Gendered Groundwater Market in Rural Gujarat, India: An Unequal and Patriarchal Space

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Abstract

Groundwater markets continue to dominate rural India in the fast few decades and have become a critical source of irrigation. However, most of the studies in groundwater market have been from economic perspectives and often lack the gender dynamics in their analysis from a caste perspective of power and hegemony. Through my research I make an attempt to fill this gap by studying the ways gender and caste interact with space and place, when it comes together in the groundwater market. Using political ecology framework to study the structure and practice of the gender division of power operating at the informal level in the study area in the groundwater market, I highlight how patriarchy ensures the dominance of an all-male culture in the groundwater market through the upper caste hegemony, which is also gendered, irrespective of women playing a key role in the agricultural work. The article is based on my longitudinal ethnographic fieldwork conducted between 2008-09 and 2012-14 in north-east Gujarat, India. The research methodology comprises of a mix of Participatory Rural Appraisal (PRA) tools, key informants interviews, focus groups discussions, direct observation, thick description and household survey.

Keywords: Caste, Groundwater market, Gender, Gujarat, Political ecology,

Introduction

Groundwater markets have emerged in rural India in the past few decades and have become a very important source of irrigation. Groundwater markets could be define as a local, informal institutional setup at the village level through which owners of water extraction mechanism (tubewell/ borewell) sell water at a price to others (Foster and Sekhri 2008). The payments for the water transactions are in cash or kind, and different type of contracts like output sharing, labours contracts and input-outputs sharing have emerged in the context of groundwater markets (Shah 1993). The groundwater markets which exist in India are informal, where transactions between water sellers and water buyers are done without any legal sanction; they are localised, as water vending

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is made to fellow villagers and; they are unregulated, as the government does not exercises any direct authority on the functioning of the these markets (Shah 1993).

The water in the groundwater markets is transported from the seller's well to the buyer's field by lined, unlined field channels or underground pipe network (Foster and Sekhri 2008). Therefore, the groundwater markets in India – most of which are monopolies (Anderson 2005; Sekhri 2012) have emerged across rural India in the past few decades (see Aggarwal 1999; Dubash 2002; Janakarajan 1993, 1994; Mukherji 2007; Naz 2014; Pant 1992; Prakash 2005; Sharma and Sharma 2006; Shah and Ballabh 1997; Tiwary 2010; Wood 1995). These groundwater markets have become a critical water source for irrigation; crucially these markets operate under a private property regime. In all the research done on groundwater markets in India, so far, gender and caste inter-relation is undermined.

It has been widely acknowledged through social science research that 'water' cannot be considered as 'homogenous', as it comprises multiple forms, materialities, and temporalities intersecting with material and discursive social relations to produce diverse hydro social arrangements (Budds and Sultana 2013; Bear and Bull 2011; Budds 2009). However, the formal sphere of water management, such as water infrastructure, planning and administration, is still dominated by men around the world (see Ongsakul et al. 2012; Andajani-Sutjahjo et al. 2015, Zwarteveen 2011, 2008).

My work follows the recent scholarship in gender and water studies regarding the water planning, control and decision being the man's world; I approach the water market through political ecology lens, a framework which relates nature to political economy, and links local processes with larger social structures and macro-economic processes (Blaikie 1985; Blaikie and Brookfield 1987; Bryant 1998; Moore 1993; Peet and Watts 1996). Political ecology explore how social power relations intersect with the material, social, and symbolic dimensions of water to shape access among different social groups, to configure discourses around water management and governance (Buddsand Sultana 2013; Loftus 2009; Swyngedouw 2009).

The gendered constructions of public-masculine and private-feminine space come into conflict, when the norms are challenged (Sultana 2011) in the social context, as power has both a hegemonic and coercive dimension, encompassing the disciplining of agents, their self-disciplining (i.e. acceptance of relations of inequality), and the reproduction of power through daily acts and relationships (Kesby 2005). This paper explores how power is expressed within multiple micro-realities, multifarious struggles and negotiations over authority, status, reputation and resources (Callon and Law 1995; Latour 1994), requiring negotiations in the form of exerting some control, prerogative, authority and the capacity to take direct or indirect action (Villarreal 1992).

In this paper I argue, by taking the case of groundwater market operating at the village level, water control and decisions are still a man's world, having clear-cut hegemony of men in control and decision of water.[1] Much of the discourse on groundwater markets has been dominated by an economic perspective, with very little analysis of the gender dimensions, therefore, through this paper; I seek to address this issue. Through this paper I highlight how patriarchy and upper caste hegemony ensures the dominance of an all-male culture in the groundwater market, which is also gendered, irrespective of women playing a key role in the agricultural work.[2]

The paper is organised as follows. Section two discusses the methods used for the ethnographic data collection. Section three describes the study area's social, economic and gendered space in everyday life and its importance in constructing gender identities across space and time. Section four unravels the case study groundwater market, it's masculinisation in operation and how it is gendered in nature. Finally section five concludes with the gendered locations, here in case of groundwater market meetings, which influenced water decisions, and management's realities, and how it influence the gendered identities and roles as understood and practices in the case study.

