

**Minutes of the virtual zoom meeting of
Working Group Modernization and Revitalization of Irrigation Schemes (WG-M&R)
23 August 2021: 15:00 hour (Indian Standard Time)**

Members Present: (1) VPH Ian Makin, Chair (UK); (2) Dr. Dong Bin, Vice Chair (China); (3) Engr. Muhammad Sani Bala, Secretary (Nigeria); (4) Prof. Dr. Tarek Ahmed El-Samman (Egypt); (5) Dr. Sunil D. Gorantiwar (India); (6) Dr. Sanjay Belsare (India); (7) Dr. Mohsen Barahimi (Iran); (8) Dr. Toshihiko Kuno (Japan); (9) Dr. Shinji Fukuda (Japan); (10) Mr. Dinesh Bhatt (Nepal); (11) Ms. Mona Liza Delos Reyes (Philippines); (12) Engr. Reyne B. Ugay (Philippines); (13) Ms. Kwang-Sik Yoon (South Korea); (14) Er. Ashwin B. Pandya, Secretary General, ICID Central Office; (15) Er. Harish Kumar Varma, Executive Director, ICID Central Office.

Permanent Observers Present: (i) Dr. Petra Schmitter (The World Bank); (ii) Dr. Alok Sikka (IWMI);

Observers: (i) Joop Stoutjesdijk (The World Bank); (ii) David Casanova.

1. Confirmation of Agenda

The proposed agenda (Annex 1) was approved.

2. Confirmation of minutes of 22 March 2021 Zoom meeting

The minutes of the previous meeting (Annex 2) were approved.

3. Membership of WG-M&R

The Indian National Committee has nominated Professor Sunil D. Gorantiwar and Dr. Neelam Patel. Chair wrote to the nominees inviting their participation. Dr Gorantiwar contributed during the zoom meeting.

After the zoom meeting, also received nominations from the Chinese National Committee on Irrigation and Drainage (CNCID) - Dr. YaLong Li, Dr. SHI Yuan, and Dr. Di Wu. Chair will write to the nominees to welcome their participation in the activities of the WG.

4. Proposed Schedule of events

4.1. Morocco 2021 – WG meeting, presentation of latest case studies, review of progress of publications, consultation with country delegates on proposed survey of O&M norms and practices

Central Office confirmed the arrangements of the Marrakesh meeting are continuing and the dates are confirmed as 23 to 30 November 2021. An International Workshop, hosted by the WG-M&R, is scheduled for morning of 25th November and the business meeting of the WG is scheduled for the afternoon of 28th November. Central Office will visit Marrakesh in September to finalize arrangements with the organizers and will inform the updates to the members. However, it is likely – given COVID restrictions on travel etc. – that the conference will be a mix of on-site and virtual participation.

Chair summarized the responses from authors to the request for confirmation of paper preparation and potential participation in the Morocco meeting. As many authors have not been able to commit to the paper or participation, Chair proposed that the proposed International Workshop (25 November) be rescheduled as a shorter (90 minute) event with presentations of completed papers either on-site or by video link. Central Office indicated this would be acceptable.

During the virtual meeting, Dr Sunil Gorantiwar and Sanjay Belsare indicated they may be able to prepare a case study on piped irrigation in Maharashtra. Dr Alok Sikka (IWMI) suggested the Maharashtra upgrades may not be ready for reporting on actual outcomes of piped irrigation systems, but IWMI will be ready to assist in evaluating the outcomes.

Joop Stoutjesdijk (World Bank) suggested a potential case study could be developed based on World Bank investment program in West Bengal, including new institutional arrangements for management of the systems involved. A case study may be available for inclusion in the Adelaide or WIF4 event.

Petra Schmitter (World Bank) noted that the Marrakesh workshop would be an opportunity to highlight the INSPIRE network. Central Office supported the proposal to include a formal presentation of the INSPIRE Network.

Action: Ian Makin to (i) contact all authors to indicate the option to participate in-person or virtually and to request submission of completed papers; and (ii) work with Central Office and the Morocco team to finalize arrangements for the International Workshop. A proposed agenda will be circulated to WG members for comments.

4.2. Adelaide 2022 – WG meeting and workshop – publication of results of survey findings, review of progress towards guidelines document

Central Office confirmed the Adelaide meeting has again been rescheduled to 3rd October 2022 in expectation that COVID related travel restrictions will have been eased by then.

The WG agreed to propose an International Workshop on Modernization to the Adelaide team. The workshop would aim to present (i) the findings of the survey (item 3.3) and (ii) an advanced draft of the proposed Guidelines on Modernization (Item 3.1). A call for papers will need to be issued in the next few months to attract abstracts for the event.

Action: Ian Makin to coordinate with ICID CO and Australian organizers to confirm workshop request and to draft call for abstracts with schedule for submission, review, and confirmation of acceptance.

4.3. Beijing – WIF4 – 2023 – International Workshop and publication of Guidelines on Modernization of Irrigation and Drainage

During the March Zoom meeting, the WG agreed that the draft of the Guidelines on Modernization will be presented during the WIF4 in Beijing during an International Workshop. A proposal for the workshop format was to be discussed during the next virtual meeting of the WG including forming an action plan and team to lead the preparations.

Action: Discuss preparation for International Workshop after Marrakesh workshop during the WG business meeting on 28th November.

5. Preparation of publications

5.1. Guidelines on modernization

A draft outline for the proposed publication was circulated to the WG members prior to the Zoom meeting and discussed briefly during the meeting.

