

Participatory Irrigation Management¹

Participatory irrigation management promotes greater involvement of applicable stakeholder groups in the establishment, operation and decision-making process of irrigation systems. For example, Water User Associations (WUA) empower users to operate and maintain their systems, collect fees, hire professionals and manage water rights. WUAs have been effective for increasing efficiency and productivity; for improving accountability, performance and responsiveness to farmers; and for improving the financial sustainability of irrigation systems (World Bank, 2004)

Stakeholders include farmers, water user associations and other private individuals or groups. In many cases, setting up and maintaining a participatory irrigation management system includes a range of issues including but not limited to: infrastructure construction, agricultural/technical capacity building, policy reforms, institutional reforms, and partial or complete transfer of infrastructure operation and maintenance to stakeholder groups.

While participatory irrigation management systems and WUAs are increasingly used approaches and present a special opportunity for a more equitable use and management of agricultural water resources, their inclusion to women is often not guaranteed. For instance, in Andhra Pradesh, gender inequalities exist even if women can, as land owners, become members of the WUA and by law at least one woman member from the Gram Panchayat must be part of the Managing Committee of the WUA (box 1). There remains a disconnect between women's major role in agriculture and their lack of participation and decision-making power in the establishment, operation, and maintenance of irrigation schemes. Thus, participatory project planning and design should ensure to include social and gender analyses to unveil issues that exacerbate this disconnect. The process should also lead to a range of measurable gender-specific indicators to form a

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baseline against which progress and impact can be evaluated.

Box 1: Andhra Pradesh: Gender sensitive tank rehabilitation and management.

Key gender issues identified in social and gender analyses of the project are as follows:

- Women are key stakeholders in the tank system management.
- Women are marginalized from local WUA decision making process.
- Women's role in WUA meetings is confined to voting and other concerns remain unaddressed (e.g. construction of washing space; arrangement for drinking water for cattle).
- Women's awareness about the operation and maintenance of the tank system is low.
- Existing women's Self Help Groups do not play any role in the tank related activities.
- Knowledge about agriculture operations, cattle management, issues relating to production and productivity is limited among women.
- Inadequate returns from tank based livelihoods due to lack of access to knowledge and skills relating to tank based livelihoods.
- Inadequate facilitation for involvement of women in tank management.

The project strategy is aimed at creating a gender sensitive environment in tank rehabilitation and -management. Attention will be paid to fulfilling women's practical needs in relation to tanks, to free up more time so that women also can contribute to expanded economic activity.

In addition to the issues directly related to tank management, the project will also make specific efforts to help women access project benefits in terms of opportunities for employment, increased economic activities and empowerment.

Source: World Bank Project Appraisal Document, March 22, 2007. Andhra Pradesh community-based tank management project (P100789).

Key Gender Issues

Required timing, frequency, volume and quality of water. Different stakeholders require water for different uses. Women often have both 'domestic' and 'productive' uses for water supplied from an irrigation system initially aimed at agriculture. Multiple water uses include: subsistence food production, cash crop production, water for livestock, household horticulture, cleaning, and domestic water provision for household health. With respect to irrigation for agricultural production, men and

women also often have different needs. Water demand depends on their respective crop choices. For example, men may focus on irrigated cash crops and women on lower-input staple crops. Information on these differences is required to determine men and women's water needs with respect to timing, frequency, volume and quality of water.

Women and land ownership. Women's access to and control over irrigated land is dependent on whether they own the land or have a legally recognized customary use right. Legal provisions for land ownership vary between countries as to whether women can own land on their own, jointly with their husbands, or depend on husbands or male relatives to access their land.

Land tenure and decision-making power. Access to irrigation schemes including membership in WUA is often limited to land owners that produce irrigated agricultural crops and to those that contributed labor during construction. In contrast to this, women without land ownership can be 'domestic' and 'productive' water users without decision-making powers because they are tenants, sharecroppers, wives, or because they have other tenure agreements with the land owner. For example, the (male) land owner may be absent; or women farmers may cultivate the land of their male in-laws. Similarly, women that hold land ownership or have membership rights by other means are sometimes represented by their husbands in WUAs. Such tenure arrangements must be considered in the project design and targeting as well as when determining membership requirements for WUAs.

