09-AG-34-GE-WSP-B:

Workshop on the Participatory Approach to Water Resources Management in Agriculture: Participatory Irrigation Management

January 23-28, 2010
Tehran, IR Iran

Asian Productivity Organization

Highlights

Irrigated agriculture provides some 40% of the world's food from only 17% of the global cropped area. Water development is therefore critical for global food security and economic growth, and the Asia-Pacific region is no exception. In most countries, the construction, water supply, and maintenance of large- and medium-scale irrigation systems are publicly managed or administered. The low performance of irrigation systems is of serious concern to farmers who rely on them for their crops and livelihoods and to governments that have invested heavily in their development. Meeting the challenges for the increasing population with low-performance irrigation systems requires technical, managerial, and institutional interventions.

Participatory irrigation management (PIM) offers one way of improving water use efficiency. PIM refers to the involvement of the irrigation users, i.e., farmers, in all aspects of irrigation management and at all levels. The active participation of farmers in irrigation management helps ensure sustainability of irrigation systems through predictable water deliveries and allocations, improved design and construction, reduced conflicts over water, improved operation and maintenance, increased agricultural productivity, and other benefits.

Several countries have attempted to transfer irrigation management to water users' associations (WUAs). APO member countries such as Indonesia, the Philippines, India, IR Iran, Pakistan, and Sri Lanka have adopted policies to encourage greater management participation by water users/farmers. So far, PIM projects have generated mixed outcomes. Some irrigation systems show dramatic improvement when their management is transferred to WUAs, and other member countries could learn a lot from those experiences. To review and assess recent developments in the implementation of PIM in member countries, APO organized a six-day ***Workshop on Participatory Irrigation Management***, held in IR Iran, 23–28 January 2010. The Iranian Ministry of Jihad-e-Agriculture and National Iranian Productivity Center implemented the program. A total of 22 participants from 10 member countries along with five resource persons attended. The participating countries were: Bangladesh, Indonesia, India, IR Iran, Malaysia, Pakistan, the Philippines, Sri Lanka, Thailand, and Vietnam.

The workshop consisted of lead presentations by five resource persons from the Republic of Korea, Pakistan, Turkey, and IR Iran; case study presentations by the participating countries; group discussions, and an observational study tour.

Soil and Water Management Specialist Dr. M.S. Shafique from Pakistan reviewed the recent developments, issues, challenges, and options in managing water resources for

promoting sustainable agriculture in the Asia-Pacific region and various models of PIM. Dr. Shafique pointed out that sustainable water resource management needed on-farm, off-farm, off-channel, and on-channel storage with the capacity to save or conserve water for later use and to reduce the mining of groundwater. He emphasized the need to build the capacities of grassroots organizations such as WUAs. For a sustainable organizational setup, WUAs could be coupled with local government systems along hydraulic boundaries. Mr. Hasan Ozlu, Head, Turkey INPIM Chapter, mentioned that Turkey had been successful in transferring irrigation management to water users because of the elaborate rural infrastructure already in place at the grassroots level. While emphasizing the importance of WUAs, Mr. Ozlu remarked that where producers have more authority and responsibility for water management, transparency can improve pricing, cost recovery, and performance of the irrigation system.

The Korean expert on irrigation management, Dr. Jin-Yong Choi, associate professor at Seoul National University, stated that in the Republic of Korea there are two types of irrigation system management: a national government-driven system in Korea Rural Community and Agricultural Corporation (KRC)-irrigated areas; and a local government-driven system for relatively smaller irrigation areas not involved in KRC activities. In the KRC area, an Operational Board of Representatives (OBR) works as a farmers' opinion channel as in PIM, and PIM-type management by irrigation associations is carried out in local government areas. Dr. Choi concluded that the PIM approach is required to solve irrigation structure maintenance problems on the field scale for KRC areas and even for irrigation system management for local government areas. Ms. J. Moshfegh, an expert from the Iranian Ministry of Jihad-e-Agriculture, emphasized that PIM approaches and techniques were needed for efficient management of agricultural water resources; while Dr. F Abbasi, another Iranian expert from the Agricultural Engineering Research Institute, pointed out that enhancement of agricultural water productivity needs an effective integrated participatory irrigation strategy and approach at primary, secondary, and tertiary levels of the irrigation system.

