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Undercurrents of Participatory Groundwater Governance in Rural Jalna, Western India

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ABSTRACT: This paper analyses a participatory groundwater governance project called Purna Groundwater Management Association (PGWMA). A pilot project under the World Bank-funded Maharashtra Water Sector Improvement Project, the PGWMA project spanned eight villages in the Marathwada region of Maharashtra. In the case study, we used ethnographic interviews, discussions with villagers, and analysis of project materials. At the governance level, we found that the groundwater problem was conceptualised in a depoliticised way and involved an oversimplified notion of the community; it also deployed a checklist-type approach to equity, sustainability and participation, and attempted to commodify water. At the level of the community, our observations of people's access to groundwater, and of their perceptions and knowledge, showed that the project failed to inculcate the idea of groundwater as commons. While the project led to slightly improved water access, for the most part it redeployed caste, class and gender relations and led to negligible improvement in community participation. The study examines the paradoxical coexistence of the 'success' of the participatory governance model and the actual failure to steer the community-groundwater relationship towards sustainability. The case could not be entirely explained by existing critiques within development studies (the root cause of the over-extraction problem was unsustainably high groundwater need); it did not fit the 'implementation failure' critique, nor did we find a semblance of an 'ideal', 'traditional' system of resource management; a politicised understanding of the community was also insufficient. Using the Cultural Political Economy approach, we found that the historical sedimentation of high groundwater demand was linked to an imaginary of a 'better life' through social structures, political economy, technology access and postcolonial development policies that have influenced agricultural practices. The situation has become unsustainable due to dwindling water tables. Thinking through these 'undercurrents' of groundwater governance leads to a deeper understanding of the groundwater problem, its framings and meanings at multiple levels, and its links to equity and sustainability.

KEYWORDS: Participation, groundwater governance, hard rock aquifer, community-groundwater relationship, Cultural Political Economy, Maharashtra, India

INTRODUCTION

Groundwater usage in South Asia has contributed to drought-proofing monsoon agriculture, individualising water control, alleviating poverty, and increasing incomes and livelihood diversification. In comparison with surface water storage, groundwater is considered by private actors to be a reliable source because of its availability, individualised access and accessibility in spatially dispersed areas, which makes it easy for individuals to scavenge when required (Shah, 2010). Groundwater is found in aquifers whose boundaries may not coincide with administrative boundaries and which are difficult to delineate in comparison to watersheds. Deep extraction taps into water that has been stored for hundreds,

thousands or even tens of thousands of years in aquifers that generally do not recharge. Complex hydrogeological and socio-economic characteristics determine access to, and usage of, groundwater (Kulkarni, 2011).

Groundwater exploitation has reached unsustainable levels in the Western Indian state of Maharashtra (Government of Maharashtra, 2004); drinking water security is threatened due to the presence of predominantly hard rock aquifers and the unfettered extraction of water for irrigation (Government of India, September 2011). In response, the Maharashtra government passed the *Maharashtra Groundwater (Development and Management) Act 2009* (Government of Maharashtra, 2009). Research shows that a participatory approach that includes hydrogeological factors is an effective method for dealing with groundwater over-extraction (Foster et al., 2007; Joshi et al., 2019). The World Bank has been promoting participatory groundwater management in India, with the aim of institutionalising participation in specific ways (Government of Maharashtra, 2013; World Bank, 2005a). The Maharashtra Water Sector Improvement Project included pilot projects on user-centred aquifer management, including the Purna Groundwater Management Association project. The PGWMA site is spread over eight villages around Terni[1] in drought-prone Jalna District (Government of Maharashtra, 2013, 2014). The PGWMA project is located in the Marathwada region, which is plagued with frequent droughts, groundwater depletion, distress migration, water-intensive cropping patterns and weak water governance (Purandare, 2013); the project was considered to be a successful case of user-centred aquifer management and was shortlisted for the Prime Minister's Awards for Excellence in Administration 2011-12 (Government of Maharashtra, 2013).

This case study presents a critical analysis of PGWMA-related texts and narratives at the level of governance discourse as well as at the village/community level; it examines and critiques the emerging contradictions and disconnects between the two. It uses concepts from the Cultural Political Economy (CPE) approach to critically analyse policymaking, policy texts and actual policy practices, using it broadly for critical policy studies (Jessop, 2010) as they intersect with other studies in Asia by Baviskar (2007) and Li (1999). Cultural Political Economy provides a framework for studying natural resource governance; it attempts to synthesise critical semiotic analysis with critical political economy to understand "patterns of social interactions, including direct or indirect human interactions with the natural world" (Jessop, 2010: 338). For analysis, we use the term 'undercurrents' to go beyond the literal description of groundwater as natural flows of water underground, and to signify the layers of meaning and the realities of people's relationships with this natural resource. Referring to them as undercurrents highlights the different aspects of sociomaterial lives as they relate to sustainability and state discourses; in this way we attempt to repoliticise participatory groundwater governance.

The paper begins with a brief description of groundwater usage in Maharashtra, particularly in the Marathwada region, and then gives an overview of the case study of the PGWMA project. We then explain the methods of the case study, followed by a discussion of the analytical framework. We follow this with two major sections on our findings and analysis at the governance-discourse level and at the level of the community-groundwater relationship. We go on to analyse, and attempt to repoliticise, participation in groundwater governance. At the level of governance, we found that the World Bank-influenced participation agenda attempts to commodify water and depoliticise governance, and that it follows a checklist-type approach towards sustainability and equity. The findings at the community level point to the existence of caste, class and gender dominance; the findings also pointed to the continued perpetuation of unequal and unsustainable usage of groundwater, which was largely unaffected by the project. This study has significant lessons for policymaking and policy implementation in the promotion of sustainable participatory groundwater management. On the one hand, there is a need to attend to political power, especially caste, class and gender power; on the other hand, there is also a need to disrupt dominant notions of participation that are influenced by the World Bank.

