APPENDIX XI [PCTA Item 6.2]

AGENDA FOR THE INFORMAL MEETING OF THE WORKING GROUP ON NON-CONVENTIONAL WATER RESOURCES AND ENVIRONMENT PROTECTION (WG-NWREP)

05 September 2024, 08:30-10:00 hours (Session I) and 10:30-12:00 hours (Session II)
Sydney, Australia

Strategy Theme: Irrigation and Drainage

WG-NWREP Agenda Item 1: A Brief Report on the Restructuring of WG by the Chair

1. At the 74th International Executive Council (IEC) meeting in Vizag (India), a proposal for the restructuring of the Working Groups was discussed and approved. Among the existing 18 working groups, 9 working groups completed their mandate in November 2023. The remaining working groups proposed to be structured into 11 new working groups under four themes: (1) Irrigation and Drainage; (2) Natural Resources; (3) Climate Change and impacts; and (4) Sustainable Development. Under these four themes, the WG-NCWRI has been included in theme 1 (Irrigation and Drainage) and WG-ENV has been integrated with the WG-NCWRI. As per the structure approved by PCTA, a new group - Working Group on Non-Conventional Water Resources and Environment Protection (WG-NWREP) has been established by integrating WG-ENV.

2. Dr. Wenyong Wu will provide a brief report on the restructuring of the new WG-NWREP.

WG-NWREP Agenda Item 2: Discussion on the Scoping Document

3. In March 2024, Dr. Wenyong Wu prepared and shared the draft Scoping Document for the establishment of the new WG-NWREP with the ICID Central Office. After formatting the Scoping Document, the ICID Central Office shared it with the Vice Chair, Secretary of WG-NCWRI, and WG-ENV for their comments and suggestions (refer **Annex 1**). During the Australia meeting, members may discuss the Scoping Document and send the final version to PCTA for approval.

4. In February 2024, the ICID Central Office informed the decision of PCTA about the establishment of a new WG-NWREP with all members of WG-NCWRI and WG-ENV and requested them to confirm their membership for the new WG for which most of the members have agreed to join the new WG. In March 2024, Prof. Xuebin Qi (China) informed that he wished to exit from WG-NCWRI due to his retirement and proposed a new nomination of Prof. Ping Li (China) for the membership of the new WG however, endorsement from the Chinese National Committee (CNCID) is awaited. The following new nominations have been received for the membership of the new WG-NWREP:

- Dr. Li-Chi Chiang (Chinese Taipei Committee)
- Dr. Feng-Wen Chen (Chinese Taipei Committee)

5. The erstwhile WG-NCWRI and WG-ENV membership are given in **Annex 2** (refer to the electronic version for the latest list). New nominations, if any, for the membership received, will be dealt suitably after the meeting.

WG-NWREP Agenda Item 3: Election of Chair, Vice Chair, and Secretary of restructured new WG

6. The group members may like to discuss and elect Chair, Vice Chair, and Secretary for the new WG during the meeting.

WG-NWREP Agenda Item 4: Road Map to ICID Vision 2030 - Status of activities on non-conventional water resources and environment protection

7. The Action Plan of the Road Map to ICID Vision 2030 of the erstwhile WG-NCWRI, and WG-ENV is given in **Annex 3**. The group will discuss and prepare the new Action Plan of the Road Map to ICID Vision 2030 as per the mandate of the newly established WG-NWREP at the meeting.

WG-NWREP Agenda Item 5: International Workshop on Nonconventional Water for Irrigation and Environment Protection, September 2024, Australia

8. The working group is organizing an International Workshop on “Nonconventional Water for Irrigation and Environment Protection” on 5 September 2024 in Sydney, Australia. The main aim of this workshop is to bring end users, researchers, academicians, students, and policy makers together on a global platform to exchange knowledge and networking on how best to use nonconventional water for irrigation to achieve a closed loop future for water, food security and a healthy environment.

9. Dr. Tapas Biswas, Vice Chair of erstwhile WG-NCWRI has organized an online meeting on 25 June 2024 and discussed the workshop program, identified speakers, and encouraged members present to submit their abstracts for the workshop. Dr. Biswas shared the draft program of the International Workshop during the online meeting and requested members to provide their comments and suggestions. During the meeting, Dr. Giulio Castelli informed the group about the project “Advancing non-conventional water management for innovative climate-resilient water governance in the Mediterranean Area (AG-WaMED)” and shared the link to the project with the members (https://agwamed.eu/). The project will tackle the problem of water scarcity by including Non-Conventional Waters (NCW) (wastewater, runoff water harvesting, and desalination) among the available resources to be included in water governance policies.

10. After discussion, it was proposed to circulate the workshop announcement to all National Committees, International Organizations, Work Body members, and Direct Members to invite abstracts for the workshop. Dr. Tapas Biswas will provide further updates at the meeting.