Joop Stoutjesdijk highlighted the need for recognize that modernization requires more than canal lining and telemetry; and drew attention to the working teams that the World Bank has working on preparing guidelines on irrigation modernization. Joop Stoutjesdijk indicated that the World Bank teams would be able to contribute to the development of the guidelines content. He also recommended Dr Martin Burton as a potential contributor on asset management processes.

Secretary General Pandya highlighted the need for modernization to include formal change management arrangements to facilitate the transformation of the capacity of irrigation and drainage sector stakeholders through the changes involved in working practices etc. SG Pandya agreed to prepare an initial draft - a section on change management in the context of I&D organizations.

Ms. Mona Liza Delos Reyes (Philippines) requested guidance on the preparation of individual section of the Guideline publication. After a short discussion, Dr Delos Reyes confirmed her interest to be involved in developing the section on Diagnostic Approaches.

5.2. Position Paper on Key Issues on Modernization of Irrigation Schemes

Chair reported that President Ragab Ragab will be making a presentation during the World Water Forum in March 2022. At present, the WG has not be asked to provide additional information for the presentation.

Action – none required at present

5.3. Develop norms of O&M of Irrigation systems

Chair thanked Dr. Mona Liza Delos Reyes for her work in preparing the first draft of the questionnaire for the survey, and the members of the group who provided comments and revisions to the draft circulated earlier. The revised questionnaire was circulated before the meeting.

Central Office proposed to circulate the finalized questionnaire to ICID National Committees in a Google doc format. Secretary General Pandya noted this would enable NCs to further distribute the questionnaire to individual projects or sub-national irrigation agencies, this expanding the potential granularity of information obtained. Joop Stoutjesdijk suggested Central Office consider using KoBo Toolbox (<https://support.kobotoolbox.org/index.html>) as an effective means of distributing the questionnaire and collating the information, including enabling separation of access permissions among people invited to complete different sections of the questionnaire. Central Office agreed to examine alternate survey tools and to convert the finalized questionnaire into a suitable format. Ian Makin agreed to revise the questionnaire template to enable multiple returns from national committees and sub-national units or individual schemes.

The revised and updated survey template is attached (Annex 3) for processing and distribution to ICID NCs.

Action: Central Office to format and circulate the updated questionnaire to all National Committees in a suitable format for electronic submission of responses.

5.4. Condensed overview of Key books, manuals, and Guidelines

Chair noted the list of publications provided by members of the WG. While the titles are useful, before uploading the information on the WG web page, members of the WG are requested to provide a short summary of each publication to indicate it is recommended to people interested in the WG activities and/or modernization.

Action: All members of the WG to provide short write-ups of any titles they propose for inclusion in the list of recommended publications.

6. Multilingual Technical Dictionary

Dr. Mohsen Barahimi (Iran) confirmed that he is working on translation, in to Persian, of the definitions of canal automation submitted to the Task Force on the Multilingual Technical Dictionary (MTD). Ian Makin proposed that Dr. Mohsen Barahimi may wish to represent the WG on the TF-MTD as he is actively working on the MTD definitions.

Action: CO to inform TF-MTD of the proposal for Dr. Mohsen Barahimi (Iran) to join their activities as representative of the WG-M&R.

7. Any other Business

Ian Makin reported that the Nepal NC (NENCID) has requested a presentation on Modernization as part of their regular WEBEX meetings. Ian Makin has agreed to work with NENCID to develop and make the requested presentation during November 2021.



<p>Agenda of the virtual zoom meeting of Working Group Modernization and Revitalization of Irrigation Schemes (WG-M&R) 23 August 2021: 15:00 hour (Indian Standard Time)</p>

(Planned 60 minutes – say 70 minutes for technical difficulties)

Agenda

1. Confirmation of Agenda (2 minutes)

Please inform Central Office and/or Chair prior to meeting if amendments to proposed agenda are wanted.

2. Confirmation of minutes of 22 March 2021 Zoom meeting (2 minutes)

Minutes of previous meeting circulated previously (**Annex 1**) – no comments received. Please forward any comments or revisions to Ian Makin and Central Office

3. Membership of WG-M&R

New nominations as members of the WG have been received. The Chair of the WG has written to each inviting their participation in the activities of the working group ahead of formal consideration of their membership at the 72nd IEC in Marrakesh in November 2021.

The Indian National Committee on Irrigation and Drainage (INCID) has nominated Dr. Sunil D. Gorantiwar and Dr. Neelam Patel (India) for the membership of Working Group.

4. Proposed Schedule of events (10 minutes)

- 4.1. Morocco 2021 – WG meeting, presentation of latest case studies, review of progress of publications, consultation with country delegates on proposed survey of O&M norms and practices

After previous zoom meeting (March 2021) authors of papers submitted for the postponed, Sydney and alternate Morocco 2020, workshop have been contacted to request update on whether they will complete their paper and/or participate in Morocco workshop. **Annex 2** – summarizes responses received.

Meeting to consider how to respond regarding organizing workshop session in Morocco. Central Office to give any update on expectations of the Morocco event.

- 4.2. Adelaide 2022 – WG meeting and workshop – publication of results of survey findings, review of progress towards guidelines document

Date has been revised again – but no change currently required to WG M&R planning for the event.

- 4.3. Beijing – WIF 4 – 2023 – International workshop and publication of Guidelines on Modernization of Irrigation and Drainage

No change currently required to WG M&R planning for the event.

5. Preparation of publications (45 minutes)

5.1. Guidelines on modernization

Originally scheduled for release in Bali based on case studies – postponed allowing assembling of additional case studies. Propose to postpone till WIF 4 in 2023

As agreed at previous meeting proposed contents list for the publication attached for discussion (**Annex 3**).