Labor contribution and decision-making power. Women may contribute a substantial share of the agricultural labor but not necessarily directly related to irrigation. As a result, women may be excluded from the decision-making process at both farm level and in WUAs. In addition, women cannot in some cases obtain WUA membership because they traditionally are not involved in irrigation management activities such as construction, operation and maintenance.

Active participation in WUAs. While membership restrictions sometimes prevent women from participating in WUAs, they also sometimes lack necessary confidence and skills to be members or serve on WUA Councils. Lack of skills typically relate to issues such as: literacy, numeracy, agricultural/irrigation

techniques, business management, marketing, leadership, organizational skills, and conflict resolution. In addition to this, some existing social norms can prevent women from adopting any public roles (see also example in Box 2).

Women's awareness of their rights and opportunities. Some evidence is found that women are not always aware of their rights with respect to land ownership, WUA membership, technical knowledge, access to credit, and capacity building opportunities.

Targeting of quota systems. Quota systems that are initiated to ensure women's participation may not always be successful unless poor women are not targeted specifically. Instead wives of wealthy farmers, who do not necessarily understand the issues others face, are included.

Box 2: Kyrgyz Republic: Women's participation in WUA and WUA Councils

The development objective of the project is to improve irrigation service delivery and water management for the benefit of a sustainable increase in irrigated agricultural productivity; and to improve national water resource governance for the benefit of water users and the nation as a whole.

The social assessment included a survey of 26 Water User Associations (WUAs). It was found that on average 7% of the members were women – ranging from 2% to 37%.

Half of the WUAs include women Council members, and one of the Councils had 22 women serving constituting 1/3 of that Council. The analysis indicated that there is no relationship between the number of female WUA members and the number of women on the WUA Council.

The social assessment recommends that steps are taken to help WUAs ensure that the interests of women are represented in the WUA through a range of mechanisms including:

- Create a Women's Committee
- Ensure female representation in the Representative Assembly
- Provide specific training of value to women

Source: World Bank Project Appraisal Document, March 10, 2006. Kyrgyz Republic: Water management improvement project (P088671).

Policy and Implementation Issues

Participatory planning and implementation is necessary to ensure that gender-related issues are incorporated successfully in projects. In

addition, the project cannot succeed in a vacuum and policy issues and the wider enabling environment must be considered. Key policy issues that affect women's participation in irrigation management include:

- **Institutional reform.** Public sector agencies currently manage most of the world's largest irrigation systems. It is therefore necessary to support irrigation reform through institutional reform that modernizes formal irrigation institutions and the framework in which they operate with respect to gender-equity. Without this institutional reform user associations cannot function effectively and are eventually undermined. As with other infrastructure services, increased accountability and a competitive environment are vital for improving performance.
- **Land ownership.** Ensure that there are legal provisions for women to own land independently, or jointly with husband.
- **Land reform.** Plan land reforms to include particularly poor women also through quota systems for new irrigated plots. When irrigated plots are allocated, men and women should receive the same sized plots.

As indicated in the previous section, participatory planning is necessary to implement a successful and sustainable project. The need for participation is reinforced during implementation with key issues at several levels including:

- **Implementation at the household and project level:** Implement water supply and infrastructure to meet women's and men's productive and domestic uses that go beyond agricultural irrigation. Ensure that men and women are paid equally for the same activity. Train project staff in how to successfully implement components with gender-related issues.
- **Implementation at the community or collective level:** Include women and men in multi-purpose WUAs.
- **Implementation at the local-leadership level:** Include women and the poor in decision-making bodies, such as WUA committees.

Good Practices and Lessons Learned²

Lessons learned from past experiences in water management provide guidance for future project design. Key lessons include:

- **WUA membership.** Land ownership as a membership criterion for WUAs tends to exclude poor and female farmers holding secondary tenancy; intra-household; or communal land rights. Such exclusion of water users can jeopardize the functioning of the association. To encourage broader female representation and participation in WUAs, it is necessary to enable a wider section of stakeholders to hold membership.
 - Allow dual membership in one household for example when the husband is ill or has out-migrated,
 - Allow households to nominate which family member should hold membership,
 - Base membership on level of labor input rather than only land ownership,
 - Ensure that any quota systems enable particularly poor women to be members and serve on committees,
 - Provide material incentives to increase participation in WUA where applicable (food, access to technology etc.), and
 - Consider charging lower membership fee from female members.

