

**Presentation on the Strategy Theme
(ON-FARM)**

Dr. Saeed Nairizi
Vice president, ICID

**55th Meeting of the ICID
International Executive Council
Moscow, September 2004**

Introduction

A Joint Task Force consisting of the chairs of PCSPOA and PCTA was set up with the assignment of reviewing the arrangement of ICID workbodies allocated in four themes.

The aim of such a revision was to provide a better balance of different workbodies activities within a specified theme.

During the 53rd meeting of ICID work bodies and technical committees, the recommendation of this TF, after careful deliberation at PCSPOA meeting, was finally approved by IEC. The technical activities of ICID were then rearranged in four following themes :

- Basin
- System
- On- Farm
- Knowledge

According to this reorganization the theme On-Farm now comprises of following workbodies.

- ON-FARM
- CROP
- PQW

Theme ON-FARM

The main purpose of all agricultural activities is indeed attributed to the food production. Irrigation in particular, is playing an important role in this process, and it is justified economically and socially where and as long as it makes a substantial contribution to the final yield of crops. It should be noticed that low productivity of irrigation water and other agricultural inputs as a result of mismanagement or other practical deficiencies at farm level will, certainly, result in poor irrigation scheme performances, regardless of how well the water at the upstream of the systems are managed. On the other hand, performing reasonable On-Farm practices may even compensate to a great extent any malfunctioning of the upstream works.

Without attempting to disregard the importance of other ICID technical activities. It seems very proper for us to pay more attention and concentrate on ICID workbodies efforts towards the issues, which will mostly concern the problems associated with On-Farm production. These issues should particularly address the encountered difficulties in developing countries, where more than 70% of global irrigated land exists, and the farmers often live with their strong traditions and little access to the appropriate sources of knowledge to improve their livelihoods.

Here we face with a great challenge, since there are many different elements with complex natures at farm level, which would contribute to the success of crop production such as, biological responses of crops and microorganism, human intervention through agricultural management and practices, using appropriate science and technology, natural and environmental effects and some other minor elements. Some of these elements can be manipulated towards higher production by reasonable efforts and investment and some are really time and money consuming and with low impact on yield improvement, and there are certainly other inputs, which are considered beyond our control, or very little we can do about it to get them to the benefit of crops output.

The other problems associated with the success of agricultural production at farm level, particularly in developing countries, are the people whom we are dealing with. The upstream water works and related structures in these countries, are generally managed by government agencies or reasonable trained private sectors. These entities usually employ qualified personnel for operating their technical and managerial activities, while the farmers who are working at farm level are generally not equipped with updated knowledge of farming. They may also suffer from lack of appropriate equipments and most important, they usually face with financial problems for new investment and proper maintenance of their systems. Therefore, their problems might be quite different with the problems associated with the farmers in developed countries.

It is also worth mentioning that, the WG members under theme of On-Farm, and indeed other ICID working groups, should ensure that the outcomes of their respective workbodies as a compiled and enhanced knowledge of agricultural practice at farm level are being effectively disseminated and contemplated by the end users, who are really targeted by our activities.

I presume it is now an appropriate time to embark on a worldwide survey at farm level, in developing countries where the main bulk of irrigated agriculture exists, to comprehend the major On-Farm constraints in crop production process, and also evaluate our success so far in conveying present and past messages to the farmers, in these regions of the world.

The outcomes of such a survey will, hopefully, provide us with the real demands at farm level towards improvement of irrigation and hence agricultural practices in major developing countries, from which we may be able to program and prioritize our activities to accommodate some of these needs.

International regulating bodies and funding agencies, interested and involved in global food security issues, should be strongly requested by ICID to support the activities of related working groups in this respect. This support could be adapted through pilot project implemented by concerned agencies and supervised by National Committees and related workbodies.

The workbodies should facilitate this collaboration by providing a framework for actions, which can be, a base for further negotiation with the support agencies.

Review of Mandates of Working Group Under Theme On-Farm

In the process of reviewing the grouping of workbodies, there were no change suggested for the working groups under the Theme of On-Farm, and even its name remain unchanged. Conceptually any promotional plan and review of ICID activities within the framework of On-Farm practices should be considered under this theme. The scope of the job is therefore quite broad, from agro- pedo climatic condition and their interactions to the technology and management of irrigation water application. The combination of the 3 working groups under theme On-Farm are a fair blend of almost all activities within On-Farm practice. However, there are certainly gaps and some missing items, such as socio-economic aspect of On-Farm irrigation practices, irrigation water quality, appropriate technology for small land holder in developing countries, and some other, which will be discussed in the following paragraphs.