5.2. Position Paper on Key Issues on Modernization of Irrigation Schemes

Update from CO on any inputs required from WG M&R for ICID inputs to WWF 9 in March 2022.

5.3. Develop norms of O&M of Irrigation systems

Mona Liza Delos Reyes (Philippines) prepared the draft questionnaire which has been circulated previously. An updated questionnaire including revisions based on comments received is shown in **Annex 4**. This is proposed for circulation of ICID members for completion by November 2021 and discussion in Morocco meetings. WG members requested to send their feedback to Chair Ian Makin with a copy to ICID Central Office.

5.4. Condensed overview of Key books, manuals, and Guidelines

Selected titles listed in Annex 4 of minutes of previous meeting (Annex 1) – WG members to share relevant titles with brief review/recommendation to be included in listing/linking on WG M&R web pages.

6. Multilingual Technical Dictionary (5 minutes)

Contributions to MTD specifically related to modernization welcome.

7. Any other Business (5 minutes)



Annex 1 – Minutes of 22 March 2021 Zoom meeting of WG_M&R

**MINUTES OF THE ONLINE MEETING OF
WORKING GROUP ON MODERNIZATION AND REVITALIZATION OF
IRRIGATION SCHEMES (WG-M&R)**

22 March 2021, 16:00 hours (IST)

Strategy Theme: Schemes

Members Present: (1) VPH Ian Makin, Chair (UK); (2) Dr. Dong Bin, Vice Chairman (China); (3) Dr. Chih-Hung Tan (Chinese Taipei); (4) Prof. Dr. Tarek Ahmed El-Samman (Egypt); (5) Dr. Sanjay Belsare (India); (6) Ir. Eko Subekti (Indonesia); (7) Dr. Mohsen Barahimi (Iran); (8) Dr. Shinji Fukuda (Japan); (9) Dr. Toshihiko Kuno (Japan); (10) Dr. Mona Liza Delos Reyes (Philippines); (11) Engr. Reyne B. Ugay (Philippines); (12) Dr. Brian T. Wahlin (USA); (13) Dr. Ir. Petra Schmitter (IWMI-Myanmar); (14) Dr. Alok Sikka (IWMI-India); (15) Er. Harish Kumar Varma, Executive Director, ICID Central Office (India).

Webpage: http://icid-ciid.org/inner_page/117

Confirmation of Agenda (5 minutes)

The proposed agenda (Annex 3) was approved.

Proposed Schedule of events (15 minutes)

Executive Director Harish Varma informed the Working Group that IEC has extended the mandate of the WG to 2023 to enable completion of the work plan.

Morocco 2021 – WG meeting, presentation of latest case studies, review of progress of publications, consultation with country delegates on proposed survey of O&M norms and practices

A short discussion led to agreement that: (i) authors of abstracts selected for the cancelled November 2020 Morocco meeting will be invited to prepare full papers for presentation at the rescheduled November 2021 meeting in Morocco; (ii) WG-MR will host a workshop at the November 2021 Morocco meeting; (iii) a new call for additional papers on modernization in Africa will be issued for the November 2021 Morocco meeting. During the November 2021 meeting delegates will be interviewed about proposed survey on the norms and practices on O&M of irrigation and drainage services adopted in member countries – see item 3.3 below.

Action: Ian Makin to coordinate with Central Office to confirm the International Workshop to be held in November 2021 in Morocco.

Adelaide 2022 – WG meeting and workshop – publication of results of survey findings, review of progress towards guidelines document

The WG agreed to propose an International Workshop on Modernization to the Adelaide team. The workshop would aim to present (i) the findings of the survey (item 3.3) and (ii) an advanced draft of the proposed Guidelines on Modernization (Item 3.1). A call for papers will need to be issued in the next few months to attract abstracts for the event.

Action: Ian Makin to coordinate with ICID CO and Australian organizers to confirm workshop request and to draft call for abstracts with schedule for submission, review, and confirmation of acceptance.

Beijing – WIF 4 – 2023 – International workshop and publication of Guidelines on Modernization of Irrigation and Drainage

The WG agreed that the draft of the Guidelines on Modernization will be presented during the WIF 4 in Beijing during an international workshop. A proposal for the workshop format will be discussed during the next virtual meeting of the WG (July 2021) including forming an action plan and team to lead the preparations.

Action: Discuss preparation for International Workshop in July 2021 virtual meeting.

Preparation of publications (45 minutes)

Guidelines on modernization

The WG agreed that an advanced draft of the proposed ICID Guidelines on Modernization will be prepared in time for review and discussion during the Adelaide 2022 meeting. Key areas for discussion in coming months are: (i) which members of the WG can contribute to preparation of the guidelines; (ii) what format does ICID prefer for the publication (print vs. soft); and (iii) contents and length of guidelines.

Action: Ian Makin to circulate an initial contents list prior to a discussion of the publication during July 2021 virtual meeting.

Position Paper on Key Issues on Modernization of Irrigation Schemes

The position paper, originally proposed for World Water Forum 8 held in Brazil during March 2018, was discussed with a view to deciding whether to prepare a new position paper for the WWF 9 to be held in Dakar, Senegal in March 2022. On balance the members of the WG agreed that this would be an activity that we were not able to include in the current work program. If ICID Central Office wishes the WG to prepare a short statement on modernization and rehabilitation for inclusion in the wider ICID submission this can be considered during the next video call, proposed for July 2021.

Action: Central Office to inform WG if a statement on Modernization is requested.

