Tropentag 2013, Stuttgart, Germany
September 17-19, 2013

Conference on International Research on Food Security, Natural Resource Management and Rural Development
organised by the University of Hohenheim

The Role of the Individual Agency in Participatory Irrigation Management: Lessons from India

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Introduction

Participatory Irrigation Management (PIM) has been conceived as way for effective irrigation management by involving and associating farmers in planning, operation and maintenance of the irrigation system. However, institutional aspects of farmer participation in irrigation have received less attention in the current policies. Like many countries, many states in India, through the devolution of authority are looking at higher levels of involvement of farmers in the operations and maintenance through irrigation management transfers (Madhav, 2007). The devolution of authority for natural resource management to local user groups has been an important approach to overcome the long-standing challenges of centralized state bureaucracies. In India, this approach was implemented in irrigation management through the creation of Water Users' Associations (WUAs), following the guidelines issued by the Ministry of Water Resources in 1987 that aimed to enhance the farmer participation in irrigation management. WUAs are also expected to facilitate local adaptation to climate change through improved irrigation management.

The literature on common-pool resources following the seminal work of Elinor Ostrom has identified important design principles that can enhance the efficiency, equity and sustainability of local user groups. Ostrom introduced the institutional analysis and development framework (IAD), which is a multi-tier conceptual map identifying the action arena, the resulting patterns of interactions and outcomes and eventually evaluating these outcomes.

The model that Ostrom relied on consisted of 'fallible, norm-adopting individuals who pursue contingent strategies in complex and uncertain environments' (Ostrom 1990: 185). The institutional design principles followed North's (1990) conception of institutions as mechanisms of reducing such uncertainties , thus building trust and norms of reciprocity and therefore the possibility of collective action (Cox, Arnold, and Tomás, 2010).

However, in spite of intensive research on this issue knowledge gaps still remain regarding the question as to why some local user groups are able to overcome governance challenges such as elite capture, while others, which work under the same design principles, are not. The critical question therefore still remains; what are the conditions and who are the driving forces which drive successful joint irrigation management. The role of seemingly 'idiosyncratic' features such as involvement of particular people and their motivation is often neglected and holds particularly true of leadership (Ruth Meinzen-Dick, 2000). Teske (1992) along with several scholars have

alluded to the idea of political entrepreneurs and social entrepreneurs inspired by the likes of Muhammad Yunus (Martin and Osberg, 2007). Nevertheless, these concepts have been used to describe the influence and its applicability at the national level as leaders who develop innovative ways to galvanize the otherwise dispersed citizens to work to support certain policies (Schneider and Teske 1992) .

The paper addresses this knowledge gap by zooming into the action arena at the local level. It is based on qualitative case studies conducted in four villages in the semi-arid regions of India using the Grounded Theory approach; identifying individual agency as a major factor that plays a significant role in the success of participatory irrigation management and implementation of the design principles formulated by Ostrom (Cox et al., 2010). The paper draws conclusions on how local leadership, a factor though mentioned (Meinsen-Dick, 2005) but neglected in the current literature on common pool resources, can be promoted to facilitate participatory irrigation management. Moreover, with almost 20 years since the concept of PIM was implemented in India, it becomes worthwhile to explore the role of the individual agency especially in a time when solutions to water scarcity and adaptation to climate variability are being sought through best practices in water management (Kelkar, Narula, Sharma, and Chandna, 2008).

Material and Methods

A combination of literature review and the Grounded Theory was used to be able to identify in an inductive way from empirical cases those factors that may have been neglected in the literature on common-pool resources. Following a comparative approach, four villages were selected, two each in the states of Maharashtra and Andhra Pradesh which fall in the semi-arid regions of India. Two villages in Maharashtra were chosen in the Nasik district, in collaboration with the Society for Promoting Participative Ecosystem Management (SOPPECOM) and the two villages in Andhra Pradesh were identified in the Guntur district with IWMI (International Water Management Institute). For getting a better basis for comparison, all four villages that were chosen were in the tail end of the canal distributory in the irrigation management system.

The study began, with a conceptualization based on uncertainty and variance of climatic behavior and the recognition of this uncertainty as a risk of water shortage or unavailability for agriculture as a livelihood practice. With that knowledge, the actions to overcome or cope through technical and institutional innovations were elicited. Through the use of an adaptive management approach, an attempt was made to develop the history of a particular initiative over a certain period of time by groups and individuals across gender and class of farmers.

