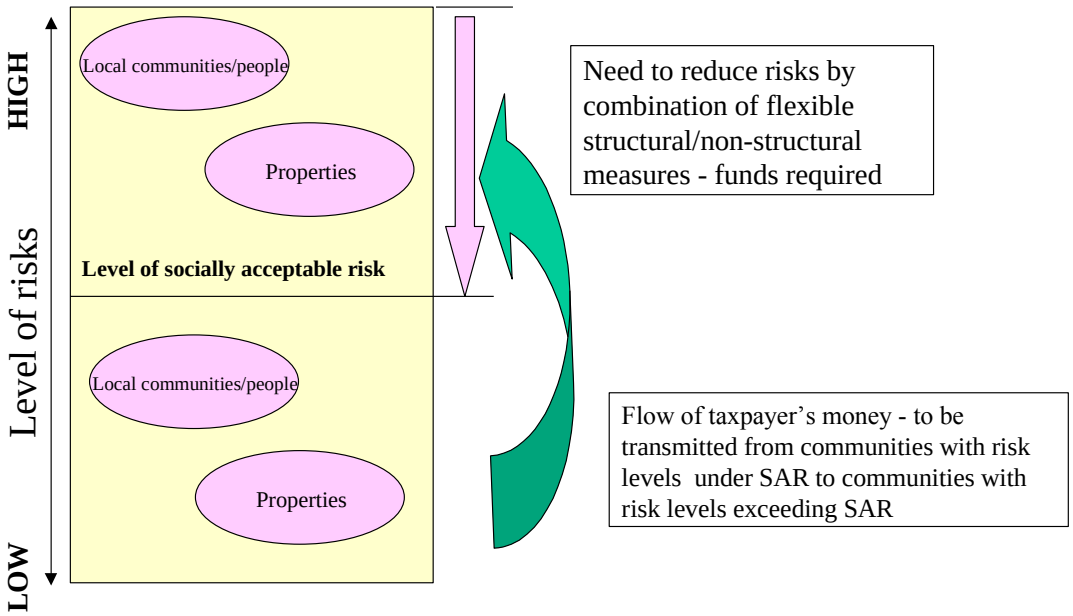
Question: is a new institution needed?



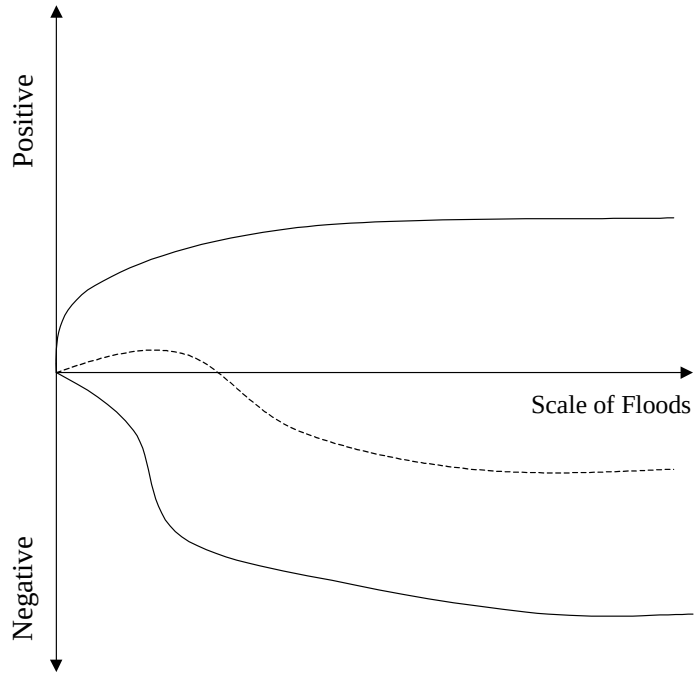
Seek for multi-functional solutions as much as possible



The level of socially acceptable risk(SAR) - determines flow of taxpayer's money between communities



Develop Indicators which can interpret both aspects



ANNEX 7

STEERING COMMITTEE OF THE ASSOCIATED PROGRAMME ON FLOOD MANAGEMENT

- March 2002 –

ADDRESS LIST

Torkil Jonch-Clausen (chair)
DHI Water and Environment
Agern Alle 11
D-2970 HORSHOLM
Denmark