Develop norms of O&M of Irrigation systems

A brief discussion of the proposed survey of ICID members on the norms and processes adopted for O&M of irrigation and drainage system concluded that it would be appropriate to initiate the proposed survey during 2021 with the intention of finalizing and reporting the results by the Adelaide 2022 meeting. Dr Mona Liza Delos Reyes offered to lead the preparation of a draft questionnaire for review by the WG_MR members, with the objective of having a first draft available by mid-April 2021. Following review and revision by the members of the WG, ICID CO will circulate the questionnaire to all National Committees of ICID with a request for the completed formats to be returned within two months, to enable follow-up discussions with NC representatives during the Morocco (November 2021) meeting and subsequent email and/or video conference calls for clarifications as required. A draft report of the findings would be presented during a workshop in the Adelaide 2021.

Action: Dr Mona Liza Delos Reyes (Philippines) to prepare a draft questionnaire on the norms and processes for O&M of irrigation and drainage systems. The initial draft to be prepared by mid-April 2021. Sanjay Belsare (India), Dr Don Bin (China), and Dr Mohsen Barahimi (Iran) agreed to work with Dr Delos Reyes to draft the questionnaire. Ian Makin to assist as required with the objective of having a questionnaire for sharing to entire WG in early May.

Condensed overview of Key books, manuals, and Guidelines

Members were requested to bring publications of relevance to the mandate of the Working Group to the attention of the WG-MR. An initial list of some relevant publications is given (Annex 4).

Action: All members to share relevant titles with Ian Makin for collation and inclusion in the WG web pages.

Multilingual Technical Dictionary (10 minutes)

Members are requested to consider contributing terms on the topic of Modernization and Revitalization for inclusion in the MTD. Dr Brian Wahlin (USA) previously contributed about 400 words and terms on canal automation. Members may wish to review those terms and provide translations to their own languages.

Any other business (5 minutes)

Ian Makin reported the discussion between IWMI and ICID regarding potential participation in a workshop to be held during the virtual 2021 Stockholm World Water Week on Fish friendly irrigation. Executive Director

Harish Varma explained the current status and that the organizers are waiting to hear whether the session has been approved for inclusion in the program. Petra Schmitter provided links to the publications that form the base for the proposed session, listed below.

Ir. Eko Subekti (Indonesia) expressed interest in the proposed discussion of fish friendly irrigation and is proposed as the point of contact for the WG_M&R if the session approved.

Action: Central Office to inform Ir. Eko Subekti (Indonesia) of details of the session if it proceeds.

Background documents for session topics.

- <http://blog.worldfishcenter.org/2020/12/new-guidelines-ease-the-way-for-fish-friendly-irrigation-systems/>
- <https://digitalarchive.worldfishcenter.org/handle/20.500.12348/4403>



ROAD MAP TO ICID VISION 2030 – ACTIVITIES OF WORK BODIES

Goals/ Strategies	Activities	Outcomes / Outputs	Milestone for Year 2017	Milestone for Year 2018	Milestone for Year 2019	Milestone for Year 2020	Milestone for Year 2021
Goal A: Enable higher crop productivity with less water and energy							
A1. Strategy: Modernizing irrigation systems	1.4 Preparation and presentation of Case studies	Compilation of Case Studies	6 Case Studies	5 case studies presented	9 Case Studies	Selected case studies to address key missing aspects	
	1.5 Prepare an overview paper on State of the Art on Modernization of Irrigation Systems	State of the Art Paper		State of the Art Paper	State of the Art Paper re-arranged		
	1.6 Develop Guidelines for Modernization of Irrigation systems	Guidelines (This to be reviewed and possibly revised in Mexico 2017)			Release Guidelines in WIF3	Release Guidelines	
A2. Strategy: Improving O&M of Irrigation Systems	2.1 Advocacy paper to draw attention to the needs of adequate resources for O&M	Advocacy paper					
	2.2 Develop norms of O&M of Irrigation systems	Technical Report					
Goal B: Be a catalyst for change in policies and practices							
B1. Strategy: Supporting development of appropriate policies	1.9 Prepare position Paper on Key Issues on Modernization of Irrigation Schemes	Position/Policy Paper of ICID				Release in Sydney in 2020	
Goal C: Facilitate exchange of information, knowledge and technology							
C1. Strategy: Providing knowledge and sharing platform for AWM professionals	1.5 Organize Workshops, Seminar and Symposium on modernization	Compilation of proceedings	Main Theme of Congress, Inputs to Congress		Full-day workshop on modernization	Conference Session in Sydney in 2020	
Goal F: Facilitate capacity development							
F4. Strategy: Developing and sharing AWM knowledge	4.4 Condensed overview of Key books, manuals and Guidelines	Book Overview					

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



Online meeting of the WG-M&R - Snapshot of the participants
22 March 2021, 1600 hour (IST)



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WEBEX meeting
22 March 2021 at 16.00 hour (Indian Standard Time)
(planned 80 minutes – say 90 minutes for technical difficulties)

Agenda

1. Confirmation of Agenda (5 minutes)
2. Proposed Schedule of events (15 minutes)
Proposed schedule here will require approval by ICID Management Committee to extend the mandate of the WG.
 - 2.1. Morocco 2021 – WG meeting, presentation of latest case studies, review of progress of publications, consultation with country delegates on proposed survey of O&M norms and practices
 - 2.2. Adelaide 2022 – WG meeting and workshop – publication of results of survey findings, review of progress towards guidelines document
 - 2.3. Beijing – WIF 4 – 2023 – International workshop and publication of Guidelines on Modernization of Irrigation and Drainage
3. Preparation of publications (45 minutes)
 - 3.1. Guidelines on modernization