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[1] Village names, name of the project and names of the people quoted here have been changed for confidentiality.

THE CONTEXT

Groundwater management in Maharashtra

Rural groundwater dependence in India has been increasing rapidly since the 1970s; in Maharashtra, more than 80% of drinking water and 50% of irrigation is dependent on groundwater as its source (Government of Maharashtra, 2014). Maharashtra's groundwater dependence stems from its peculiar topography, its climatic and soil conditions, and its geology. The hard rock aquifers of the Deccan traps[2] are mostly in the semi-arid regions of the state, which are characterised by poor and unpredictable groundwater storage. Traditionally, dug wells have been a source of drinking water across the state and of irrigation water in the northern alluvial belt, and individual well owners comprise great majority of total groundwater users in Maharashtra. As commercial crop farming and electrification has increased, there has been a concomitant rise in the exploitation of groundwater for agricultural purposes (Phansalkar and Kher, 2006). According to a Planning Commission report on rural drinking water supply in India, one of the main factors affecting the supply of public drinking water been the over-extraction of groundwater for irrigation purposes (Government of India, September 2011). Because of Maharashtra's peculiar physical and ecological characteristics and because of the anticipated impact of the impending groundwater crisis on social and economic life, there is a clear need for the state to take a greater role in groundwater governance.

In this paper, groundwater governance is considered to be "a process through which groundwater related decisions are taken (whether on the basis of formal management decisions, action within markets, or through informal social relations) and power over groundwater is exercised" (Moench et al., 2014: 5-6). Groundwater sustainability, in terms of resource security for future generations, can only be roughly estimated. Proper management of rainwater – considered to be 'renewable' – can contribute to sustainability, but the extraction of non-replenishing deep aquifers does not (Kulkarni, 2011).

Water is a state subject in India; currently in Maharashtra, there is an array of institutional and legal mechanisms at work that are aimed at regulating or facilitating access to groundwater. A study that documented the implementation of *The Maharashtra Groundwater (Regulation for Drinking Water Purposes) Act, 1993* shows that the social legitimacy of individualised groundwater extraction by landowners prevents any change towards sustainability, while the state has also in various ways played a key role in maintaining the status quo (Phansalkar and Kher, 2006). The most recent legal mechanism in the state is the *Maharashtra Groundwater (Development and Management) Act 2009*. Even before the law was conceived, the World Bank, in consultation with state officials, had begun promoting participatory groundwater management. What is considered as 'participatory' or 'user-centered' management was defined specifically with the aim of institutionalising participation under the Maharashtra Water Sector Improvement Project (MWSIP) (World Bank, 2005a).

As Menon et al. (2007) note, the interest of the World Bank in promoting community-based natural resource management may be traced to the global shift in the 1990s; during that period, state-driven development shifted to development driven by communitarian and civil society organisations in order to ensure development efficacy, sustainability and social justice. The World Bank did not pay heed to the cautions about participation that had been theorised since the early 2000s (Cooke and Kothari, 2001) and promoted a generic participation model in Maharashtra. The World Bank-funded MWSIP project – that, as per its name, set out to reform the water sector in Maharashtra – claimed to have learned from earlier experiences in other parts of India and the world; it emphasised certain guidelines, including that "reforms must be comprehensive, must include policy, institutional and legal reforms (…) [I]nstitutional reforms are to be accompanied by physical infrastructure improvement" (World Bank, 2005b, pp. 5-6).

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[2] The Deccan traps sequence consists of multiple layers of solidified lava flows. Therefore, unlike other hard rocks, the Deccan traps behave as a multi-aquifer system, somewhat similar to a sedimentary rock sequence.

The project document prefigured that "the lessons from the pilots are expected to contribute to the development of an appropriate groundwater legislation and regulatory framework for user-centred sustainable groundwater management models, and its subsequent scaling up over time" (World Bank, 2005b: 27). One of the expected results of MWSIP was that there would be a change in groundwater legislation. One component of the overall project was the pilot projects of community-based groundwater management, which were explicitly aimed at regulating (and eventually reducing) the demand for groundwater. All the pilot projects were considered to be successes, and the PGWMA project in Jalna, which is this paper's case study, was shortlisted for the Prime Minister's Award of Excellence. All this led up to the passing of the *Maharashtra Groundwater (Development and Management) Act, 2009* , which was ratified in 2014.

The 2009 Act works on the progressive ideal of community as the owner of the common-pool resource and is a move towards institutionalising community-based participatory groundwater management. This is consistent with research findings which suggest that community-based groundwater management is one of the best ways to combat the problem of over-exploitation in hard rock aquifer regions (Foster et al., 2007). Participatory groundwater governance marks a shift from the concept of the watershed as the relevant unit to that of the aquifer as being a more suitable basis for effective groundwater management. Aquifer mapping technology is the first step in sustainable groundwater management and delineates the physical spaces to be regulated. The pilot projects of user-centred aquifer-level groundwater management included i) *gram panchayat* (village-level self-government) groundwater management committees, ii) an aquifer-level groundwater management association as a federation of the gram panchayat-level committees, and iii) technical support groups (TSGs). The gram panchayat-level and aquifer-level committees were elected bodies whose members would be drawn from among groundwater users in the area and were to be constituted to mandate participation of marginal farmers, landless, women and members from the scheduled castes and tribes.[3] The technical support group was headed by a groundwater specialist and included specialists from concerned government institutions (irrigation, agriculture, drinking water supply, industrial water supply); they worked with the local committees on different project aspects (Government of Maharashtra, 2012b, 2013, 2014). The TSG employed techniques such as water budgeting, groundwater crop and use plans, regulation measures, village-level and aquifer-level decision-making and democratic representation.