For field studies, the participants toured the Qazvin Irrigation System, where 158 WUAs were confederated into the Irrigation Union Center (IUC); The WUAs and IUC are responsible for supply as well as transfer of water plus maintenance of the system. Creation of the IUC and WUAs had positive effect on local socioeconomic development such as saving the time required for water demand and supply, fewer cases of destruction of equipment/structures; lower distribution costs, and fewer disputes faced in water distribution.

In group discussions, three working groups of participants facilitated by resource persons tried to make use of their knowledge and experience to prepare an action plan for IR Iran to promote PIM at the project level. The groups were cognizant of the fact that some of those findings after appropriate adjustments could be equally applicable in other situations as well. An integrated summary of the working groups' discussions is given below:

To promote PIM in IR Iran, the participants proposed a PIM model consisting of the following four stakeholders' boards:

A. River Basin Stakeholders' Board
B. Main Canal and Headworks/Diversion Dam Board
C. Secondary and Tertiary Canal Board
D. Agriculture Support Services Board

For each of the above boards, the participants identified the stakeholders, objectives, and problems and suggested strategies and action plans for their proper functioning. A summary of discussion outputs is given in the following table:

Item	River Basin Stakeholders' Board	Main Canal and Headworks/Diversion Dam Board	Secondary and Tertiary Canal Board	Agriculture Support Services Board
Stakeholders	• Farmers • Local government/agencies • Ministry of Energy/Water Resources • Ministry of Agriculture • Water and Sewage Authority • Industry sector • Ministry of Health • Ministry of Environment Nongovernmental organizations/civil society organizations	• Farmers • Local government/agencies • Ministry of Energy/Water Resources • Ministry of Agriculture • Ministry of Environment • Technical experts from agriculture and irrigation departments	• Farmers • Ministry of Energy/Water Resources • Ministry of Agriculture • Local government/agency	• Farmers • Ministry of Commerce • Ministry of Agriculture • Agriculture/others, banks • Agriculture companies

Objectives	• Water allocation for domestic, industry, agriculture, and environment • Watershed management of the whole basin • Prioritization of water allocation during droughts and other unusual situations • Enhancing groundwater recharge • Additional water resource development • Transparent election of board members • Coordination among concerned ministries/agencies	• Synchronization of cropping calendar and water supply • Farmers' participation in decision making • Maintenance and operation of main canal and headworks/diversion dams • Distribution of water between branch canals based on crop/farm requirements • Transparency and fairness in election of board members	• Ensure reliable, equitable access to water by farmers per crop requirements • Timely feedback to farmers in case of interruptions in water supply	• Adjusting the cropping pattern according to market demand • Regularizing the input supply • Credit facilities on favorable terms for farmers • Access to markets and market information • Postharvest management (grading, processing, packaging, labeling, etc. of agrifood products) according to market demand • Fairness and transparency in election of board members
Problems	• There is no or inadequate integrated approach to water resource management • High rates of deforestation and overgrazing • Global climate change • Natural disasters like floods, droughts, etc.	• Poor maintenance and operation of main canal and headworks/diversion dam • Political intervention • Inadequate annual funding • Low water conveyance efficiency • Absence of ownership of the system among farmers	• Farmers are not involved in decision making on timely availability of water. • Weak coordination among Ministry of Energy/Water Resources, Ministry of Agriculture, and WUAs • Absence of reliable measuring system at canal heads and delivery points • Insufficient financial resources for O&M of	• Poor credit facilities for farmers • Market price fluctuations • Poor input supply • Risk of crop failure • Poor agriculture extension services

			canals • Ineffective organizational structures for managing secondary and tertiary canals • Lack of integrated management of groundwater and surface water • High conveyance loss in distribution system at field level (around 25%) • Farmers have no voice in making decisions on cropping patterns • Supply of irrigation water is not on time and is insufficient • Farmers are not aware of their rights and responsibilities • Inefficiency of O&M system • Nonutilization of drainage water • Lack of capacity building and training programs for the adoption of efficient water application methods • Insufficient action on pollution control	
Strategies	• Promoting integrated water resources management • Harvesting of excess surface runoff water • Preparing hydrological-	• Regulating maintenance and operation of main canal and headworks/diversion dam • Making decisions based on the benefit to stakeholders	• Earthen water courses, mostly on farms, should be lined; WUA should be involved in lining water courses • The maintenance of territory canal systems	• Initiate agriculture/crop insurance schemes • Improve postharvest management • Build efficient,

