Presentation on Strategy Theme ‘Knowledge’

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1. Technical activities of ICID are organized under four Strategy Themes viz. Basin, Systems, On-farm and Knowledge. In order to give a new thrust to the activity of imparting latest knowledge to professionals working in the area of irrigation, drainage and flood management, this note examines the efforts being made by various ICID workbodies in Knowledge Management. This note is an attempt to review the process of knowledge management to improve upon one of the main objectives of the Commission.

Strategy Theme “Knowledge”

2. Strategy theme “Knowledge” essentially covers four working groups: EB-JOUR, C-PR&P, WG-HIST, TF-VE, and TF-WWF7. The note looks at the functioning of these WGs. Knowledge, however, is spread across all working groups. Therefore, the note also explores the activities of other ICID WGs from knowledge management perspective.

3. As the world struggles to meet the food demands of a rapidly growing population and tackle water scarcity problems under highly variable climate change scenarios, Irrigation and Drainage assumes enhanced role. ICID provides a platform for the professionals and policy makers from different countries engaged in irrigation drainage and flood management for interaction and exchange of experience and knowledge.

4. Managing the knowledge process is the key to the success of any professional network like ICID. Fast changing technologies influence the knowledge process and present a challenge on one hand and an opportunity on the other. It is crucial that generation, extraction consolidation/compilation, synthesis, packaging and dissemination of information and knowledge in the field of irrigation, drainage and flood management is given the right priority it deserves in order to fulfill the mission of ICID. The latest tools presented by the Information Technology need to be appropriately used to achieve the objective.

5. The various Working Groups of ICID, through their activities help generate, extract, compile, and synthesize the available knowledge. At the same time ICID technical Working Groups compile some of the knowledge in the form of reports, manuals and guidelines. These outputs are publicized on their respective web pages so as to make the information available to all interested. Some of the chairs and members of the workbodies use their website as an effective way for dissemination of this knowledge.

6. Central Office is facilitating the sharing of this knowledge across a wide spectrum of stakeholders by making use of ICID Web pages. Initiatives have been taken to help members to get the latest information and to meet the growing requirements of the professionals. Some of the efforts that are being made by the Central Office in this direction are described in pamphlet “New Services from ICID Central Office”.

Review of activities of WGs under Strategy Theme “Knowledge”

7. That there exist gaps in global efforts in dissemination of knowledge is borne out by the existence of instances where highly useful and practical innovations did not succeed due to lack of dissemination of knowledge about appropriate techniques. Presently a lot of innovations and knowledge is available which does not reach the stakeholders concerned. It is necessary to ensure that this knowledge is tailored to the needs of irrigation professionals other inter-mediares such as extension service personnel and NGO volunteers, who can help the farmers in their efforts to generate more income per unit of water and land. It is therefore essential that the available knowledge is widely shared and transferred, particularly on the outcomes of the latest researches being made in the fields of irrigation and drainage to the end users at the field level. The efforts made by ICID in this direction over the years in order to meet the objectives and mission of ICID are briefly analyzed.

8. The Journal of the International Commission on Irrigation and Drainage is being published by Wiley-Blackwell under full editorial responsibility of Editorial Board (EB-Jour) of ICID. It is a publication that directly addresses the agriculture water management and flood management. The potential impact of the Journal on the transfer of technology is large and in the academic circles it has established itself as a prestigious Journal. EB-Jour, within its given mandate, is performing its functions effectively. The circulation of the Journal is unknown but its impact factor is satisfactory. The Journal is available in both hard as well as electronic form to readers through various mechanisms. It is also made available to a wider readership of professionals/researchers from developing countries through programme Research4Life as well as AGORA (agora@fao.org) and OARE (oare@oarescience.org).

9. Besides dealing with all relevant procedural issues concerning the publications of ICID, the Committee on Public Relations and Publications (C-PR&P) is required to identify the audiences and their interests and suggest the appropriate type of communication. The Committee should formulate a policy and evolve guidelines which encourage production of those publications which have the potential to help professionals to
acquire the latest knowledge through good practices available in different countries. The publication of Manuals that can directly be applied in the field should, therefore, command higher priority.

