Improving Water Resources Management in the Ferghana Valley through IWRM guidelines

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Introduction

Since 2001, the Swiss Agency for Development and Cooperation (SDC) has been supporting the water reforms in Central Asia. The financial support for the Integrated Water Resources Management (IWRM) Project in the Ferghana Valley was among the most important contributions of the SDC in this region. The project is being carried out in Kyrgyzstan, Tajikistan and Uzbekistan and jointly implemented by the consortium of partners – the International Water Management Institute (IWMI) and Scientific Information Center of the Interstate Commission for Water Coordination (SIC-ICWC). The main objective of the project is to improve the effectiveness of water resources management in the Ferghana Valley by promoting institutional reforms in accordance with the Integrated Water Resources Management principles.

Since the start of the project, it developed, tested and adopted major approaches, frameworks and methodologies for introduction of IWRM to the context of the complex water management system of Ferghana Valley. By May 2008 project shall complete three phases. The eight month inception phase (2001) found that the state support to maintain the lower level irrigation systems was declining in Central Asia; increasing number of farmers due to land reforms were leading to institutional gaps in water management; and inefficient water management practices were keeping the productivities below potential. As a solution to these issues the project designed and promoted institutional reforms so as to foster demand oriented water allocation in accordance with IWRM principles. The second phase (2002-2005) tested and adopted major approaches, frameworks and methodologies for introduction of IWRM in three pilot canals of Ferghana Valley. The project established unified canal management organizations to manage water along hydrographic boundaries, created WUAs using bottom up social mobilization approach and established potential land and water productivity levels.

This paper discusses the results and achievements of the third phase which was to consolidate, improve and generalize adopted IWRM principles in pilot canals through capacity building, training and dissemination activities. This phase addressed the key issues related to strengthening vertical linkages, e.g. water distribution and public participation in all levels of the water management hierarchy—from tertiary (informal user groups) to secondary (formal user associations) to main canal levels (public-government partnerships) while making links to national policy.

The activities of project were carried out in four provinces of the Ferghana Valley irrigation systems – Osh (Kyrgyzstan), Sogd (Tajikistan), Ferghana and Andijan (Uzbekistan). The project carried out its activities along three selected pilot canals – the Aravan Akbura Canal (AAC) in Kyrgyzstan being inter-district canal; Khodja-Bakirgan Canal (KBC) in Tajikistan being inter-district canal South Ferghana Canal (SFC) in Uzbekistan being interstate, inter-provincial and inter-district canal. Along each selected main canals one WUA was included to pilot test IWRM concepts developed in the project. Also, several demonstration plots for assessing productivity improvement potentials.

Complete IWRM Organizational Structure for Canal Systems Developed

The project partners in close dialogue with stakeholders worked to define and discuss alternative organizational structures of water management at the main canal level. Regular participatory training workshops and socioeconomic surveys organized by the project provided new opportunities for widest involvement of water users in the reform, e.g. building new alternative to existing system of water management – IWRM system.

Thus the integration process achieved by the project included: Establishment of the vertical linkages between different hierarchy levels – canal, Water User Association (WUA), water...
user groups (WUG) and farmers; horizontal linkages were promoted for incorporation of inter-sectoral interests (industries, water supply, energy, environment, municipalities etc.) under single canal management organization; Separation of governance and management functions are achieved; Integration of all types of water and uses in the water allocation planning through MIS tool were also introduced in pilot canals. The figure 1. shows how the different sector interests are incorporated and gradually expanding towards all three directions from the center.

Besides, in the project zone there is evident how the institutional reforms has impacted on water saving, water use consumption. Figure 2 indicates the reduction of water intakes into all 3 pilot canals, with the reorganization of management structure. Over the years, reforms has contributed to the reduction of organizational losses by about 30% of canal intake, in pilot canals. Figure 2. Impact of reorganization

In Central Asia public participation in irrigation management has been basically limited to secondary, tertiary or on-farm level. Project achieved a reallocation of responsibilities of the state-managed canal, to be managed jointly by state and water users and brought water user’s influence a step forward. A massive social mobilization campaign was launched to identify and involve all the key stakeholders in the governance of these canals (water users, local governments, water management organizations, NGOs, industries etc.) and in setting up of joint public governing bodies. This again was an important water management intervention introduced in the region by the project. Although the status and mandate of these joint shared public governing bodies are still under discussion, it puts the principle of user participation one step higher in the water resources management hierarchy compared to other projects implemented in the region. Figure 3 clearly shows the process of public participation in the Water Management process. One of the another innovation in the project is creation of the Union of Canal Water Users, it is non-governmental, non-commercial organization of water users who protects the rights of water users, represents their interests and concern in the management of CMO and other authorities.

