WORKING GROUP ON CLIMATE CHANGE AND AGRICULTURAL WATER MANAGEMENT

DRAFT SCOPING DOCUMENT

(Prepared by Tsugihiro Watanabe and Ray-Shyan Wu in consultation with Central Office and with contributions as received by e-mail from various specialists)

1. Introduction

1.1 The main theme of the ICID's 22nd Congress held in Korea, September 2014 was "Securing Water for Food and Rural Community under Climate Change". As it shows explicitly, the climate change is one of the most serious and urgent issue for human society and global environment, and the theme was organized in the context that improving irrigation and drainage systems and rural development will play a key role in achieving the rural water and food security under impending climate change, especially in the developing countries. Under this theme, two congress questions were raised and the one related to climate change was "How Irrigation and Drainage play an important role in Climate Change Adaptation?" with three sub-questions: 1) Understanding Impacts of Climate Change on Land and Water Use, 2) Revisiting Design and Operation Criteria for Irrigation and Drainage Facilities, and 3) Managing Frequent Floods and Droughts.

1.2 The Congress theme highlighted that the climate change needs to be recognized as an added stress on the increasingly uncertain complex and interlinked issues of rural development and food security under demographic changes, overstretched environmental and natural resources. As we still lack sufficient knowledge to better understand what is going on and what can be predicted in climate change with reasonable accuracy and also cannot wait till whole understandings of the future climate change and its impacts are known so 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. In this context, we refer to the 5th Assessment Report of IPCC which stresses on an urgent development of and efficient implementation of adaption measures based on present available information, including infrastructure improvement and institutional reorganization, design criteria revision and management strategy for the extreme events.

1.3 Even though many researches have been carried out all over the world with number of useful outcomes in terms of better availability of information related to climate, state-of-the-art techniques to evaluate and predict impacts of climate change including development of adaptation measures, it is felt that the challenges due to climate change in the irrigation, drainage and other relevant sectors would be long lasting which calls for focused and concerted efforts from all stakeholders.

1.4 With these situation and understandings on climate change and increased role of irrigation and drainage in achieving food security in the present situation, ICID as the platform for promoting the irrigation and drainage sector is under obligation to organize a semi-permanent or standing working group on climate change for the coming decades. ICID Working Group on Climate Change and Agricultural Water Management (hereafter referred as "Working Group" or "WG"), which was established in 2005and has also performed well for the past decade, needs to be continued for some more years with renewed objectives and mandate including focussed wok plan.

2. History of the Working Group

2.1 Establishment and mandates

2.1.1 The Working Group was established in 2005 with the name of "WG on Global Climate Change and Irrigation", by well-designed coordination of a devoted leader Dr. Mark Svendsen. In 2007, it was renamed as "WG on Climate Change and Agricultural Water Management" with refining the target area expanding from just "irrigation" to the wider scope "water management".

2.1.2 The establishment was based on the recognition that the looming climate change and its likely impacts on water management for agriculture require cooperation cutting across institutional and disciplinary boundaries. This was aiming at developing arena where relevant players or stakeholders may communicate and collaborate for intensification of data collection networks, research into methodologies to downscale the climate impacts on water and agriculture, review of the operation of storage systems, enhancing soil water storage with water harvesting structures, and sharing knowledge and information.

2.1.3 The WG set up the mandate to review the progression of and predictions for Global Climate Change (GCC) and climate variability and to explore and analyse the medium-term implications of climate change and climate variability for irrigation, drainage, and flood management. It stimulates discussion and raises awareness of water related GCC issues within the ICID network and at national scales among scientists and policy makers. The WG collaborates with global partners like UN System wide Global Framework for Climate Services (GFCS) under the leadership of WMO.