10. The Working Group on History of Irrigation, Drainage and Flood Control (WG-HIST) has worked over the years to motivate ICID National Committees in various countries to set up their national working groups and provide guidance to compile, publish, update and/or translate documents on history of irrigation, drainage, flood management, and river engineering. The Group should also identify and highlight the works of excellence which can help in educating the professionals about the ancient and traditional knowledge and practices and have the potential to motivate them to excel in their work. The Working Group should draw lessons from the process of recognition of Heritage Irrigation Structures (HIS) and disseminate them.

11. The Task Force on Value Engineering (TF-VE) established in 2012 for a period of three years is mandated to promote the application of Value Methodology (Value Engineering, Value Analysis, Value Planning, Value Management) in irrigation, drainage and flood management projects to increase benefits, reduce cost and ensure sustainable irrigated agriculture. However, the TF has not attracted much interest from Members and the membership has remained below five during the last three years. Value Engineering is a TOOL and as such this tool needs to be developed so far as Irrigation, Drainage and Flood Management field are concerned. The TF, with limited interest from the members cannot be expected to develop such a Tool. The TF should therefore be wound up and the activity of developing this tool for Flood Management may be taken up by WG-CAFM if the members of the Group so desire.

Knowledge activities under various Strategy Themes

12. Exchange of knowledge among the members of the working groups is one of its mandate. However, dissemination of the knowledge in the form of best practices needs improvement. Knowledge management activities undertaken by WGs under other strategy themes are briefly analyzed in Annexure.

13. The multi-lingual Dictionary for Irrigation and Drainage related terms is an important contribution by ICID wherein almost all the technical WGs make important contributions. The latest version of the dictionary was revised in 2010 with an electronic version made available on DVD. Unfortunately, with the new version coming into existence, the translations of the earlier versions of the dictionary in to other languages such as Italian, Russian, Arabic, Turkish etc have lost the synch. The 2010 version of the dictionary failed to make use of the technology to enable the dictionaries in the other languages to keep pace with the new version. It is also for consideration whether, in today’s IT scenario there is need to included sections that belong to other specialized fields such as Hydrology, Construction Technology, Computer, etc. Perhaps it would be appropriate for ICID to concentrate on terms that are closely related to our main subjects: irrigation, drainage, flood management and river training. This will make the revision of dictionary easier and prompt. It is also for consideration for each of the WG to revisit the terms once every three years and recommend changes, if any, to a standing sub-committee on terminology under PCTA.

Recommendations

14. In order to address a wider readership, particularly attracting stakeholders working in related sectors and at grass root level, it is necessary to widely disseminate the outcomes or conclusions of the deliberations of ICID technical events, policy papers, technical articles in a layman’s language by publishing/ converting some of the them in to articles in language that is easy to understand with focus on promoting “state of art” knowledge to users in planning, design and field applications.

15. Proposals to improve the Strategy Theme "Knowledge“ following recommendations are made:

(a) Publication policy of ICID may need to be revisited
(b) WG on Education and Training needs to be established
(c) ICID should organize special tailor made trainings on subjects of general interest
(d) E-Learning through, webinars and e-courses should be developed
(e) Setting up mechanism to review Multi Lingual Irrigation and Drainage Dictionary
(f) The WGs should bring out publications based on their work particularly addressing non-professional or lay stakeholders.
(g) National Committees should make better use of and enrich the Integrated Library Information System (ILMS)
Analysis of Knowledge Management Activities of Different Working Groups

16. The Working Group on Global Climate Change and Agricultural Water Management (WG-CLIMATE) is mandated to review the progression of and predictions of Global Climate Change (GCC), to explore and analyse the medium term implications of climate change and variability for irrigation, drainage and flood control, to stimulate discussion and raise awareness of water-related GCC issues within ICID family, to stimulate discussions at national scale among scientists, policy makers and through the media, the general public on GCC and water and to join international dialogue on GCC and water. The group organized an international workshop on ‘Management of Water, Crops and Soils under Climate Change’ held at Mardin, jointly with WG-CROP. The WG has also initiated a work plan to prepare a note on the technical aspects of ‘Adapting Irrigation and Drainage to the Impacts of Climate.’ This is a step towards knowledge management which will be of great help. The recent WMO.ICID MOU in respect of the Global Framework for Climate Services (GFCS) which was established by the UN System under the leadership of the WMO to provide relevant climate related information to national users is another effort to take advantage of the knowledge available in specialized organization for the benefit of ICID community because the GFCS focuses on four priority areas i.e. agriculture and food security, disaster risk reduction, health, and water which are areas of direct relevance to ICID. WG on Climate should work towards generating knowledge through collaborative mechanisms at regional and national levels between climate service providers and stakeholders from water and agriculture sectors.

