

Revisiting the Participatory Model of Development: Institutional Survival in Watershed Programmes in Four Indian States

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Abstract

The watershed development programmes have been hailed as an important agent for overall rural development in India by enhancing livelihoods through natural resource management. The tenure for these government-funded projects end after five years but the benefits of the project are expected to be taken forward beyond the project duration through the active participation of the community-based organisations. This study aims to address the relatively untouched area of post-project management of watershed programmes, and draws experience from a primary survey covering 201 watershed projects in four major states of India, 3 to 5 years after the completion of the project period. Through the lens of institutional survival after the withdrawal of government funding, this paper follows the debate around the community-based institutions created for the purpose of project ideally meant to promote development through a 'neat' bureaucratic design that seeks to remove 'political' interference referred widely to as 'anti-politics machines' in the academic discourse. In reality, they leave out large sections of the community in terms of their representation. This paper questions the institution-building process and its outcome, particularly with respect to survival of the core watershed institution, that is, the Watershed Committee.

Keywords

Decentralisation, participatory development, watershed programmes, community-based organisations, post-project management

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Introduction

The centrality of natural resources in the global south and, in particular, India, in sustaining rural livelihoods can hardly be contested, given the degree of dependence on land-based activities in rural India. The watershed programmes aim to do that and more, by not only aiming to improve the basis of rural livelihoods through improving the quality and expanding the base of natural resources, but also on two other counts. Firstly, it is one of the first government programmes after the 1990s that recognises the systemic environmental link between land, water and vegetation. Secondly, it calls for a participatory model of development and seeks to do so by creating grass-root institutions that are exclusively empowered to make decisions and implement the watershed projects.

This kind of participatory approach, however, has been by no means exclusive to watershed programmes and has been introduced in models of managing degraded forests as well as irrigation systems such as canals and government tube wells. The proponents of a decentralised and participatory mode of development argue that 'reversing the power equation' is the only way to achieve robust participatory processes (Chambers, 1994). Contrarily, some claim that creation of such space is not only inconsistent with the neo-liberal regime but also that the state agency actively plays the role of what Ferguson terms as an 'anti-politics' machine, which at best bypasses the poor and at worst works against them (Ferguson, 1994). Though Ferguson has been critiqued on several counts, ranging from his proposed inevitability of depoliticisation of development efforts (Tordella, 2003 cited in Chhotray, 2007) to his stated route of extending state and bureaucratic power through failed developmental projects, which may not apply to other contexts (Kumar & Corbridge, 2002), his work has been followed by a host of other scholarly works that take the issue of 'depoliticisation' of development projects further (Mosse, 2001; Sundar, 2000).

As a counter-point, there are views that emphasise decentralisation and participatory processes, and in fact, are consistent with the larger philosophy of market-driven development (Mohan & Stokke, 2000). The neo-liberal proponents see the state as a barrier to efficient service delivery and in recent years, institutional reforms, social capital and decentralisation have been seen as the road to efficient service delivery by removing or at least diluting the role of the bureaucratic state, by increasingly devolving both power and functions to semi-autonomous, parastatal organisations and non-government organisations (NGOs) (Cheema & Rondinelli, 1983).

Participation and decentralisation have produced very different agendas that it appears to do on the surface. While banking very heavily on the 'local', it underplays local inequalities and power relations as well as the way the local connects with the sub-national, national and transnational economic and political forces (Mohan & Stokke, 2000). In the framework of participatory development, 'local' spaces are being imagined and reconstructed as the site of empowerment and knowledge generation. An imagination of consensual ecologically harmonious communities are in contradiction with a more realistic social structure, ridden with unequal power relations functioning, negotiating and sometimes existing in a state of conflict (Leach, Mearns, & Scoones, 1999).

Within the participatory development model, two important pieces of work that adopts the framework outlined above specifically with respect to natural resource management through watershed development programmes in India, contribute in a significant manner to the larger arguments forwarded in this study (Baviskar, 2005; Chhotray, 2007). Baviskar, based on her ethnographic survey of two villages in Madhya Pradesh, argues that the short-term need for both the politicians and bureaucrats at different levels requires participation of key and powerful members of the village to demonstrate success. Chhotray arrives at very similar conclusions based on the field investigations in Andhra Pradesh, and observes that the Watershed Committee (WC), which is treated as an 'apolitical' institution, is characterised by the very same 'factional politics' that is aligned to the dominant class. As a result, these institutions are unlikely to demonstrate any pro-poor outcomes, hence sacrificing the basic intents they start out with.

This article aims to analyse the nature of the decentralised participatory model adopted in the watershed programmes, drawing from the experiences of four major states in India, namely, Gujarat, Andhra Pradesh, Madhya Pradesh and Rajasthan. The central argument is made by exploring the character of the participatory institutions, in this case, the WC which is the core agency designed to deliver the benefits through the management of natural resources within the geo-hydrological unit of a watershed. This introductory overview is followed by six more sections. The next section summarises data and methods used in this paper, while the third section spells out the nature of co-option of the concepts of 'community' and 'participation' observed in the watershed development guidelines in India. The fourth section, based on a review, brings together experiences of participatory community-based institutions managing natural resources in developing countries and in India. The fifth section describes key features of the institution-building processes based on the field observation, and the sixth section attempts to understand the factors that influence the survival of the WCs after the project period. The concluding section summarises the findings and spells out some specific policy lessons.

