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Water Policy Research

HIGHLIGHT

Performance of Participatory Irrigation Management

A Study of Two Water Users Associations in Anand district of Gujarat

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Assessing the performance of water users' associations (WUAs) is a complex task. Literature associates a large number of parameters with their success and failure. This paper presents an in-depth study of two WUAs that are considered well-functioning by the irrigation department in Anand district, Gujarat. It discusses some new issues and innovations being tried out in Anand: (1) incentives and disincentives for WUA membership; (2) outsourcing of Irrigation Service Fee (ISF) collection by the WUAs; and (3) expansion of the scope of WUA activities beyond irrigation, with a potential impact on financial viability of the WUA.

The Highlight also discusses degrees of success in WUAs in the context of these and tries to draw out lessons that may be widely applicable. On most counts, the performance of the two WUAs leaves much scope for improvement. However, there is some evidence to suggest that greater vigour on the part of the Irrigation Department (ID) in collecting ISF and in dealing with defaulters can energize WUAs. Equally, ID role in making timely and reliable water deliveries to WUAs is also an important factor influencing WUA performance.

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Performance of Participatory Irrigation Management
A Study of Two Water Users' Associations in Anand District of Gujarat[1,2]

Research highlight based on Bhatt (2012)[3]

Introduction

Participatory Irrigation Management (PIM) is a distinct model for irrigation management, which involves farmers organized in the form of a WUA in the management of their irrigation systems at the local level. There are many complex problems with the functioning of PIM in India, due to which, its progress is lethargic. These problems emanate from various fronts; and are concerned with implementation of PIM at the grassroots level due to: i) the attitude of farmers, ii) organizational inadequacy of WUAs, iii) systemic issues originating from the ID and iv) operational issues in day to day functioning of WUAs.

Issues with the farmers are attitudinal in nature. Researchers have identified farmers' suspicion, their lack of initiative, over dependence on the government and reluctance to participate in the responsibilities of WUA, the lack of "felt need" for a WUA due to ample availability of groundwater, absence of charismatic leadership (Gulati et al. 2005), insufficient knowledge of technical issues, lack of homogeneity in caste and class, lack of unifying community organization like temples or cooperatives, difficulty in scaling up due to increasing transaction costs, inequity between head and tail enders, lesser adoption of lucrative crops bringing critical need for water (Gulati et al. 2005) and lack of involvement of tenant farmers in the functioning of the WUA.

Organizational issues include long delays in the process of formation of a WUA, parallel functioning of WUAs and *Panchayati Raj* (village level government) Institutions, lack of political support for WUAs, difficulty in enforcing rules, lack of synergy between the WUAs and the ID in providing training and capacity building to the farmers and insufficient involvement of NGOs therein (Gulati et al. 2005) and lack of supplementary sources of income for the WUA.

Systemic issues comprise of corruption in the ID, poor main system management leading to ineffective control of the WUAs over the actual time and quantity of water availability, lack of provision for allowing WUAs to withhold remittance of ISF to the ID in case they are dissatisfied with the quantity and timing of water supply.

Operational issues emanate from the lack of financial provision to meet operational costs; knowledge about record keeping and accounting procedures; cooperation from other members; funds for Operation and Maintenance (O&M); a mechanism to monitor the quality of O&M; full recovery of ISF particularly from influential farmers; a stronger voice for WUAs in decisions regarding water allocation; ability to check unauthorized lifting; ability to address inequities in water distribution; and exclusion of the poor, small and marginal farmers in the decision-making.

Apart from the reasons of failure of WUAs, the indicators of their success have also been discussed in a cross-country analysis by Mukherjee et al. (2010), who list improvement in ISF collection rate, financial viability of WUA, functional condition of infrastructure, equitable distribution of water between head and tail, reliability and adequacy in water distribution, popular awareness and participation in WUA activities, reduction in frequency of disputes as essential characteristics of a successful and sustainable WUA.

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[2]The author acknowledges the reviewers of this Highlight - Tushaar Shah, Shilp Verma and Meghna Brahmachari.

[3]This paper is available on request from p.reghu@cgiar.org

Rationale, objectives and methodology

Owing to fiscal constraints of the state governments, growing needs of irrigation and an economic scenario favouring increased public participation in governance, it appears that PIM is here to stay. However, as of November 2009, the total number of WUAs in India was just 56934, covering a land area of 134.20 lakh ha. Moreover, field research often shows that most of these WUAs exist only on paper. Therefore, it is essential to understand innovative approaches that lead to the success of the WUAs. This can be done by exploring the functioning of a WUA at the grassroots level and draw lessons which could be replicated on a wider scale.