	meteorological databank • Reducing/recycling/ reusing water	• Holding transparent, fair elections of board members, especially representatives of farmers • Nominating appropriate representatives of ministries/local governments/agencies by concerned authorities	should be handed over to WUAs and operation and maintenance of such canals should be the sole responsibility of WUAs • The cropping pattern should be decided at the WUA level • Decisions on water distribution should be at the level of WUA so that each farmer receives water in a timely manner based on crop requirements • National water policy should be adapted and legislation amended for full involvement of farmers at the territory level • There is need to change the mindset of farmers so that a sense of ownership of the system is developed among them • O&M of main system and head works the responsibility of government to avoid burdening farmers, while WUAs should be given responsibility for O&M of secondary and tertiary canals • Provisions made for reutilization of drainage water • Capacity building and training programs on	effective agribusiness chains

			PIM should be strengthened and conducted extensively to enable stakeholders to use water resources efficiently and ensure participation of farmers	
Action Plan	• Improving organizational set-up • Establishing disaster management committees • Conducting fair, transparent election of farmer members under direct supervision of rural council/local government • Nominating representatives of ministries by concerned ministries • Developing a dynamic program for equitable allocation of water to stakeholders • Holding board meetings regularly	• Reducing/reusing/recycling water • Improve O&M of the system • Building capacity of farmers and staff regularly • Holding fair, transparent election of farmer members under the direct supervision of rural council/local government • Appointing appropriate representatives of ministries, government departments, local governments, etc. by concerned ministries/authorities	• Build capacity of both farmers and concerned organization/associations for adoption of PIM • Establish/strengthen WUAs; if needed, start a pilot project to strengthen WUAs • Transfer O&M of irrigation and drainage system to WUAs • Periodic monitoring and evaluation by Ministry of Agriculture for corrective action • Ensure representation of WUAs on board of management to improve decision making • Hold fair, transparent elections to elect representatives of WUAs • Introduce periodic inspections for rehabilitation and maintenance of canals to control losses in the system, and for periodic measurement of groundwater level to integrate management of groundwater with surface	• Creation of producer-to-consumer marketing system • Creation of cold storage and market chain facilities • Update market information system for providing latest reliable market information to farmers • Provide hands-on training to farmers on postharvest handling of agricultural products, as well as production and processing of agricultural produce • Introduce Water Productivity Award System for farmers • Fair, transparent election of farmer members under the supervision of rural council/local government • Appointment of appropriate

			water • Install reliable measurement system such as flumes and gauges upstream and at delivery points of secondary and tertiary canals • Review the financial status and introduce system for revenue sharing with WUAs	representatives of ministries/agencies by concerned authorities

Some of the general conclusions drawn were:

1) For making efficient use of the available water resource and for increasing water availability, an integrated water management approach should be adopted. There is a need for integrated management of groundwater and surface water.

2) For enhancing the performance of irrigation systems, PIM could be an effective strategy. For effective implementation of PIM, water management bodies of the stakeholders at different levels of irrigation systems should be established. At project basis, a command area Agricultural Support Services Board should be established. Such bodies must include representatives of all stakeholders, especially of farmers.

3) The representatives of farmers for WUAs should be elected through fair, transparent elections. Meaningful representation of WUAs at the river basin stakeholders' board; main canal and diversion stakeholders' board, secondary and tertiary canal stakeholders' board, and agricultural support services board, and similar bodies should be ensured for appropriate decision making.

4) There is an urgent need to launch effective programs for the capacity building of WUAs and similar organizations, as well as government officials. The relevant officials of the Ministry of Agriculture should be deputed or associated to provide technical assistance to WUAs.

5) There is an urgent need for a mechanism to ensure equity and transparency in water allocation, especially during periods of agricultural water scarcity such as droughts. WUAs as grassroots organizations could play a key role in determining the water needs of farmers.

6) All concerned government ministries such as the Ministry of Water Resources/Energy, Ministry of Agriculture, Ministry of Environment; and other concerned government agencies as well as organizations representing farmers need to work in close coordination for planning, developing, and managing water resources.

Overall, the participants concluded that PIM was not a panacea but a strategy for improving the performance of irrigation systems through better system management based on active involvement of the grassroots stakeholders, the farmers.