Working Group on Sustainable Use of Natural Resources for Crop Production (WG-CROP)

The mandate of this working group should cover related aspects of soil- crop- water and environment and their interactions for sustainable crop production. The scope of activities envisaged in the mandate of this WG complies with such a mission. However considering the fact that millions of people worldwide live in dry regions with little rainfall, and their welfare is highly dependent on the extent that rainwater is used wisely, particularly for crop production. As such, attempts to improve water productivity in these areas under dry farming can serve many countries around the globe, particularly the developing ones facing water scarcity. Therefore, I suggest that the mandate of WG-CROP could be supplemented by searching for proper answer to the question of rain fed agriculture under water scarcity condition.

Working Group on On-Farm Irrigation system (WG-ON-FARM)

The mandate WG-ON-FARM was the result of the merger of two working groups of Micro and Mechanized Irrigating System. There are certainly missing items in the mandate of this WG concerning socio- economic implication of adapting new technology to the existing traditional irrigation practices, particularly in developing countries, where small scale farming might be dominant. Therefore I suggest that the terms of socio-economic implication of technology adaptation be added to the existing mandate of this working group.

Work Team on Use of Poor Quality Water for irrigation (WG-PQW)

Ever increasing demand for irrigation water is forcing the farmers and, to some extent even the upstream decision makers, to use any type of available water, with different quality, for irrigation purposes. But such consumption should be contemplated within a framework of understanding of its economical and environmental consequences. In order to consider the broader scope of irrigation water quality in the process of sustainable crop production, I recommend converting this Work Team into a Working Group on Water Quality and Sustainable Crop Production.

Current statuses of Working Group Under theme ON-FARM

In this section, I shall explain, briefly, the commitment of WGs under theme ON-FARM during past 5 years, towards their aims and objectives.

Working Group on Sustainable Use of Natural Resources for Crop Production (WG-Crop)

This WG has been heavily involved in organizing and conducting technical workshops under the following topics in the last 5 years:

- Sustainable irrigation in area of water scarcity and drought
- Assessment of adverse impact of using fertilizers and agro- chemical
- Crop water management for food production under limited water supply
- Irrigation Advisory Services and participatory extension in irrigation management
- Use of remote sensing to estimate evapo-transpiration for large region
- Water saving practices in rice paddy cultivation

This Working Group has been also attempting to provide documents related to a part of ICID strategy on vision as below:

1. Factors influencing regional variation in productivity of crops such as Rice, Wheat, Maize, Potato, Sugarcane. Sub-Topics as "Increasing water use efficiency" and especially "Methods to reduce evaporation losses while maintaining transpiration and production" should be included under this topic.
2. "Biotechnology to develop drought resistant varieties" and "Impacts of development and use of genetically modified crops/crop products".
3. "Integrated Crop Pest Management (ICPM) by biological control".
4. "Organic Farming.
5. "Compilation of statistical data on area irrigated under major crops in member countries".
6. "Agro-hydrology and irrigation efficiency".
7. Application of remote sensing in estimating the crop water requirements.
8. Effective rice water management.

The topics of aforementioned workshops and ICID strategy on vision demonstrate quite a good coverage of the activities mandated for WG- CROP. But the output of these events have not been properly summarized and documented for further consideration and dissemination. I believe it is an appropriate practice for the members of workshop technical committees to provide an executive summary and recommendation for each workshop by the time of its execution. These documents may contain the new findings and approaches to the related topics, which can be a base for recommendation or conducting new researches in target countries. The ICID central office would certainly accept the responsibility of distributing such documents to the NCs for further actions. There are, however, some new topics which are very relevant to the problems associated with developing countries particularly those located in arid and semi- arid regions, which can be enhanced by WG-CROP members. The topics are recommended to be included in the WG activities :

- Irrigation water requirement under limited water supply
- Rainfed agriculture in dry regions
- Simplified techniques to improve irrigation scheduling
- Crop production modeling under salinity and water scarcity

Working Group on On-Farm Irrigation System (WG-On-Farm)

Since this working group emerged as a result of merging Micro and Mechanized irrigation, its activities were related to the pressurized irrigation systems. Whereas the majority of the irrigated land worldwide are under conventional surface irrigation systems, and mostly with little, if none, mechanized systems involved. The following topics have been under consideration during last 5 years in this WG:

- Advances in mechanized irrigation versus environment.
- Performance evaluation of sprinkler and drip irrigation system in different agro-climatic region of the world.
- Optimization of the layout of drip irrigation system for different row crops and orchards.
- Energy requirements for irrigation.
- Survey of world-wide usage of micro and sprinkler irrigation.
- Fertigation.
- Irrigation equipment standards.
- Directory of irrigation equipment manufacturers.