Data and Methods

The study is based on a primary survey carried out in the four states of India, namely, Gujarat, Rajasthan, Andhra Pradesh and Madhya Pradesh.¹ The survey instruments that were used to collect the information included structured questionnaires, interviews of key informants and focus group discussions. As the primary objective of the larger study on which this paper has been based was to evaluate post-project performance of watershed projects, only projects that had been completed at least 2 to 3 years before the year of survey (2008–2009) qualified as potential sample watershed. Members (president/secretary) of a total of 201 micro-watershed institutions were surveyed, distributed more or less equally across the four states. The selection of states and districts was done on the basis of concentration of watershed works by the Ministry of Rural Development. The micro watersheds in the respective states were drawn randomly from the list provided by District Rural Development Agencies (DRDAs) of the selected districts.

Nature of Co-option ‘Community’ and ‘Participation’ in the Watershed Guideline, 2008

The general development discourse around a participatory approach in India that started after the 1990s is clearly a deviation from the pre-nineties centralised and sectoral approaches that treated related sectors, like agriculture, irrigation, forestry and so on as nearly watertight compartments within the explicit domain of the state (Sen, 2008). The 2008 Watershed Guidelines, based on the Parthasarthy Committee Report, marked the third substantive change in policy directions governing watershed projects since 1994. Though the sample micro-watersheds selected for this study comes under the 1994 guidelines, it is important to understand the temporal contours of the policy outlines that have incorporated lessons from past mistakes. While the 1994 guidelines sought to create institutions that would work independently of the village social councils (Panchayats) in implementing the watershed programmes, the 2003 Hariyali Guidelines empowered the Panchayats with the same work, almost completely marginalising the role of NGOs. The 2008 guidelines seek a mid-path that puts the WC back in place, but mandates that it has to work in complete coordination with the Panchayat and the committee is visualised as an offshoot of the democratically elected Panchayat. The see-sawing positions evident in the consecutive guidelines are indicative of the multi-directional tensions and disagreements within the government and bureaucracy, not to speak about civil society, that became the *raison d'être* for the urgency for visibility of indicators of performance (Chhotray, 2007).

The new guidelines have been more decisive about the expected outcomes of equity and gender sensitivity compared to its earlier counterparts. It seeks to improve access of benefits to the poor, particularly women, though the process through which this may happen is not spelt out in totality. However, the guidelines do mention that out of the 10 members of the WCs, at least five need to belong to user groups (UGs), self-help groups (SHGs), landless households, scheduled caste/tribe (SC/ST) households and women. It, however, does not spell out the proportion of such constituent parts in the WC. Though the shares of SC/STs vary by region, such confusion does not exist with respect to women and their numbers. One of the problems of this formulation is that the members of UGs, specified constituent parts of groups that should make up one half share, are mostly beneficiaries of private group benefits and are likely to belong to the landed caste. With the remaining half of the WC that is likely to be constituted by upper caste and class, the balance with UG members as a constituent part of the other half could just tilt the balance in favour of the dominant groups.

The Watershed Development Teams (WDT),² as in the past, is designed to play a vital role in capacity building, planning, execution and monitoring of the watershed works. Thus, the intended influence of the scientific top-down knowledge remains in place, and this given past experiences, squeezes out space for use of indigenous knowledge of natural resource management. The overt emphasis of use of geo-spatial tools like remote sensing and geographical information system (GIS) for building a micro-level data base will almost certainly have the undesirable effect of alienating the community members from comprehending the plan

and hence being active members in project planning and execution. The vocal articulation of the desirability of achieving equity and community participation in the latest guidelines, thus, has pre-cursors of failures in these very respects, though it certainly represents an improvement over the previous guidelines.

Experiences of Participatory Institutions for Governance of Natural Resources in India and other Developing Countries: A Review

There is a wide recognition in the literature that the poor are more reliant on natural resource dependent livelihoods, and this becomes even more true for common property resources (CPR). Much of the literature also attests to the ability of the indigenous community to manage natural resources (Gadgil & Guha, 1995; Jodha, 1985; Plagányia et al., 2013). There is no agreement about whether indigenous institutions distributed services from the natural resources equitably, and while some argue that these left out the poor and the women, even in relatively homogeneous areas like the Western Himalayan regions, others feel that household entitlements were better maintained for the rural households by the indigenous institutions, than the newer more formalised systems, which left out poorer households (Agarwal, 1997; Berker, 1998; Wade, 1988). But it is argued that the indigenous participatory institutions are dying out as a result of privatisation and globalisation, as per evidences from both India and South Africa (Beck & Nesmith, 2001). Privatisation of CPR is also increasingly alienating women from products of their labour (Carney, 1998).