The present study aims at exploring the functioning of selected WUAs in Anand district and understanding the degree of success achieved by them on the basis of their performance in terms of a) institution building, b) operational efficiency, c) participation of farmers and d) financial performance. It also aims to identify the practices adopted successfully by these WUAs and draw lessons replicable in a wider universe.

Since WUAs tend to be most successful where ground water is scarce, it would be interesting to know how WUAs perform where there is little or no water scarcity. Hence, the Anand district of central Gujarat was selected. The district is covered by a canal network and has abundant groundwater. Two WUAs, Bhetasi and Jol, considered successful by ID engineers, were chosen for study of the degree and parameters of success. Bhetasi WUA had a large command area, while Jol WUA had a relatively much lesser command. Hence, a comparison of the functioning of these two WUAs in similar physical as well as socio-economic conditions, but unequal command areas was sought to be done.

Personal visits were undertaken to the selected WUAs. Primary data was collected in December 2011 through the Rapid Rural Appraisal (RRA) method, personal interviews with the key informants including Chairman, employees and members of the WUA using a structured questionnaire. Focus group discussions were held separately with the members as well as non-members of the WUAs, situated in the head as well as tail reach of the canal. Farmers belonging to both the Kshatriya as well as Patel communities, the two most dominant, high caste farmer groups in the villages were interviewed to surface their opinions and experiences about the functioning of the WUA. Interviews were also conducted with the officials of the Mahi Irrigation Circle office at Anand, in order to understand the official viewpoint on various issues. Secondary information was compiled from the records of the Mahi Irrigation Circle office, District P*anchayat* office, Anand, office records of the selected WUAs as well as *Gram Panchayat* offices in the villages of Bhetasi and Jol.

Process of WUA formation in Gujarat

The process of WUA formation in Gujarat begins with preliminary discussions between farmers, ID and NGO officials in order to promote the idea of PIM and motivate the farmers. Once the farmers express their intent to form a WUA, it is registered. After this, office bearers of the WUA are appointed and a memorandum of understanding is signed between the WUA and the ID. This includes jointly agreed cost estimates of the canal rehabilitation work to be done by the ID and financial and physical targets for the same. After this, rehabilitation of the dilapidated canals in the WUA command begins. The WUAs contribute 10 percent of the costs for the same, while the ID bears the rest. If the work of repairs and rehabilitation is entrusted to WUAs, one-third of the cost is advanced to them. The instructions and procedures for purchase of material and quality control by the WUAs have been simplified. Repairs and rehabilitation done, the ID formally hands over irrigation management of the subsystem to the WUA. After this, the WUA is termed as "formed" or functioning.

The primary responsibility of the WUA is to collect ISF and deposit them to the ID, as well as take care of the O&M and minor repairs of the subsystem under its command. A 20 percent rebate on water charges is given to WUAs as an incentive for payment within a stipulated time period. In addition, WUAs are allowed to retain 30 percent of the ISF collected towards expenses on O&M. They are also empowered to charge higher fees than those prescribed by the ID and retain 100 percent of the additional collection above the ID specified rate.

The study villages

Anand district falls under the Mahi Irrigation Circle, providing water from the Mahi-Kadana irrigation scheme. Anand district has a 313 km long canal network from the Mahi irrigation system. In addition, around the turn of the millennium, according to the Minor Irrigation Census 2001, the district had over 7500 private wells and tube wells, besides 559 public tube wells, for groundwater irrigation. The actual area under WUAs in Anand is only 8.3 percent of the total area under cultivation in the district and not all registered WUA are functional in the real sense of the term. Table 1 provides an agricultural and irrigation profile of the two villages; and Table 2 provides a social profile.

