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Demystifying 'Tradition': The Politics of Rainwater Harvesting in Rural Rajasthan, India

Saurabh Gupta

Institute for Agricultural Economics and Social Sciences in the Tropics and Sub-Tropics, University of Hohenheim, Germany; saurabh.gupta@uni-hohenheim.de

ABSTRACT: The debate on traditional rainwater harvesting has largely cast the issue in terms of 'for-or-against'. Much intellectual energy has been spent on demonstrating whether traditional rainwater harvesting works or not. Yet, we know very little about *how* it works in specific localities. This paper seeks to address this analytical question. Taking the case of a Gandhian activist organisation, *Tarun Bharat Sangh* (TBS), which has received international recognition for promoting traditional rainwater harvesting by means of small earthen dams (locally known as *johads*) in Rajasthani villages, this paper explains how a grassroots organisation, while advocating the cause of people's control of their local natural resources, uses and manipulates the concept of 'traditional' for creating a niche for itself in the arena of soil and water conservation. The paper problematises 'traditional' rainwater harvesting and the various positive connotations associated with it in the narrative of the TBS, and highlights the lack of attention given to issues of equity in its interventions. It is suggested that deliberate efforts on the part of grassroots organisations are required to address the issues of equity if the goals of sustainable ecological practices are to be achieved in any meaningful sense.

KEYWORDS: Rainwater harvesting, water conservation, new traditionalism, *johad*, Rajasthan

INTRODUCTION

The rise of grassroots environmental activism and the increasing influence of 'post-development' (read anti-modern) ideas in the development discourse have led to the celebration of 'traditions', by both activists and rural development practitioners. 'Traditional', which was seen as detrimental to development until the 1980s, is now an integral part of the mainstream as well as an alternative development discourses.¹ In the arena of water conservation and watershed development, more and more organisations are now engaged in promoting (or supporting) 'traditional' water harvesting systems for enhancing sustainability, reducing vulnerabilities or even drought-proofing semiarid regions of the countryside. On the one hand, these organisations, claiming to revive 'traditional' practices have attracted critical acclaim from both international donors and critics sympathetic to grassroots environmentalism, for bringing 'tradition' and 'indigenous technical knowledge' into development practice. On the other hand, they have invited wide-ranging criticisms for ignoring scientific knowledge (and thus effectiveness of the interventions) and power relations (and thus issues of equity) (for example, see Mosse, 2003; Chhotray, 2007).

There is no dearth of development literature that presents 'traditional' and 'modern' as binary opposites. Also, much intellectual energy has been spent on demonstrating *whether* 'traditional' is good or bad (see for example, Agarwal and Narain, 1997; Sengupta, 1985). Yet, we know very little about *how* it works in specific localities.² This paper argues that 'traditional' water harvesting and the claims

¹ See Ellis and Biggs, 2001 for a review of rural development policies from the 1950s to the 2000s.

² Exceptions are historically informed rich ethnographic studies, such as the one on South Indian Tank irrigation systems by David Mosse (2003).

associated with its desirability can be seen as a manifestation of the agenda, needs and ideology of the intervening agency as much as the actual needs of the local communities. It raises the question of the accountability and representativeness of organisation vis-à-vis the communities. Taking the case of a Gandhian activist organisation, *Tarun Bharat Sangh* (hereafter TBS), which has received international recognition (and funding) for promoting traditional rainwater harvesting by means of small earthen dams (locally known as *johads*; see figure 1 below) in Rajasthani villages, this paper explains how a grassroots organisation, while advocating the cause of people's control over their local natural resources, uses and manipulates the idea of 'traditional' for creating a niche for itself in the arena of soil and water conservation.³ The TBS, based in Alwar district of Rajasthan, takes pride in designing its water harvesting structures using indigenous knowledge and *shramdaan* (literally, voluntary labour) provided by village communities. It takes recourse to religious and cultural practices (such as tree-worship) for promoting forest conservation and claims to have 'drought-proofed' some Rajasthani villages.⁴ It also sees itself as an agency playing a catalytic role in realising the Gandhian dream of village 'self-reliance' and self-sufficiency. A discussion on the TBS's ability to create 'change from below', and its power to keep autonomy from the trans-national development regime even while accepting funds from international donors has been presented elsewhere (see Gupta and Sinha, 2008). Here, my main purpose is to problematise the notion and practice of 'traditional' rainwater harvesting in the context of the TBS. The paper demystifies traditional rainwater harvesting and the various positive connotations associated with it in the narratives of TBS. It argues that beyond the discourse, little attention is actually given to equity in the 'revival' of traditional water harvesting.

Figure 1. A johad in Rajasthan.



The paper begins by providing an overview of debates on natural resources management from the 1950s to present times. The emphasis is on the shift from the engineering paradigm based on the notion of 'big is beautiful', quite popular until the 1970s, to a new-traditionalist (Sinha et al., 1997) discourse which supports the idea of 'small is beautiful', among other issues. Moreover, 'new traditionalism' is often seen in opposition to modernity. I present a critical appraisal of new traditionalism and suggest that it is built on strong rhetoric but weak empirical evidence. I maintain that traditional and modern are not opposing ways of conceiving reality – as is often assumed – but can be

³ The information presented in the paper is based on the author's fieldwork in Rajasthan (2003-2004).

⁴ This claim was repeatedly made by the leader of the organisation in several interviews with the author.

used by the same actors for different purposes. Following this, a brief discussion on water harvesting and irrigation in the pre-colonial and colonial periods is provided in the context of Rajasthan to highlight the fact that 'traditional' is not *static*, nor is it simply restricted to small-scale. The case study of the TBS is then introduced, focusing on its genesis, ideology and agenda. The paper explicates what is unique about the TBS and what has led to its popularity, especially amongst international development communities, dignitaries and urban-based intellectuals. It then problematises rainwater harvesting interventions of the TBS, especially its attempt to describe all forms of water harvesting structures as 'traditional' or indigenous and its endeavour to valorise indigenous technical knowledge and its bearers – *jal yoddhas* (literally, water crusaders). I point to TBS's failure in addressing issues of equity by, first, putting the burden of participation and 'self-reliance' on to the poorer in the form of *shramdaan* and second, focusing exclusively on water *conservation* while turning a blind eye to water *extraction*. Furthermore, its claims of 'drought-proofing' are also examined. The paper concludes by suggesting that while unbridled faith in modern scientific knowledge is problematic, we should be equally wary of romanticising the past and traditional practices. It is not my intention to suggest that traditional ecological practices have nothing to offer to modernity in terms of sustainability (cf. Sinha et al., 1997). Nor is my intention to undermine the contributions of the TBS in promoting the spirit of voluntarism as well as in providing livelihoods to its functionaries, who are mainly from the Alwar villages. Rather my critique is directed to a particular strand of new traditionalism practised by the TBS, which valorises the past, reproduces binary opposites of 'traditional' versus 'modern' or 'state' versus 'community', and does not take issues of equity seriously.

FROM 'BIG IS BEAUTIFUL' TO 'SMALL IS BEAUTIFUL'

In the 1950s and the 1960s, the 'golden age' of capitalism in the Western hemisphere, theories of modernisation dominated discourses on irrigation and agricultural development. Construction of large-scale irrigation projects, big dams and canals coupled with centralisation of natural resources management was the trend. Supplementing the efforts made by post-colonial states to modernise their irrigation sector and to meet the demands of hydroelectricity, many international donors and development agencies also funded these projects across the global South. In India, big dams and large-scale irrigation projects were essential components of Nehru's modernist vision. No wonder, these engineering marvels dotted the landscapes of the Indian countryside. The ugly side of these 'temples of modern India' (as referred to by Nehru), i.e. their environmental and social costs, did not attract much academic and public attention at the time. The thrust of modernisation was powerful enough to silence its critics. Superiority of modern engineering and technology remained more or less unquestioned. Indeed, rational scientific knowledge was seen as panacea to eradicate rural 'backwardness' and poverty. Big dams and canals were to bring not just water and electricity to Indian villages and towns but also to remove 'ignorance' and helplessness in the wake of highly erratic monsoons, particularly in the semiarid regions.