The IFAD-supported Upper East Region Land Conservation and Smallholder Rehabilitation Project (LACOSREP), Phase II, in Ghana provides a good example of gender-inclusive WUA. The membership to Water Users Associations (WUA) was not limited to farmers associated with irrigation, and thus opened up the opportunity to get women involved in WUA. A quota of irrigated land allocation was also established for women so they could get access to water from the irrigation schemes and be involved in the decision making process. The recognition of different stakeholder groups (including gardeners, livestock owners (coinciding or not with gardeners) and fishermen) facilitated WUA development. This also strengthened the WUAs, by avoiding possible conflicts over water use and facilitating watershed protection measures (see IAP2 for more details).

² This section draws heavily from Investment Notes 10.1 and 10.4 of the AgWater Sourcebook (World Bank 2008).

Another approach used by the IFAD-supported Participatory Irrigation Development Programme (PIDP) in Tanzania, which incorporated innovative participatory methods in the design process. Plot allocation was made on the basis of a lottery to enhance fairness in the distribution. This has resulted in successful involvement of women in WUA: women comprised a majority of the WUA membership. The proportion of women with plots and membership in WUAs at the time of evaluation was estimated to be over 30 percent. Some women even took leadership roles in WUAs and district councils and participated in savings groups and credit associations.

- **WUA performance and sustainability:** Incorporation of appropriate gender strategies and their implementation does not only result in women's access to water and thus equitable distribution of productive resources but improves the performance and sustainability of WUA. Participatory management also improves sustainability and ownership leading both higher willingness/ability to pay for services and to less damage to system due to unplanned users.
- **Providing incentives for participation.** LACOSREP offered substantial material incentives, including food rations and improved irrigation facilities, for farmers, livestock keepers and fishermen to participate in rehabilitation and WUA activities. The food for work component, which is funded and implemented by the World Food Program, first in market access roads and later in the excavation of canals and drains in-cut fixed a minimum of 50 percent quota for women. Food is provided as take home family rations (five people), which help women to spend more time on productive and income generating activities. PIDP also constructed market access roads through food for work, which is considered a very successful component. The selection of workers for food is based on Community Managed Targeting and Distribution (CMTD). The CMTD criteria give a first priority to persons from HIV/AIDS effected households, a second priority to persons from women headed households and a third priority to persons from poor households.

- **Multi-purpose WUAs.** Enable multi-purpose WUAs (other than just agricultural irrigation). Structure WUAs to integrate possible synergies between different uses of irrigation water – while also avoiding conflicts between different uses. PIDP provided water supply schemes for multiple uses and not for irrigation only. This is particularly aimed at reducing workload of women by reducing time spend in fetching water for domestic use.
- **Enabling environment.** Women's participation in irrigation management can lead to wider economic benefits if policies and projects support an enabling environment. Some projects have strategically combined several initiatives to increase female participation in WUAs:
 - Women's group formation,
 - Targeted disbursement of agricultural credit to women,
 - Active participation of female farmers in irrigation scheme construction,
 - Better access for female farmers to crop production techniques, and
 - Integrate linkages between irrigation and domestic water supply.
- **Gender analysis.** Project design regarding the involvement of women in irrigated agriculture and WUAs needs to be based on socio-economic studies and realistic assumptions.
- **Conflict resolution.** Creative and innovative conflict resolution and equity issues must be addressed to avoid increasing competition for resources. LACOSREP strengthened the WUAs, by avoiding possible conflicts over water use and facilitating watershed protection measures. Wide stakeholder participation avoided possible conflicts over water use and facilitating watershed protection measures (see IAP2 for more details).
- **Capacity building.** Capacity building for social and technical skills among members of local societies is important. In the LACOSREP, groups were established to build solidarity among stakeholders for other purposes such as collective work and microfinance. Illiterate women were accepted in Community Credit Management Committees. In the PIDP, the project enhanced target group and in-country

capacity building to plan, construct and operate irrigation schemes and developed efficient coordination and management structures. According to the 2005 review, the project has provided improvements in household food security for the most impoverished as a result of increased crop yields; improved housing and more ox ploughs, ox carts, bicycles and radios were all indicators of increased wealth; and reduced road transport costs after completion of improvements to the farm road network.