Table 1 Agricultural Profile of the study villages

Characteristic	Village Bhetasi	Village Jol
Total geographical area	1800.93 ha	739.86 ha
Total irrigated area	1578.54 ha	609.47 ha
Major *rabi* crops	Wheat, potato, tobacco, banana, lemon, castor and vegetables (bitter gourd, ladies finger, *tindola*, bottle gourd)	Vegetables (*pattarvelia*, bottle gourd), wheat, tobacco, *rajgara, chikori*, maize for fodder, potato
Major *kharif* crops	Paddy, *bajri*, banana, lemon, fodder crops and vegetables	Paddy, *bajri*, vegetables (*pattarvelia*, bitter gourd, bottle gourd, *galka* etc.)
Major summer crops	*Bajri,* maize for fodder and vegetables	*Bajri*, maize for fodder and vegetables
Perennial crops	Banana, lemon, vegetables	Vegetables
Functioning tube wells	22	Nil
Functioning bore wells	Nil	10
Groundwater table	80-100 feet	80-100 feet
Electric motors functioning	5-7	Nil, canal water lifted through suction pipes
Oil engines	Nil	6
Mode of canal irrigation	Gravity flow; lifted only in a small area	Flow as well as lift through siphons

Table 2 Social profile of Bhetasi and Jol

	Village Bhetasi	Village Jol
Presence of Co-operative institutions	Co-operative dairy, a service cooperative and fertilizer distribution co-operative. 42 members of the cooperative dairy were also members of the WUA	Co-operative dairy; 25 members of the co-operative dairy were also members of the WUA
Population	9300	5493
No. of Households	1745	1091
General category	8787	1764
Schedule Caste	473	154
Schedule Tribe	40	124
Other Backward Caste	Nil	3451
Total Farmers	1200	860
Marginal (<1 ha)	540	330
Small (1-2 ha)	500	500

Large (>2 ha)	160	30
Patel farmers	120	224
Kshatriya (Baria and Garasia) farmers	1080	596
Other caste farmers	Nil	40

Source: Government of India (2001) and *Gram Panchayat* records of Bhetasi and Jol, as well as researcher's personal interviews with farmers and key informants

Table 3 summarizes the process of WUA formation in Bhetasi and Jol. Table 4 assesses the two WUAs on their operational performance. Table 5 shows a complete lack of participatory ethos either in irrigation management or in the management of the WUA itself in both the cases.

Table 6 shows that despite poor performance in ISF collection, both the WUAs made profit because their costs are minimal. Table 7 presents the government determined canal irrigation rates in force in Gujarat at the time of the study.

Table 3 Summary of the Process of WUA formation and actors involved

	Bhetasi WUA	**Jol WUA**
Date of inception of the WUAs	November 1993	October 1998
Purpose of WUA formation	To avoid water sharing conflicts, conservation of water and land through scientific use; improve ISF collection and its use in the O&M of their distribution system	To escape fines imposed by ID against non-payment of ISF; improve ISF collection and its use in the O&M of distribution system
Rehabilitation	Done by the ID prior to hand over	Canal was partially lined by the ID prior to hand over
Capacity building	Done by Water and Land Management Institute (WALMI)	No NGO involved, but some assistance extended by the Executive Engineer of the ID

Table 4 Indicators of operational performance of WUAs

	Bhetasi WUA	**Jol WUA**
Staff and functions performed	Only clerical staff, ISF collected by ID personnel on behalf of the WUA	Clerical and operations staff; ISF collected by Chairman himself
Control over water availability	Dependent upon the ID; and in turn on availability of water in the reservoir	Dependent upon the ID; and in turn on availability of water in the reservoir
Water delivery to members and non members	Both members and non-members supplied water at same rates	Both members and non-members supplied water at same rates
Equitable distribution in tail ends	Tail end farmers did not always receive sufficient water	Sufficient water did not reach the tail end, except in the *kharif* season
Repairs and maintenance	Done satisfactorily	Not at all satisfactory

Enforcement of rules	Rotation not strictly enforced, voluntary compliance by farmers	No attempt to enforce rotation
Enforcement of fines	No penalty or fine for breaking rules or non-payment; indicates inability to impose penalties	No penalty or fine for breaking rules or non-payment; indicates inability to impose penalties
Conflict resolution	Conflicts are rare since rules and rotation are not enforced; no strictness in ISF collection; no penalties for non-payment or for rule violation	Conflicts are rare since rules and rotation are not enforced; no strictness in ISF collection; no penalties for non-payment or for rule violation
Collection of ISF	ISF collected at the end of the season; by *chowkidars* appointed by the ID (on commission basis) on behalf of the WUA in order to add weight to the social pressure created by the WUA	ISF collected by the Chairman himself without receiving any payment for the same; social pressure thought to be sufficient in eliciting ISF payment
Satisfaction of members	Members as well as non-members satisfied	Deep dissatisfaction amongst members