Originally scheduled for release in Bali based on case studies – postponed to allow assembling of additional case studies. Propose to postpone till WIF 4 in 2023
 - 3.2. Position Paper on Key Issues on Modernization of Irrigation Schemes

Originally proposed for WWF 8 in Brazil (2018) – do we consider it feasible to prepare for WWF 9 (Senegal – March 2022)?
 - 3.3. Develop norms of O&M of Irrigation systems

No work done on this item yet – suggest creating a survey for ICID members to determine current practices and norms in terms of funding, processes, and outcomes as the basis for a supporting annex to the Guidelines. Propose survey in 2021 with follow-up discussions in Morocco 2021 and reporting in Adelaide 2022 – possible workshop.
 - 3.4. Condensed overview of Key books, manuals, and Guidelines

No work done – propose aim to have annex to Guidelines by 2023. Anyone willing to lead review and write up of documents?
4. Multilingual Technical Dictionary (10 minutes)
5. Any other Business (5 minutes)



Publications on Modernization

- FAO – 1996 -- Guidelines for Planning Irrigation and Drainage Investment Projects. Rome
<http://www.fao.org/3/w1037e/w1037e00.htm>
- World Bank – 1998 – ICID - Planning the management, operation, and maintenance of irrigation and drainage systems : a guide for the preparation of strategies and manuals.
<http://documents1.worldbank.org/curated/en/486831467980488680/pdf/multi-page.pdf>
- FAO -- 2007 – Modernizing irrigation management – the MASSCOTE approach
<http://www.fao.org/3/a1114e/a1114e00.htm>
- Wahlin, B., & Zimelman, D. 2014. Canal automation for irrigation systems. American Society of Civil Engineers Manual of Practice 131.
- Wahlin, B., & Zimelman, D. 2018. Canal automation for irrigation systems. American Society of Civil Engineers Manual of Practice 131. ICID World Irrigation Forum 2. Thailand.
https://www.icid.org/wif2_full_papers/wif2_w.1.4.01.pdf
- ADB – 2017 – Irrigation Subsector Guidance Note Building Blocks for Sustainable Investment.
<https://www.adb.org/sites/default/files/institutional-document/238481/irrigation-guidance-note.pdf>
- Blue Peace – 2020 - Improving irrigation water use efficiency: A synthesis of options to support capacity development. http://bluepeaceme.org/images/Publications/Improving_irrigation_water_efficiency.pdf
- World Bank – 2021 - Farmer-led irrigation: the what, why, and how-to guide.
<https://pubdocs.worldbank.org/en/751751616427201865/FLID-Guide-March-2021-Final.pdf>
- Waalewijn, Pieter, Remi Trier, Jonathan Denison, Yasmin Siddiqi, Jeroen Vos, Eeman Amjad, and Mik Schulte. 2020. “Governance in Irrigation and Drainage: Concepts, Cases, and Action-Oriented Approaches— A Practitioner’s Resource.” World Bank, Washington, DC.
<http://documents1.worldbank.org/curated/en/413871567113420542/pdf/Concepts-Cases-and-Action-Oriented-Approaches-A-Practitioner-s-Resource.pdf>



**PREAMBLE:
NORMS AND PROCESSES FOR O&M OF IRRIGATION SYSTEMS**

ICID Working Group Modernization and Revitalization of Irrigation and Drainage (WG-MR) is tasked with producing a report on the norms and practices adopted among ICID members for the operation and maintenance (O&M) of irrigation and drainage systems. As part of the preparations of the proposed report, the WG-MR is seeking information on the organization of O&M for the systems operated by the members. The following questionnaire is designed to provide a snapshot of norms and processes in current use by irrigation and drainage service providers in ICID member countries. The WG-MR hopes to receive the completed questionnaires no later than 1st November 2021 to enable initial analysis before the ICID meeting in Morocco during late November 2021. The initial analysis will be discussed during the meeting of the WG-MR in Morocco and you are very welcome to join those discussions. A draft report on current norms and processes for O&M of irrigation and drainage will be presented during the ICID meeting to be held in Adelaide in July 2022.

Your assistance in completing the questionnaire is much appreciated. Summaries of anonymised results will be provided to all respondents and included in the report of the ICID Working Group on Modernization and Revitalization of Irrigation and Drainage.

The National Committee is requested to complete the questionnaire to provide a summary of national norms and processes for O&M of irrigation and drainage systems. The questionnaire may also be distributed to sub-national irrigation and drainage organizations that can provide information on norms and processes that reflect local or scheme specific situations.

The study is being implemented by Dr Mona Liza F. Delos Reyes (Philippines), Dr Sanjay Belsare (India), Dr Dong Bin (China) and Dr Mohsin Barahimi (Iran) with the support of ICID Central Office, New Delhi. If you have questions or require clarifications regarding the study of norms and processes or the work of the WG-MR please do contact VPH Ian Makin (ianwmakin@gmail.com).