The Marathwada region and the PGWMA case study

According to Purandare (2013), the rural Marathwada region – one of the least-developed parts of Maharashtra – is plagued with frequent droughts, groundwater depletion, distress migration, water-intensive cropping patterns including the planting of sugarcane, and an overall poor quality of water governance. The region is characterised by falling groundwater tables; in early 2015 (a drought year) aquifers went dry in 247 villages, with one taluka (multi-village administrative unit) showing the depletion in the water level in a single year to be 7.1 metres larger than the five-year average (Dandekar, 2015; Iyer, 2015). Farmers or agricultural labourers constituted 77% of the labour force, and over 60% of landowners were small and marginal farmers (Government of Maharashtra, 2012a). Sugarcane cultivation is influenced by the politics in the region as the politicians own and control sugar factories (Thakkar, 2013). Purandare (2013) notes that the Marathwada region is characterised by seasonal outmigration of about half a million sugarcane cutters and other workers. Thus, in Marathwada, groundwater resources and the livelihoods of its citizens are closely linked to cropping patterns, political dominance and poor water governance.

The PGWMA project took place from 2007 to 2010. It was implemented by the Groundwater Surveys and Development Agency (a Maharashtra state government organisation) and an NGO, and was run as a pilot project of the Maharashtra Water Sector Improvement Project, which was sponsored by the World

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[3] Scheduled Castes and Scheduled Tribes are official government terms for historically oppressed castes and tribes.

Bank. The PGWMA pilot was implemented in the drought-prone part of Jalna District, and spanned an area of eight villages (Government of Maharashtra, 2013). It was managed by geologists from the Groundwater Surveys and Development Agency (GSDA), village-level members, and the NGO, and included capacity building, assessment of total water availability, the documentation of uses of water, and the development of a sustainable groundwater management model. An NGO was employed for capacity building, facilitating formation of village and aquifer committees, and educating the community to plan and manage the groundwater resource.

The main goals of capacity building included inculcating the concept of groundwater as a common-pool resource and introducing technical calculations and activities for making sustainable crop plans and water budgeting. Measurements of rainfall and groundwater levels were used as inputs to formulate yearly water accounts at the village and aquifer levels. From this, the groundwater use and crop plans were drawn up in mid-October of every year by the whole aquifer community. This would be used to determine the winter and summer crops for the year, while ensuring year-round drinking water security for the entire community.

The groundwater demand-control measures – essential to the development of the 'sustainable aquifer community' – included, among other things, a ban on new wells for irrigation or commercial purposes and restrictions on pumping activities; these were to be enforced by the village-level committees. The project also included promotion of water-saving irrigation techniques such as drip irrigation, crop diversification using low-water-consuming cropping patterns, and the complete cessation of sugarcane cultivation. In addition to this, 30 water recharge and conservation structures were built to augment water supply under the PGWMA project; these included cement *nallah bandharas* (check dams), trenches, earthen *bandharas* (dams) and recharge tanks.

The project called for the community to contribute 15% of the total cost of the structures, out of which 5% was to be cash payment and 10% was in kind (labour, material, land). These works were supervised by the GSDA employees and coordinated by the Gram Panchayat Level Committees along with contractors. The rationale behind the community contribution was to promote a sense of ownership of the project among community members; responsibility for the operation and management of the structures also lay with the community (Government of Maharashtra, 2012b, 2013, 2014).

METHODS AND APPROACH

We used the case study method here, considering the PGWMA project to be a case of participatory groundwater governance in Maharashtra. This method is considered to be one of the most favourable for unravelling complex and context-specific relations while at the same time allowing for broader generalisations to be derived from case study evidence(Yin, 2013). We used both primary and secondary data; the secondary data included the project documents and other data documented by the GSDA, MWSIP documents from the World Bank, MWSIP third-party evaluation documents, and a pre-project social assessment study carried out by an independent agency. Collection of primary data involved conducting 53 household interviews as well as interviews with village-level project representatives, group discussions with project participants, and interviews with the village *sarpanch* (gram panchayat leader). This was done in order to acquire multiple narratives from individuals who were positioned across different sections of the society. In addition, we met a few geologists who were involved in the implementation of the MWSIP pilots. A purposive sampling technique was used for household interviews in order to obtain a sample group that was representative in terms of geographical and social background, class, caste, religion and location. The field work was carried out between October 2014 and February 2015.

Learning from the Cultural Political Economy approach

For analysis of the findings, this paper uses the CPE framework to study natural resource governance, synthesising critical semiotic analysis and critical political economy. Groundwater governance – through shaping usage patterns, perceptions and knowledge – attempts to modify how a community relates to its groundwater resource; it aims to make the community-groundwater relationship 'sustainable'. Applying the framework for critical policy studies (Jessop, 2010), CPE provides a lens through which to analyse meaning-making at the governance level alongside meaning-making at the level of the community.

The governance-level discourse includes texts, ideas and concepts that are deployed by state actors in World Bank and GSDA project documents, while the community-level discourse includes modes of engagement between individuals, community groups and the groundwater resource. Community-level discourse is examined by studying the perceptions of, and knowledge about, the resource, as well as the way in which usage patterns are rooted in the social and political economic conditions. As explained by Fairclough, "imaginaries are semiotic systems that frame individual subjects' lived experience of an inordinately complex world and/or inform collective calculation about that world" (Fairclough, 2003, in Jessop (2010: 344)). We discuss the 'imaginary' of the community-groundwater relationship as it is manifested at the level of the community as well as at the governance level. At the level of the community, we combine analysis of questionnaire data and excerpts from field notes.