The final products documents emerging from above studies will be published and distributed as manuals or papers among NCs for further responses.

The WG has also organized technical workshop during this period under the following heading:

- Improved irrigation technologies and methods, research, development and testing.

The outcome and recommendations of the workshop will be circulated to the NCs for their further consideration.

The WG members should be encouraged to implement the items emanating from ICID sector vision "Water for Food and Rural Development" suggested by Central Office, in order to direct the activities of WG towards the problems encountered by the farms in developing countries. These topics are as follows:

1. Improved on-farm surface irrigation systems, use of simple water control, measurement and application devices.
2. Precision land leveling by using LASER leveling equipments for smallholder irrigated farms.
3. Improved bullock/animal drawn implements for irrigated agriculture in developing countries.
4. Study for adopting surge irrigation/cabelgation for smallholder irrigated farms.
5. Developing simple on-farm irrigation scheduling techniques to be used by farmers in developing countries.
6. Promoting small-scale micro-irrigation technologies (e.g. Bucket kit) for smallholder agriculture.
7. Institutional support for adopting micro and sprinkler irrigation technology both in developed and developing countries.

Providing a guideline on "selection of appropriate irrigation technology under socio-economical constraints" may also be a useful document for many developing countries to be adopted as a criteria for development of their irrigation schemes.

Working Team on Use of Poor Quality Water for Irrigation (WT - PQW)

The members of WT-PQW have made quite substantial efforts, since the establishment of this WT, to conduct workshops and providing documents related to the use of low quality water, particularly focusing on saline water and treated wastewater reuse. The WT has managed to organize three following workshops:

- Use of saline and brackish water in irrigation.
- Treated wastewater reuse.
- Management of poor quality water: institutional: Health and environment aspects.

The workshop outcomes have not been disseminated effectively, since WT was not objectively supported by ICID journal or FAO for publication of the selected papers from the proceeding of the workshops. My recommendation

to the WT for their latest workshop, held here in Moscow, is to prepare an extended summary from the conclusion of papers to be distributed among NCs and uploaded on WT web for further responses.

The WT has also made product attempts to provide guidelines, and publication as the followings:

- The statues of using treating wastewater for irrigation in ICID member countries
- Guideline on use of saline and brackish water for irrigation
- Compilation of ICID document on “State- of- the- Art” of a saline water management for irrigation
- Irrigation with seawater for salt tolerant halophytes and crops

The WT members have already started to prepare a document on “Management of Poor Quality Water for Irrigation” as a part of implementation of ICID strategy on vision. A framework for the members contribution to the different items of such documents, has been circulated among WT members for further action.

The WT has also proposed to initiate the following works:

- Universal classification of low quality waters
- Desalination processes
- Peri-urban agriculture
- Live stock wastewater

The irrigation water quality management is a relatively new subject, attracting the decision makers and even the farmers in developing countries. There is no comprehensive document available in this matter for application purposes. Therefore I recommend this Work Team to be converted to a Working Group with a new mandate to consider a holistic approach to the issue of irrigation water quality. Providing a universal Guideline and Classification of Irrigation Water Quality could be an important mission for this WG.

The final Remarks

I would like to make some final remarks to conclude my presentation:

- Attending at the WG meetings, discussing with the chairmen and member of the WGs, it is apparent that the contributions of the members to the objectives of the WGs are diminishing. It is getting in convenient for the chairs to encourage the members to act according to their commitment. Therefore, WG work plans face with considerable delays or sometimes with dropping the items from the agenda. So, ICID Board of Management should take action and address this issue from different angles, considering as this a voluntary job for the members.
- We have to provide appropriate grounds for international funding agencies to consider means to support the relevant topics of work undertaken by the WG members.
- Reducing registration fees for the members contributing to the WG activities. It dose not look attractive to ask some one to volunteer his time and pay money for the volunteered work.
- I would like to thank all the chairs and members of the Working Group who are striving proactively to provide highly qualified scientific documents towards ICID’s aims and objectives.

Thank You for Your Attention.