17. WG-CAFM has the mandate to identify and disseminate the knowledge about the various structural and non-structural measures of flood management, and to study their social, political and economic impacts etc. The WG is planning to publish a document titled ‘Adaptive Flood Risk Management’ based on workshop papers and country presentations on floods, internal presentations and other sources. It is necessary to ensure that the publication is not just a compilation of practices of different countries but should give guidelines on proper flood management strategies. The earlier publication of the preceding working group “Non Structural Approach to Flood Management should also be integrated with this publication to make it a comprehensive reference work on knowledge in Flood Management including discussions on the field experiences of the implementation of disaster management strategies in flood disaster prone countries.

18. The WG-DROUGHT is mandated, interalia, to work on Drought Management Strategies and to capture field experiences on their implementation as well as coping with water scarcity. It is also expected to carry out critical evaluation of the validity of the crop water requirement computations based on climate data as a tool to be used in coping with water scarcity. The Group has recently organized an International Workshop on ‘Developing Management Strategies for Coping with Drought and Water Scarcity’ at Mardin. The WG has decided to bring out a single publication. Most of the countries in developing world are faced with the problem of water scarcity and drought. This would become more acute due to expected adverse impacts of climate change. The proposed publication can be a valuable asset in our aim of knowledge management if it can present a viable and effective strategy based upon available information from different countries.

19. The Working Group on Environment (WG-ENV) has been, interalia, mandated with the task of providing guidance to policy makers, planners, designers, and managers in the irrigation and drainage sector on the environmental aspects of drainage and irrigation systems. Agricultural return flow and requirement of environmental flow is an important subject on which practices differs from country to country. The group has been able to get information in respect of European countries for which a publication indicating guidelines is under preparation. The group is trying to collect existing practices in member countries which can become source material in addition to material available in public domain for preparation of appropriate guidelines for developing countries.

20. Another important topic being discussed is the “Environmental aspects of irrigation and drainage projects; Management of a sustainable environment (maximizing positive and minimizing adverse effects of irrigation and drainage systems”. It is felt that the group should aim to project the positive impacts of irrigation, for example, in groundwater recharge, flood water retention and paddy field multi-functionality. This can be done by suitably designed pamphlets which can be used by both electronic and print media. This topic needs extensive efforts at knowledge management as there are strong lobbies all over trying to derail efforts at new irrigation development citing adverse ecological and environmental impacts.
Annexure to Annex 5

21. The Working group must concentrate mandate on the important task of collecting information about the environmentally sustainable tidal area development activities around the world; and to review the progress of natural wetland conservation and constructed wetland development in tidal areas; The working group is also required to join the international dialogue and organize international conferences to promote land and water management in tidal areas as well as evaluate the feasibility of tidal energy exploitation under global climate change; and to facilitate the exchange of relevant experiences amongst NCs and provide support for developing, and least developed countries.

22. WG-SDTA had arranged the publication of a Special Issue of ICID Journal-Irrigation and Drainage in 2013 titled “Sustainable Water and Land Management in Tidal Areas” which was available online. The working group has also organized Internal Workshop on ‘Environmental Impacts and Sustainable Management of Tidal Areas’ in 2013 and another International workshop on ‘Sustainable Management of Tidal Areas in the Era of Climate Change’ in 2014. These are important steps aimed at Knowledge Management which should ultimately result in bringing comprehensive guidelines for the sustainable development of Tidal areas. As part of efforts at dissemination of available knowledge and capacity building the working group has rightly planned a publication on this subject.