The 1970s was the decade of the post-modern turn in the social sciences. Established knowledge, rationality of science and certainty of modernity, all came under attack by post-modern scholars as well as activists involved in 'new social movements', especially environmental (and feminist) movements in both advanced capitalist countries and the so-called 'Third World'. Grassroots environmental activism arose and fuelled debates on the access to, and control over, local natural resources. On the one hand, images of women hugging trees (the famous *Chipko* movement in the Indian Himalayas) entered public imagination and, on the other, issues of environment and development gained a truly global dimension (e.g. The UN Conference on the Human Environment at Stockholm in 1972). In contrast to the homogenising mission of modernity, celebration of diversity and local cultures became the trend of the day. Anti-modern and populist ideas which got buried during the march towards modernity in the previous decades got a new lease of life. 'Traditional', which was seen as a hindrance to modernisation now came to be recognised as something worthwhile and useful for the livelihood struggles of the

resource-dependent communities. In a nutshell, 'small is beautiful' (which is also the title of E.F. Schumacher's paradigmatic text) replaced 'big is beautiful' at least in development thinking if not so much in practice.

By the late 1980s, the previously dominant engineering paradigm gave way to an alternative discourse on natural resources management based on decentralisation and local control. Mosse (1997) suggests that there are two main schools of thought which have produced this alternative view: the first draws on an institutional-economic analysis of local forms of co-operative action. This school is mainly influenced by the ideas of new-institutional theorists like Elinor Ostrom (1990). The second school emphasises the force of tradition and moral codes in generating and preserving co-operative resource management (Mosse, 1997). This school is largely influenced by post-modern ideas and critiques of highly centralised natural resource governance as practised during the post-colonial period. Taking recourse to game-theoretic models based on applied mathematics, new institutionalists argue that neither privatisation nor centralisation guarantees optimum resource use. On the contrary, the community of resource users, by formulating right institutions or rules for governing common resources such as pastures, forests, water or fisheries, can achieve efficient resource management (see Ostrom, 1990; Bromley, 1992). New-institutional designs have been widely accepted by international development agencies that started sponsoring projects for decentralised natural resource management, such as community irrigation management, joint forest management or participatory watershed management.⁵

Apart from new institutionalism, the shift towards 'community' and 'local' in natural resources governance thinking and practice was also brought about by what Sinha et al. (1997) call 'new traditionalism'. Because organisations like the TBS draw upon this discourse, and their interventions are, in turn, used by proponents for further legitimising 'new-traditional' ideas, it is pertinent to discuss here its main tenets in some detail. This discourse on environment and development in the context of India presents the pre-colonial past as a time when natural resources were managed by village communities on a sustainable basis. The interference of the colonial and post-colonial states, especially in controlling natural resources, is seen as the main cause of the decline of traditional institutions for the management of water, forests and common pastures (Gupta, 2009). New-traditionalist discourse is anti-modern in its tone and celebrates 'traditional practices' and 'local knowledge'. Post-colonial development policies are criticised for alienating people from their local resources, and for destroying local institutions and 'community-feeling'. A prominent anti-modernist (and eco-feminist) thinker, Vandana Shiva (who is also closely associated with the TBS) argues that the 'western' agenda of development has "stripped nature of her creative power" and transformed it into "dead and manipulable matter" (Shiva, 1992). 'Resource', suggests Shiva (ibid), originally implied life: nature's power of self-regeneration. The rise of industrialism and colonialism commoditised 'natural resources' as they merely become those parts of nature that were required as inputs for industrial production and colonial trade through the use of human skills and technology. Furthermore, Shiva (ibid) maintains that the Western worldview, based on modern science is responsible for the 'desacralisation' of nature.⁶

During the past two decades, a powerful narrative of the decline of traditional water harvesting systems based on indigenous knowledge and technology has dominated the development discourse (see Agarwal and Narain, 1997). This narrative suggests that it is crucial to revive traditional water harvesting systems to meet the requirements of sustainable development. In this narrative, technological change in agriculture is also seen as something that is detrimental to 'community-feeling', and ultimately negative for traditional institutions and practices. Appadurai (1990) argues that technological changes (such as the introduction of electrified tube-wells) lead to individualism and

⁵ A critique of new institutionalism is beyond the scope of this paper but for review; see Sinha, 1996; Cleaver, 2002; Mosse, 2003; Gupta, 2009.

⁶ This argument is often taken by neo-traditionalist social activists and NGOs to obtain a high moral ground for their cause of environmental protection, as we shall see later in this paper while discussing the activities of the TBS.

breaking down of community ties or sociality, with an overall negative impact on small farmers. This negative attitude towards 'modern' technology has made organisations like the TBS to focus exclusively on water conservation and ignore the issues of water extraction and distribution among users. The lack of attention to distribution allows for the issue of (in)-equity to be left aside, as we shall see later in the paper.

I suggest that the claims of anti-modern thinkers regarding the harmful effects of colonialism and capitalism are not false but cannot be generalised to all communities or societies. In putting forward their arguments, new traditionalists end up in futile romanticisation of pre-modern time, but many scholars invite us to a more balanced analysis. Sillitoe (1998), for instance, cautions that while indigenous knowledge may facilitate people's skilful management of their resources, it may be inadequate in situations of rapid change (see also Mosse, 2003). Baviskar (2003) suggests that identities, interests and resources should not be seen as predetermined givens, but as emergent products of the practices of cultural production. In the same vein, other scholars highlight the mutability of identities and traditions, thus calling concepts such as local knowledge, custom, and indigeneity into question (see Tsing et al., 2005). Sundar (2000) maintains that the question of how 'tradition' is defined in any particular context or at any particular time is not pre-given; it is individuals who choose and thus take tradition forward. Further, Tsing (1999) argues that development agencies are able to create collaborations on issues of environment by cleverly engaging with the 'green development fantasies' of the rural, backward or exotic, and in the process, grant agency to certain community members (e.g. 'tribal elders'). In the story of the TBS that follows, the jalyoddhas or johads can be seen as examples of 'green development fantasies' of diverse sets of actors promoting 'traditional' rainwater harvesting.