INTERPRETING VISUAL IMAGINARIES AT THE GOVERNANCE LEVEL

The MWSIP pilot projects involved an imaginary of the community-groundwater relationship, with specific features as conceived by the actors (the World Bank, with active contributions from state geologists and the NGO employed for the project). We will now focus on pictorial representations to understand the features of the imaginaries of the community-groundwater relationship.

Figure 1. Project Information Education Communication poster: community contribution. Translation: (Top) "In the market, we pay for things everywhere, so why ask for groundwater to be free?"; (Bottom) "Pay the community contribution, otherwise the project will be stopped".

Source: Government of Maharashtra (2014).

The message resorts to the logic of the market – where people pay for things – in order to rationalise that people should not expect groundwater to be free. It calls for payment of the community contribution as a way of compensating for community members' groundwater usage, failing which the project would be halted. In effect it makes groundwater a commodity irrespective of its end use, thus implying commodification of drinking water.

Figure 2. Project IEC poster: promoting the community's sense of ownership of the project. Translation: (Top) "A groundwater project is not just the state's; village water is our responsibility too!"; (Bottom) Pay the contribution and get the water – it's your right!"

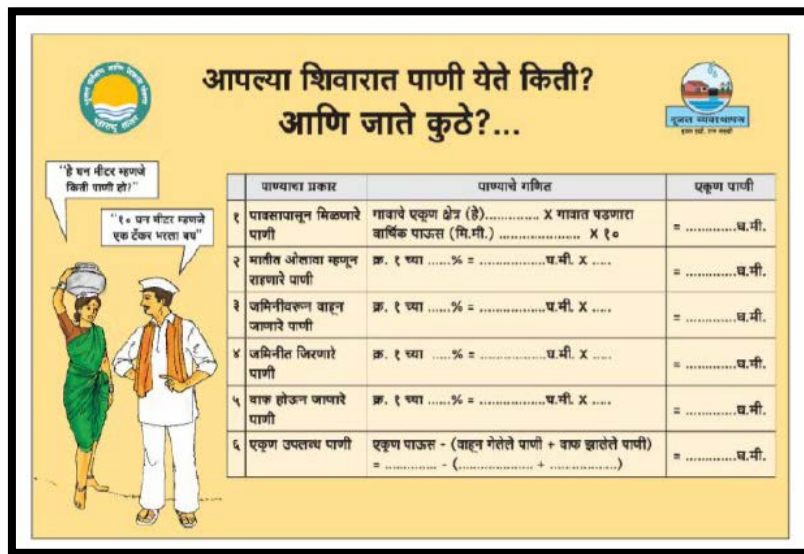
Source: Government of Maharashtra (2014).

Figure 2 shows a woman carrying four water containers; she is clearly someone from the village community who is experiencing high water stress. The woman in the foreground asks the community for a contribution as part of taking responsibility. Here, a monetary contribution to the project is portrayed as a way for community members to earn the right to water irrespective of their socio-economic condition. The commodification of water, however, raises the question of whether those who do not pay still have a right to water.

Figure 3 is a template for water accounting. To account for water availability and usage, it considers rainfall, village area, evaporation, percolation and runoff water. This account is then used to determine sustainable cropping patterns based on yearly rainfall, and forms the basis for allocations to irrigation and year-round drinking water.

Water accounting as an instrument for planning water use; it is a highly calculative exercise, requiring some technical skills and measurements, and is promoted in areas where people may not have these skills. It also does not take into account pre-existing methods of making cropping decisions and managing water (PriMove Consortium, n.d.).

In summary, the images discussed here are explicit attempts to link payment for (commodified) water with the right to water; they also stress the dominance of calculative practices, on which we further elaborate in the discussion section of the paper.

Figure 3. Project IEC poster: water budgeting explained. Translation: (Top) "How much water comes to our village? Where does it go?"; (The table shows a water account.); (Woman) "How much water is one cubic metre?"; (Man) "Ten cubic metres means will fill one tanker".

Source: Government of Maharashtra (2014).

FINDINGS: COMMUNITY-GROUNDWATER RELATIONSHIP

The imaginary of a community-groundwater relationship includes how differently positioned individuals relate to the groundwater resource; this is to be examined by studying the political economic contexts, water access and usage practices, and people's perceptions and knowledge about the resource. We analyse field observations and identify the different ways in which modes of engagement between the community and the groundwater resource become legitimised.

Water access and usage

All the villages had at least one water source, usually dug wells, ponds, check dams, and earthen *bandharas*; hand pumps were used for domestic water usage and there were a large number of private borewells and dug wells sourcing water for irrigation. 'Drinking water', in the village terminology, is water only for drinking and cooking, unlike the government's definition of drinking water (see Panickar (2007)) as being water for all household purposes. At the household level, there was a distinction between sources of the water used for drinking and cooking and sources of the water used for cleaning and bathing (the latter was sourced more commonly from ponds, check dams and bandharas). Across all the villages, the drudgery of hauling drinking water was borne primarily by women. During the summer months, sourcing water was reported to be a cause of stress; it came from two sources: the village common wells, which became a chaotic space where public tankers provided water; and private wells that were located at some distance, usually on farms. Large farmers – mostly higher sub-castes among Marathas[4] –

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[4] The Maratha caste is the dominant caste in the Marathwada region. Traditionally, certain Maratha sub-castes form the political elite and landowners. On the whole, Marathas constitute a large proportion of the Hindu population in the region (Lele, 1990). This was also found to be the case in the project villages.

experienced less stress. Dalit women,[5] many of whose homes were located on the outskirts of the village, reported extreme difficulties in fetching water. The main water usage was for agriculture; significantly, maize, cotton and *bajra* (a type of millet) were the common *kharif*[6] crops, and *jowar* (sorghum), sugarcane, mangoes, sweet limes, pomegranates, wheat and horticultural crops were also cultivated. Sugarcane and other water-intensive crops were more commonly grown by those in downstream villages and by large landowners. Many small and marginal farmers relied on rainfed farming, and sharing of wells was also common. The landless, marginal and small farmers reported working in the fields of the large landowners; in many cases they migrated to other places for seven to eight months of the year.