2.1.4 Formal mandates of WG set up in 2005:

(a) To review the progression of and predictions for Global Climate Change (GCC) and climate variability,

(b) To explore and analyze the medium-term implications of climate change and climate variability for irrigation, drainage, and flood control,

(c) To stimulate discussion and raise awareness of water-related GCC issues within the ICID family,

(d) To stimulate discussion at national scales among scientists, policy makers, and, through the media, the general public on GCC and water, and

(e) To join the international dialogue on GCC and water

2.1.5 The WG is consisting of the persons who are recommended by the national committee of ICID member country and approved by the WG, and permanent observers. At the occasion of the WG meeting in the IEC in October 2015, the countries of members include Japan (Chairperson), Chinese Taipei (vice-chairperson), China (Secretary), South Africa, Indonesia, Spain, Turkey, and Korea. The Secretary General of ICID is a member, and Representatives of WMO, IFPRI, IWMI and FAO are the permanent observers.

2.2 Activities and outcomes

2.2.1 The WG has organized the workshop on climate change almost every year taking the opportunity of IEC of ICID. In the workshop, activities and outcomes of the WG members and observers were presented and shared for their further challenges.

2.2.2 Especially, in the First World Irrigation Forum, held in Mardin, Turkey in 2013, the WG co-organized the Workshop “Management of Water, Crops and Soils under Climate Change”. There, seventeen contributions both oral and posters were presented. The main outcomes of the workshop include; 1) It was obvious from the presentations with global evidence that the climate change is a fact not a fiction and the scepticism about the climate change is reversing to believing in, 2) The current extreme weather events of drought, floods, hurricanes, tornados, and cyclones are becoming regular visitors more than ever, and 3) In agriculture industry, the impact is visible through the change in sowing and harvest dates, length of growing season, water availability for irrigation, evapo-transpiration and the shift in agro-climatic zones.

2.2.3 The papers presented covered a wide range of climate change impact and offered solution to counter the impact through adaptation and mitigation measures. These covered the introduction of new water management techniques (e.g. SRI for Paddy Rice), new drought tolerant crops (e.g. Bambara groundnut), reducing greenhouse gases (NH4, N_2O) through lowering the groundwater table, and reservoir management. The results also indicated that farmers are now familiar with the changing climate and are adjusting their activities accordingly. (Source: Summary Report of First World Irrigation Forum)

2.2.4 The activities and outcomes of the WG was an essential part of the background for setting up the main theme of the ICID 22nd Congress mentioned above. Based on these, Dr. T. Watanabe, serving as the vice chair of the WG at that time, was designated as the general reporter for that theme.

3. Proposal for reconstitution of WG

3.1 Objectives

3.1.1 Based on the current climate change issue and challenges and the new role ICID is to play in sustainable development, review of past activities and outcomes of the WG, the mandate, scope and timelines for reconstitution of WG are defined as follows:

3.2 Main Objectives

3.2.1 The original objectives of the WG are still relevant and to be carried over, which is to prepare the arena and develop network for cooperation cutting across institutional and disciplinary boundaries. Basically, it include sharing the useful information, applicable methods, and case studies (both successful and unsuccessful).

3.2.2 Since the future projection of climate change is becoming much more precise and reliable with higher temporal and spatial resolution and development of models for assessing the impacts and designing adaptation measures are also being accelerated, therefore at this stage, focus should be on information exchange and interconnectedness development in the community, compilation and archiving of experiences and case studies on climate change impact assessment and adaptation strategy from all over the world. Another issue which needs consideration is how we can develop an integrated approach to address challenges of complex climate change and climate variability as understanding of climate change issues, processes, assessment and adaptation planning at local scale is very limited. Therefore, one of the objectives of the WG should be to develop more understanding in an integrated manner with focus on inter-sectoral and trans-boundary approach.

3.3 Updated Mandates

3.3.1 Based on the main objectives to be established, the updated mandates for reconstituted WG are as follows:

(a) To share the information about future prediction of the global and regional climate change and climate variability,

(b) To explore and analyze the implications of climate change and climate variability for agricultural water management including irrigation, drainage, and flood control,

(c) To promote archiving useful information and case studies on climate change for practical use in improved impact assessment and adaptation development.