**Norms of O&M of Irrigation Systems
Questionnaire (Draft)**

1. Country and name of organization responding:	
Organization:	
Name of respondent:	
Office and Designation:	
Contact address:	
Country:	
Telephone	
Fax	
Contact email	
1.a Geographic extent this questionnaire response reflects (Check one)	
National Level	
Sub-national (State/Province)	
Individual Project/Scheme	
Private system	

2. Organization profile	Check all that apply	% of irrigated area covered
Type of organization		
Government department		
Semi-public agency/Government corporation		
Government-Private partnership		
Private company		
Individual or independent entity		
Any Changes to organizational structure in past 5 years?		
No Change		
Changed from:		
Changes to:		
Notes/Comments		

3. System types managed by the organization (Check all that apply)	
Irrigation supply	
Drainage	
Flood protection	
Hydropower	
Municipal/industrial water supply	

4. Management and O&M arrangement for Irrigation system		
Total irrigation service area of the country (ha)		
Irrigation system classification (by area)		
	From (ha)	To (ha)
Small		
Medium		
Large		

5. Irrigation system ownership and management			
Ownership	Sole management/O&M by owner	Co-management/O&M	
		Partners ¹	Arrangement ²
National	<input type="checkbox"/>		
State/Province	<input type="checkbox"/>		
Communal (local government, public)	<input type="checkbox"/>		
Communal (local farmers, private group)	<input type="checkbox"/>		
Individual/few farmers (private)	<input type="checkbox"/>		
Commercial Estate (private)	<input type="checkbox"/>		

¹ e.g. Government/irrigation agency, WUA, IA, Private Service provider, *others (specify)*

² PIM, IMT, assisting, *others (specify)*

6. Irrigation system O&M under sole or joint management		
	Sole management	Joint- management
Total number of irrigation systems		
Total irrigation service area (ha)		

6.1. O&M responsibility. (Check as applicable)				
O&M activities	Responsible agency/party			
	Irrigation Agency	WUA	Private service provider	Others (specify)
6.1.1.Headworks				
Dredging dam/weir approach				
Desilting of reservoir/dam intake				
Dam/weir repair/ maintenance				
Gates operation				
Dam/weir safety assurance				
Flow monitoring				
Rainfall/weather data monitoring				
For pumped systems				
Pumps operational/maintenance status				
Pumphouse maintenance/conditions				
Condition of rising mains/control vales				
Condition of prime movers (Engines/motors)				
Condition of electrical services/controls				
6.1.2.Canal Network				
Main conduit: <input type="checkbox"/> canal <input type="checkbox"/> pipe				
Desilting				
Weeding/clearing				
Repair				
Flow distribution supervision				
Flow monitoring/measurement				
Secondary conduit: <input type="checkbox"/> canal <input type="checkbox"/> pipe				
Desilting				
Weeding/clearing				

6.1. O&M responsibility. (Check as applicable)				
O&M activities	Responsible agency/party			
	Irrigation Agency	WUA	Private service provider	Others (specify)
Repair				
Flow distribution supervision				
Flow monitoring/measurement				
Tertiary conduit: <input type="checkbox"/> canal <input type="checkbox"/> pipe				
Desilting				
Repair				
Weeding/clearing				
Flow distribution supervision				
Flow monitoring/measurement				
Farm-level conduit: <input type="checkbox"/> canal <input type="checkbox"/> pipe				
Desilting				
Weeding/clearing				
Repair				
Flow distribution supervision				
Flow monitoring/measurement				
6.1.3. Canal flow control structures				
Main canal				
Water level regulation (checks)				
Discharge regulation (offtakes, turnouts)				
Repair				
Maintenance				
Secondary				
Water level regulation (checks)				
Discharge regulation (offtakes, turnouts)				
Repair				
Maintenance				
Tertiary				
Water level regulation (checks)				
Discharge regulation (offtakes, turnouts)				
Repair				
Maintenance				

6.1. O&M responsibility. (Check as applicable)				
O&M activities	Responsible agency/party			
	Irrigation Agency	WUA	Private service provider	Others (specify)
Farm ditches				
Water level regulation (checks)				
Discharge regulation (offtakes, turnouts)				
Repair				
Maintenance				
6.1.4. Drainage Network				
Gate operation				
Repair				
Maintenance				
Flow monitoring/supervision				

Please specify frequency of O&M activities as: continuous/automatic, hourly, daily, weekly, monthly, seasonally, semi-annual, annual, ad-hoc/as required.

7. Frequency of O&M activities	
O&M activities	Frequency
7.1. Headworks	
Dredging dam approach	
Desilting of reservoir/dam intake	
Dam repair/ maintenance	
Dam gates operation	
Dam safety assurance/inspection	
Flow monitoring	
Rainfall/weather data monitoring	
Pump maintenance schedule	
Electrical control system maintenance	

7. Frequency of O&M activities	
O&M activities	Frequency
7.2. Canal Network	
Main conduit: <input type="checkbox"/> canal <input type="checkbox"/> pipe	
Desilting	
Weeding/clearing	
Repair	
Flow distribution supervision	
Flow monitoring/measurement	
Secondary conduit: <input type="checkbox"/> canal <input type="checkbox"/> pipe	
Desilting	
Weeding/clearing	
Repair	
Flow distribution supervision	
Flow monitoring/measurement	
Tertiary conduit: <input type="checkbox"/> canal <input type="checkbox"/> pipe	
Desilting	
Weeding/clearing	
Repair	
Flow distribution supervision	
Flow monitoring/measurement	
Farm-level conduit: <input type="checkbox"/> ditches <input type="checkbox"/> pipe	

7. Frequency of O&M activities	
O&M activities	Frequency
Desilting	
Weeding/clearing	
Repair	
Flow distribution supervision	
Flow monitoring/measurement	
7.3. Canal flow control structures	
Main canal	
Water level regulation (checks)	
Discharge regulation (offtakes, turnouts)	
Repair	
Maintenance	
Secondary	
Water level regulation (checks)	
Discharge regulation (offtakes, turnouts)	
Repair	
Maintenance	
Tertiary	
Water level regulation (checks)	
Discharge regulation (offtakes, turnouts)	
Repair	
Maintenance	