Table 5 Indicators of PIM

	Bhetasi	**Jol**
Elections of Chairman and members of Executive Committee (EC)	EC elected by consensus; indicates lack of interest among members	EC elected by consensus; mostly belonged to the dominant caste; indicates lack of interest among members
Democratic practices	Overdependence on a single leader, meetings merely a formality, no attempt to train future leaders	Meetings held rarely; not everyone encouraged to participate
Participation and acceptance amongst members and non-members	Substantial growth in membership; non-members accepted the WUA and desirous to take membership	Little growth in membership; desperation to get water prompted membership; non-members see no incentive to become members

Table 6 Indicators of financial performance of WUAs

	Bhetasi	**Jol**
Pricing of water	Same as the ID rates	Same as the ID rates
Income from ISF	Average ISF collection about 65-75 percent; retained a net of 30 percent of ISF collected	Average ISF collection about 55-65 percent; retained a net of 40 percent of ISF collected
Income from other sources	Reserve fund, share capital, initial subsidy from Command Area Development Authority; parked as annual interest yielding fixed deposits	Share capital, reserve fund, membership fees fund, depreciation fund; parked in annual interest yielding fixed deposits
Activities other than water distribution	Nil	Sale of fertilizers
Outstanding dues	No updated record either of outstanding dues or defaulters	Outstanding ISF at Rs. 1.46 lakhs at the end of 2010-11; list of defaulters not updated
Financial health	Made a net profit in 2010-11	Made a net profit in 2010-11

Table 7 Irrigation water rates for flow irrigation from government canals in Gujarat

Crops	*Kharif*/ *Rabi*/ Summer and two seasonal crops	Perennial crops
Base Rate (effective from 01/01/2007)	Rs. 160/- per watering per ha	Rs. 300/- per watering, per ha
Annual increase	At 7.5 percent p.a.	At 7.5 percent p.a.
Additional	Plus 20 percent for the 'local fund' which goes to the *Gram Panchayat* under the Gujarat *Panchayat* Act 1993	Plus 20 percent for the 'local fund' which goes to the *Gram Panchayat* under the Gujarat *Panchayat* Act 1993

Discussion

The case study of the WUAs functioning in villages of Bhetasi and Jol reveals that there was a clearly 'felt need' for a WUA in both Bhetasi and Jol, albeit for entirely different reasons. However, this 'felt need' is the reason behind the formation and continual functioning of the WUAs. The main purpose of organizing both WUAs was to achieve greater control over the ISF paid by them, besides evading strict measures being pursued by the ID in improving ISF collection in the case of Jol.

Capacity building work done with the active involvement in WALMI was instrumental in forming a WUA in Bhetasi, while the Jol farmers gauged that the ID was keen to get rid of its responsibilities, mainly of ISF collection; and seemed to have agreed to form a WUA for avoiding the consequences of their non-payment in the past. Neither of the WUAs was always able to discharge their primary responsibility of distributing water in a timely, reliable and equitable manner. This was partly because of systemic issues beyond their control. However, rotational water distribution, and repairs and maintenance was done quite well in the Bhetasi WUA, while in Jol, it was not so. Understandably enough, the level of satisfaction amongst members as well as non-members of the Bhetasi WUA was high, while that of the Jol WUA was low. This could have an impact on the sustainability and acceptance of the WUAs amongst members.

The Bhetasi WUA undertook repairs and maintenance of the sub-system to the satisfaction of members, while the Jol WUA did not carry out this responsibility satisfactorily. Hence, while the Bhetasi WUA could be considered a 'water manager' to a great extent, the Jol WUA was in fact nothing but merely an 'ISF collector'. Since the WUAs did not impose fines or penalties for non-payment, delayed payment or breaking of rules, conflicts between the WUA and the members were also reported to be rare. However, this could be termed as avoidance of conflicts instead of its absence.

Democratic processes in both WUAs was far from vibrant. Elections in both WUAs were non-politicised affairs, not suggesting any elite capture but rather a lack of interest among members. Neither of the WUAs had made an attempt to increase their membership, which could also generate additional funds via membership fees. This further illustrates their indifferent attitude towards achieving operational self-sufficiency.

The Bhetasi WUA exhibited a novel approach in taking the services of the ID personnel for the recovery of ISF on commission basis. Thus, social pressure was found to be inadequate for recovering ISF and some amount of official pursuance was thought necessary. However, this also hints at the effectiveness of economic incentives in improving recovery performance. In Jol, the Chairman himself managed to collect ISF by way of social pressure on his fellow farmers. However, in this case also, an added economic incentive could supplement social pressure and add to the motivation for better performance in terms of ISF collection.