- **Wider economic and health effects.** Gender-equity and female participation leads to improved well-being in areas of food, income, and health by incorporating multiple water uses. LACOSREP constructed rural infrastructure to reduce the female labor burden and take measures to mitigate the possible risks of health and negative environmental impacts.
- **Different farming systems.** Different approaches would be effective for varying farming systems:
 - In female and dual farming systems, gender-sensitive project design is a particularly important route to achieving water productivity and gender equity.
 - In male farming systems, varied interventions are required given prevailing gender norms. Here, separate women's organizations can be highly effective.

Guidelines and Recommendations for Practitioners

Project Identification and Preparation

- Target a diverse group of stakeholders to determine a needs-based design based on an open and participatory process.
- Assess institutional capacity for integrating gender concerns into project planning, design, implementation, monitoring and evaluation.
- Provide gender-related and interdisciplinary irrigation training for all staff.
- Recruit female professional staff as well as 'social mobilizers' to reach out to women.

- Ensure that data/information collected from social, environment and gender assessments can be analyzed during all of the project's phases.

Project Design

- Base the project design on women's and men's multiple water needs.
- Ensure participation from men and women in technical design process to address gender equity and integrate this into the design (obtain clear understanding of customary land tenure, cropping system, household needs, location of structures etc.)
- Use inclusive WUA membership criteria, irrespective of gender and land titles.
- Target female decision-makers on the same basis as male decision-makers.
- Use quotas to ensure women's participation in WUAs Councils.
- Consult with women-only groups or mixed groups depending on social norms.
- Involve stakeholders in defining gender-sensitive and -disaggregated indicators and how frequently these will be measured and analyzed.

Project Implementation

- Provide gender awareness training as well as specific training for female farmers.
- Involve both men and women in planning of physical structures and other activities.
- Facilitate women's access to credit, market and other inputs.
- Work with other existing women's organizations to share knowledge and ideas.
- Ensure timely collection and analysis of monitoring data to enable project revisions.

Project Evaluation

- Involve women and men in evaluating the benefits from the project; all stakeholders should understand the benefits of their participation.

Further Reading

- Fong M.S. and A. Bhushan (1996). "Toolkit on Gender in Agriculture." World Bank Gender Toolkit Series No. 1, World Bank, Washington, DC.
- INPIM. "International Network on Participatory Irrigation Management", (www.inpim.org)
- SEAGA (2001). "Irrigation Sector Guide. Socio-Economic and Gender Analysis Programme." FAO, Rome.
- World Bank. Undated. "Irrigation" in *Gender in Agriculture - A World Bank Learning Module Irrigation*. World Bank, Washington, DC. Available at <http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTGENDER/0,contentMDK:20208246~pagePK:210058~piPK:210062~theSitePK:336868,00.html>

References

- IFAD (2005). "Tanzania: Participatory Irrigation Development Programme (1997-2007)." Programme Supervision report, IFAD, Rome.
- World Bank (2004). "Water Resources Sector Strategy. Strategic Directions for World Bank Engagement." World Bank, Washington, DC.
- World Bank (2006). "Kyrgyz Republic – Water management improvement project (P088671)." Project Appraisal Document, March 10, World Bank, Washington, DC.
- World Bank (2007). "Andhra Pradesh community-based tank management project (P100789)." Project Appraisal Document, March 22, World Bank, Washington, DC.
- World Bank. 2008. "Gender, Participation and Decentralization in Agricultural Water Management." Investment Note 10.1 Forthcoming in *Shaping the Future of Water for Agriculture – A Sourcebook for Investment in Agricultural Water Management*. Washington, DC: World Bank.
- World Bank. 2008. "Gender-sensitive planning, monitoring and evaluation in agricultural water management." Investment Note 10.4. Forthcoming in *Shaping the Future of Water for Agriculture – A Sourcebook for Investment in Agricultural Water Management*. Washington, DC: World Bank.