Perceptions of, and knowledge about, groundwater

This section discusses community perceptions of groundwater as a resource: its ownership, the rights of community members to it, and its status as private or public property; also discussed here is communities' knowledge about groundwater as a resource, i.e. its scarcity and depletion. We found that most people understood the notion of *paani adva paani jirva* (harvest water, percolate water). Below is a snapshot of community members' responses, followed by an extract from field notes.

Figure 4: Villagers' perceptions about who owns groundwater, showing that most people believe that the well owner has the sole right to use the water that the well generates.
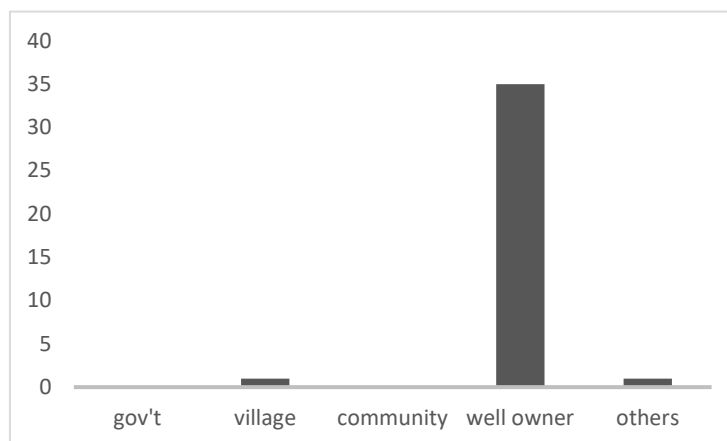
Source: Primary data, household interviews.

We combine the data shown in this table with field note extracts from a conversation with a smallholding family, the Ghorpades; the Ghorpades own 1.5 acres, or 0.6 hectares (ha) near the center of Terani village (village names are also changed for reasons of privacy). Pradnya Ghorpade and her family of five live alongside their land and belong to the Maratha caste. Other than farming their own land, Pradnya works as a farm labourer, and her husband, Vivek, does jobs for the panchayat including the crucial work of adding disinfectants to the two drinking water wells in the village. One of their sons is working part-time to fund his college education. The family works together on their land to grow maize and cotton as kharif (monsoon) crops and wheat as the rabi (winter) crop; because of the 2015 drought, they grew jowar. Depending on the availability of water, they also grow onions, fenugreek and other horticultural crops. They own the well on their land, which is approximately 30 feet (9 m) deep; it has horizontal bores drilled

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[5] 'Dalits' – literally meaning 'broken people' – are officially referred to as 'Scheduled Castes' in India. Traditionally, they occupy the lowest socio-economic levels of society and are located at the bottom of the Hindu caste hierarchy; the majority of Dalit sub-castes in this area either owned small landholdings or were landless.

[6] 'Kharif' is the autumn crop which is sown at the beginning of the rainy season in India.

in at a depth of 20 feet (6 m) to tap water from farther areas, and is used mainly for farming and for some household uses. This well is located near one of the check dams built under the PGWMA project, and recharges effectively due to that structure. Field notes are as follows:

> On being asked about groundwater ownership, a conversation began between the husband and wife. Pradnya says, *"Jameeni khalcha paani (…) hey devacha asta, asa amhala vaatata"* (Water under the ground, it belongs to God.) She smiles and adds, *"Amhi mhanto devane dila"* (We say that God gave it to us.) She continues, "They (people) say that it is only because of the bandhara that our well has water". Vivek interrupts *"Mhanje mag, sarkaarcha jhaala na! Sarkaar mulech aplyala pani bhetata na"* (Then it is government's! It is only because of the government that we get water.) Pradnya continues, "What will our village women say? That God gave water, but one thing is there, only because this bandhara is there, well gets recharged and yields water. Does the rest of the village have water? There is so much stress for water in this village. Women's happiness depends on sufficiency of water. Everything depends on that. All the village women take water from our wells, even the *mewati* [the community's Muslim members] take from our well. We let them take it. Our well has sufficient water, it's not like we have less". She pauses, smiles and says, "On giving (…) we also get people's blessings!" On being asked who has the right to use groundwater, they both say that the right over the groundwater belongs to the well owner (Field Notes, 19 December 2014).

There was a perception that the well owner has the right to use the water from the wells (which contrasts with beliefs about groundwater ownership which were more complicated, as can be seen in the above extract). The rationale for the well owner's exclusive right to its water was that the owner would have invested huge sums in the digging of the well. Also, people found it difficult to find yielding wells in the region and finding a good well was considered a matter of luck. People thus mostly perceived groundwater as being private property, with the landowner entitled to extract it. The PGWMA project's claim of success in inculcating the conception of groundwater as a common-pool resource was thus not found to be borne out. In addition, several villagers' narratives confirmed that it was still a fairly firmly held idea that water is primarily women's work. It was also found that caste, class and religious differences operated in specific ways, as was distinctly demonstrated by, for example, the assertion that "we allow even Muslims to access our wells". The observed change in the way the Ghorpade family shared its well water, after the project, was felt to be an exception rather than the norm. Clearly, the work of carrying water was gendered, and during times of water scarcity the additional hardships of this task fell on women in almost all of the households we interviewed.