Successful and Innovative WUA Development Approach

The main goal of the WUA component of the project’s second phase was establishment and development of the pilot WUAs. Thus the Social Mobilization and Institutional Development (SMID) approach was designed to serve that solitary purpose, which was to establish WUA through several WUA constituent steps (awareness building, diagnostic analysis, consultations, and election of representatives, initiative groups, founding documents, training, and registration). The main focus of SMID activities in the third phase was to disseminate pilot WUA experience (using pilot WUAs as benchmark) along the entire or most parts of pilot canals, establish and assist new WUAs along hydrographic boundaries with the aim that WUAs are delivering water to its water users in equitable, reliable and timely manner. The challenges in the new areas (along KBC and SFC).
the project faced was that most of the WUAs have been established through a top-down approach, where the ordinary farmers have neither been consulted nor been informed that they are members of the WUA. Plz, see the Figure 4 the tendency of WUA development, it is seen in the figure how WUA development process is carried out in the project zone.

The problems faced by WUAs were ineffective water management, conflicts among water users, low irrigation service fee collection rates, issues of attracting and keeping qualified staff, no capacity of WUA to fulfill the water request of each and every water user, no legal obligation/contact with water users on water delivery, no planning and proper documentation, debts accumulated from old collective farms. The new WUAs were experiencing sustainability issues. Thus the project developed new SMID strategy which was more oriented on expansion rather than concentrated single object. For this purpose the project selected the number of field consultant cum social mobilizers, trained them on main aspects of IWRM and SMID approach, agreed on WUA development strategy and monitored the field activities for corrective measures. The figure 5 shows how much persons were directly trained from IWRM-FV project, there are exist also who gained knowledge of IWRM principles through already trained specialists.

The SMID activities in each country were designed along the following SMID framework: development of the WUA creation master plan based on recommendations of the key stakeholders (CMOs, UWUs, CWC) that included assistance in developing a map of potential hydrographic WUAs along SFC and KBC; SMID to establish new hydrographic WUAs (including constituent procedures) or reorganization of existing administrative WUAs into hydrographic ones; strengthening the established hydrographic WUAs along three main aspects:
- Water management (hands on trainings on water use plans, rotational water distribution, water measuring, performance indicators);
- Organizational improvements (new management tools such as business planning, benchmarking, performance assessment, SWOT, basic documentation)
- Strengthening WUA councils (establishing effective Water User Groups – WUGs, participatory and alternative assessment tool for water users).

For effective multiplication and dissemination purposes the project used innovative knowledge sharing tools as facilitation of informal network of WUA leaders around pilot WUAs; farmer to farmer days; experience sharing tours to active WUA leaders and SMID team members.

**Effective Water User Groups Enable Functional Participation and Sustainable WUAs**

The task of water distribution among large number of water users, making WUA a sustainable, reducing transaction costs are vital challenges that WUAs face currently in Central Asia. The project staff through its annual WUA perception survey (impact assessment tool) had observed the institutional gap between the WUA and farmers. The main question the project staff asked was “what are the alternative solutions that would allow farmer communities to mobilize the financial, in-kind and other resources such as participation, active involvement to support complicated water management procedures, governance of WUAs, gradual infrastructural improvements and increase financial self-sufficiency?” In the 3d phase, the project decided to find way of assisting farmers below WUA level to reduce this issues, which was establishing effective, democratic, participatory, user driven grass roots organization of farmers, e.g. water user groups (WUGs) along tertiary and lower level canals.

The benefits of the establishment of WUGs was instrumental in achieving the following results: water distribution improved and is became more participatory; the number of conflicts among farmers of the same water courses has reduced; the maintenance of the tertiary and lower outlets and
the sense of ownership over those has improved; transaction costs of WUAs to distribute water over considerable number of farmers, water users along the selected canals developed trustworthy relations among them and decisions are collectively made; the communication among the farmers of same canals has improved; water users cooperated to solve general & all agrotechnical issues (pest control, irrigation planning, crop rotation, land consolidation, reduced costs of production when ploughing, land leveling); active WUG leaders became members of WUA councils and participate in the decision making process, e.g. governance; water users delegate their right to get water to WUG leaders through power of attorney. The role of the WUG leader in its turn became to sign agreement with WUA on water delivery. The WUA hydrotechnicians deliver water at the head gate of the tertiary canal from where WUG is responsible to allocate water among its water users. The innovation of the WUGs is that collection of information for water use plans are done more effectively and precise compare to the practice where WUA tries to calculate generalized water use plan for whole WUA. Figure 6 shows WUGs increase tendency, it is clear that in 2007 WUAs and water users themselves initiated the creation of WUAs in the field.