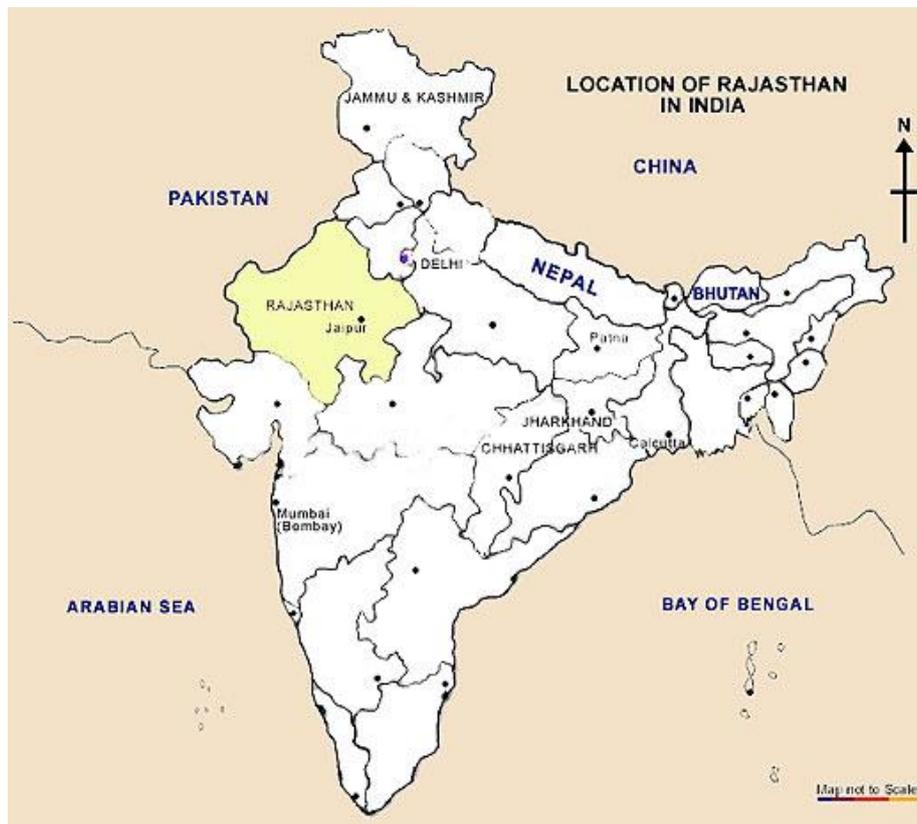
Historically rooted ethnographic research also suggests that the so-called 'traditional communities' may not be as eco-friendly as was once believed (Agrawal, 1999; Sangameswaran, 2008). Even if we accept that the description of pre-colonial life by anti-modern thinkers is true it does not make sense to return to this era due to changes in the wider political economy. The new-traditionalist discourse views community as a homogeneous entity as opposed to the centralised state but fails to analyse relations of articulation between differently positioned social groups within a given community as well as the highly heterogeneous nature of the state in itself (cf. Gupta, 1995). Moreover, new-traditionalist accounts do not appreciate the conflicts within pre-modern communities and are blind to local power relations in accessing natural resources. Not only are the boundaries between the 'traditional' and 'modern' fuzzier than understood in these accounts, but new-traditionalist narratives also fail to see the ever-changing nature of the 'traditional' itself. I will demonstrate later in this paper that grassroots organisations while using 'modern' technology (for example, concrete *anicuts*⁷) publicise their activities as a *revival* of traditional system to legitimise their interventions, showing the permeability of both notions.

IS TRADITIONAL ALWAYS 'SMALL'? THE CASE OF WATER HARVESTING AND IRRIGATION IN RAJASTHAN

Rajasthan, the desert region in the northwest of India is the largest state in the country in terms of geographical area. Rajasthan was formed as a state of the Union of India in March 1949, by a merger of 19 princely states (headed by various Rajas and Maharajas), chieftainships, and territories under direct control of the British (GoR, 2002). Presently, of the 34 million hectares (Mha) of land area of Rajasthan, 13.3 Mha are under cultivation. Only 3.3 Mha are irrigated, of which two-thirds is irrigated by open dugwells and tube wells that, in turn, are dependent on rainfall for recharge (ibid). The rest of agriculture (more than 70%) is entirely dependent on erratic rainfall. Over the centuries, the inhabitants have devised several mechanisms to tackle this problem of water scarcity for survival, and feudal/colonial as well as post-colonial states or authorities have tried to address the problems related to dry land agriculture with different motives, methods, resources and power.

⁷ Structure built for impounding water using straight embankment on a stream.

Figure 2. Location of Rajasthan in India



In historical records, we find several instances of construction of large water reservoirs or dams in feudal times for drought and famine relief. One of the earliest references to such activities is from the 1660s. During the famine of 1662 AD in Mewar (Udaipur) region of south Rajasthan, the principal relief work was the dam of Raj Samand (cited in the Imperial Gazetteer of India, Rajputana, 1908). Another example is the construction of the Lake Jai Samand by damming four minor rivers in 1691 AD. It remained the largest artificial lake in the world till the building of the Aswan dam in Egypt (Saxena, 1975). We also find examples of such large-scale irrigation works in other parts of Rajasthan in the pre-colonial period. These lakes were used for irrigation purposes and proved to be highly advantageous to neighbouring cultivable areas through percolation as well as canal irrigation (ibid). This suggests that the so-called 'traditional' is not necessarily small-scale.

Rainwater harvesting or systems of harnessing water where it falls, has helped the inhabitants of Rajasthani villages to meet local requirements of food, water and fodder. There are different forms and sizes of water harvesting structures (according to local topography and agro-ecology) that can be found in Rajasthan.⁸ In the Alwar district of Rajasthan, small concave shaped earthen dams to prevent soil and water run-off are called johads, which apart from helping in groundwater recharge (that, in turn, is used for irrigation) also serve as watering point for cattle. While there is reference to irrigation dams and reservoirs in the Imperial Gazetteer (1908) and the GOR (1968), there is no reference to johads in these documents. However, we do find reference in both these documents of the importance of submerging bunds (which are fairly large in size in comparison to earthen johads) in preventing soil and water run-

⁸ For a detailed discussion on the various 'traditional' water conservation techniques in Rajasthan, see Bharara, 1999.

off, improving sub-soil storage of water and recharging groundwater.⁹ The Imperial Gazetteer (1908) mentions about 175 irrigation dams in the princely state of Alwar. A regular Public Works Department was established in the state in 1890 for their maintenance and for the construction of new dams and bunds. This clearly indicates that 'traditional' water harvesting systems were not limited to small earthen dams or johads, and the feudal regime in that time was involved in the extension of secured irrigation facilities through medium- to large-size bunds and reservoirs, besides privately owned wells. Moreover, we do not find evidence in the archival records and official documents that small earthen bunds were traditionally the preferred mode of rainwater harvesting and irrigation, or that they provided an effective solution to water crises in periods of drought. Yet, at the turn of the 20th century, the UN was describing johad as a traditional practice that has 'transformed the misfortune' of villagers in Alwar along with transforming ecology, agriculture and economics of several villages in the district (UN-IAWG-WES, 1998). What brought about this change in the status of johads, from a passing reference at best in the Imperial Gazetteer of 1908 to international recognition by 1998? This could be understood through the story of the TBS, which I present below.

TARUN BHARAT SANGH: GENESIS, IDEOLOGY AND AGENDA

The TBS story¹⁰ goes like this: Rajendra Singh, an ayurvedic physician by training and a follower of Jayprakash Narayan (popularly known as JP),¹¹ along with four friends of his, on the occasion of Gandhi's birth anniversary on October 2nd 1985, left for Kishori village (the final destination of a local bus leaving from Jaipur, the provincial capital) in Thanagazi tehsil of Alwar district with a mission to dedicate their lives, skills and talent for the betterment of the poorest sections of the village community.¹²

It was beyond the comprehension of the villagers as to why someone in his youth, educated in cities and coming from a privileged background, would like to offer selfless service without any motive for personal gain or a hidden agenda. Gradually, they won the confidence of some older people by talking to them about everyday issues, and by providing informal education to children. They came to know about the problem of recurrent droughts and water scarcity in the village. The preceding year

⁹ The primary function of submerging bunds is to store water in the soil. Such bunds are generally shallow and by the time sowing season starts, the bed gets dry on the surface, and can be used for cultivation. The District Gazetteer (Alwar) of 1968 notes that "wells which previously run dry in summer, come to have a permanent supply of water after the construction of a bund in the neighbourhood" but it is difficult to assess the distance up to which bunds extend this benefit to the surrounding wells.

¹⁰ As narrated to the author by Rajendra Singh, the leader of the TBS, in November 2003. Some information is supplemented by Rajendra Singh's interview with Madhu Kishwar, available at www.indiatogether.org/manushi/issue123/rajendra.htm (accessed 20 February 2011).

