

**AGENDA FOR THE INFORMAL MEETING OF THE  
WORKING GROUP ON ADAPATIVE FLOOD MANAGEMENT (WG-AFM)**

15 August 2018, 09.00-10.30 hours (Session-I)

15 August 2018, 11.00-12.30 hours (Session-II)

Saskatoon, Saskatchewan, Canada

**Strategy Theme: Basin**

**Presented by the Chairman**

**WG-AFM Agenda Item 1: Introduction of the new Working Group**

1. Working Group on Comprehensive Approaches to Flood Management (WG-CAFM) concluded its activities in November 2016 after completion of its mandate, so Chair Dr. Kamran Emami (Iran) presented the Scoping Document for the new Working Group on Adaptive Flood Management (WG-AFM) during the Mexico meeting (2017). PCTA in its meeting recommended that a new WG on Adaptive Flood Management (WG-AFM) can be approved subject to interest of at least 10 NCs to participate in the activities of the new WG and WG Chair will present the scoping document (**Annex 1**) with the revised mandate of the WG and interest of NCs, for PCTA/IEC approval during Canada meeting. The mandate of the new working group as included in the Scoping Document of the WG is as follows:

**New mandate of the WG:**

- (a) To motivate ICID National Committees in various countries to set up their National Working Groups,
- (b) To provide guidance to compile, publish, update and/or translate documents on adaptive flood management;
- (c) To promote inter-disciplinary exchange of information, knowledge and experience, as well as networking on the topic for proper understanding of the technological developments in the subject;
- (d) To organize seminars at ICID Congresses and meeting to enhance deeper understanding of adaptation to floods and coping with floods including community participation with focus on impact of floods on agriculture water management;
- (e) To prepare a paper on “Adaptive Flood Management” for publication in Irrigation and Drainage (IRD);
- (f) To finalize a book on “Adaptive Flood Management”.

2. The Scoping Document for the new Working Group on Adaptive Flood Management (WG-AFM) has been circulated to all the National Committees in January 2018 for their comments/observations as well to nominate experts/professionals in the Working Group. In response, nominations of Dr. Ikuo Yoshinaga (Japan), Engr. Syed Mahmood-ul-Hassan (Pakistan), Eng. Hind Massoud (Sudan) and Ms. Sahar Norouzi as young professional from Iran, have been received from the National Committees for the membership of the new WG-AFM. In addition, existing members of the erstwhile Working Group on Comprehensive Approaches to Flood Management (WG-CAFM) were also requested to confirm their interest through their NC for continuation of their membership of new WG-AFM. The membership status of the existing members is as **Annex 2**. Further, the ICID CO has followed-up with the observers viz. Engr. Warren Helgasun (Canada); Ir. Li Yunpeng (China); Prof. Syaiful Mahdi (Indonesia); Ir. Rose Lobato (Mexico); Ir. Michael I. Nwabufo (Nigeria); Ir. Jisun Kim (South Korea); and Eng. Muhammad Ashraf (USA) who attended the Mexico meetings in October 2017 and requested them to become member of the new WG through their respective NCs.

3. The experts/professionals attending this informal meeting will chose a Chair, Vice-Chair and Secretary for the group and refine the scope of the WG, if necessary. The finalized mandate of the WG would be presented by the representative/ elected chair of the group to PCTA in its meeting on 16 August 2018 for approval by the IEC.

**WG-AFM Agenda Item 2: Road Map to ICID Vision 2030 – Status of Activities on Adaptive Flood Management Issues**

4. During Mexico meeting, the WG finalised the Action Plan 2030 (Road Map to ICID Vision 2030) of the WG-AFM based on the new mandate by updating the activities on flood management issues (refer **Annex 3**). During the Mexico meeting, the 68<sup>th</sup> International Executive Council (IEC) encouraged WGs to monitor the progress of ‘Activities identified under Various Strategies for Action Plan 2017-21’ appended to ‘A Road Map to ICID Vision 2030’ and report to their respective Permanent Committees.

5. Accordingly, in January 2018, the ICID CO has requested the Chairs of the Work bodies to monitor the progress of achieving milestones as indicated in the Action Plan and report status to the concerned Permanent Committee to enable the Theme Leaders to take stock of the progress of the Work body in achieving the Action Plan in their synthesis report. Members will discuss mechanism to monitor the progress of identified activities under action plan.