Most of those who responded to the questionnaire understood that if water is collected and conserved then recharging of wells would be enhanced. Villages commonly experienced drinking water scarcity when wells ran dry during summers, and some respondents knew that this low availability of water was related to over-extraction for agriculture and other commercial usages. In addition, there was a perception that the water table is declining and that the total water availability has been decreasing over the last eight to ten years. This was commonly attributed to the recurrent droughts and reduced rainfall.

PGWMA project experiences: Compromises

In this subsection, we discuss narratives that are specifically about the project's implementation. These narratives provide an account of the practices of 'compromise' that occur in the intervention, and we further unpack the community-groundwater relationship (Similar to Baviskar, 2007; Li, 1999). We begin with the narrative of Kapil 'Dada' Bhale, a village-level project representative from Terani, the largest village in the project. Kapil 'Dada' Bhale is a political leader from a national political party and, like many other village-level project representatives, he is a Maratha. Dada also runs two schools (one is an Urdu-medium school that is named after him). He sold off his ten-plus acres of land (about 4 ha) ten years ago to start a business as a cement supplier. He lives adjacent to the main road that connects the nearby towns. He has a borewell in the back yard, an adjoining water recharge pit, and an Aquaguard water

purifier in the kitchen. Dada is the secretary of the PGWMA association and enthusiastically shared the details of the project. He is also the cement supplier for the water structures and thus benefited financially from the project. In conversation, Dada indicated that he considered the PGWMA project to be a progressive step towards better management of water and that he was conversant with all the processes and techniques involved in the project, including the capacity-building sessions, the elections of village-level committees, the formation of the aquifer-level PGWMA association, and the construction of water-conservation structures. He traced the water problems over a period of a few decades, including the onset of boring technologies, and explained how improvements in water supply led to overall development of the village. Here is an excerpt from the notes on a meeting with him:

> Dada showed project documents, photographs, measurement for rainfall, water levels data and list of government officials and others who visited the village to see the successful project. About water budgeting, he said, "we tried to convince people to change crop patterns, but some follow, others don't (…). A farmer will follow his own judgement, especially when it comes to livelihoods, it is a question of his survival (…), he looks around to see what others are doing and follows them, why will he follow these cropping patterns that we suggest?" (…) When I asked him about the dwindling quantity of water in the check dams, water extraction from the dams by the adjacent land owners and how this endangered drinking water supply in the summers, he replied, "We cannot ask them to stop extracting water from the check dams. They gave their land for the village's development on which the dams are built, so we cannot ask". When I ask about saving drinking water for summers, he replies, "How can we ask someone to stop extracting water for their livelihood just so that someone else can use it for household usage later in summer?" (Field Notes 17 January 2015).

In this excerpt, Dada unpacks some of the factors that influence farmers' cropping patterns. One of these factors is clearly the choices of surrounding farmers. The crop choices of richer and upper caste farmers were overt examples of wealth generation that were observed by less well-off farmers; this observed wealth was central to people's imagination of a good life, a notion that we will delve into more deeply below.

Among the households interviewed, 17 out of 53 reported that they benefitted from the project, especially because of the installation of water structures that offered increased water availability for household activities. People's awareness of the project by name (PGWMA) was very poor; most people associated the structures with a different name, the 'Indo-German' project. Roughly two-thirds of the respondents claimed to have not benefitted from the project or to be indifferent to it. Their most common complaint was that the water stored in the structures was being extracted for private usage; there were also concerns about the quality of the water structures. Our observation was that perceptions about groundwater had not changed as per the goals of the project, and that the majority of the people who we interviewed believed that groundwater is private property that is owned by the landowner and that the right over it belongs to the well owner.

The following is a discussion between project representatives in Khardi village; it addresses villagers' perceptions of the project's benefits:

> There were eight to ten men from the village in a room. They had been called together for a discussion on PGWMA project by the village GPLC head Keshav Palkhe, a Maratha. Out of these, three men named Ravi, Sharad and Balu stated that they received benefits from the project; they are Marathas from Khadgaon who owned 1 acre (0.4 ha), 6 acres (2.4 ha) and 10 acres (4 ha) of land respectively. (…) Keshav, the PGWMA representative of Khadgaon, is the only one who attended the trainings for sustainable groundwater management. (…) Keshav said that there has been no sugarcane in the village after 1999. Ravi, Sharad and Balu shared experiences about how they provided land for the project and how the project water structures benefitted them and helped them to move to 'better' winter crops. The decisions about the location, design of the water structures was taken among themselves (…). (Field Notes, 8 February 2015)

A noteworthy point from this excerpt is that the benefits of the project are mainly articulated in terms of 'better' winter crops, (this is phrasing also used by others, including the Ghorpade family above). In this case, when asked about which crops, the answer was often that they had changed from bajra (millet) to wheat, i.e. from weather-appropriate, low-water-consuming coarse grains to relatively high-water-consuming and financially better yielding wheat. Ravi, Sharad and Balu were beneficiaries of the project as the structures were built on their private land, but even they did not seem to have 'participated' in the project in a substantial way. They did not attend the trainings conducted under the project and had no information about water budgeting, crop plans and regulatory measures. As these structures were built on lands donated by private landowners, there was a perception that those owners possessed the right to use the water from the structures; this caused the public structures to become, to an extent, private property.