¹¹ JP was an ardent follower of Gandhi, and a renowned leader of the *sarvodaya* movement and its *Bhoodan* campaign, which promoted voluntary distribution of land by big landowners to landless workers and tillers. He actively participated in the Civil Disobedience (1933) and Quit India (1942) movements under the leadership of Gandhi, and was one of the founding members of the Congress Socialist Party, a left-wing group within the Congress. After independence, he got disillusioned with the practical experience of Nehruvian socialism, and decided to abandon active politics, and dedicated his life to the *sarvodaya* movement led by Vinoba Bhave. He set up his *ashram* in Hazaribagh district of Bihar (now in Jharkhand) and engaged in village reconstruction. He returned to active politics again in the late 1960s to agitate against the dictatorial regime of Indira Gandhi and led a nationwide movement (also known as JP movement) against the Congress rule, which led to the imposition of emergency in India during 1975-1977. The first non-Congress government that came to power at centre after the general elections in 1977 was under the leadership of Morarji Desai and guidance of JP.

¹² It may look eccentric for them to have come to a village without having planned the work that they wanted to do, but we have no reason to doubt their altruistic motive as we find many examples of people educated in urban areas who have decided to live in villages of Rajasthan to offer selfless service for the betterment of lives of village people. This band of youth took shelter in the open veranda of a temple near the bus stand of Kishori village. Initially, the villagers thought that they were militants from Punjab on the run. This anxiety was understandable since, at that point of time, Punjab was experiencing the most severe phase of militancy, and Rajasthan being the bordering state of Punjab was the hideout for many militants escaping the police.

witnessed a severe drought in Rajasthan, and the decreased water availability and high level of salinity had adversely affected drinking water supply and agriculture in this region. They also noticed that the majority of the young male population had migrated to cities, such as Delhi and Ahmedabad in search of gainful employment, which is usually construction work or rickshaw pulling.

Mangu Patel, a peasant from Gopalpura village motivated this group to undertake water harvesting activities. He confronted them by saying that "you educated young men; you do not want to work but only talk... You want to earn your living from mere talk. If not, then bring *phavda* and *gainti* (tools for digging) tomorrow morning and I will tell you where to make a start". He actually wanted them to remove silt from a small johad on a common land, which had become redundant with years of neglect. The first johad was de-silted before the monsoon of 1986, entirely through voluntary labour, although the labourers were remunerated through food made available by a grant from Christian Aid for drought relief. The benefits of rainwater harvesting were immediately visible in the form of availability of water and grass for cattle, and increase in groundwater level in wells located near the johad (although it is difficult to establish a direct correlation between johad and groundwater table, which could be affected by a variety of reasons, including the heavy rain in that season). Rajendra Singh, then in his late twenties, found the mission of his life to promote rainwater harvesting in Alwar villages.

Rajendra Singh got support from some educated young men from the nearby villages who were willing to work with him for water conservation. They were unemployed, and the opportunity to work (with the hope of getting some money) was the main motivating force for them to join the TBS. They became the key functionaries of the TBS in the years to come. Rajendra Singh was also able to generate funds (although meagre) from private donors and charitable foundations (especially using his contacts in Jaipur, and with the support of sarvodaya leaders and Gandhians in Rajasthan and Delhi, with whom he worked during the JP movement), and established an ashram (known as 'Tarun Ashram', which can also be called the 'headquarters' of the organisation) in Bhikampura village. The story of johad construction in Gopalpura village spread through word of mouth to the nearby villages whose residents started to contact the TBS to build small water harvesting structures. Indeed, in the late 1980s and early 1990s, TBS functionaries conducted *padyatras* (public marches/processions) to make contact with the new villages, and create awareness regarding water conservation and afforestation.¹³ The TBS activities expanded to other villages as they started to receive funds for constructing water harvesting structures (mainly from private donors). The TBS is reported to have worked in more than 700 villages of Rajasthan. The demand for building water harvesting structures (both earthen dams and concrete anicuts) is high in villages, and it is estimated that the TBS receives around 1,500 requests for the building of structures every year, but it is able to build only around 300 structures annually (Pangare, 2003).¹⁴

The TBS believes that water conservation is inherently a pious activity: *pani ka kaam, punya ka kaam* (work for water earns you goodwill) and compares it with the Gandhian emphasis on *khadi and charkha*.¹⁵ Rajendra Singh argues that had Gandhi been alive, he would have taken up rainwater harvesting work. Maintaining that their job is to harvest rainwater and not extract it, the TBS sponsors construction of water harvesting structures (johads, concrete *anicuts* and bunds) but does not provide any financial support for water extraction (digging wells or lift-irrigation) to peasant farmers, which allows the organisation to ignore the issue of equity. Following the Gandhian notion of village 'self-reliance', the TBS promotes shramdaan in its construction activities. The selection of sites and type of

¹³ TBS propagates the idea that we should respect trees and conserve forests because they are home to gods. It claims that 'tree worship' is a traditional practice in rural areas, which could be used constructively for forest conservation in the changed social context.

¹⁴ A typical johad could cost anything between INR 5000 and 50,000, depending on the size. A typical concrete *anicut* costs at least INR 100,000. The current exchange rate of 1 US\$ is INR 45 approximately.

¹⁵ *Khadi* is hand-spun cotton and *charkha* is a spinning-wheel. Gandhi promoted the use of khadi to inculcate the feeling of self-reliance under the colonial regime. The main idea was to reduce people's dependency on cotton textiles produced in the mills of Manchester and Lancashire in Britain.

work to be undertaken is also 'need-based' (as articulated by the village residents who approach TBS for support) and not decided on the basis of watershed maps as in governmental soil and water conservation programmes. The TBS believes that villagers know better about local topography and that there is no need to design project activities on the basis of scientific technical knowledge of urban educated irrigation or civil engineers. The TBS also claims that small-scale rainwater harvesting has 'drought-proofed' Alwar villages and that the villages where the TBS has extensively sponsored water conservation over the last two decades are able to meet their local requirements of water, fodder and wood-fuel even in times of failed monsoons.

The TBS helps individuals, groups or an entire village community (generally small hamlets) in the construction of various kinds of water harvesting structures (johads, concrete anicuts, bunds, etc). The activities of the organisation are managed in an informal manner- there is very little paperwork when compared to governmental departments and there are no hard and fast rules regarding villagers' contribution. At the time of payment (see section below) to labourers engaged in construction of structures on common lands 33% of the wages is deducted (in the form of 'voluntary labour'). In the making of private structures, the direct beneficiaries negotiate with the TBS workers for deciding the contribution by the TBS (which is generally around 40%). The biggest beneficiaries of rainwater harvesting are relatively well-off farmers, who have the resources to spend on extracting water (e.g. tube wells, submersible pumpsets, etc), as the main outcome of water harvesting is to recharge neighbouring groundwater. Poorer villagers also get employment as wage labourers during the period of construction.

In the late 1980s, it was the TBS that was looking for villages to build structures, but now it is the other way round. In the early years, due to lack of funds, most of the structures constructed were small johads. By the late 1990s, the TBS was receiving funds from international donors including the Ford Foundation, Inter-Church Organisation for Development Co-operation (ICCO), Swedish International Development Agency (SIDA), etc. and was mainly constructing concrete anicuts, which were in greater demand by the villagers due to their durability as well as direct utility for irrigation (in contrast to johads, whose main aim is to recharge groundwater). One possible reason for the increase in funding, mainly by international donors to grassroots organisation like the TBS in the 1990s is that the notion of 'community based natural resource management' (CBNRM) became very popular within international development circles. To the donor agencies, the TBS seemed to be a perfect candidate for receiving their funds meant for the promotion of CBNRM as well as 'traditional' conservation methods. On its part, to preserve its grassroots identity, the TBS presented all its projects (construction of johads/anicuts or afforestation) as both community-driven and a revival of traditional conservation practices.