(d) To enhance discussion on climate change and water management at national and regional scales among the stakeholders including academician, practitioners, decision makers, media as well as farmers and water users in a region, and

(e) To join the international dialogue on Climate change and water management.

3.4 Relevance of the Working Group

3.4.1 The relevance of the WG can be specified as follows:

(a) the topic of climate change and water management is relevant to the vision and mission of ICID and of higher interest for its members, especially in the developing countries that are sensitive and vulnerable to climate change;

(b) the WG is expected to contribute to effective implementation of the strategy theme Basin and to other strategy themes for that matter;

(c) it may be expected that, in the coming period, climate change impact and adaptation strategies are factored in all processes and activities of irrigation and drainage.

3.5 Existing gap that the Working Group is expected to fill

3.5.1 Almost all other ICID Working Groups and Task Forces have a related scope of climate change, especially WG-CROP, WG-ON-FARM, WG-SDTA, WG-ENV, WG-CAFM, WG-DROUGHT, and WG-BIO-ENERGY. The Working Group will coordinate these groups for sharing information, collaborating works and enhancing discussion about climate change as cross cutting issue.

3.6 Expected collaboration with other International Organisations

3.6.1 International Organisations (ADB, FAO, IFPRI, IWMI, WB, WMO etc.) can contribute to the activities of the WG as Permanent Observers (PO). On the other hand presentations on the works and achievements of the WG could be presented at the occasion of events organized by International Organisations.

4. Work Plan

4.1 Scope

4.1.1 The WG is expected to investigate, analyse, and disseminate information on new developments and to formulate recommendations with respect to:

(a) the progression of and predictions for climate change and climate variability

(b) the medium-term adaptation strategies of climate change and climate variability for irrigation, drainage, and flood control

(c) reservoir operation policies to develop adaptation strategies to reduce impacts of climate change,

(d) the water environment issues relating to climate change within the scope of agricultural water management activities within ICID,

(e) the international dialogue on climate change and agricultural water environment between regions and countries

4.1.2 With respect to the last item, interesting works have already been done in the ASRWG since 2012. Similar collaborated works with the WG of other regions are expected to be developed

4.2 Target audience

4.2.1 The target audience for this working group will be meteorologists, farmers, managers of irrigation schemes, researchers, consultants, government officials and staff of international organisations on the topic.

4.3 Outputs

4.3.1 The following outputs can be expected from this WG:

(a) sharing knowledge and experiences with and by the representatives of NCs, and disseminating this knowledge within their country;

(b) presenting condensed overview of existing key reports (IPCC, UNESCO, WMO, etc.), national adaptation guidelines and other relevant publications on the topic;

(c) organizing or co-organizing at least one workshop, seminar or symposium in every two years at occasion of an international ICID meeting; and

(d) distributing ICID experiences in practice for adaptation to climate change in irrigation, drainage and flood sector

4.4 Timelines

4.4.1 While climate change is a very important and complex issue to deal with in the management of agricultural water sectors, it is recommended that the term of this WG will be set at six years. The timeline would have to be based on the scope of work and the expected outputs. Details of the timeline would have to be formulated and refined at the meetings of the WG.

4.5 Collaborators and dissemination strategy

4.5.1 The WG would have to base its activities with an open attitude and clear scope for invitation of interested outsiders.

4.5.2 The dissemination strategy would have to be based on reaching those who can apply the findings and recommendations of the WG in their research and especially in policy development, decision making and implementation in practice.

5. Core Group

5.1 This draft has been circulated among the members of WG-climate. Comments received from the members of the WG have been included in this scoping document. The Core Group consists of:

Convenor: Tsugihiro Watanabe
Members: Ray-Shyan Wu
Fuqiang Tian

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[i] **Annex 2** [66th IEC Agenda, Appendix XXI, page 196]