The location of water structures was a major area of compromise. The project documents stated that the water structure locations and designs were based on technical surveys and mapping, but we found that villagers had made these decisions using conventional methods and had based them on the availability of land; they had also involved local contractors for procuring materials and building the structures.

One major way in which the compromises were accommodated was in the use of numerical evidence as a crucial instrument for producing the 'success' of the intervention. (We delve further into the construction of this 'success story' in the discussion section.) One compromise that became clear during fieldwork was that, early on, one of the eight villages over the aquifer, Pokharni, had dropped out of the project because of internal conflicts. It remains unknown what this did to the integrity of the aquifer-level planning and the soundness of the technical calculations within the aquifer. Another aspect of the project was its banning of new irrigation wells, which now became illegal; existing irrigation wells, however, could continue to extract groundwater without any consequences, thus in effect maintaining inequalities in access. The project documents claimed that the participatory model required 'no contractors' for the water structures; in fact, during the field visit in 2015 the poor quality of the structures were evident to us, as many of these structures were found to be leaking. Local contractors and suppliers, in the process, experienced windfall financial gains.

'Sedimentation' of groundwater exploitation as a part of an imaginary of 'better' lives: A CPE lens

Our fieldwork found that there was high stress during times of scarcity and that the project could not ensure drinking water security, or equitable access to the water structures built under the PGWMA project. The project failed to address sustainability by not engaging explicitly with the unsustainable usage practices and by introducing impractical measures for regulating the demand for water. In the field area, groundwater access was unequal and the 'my land, my well, my water' linkage was prevalent. Water management using budgets and crop plans existed only on paper; they were showcased in the project reports and water measurements, but not put into practice. A positive outcome of the project has been in terms of improved availability of water through the installation of water structures, but even this is limited to the landowners whose land is in the vicinity of the structures. Unsustainable groundwater extraction practised by deep borewell owners, mostly higher-class farmers, has continued unabated.

The project did not disrupt the linkages between land ownership, groundwater access, and the inequalities across caste, class, religion and gender. The project processes rarely resulted in improved water access for historically oppressed groups; they also often led to gains for dominant groups, especially contractors and landowners whose land was near water structures. Learning from the conceptualisation of identities by Stuart Hall – he refers to race, class, gender, etc. – identities are not static; they are always in the process of being formed and are often different from their own recent past; the importance of identity rises and falls and is often taken more seriously just when it seems to be eroding (Hall, 1991). In the study of a watershed development project in Madhya Pradesh, Baviskar

(2007) found that caste and class hegemony was maintained; she states that compromises are an integral part of 'accomplishment of rule', the process by which state legitimacy is created and contested (Baviskar elaborates on the work of Li (1999). 'Rule', here, is the process of disciplining people and places such that structures of inequality are reproduced. In writing about how rule is accomplished, Li asserts that "It implies an understanding of hegemony not as consent, nor as the project of a singular and coherent state, but as a terrain of struggle and, more prosaically, as the routine and intimate compromises through which relations of domination and subordination are lived" (Li, 1999: 316). The compromises involved in this project demonstrated how it maintained the power of the local elite while advancing the discourse of participation at the regional level and beyond. The project was based on unrealistic assumptions about the community, and equity was a consideration on paper but not in actuality. Participatory groundwater governance, as actualised in the PGWMA project, redeployed existing power relations and barely, if at all, affected the status quo. The project became a space for compromises, with the failures accommodated in the overt governance discourse without changes occurring in the underlying community-groundwater relationship.

At the level of the community, the dominant caste subgroups had political control and ownership of land and water; they also dominated administrative decision-making in the PGWMA project. During fieldwork, we found that people from oppressed castes and classes – mostly women – expressed resentment about water over-extraction, as this led to severe hardships in accessing drinking water during the dry summer months. People from oppressed castes and classes depended on landowners for their livelihoods and thus were not in a position to openly criticise water practices. Also, cultivation of certain water-intensive crops was considered to be an indicator of upward social mobility; legitimisation of high water demand in this way related to popular aspirations. In this region, borewells – a private investment – were considered to be a prized asset. All water-intensive, financially remunerative and aspired-to crops relied on borewells for all-season farming.

We conclude that it was not the understanding of water scarcity that was missing, but that a high demand for water was considered legitimate across the community. The over-extraction of groundwater has undergone sedimentation through a shared imagination of the association of better livelihoods with water-intensive crops. Our findings indicate interconnections and cyclical relations: how caste and class capital is often entwined with land and water ownership, where capital acts as an enabling factor for accessing borewell technologies. In turn, relatively higher water availability through borewells allows agricultural practices that generate a temporary but visible abundance. The idea of crops that are 'better' is tied to the imaginary of what constitutes a 'better' life, and shapes people's notions of 'development'. Furthermore, crop choices have been tied to postcolonial developmental state policies including subsidies, market regulations, minimum support pricing mechanisms and so forth, which favour certain more lucrative – but more water-intensive – crops. This imaginary of a 'better' life was formed historically over a period of time, and then (so we argue) materially consolidated in the form of the wealth and agricultural practices of high-caste and rich farmers. This then becomes the aspiration of water-deprived villagers – one that they can actually see every day. This is similar to the idea of an 'economy of aspiration and anticipation', as formulated by Jamie Cross in his understanding of the politics of land acquisition for export processing zones. Cross argues that development projects were convincing because "they invoked local registers of aspiration and tap into vernacular dreams for social and material transformation that are assembled from globally circulating media forms and out of local social histories" (Cross, 2015: 429). The main issue with this imaginary is that the possibilities of 'development' and 'better' lives, just like that of 'better' crops, are contingent, often contradictory, and they are encountering limits ever more frequently as we overuse and exhaust limited resources.