In the process of analysis, however, the role of individual agency as a driving feature in the process of institutional innovations emerged as a critical factor leading to the success or the failure of similar initiatives taking place in different study sites; in this case the Water Users Association. A qualitative approach was used to further study these factors based on information received from the field. The method of analysis used was based on Grounded Theory (Strauss and Glaser 1967). For this particular study, it was imperative to begin the research with an explorative and iterative approach to data collection. The gaps that appeared in the theoretical representation of initial interviews, documents, and observations were filled by follow-up visits and interviews. Adopting this approach gave the flexibility and methodological rigor needed to guide the research to fit the data collected in the field (Banerjee et.al 2013). The process was iterative whereby attempts were made to keep clarifying the understanding of the water distribution process and the functioning of the Water Users' Associations by the respondents. It freely allowed the respondents to give their own interpretation of 'why' and 'how' the process was happening and 'where' and 'what' was their role in the entire process based on this understanding. The process helped determine two villages as successful and two villages as not so successful in the management of the Water Users' Associations and its role in the process of adaptation to climate change.

Purposive sampling was used to identify different categories of farmers, women, and other key informants and compare their perceptions of water management practices. Office bearers from various government and non-government organizations were interviewed to understand their roles in facilitating these practices in the community. The farmers were separated into large, medium, and small on the basis of landholding size. Focus group discussions (FGDs) and individual interviews were carried out with the guidance of semi-structured questionnaires. The information gathered was triangulated by means of narratives, timelines and transect walks. Based on the principle of theoretical sampling, additional interviews were conducted in the study sites to further explore the role of the individual agency in water management practices that had emerged from earlier interviews and FGDs. Since no new information emerged from this, the data was deemed "theoretically saturated" from the earlier designed FGDs and interviews. A total of, 16 FGDs and 273 individual interviews were conducted as part of the process.

Results and Discussion

One of the common features of all the study villages besides being in the semi-arid region is that they all fall in the tail end of the distributory channels. Being in the tail end region, they have faced constant problems of water availability as a result of upstream-downstream externalities (Jack, 2009). Before 1991, when the management of the irrigation water was completely in the hands of irrigation department, there were often complaints of the tail end regions not receiving water because of either faulty irrigation channels or issues of water theft or diversion of water by users at the head of the distributary channel. This was leading to farmers being reluctant to pay up for the water they were using resulting in increasing disparate situation between the government and the community and the community often blaming the department for inefficiency and malpractices in water supply process[1]. With the introduction of the participatory irrigation management, it was anticipated a lot of these issues would be solved and the community would take up responsibility of the management of water and its irrigation systems. All the four villages adopted the irrigation management transfer process more or less at the same time after the guidelines were issued in 1987 though under different circumstances of facilitation and community participation. Of this two villages Nas 1 and Gtr 1 were indicated as success stories and Nas 2 and Gtr 2 as more or less failures (see Table 1) to adopt the PIM process as it was found that the former two villages came relatively close to adapting the design principles which were formulated by Ostrom (Cox, et.al 2010).

Table 1: Comparison on functioning of the WUA

Indicators	Nas 1	Gtr 1	Nas 2	Gtr 2
Water Distribution System	Usually 2 rotations during rabi (winter)and 1 during summer from tail to the head	Usually 3 rotations during paddy season) using lift irrigation	Usually 1 rotation but subject to claims of water availability	No track of rotations as claimed to receive water when required
Collective Choice Arrangements	Farmers consulted before water cuts in case of water shortage	Cropping patterns discussed depending on water availability	No visible involvement of farmers	Farmers claim of complete absence of meetings
Monitoring	Farmers measure water to their fields using application on mobile phones	Farmers measure water in the fields in terms of designated inches to their field (5 inches)	No existing mechanisms	No existing mechanisms

[1] As told by the government officials of the two states

Graduated Sanctions	Peer pressure applied or fines levied	Peer pressure applied or fines levied	Non – existent systems	Complete lack of collective action
Conflict Management	Meetings organised of members to sort problems	Water stopped to neighbouring fields	Conflict within the WUAs itself	Use of WUA to strike against DoI*
Elite Capture and Free riding issues	Minimal instances	Minimal instances	High levels of elite capture and accepted form of water access	High levels of elite capture and accepted form of water access
Role of Support Organization	Claims of high level of involvement	Claims of partial involvement	Claim s of minimal involvement	Claims of hostility

Source: Individual Interviews and FGDs with farmers and key informants 2012

****Department of Irrigation***

Literature on irrigation systems in India highlights the role of leadership and acknowledges its importance (Ruth – Meinzen Dick 2005) but does not address how it makes a process successful. The use of Grounded Theory approach in the study of these four villages, addresses this gap by collecting empirical data that digs deeper into the element of the individual agency. The institutional analysis and development framework conceived by Ostrom is then modified and discussed highlighting the role of individual agency in management of water user associations.