Tel: (45 45) 16 92 08
Fax: (45 45) 16 92 92
e-mail: tjc@dhi.dk
torkilj@hotmail.com

Arthur J. Askew (secretary)
World Meteorological Organization
Case postale No. 2300
CH-1211 GENEVA 2
Switzerland

Tel: (41 22) 730 83 55
Fax: (41 22) 730 80 43
e-mail: askew_a@gateway.wmo.ch

Q.K. Ahmad (GWP-South Asia)
Bangladesh Unnayan Parishad (BUP)
P.O. Box 5007 (Newmarket)
DHAKA-1205
Bangladesh

Tel: (880 2) 861 88 09/505 669
Fax: (880 2) 861 70 21
e-mail: bup@citechco.net

Luitzen Biljlsma
Wolrd Bank Netherlands Water
Partnership Program
World Bank
1818 St. Room MC5-850
20433 WASHINGTON DC
United States

Tel: (1 202) 458 26 13
Fax: (1 202) 533 22 06
e-mail: lbijlsma@worldbank.org

Mr David Smith
Regional Projects Advisor for CEPREDENAC - (the Coordination Center for the Prevention of Natural Disasters in Central America)
Apdo Postal 3133
Balboa, Ancón
Panamá

Tel: (506) 234-1516
Fax: (506) 296 5225/220 0667
e-mail: dasmithw@cepredenac.org
www.cepredenac.org/

William J. Cosgrove (WWC)
Ecoconsult Inc.
555, blvd René-Lévèsque Ouest
9e étage
MONTREAL QC, H2Z 1B1
Canada

Tel: (1 514) 861 90 31
Fax: (1 514) 861 02 81
e-mail: wjcosgrove@compuserve.com

Durk Adema (DGIS)
DGIS, Ministry of Foreign Affairs
Water Support Unit
Bezuidenhoutseweg 67
2594 AC DEN HAAG
The Netherlands

Tel: (31 70) 348 55 09
Fax: (31 70) 348 67 92
e-mail: dg.adema@minbuza.nl

Kenzo Hiroki (Japan)
The Secretariat of 3Rd World Water Forum
5th Floor, 2-2-4 Kojimachi
Chiyoda-ku
TOKYO, 102-0083
Japan
Tel: (81 3) 52 12 16 45
Fax: (81 3) 52 12 16 49
e-mail: hiroki@water-forum3.com

Tabeth Matiza-Chiuta(GWP-South Africa)
GWP SATAC Secretariat, c/o IUCN-ROSA,
The World Conservation Union
PO.box745, 6 Lanark Road
Belgravia/Harare
Zimbabwe
Tel: (263 4)304 927
Fax: (263 4)720 738
e-mail: tabeth@gwpsatac.org.zw

Carlos Eduardo M.Tucci(GWP-South America)
Instituto de Pesquisas Hidraulicas/UFRGS
Av. Bento Goncalves, 9500
Caixa Postal 15029
CEP 91501-970 Porto Allegre, RS
Brazil
Tel: (55 51)316 6408
Fax: (55 51)316 6565
e-mail: carlos.tucci@UFRGS.BR

ANNEX 8

APFM FINANCIAL STATEMENT

- Amounts in Swiss Francs -

(As of 31 March 2002)

1. INCOME

(a) First settlement from Japan	180,000	
(b) Second settlement from Japan	90,000	
(c) First settlement from The Netherlands	89,990	received 11 March 2002
(d) Interest	614	
Total:	**360,604**	

2. EXPENDITURE

(a) Consultancy*	130,626	
(b) Missions and support of travel*	50,000	- Stockholm, Bonn, Kathmandu and Washington D.C
(c) Coordination Meeting	24,485	
(d) Consultative Meeting*	9,000	
(e) Purchase of Logo Image	1,680	- equivalent to USD 1,000
(f) Funds to support SAMTAC	6,800	- support of regional meeting in April 02
(g) Temporary secretariat staff	2,262	- 1 month, half time
(h) Creation of Web Page*	2,000	
(i) WMO administrative costs	11,858	- 5% of expenses
(j) Purchase of one computer*	3,500	
(k) Others*	6,800	- tel., fax, translations, etc.
Total	**249,012**	
Balance	**111,592**	

3. EXPECTED SETTLEMENT FROM THE DONORS

Third settlement from Japan	90,000

4. FUTURE COMMITMENT

Consultancy services from April to June 2002	20,400

* These figures are approximate because the final accounts for the activities concerned are yet to be settled.