CONCLUSION

There are two general approaches within development studies that discuss groundwater problems and, more broadly, resource issues. The first, the more mainstream policy studies approach, often discusses governance mechanisms and implementation failures. The second, more critical literature, focuses on (the reproduction of) social structures (caste, class, gender) and political economy. We argue that both approaches only partially explain the groundwater problem. Based on our observation and analysis, we found there to be four sets of phenomena that explain the specificity of the imaginary of a better life: 1) social differences (caste, class, gender, religion), 2) political economic relations and monetary capital, 3) technology access, and 4) policies and governance in the postcolonial development state. These are interconnected in multiple ways; caste and class capital, for instance, made it possible to access technology and monetary capital to create borewells, which, in turn, allowed certain crop choices, and these choices were encouraged through postcolonial development state policies and broader political economic relations. Groundwater resource access became a problem as soon as the limits of the resource became visible and as the competition to dig deeper borewells became, at best, inconsistently rewarding. The historical semiotic sedimentation of unsustainable groundwater usage is thus anchored in this imaginary of a better life, which is not 'just an idea', a self-standing imaginary, but is grounded in a particular sociomaterial reality.

It was found that under the overt discourse of the publicly claimed 'success' of the PGWMA project, there lie undercurrents that include compromises, legitimised groundwater over-extraction, and sociopolitical domination. In the critical realist spirit that is endorsed by the CPE approach, we examined the complex interactions between multiple actors within the community, local elected representatives, state officials and the World Bank, at local, regional and global levels. We explore the ruptures and continuities further in this section.

The project, which started with the intent of making a model for participatory groundwater governance and legal reform, became a self-fulfilling prophecy of 'success'. This is similar to what Mosse (2003) terms the "self-referred discourse of participation" in groundwater governance that was orchestrated in projects funded by the World Bank elsewhere in the country – such as in Uttar Pradesh, Andhra Pradesh, Rajasthan(Government of Maharashtra, 2014) – and internationally. In the PGWMA project, the imposition of a 'commons' understanding of groundwater, demand-regulation measures, and supply-enhancement features were political choices. These included restrictions on water pumping and on new borewells, promotion of different cropping patterns, and building of water structures. But Mosse observes that the political choices are advanced as technical decisions, "concomitants of the paradoxical universal rationality of 'participation', a globally valid development approach endorsed by international donors, the work of NGOs" (Mosse 2003 : p.52). This rationality might have allowed the governance actors to take the 'success' of the pilots for granted and might have contributed to the drawing up of the *Maharashtra Groundwater (Development and Management) Act 2009*, even before the projects were completed. For conceptualisation of participatory groundwater governance, the project drew on ideas about the commodification of water and depoliticised notions of the community-groundwater relationship. Underlying the project discourse is a paternalistic imaginary of a 'village republic', a homogenous notion of community where most responsibilities are off-loaded to the community in the name of empowerment and participation. The findings at the governance level of the PGWMA project are consistent with trends in the World Bank's neoliberal water sector reforms in Maharashtra, particularly in terms of depoliticisation, commodification of water, and the dominance of expert knowledge (Sangameswaran, 2014).

At the level of the community, the PGWMA project's failures were accommodated through compromises, as the project did not attack the root causes of groundwater exploitation that were effected through sociopolitical relationships around land, livelihoods and social norms. In conclusion, we found that the governance imaginary is itself problematic in that it proposes sustainability, welfare and

equity without following through seriously; the local imaginary is also, but differently, problematic in that it perpetuates unsustainable groundwater practices that are linked to an imaginary of a 'better life'. This local imaginary legitimises groundwater over-extraction and reproduces village-level inequalities, thus precluding conditions for sustainability. This is a departure from the dominant critiques of development that often idealise 'the community'; we found that things are more complicated than that.

While there has been an extensive critique of the World Bank's neoliberal agenda in the water sector, the findings point to the limited reach of these ideas with respect to the actual community – water relationship, which is affected by social and political economic relations, caste and class (see Deepa Joshi (2011)). Even as there is a need to question the World Bank's models of participatory governance, which allow a generic checklist-type approach towards normative concerns of sustainability and equity, there is a need to reflect on other possible imaginaries of participation. Thinking with COMMAN (2005), Foster et al. (2007) and Kulkarni (2011), there may be a need to reformulate the participatory agenda in a way that would involve a more realistic understanding of existing resource relationships and provide a practically feasible and graduated approach to making community – groundwater relations sustainable. The linkages, particularly between notions of participation, equity and sustainability, need to be re-examined in order to find feasible pathways for change. This is particularly important in Maharashtra as the government is set to scale up this model to other villages experiencing groundwater exploitation (Government of Maharashtra, 2013).

In terms of future policymaking in the field of participatory management of groundwater, there is a need to recognise the influence on social structure of caste, class and gender, as well as of political economy and postcolonial developmental policies. We have shown that what is required is more than a conventional 'empowerment' approach to overcoming social divisions and inequalities. These (unequal) social relations materially ground a shared narrative of a 'better life' that has causal significance as a structure of shared meaning; this works against reducing over-exploitation of groundwater because of the unsustainably high water demand that follows from that historical semiotic sedimentation. Unless this is taken into account, it is likely that participatory groundwater governance, even in an 'empowerment' incarnation, will turn into a rudderless intervention that will reproduce inequalities and will slyly guard popular water demand without any gains on sustainability. It then does not really matter what 'success' stories are told among different governance actors.

ACKNOWLEDGEMENTS

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