The system of record keeping and developing an institutional set up for recovery of ISF was on a low priority in both the WUAs. This state of affairs could also be changed if the WUAs were made responsible for the entire amount recoverable by way of ISF, instead of the present system of refunding 50 percent of whatever amount that has been collected as ISF. The presence of outstanding dues in both WUAs implies that the WUAs could not be said to have operational self-sufficiency. In the absence of subsidy and rebate by the ID, their financial sustainability could be doubtful, even though both the WUAs showed a net profit in their balance sheets. Both the WUAs charged ISF prescribed by the ID and nothing more than that. However, both WUAs made a net profit. This could be because both the WUAs only paid irrigation charges on behalf of farmers who had paid

their ISF. If the WUAs were made responsible for all the water distributed via them, including that to the defaulters, their profitability might get affected. While the Bhetasi WUA had not generated new sources of income by undertaking any other activity besides water distribution, the Jol WUA had succeeded in doing so by taking up sale of fertilizers. The profit from these sales could help in subsidizing the delivery of irrigation water at the WUA level.

Conclusion

Financial incentive provided through partial refund of ISF for undertaking O&M, giving effective control over O&M expenditure and at the same time adopting strict measures for ISF recovery are the three steps in the right direction in order to encourage the farmers to organize as a WUA. Besides, the importance of capacity building of farmers during the inception of the WUA cannot be overemphasized, because it gives the required confidence to the EC members and encourages farmers to support the WUA. Tangible benefits from the WUA in the form of greater control over water availability could be the way to enthuse the farmers about their WUA and create vibrancy in its functioning. However, systemic issues with regard to the reliability, amount and timeliness of irrigation water supply are the chief reasons for the dissatisfaction of the farmers with the WUA and hence the weakest link in the pursuit towards PIM.

As far as the functioning of the WUAs is concerned, more needs to be done in order to sensitize WUA office-bearers towards their role as water managers and not merely ISF collectors. They should be encouraged not only to improve collection of ISF but also take adequate care of the physical structures and be more responsive to complaints of the member farmers. They should be legally supported in their task of imposing penalties for breaking rules or non-payment of dues. This would not only encourage the adherent farmers; but in time, this type of compliant behavior could also become a part of the social traditions, so that, in future, it could be easier for WUAs to make, amend and enforce rules.

There is a need to revisit the system of giving a rebate on whatever is the amount of ISF collected by the WUAs. Instead, they should be made responsible for the entire ISF due from their command. Their financial incentives should be linked with their performance in this regard. This would force the WUAs to attempt to achieve operational self-sufficiency and generate supplementary sources of income instead of depending too much on the government for their sustenance.

Further, if monetary incentive is linked with ISF recovery, the cooperative disposition of WUA members, employees and officials may be further strengthened; resulting in an urge to improve ISF collections. Social pressure supposed to be exerted by the WUA is not always effective. It would be strengthened if ISF recovery also had a legal compulsion for the payer and financial incentive for the personnel responsible for its collection.

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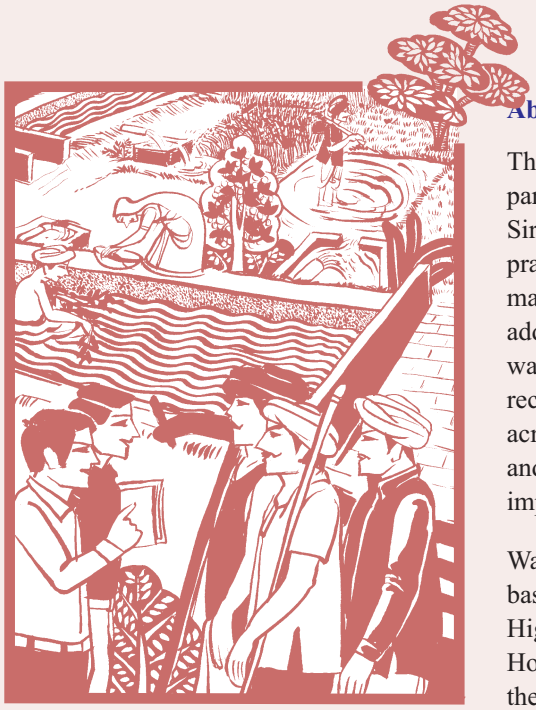

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