ANNEX 9

FUTURE WORK PROGRAMME

1. Activities under Objective 1: To develop and apply an approach to flood management which incorporates it as a component of Integrated Water Resources Management (IWRM)

A. APFM partners

Links and cooperative action will be maintained with Partners of types 1 to 3 and efforts will continue to identify new Partners. This may involve the occasional visit to the headquarters of several of these Partners. The list of "contacts" will be maintained and efforts made to expand it. Information on progress with the APFM will be sent on a regular basis to all Partners.

- Visits to potential partners: 2 trips
- Expected staff time allocation: 5%

B. Establish close contact with RTACs, IGOs and NGOs

This will involve maintaining and developing further the current relationship with these bodies, through real and electronic correspondence. It will also require the APFM to be represented at certain meetings convened by these bodies.

- Representation at meetings, seminars, symposiums, etc.: 3 times
- Expected staff time allocation: 5%

C. Cooperation with other Associated Programmes (APs)

The preliminary contact established with other GWP APs will be developed further and during the first year of the Implementation Phase is expected to involve several visits or planning meetings, with possibility of joint work on one or two specific topics.

- Visits to other APs and their meetings: 2 APs/meetings
- Expected staff time allocation: 5%

- Coordination with regional activities: as described under H below

2. Activities under Objective 2: To make available the tools that are necessary for Objective 1

D. Assemble information on past events

Using the information gathered and contacts made during the Inception Phase, a more complete list of sources of information on past floods and flood-related disasters will be compiled and made available through APFM channels. Personal contact will be made with those who compile and hold the relevant data, either through visits or by convening a meeting, so as to encourage free and open exchange and standardization of format and content. The emphasis will remain, as ever, on Integrated Flood Management (IFM) and the identification of those cases where floods have been analyzed and managed within the context of IWRM.

- Visits to meet with those who hold data and data managers: 2 trips(10 data holders/managers)
- Analysis of data holdings: Meetings/discussions with data analysts
- Expected staff time allocation: 10%

E. Compilation of advisory material

The compilation of examples of how IFM has been applied will continue, moving from literature surveys to direct requests of the established APFM partners, including the RTACs, IGOs and NGOs. Funds may need to be made available to have case studies of good practice written up to a standard format. The results will then need to be analyzed and reviewed so that the better practices can be identified for inclusion in the GWP ToolBox. This will involve convening at least one evaluation meeting. The services of experts and Consultative Meetings will be used to develop technical advisory material, building on the Concept Report.

- Preparation of case studies: Target 6 cases including those under section 6.3.2
- Evaluation of good practices and/or lessons learned: Target 6 cases including at least one evaluation meeting
- Preparation of technical reports: Produce at least three reports and convene two consultative meetings
- Expected staff time allocation: 15%

F. Dissemination of information

The TSU will continue to issue reports of all relevant meetings in a special APFM series. It will also issue a series of technical reports, starting with the final version of the Concept Paper, and including reports on the case studies. The APFM web-page will be developed further and kept up-to-date, and press briefings and information packages will be used to disseminate information to the wider public. Seminars may be convened, or incorporated into meetings organized by APFM partners, in which the IFM concept will be explained and debated. Such seminars are more likely to be held in later years of the project, but individual visits to countries and the presentation of IFM to various international meetings may well be included in the first year's programme. In the first year of the Implementation Phase, the main activity under the heading will be the involvement of the APFM in the 3rd World Weather Forum in March 2003, including the continuation of the virtual conference launched in the Inception Phase.