In the practical implementation of the participatory forms of natural resource management in the global south, there is an exchange between the local and the external forms of knowledge (Rist, Chidambaranathan, Escobar, Wiesmann, & Simmermann, 2007). From comparative examples from India, Bolivia and Mali, such exchanges represents a very strong political idea among the community. With the expectations of benefits as a result of such endeavors, positive effects like refusal to pay bribes in India, and visualising a connection with such projects and the ongoing social movements relating to land reforms, biodiversity and decentralisation and so on in Bolivia is observed by scholars (Rist et al., 2007). Additionally, the existing levels of social inequalities actually shape the institutional forms that are adopted at the local levels. For example, in the case of India and Mali where inequalities are high, new institutions are used as platforms where the actors not only share and discuss the rules of governance of natural resources but the powerful also use them for political campaigns for purposes other than that of the project. In Bolivia, where inequalities are low, such institutions are rejected as they were viewed to be accessible to only some.

It has been rightly observed that intra-community power dynamics and ecological heterogeneity impact the functioning of institutions and, in turn, the well-being derived from environmental services (Leach et al., 1999). From a case study in Nkambati Nature Reserves in South Africa, it is revealed that in a area following a community-based approach to biodiversity conservation, the existing conflicts

over resource use were mediated by a set of interacting and overlapping institutions, both formal and informal. Socially differentiated practices were observed in Ghana with local large farmers adopting more sustainable practices than immigrants, who have no long-term stakes in local resources. Thus, while differentiations of the social structure produces differential accesses and outcomes for members of a community, combinations of different institutions coordinating, sometimes without dedicated functions, appear to work, because they are endowed with some degree of flexibility to suit the dynamic social and environmental contexts.

In the watershed development framework in India, though the 'external' engagement is not shut out, the institutions set up or existing institutions working are mostly formal. There are elements of informality in the way they are set up but the nature of the institutions and their broad functions by and large follow the different watershed guidelines specified over the years, at least by design. There is very often a mix of government organisations providing the technical support and the non-governmental agencies doing the social capacity building, though the Project Implementing Agency (PIA) which is responsible for initiating the project, can be one or the other. From a case study of a watershed development programme in Udaipur, Rajasthan, it is noted that in spite of the axes of inequalities as caste, ethnicity, gender and wealth, the NGO (Seva Mandir) which was the PIA, was successful in working across these divides by facilitating community action (Leach et al., 1999). Thus, though there were evidences of inequality of benefit distribution but the understanding of entitlements led the marginalised in the community to elect their own leader to politically bargain for their rights. In more recent times, an example from Madhya Pradesh shows that majority of the farmers' perceive that the WC is working efficiently (Mondal et al., 2016). A rural livelihood programme functioning in the deprived part of western Odisha showcasing community-based institutions brings forth the fact that in spite of the recognised rigidity of the formal institutions, they were valued as the way to upscale these programmes (Reddy & Sahu, 2013). The downside of the institution-building process included low frequency of community meetings for decision-making, lack of links with market and banks, non-functioning UGs, and weak links between different institutions involved in the programmes across a number of states in the country (Mondal et al., 2016). In spite of some success reported from selected watersheds in the Bundelkhand region in Uttar Pradesh in terms of increased solidarity within the community as a result of the watershed programme, the level of participation remained relatively low and ineffective in the government-implemented projects (Sinha, 2015). While concentration of investment in larger assets like check dams benefiting a few was reported in projects in western Odisha there was less focus on general soil moisture conservation techniques, that have a larger spread effect (Sinha, 2015).

Though the experiences in India and other developing countries revealed through the existing literature is mixed, some generalised observations can be made about the participatory institutions in the global south from this review that spans across almost 30 years. Firstly, the heterogeneity and power relations in the community are important parameters that shapes the functioning of a community-based institution. Secondly, the capability of understanding entitlements and claiming the same can be looked on as an important political endowment that the watershed

institutions have been able to achieve, though only in part. This brings us to the important issue about the process of institution building and this is analysed in this study through the somewhat unusual lens of survival of community-based institutions created during the watershed programmes in four major states of India.

Institution-building Process in the Study Area

In this section, an attempt has been made to understand some key features of the institution-building processes in the four states. The watershed management programmes in India assume particular significance because even after the completion of the official project period, these institutions can potentially carry forward the benefits of the watershed works. A lot of the conceived benefits of watershed programmes are associated with common pool resources (CPRs) and the maintenance of such resources can potentially benefit the women and the landless dependent on these CPRs. The survival of the institutions, and that of the WCs, in particular, is an essential, though not a sufficient condition to carry forward the benefits in the post-project stage.

The implementation work for the watershed projects commences at the level of the PIA, which under the 1994 and the 2000 guidelines, could have been line departments of the respective state governments or voluntary organisations/NGOs. Generating awareness amongst the community and the initiation of the formation of community-based institutions like watershed committees (one per micro-watershed), UGs³ and SHGs,⁴ are among the responsibilities of the PIA.⁵ According to the guidelines, milli-watersheds⁶ having an average area of 5,000 hectares are the units within which the PIA is set up. The micro-watersheds, having an average area of 500 hectares, are then selected from within the milli-watersheds identified for watershed programmes. By and large, the field interviews revealed that though there is no systematic method of selecting an environmentally and socio-economically deprived region (milli or micro-watershed), a larger share of STs and concentration of SCs has been one of the guiding parameters, particularly in Madhya Pradesh and Andhra Pradesh. Consequently, among the 200 micro-watersheds taken up for analysis, in around 63 the dominant social groups were SCs or STs. Madhya Pradesh, in particular, had 27 tribal villages out of the 47 considered for the study. Since the watershed programmes are basically a land development programme, it has an inbuilt iniquitous principle that larger land owners will get the most benefits, unless CPR are brought under the programme. In the past, these resources have been commonly bypassed by the watershed projects, skewing the benefit distribution against women and the landless, the latter belonging primarily to the SC households (Sen, 2008). In the study area, around 18 per cent of households are landless, and this number ranges from 16 per cent in Andhra Pradesh to 23 per cent in Gujarat. Around 92 per cent of these landless households are from either SC or ST households.