23. The Working Group on Drainage (WG-DRG) mandated with the task to promote drainage as part of integrated water resources management; and to promote sustainable approaches for drainage and related projects through a balanced integration of environmental, economic, social and cultural aspects. The group has brought out a DVD titled ‘Agriculture Drainage Digest’ with active support of the Central Office. The DVD includes proceeding of all past IDWs, ICID publications related to drainage, special workshops, special issue on drainage of the ICID Journal, select publications of Compilation of experiences in bio-drainage and bio–saline agriculture the World Bank, ILRI, FAO, etc. The DVD Compilation of experiences in bio-drainage and bio–saline agriculture. This is a laudable effort at knowledge management which can inspire similar action by other working groups also.

24. Working Group on Water Saving for agriculture (WG-WATS) has the mandate: “To recognize proven water saving success and to identify and promote successful water conservation”. Besides discharging its responsibilities in respect the watsave awards, the group has published three publications on watsave activities in member countries and included a few watsave case studies and new techniques employed with success in saving water use for growing crops.

25. As irrigated agriculture sector is the major consumer of water and faces great competition from other sectors it is necessary to bring out a publication which can help cut down quantum of water use without sacrificing the area or crop yield, It is necessary to compile the examples and after critical review present the methods in easy to understand format for use by irrigation professionals and farmers in the field particularly in water short countries. The watsave award winners have also presented a few techniques and other source materials on the subject which can be a valuable source material for knowledge dissemination for the benefit of irrigators and policy makers in member countries.

26. Working Group on Water and Crops (WG-CROP) has been mandated to promote the efficient use of water in crop production, to provide input to test crop water models, to investigate the use of energy crops for bio-fuel production, to develop techniques for rainfall harvesting, to promote the multifunctional use of water in paddy (rice) cultivation, to investigate the adaptation of agriculture to climate change and to promote low input agriculture.

27. It is desirable to bring out separate publications on each of the following topics which will be an important effort at knowledge management.

   (a) Precision Agriculture: Promote the efficient use of water and low input in crop
   (b) Multi-functionality to water use in paddy (Rice) cultivation
   (c) Management of Agriculture under Climate Change

28. Working Group on Use of Poor Quality Water for Irrigation (WG-PQW) is required to promote a safe and good management of poor quality water for irrigation, to minimize the negative impact on human health and the environment, to promote the multiple use of poor quality water, and to give consideration to the institutional and legislation aspects with regard to the use of poor quality waters. The publication of its output in a various forms - Technical papers for peer reviewed journals, technical notes, non-technical notes and manual for SALTMed model software.is under active consideration The type of publication will be decided once all the reports received by the Chairman.
29. The Reuse of saline drainage water for irrigation and use of Poor Quality Water, in general, for irrigation of suitable non-food crops like Biofuel Crops have assumed great urgency in water stressed countries of developing world. The use of degraded lands for growing biofuel crops has also been tried in some countries and advocated. ICID is in a unique position to compile case studies and experiences of the countries in this area for guidance of water stressed countries who are keen to use waters of poor quality for agriculture to meet rising demands of water for domestic and industrial sectors in addition to irrigated agriculture.

30. Working Group on on-Farm Irrigation Systems (WG-ON-FARM) is mandated to promote on-farm irrigation as part of integrated water resources management, and to promote sustainable efficient approaches for on-farm irrigation. As micro irrigation techniques have an important role to play in the efforts to achieve savings in water use the group has made sustained efforts to compile the data on areas under drip and sprinkler irrigation in the world. This is an important step towards knowledge management. During its meetings several papers are discussed where new and usable techniques are presented in micro irrigation and for achieving improved efficiency of water application, in the last meeting a paper on “Improvement of the On-Farm Irrigation Systems Using Simple Water Control, Measuring and Application Devices” was reported to be ready as also a few others like the “Micro irrigation for stallholders and greenhouses”, “The performance of Moist Tube irrigation” “Improved efficiency of irrigation water use: A South African framework” The valuable information and data culled out from such papers presented during the past sessions of this group and other groups like WG-WatSave, WG Crop etc. need to compiled and presented in a comprehensive manner which can serve as a complete guide on latest and viable water saving techniques both under micro irrigation as well as surface application methods using surface flows or ground waters to achieve efficient use of water for cultivation of crops.

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