ICID•CIID

WORKING GROUP ON NON-CONVENTIONAL WATER RESOURCES AND ENVIRONMENT PROTECTION (WG-NWREP)

SCOPING DOCUMENT

(Prepared by Dr. Wenyong Wu, Chair of erstwhile WG-NCWRI)

1. Introduction

United Nations (UN) set up 17 Sustainable Development Goals (SDGs) for the 2023 agenda. The irrigation and drainage theme is closely related to SDG 2 “achieve zero hunger worldwide” and SDG 15 “sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss”. The use of non-conventional water resources within a sustainable environment helps produce more food to realize a water secure world free of poverty and hunger is a goal for the 2030 ICID mission as well.

With rapid economic and population growth, scarcity of fresh water is increasingly becoming a global problem. Global agriculture is the biggest freshwater consumer nearly accounting for 70% of the supply. Smart use of non-conventional waters for irrigation could lessen the burden on fresh water and at the same time minimize associated water and land degradation. Non-conventional waters consist of reclaimed water, brackish/saline groundwater, raw domestic wastewater, agricultural drainage water, mining water, harvested rainwater, storm water, etc. Along with proper usage of the non-conventional waters, it is important to reduce contamination and prevent human health risk therefore, a set of irrigation and drainage techniques, policies, and strategies must be considered in the process of planning, designing, operation, and management.

The Intergovernmental Panel on Climate Change (IPCC) released a major report in 2022 Climate Change 2022: on Impacts, Adaptation and Vulnerability looking mainly at ecosystems, biodiversity, and human communities at global and regional levels. Global warming, reaching 1.5°C in the near term (2021-2040), would cause unavoidable increases in multiple climate hazards and present multiple risks to ecosystems and humans. Increased frequency, severity, and duration of extreme events such as droughts will lead to yield reduction, groundwater depletion, soil salinity/contamination, soil compaction, organic matter/microbial habitat loss, weed infestation, and desertification. Proper and targeted use of non-conventional waters will prevent those adverse impacts otherwise caused by acute and prolonged droughts.

On the other hand, intensive irrigations are seen to be a cause of degradation of environmental degradation. The three pillars of the “Green Revolution”, - high-yielding varieties, chemical inputs like fertilizer and pesticides, and irrigation–have had a definite positive outcome in terms of increased food production, which obviated hunger in many parts of the world but also negatively impacted land and biodiversity and the aquatic ecosystems.

ICID has long been aware of risks associated with non-conventional water resources as a supplemental source of irrigation water and addressing the issues from time to time. The newly formed Working Group on Non-conventional Water Resources and Environment Protection (WG-NWREP) is tasked to provide guidance on the environment-friendly use of non-conventional water resources including its effects on climate and human health.

2. Mandate of the Working Group

(a) Promote sustainable and environment friendly use of non-conventional water for irrigation
(b) Knowledge share of up-to-date developments, methods, and approaches on NWREP;
(c) Provide guidance and training to policymakers, planners, designers, managers, and young professionals in NWREP;
(d) Produce technical manuals, guidelines, or standards with respect to NWREP;
(e) Organize international workshops, seminars, and meetings on the NWREP topics;

(f) Produce documents on successful case studies in maximizing positive and minimizing adverse effects of nonconventional irrigation and drainage systems from farm to basin.

3. Work Plan

3.1 The WG is planning to formulate recommendations based on the investigation of new developments with respect to nonconventional water resources as follows:

(a) Ecological and environmental risk monitoring and evaluation;
(b) Tolerant crop selection;
(c) Planning and designing of highly efficient irrigation and fertigation projects with minimum or zero environmental footprints;
(d) Improvement and regulation of non-conventional water quality;
(e) Monitoring and evaluation of soil and water environment;
(f) Prevention of point/non-point source pollution in irrigation and drainage;
(g) Codes of practice in design, operation, and management.

3.2 Target audience

The target audience for this WG will be managers of irrigation schemes, researchers, consultants, government officials, irrigation and related environment protection policymakers, farmers' representatives, and lobbyists working on the topic.

3.3 Outputs

The following outputs can be expected from this WG:

(a) Knowledge and experience exchange among representatives of the WG;
(b) Condensed review in Irrigation, Drainage with nonconventional waters, and related Environmental risks;
(c) ICID guidelines or codes of use of non-conventional water resources for irrigation.
(d) Annual workshop, seminar, or symposium to be held at the time of ICID meetings/activities.
(e) Capability building and young members of this WG.

4 Timelines

It is recommended that the term of this WG will be six years. The timeline would have to be based on the scope of work and the expected output. Activities within the timeline are to be formulated and refined during the inaugural meeting of the WG.

5 Collaborators and dissemination strategy

(a) The WG will enhance its exchange with relevant international organizations;
(b) The WG would promote collaboration among members and permanent observers from different national committees (NCs)
(c) Appropriate media/communication strategy to be used for dissemination of developments and innovative approaches to improved and safe use of non-conventional waters.

❖❖❖❖❖