The formation of the WC is facilitated by the co-ordination between the PIA and the community. The former's work is to acquaint the community of the programme and subsequently support them to form the WC and other community-based organisations within the mandate of the project. The specific actions undertaken by the PIA included organising exposure visits to successful

project areas; providing an understanding of the watershed concept; acquainting community members with the project guidelines; providing them training for organising the community and in the techniques of construction of natural resource-based assets, like bunding, checkdams and percolation pits. The capacity-building engagements of the PIA have been very uneven across the states. Towards this end, Andhra Pradesh has done significantly better than the other states, particularly in those watersheds that were managed singly or jointly by NGOs. On the other end of the spectrum, many of the PIAs did not provide any training other than the minimum required to set up the WCs, in at least 31 of the 47 micro-watershed surveyed in Madhya Pradesh. Typically, NGOs are trained in community action and capacity building, though their performance was far from even and their performance in Gujarat was dismal. In Madhya Pradesh and Rajasthan, the NGO presence was minimal.

The WCs are formed in the Gram Sabha, which is an existing village institution, in which every household of the village is a member. One of the problems that was noted in the field was that the micro-watersheds, when properly demarcated, often cut across the village and Panchayat (often including a cluster of villages) boundaries. In some cases, the main village participated in the process of institution building, leaving the ones that had a part of its area within the micro-watershed. It was noted that some of the tribal hamlets in Madhya Pradesh were an exception to this rule and participated in the Gram Sabha proceedings even when they did not belong to the village because of strong networks among the tribal group.⁷ There are two major processes of appointing the president—election and nomination. A third process that was observed in six watersheds was nomination by the PIA, that resulted in taking away the power of decision-making away from the community. Gujarat is the only state where nomination was the more popular method, and group discussions in the state revealed that villagers, particularly those from the land-owning groups saw an advantage in nominating an existing political leader, who according to them, would be in a position to facilitate the release of funds for the project due his contacts with the government officers at the block and the district levels. Consequently, more than 50 per cent of the presidents of WC in the state were existing leaders, that is, Panchayat members, or leaders of youth clubs and so on. In Andhra Pradesh, the situation is contrary to this, and a key informant's interview revealed the importance of representation of 'common' beneficiaries, who would be present in the village and can be approached by the community members as required. In the same state, a history of success of women's micro-credit organisations has empowered women, and consequently, they are not only informed about the watershed work but also about their rights and entitlements from these programmes. The situation in the other states is antithetical to this, where many women were unaware of the nature of the natural resource related work that was being undertaken, and saw it loosely as the 'men's domain'.

Survival of WCs in the Post-project Phase

As mentioned above, it is nearly impossible for the benefits of watershed projects to continue after the project period without an operational WC in the watershed.

Table 1. Survival of Watershed Development Committees in Completed Projects

Whether Village Development Committees are Surviving	Andhra Pradesh		Gujarat		Madhya Pradesh		Rajasthan	
	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent
Yes	21	38.9	42	85.7	10	21.3	29	58
No	33	61.1	7	14.3	37	78.7	21	42
Total	54	100	49	100	47	100	50	100

Source: Based on field work done in four states, 2008–2009 and follow-up survey in 2011.

Not only does the secretary of the WC maintain the record of the Watershed Development Fund (WDF), meant for the repair of the projects, but the role of WC as a nodal institution is also extremely significant with respect to any decision about allocation of funds for repair as this fund is limited. The UGs should ideally interact with the WC for the repair and maintenance works of the assets created during the project period. The norm about allocation of WDF has not been very clear in the policy documents till recently, and without a doubt, developing some kind of consensus about it within the community is difficult without a functioning WC in place.

The survival status of WCs in projects in the post-project period reveals a great deal of variation across states (Table 1). Gujarat leads in terms of WC survival, followed by Rajasthan, while Andhra Pradesh and Madhya Pradesh (where less than one-fourth of the WCs survive) lag behind in this respect. One of the reasons for a relatively high reporting figure of surviving WCs in Rajasthan is because many of them are the existing institutions of the Panchayati Raj even under the 1994 guidelines. A comparative analysis of success of watershed groups of USA and India demonstrates that the chances of survival improves when the watershed groups and associated communities have an active interest and stake in terms of having realised perceivable livelihood benefits from the project (Koontz & Sen, 2013).

Since the states are not comparable in many respects, the apparent percentage shares can be misleading. Through a multivariate logistic analysis, we attempt to establish the reasons that promote survival of this vital institution controlling for the indicators included in the model. An attempt has been made to understand the importance of not only the statistically significant factors, but also the insignificant factors, and whether, in sum, they are an indicator of healthy community participation, in a manner that will enable promotion of equity based development outcome.