It is notable that most of the concrete anicuts constructed by the TBS are 'illegal' as per the regulations of the Irrigation Department for they have not been built by seeking prior approval of the department. So, on the one hand, the *local* state (the Irrigation Department) has served several notices to the TBS for its illegal activities and, on the other, the activities of the organisation have received plaudits from the *distant* state actors like the President of India and the chief ministers of many states. Several national and foreign dignitaries, including the Prince of Wales have praised the work of the TBS, and Rajendra Singh was bestowed the prestigious Magsaysay award for community leadership in 2001. Numerous organisations and individuals see the story of the TBS as exemplary for several different reasons. Vandana Shiva sees the TBS as an alternative to the modernising mission of the highly centralised state even though the TBS is now promoting similar structures to those constructed by the Irrigation Department (e.g. concrete anicuts). The New Delhi-based Centre for Science and Environment counts the TBS as a model for the promotion of traditional knowledge in relation to rainwater harvesting (see Agarwal, 2000). Anti-dam movements and activists consider the activities of the TBS as an alternative to big dams and irrigation projects that displace a large number of people. Gandhians support the TBS for experimenting with Gandhi's notion of village republics based on 'self-sufficiency' and 'self-reliance' (see Mishra, 2001). Media, both electronic and print, project the TBS as a success

story for drought-proofing Rajasthan villages and, rejuvenating seasonal rivers. And, international donors and NGOs see in the TBS reasons for the celebration of people's power and an example of achieving ecological sustainability. Beyond rainwater harvesting, the ability of the TBS to be involved in nationwide campaigns against privatisation of water resources, illegal mining in Aravalli ranges, and the proposed project of inter-linking of rivers allows the organisation to broaden its support base. While Gandhians and big international development agencies have very different (and contradictory) stakes on issues of rural development, they both have come to praise the rainwater harvesting interventions of the TBS whose story has become what Tsing (1999) calls a "green development fantasy". In the following discussion I demystify rainwater harvesting activities of the TBS and highlight the various contradictions entailed.

DEMYSTIFYING 'TRADITIONAL' RAINWATER HARVESTING

Demystifying johads

As mentioned earlier, johads are cheaper to build in comparison to concrete anicuts but the demand for the latter is higher in villages due to their durability and potential in terms of irrigation development. However, the TBS refers to all its water harvesting structures by the generic name of johad in front of the larger development community in urban areas, media or donors to maintain its unique identity as a grassroots organisation promoting 'local knowledge'. This seems to be quite a strategic use of specific terms and discourse (of 'traditional knowledge' and community participation) by the TBS to maintain exteriority from the mainstream development regime, while at the same time to get funds from it. To the media and the international conservation communities, johads are presented in the following way:

Rajasthan has long been known for its underground water supply. Ancient Hindu scriptures mention the key technology: rainwater harvesting. Drawing upon centuries of experience, people built structures to catch and hold the monsoon rains and store them for the dry season to come. Archaeologists have dated some rainwater catchments as far back as 1500 BC. The dominant structure was the johad, a crescent-shaped dam of earth and rocks, built to intercept rainfall runoff. A johad served two functions. On the surface, it held water for livestock. But like an iceberg, its most important parts were below the surface. By holding water in place, it allowed the liquid to percolate down through the soil. It recharged the aquifer below, as far as a kilometre away. Stored underground, the water could not be lost to evaporation. In the midst of the dry season, without pipes or ditches to deliver water, villagers could always count on plenty of water from their wells, and irrigated fields lush with wheat, mustard and beans (...) In place of johads, the villagers turned to modern technology to keep the water flowing. With government aid in the 1950s, they began drilling 'tube wells' – deep wells that brought up the water with diesel-powered pumps. But the new wells ensnared them in a vicious cycle. When the water table dropped, they drilled even deeper; and the deeper they drilled, the more the water dropped. As a villager explained, "[e]veryone was very enthusiastic when a new tube well came to our village, because there was not much labour necessary to get the water. They just turned on the switch and got as much as they wanted. But they took so much water – they could take it 24 hours a day – and underground water levels dropped so much that eventually it became impossible to get water more than five or six hours a day". Eventually, the underground water dropped deeper than people could drill, wells began to go dry, and even streams and rivers were drying up (...) In earlier times, villagers would have dug out the silt and rebuilt their crumbling dams. But as the government seized more and more of their common lands, they had less and less incentive to protect what was left. Where farmers had once banded together to manage their resources, now they competed over the dwindling remains. Traditional village institutions fell apart, and a tradition of communal labour washed away with the topsoil.¹⁶

¹⁶ This narrative is taken from the website of an organisation called Ecotipping run by a group of North America-based ecologists. www.ecotippingpoints.org/our-stories/indepth/india-rajasthan-rainwater-harvest-restoration-groundwater-

There are four important claims in this narrative on johad, which are that (a) they were the dominant mode of rainwater harvesting that remained in practice until the advent of modernity; (b) people in Alwar did not face water crises in the past owing to the effective rainwater harvesting by means of johad; (c) the use of tube wells in the post-independence period led to a 'tragedy of the commons' and dwindling groundwater level and (d) physical deterioration of johads has to do with both the increasing penetration of the state in the management of local resources and a decline in the feeling of community cooperation. While it could be argued that the use of tube wells has led to overexploitation of groundwater, the claim that johads remained the dominant mode for rainwater harvesting in the pre-independence period is based on weak evidence (see above section). So is the claim that johads ensured plenty of water and crop yield in the pre-British/pre-independence period. Historically, rainfall has been highly erratic in Rajasthan and recurrent droughts have remained a characteristic feature of the ecology of the region (Bhatia, 1967). It is possible that, with better technological and financial resources available to them, individual farmers started to neglect johads and invest in more gainful (although costly) means of water harvesting (concrete anicuts) and water extraction (tube wells and pump sets). Arguably, the physical deterioration of johads has more to do with wider political and economic changes taking place in Alwar villages than simply the collapse of community cooperation as is the case for tanks of South India (Aubriot, this issue; Mosse, 2003). Moreover, johads and other water harvesting systems did not come into being as autonomous village systems isolated by the state as the princely states in Rajasthan have been investing in irrigation and water security for a long time (see above section). What we see is that in legitimising its own position as a development agent, the TBS reproduces binary opposites of 'state' versus 'community' or 'traditional' versus 'modern'. This, above all, helps the organisation to strengthen its position in the arena of soil and water conservation, especially since the global discourse on ecological sustainability has largely become critical of large-scale, top-down and state-led interventions for natural resources management.

Demystifying shramdaan

As noted earlier, an important element of construction activities sponsored by the TBS is shramdaan. Shramdaan has played an important role in the village 'constructive programmes'¹⁷ influenced by Gandhi in the pre-independence period and continued by his followers in various parts of India after independence. The essential idea behind voluntary labour is that it will ensure 'self-reliance' and local ownership, and inculcate the feeling of conservation. In fact, voluntary contribution of communities has now become an essential element of almost all rural development projects. The TBS maintains that if people contribute in terms of labour, cash or kind for water harvesting activities, they are likely to take care of the structures as they do for their individual property. Yet, in actual practice, shramdaan translates into compulsory deduction from the wages of the labourers employed in construction activities. Far from the ideal of 'self-reliance' held by the TBS, the labourers consider shramdaan as less-paid work but willing to accept it as the demand for employment is very high in rural areas, and for many workers, 'something is better than nothing'. In an interview with the author, a women labourer complained in the following words:

After one-third of my wages is deducted, there is hardly anything left to take home. We have been pursuing our *sarpanch* [head of panchayat] to build an earthen dam. He gave us assurance before

[johad.html](#) (accessed 24 February 2011). The author noted similar narratives presented by the TBS to visitors from abroad during his stay in Tarun Ashram in 2003-2004.