7. Frequency of O&M activities	
O&M activities	Frequency
Farm ditches	
Water level regulation (checks)	
Discharge regulation (offtakes, turnouts)	
Repair	
Maintenance	
7.4. Drainage Network	
Gate operations	
Repair	
Maintenance	
Flow monitoring/supervision	

8. Management functions (Check all that apply)	
Resource development (e.g. river basins, multiple uses)	
River management (e.g. river works, flood control)	
Irrigation supply (e.g. canals, wells, on-farm)	
Irrigation supply at primary/secondary level	
Irrigation supply at the tertiary/farm level	
Drainage (e.g. drains, collectors, disposal)	
8.1.1. In-field	
8.1.2. area collection, interception and disposal	
Hydropower	
Municipal/industrial water supply	

Water supply at primary/secondary level	
Water supply at the tertiary/consumer level	

9. Record keeping (Check all that apply)	
9.1. Records of capital expenditure	
Total for the year	
By individual systems/structures	
Recorded as current asset value	
Not recorded	
9.2. Records of O&M costs	
O&M costs are recorded/compiled	
O&M costs are audited	
O&M costs are reported externally	
Compiled as a current asset value	
O&M costs are not recorded/compiled	

10. Organization budget and O&M cost	
10.1. Budget allocations (%age) of the organization (past 3 years average)	
Staff costs	
O&M	
Others (please specify)	
Total:	100
10.2. Sources of funding for O&M activities (Check all that apply)	
Government subsidy/budget allocation	
Service charges	
Income from other activities (e.g. rents)	
Foreign grants/loans	

Others (Please specify below):	
Other sources of income:	

11. Determination of O&M costs and budget		
11.1. How are the O&M costs determined? (Check all that apply)		
	Organization level	System level
Based on need	<input type="checkbox"/>	<input type="checkbox"/>
Based on historic expenditures	<input type="checkbox"/>	<input type="checkbox"/>
As percentage of capital value or other amount (specify): _____	<input type="checkbox"/>	<input type="checkbox"/>
Based on increase in the amount of charges	<input type="checkbox"/>	<input type="checkbox"/>
Others (specify): _____	<input type="checkbox"/>	<input type="checkbox"/>
•		
11.2. Are there standard rates/unit costs for O&M being followed for different types of irrigation schemes (Y/N)?		

If the answer to 11.2 is Yes, please complete section 12 by providing the standard rates or unit cost of O&M (please specify currency and year the rates were fixed)

12. Standard O&M rates for year	Year		
12.1. Currency units			
12.2. Spatial units used (ha, acres, other – please define)			
12.3. Irrigation systems classification	O&M unit cost		
By size:	Small	Medium	Large
Canals with manual operation of flow control and measurement structures			
Canals with automatic or remote control / operation of gates and measurement structures			
Piped network with manual/in-situ operation of flow control and measurement structures			

Piped network with automatic or remote control /operation of gates and measurement structures			
Other classification (please specify)			
By type of water source:	Storage¹	Diversion ²	Pump³
Canals with manual operation of flow control and measurement structures			
Canals with automatic or remote operation of gates and measurement structures			
Piped network with manual operation of flow control and measurement structures			
Piped network with automatic or remote operation of gates and measurement structures			
Other classification (please specify)			

¹ Reservoirs, tanks, ponds, natural wetlands (e.g., dambos); ² Run of River, barrages, weirs; ³ Pumps, including groundwater wells.

12.4. Who determines the following aspects of O&M?			
Item	Organization itself	Higher/regulating authority	Other or agency or factors (<i>specify</i>)
A. O&M needs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> _____
B. Budget of O&M expenditures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> _____
C. Approval of budget	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> _____
D. Actual availability of O&M funds	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> _____
E. Allocation of funds between capital works and O&M	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> _____
F. Level of salaries/wages	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> _____
G. Authority for purchase	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> _____
H. Identification of supplies and contractors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> _____
I. Rates to be paid to supplier contractors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> _____
J. Other (please specify)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> _____

13. Basis for the determination of the O&M items on 12.4		
	None	Yes (specify the letter from 12.4)
Performance assessment	<input type="checkbox"/>	<input type="checkbox"/> _____
Pre-determined standards or yardstick	<input type="checkbox"/>	<input type="checkbox"/> _____
Accountability to users	<input type="checkbox"/>	<input type="checkbox"/> _____
Negotiations	<input type="checkbox"/>	<input type="checkbox"/> _____
Competitive tendering	<input type="checkbox"/>	<input type="checkbox"/> _____
	<input type="checkbox"/>	<input type="checkbox"/> _____

14. Adequacy of funding and priority expenditures		
14.1. Adequacy of available funding	Not Adequate	Adequate
Funding adequate to meet the O&M cost		
Any profits from O&M activities being return by the Organization		
Any profits channelled to Capital fund		
Any profits channelled to Government		
Any profits channelled to other entity or expenditure items. If Yes, please spec		
14.2. Priority expenditures in case of shortage of funds		
	Ranked priority*	
By type of activity		
Routine operation		
Maintenance work		
Efficient water management		
System safety		
By category of expenditure		

14. Adequacy of funding and priority expenditures	
Staff salaries, workforce	
Utilities	
Replacements of parts	
Supplies	
Contractors, consultants	
Others (specify)	
By function	
Resource works	
River works	
Distribution	
On-farm	
Drains	
Drainage disposal	
Monitoring, general administration	
Others (specify)	

*1 being the highest priority; If some items have equal priority, give the same rank