WG-NWREP Agenda Item 6: Activities of the erstwhile working group – publication/ report/ guidelines

11. The new WG will review and undertake the pending activities of the erstwhile working group of WG-NCWRI and WG-ENV.

WG-NWREP Agenda Item 6.1: Publication by erstwhile WG-ENV

12. In March 2024, Dr. Michael van der Laan, Vice Chair of erstwhile WG-ENV submitted the manuscript titled “Ecosystem services of irrigated and controlled drainage agricultural systems: A contemporary global perspective” to Prof. Bart Schultz for consideration of publication in the Special Issue of Irrigation and Drainage. The manuscript is a conclusion of work completed by WG-ENV over several years during and between annual IEC meetings.

WG-NWREP Agenda Item 6.2: Pending activities of the erstwhile WG-NCWRI

13. **Prepare a state-of-the-art document on the use of NCWR:** In January 2023, Chair Dr. Wenyong Wu circulated the draft outline of the Case Study on the Use of Non-conventional Water Resources in Agriculture to all members for their comments and suggestions. During the first virtual meeting held on 16 January, Dr. Xuebin Qi invited more members to participate in the case study document and provide case studies. Dr. Tasuku Kato volunteered to provide a Japanese case in the English version. Dr. Mohamed Salama was interested in the document and volunteered to offer an Egyptian case study. During the second virtual meeting, Dr Li reported the progress of the case study document on behalf of Dr. Xuebin Qi. Chapters 1, 2, and 5 of the case document are almost finished. Chapters 3 and 4 need to add more cases from different countries. Dr. Qi will promote these documents as soon as possible and then send them to all members for their comments.

14. During the Vizag meeting in November 2023, it was proposed that Dr. Tasuku Kato would prepare the case studies with the help of Dr. Qi. Dr Tapas Biswas also provided an Australian case study to Dr Kato. The chair will provide further updates at the meeting.

15. **Developing manuals/ standards with respect to NCWR:** Chair Dr. Wenyong Wu is bringing out the Guidelines for Reclaimed Water Irrigation. In January 2023, the Chair circulated the draft of the Guidelines to all members of the working group and invited comments and suggestions. During the Vizag meeting, the Chair informed the WG that the draft version has been finished and is under review. Chair Dr. Wu will present the final version of the guidelines at the meeting.

16. **Capacity building training and workshop:** Capacity building training on "Digital application in the use of non-conventional water resources" - Dr. Tapas Biswas (Australia), Dr. Ashish Pandey (India), Dr. Qi Xuebin (China), and Dr. Tasuku Kato (Japan) volunteered to deliver. The group may like to discuss the training in detail in the upcoming meeting.

WG-NWREP Agenda Item 7: Any Other Business (With Permission of Chair)

17. **ICID Members' Profile Section:** As a new initiative, ICID has launched a new website (https://icid-ciid.org) as part of ICID's 70th Anniversary Celebration to meet the new web technologies. One of the newly added web features provides WG members access to their profile section using their dedicated account. ICID CO vide email dated 9 July 2021 <https://icid.bmeurl.co/C7D4D2E> informed all members on how to access their accounts and change their passwords to maintain accuracy. Members are requested to review and update their information using their credentials and help us to maintain accurate information. For more information, please refer to inside back cover page.

18. **World Irrigation and Drainage Schemes (WI&DS):** ICID has taken the initiative to document the development of irrigation and drainage schemes in the world by establishing an online Register on “World Irrigation and Drainage Schemes (WI&DS)”. WI&DS will fulfil the need for a much-awaited global repository of information in systematic

irrigation and agricultural water management. Irrigation projects having 5000 Hectares and above of Command Area can submit their information for inclusion in the register. The irrigation projects approved by National Committee/ ICID Central Office for inclusion are entitled to Certification. Chair will encourage members to urge all irrigation and drainage scheme owners, managers, and researchers across the world and especially in their respective countries for contributing to the register. The review process and other details are outlined on the portal <https://wip.icidevents.org/ > in detail.

❖❖❖❖❖

NOTES FOR CHAIRPERSON:

1. Draft minutes of this meeting to be submitted to ICID Secretariat at Sydney, Australia after the meeting.
2. Chair to participate and present the WG report to PCTA meeting on 06 September 2024.

Annex 1 [Appendix XI, Item 2]

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

UPDATED 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 of improved and safe use of non-conventional waters.