In general WUGs became an institutional base for introduction of volume based payments, which will stimulate the water saving sense among water users. WUGs are the key in WUA governance due to the fact that many farmers who own the land are often leases the land to the seasonal workers or neighboring farmers. So the farmers who are just owners or managers but not actual water users are not participants of the process. Therefore WUG leaders who deals with water issues daily has real knowledge of the situation which will be handy in determining the strategy and making decisions by the WUA councils. In other words the continuity of the participation process and sustainability of the WUAs are accomplished. Based on the SMID experience the guideline on importance and practical steps to establish WUGs is developed. The steps include: identification of problematic zones of WUA, where most water distribution problems occur; walk through survey of outlets; initial discussions with farmers of issues and observation for active water users; presentation of basic concepts of WUG; meeting with water users to elect WUG leader; follow up and training activities.

Modern Management Tools for Participatory Water User Organizations

One of the modern management tools that project introduced is **business planning** tool for WUAs, CMO and UWUs. The business planning for user driven and participatory organizations, which are normally not for profit and non commercial, is the new concept and shifts the business oriented stereotype of this tool to a new strategically oriented tool which can be effectively used by water and user run organizations. This unique tool developed by the project helps water users (WUA councils, UWU management) to determine where the organization stands, where the organization wants to go and how the organization can go there by generation and mobilization of its own resources without depending much on outside assistance (except in justified cases through careful analysis). So basically business planning determines objectives and strategies of new water management institutions. Objectives stated in business plan are clear targets for specific action. They mark quantifiable interim steps toward achieving organization’s vision and mission. Linked directly to the organization’s vision, objectives are specific, realistic, measurable, concrete and time-based statements of intent. They emphasize the results of the WUA actions at the end of a specific time period. Using the SWOT analysis tool an organization can develop a strategy - ways to minimize a weakness, take advantage of an opportunity, and build on strength and overcome threats and barriers. The strategy is an enduring course of action (like a policy) that will be a guide for many years, and not just a single project or program that will be carried out in the next year or so. Figure 7 shows the process of business planning that was used for WUAs to create their own Business plans along IWRM-FV project.

The second tool that is going to be introduced by the project is the **asset management** tool. This tool enables WUAs to carry out planning process that ensures that WUA get the most value from each of its assets and has the financial resources to rehabilitate and replace them when necessary. It also includes developing a plan to reduce costs while increasing the efficiency and the reliability of WUA assets. The proposed guide to asset management include following steps: i) conducting a thorough asset inventory; ii) prioritizing the

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**Figure 7. The process of business planning for WUA**

![Diagram of the process of business planning for WUA](image)

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**Figure 7.** The process of business planning for WUA
rehabilitation and replacement of WUA assets; iii) developing an annual estimate of needed reserves and an annual budget; iv) implementing the asset management plan; v) reviewing and revising the asset management plan.

The third tool is performance assessment tool for WUAs. WUA is organization of water users and its function is to satisfy the water needs of its members and must be fully accountable. To fulfill those obligations WUA managers need to have tools to monitor the quality of their services. Particularly WUA must know how the water managed effectively, whether it is being distributed equitably, are the conditions of the infrastructure enables to do so and are there sufficient funds to support these services. Thus WUA managers each year during the General Assembly meetings present the report on the activities carried out in previous year and justifies the plan for next year. The observations revealed that indicators that WUA managers use are limited to few such as comparison of planned and actual water delivery, irrigation service fee collection rates, actual expenditures with no justification and rehabilitation works which are not consulted with water users. This practice does not often meet local needs and develops distrust towards WUA among water users. To overcome such, project has developed a simple and user friendly tool based on international experience. The purpose of the tool was to serve as guidance for WUA governing body in assessing WUA’s performance, enhancing its ability to identify problem areas and intervention needed to improve WUA performance. This tool consists of two parts: one is performance assessment tool for WUA directorate and second one is for WUA governing body – WUA council.

Conclusions

Shortly, the major achievements of the project were the development of IWRM conceptual framework and its approval by the ministries responsible for water management in the three countries; the development of a comprehensive social mobilization approach to establish bottom up Water User Associations (WUAs); establishment of unified canal management organizations along hydrographic boundaries with alternative organizational structures of water management in all three countries; demonstration plots showed the potential to increase water productivity through effective water management.

Despite the challenges with regard to implementation of IWRM principles in Ferghana Valley, IWRM-FV project achieved positive results in its actions. However, there are some tasks that remained to finish and disseminate the gained experience & knowledge. Basically, the project has developed a unique approach to IWRM (reorganizing entire canals with both governance and management structures) for which no model was readily available. Due to this pioneering role, social mobilisation (raising awareness, explaining new concepts, convincing) has been important.

We believe that phase IV of IWRM-FV project should do concerted efforts to upscale the results of the third phase in all the three participating countries through a demand driven dissemination and capacity building strategy. While doing so in each country, the regional context of the project will be maintained. It is clear that next phase of the project will focus more on completing unfinished tasks, fine-tuning and packaging completed tasks for dissemination with proven technical and financial viability. It would be futile to leave these pioneering achievements in the region unfinished and inadaptable for other areas as it would jeopardize if not discredit the approach particularly since the point has been reached where many think IWRM is the solution to existing water resource management problems in Central Asia.