15. Service charges (Check all that apply) <i>If no water service charges apply – please state Not Applicable (N/A) to Question 15.1 and add further comments/explanations in Question 16 below.</i>			
	Water supply	Drainage	Flood protection
15.1. Service fees charged for:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.2. Charging entity			
• Your organization	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Farmers'/ water users' group	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Other agency (specify)	<input type="checkbox"/> _____	<input type="checkbox"/> _____	<input type="checkbox"/> _____

15. Service charges (Check all that apply) <i>If no water service charges apply – please state Not Applicable (N/A) to Question 15.1 and add further comments/explanations in Question 16 below.</i>			
	Water supply	Drainage	Flood protection
15.3. Expected payor of fees			
• Landowner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Tenant farmers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Water users' group	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Other beneficiary (specify)	<input type="checkbox"/> _____	<input type="checkbox"/> _____	<input type="checkbox"/> _____
• Other agency/organization (specify)	<input type="checkbox"/> _____	<input type="checkbox"/> _____	<input type="checkbox"/> _____
15.4. Collector of charges/payment			
• Your organization	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Farmers'/ water users' group	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Other agency (specify)	<input type="checkbox"/> _____	<input type="checkbox"/> _____	<input type="checkbox"/> _____
15.5. Destination of collected fees			
• Your organization's O&M fund	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Your organization's general revenue	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Government general revenue	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Somewhere else (specify)	<input type="checkbox"/> _____	<input type="checkbox"/> _____	<input type="checkbox"/> _____
15.6. Basis for setting the charges			
• Historic level	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Historic level plus increase for inflation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Average cost pricing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Marginal cost pricing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Opportunity cost	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Evaluation of benefits	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Appreciation in land value	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Perceived affordability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Others (specify)	<input type="checkbox"/> _____	<input type="checkbox"/> _____	<input type="checkbox"/> _____
15.7. Method of individual assessment			

15. Service charges (Check all that apply) <i>If no water service charges apply – please state Not Applicable (N/A) to Question 15.1 and add further comments/explanations in Question 16 below.</i>			
	Water supply	Drainage	Flood protection
• Land area	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Crop area	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Permit for abstraction or discharge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Size of channel or pipe	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Measured discharge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Duration of irrigation delivery	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Volumetric measurement	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Drainage/flood protection provided	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Combination of the above methods (specify)	<input type="checkbox"/> _____	<input type="checkbox"/> _____	<input type="checkbox"/> _____
• Others (specify)	<input type="checkbox"/> _____	<input type="checkbox"/> _____	<input type="checkbox"/> _____
15.8. Assessor of charges			
• Your organization	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Farmers group	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Other agency/organization (specify)	<input type="checkbox"/> _____	<input type="checkbox"/> _____	<input type="checkbox"/> _____
15.9. Assessment method/tools			
• Estimate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Measurement by an observer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Measurement by using an instrument	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Other method/tool (specify)	<input type="checkbox"/> _____	<input type="checkbox"/> _____	<input type="checkbox"/> _____
15.10. Frequency of assessment			
• Annual	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Seasonal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Continuous	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Others (specify)	<input type="checkbox"/> _____	<input type="checkbox"/> _____	<input type="checkbox"/> _____
15.11. Level of direct charges to any indirect charges			

15. Service charges (Check all that apply) <i>If no water service charges apply – please state Not Applicable (N/A) to Question 15.1 and add further comments/explanations in Question 16 below.</i>			
	Water supply	Drainage	Flood protection
• No indirect charges	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Some indirect charges but insignificant	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Significant indirect charges (specify)	<input type="checkbox"/> _____	<input type="checkbox"/> _____	<input type="checkbox"/> _____
15.12. Collector of direct charges			
• Your organization	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Other agency/group (specify)	<input type="checkbox"/> _____	<input type="checkbox"/> _____	<input type="checkbox"/> _____
15.13. Normal frequency of direct charges collection			
• Annual	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Monthly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Others (specify)	<input type="checkbox"/> _____	<input type="checkbox"/> _____	<input type="checkbox"/> _____
15.14. Payment methods for direct charges			
• In cash	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• In kind	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• E-cash by cell phone/internet			
• Bank deposit and/or transfer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Others (specify)	<input type="checkbox"/> _____	<input type="checkbox"/> _____	<input type="checkbox"/> _____
15.15. Percentage of charges successfully collected			
• As percentage of the total assessed	<input type="checkbox"/> _____ %	<input type="checkbox"/> _____ %	<input type="checkbox"/> _____ %
• As percentage of the actual funding of O&M	<input type="checkbox"/> _____ %	<input type="checkbox"/> _____ %	<input type="checkbox"/> _____ %
15.16. Any exemption from charges (specify)			
• No exemptions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Yes (specify exemption)	<input type="checkbox"/> _____	<input type="checkbox"/> _____	<input type="checkbox"/> _____
15.17. Sanctions for non-payment of charges			
• Cutting of service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Legal proceedings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

15. Service charges (Check all that apply) *If no water service charges apply – please state Not Applicable (N/A) to Question 15.1 and add further comments/explanations in Question 16 below.*

	Water supply	Drainage	Flood protection
• No sanctions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Others (specify)	<input type="checkbox"/> _____	<input type="checkbox"/> _____	<input type="checkbox"/> _____

16. Please add any other relevant information/Comments below or on additional sheets.

Thank you for your cooperation in completing this questionnaire. Summaries of anonymised results will be provided to all respondents and included in the report of the ICID Working Group on Modernization and Revitalization of Irrigation and Drainage