❖❖❖❖❖

APPENDIX A

CONTINUING WG

WORKING GROUP ON USE OF NON-CONVENTIONAL WATER RESOURCES FOR IRRIGATION (WG-NCWRI)

With the rapid development of the economy and the increasing growth of the population, the shortage of fresh water has become a global problem. Agriculture is the biggest water consumer nearly accounting for 70% of the total water supply worldwide. The use of Non-Conventional Water Resources for irrigation could meet such freshwater shortage. Non-conventional waters consist of reclaimed water, brackish/saline groundwater, raw domestic wastewater, agricultural drainage water, mining water, harvested rainwater, etc. In many developing countries, a major part of the wastewater generated by domestic and industrial sectors is used for crop production in an untreated or partly treated form. The protection of public health and the environment are the main concerns associated with uncontrolled wastewater irrigation. In other words, the quality of the produced food, the consumer safety, and the health of farm workers are of great concern. Other concerns include the salinity and heavy metal accumulation and pollution caused by nutrient leaching. In fact, secondary effluent contains dissolved solids, heavy metals, pesticides, and pathogens that might jeopardize sustainable agriculture, groundwater quality, soil quality/ productivity, and human health, however, the nutrients contained in such wastewater are beneficial for agriculture up to certain concentrations.

It is very important to prevent contamination and reduce contamination risks for NCWRI, therefore, a set of techniques, policies, and strategies must be considered in the process of planning, designing, operation, and management.

Mandate:

(a) Exchanging knowledge, experience, and data as well as networking on the topic in order to be up-to-date with new developments, methods, and approaches; (b) Preparing comprehensive reviews and prospects with respect to different aspects of NCWR; (c) Producing technical manuals, guidelines or standards with respect to all NCWR including wastewater, drainage water, and saline/brackish water; (d) Organizing international workshops, seminars, and meetings on the NCWR topic; (e) Producing documents on successful case studies with the new developments with respect to NCWR presented by the members from different countries; (f) Enlarging the membership of the WG by encouraging more member countries where the use of non-conventional waters is a common practice for irrigation management; and (g) Finalizing the publication of a Technical Paper pending from the activities of the WG-PQW.

❖❖❖❖❖

APPENDIX B

OUTGOING WG
WORKING GROUP ON NVIRONMENT (WG-ENV)

Environmental sustainability is a moving target which evolves as the knowledge of nature increases. There was a time when environment just meant surroundings. It was used to describe the physical world surrounding us including soil, rocks, water, and air. Gradually it was realized that the enormous variety of plants, animals, and micro-organisms on this earth, including human beings are an integral part of the environment. More recently, it has been further recognized that all types of social, cultural, and technological activities carried out by human beings also have a profound influence on various components of the environment.

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 it also had negative impacts on the environment. Similarly, for years, groundwater has served as a resource for supplemental and intensive irrigation. However, in many basins worldwide groundwater is now mined rapidly and quality is deteriorating. The way water in general and water for agriculture in particular is managed has harmed the environment in a variety of ways: groundwater depletion; land degradation and contamination of water; depletion of forest resources; and loss of ecosystem services and biodiversity. ICID has long been concerned with the environmental impacts of irrigation and has been addressing the issues from time to time. The **Working Group on Environment (WG-ENV)** provides guidance on the environmental aspects of drainage and irrigation to policymakers, planners, designers, and managers including its effects on climate and human health. The Group aims at the management of a sustainable environment, maximizing positive and minimizing adverse effects of irrigation and drainage systems.

Mandate:

To provide guidance to policy makers, planners, designers, and managers in the irrigation and drainage sector on the following environmental aspects of irrigation and drainage systems: (i) physical; (ii) chemical, (iii) ecological, (iv) socio-economic, and (v) cultural. To address concerns to the effects on local, regional, and global common goods, such as climate, biodiversity, and human health. To work towards the management of a sustainable environment, through adapted practices, adequate policies and institutions, maximizing positive and minimizing adverse effects of irrigation and drainage systems.

❖❖❖❖❖

Annex 2 [Appendix XI, Item 2]

2.1 MEMBERS OF ERSTWHILE WG-NCWRI			
No.	**Members**	**Country**	**Remarks**
1.	Dr. Wenyong Wu	China	Chair
2.	Dr. Tapas Kumar Biswas	Australia	Vice Chair
3.	Prof. Qi Xuebin	China	
4.	Dr. Chihhao Fan	Chinese Taipei Committee	
5.	Dr. Shu-Yuan Pan	Chinese Taipei Committee	
6.	Dr. Sheng-Wei Wang	Chinese Taipei Committee	
7.	Dr. Mohamed Shaban M. Abu Salama	Egypt	
8.	Dr. Ratan Chand Jain	India	
9.	Dr. Ashish Pandey	India	
10.	Dr. Sunil D. Gorantiwar	India	
11.	VPH Dr. Karim Shiati	Iran	
12.	Dr. (Ms.) Anna Tedeshi	Italy	
13.	Dr. Tasuku Kato	Japan	
14.	Mr. Mohamed Ouhssain	Morocco	
15.	Ms. Jigyasha Rai Yangkhurung	Nepal	
16.	Dr. Muhammad Munir Ahmad	Pakistan	
17.	Dr. Usman Khalid Awan	Pakistan	
18.	Dr. Bilge OMAR	Turkey	
19.	Ms. Senem Yildirim	Turkey	
20.	President Hon. Dr. Ragab Ragab	United Kingdom	
Permanent Observers			
21.	FAO representative		
22.	ICBA representative (UAE)	UAE	