- Publication of meeting reports of Coordination meetings, Consultative meetings, Steering Committee meetings, etc.
- Publication of technical reports: Reports on the "IFM concept", "Good practices (first version)", etc.
- Maintenance and extension of the APFM web site
- Seminars to promote IFM: This will be combined with other meetings under A,B and C above.
- Visits to countries and meetings: This will partly be combined with visits under A,B and C above. (at least 3 visits)
- Expected staff time allocation: 10%

G. Reference centre

This will in practice focus on a "virtual" Centre based on an extension of the APFM web site. It will, however, have a pro-active element in that considerable effort will be required to provide the Centre with relevant information, to keep its contents up-to-date and develop its facility to assist flood-prone countries and potential donors. In all of this, the aim will be to provide guidance and assistance, often directing enquiries to other centres of excellence, and not to pretend to be a global depository of all information.

- Identification and analysis of information: Employment of and meeting with analysis specialists
- Expected staff time allocation: 5%

3. Activities under Objective 3: To provide a mechanism for coordinating regional activities on flood management

H. Coordination of activities

This will involve the TSU and those concerned at regional level in frequent correspondence, personal visits being convened under "J" below. This will encourage an exchange of views and sharing of knowledge. Coordination Meetings will also be convened such as that held in November 2001.

- Convene Cordination Meeting (once, in Geneva)
- Expected staff time allocation: 10%

I. Trans-national “hotspots”

Plans will need to be laid, probably during the second year of the Implementation Phase, as to how the APFM will be able to identify potential trans-national “hotspots” and encourage international agreements within the IFM context.

- Development of preliminary plans: Collect information on status quo of the trans-national hot-spots, and carry out basic study on how to tackle these.
- Expected staff time allocation: 5%

- Dissemination of information : as described under "F" above

- Reference centre: as described under "G" above

4. Activities under Objective 4: To assist in the preparation of relevant projects at regional and national revel

J. Facilitating the development of regional activities

This is a major item in the future plan of the APFM. It will be supported by occasional Coordination Meetings, but most emphasis will be put on corresponding directly with those in the regions who are involved in IFM activities. This will require visits to the regions concerned, support to the convening of planning meetings in some regions and, in some cases, explicit action on the part of the TSU to bring together the different regional activities of the various APFM partners. It may also involve bringing experts from one region to visit another so as to exchange experience and facilitate detailed planning.

- Missions to regions: 3 regions, 3 to 5 countries each
- Meetings in regions: 3 regions, one for each region
- Development of plans for regional projects: Support of regional meetings to finalize regional programme, 3 regions
- Visits of experts between regions: Dispatch experts from region to region, 3 experts
- Expected staff time allocation: 15%

K. Pilot studies

A series of pilot studies will be undertaken to test and refine the means by which IFM can be applied in practice. Their aim will be to obtain the experience and information needed to draw up detailed plans for major projects in the regions. In the first year of the Implementation

Phase, action on these pilot studies is likely to be limited to drawing up plans for each of them so that they can be launched as soon as the necessary funds are available.

- Meetings to plan studies: This will partly be combined with the above missions under J. One meeting for each region.
- Implementation of pilot studies: Pilot studies will be inaugurated, upon finalization of the detailed plans. For the first year, the support from the global funds may be limited but will be provided within the availability of the funds.
- Expected staff time allocation: 10%

- Compilation of advisory material: as described under "E" above

5. Project administration

This will include the employment of professional and secretarial staff to undertake and oversee APFM activities, the provision of logistical support and office accommodation for these staff, and associated administrative services. Also included here is the annual meeting of the APFM Steering Committee.

- Meeting of Steering Committee: once (March 2003)
- Expected staff time allocation: 5%

ANNEX 10

INDICATIVE BUDGET FOR APRIL 2002-MARCH 2003

1. Activities under Objective 1: To develop and apply an approach to flood management which incorporates it as a component of IWRM

A.	**APFM partners**		**(CHF)**
	i.	Occasional visits of the potential partners (2 trips, CHF 11,000/trip)	22,000
	ii.	Other costs including staff or consultant cost	11,500
B.	**Establish close contact with RTAC, IGOs and NGOs**		
	i.	Representation at meetings, seminars, symposiums, etc (3 trips, CHF 7,000/trip)	21,000
	ii.	Other costs including staff or consultant cost	11,500
C.	**Cooperation with other APs**		
	i.	Visits to other APs and their meetings (2 trips, CHF 7,000/trip)	14,000
	ii.	Other costs including staff or consultant cost	11,500