The study shows that out of the four villages, two villages were mostly successful in following most of the design principles and being innovative in their own ways especially when it came to keeping check on water theft and elite capture. The other two villages, inspite of the Water Users' Associations being created, could not maintain and function as intended. . The assumption is, it is the action arena which makes the difference and the co-ordination of the action situation and the participants was the reason of the success in the two villages. The effective collective action was brought about by the leaders either through a high incentive or a strong individual force. The success stories, Nas 1 and Gtr 1 had a working water management system because of the efforts of certain individuals who were instrumental in facilitating the process of collective action, and passing over leadership to carefully identified successors to carry on the process forward On the other hand the in the unsuccessful villages Nas 2 and Gtr 2, there appeared to be a system collapse with high levels of corruption and lack of motivation even within the Water Users Association, as there was no obvious or strong form of leadership which could get the community together; further validating the observation that the presence of an organization does not necessarily lead to greater farmer participation in irrigation management (Meinzen-Dick, 2007) if it is not backed by strong driving force and leadership.

Literature also states that these leaders most often than not are driven towards such mobilizing activity either because they have certain personal agendas of their own which eventually works towards serving the greater good or they may just have the activist nature in them where they work towards rights of the community (Gulati, Ashok. Meizen-Dick. Raju, 2005). In the case of Gtr 1, the President of the WUA was using the management of the WUA to serve his bigger political ambition whereas in the case of Nas 1, the executive secretary had been the prodigy of the ex-bureaucrat, where the former had been part of the student movement against the 1970s Emergency rule of Indira Gandhi. The evidence that these particular individuals were able to sustain a partnership with the Department of Irrigation and manage their water supply, was the one extra rotation that was being given to the farmers in the hot season..

In the case of the failed villages where irrigation management was concerned, they were a reflection of typical situation where there is usually tension between traditions of farmer

involvement and traditions of dependence on the state. For many farmers in irrigation systems, it is the government's 'duty' to provide them with water. Any change requiring them to do more of the system management themselves constitutes a fundamental change in the social contract of the state. The willingness of the people to provide the extra time and effort depends on the strength of community ties, how bad people perceive their present situation to be, the motivational campaigns and how much confidence they have in the regular government agency to provide the necessary support (Gulati, Meizen-Dick and Raju, 2005). The fact that the concerned presidents and the committee members of the WUAs of both Nas 2 and Gtr2 felt that accountability of the water management system was entirely on the part of Irrigation department was evidenced by the lack of water measuring devices when the water was released. Through interactions with respondents across the community, it was found that possibility of change appeared as a threat to the already created status quo which was enabling them to enjoy patronage and favors. The small farmers and the canal inspectors of both the villages felt that one of the main reasons for the system failure was a lack of leadership and motivation to get the community together

In all the four village sites, it was observed, irrespective of whether the WUAs were almost successfully running or were almost a failure, there was consensus that it was an important part of their local institutions. Facing the issue of lack of information and also accessibility with the extension services by the Agriculture department, the WUAs were taking up the role of information dissemination in addition to organising workshops and awareness prograames along with centers of seed and fertilizer distribution as was seen in in the sucessful villages and to some extent in Nas 2. Particularly in Nas 1 and Gtr 1,it was the expectation of the community that the leaders of the WUAs should facilitate training and capacity building where water management was concerned; this involving advise on cropping patterns as well. This they felt was a very crucial aspect of the roles of the WUAs, given the extreme varaibility in the climate that they had been experiencing since the last 10 years. In the words of the respondents '*water is what makes agriculture run, if there is no water, there will be no crops'*. However, whether the leadership can steer the WUAs to take up such a role as a parallel system and become the replacement of the extension systems in their particular communities needs further investigation as time and budget constraints did not allow this particular study to explore the aspect.

Conclusions and Outlook

Through the case study of the Water Users Assiciation of the four villages, it was seen that the local social capital and leadership potential if used to advantage are likely to lead to more active organizations (Gulati, Meizen-Dick and Raju, 2005) and to a large extent achieve the desired goals of good governance, finanical solvecy and inclusion of the marginalised as the desired impact of the PIM. However, it needs to be acknowledged that collective actions that becomes dependent on particular individuals many not be as robust inspite of existence of an instittutional framework. Therefore, it is worthwhile in further understanding the conditions under which these particular leaders are created, motivations that drive these leaders and the ways to sustain such leadership as a continuous process in the community in the management of common pool resources. This will further help in understanding the social effects of PIM and focus further research on WUAs in the wider context of agrarian relationships. This will entail further studies and documentation of innovations in the given social system at both the technology and institutional level aimed at better agricultural practices and improving adaptive capacity to climate change.

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