**WG-AFM Agenda Item 3: Workshop on ‘Flood Management: Recent Great Floods and Lessons Learned’ in August 2018 at Saskatoon, Canada**

6. At the Mexico (2017) meeting, the WG proposed to organise a Workshop on ‘Flood and Agriculture’ during the 69<sup>th</sup> International Executive Council (IEC) meeting and International Conference in August 2018 at Saskatoon, Canada. Keeping in view the interest from large number of WGs to organize workshops during Canada meeting and limited number of slots available to accommodate these workshops, ICID CO has suggested to organize a joint workshop of some WGs including WG-AFM, if possible and WGs were requested to submit Expression of Interest for International Workshop during the 69<sup>th</sup> IEC Meeting in Canada. In response, Dr. Emami vide his email dated 04 June 2018 indicated to organize an International Workshop and Call for Papers has been circulated to all NCs on 6 June 2018. Chair will provide further updates during WG meeting.

**WG-AFM Agenda Item 4: Closure report of WG-CAFM and Publication of the Working Group on ‘Adaptive Flood Risk Management’**

7. During the Mexico meeting, the WG decided to publish a document of the publication titled ‘Adaptive Flood Risk Management’ (covering both structural and non-structural aspects of flood management) based on the workshop papers and country presentations on floods. WG Chair Dr. Emami presented the final document of the publication of the group in the Mexico meeting. WG Chair was requested to share the final document of the publication to the ICID CO so that it can be circulated among the members of the group for their comments/ suggestions, if any. WG Chair will further updates in the WG meeting.

8. WG Chair was also requested to share the ‘Closure Report’ of the erstwhile of the WG-CAFM for records & uploading on the WG website, which is still awaited. WG Chair will provide further updates.

**WG-AFM Agenda Item 5: Any other business**



**NOTES FOR CHAIRPERSON:**

1. Draft minutes of this meeting to be submitted to ICID Secretariat at Saskatoon, Canada after the meeting.
2. Chair to participate and present the WG report to PCTA meeting on 16 August 2018.

## WORKING GROUP ON ADAPTIVE FLOOD MANAGEMENT (WG-AFM)

### Updated Scoping Document

#### 1. Introduction

- 1.1 The climate extremes pose significant impacts on human and ecological systems, which are influenced by changes in climate, vulnerability and exposure, resulting in increased fatalities and economic losses especially in developing countries. Increasing exposure of people and economic assets has been the major cause of long-term increases in economic losses from weather- and climate-related disasters. Extreme events have greater impacts on sectors with closer links to climate, such as water, agriculture and food security, forestry, health, and tourism. Disasters due to climate extremes, in terms of loss of life and property, are most acutely experienced at the local level. These localized impacts can then cascade to have national and international consequences. In order to reduce impact due to these climate extremes it is essential to develop strategies for disaster risk management in the context of climate change which may include coping and adaptation mechanism, informed by and customized to specific local circumstances. Adaptations to climate change and disaster risk management provide a range of complementary approaches for managing the risks of climate extremes and disasters. An iterative process of monitoring, research, evaluation, learning, and innovation can reduce disaster risk and promote adaptive management in the context of climate extremes.
- 1.2 While we have been integrating local knowledge with additional scientific and technical knowledge, which can improve disaster risk reduction and climate change adaptation, we, however, still lack sufficient knowledge to better understand what is going on and what can be predicted in climate change with reasonable accuracy. And we also cannot wait till whole understandings of the future climate change and its impacts are known. Then, the challenges due to the climate change should be considered as another driving force to improve the irrigation and drainage system. It is therefore necessary to factor known impacts of climate change in all processes of planning, design, implementation, operation, maintenance and management of the irrigation and drainage activities.
- 1.3 Adaptive management (AM) is a structured, iterative process of optimal decision making in the face of uncertainty, with an aim to reducing uncertainty over time via system monitoring. In this way, decision making simultaneously maximizes one or more resource objectives and, either passively or actively, accrues information needed to improve future management. Adaptive management is a tool which should be used not only to change a system, but also to learn about the system.

Because adaptive management is based on a learning process, it improves long - run management outcomes. The challenge in using the adaptive management approach lies in finding the correct balance between gaining knowledge to improve management in the future and achieving the best short - term outcome based on current knowledge.

Adaptive management can proceed as either passive adaptive management or active adaptive management, depending on how learning takes place. Key features of both passive and active adaptive management are:

- (a) Iterative decision-making (evaluating results and adjusting actions on the basis of what has been learned)
- (b) Feedback between monitoring and decisions (learning)
- (c) Explicit characterization of system uncertainty through multi-model inference
- (d) Bayesian inference
- (e) Embracing risk and uncertainty as a way of building understanding

Adaptive management is particularly applicable for systems in which learning via experimentation is impractical.