- Coordination with regional activities: as described under H below

2. Activities under Objective 2: To make available the tools that are necessary for the above objective

D.	**Assemble information on past events**		
	i.	Visits to meet with those who hold data and data managers (2 trips to meet 10 data holders/managers, CHF 11,000/trip)	22,000
	ii.	Analysis of data holdings (Employ data analysts, etc)	10,000
	iii.	Other costs including staff or consultant cost	23,000
E.	**Compilation of advisory material**		
	i.	Preparation of case studies (6 cases, CHF 3,000/case to employ experts in each country, etc.)	18,000
	ii.	Evaluation of good practices and/or lessons learned	
		(a) Analyses (Employ one consultant)	15,000
		(b) Meeting (Convene one evaluation meeting)	20,000
	iii.	Preparation of technical reports	
		(a) Expert services (Report on "IFM", "Good practices", etc.)	40,000
		(b) Consultative meeting (2 meetings, CHF 20,000/meeting)	40,000
	iv.	Other costs including staff or consultant cost	34,500

F. Dissemination of information

i.	Publication of meeting reports (Reports on Coordination meeting, Consultative meeting)	4,000
ii.	Publication of technical reports (Reports on "IFM concept", "Good practices(first version)"	5,000
iii.	Maintenance and extension of APFM web site (Employ web page specialist, etc)	5,000
iv.	Seminars to promote IFM (This will be combined with other meetings under above A,B and C)	-
v.	Visits to countries and meetings (This will partly be combined with visits under above A,B and C. At least 3 visits)	10,000
vi.	WWF3	
	(a) Attendance at coordination meetings (3 times*2 persons, CHF 10,000/each)	30,000
	(b) APFM planning meetings (Once, in Geneva or in Japan)	20,000
	(c) APFM participation in Forum (Representation from TSU, 1 person from related RTACs, some other experts)	75,000
vii.	Other costs including staff or consultant cost	23,000

G. Reference centre

i.	Identification and analysis of information (Employment of and meeting with analysis specialists)	5,000
ii.	Other costs including staff or consultant cost	11,500

3. Activities under Objective 3: To provide a mechanism for coordinating regional activities on flood management

H. Coordination of Activities

i.	Convene Coordination Meeting (once, in Geneva) (one person from each region plus a few counterparts)	20,000
ii.	Other costs including staff or consultant cost	23,000

I. Trans-national “hotspots”

i.	Development of preliminary plans (Collect information on status quo of the trans-national hot-spots and carry out basic study on how to tackle these)	5,000
ii.	Other costs including staff or consultant cost	11,500

- Dissemination of information: as described under "F" above

- Reference centre: as described under "G" above

4. Activities under Objective 4: To assist in the preparation of relevant projects at regional and national revel

J. Facilitating the development of regional activities

i.	Missions to regions (3 regions, CHF 12,000/each)	36,000
ii.	Meetings in regions (3 regions, CHF 12,000/each) (FRICS-WMO-SAMTAC Contract)	36,000 (100,000)
iii.	Development of plans for regional projects (3 regions, CHF 20,000/each)	60,000
iv.	Visits of experts between regions (employ and dispatch 3 experts, CHF 7,000/each)	21,000
v.	Other costs including staff or consultant cost	34,500

K. Pilot studies

i.	Meetings on and implementation of pilot studies (Meetings will partly be combined with the above missions under H. Support for the implementation for the first year will be provided within the availability of the global funds.)	36,000
ii.	Other costs including staff or consultant cost	23,000

- Compilation of good practices: as described under "E" above

5. Project administration

i.	Meeting of Steering Committee (Probably in conjunction with the participation of WWF3)	25,000
ii.	Communication Expenses, etc.	10,000
iii.	Administrative services (5 % of total budget)	45,000
iv.	Other costs including staff or consultant cost	11,500

Total: CHF 900,000

(Expected contribution from Japan: CHF 720,000)
(Expected contribution from The Netherlands: CHF 180,000)