¹⁷ In the late 1920s, Gandhi pulled together his essential convictions on experiments with *truth*, and applied them to the broad field of agriculture and associated activities in India. The broad title which Gandhi gave to these ideas was the *Constructive Programme*. Gandhi described this important programme in the following manner: "Thirty-four years of continuous experience and experimenting in truth and non-violence have convinced me that non-violence cannot be sustained unless it is linked to conscious body-labour and finds expression in our daily contact with our neighbours. This is the constructive programme. It is not an end, it is an indispensable means and therefore is almost convertible with the end" (cited in Pinto, 1998).

panchayat elections but nothing happened. We then approached TBS for construction. They agreed to it but they pay us much less [one third of the wages are deducted at source].¹⁸

The TBS justifies shramdaan on the grounds of 'tradition' irrespective of whether shramdaan existed in the past in Alwar villages or the particular manner in which it existed (cf. Sangameswaran, 2008). Unlike the perception of Rajendra Singh, the village poor do not associate shramdaan with a water conservation mission. Their main concern is to get wage employment in construction activities. Likewise, they participate in the tree-plantation and 'afforestation' activities of the TBS only if they find it gainful in terms of wage employment and not because they imbibe the TBS's notion of 'tree worship' as a traditional and cultural practice. Rocheleau (1988) describes how women's groups in Kenya digging soil conservation terraces did so to secure the famine relief food from the agencies concerned, not "because (as those agencies stated at the time) they felt close to nature or even had much interest in conservation". The study of the TBS corroborates this argument and motivates us to think whether we should, even unintentionally, let the poor bear the cost of 'self-reliance' and participation and be 'used' to serve broader discursive goals of grassroots organisations that aim at securing the support of global environmental and development movements.

Demystifying *jal yoddhas*

Not only does the TBS romanticise the past, as noted in the narrative on johad, but also valorises the so-called 'traditional' rainwater harvesting practice. For example, the TBS refers to its functionaries engaged in construction of water harvesting structures as *jal yoddhas* or water crusaders. However, my conversations with several TBS activists suggest that for them water conservation work is more a livelihoods strategy than an ideological mission. A renowned weekly magazine in India wrote about a TBS functionary, a bearer of 'traditional' water harvesting knowledge, in the following words:¹⁹

With the design of about 4000 successful check dams – and seven revived rivers – on his CV, Gopal Singh's engineering ability beggars [sic] certification. His education began after his schooling ended with 10th grade. "In villages, people learn by practice. They have to measure (the slope and height of the land) without using tools", he says. His moment of truth came in 1998 in Rashtrapati Bhavan, where he had gone with a team of water harvesters invited by the then President KR Narayanan. After he proposed a tank near the Mughal Gardens, CPWD [Central Public works Department] engineers shot it down, saying there wasn't a slope. Two-and-a-half feet, he said, measuring with his eyes. "I know Gopal gets these things right. So I told the engineers to check it with their equipment", recalls waterman Rajendra Singh, Gopal's colleague at the Tarun Bharat Sangh in Alwar, Rajasthan. "It was just as Gopal had estimated".

It is claimed, as we see in the narrative above, that indigenous technical knowledge is not only as good as scientific knowledge, it is also low-cost and of more practical value for its users, the village communities. Briggs and Sharp (2004) argue that the failure of development to bring about positive change in the lives of the majority, and especially the rural poor, has led some theorists and development practitioners to "criticise modernisation approaches for being based on the uncritical transfer of science and technology from the North to the South" and from the urban to the rural. Yet, my interviews with Gopal Singh and other TBS functionaries reveal that they are not opposed to the use of scientific tools and equipments per se but find it to be costly. In fact, many of them have purchased tractors and pump sets for cultivating and irrigating their own fields and they also make use of heavy equipments like dumpers and earth movers in the construction of anicuts and bunds at times depending on project costs. This shows that for them 'traditional' knowledge is more valuable for

¹⁸ Interview (18 November 2003), Jogion ki dhaani village, Alwar (Rajasthan). While an unskilled labourer in governmental projects was getting approximately 70 rupees per day around that time, it was 45-50 rupees in TBS-sponsored projects.

¹⁹ www.tehelka.com/story_main46.asp?filename=Ne180910INSPIRATIONS.asp (accessed 24 February 2011). Original story published in Tehelka Magazine, Volume 7, Issue 37, dated 18 September 2010.

defining their "cultural identity vis-à-vis the state and outsiders" (Baviskar, 2000) rather than for water harvesting or agricultural development, intrinsically.

Demystifying indigenous technology

Li (2000) argues that "the diversity of agendas surrounding the concept of indigenous environmental knowledge forms a field of power within which alliances may be formed, struggles waged, claims made and rights asserted (or denied)". We can observe this in the case of rainwater harvesting interventions of the TBS. The Laha Ka Baas (LKB) village in Thanagazi sub-district of Alwar became the centre of conflict between the TBS and the Irrigation Department of Rajasthan in 2001 when the TBS decided to build a large earthen bund (80 m long and 12 m high) on a channel of the Ruparel river. The construction work started in March 2001, and the residents of LKB decided to invite the then chief minister of Rajasthan, Ashok Gehlot, to inaugurate it. In an administrative drill preceding the chief minister's visit, the local administration declared that the structure was constructed 'illegally' as no prior approval was sought from the local administration for its construction and that it will negatively affect the flow of water downstream. Consequently, in June 2001, the Irrigation Department served a notice to the TBS that the LKB earthen dam has been constructed in the violation of the Rajasthan Irrigation and Drainage Act of 1954. It asked TBS to immediately stop the construction work and demolish the completed portion within 7 days. The TBS refused to obey the orders and, as a result, the Irrigation Department officials landed in LKB with earthmovers to demolish the structure. The villagers responded by laying siege to the structure and sensing the tense situation, the officials halted the demolition (Kashwan, 2006).

This incident brought LKB and the TBS into the limelight in an unprecedented manner. The New Delhi-based Centre for Science and Environment (CSE), sympathetic to the cause of traditional water conservation techniques and grassroots environmentalism, launched a concerted media and civil society campaign against the government's attitude to curb local initiatives for water conservation and people's control over their natural resources (Kashwan, 2006). At the request of the TBS, a team of eminent technocrats and agricultural scientists²⁰ led by the CSE visited the site and declared that the structure will not negatively affect the availability of water in the villages located downstream, and projected it as a marvel of 'indigenous technology' and the first step towards *jal swaraj* (self-reliance in water).²¹ The team met the Chief Minister and requested him to stop its demolition by the irrigation bureaucracy. Due to the chief minister's intervention, the demolition was stopped in July 2001. However, and ironically, 2 years later in July 2003, the structure was breached in flash floods. The Irrigation Department was quick to ridicule the very idea of building a water harvesting structure based on traditional wisdom or 'rural engineering'. On the other hand, the TBS attributed the breach to the collapse of six small check dams built upstream by the government under drought-relief work earlier that year. While the Irrigation Department maintained throughout the controversy that the structure was built without obtaining their prior permission, the TBS and the CSE proclaimed that people should be allowed to take control of local natural resources without having to seek the authorisation of governmental organisations.

The dramatic end of the LKB controversy left several questions unanswered on the TBS's approach to rainwater harvesting. An evaluation report of the TBS activities written by Kumar and Kandpal (2003) for the SIDA, one of the main donors of the TBS, reveals that during the 2 years (2001-2003), when the LKB bund was intact, access to water was highly inequitable. Only two well-off farmers from the LKB

²⁰ Including M.S. Swaminathan, a prominent agricultural scientist and often known as father of the 'green revolution' in India; N.C. Saxena, the then Secretary of the Planning Commission of India; Mohan Gopal, the Director of the National Law School of India University, Bangalore, and M.C. Chaturvedi, founding head of the Civil Engineering Department at the Indian Institute of Technology, Kanpur.