Factors influencing survival of institutions (WC):

1. *Watershed characteristics:* Watershed characteristics imposed by the area coming under the boundary of the watershed and the size of the community living in it are likely to have an effect on survival of the watershed level institution (Agarwal, 2001). The variables considered within this are:
 - a. *Area of the watershed:* The area of the watershed is commonly associated with the general slope characteristics of the area. Usually, an area

with high slopes would tend to have smaller micro-watershed boundaries and vice versa. The benefits of watershed works are usually more visible when the slopes are above a certain threshold. On the other hand, a small area with very steep slopes may be not viable for many of the watershed works, like bunding, to be implemented successfully.

- b. *Size of households (cultivating)*: The hypothesis is that the larger the size of the households, the more difficult it is to form a cohesive, thus long lasting institution. Heterogeneity or clashes of interests are likely to be less among smaller groups of households, and the possibility of resolving conflict situations are greater in such cases though there are points of view opposing this contention (Poteete & Ostrom, 2004).
2. *General features of implementation of the project*: The three proxy variables that have been used for our analysis are:
 - a. *Beneficiary spread, that is, share of total beneficiary to total population*: The higher the percentage of the total population benefited by the project, the higher is the expected probability of survival of the WC.
 - b. *High percentage of total investments to total fund allocation* is indicative of a successful implementation of the project and can be taken as a proxy variable for an active WC during the project period. The chances that such institutions survive are expected to be greater.
 - c. *Average contribution made for shared benefits*: The contribution in the watershed programme is based on a stipulated norm and has nothing to do with people's involvement in the project. However, the stipulated norm is higher for private work than those in the CPR (which at times do not have any element of free labour or *shramdan*). This variable has been included to understand whether private benefits generate more demand for continuing the benefits and hence a will to make the institution work.
 3. *Institution-building process*: Ideally, a more democratic institution-building process is expected to be inclusive and is expected to positively influence the survival chances of an institution.
 - a. *Type of PIAs*: NGOs are known to have better capacity compared to government departments to facilitate the institution-building processes. It is expected that chances of survival of institutions would be greater in a NGO-implemented project compared to others.
 - b. *Mode of appointing WC members*: The two major ways in which members are appointed are through nomination in the Gram Sabha⁸ or through elections. The latter process can be taken to be more democratic while the former is the sign of muffling dissent.
 - c. *Attendance in the Gram Sabha*: Higher attendance in the Gram Sabha is indicative of an involved community. Since this question is based on the qualitative perception of the respondents, this information is subjective and categorical, but vital, nevertheless.
 4. *WC members' characteristics and community representation*: A representative institution is expected to survive longer as it is expected that

acceptability of such institution within the community would be more. We have taken the three indicators of representation as mentioned before:

- a. *Representation in terms of land ownership*: Land ownership is an important indicator of wealth and social stature in rural India and has been used here as a proxy to understand class representativeness of the WC. The ownership holding sizes of the president and secretary were compared with that of the average size of land holding of the village. Andhra Pradesh shows a favourable representation of the average land-owner in the WC president and secretary, while Rajasthan the most skewed representation.
 - b. *Gender representation*: There is evidence to argue that presence of women not only enhances institutional performance, but also are likely to promote equitable benefits (Westerman, Ashby & Pretty, 2005). Watershed programme is, however, a land-based programme and alienation of women from private land, particularly in rural India is well known (Agarwal, 2003).
 - c. *Presence of an existing leader in WC*: One of the institutional approaches that has been found to be quite successful in context of watershed development projects is the existing leadership approach (Reddy, 2000). However, though institutions led by existing leaders usually have lower transaction costs associated with them, it does not encourage emergence of new leaders from within the community very easily; also given the highly fragmented rural societies in India, the chances that the leader would represent the interests of the entire community are limited.
5. *State*: The implementation of watershed projects in the different states varies a great deal. This variable would control for the location and therefore, differences in norms and modes of implementation across the different state government.
 6. *Age of the Project*: The older the project, the lower are the survival chances of the institution. It is important to control for the effect of this variable, to understand the significance of the above-mentioned variables in explaining the survival of WC.

Table 2 provides the details of the variables in the model and the way they have been measured. Table 3 reveals that as the area of watershed increases, the probability of survival of institution increases significantly. However, controlling for the size, the probability of survival declines significantly with the increase of the size of cultivating households, which is consistent with our hypothesis.

All the institution-building processes emerge as important and significant in explaining the probability of WC survival. Though it had been hypothesised that the appointment of WC members through elections are more democratic and hence expected to aid institutional survival, our analysis reveals that, in fact, the survival probability increases significantly if the members are nominated as opposed to elected. This finding is significant. While acceptance of nominated appointments could be indicative of societies having greater cohesion, chances

Table 2. Codes and Nature of Explanatory Variables Affecting Institutional Survival