#### 1.4 Adaptive Management

Till 1927, the main flood policy of U.S. Army Corps of Engineers was "levees only". After the great flood of 1927, flood management by the reservoirs was also included. The concept of non-structural measures (NSMs) was first used in the context of flood control some 50 years ago, as a means to reduce the ever-increasing damages, without unduly expanding the costly infrastructure. In that sense, NSMs were perceived rather as complementary additions to the essentially structural solutions to flood control, in order to reduce costs and enhance efficiency. This concept has been changed in the last few decades by introduction of new approaches follows:

- (a) Development of the new Swiss Safety concept for dams in 1985.
- (b) Publication of "Manual on non-structural approaches to flood management" by ICID in 1999.
- (c) Publication of ICOLD Bulletin on ICOLD, "Non-structural risk reduction measures; Benefits and costs for Dams in 2001
- (d) UNESCO (IHP-V) Workshop on "Non-structural measures for water management problems" in 2001,
- (e) Publication of U.S. Army Corps of Engineers manual on "Adaptive Management for Water Resources Project Planning" in 2004.
- (f) Publication of the proceeding of Q53 of ICID congress on Harmonic coexistence with floods in Beijing in 2005.

- 1.5 Now in the second decade of the 21st century, it has become obvious, that the approach to flood management is increasingly adaptive and non-structural: structural, engineering solutions appear as indispensable complements to the essentially non-structural, integrated water resources management, of which flood damage reduction is but an integral part.

An important aspect of evolving concepts of engineering practice is the way uncertainty is recognized and addressed. It is today widely appreciated that many consequences of civil engineering investments cannot be precisely forecasted. Whether the objective is to take advantage of new opportunities or to insure against bad outcomes, the goal is to create the capacity to respond appropriately as new situations which may include unforeseen surprises develop. Flexibility over the life of the project is essential to effective development and functioning of civil engineering systems.

## **2. Objective and Mandate**

### **2.1 Relevance of the Working Group (WG)**

#### **2.1.1 The relevance of the WG can be specified as follows:**

- (a) Flood events and resulted financial damages in the world is projected to rise in coming decades and this can be a major risk to sustainable irrigated agriculture and food security. An iterative process of monitoring, research, evaluation, learning, and innovation can reduce disaster risk and promote adaptive management in the context of hydrosystems change and climate extremes.
- (b) The WG is expected to contribute to effective implementation of the Strategy Theme Basins and to other strategy themes;
- (c) The flood engineers are facing great challenges in coming decades. Adaptive flood management can play a critical role in mitigating flood damages in rural areas.

## **3. State of knowledge on the topic**

### **3.1 Other International Organizations that are working on the subject**

#### **3.1.1 There are very few other International Organizations that have programs and activities on this topic. This especially concerns the:**

- (a) WMO
- (b) UNESCO-IHE
- (c) ICOLD

### **3.2 Mandate of the Working Group**

#### **3.2.1 Mandate of the Working Group is based on the specific niche that this WG can fill in this area and can be formulated as follows:**

- (a) To motivate ICID National Committees in various countries to set up their National Working Groups,
- (b) To provide guidance to compile, publish, update and/or translate documents on adaptive flood management;
- (c) To promote inter—disciplinary exchange of information, knowledge and experience, as well as networking on the topic for proper understanding of the technological developments in the subject;

- (d) To organize seminars at ICID Congresses and meeting to enhance deeper understanding of adaptation to floods.
- (e) To prepare a paper on “Adaptive Flood Management” for publication in *Irrigation and Drainage (IRD)*;
- (f) To finalize a book on “Adaptive Flood Management”.

3.3 How is the Working Group expected to collaborate with the other International Organizations?

3.3.1 WG-AFM would promote synergy with all International Organizations active in flood management

#### **4. Work Plan**

4.1 Scope

4.1.1 The WG is expected to investigate, analyze, and disseminate information on different aspects of flood management and to formulate recommendations with respect to:

- (a). Adaptation strategies
- (b). Coping with uncertainties associated with flooding
- (c). The lessons learned from flood events in member countries.

4.2 Target audience

4.2.1 The target audience for this working group will be managers of irrigation schemes, researchers, consultants, manufacturers, government officials and flood engineers.