²¹ www.cseindia.org/html/extra/dam/index_news.htm (accessed 5 June 2007). Notably, the CSE has been working closely with the TBS since the 1990s on the issues of traditional rainwater harvesting and grassroots environmental action.

village and one from the Bhagdoli village could afford to lift water to cross the ridge using submersible pumps (ibid). The groundwater recharge was towards the Bhagdoli village, and 25 bore wells were sunk in that village by relatively well-off farmers. Individual farmers invested over Rs1,600,000 (approximately US\$40,000), almost double the total cost of construction of the dam, on various methods of irrigation and lifting water in the two villages within the period of 2 years (ibid). In its blind celebration of 'traditional wisdom' and 'people's control over local resources', the TBS did not provide any support to small and medium farmers for water extraction so as to ensure fairness in the distribution of water. As such, small and marginal farmers could not gain much from the groundwater recharge. This reflects that the issues of equity and fair distribution were side-lined by the organisation in its attempt to rejuvenate 'traditional' rainwater harvesting methods and indigenous knowledge.

Demystifying drought-proofing

Within development circles, large dams are now viewed critically for their environmental costs and problems of human displacement (e.g. Singh, 1997; Drèze et al., 1997). However, small water harvesting structures like johads are rarely scrutinized for their viability in solving the problem of water scarcity in rain-fed areas on a sustainable basis. The new-traditionalist discourse primarily focuses on the different traditional methods of water harvesting practiced in India and argues that revival of these systems and methods will solve the problem of water scarcity in rain-fed areas. It also echoes current discourses on Indian irrigation that highlight the decline in tank surface irrigation and call for their conversion into groundwater recharge structures (see Sakurai and Palanisami, 2001). Environmental activists, a plethora of grassroots organisations, international development agencies and media largely highlight watershed development and rainwater harvesting as a 'solution' to the problem of water availability in rain-fed areas and effective mechanism to check recurrent droughts. Anil Agarwal, the founding director of the CSE, writes "water harvesting and groundwater recharge together can definitely drought-proof the country and create local food security which big dams cannot" (2000). The TBS too maintains that small water harvesting structures have the ability to 'drought-proof' Rajasthani villages.

Rather than being dismissed at first, expert understanding of hydrology can help us in questioning the linkages between drought-proofing and rainwater harvesting that is uncritically presented by the TBS. Two studies prove particularly useful for verifying the claims made by the TBS.²² Sharma (2002) suggests that there is no logical correlation between 'drought-proofing' and increased availability of groundwater, as claimed by the TBS. In his study of cropping patterns in the twin villages of Bhaonta-Kolyala, where the TBS has been active since the mid-1980s, Sharma (ibid) found that the availability of more water gives three options to farmers: increase the amount of water application to crops, change the cropping pattern towards more water-intensive crops or increase the area under irrigation. This means that all the extra water stored by the water harvesting structures during seasons of high rainfall is quickly utilised in the first season of drought. For this reason, Sharma (ibid) is apprehensive that in the areas where inadequate rainfall is experienced for longer stretches than just one year, it is difficult to envisage drought-proofing by the small water harvesting structures built by the TBS.

In a study of groundwater recharge in two villages – Bhaonta-Kolyala (upstream) and Samara (downstream), separated by a distance of approximately 20 km in Arvari basin, Ray and Bijarnia (2006) conclude that there are several factors (including average annual rainfall, rock structure and drainage system) responsible for the recharge of groundwater when rainwater is harvested simultaneously in both locations. However, the most significant factor determining the availability of water on a sustainable basis is the mismatch between production (recharge) and consumption of groundwater. In the Bhaonta village, located upstream, after the rainwater harvesting work done by the TBS, "the consumption of groundwater far exceeded its recharge in the late 1990s, which again pushes it into an

²² Sharma (2002); and Ray and Bijarnia (2006).

unsustainable or dark zone" (ibid). The author witnessed that only relatively well-off farmers are able to invest in water extraction and till the lands that have previously remained uncultivable due to lack of water availability. Many of them start cropping more water-thirsty but profitable crops (like sugar cane). The TBS does motivate farmers to make economical use of water and refrain from the use of chemical fertilisers but these suggestions are rarely followed. This may be due to farmers' need of higher crop yields and better incomes, which is sometimes incompatible with the goals of equity and sustainability. Thus, it is difficult to support the claim that small rainwater harvesting structures on their own could provide long-term water-security in semiarid regions with highly uneven rainfall.²³

CONCLUSIONS

It is not fruitful to continue debating traditional rainwater harvesting as a for-or-against issue. Presenting traditional/modern or state/community as binary oppositions will simply not advance the debate. Rather than asserting whether 'traditional' is good or bad, this paper has explained *how* traditional rainwater harvesting is used by the people and organisations who promote it as an alternative to top-down and state-led development. Sinha et al. (1997) caution that critical approaches to 'development' should not lead to uncritical acceptance of alternatives to it, and that the new-traditionalist discourse should be problematised for the political and ideological premises and the implications which flow from it, "in precisely the same way in which it insists the mainstream development should be interrogated on these same issues". While big dams have come under heavy criticism for right reasons, we should not accept small-scale 'traditional' rainwater harvesting as an alternative to it. Moreover, it is important to uncover the hidden complexities in terms of power relations and agendas of the different actors within the 'local' and 'traditional'. In the story of the TBS, we see that poorer villagers within the local communities are required to accept lower wages for upholding the 'tradition' of *shramdaan*. Traditional is not always benign, nor is it always desirable by the local communities if it does not lead to better access to resources or increased benefits in terms of harvest or wage employment, issues that are largely ignored by TBS as an organisation focusing on the discursive dimension on development.

While unbridled faith in scientific rationality needs a rethink, so does romanticisation of the past as well as traditional knowledge. Traditional knowledge and practices are not static but ever-changing in response to the changes in the wider political economy. As Sundar (2000) argues, "indigenous or local knowledge is not frozen, inert, timeless entity, but dependent on the material conditions of those whose knowledge it is and the uses to which it is put". Given better resources, peasant farmers do not prefer to stick to earthen dams and bullock carts but invest in more durable and useful alternatives (e.g. concrete bunds, tube wells and tractors). The TBS activists well aware of this still emphasise the 'traditional' aspect of their interventions for strategic reason: gaining popularity within the development circles where, of late, 'traditional' has come to be accepted as benign, just and 'sustainable'. What we see in the case of rainwater harvesting in Rajasthan is that popular technical knowledge is not merely 'traditional' but it undergoes change and "has permanent tendency towards syncretism" (Olivier de Sardan, 2005). This motivates us to deconstruct the boundaries between traditional and modern scientific knowledge systems, and make use of the stock of knowledge produced at multiple locations and institutional settings in the service of *community* rather than serving the interests of the state or NGOs. If scientific technical knowledge is to be protected from its monopolisation by the establishment for increasing bureaucratic power, popular technical knowledge also needs to be saved from its manipulation by grassroots organisations.

²³ Batchelor et al. (2002), in the context of Andhra Pradesh and Karnataka, also conclude that water-harvesting in semiarid regions, if used inappropriately, can lead to inequitable access to water resources. Furthermore, water harvesting technologies (contour-bunds, check dams, etc.) are not benign and may result in distinct winners and losers. Similarly, Shah (2009) highlights segregated access to groundwater in rural India in which the small and marginal farmers are at a disadvantage.

This paper argues that turning a blind eye to the issues of water extraction and focusing exclusively on conservation may reinforce existing power relations within local communities. It is the well-off farmers who gain the most from rainwater harvesting interventions of the TBS because they can afford to invest in water extraction that is inherently 'implied' by such technological choice aiming at groundwater recharge. Even if land- and natural- resources-based interventions are inherently inequitable in nature, there is a considerable scope for fair distribution of benefits. Compulsory deductions from the wages of poor labourers in the name of 'self-reliance' or not addressing the issue of water distribution in the name of 'revival of tradition' only contribute to an additional burden on the poor. Immediate attention is required to save the poor from bearing the cost of participation, self-reliance and tradition.