Broad Factors	Indicator	Nature of Variable	Details of Coding	Reference Category
Watershed characteristic	Area	Continuous	-	-
	Number of cultivating households	Continuous	-	-
General features of implementation of the project	Total investment	Continuous	-	-
	User spread	Continuous	-	-
	Percentage of total investment to total allocation	Continuous	-	-
	Average user contribution for common work	Continuous	-	-
Institution building factors	Type of PIA	Categorical	1- Government department 2- PRI 3- NGO	3- NGO
	Mode of election	Categorical	1- Nominated 2- Elected	2- Elected
	Gram Sabha attendance	Categorical	1- Low 2- High	2- High
Village Development Committee members' characteristics and community representation	Economic representation	Categorical	1- Represented by higher economic group 2- Represented by lower economic group 3- Represented by similar economic group	3- Represented by similar economic group
	Gender representation	Categorical	1- No woman in WDC 2- At least 1 woman in WDC	2- At least 1 woman in WDC
	Existing leadership	Categorical	1- No existing leader in WDC 2- At least 1 existing leader	2- At least 1 existing leader
	State	-	1- Andhra Pradesh 2- Gujarat 3- Madhya Pradesh 4- Rajasthan	4- Rajasthan
Age of project	2009 minus year of completion	Continuous	-	-

Source: Based on the author's study.

Table 3. Results of Logistic Regression

(Dependent variable = survival of WC)

Broad Factors	Variables in the Equation	B	Exp β	Significance	Probability of WC Surviving*
Watershed characteristics	Area of watershed	0.002	1.002	(+) Significant at 5%	0.2% higher per hectare
	Number of households	-0.001	0.999	(-) Significant at 5%	0.1% lower per household
	Total investment	0.00	1.01	(+) Significant at 5%	1% more per lac
	User spread	0.00	1.00	Insignificant	
Project implementation features	Share of fund spent to allocated	-0.01	0.99	Insignificant	
	Contribution from beneficiary	0.10	1.10	(+) Significant at 1%	10% more per 1%
	Mode of election	0.87	2.38	(+) Significant at 1%	138 % more for nominated appointment
					52% for higher attendance
Institution-building process	Gram Sabha attendance	0.73	1.52	(+) Significant at 1%	
	PIA	-1.26	0.28	(+) Significant at 1%	72% lower for government department
	Government agency vs. NGO			(-) Significant at 1%	
Village Development Committee member representation	Panchayati Raj Institution vs. NGO	0.47	1.60	Insignificant	
	Economic representation			Insignificant	
	Higher vs. lower	-0.06	0.94	Insignificant	
	Equivalent vs. lower	-0.45	0.64	Insignificant	
	Gender representation	-0.24	0.79	Insignificant	
	Existing leadership	-0.26	1.10	Insignificant	
Others	State			Significant at 1%	Madhya Pradesh 71% lower than Rajasthan, others insignificant
	Gujarat vs. Rajasthan	0.59	0.55		
	Andhra Pradesh vs. Rajasthan	0.61	1.84		
	Madhya Pradesh vs. Rajasthan	1.23	0.29		
Age of project	-0.32	0.72	Significant at 1%	28 % lower per year	

Source: Based on the author's study.

are that these are societies that do not allow dissent. Such a finding is consistent with observations made in earlier studies that regions known to have factional politics are avoided by the officials for reasons of efficiency (Baviskar, 2005). Ideally a more democratically elected WC, albeit adulterated with power relations that do not achieve the ideal level of equity, probably augurs well for furthering the plurality of demands within the WC. That the survival chances of the WC diminish with elections is probably indicative of the prevalence of dominant and partisan politics that is inconsistent with equitable outcomes (Baviskar, 2004; Chhotray, 2007). As expected, higher Gram Sabha attendance increase chances of survival of WC. Also, our contention that NGOs are better in terms of capacity building for robust institution formation gets validated as they perform significantly better compared to government departments, though there is no difference in the performance of Panchayati Raj Institutions (PRIs) and NGOs as the former is by default an institution that would not suffer extinction. The issue of representation does not, as per the results of the model, seem to be important in explaining the chances of WC survival. One limitation in this set of variables is that we have been unable to capture social representation (like caste groups) in our survey, which is the most important way in which members of rural community in India in most places identify themselves.⁹

Nevertheless, it is important to question as to why the presence of representation of marginalised groups do not alter the chances of survival of a 'participatory' institution. There is no doubt that the marginalised groups' livelihoods depend more critically on land-based resources and their presence should have increased the demand for survival of an institution that is seen to promote such interests. There are a number of possibilities that needs to be put on board here. The general lack of treatment of common resources may lead to a lack of interest of women and the landless even they were members of WC. Second, their presence in the WCs may not be an effective one, given the existing socio-economic hierarchy in rural areas. It is also possible that the more powerful lose interest in furthering the cause of the marginalised when they are in a position to articulate their views in the WCs. But irrespective of these conjectures, these findings seem to imply that the process through which the WC was formed was far from a 'participatory' one that effectively provided space to different sections of the community.

Location of projects in different states influences chances of survival of WCs in general. However, neither the Andhra Pradesh nor the Gujarat projects are significantly better off compared to those located in Rajasthan. Madhya Pradesh, however, is significantly worse off compared to Rajasthan, after controlling for all variables in the model. It is a matter of concern that Andhra Pradesh, which performed better than the other states in terms of almost all parameters of representation, did not fare well in institutional survival. This supports the earlier finding that the WCs have not promoted a process of overall participation that would aid equitable outcomes. Lastly, as expected the older projects have a significantly lower chance of survival. In other words, as years pass after the completion of the official duration of the projects, the institution becomes weaker. Though this is as per our expectation, it is precisely this trend that the general governance of watershed projects should address.