(B) New nominations received from the National Committee/ Committee			
1	Prof. Ping Li	China[1]	Recommended as a member, subject to his presence else provisional member
2	Dr. Li-Chi Chiang	Chinese Taipei Committee	Recommended as a member, subject to his presence else provisional member
3	Dr. Feng-Wen Chen	Chinese Taipei Committee	Recommended as a member, subject to his presence else provisional member

❖❖❖❖❖

2.2 MEMBERS OF ERSTWHILE WG-ENV			
No.	**Members**	**Country**	**Remarks**
1.	Dr. Michael van der Laan	South Africa	Vice Chair
2.	Dr. Seija Anneli Virtanen	Finland	Secretary
3.	Mr. Carl Walters	Australia	
4.	Dr. Fuqiang Tian	China	
5.	Prof. Feng Qian	China	
6.	Dr. Yang Shihong - Young Professional	China	

[1] *Endorsement from the Chinese National Committee (CNCID) is awaited*

2.2 MEMBERS OF ERSTWHILE WG-ENV			
No.	**Members**	**Country**	**Remarks**
7.	Dr. Zha Yuanyuan – Young Professional	China	
8.	Dr. Hao-Che Ho	Chinese Taipei Committee	
9.	Mrs. Shweta Tyagi, Direct Member – India Water Foundation	India	
10.	Dr. Giulio Castelli	Italy	
11.	Dr. Yutaka Matsuno	Japan	
12.	Ir. Mohd Azmi Ismail	Malaysia	
13.	Dr. Javaid Hussain	Pakistan	
14.	Dr. Yury Anatolyevich Mozhaiskii	Russia	
15.	Prof. (Ms.) Eunmi Hong	South Korea	
16.	Dr. Aynur Fayrap	Turkey	
17.	Dr. Ragip Balatli	Turkey	
18.	Mr. Melih Kayal	Turkey	
Permanent Observer			
19.	Dr. Sasha Koo-Oshima (FAO)		

❖❖❖❖❖

Annex 3 [Appendix XI, Item 4]

3.3 ROAD MAP TO ICID VISION 2030 – ACTIVITIES OF WG-NCWRI

Goals/ Strategies	Activities	Outcomes/ Outputs	Milestone for 2019	Milestone for 2020	Milestone for 2021	Milestone for 2022	Milestone for 2023	Milestone for 2024
A7. Strategy: Using Wastewater or Poor-Quality Water for Irrigation	7.1 Compile best practices for sustainably managing and using non-conventional water resources	Case studies				State-of-the-art document on use of NCWR		
	7.2 Contribute to the establishment of national policy for re-use of treated wastewater in irrigation	Position Paper		Publishing a Paper of Reclaimed water irrigation in China				
	7.3 Capacity building training on nonconventional water resources use for irrigation					Digital application in the use of nonconventional water resources	Monitoring soil salt with remote sensing technology	
	7.4 Workshop on use of nonconventional water for food production					Workshop on use of nonconventional water for food production for high value production	International Workshop on Smart Use of Non-conventional Waters for global food security under changing climates, November 2023, Vizag, India	
	7.5 Participate in research on the development of sewage	Guidelines				Reclaimed water irrigation guideline		
	7.6 Guideline document of brackish water irrigation							Brackish water irrigation guideline

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

❖❖❖❖❖

Annex 3 [Appendix XI, Item 4]

3.2 ROAD MAP TO ICID VISION 2030 – ACTIVITIES OF WG-ENV

Goals/ Strategies	Activities	Outcomes / Outputs	Milestone for 2018	Milestone for 2019	Milestone for 2020	Milestone for 2021	Milestone for 2022
Goal A: Enable higher crop productivity with less water and energy							
A6. Strategy: Improving performance of irrigation and drainage systems	6.2 Investigating and documenting positive and negative environmental impacts of irrigation and drainage systems also taking ecosystem services of aquacultures into account.	Guidelines / Case Studies		Structure for review manuscript on ecosystem services of irrigation and drainage	Workshop on ecosystem services of irrigated cropping systems	Published paper on ecosystem services of irrigated cropping systems	Published paper on ecosystem services of irrigated cropping systems
	6.6 Improving communication among country members between annual ICID meetings	Online			1 x WebEx meeting	1 x WebEx meeting	

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

❖❖❖❖❖