4.3 Outputs

4.3.1 The following outputs can be expected from this WG:

- (a). Proceeding of the seminars and workshops;
- (b). A book on “Adaptive Flood Management”;
- (c). WG website;
- (d). Overview paper on “Adaptive Flood Management” for publication in *Irrigation and Drainage (IRD)*.

4.4 Timelines

4.4.1 A five years tenure is requested for this phase of WG’s activities.





**A. Status of the existing membership of the erstwhile WG-CAFM**

Sl. No.	Members	Member from	Remarks
1	Dr. Kamran Emami (Iran), Chair (2010)	1999	Attended the WG meetings in 2016 and 2017
2	Dr. Takao Masumoto (Japan), Vice-Chair (2015)	2009	Attended the WG meeting in 2016 and represented by Dr. M. Satoh in 2017
3	Mohd Adnan bin Mohd Nor (Malaysia)	2015	Attended the WG meeting in 2016
4	Mr. Maurice Roos (USA)	2006	Attended the WG meetings in 2016 and 2017.
5	Mr. Olli-Matti Verta (Finland)	2011	Attended the WG meeting in 2017.
6	Mr. Marcel Marchand (Netherlands)	2011	Attended the WG meeting in 2016
7	Dr. Arthon Suttigam (Thailand)	2012	Attended the WG meeting in 2016
8	Ms. Aysen Pervin Gungor (Turkey)	2012	-
9	Dr. Herman Booyesen (South Africa)	2012	-
10	Mr. R.K. Agarwal (Direct member), WAPCOS India Limited	2014	-
11	Dr. Rozalija Cvejic (Slovenia)	2014	-
12	Dr. V.D. Roy (India)	2015	Provisional member
13	Prof. Dr.-Ing.Klaus Rottcher (Germany)	2015	Direct Member
14	FAO representative		Observer
15	UNDRO representative		Observer
16.	WMO representative		Observer
17.	ICBA representative (UAE)		Observer

**B. New Nominations received from the National Committees**

Sl. No.	Name	Country	Remarks
1.	Dr. Ikuo Yoshinaga	Japan	Nomination received
2.	Engr. Syed Mahmood-ul-Hassan	Pakistan	Nomination received
3.	Eng. Hind Massoud	Sudan	Nomination received
4.	Ms. Sahar Norouzi as young professional	Iran	Nomination received



**ROAD MAP TO ICID VISION 2030 – ACTIVITIES OF WG-AFM**

	Activity	Outcomes/ Outputs	Milestone for Year 2017	Milestone for Year 2018	Milestone for Year 2019	Milestone for Year 2020	Milestone for Year 2021
<b>Goal B: Be a catalyst for change in policies and practices</b>							
<b>Strategy B5 : Encouraging Development of Drought Management Policies</b>	5.1 Develop Guidelines on Flood Risk Management strategies	Guidelines		Release first draft guidelines	Release of the finalized guidelines		Updating of the guidelines
	5.3 Publication of the WG on Adaptive Flood Risk Management	Report	Finalization and publication of report				
<b>Goal C: Facilitate exchange of information, knowledge and technology</b>							
<b>Strategy C3 : Promoting Regional Cooperation</b>	3.3 Organise internal/ international workshop on flood management	Proceedings of the workshop	Invite member countries and IOs like WMO, ICOLD, IAHR, APFM etc. (discussion in WG meeting)	Workshop	Workshop	Workshop	
	4.25 Case studies on flood mitigation measures	Technical report		Finalise and publish first set of case studies		Finalise and publish second set of case studies	
<b>SAGoal E: Encourage research and support development of tools to extend innovation into field practices</b>							
<b>Strategy E3 : Developing and Promoting Tools of AWM</b>	<b>3.3 Promote Value Engineering as a tool for enhancing creativity and innovation</b>		Gather case studies of application VE in flood management project	Gather case studies of application VE in flood management project	Prepare a report on the case studies of application VE in flood management project		
<b>Goal F: Facilitate capacity development</b>							
<b>Strategy F3: Technical Training of Young Professionals from member countries</b>	3.10 To launch e-Discussion on Flood Risk Management	Outcome	e-Discussion on Flood Risk Management (discussion in the WG meeting)	To invite member countries/IO s for e- Discussion on Flood Risk Management	Organise a Side Event in WIF3		

(Source: Consultative Group (CG) Report: A Water Secure World Free of Poverty & Hunger: A Road Map to ICID Vision 2030)