Conclusion

This paper started with the contention that a truly participatory mode of natural resource management needs to negotiate with the intensely complex relationships of central government vs. village-level administrative dealings, political vs. administrative contestations, as also the interdependencies and conflicts within different segments in the community. The ecological, livelihood and equity goals of the watershed projects taken in a holistic sense make these programmes important and particularly significant for those rural marginalised sections of population. The active participation of these sections of population of the community negotiated through the watershed institutions could potentially have positive and desirable outcomes from such projects in terms of providing sustainable sources of livelihoods for the socio-economically marginalised section.

Earlier studies reveal that the journey of the participatory models, in general and those with respect to the natural resource management activities, in particular, have come nowhere close to fulfilling the outcomes that have been elaborated above. Though articulating the need and bringing in some elements of a participatory model is a step forward from the earlier 'command and control' projects of the pre-1990s, it has only remained a step forward, and proceeded no further. In fact these projects have, on one hand retained elements of a top-down approach, and have furthered interests of dominant groups in the community within the domain of implementation these projects, on the other, in an effort to promote visibility of short-term 'success and efficiency'. There is also evidence to believe that in many cases the basic norms of equity that these projects have started out with, has not only been potentially bypassed, but has been sacrificed.

This study revolves around processes of formation and survival of the core community institution, that is, the WC. The period of survival, which is two to three years after the project withdraws is dismal and only about half of these institutions have barely survived. It was expected that the demand for the continued benefits from the watershed project, if visible, would have created conditions for the survival of these institutions, as the repair and maintenance of the assets created during the project period depended critically on this. Clearly, by and large, this has not been the case. Further, it was expected that an institution which has representation of women and the land-poor section, would have greater chances of survival, given that their stakes of maintaining the health of the natural resources are higher. Disturbingly, though, none of the three variables of representation is significant in explaining the probability of institutional survival. This, along with the fact that nominations, rather than the election of key members of WC increases the chances of institutional survival, lead us to conclude that neither the process of formation nor the nature of these institutions are close to being participatory in nature and are likely to promote desired equity outcomes.

Three policy implications emerge from the above analysis. Though the survival of the watershed institutions is important for continued benefits of watershed works, they cannot be taken, at least in the way it has been implemented so far, as an indicator of the delivery of an equitable social goal. The study reveals that the coordination between the external institutions and the community has been weak

and capacity building for recognition and claiming of rights by the marginalised, be it landless, SCs/STs or women has been practically absent. It is here that the external agencies and the NGOs need to focus, recognising the complexities of the social relations within the community. Secondly, as the study reveals that the formal new institutions have fallen much short of the expectations, there needs to be a serious engagement with the existing informal institutions that may exist in many cases. The neat design of the watershed programmes tends to miss the functions of pre-existing informal institutions, which may have the flexibility to suit the ecological uncertainties and social dynamisms. It needs to be examined, however, whether the existing institutions fulfil equitable outcomes, and the changes that can be brought in to suit this end. Thirdly, an emphasis on social and economic representations of the marginalised communities seems to be a necessary condition for forming the community-based institutions to favour a desirable ecological and social outcome. This may be difficult to achieve in one common platform like the WC. The possibility of sub-institutions responsible for different resources in different areas, observed among the tribal hamlets of Dhar district in Madhya Pradesh, may hold a lesson for the future.

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Notes

1. The survey was carried out by the Development Support Centre for the project 'Post-project Management and Use of Watershed Development Fund in the Watershed Development Programmes in India (2008–09)' for which the author was an external consultant in 2008–2009.
2. The WDT is support to provide technical support to the WC in the formulation of the watershed project. It should typically constitute four members who preferably have professional degree (Government of India, 2008).
3. A user group in a watershed project is expected to be formed for every asset that benefits a group. This group is meant to take responsibility for maintaining the structure, either through application to the WC for availing Watershed Development Funds, or by raising funds on their own or by some other mutually agreed upon means.
4. Self help groups are microcredit organisation, commonly all-women groups, meant to aid the land-poor groups, which do not have adequate access to private land resources.
5. According the 2000 Common Guidelines, 'The role of the Project Implementation Agencies (PIAS) will be to motivate with the Gram Panchayats to pass the necessary

resolutions to make public contributions, conduct Participatory Rural Appraisal (PRA) exercises to prepare the development plans for each watershed, undertake community organisation and training for the village communities, provide technical guidance and supervision of watershed development activities, manage project implementation, inspect and authenticate project accounts, undertake action research to adapt low-cost technologies and/or validate and build upon indigenous technical knowledge, monitor and review the overall project implementation and set up institutional arrangements for post-project operation and maintenance and further development of the assets created during the period.⁷

6. The milli-watersheds are geo-hydrological units are a smaller version of a catchment and defined by being drained by a common surface water system that drains out at a common point. This is demarcated by a ridge line and hence represents an ideal unit for intervention in natural resource rejuvenation.
7. The Bhils from Madhya Pradesh who have strong kinship ties use it for efficient information flows represents an example of this.
8. Gram Sabha is a village-level institution that includes all the adult citizens of the village as members. In a sense, it represents the general body of a *Gram Panchayat*.
9. The survey group faced caste-related tensions in some of our sample watersheds due to which the question related to the caste identity was considered sensitive and dropped.