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REFERENCES

- Agarwal, A. 2000. Drought? Try capturing the rain. *The Asian Journal* 7(3): 22-29.
- Agarwal, A. and Narayan, S. (Eds). 1997. *Dying wisdom: Rise, fall and potential of India's traditional water harvesting systems*. New Delhi: Centre for Science and Environment.
- Agarwal, A. 1999. Enchantment and disenchantment: The role of community in natural resource conservation. *World Development* 27(4): 629-649.
- Appadurai, A. 1990. Technology and the reproduction of values in rural western India. In Marglin, F. and Marglin, S. (Eds), *Dominating knowledge: Development, culture and resistance*, pp. 185-216. Oxford: Clarendon.
- Batchelor, C.; Singh, A.; Mohan Rao, R. and Butterworth, J. 2002. Mitigating the potential unintended impacts of water harvesting. Paper presented at the IWRA International Regional Symposium 'Water for Human Survival', New Delhi, India, 26-29 November 2002.
- Baviskar, A. 2003. For a cultural politics of natural resources. *Economic and Political Weekly* 38(48): 5051-5055.
- Baviskar, A. 2000. Claims to knowledge, claims to control: Environmental conflict in the Great Himalayan National Park, India. In Ellen, R.; Parks, P. and Bicker, A. (Eds), *Indigenous environmental knowledge and its transformations*, pp. 101-120. Amsterdam: Harwood Academic Publishers.
- Bharara, L.P. 1999. *Man in the desert*. Jodhpur: Scientific Publishers.
- Bhatia, B.M. 1967. *Famines in India: A study in some aspects of the economic history of India*. New Delhi: Asia Publishing House.
- Briggs, J. and Sharp, J. 2004. Indigenous knowledge and development: A post-colonial caution. *Third World Quarterly* 25(4): 661-676.
- Bromley, D.W. 1992. *Making the commons work: Theory, practice and policy*. San Francisco: ICS Press.
- 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.
- Cleaver, F. 2002. Re-inventing institutions: Bricolage and the social embeddedness of natural resource management. *The European Journal of Development Research* 14(2): 11-30.
- Olivier de Sardan, J.P. 2005. *Anthropology and development*. London: Zed Books.
- Drèze, J.; Samson, M. and Singh, S. (Eds). 1997. *The dam and the nation: Displacement and resettlement in the Narmada valley*. Delhi: Oxford University Press.

- Ellis, F. and Biggs, S. 2001. Evolving themes in rural development 1950s-2000s. *Development Policy Review* 19(4): 437-448.
- GoR (Government of Rajasthan). 1968. District Gazetteer of Alwar, Jaipur: Central Press.
- GoR. 2002. Rajasthan human development report: Some facts. Jaipur: Office of the Chief Minister.
- Gupta, A. 1995. Blurred boundaries: The discourse of corruption, the culture of politics and the imagines state. *American Ethnologist* 22(2): 375-402.
- Gupta, S. 2009. The politics of development in rural Rajasthan, India: Evidence from water conservation and watershed development initiatives since the early 1990s. PhD thesis. University of London, UK.
- Gupta, S. and Sinha, S. 2008. Beyond 'dispositif' and 'depoliticisation': Spaces for civil society in water conservation in rural Rajasthan. In Lahiri-Dutt, K. and Wasson, R.J. (Eds), *Water first: Issues and challenges for nations and communities in South Asia*, pp. 271-288. New Delhi: Sage.
- Imperial Gazetteer of India (Rajputana). 1908. Calcutta: Superintendent of Government Printing.
- Kashwan, P. 2006. Traditional water harvesting structure: Community behind 'community'. *Economic and Political Weekly* 47(7): 596-598.
- Kumar, P. and Kandpal, B.M. 2003. Project on reviving and constructing small water harvesting systems in Rajasthan. Evaluation Report. Stockholm: Swedish International Development Agency.
- Li, T.M. 2000. Locating indigenous environmental knowledge in Indonesia. In Ellen, R.; Parks, P. and Bicker, A. (Eds), *Indigenous environmental knowledge and its transformations*, pp. 121-150. Amsterdam: Harwood Academic Publishers.
- Mishra, A. 2001. *The radiant raindrops of Rajasthan*. Dehradun: Research Foundation for Science, Technology and Ecology.
- Mosse, D. 1997. The symbolic of a common property resource: History, ecology and locality in tank-irrigated landscape in South India. *Development and Change* 28(3): 467-504.
- Mosse, D. 2003. *The rule of water*. New Delhi: Oxford University Press.
- Ostrom, E. 1990. *Governing the commons: The evolution of institutions for collective action*. Cambridge, UK: Cambridge University Press.
- Pangare, G. 2003. *Tarun Bharat Sangh* : Evaluation report. Utrecht, the Netherlands: Interchurch Organisation for Development Cooperation (ICCO).
- Pinto, V. 1998. *Gandhi's vision and values*. New Delhi: Sage.
- Ray, S. and Bijarnia, M. 2006. Upstream versus downstream. *Economic and Political Weekly* 41(3): 2375-2383.
- Rocheleau, D. 1988. Women, trees and tenure. In Fortmann, L. and Bruce, J. (Eds), *Whose trees? Proprietary dimensions of forestry*, pp. 254-272. London: Westview Press.
- Sakurai, T. and Palanisami, K. 2001. Tank irrigation management as a local common property: The case of Tamil Nadu, India. *Agricultural Economics* 25 (2-3): 271-283.
- Sangameswaram, P. 2008. Community formation, 'ideal' villages and watershed development in Western India. *Journal of Development Studies* 44(3): 384-408.
- Saxena, M. 1975. *Impact of the British sovereignty on the economic conditions of Rajasthan*. Delhi: Research Publications in Social Sciences.
- Sengupta, N. 1985. Irrigation: Traditional vs modern. *Economic and Political Weekly* 20(45-47): 1919-1938.
- Shah, T. 2009. *Taming the anarchy: Groundwater governance in South Asia*. Colombo: International Water Management Institute.
- Sharma, A. 2002. Does water harvesting help in water scarce regions? A case-study of two villages in Alwar, Rajasthan. Unpublished Paper. Colombo, Sri Lanka: International Water Management Institute.
- Shiva, V. 1992. Resources. In Sachs, W. (Ed), *The development dictionary: A guide to knowledge as power*, pp. 206-218. London: Zed Books.
- Sillitoe, P. 1998. The development of indigenous knowledge: A new applied anthropology. *Current Anthropology* 39(2): 223-252.
- Singh, S. 1997. *Taming the waters: The political economy of large dams in India*. Delhi: Oxford University Press.
- Sinha, S. 1996. Common property, community and collective action: Social movements and sustainable development in India. PhD thesis. Northwestern University, USA.
- Sinha, S.; Gururani, S. and Greenberg, B. 1997. The 'new traditionalist' discourse of Indian environmentalism. *Journal of Peasant Studies* 24(3): 65-99.
- Sundar, N. 2000. The construction and destruction of indigenous knowledge in India's Joint Forest Management Programme. In Ellen, R.; Parks, P. and Bicker, A. (Eds), *Indigenous environmental knowledge and its transformations*, pp. 79-100. Amsterdam: Harwood Academic Publishers.

- Tsing, A. 1999. Becoming a tribal elder and other green development fantasies. In Li, T.M. (Ed), *Marginality, power and production*, pp. 157-202. Amsterdam: Harwood Academic Publishers.
- Tsing, A.; Brosius, J.P. and Zerner, C. 2005. Introduction. In Brosius, J.P; Tsing, A. and Zerner, C. (Eds), *Communities and conservation: Histories and politics of community-based natural resource management*, pp. 1-36. Oxford: Rowman & Littlefield.
- UN-IAWG-WES (United Nations Inter-Agency Working Group on Water Environment and Sanitation). 1998. *Putting traditions back into practice: Johad-watershed in Alwar district of Rajasthan*. New Delhi: The United Nations.

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