References

- Agrawal, A. (2001). Common property institutions and sustainable governance of resources. *World Development*, 29(10), 1649–1672.
- Agarwal, B. (1997). Environmental action, gender equity and women's participation. *Development and Change*, 28(1), 1–44.
- . (2003). Gender and land rights revisited: Explaining new prospects via the state, family and market. *Journal of Agrarian Change*, 3(1 & 2), 84–224.
- Baviskar, A. (2005). Between micro-politics and administrative imperatives: Decentralisation and the watershed mission in Madhya Pradesh, India. In J.C. Ribot & A.M. Larson (Eds), *Democratic decentralisation through a natural resource lens* (pp. 26–40). London: Routledge.
- Beck, T., & Nesmith, C. (2001). Building on poor people's capacities: The case of common property resources in India and West Africa. *World Development*, 29(1), 119–133.
- Carney, D. (Ed.) (1998). *Sustainable rural livelihoods: what contribution can we make?* London: DFID/ODI.
- Chambers, R. (1994). *Paradigm shifts and practice of participatory research and development*. Working Paper 2, Institute of Development Studies, London.
- Cheema, G., & Rondinelli, D. (1983). *Decentralisation and development: Policy implementation in developing countries*. London: SAGE.
- Chhotray, V. (2007). The 'anti-politics machine' in India: Depoliticisation through local institution building for participatory watershed development. *Journal of Development Studies*, 43(6), 1037–1056.
- Ferguson, J. (1994). *The anti-politics machine: Development, de-politicisation and Bureaucratic power in Lesotho*. Minneapolis, MN: University of Minnesota Press.
- Gadgil, M., & Guha, R. (1995). *Ecology and equity: The use and abuse of nature in contemporary India*. Delhi: Penguin Books India.
- Government of India (2010). *Policy brief on post project management and use of watershed development fund in four states of India by S. Osa, A. Shah, S. Sen and S. Rout*. New Delhi: National Rainfed Area Authority.

- Jodha, N.S. (1985). Population growth and the decline of common property resources in Rajasthan, India. *Population and Development Review*, 11(2), 247–264.
- Koontz T.M., & Sen S. (2013). Community responses to government defunding of watershed projects: A comparative study in India and the USA. *Environmental Management*, 51(3), 571–585.
- Kumar, S., & Corbridge, S. (2002). Programmed to fail? Development projects and the politics of participation. *Journal of Development Studies*, 39(2), 73–103.
- Leach, M., Mearns, R., & Scoones, I. (1999). Environmental entitlements: Dynamics and institutions in community-based natural resource management. *World Development*, 27(2), 225–247.
- Mohan, G., & Stokke, K. (2000). Participatory development and empowerment: The dangers of localism. *Third World Quarterly*, 21(2), 247–268.
- Mondal, B., Singh, A., Sekar, I., Sinha, M.K., Kumar, S., & Ramajayam, D. (2016). Institutional arrangements for watershed development programmes in Bundelkhand region of Madhya Pradesh, India: An explorative study. *International Journal of Water Resources Development*, 32(2), 219–231.
- Mosse, D. (2001). ‘People’s knowledge’, participation and patronage: Operations and representations in rural development’. In Bill Cook & Uma Kothari (Eds), *Participation, the new tyranny?* (pp. 16–35). London: Zed.
- Plagányia, É.E., van Putten, I., Hutton, T., Deng, R.A., Dennis, D., Pascoe, S., Skewes, T., & Campbell, R.A. (2013). Integrating indigenous livelihood and lifestyle objectives in managing a natural resource. *Proceedings of the National Academy of Sciences of the United States of America*, 110(9), 3639–3644.
- Poteete, A.R., & Ostrom, E. (2004). Heterogeneity, group size and collective action: The role of institutions in forest management. *Development and Change*, 35(3), 435–461.
- Reddy, G.B., & Sahu, N. (2013). 5 building community-based institutions in Western Orissa Rural Livelihoods Project for green development. *Climate-Resilient Development: Participatory Solutions from Developing Countries*, 86.
- Reddy, V.R. (2000). Sustainable watershed management: Institutional approach. *Economic & Political Weekly*, 35(38), 3435–3444.
- Rist, S., Chidambaranathan, M., Escobar, C., Wiesmann, U., & Simmermann, A. (2007). Moving from sustainable management to sustainable governance of natural resources: The role of social learning processes in rural India, Bolivia and Mali. *Journal of Rural Studies*, 23(1), 23–37.
- Sen, S. (2008). Watershed programmes and rural development in India. In K. Lahiri-Dutt & R.J. Wassan (Eds), *Water first: Issues and challenges for communities in South Asia* (pp. 243–256). New Delhi: SAGE Publications.
- Sinha, H. (2015). Revisiting the participatory watershed development programmes of India. *Commons Amidst Complexity and Change, the Fifteenth Biennial Conference of the International Association for the Study of the Commons*, Alberta.
- Sundar, Nandini (2000). ‘Unpacking the ‘joint’ in joint forest management. *Development and Change*, 31(1), 255–279.
- Westerman, O., Ashby, J., & Pretty, J. (2005). Gender and social capital: The importance of gender differences for maturity and effectiveness of natural resource management. *World Development*, 33(11), 1783–1799.