Data Collection

The fieldwork for this study is based on my longitudinal primary research between 2008-09 and 2012-14, in the Mathnaa village located in the state of Gujarat, India.[3] It started when I decided in live in the village as a participant observer with my fellow respondents in order to observe and comprehend the everyday processes, interactions and life events of actors in the village for a period of 10 months in 2008-09 and going back to visit again for 2-3 weeks in July 2012, December 2013 and December 2014 subsequently. With social interactions, observations during daily routines and activities on community members and asking informal questions, I was able to become a part of the research process (Bernard 2011). The technique of living with people in order to learn about them and their lives is the core of classical anthropological data collection (Jerstad 2014), and this allowed me to build friendship and established rapport and gain trust with the community members over the period of my longitudinal research spanning almost a decade.

I chose Mathnaa to do my fieldwork, as the village had good mix of Hindu castes and tribe.[4] The research methodology used for the analysis presented in this paper can be categorised as ethnographic, as case study methods was adopted (Yin 2003). In this research, I used a wide range of mixed-methods appropach to collect data such as participatory rural appraisal (PRA) tools, key informants interviews, focus groups discussions, direct observation, thick description and household survey. According to Long (1992:38), 'social sciences have always been characterised by a multiplicity of paradigms', so no method or technique can be foolproof and totally reliable. For the present

inquiry, multiple research methods and techniques (both qualitative and quantitative method) were used in order to collect the data in triangulated format, which would leave less scope for error. However, participant observation played a key role in my ethnographic research, as it helped me to study the 'socially meaningful action' of people (DeWalt and DeWalt 2002; Neuman 2000).

I surveyed 50 farmers in the villages who were engaged in groundwater markets as either water sellers or buyers. Then, over my next several visits spanning from the period of 2008-14, I followed up on these surveys with repeated in-depth interviews, and conducted in total 121 semi-structured interviews and sixteen focus group discussions, to get a broad understanding of the water issues in the village, groundwater market and gender relations. Apart from this I conducted a household survey, which covered 200 households, this was to generate quantitative evidence of the characteristics of rural households in terms of caste and tribe ratio, kinship lineage, gender and caste control and access to natural resources and level and scope of knowledge about the watershed project and polices implemented in the village by the state government.

Mathnaa's Social Structure and Economic Landscape

Mathnaa is a small village, located in the north-east of the Sabarkantha district, Gujarat, India. The climate of Mathnaa is semi-arid and the topography is mountainous and rough. Average temperatures rise to 45.5 ºC in summer and fall to 7.7ºC in winter. The village, divided along caste, tribe, gender, and wealth, has a population of 1,180. It is an agricultural village, where primarily two crops are sown– *kharif* and *rabi*[5]; due to erratic rainfall patterns and the scarcity of water, it is not possible to plant major crops during the summer months, except fodder or seasonal vegetables mainly for subsistence needs. In Mathnaa, the agriculture is both irrigated and non-irrigated, and wells are the main source of irrigation.

Caste determines living space and frames social interaction over water. The village has several clusters of settlements along the lines of caste or *was* (residential abodes in Gujarati language). There are eight Jadeja (Rajputs) households, and they occupy the highest status in Mathnaa. These households consider themselves superior to other castes, trace their origin back to Sambha, son of Lord Krishna, and believe to have ruled Sabarkantha and driven away tribes to the forest (Mukherjee 2003). The households legally own around 113 hectares of land legally, but also control encroachments on village gauchar (pasture) apart from that. Jadejas' social standing is also visible through their big concrete houses, tractors, motorcycles, and the use of big brass utensils (a symbol of social status) while others in the village use earthen pots for storing water.

Next in the hierarchy are Thakores, constituting 100 households. Thakores claim descent from the Rajputs, and are an agriculture caste. In Mathnaa, about 137 hectares of land is owned by these hundred households. There are also 56 Dungri Garasia households, who are Adivasis, an indigenous population. In total, 122 hectares of land is owned by Adavasi households. At the bottom of the caste hierarchy are 36 Dalit households. Formerly known as Harijans or 'Untouchables'—'untouchability' having formally been abolished in India—they are still discriminated against informally.

There is also intra- Dalit hierarchy, and those living in Mathnaa come from the group of chamars. While their original occupation was skinning the hides of dead animals, in Mathnaa they practice agriculture. Dalits do not have any control of Mathnaa's common lands and live on the periphery of the village. Nor are they allowed to fetch water from the village common wells during times of scarcity, even in summers. Water, unlike earth, is a standard by which we can measure how deeply the essence of caste has penetrated and perverted social relations (Guru 2009).

Note that the Jadejas and Thakores—or 69 percent of large farmers—own more than 250 hectares of land in Mathnaa. In the past, the main source of irrigation in Mathnaa was open dug wells, which ran on diesel and electric motor and were own individually by households.There were approximately 50 open-dug wells 60 to 75 feet deep before 1999 (all have dried up since). Borewells started to increase in Mathnaa after 2000. As a consequence, dug wells in the village started drying up. By 2014, there were about 24 borewells as deep as 200-250 feet in Mathnaa, out of 24borewells own, 15 of them are owned by upper caste. Hence, in Mathnaa, the resource-rich, i.e., those who own water in terms of borewells are the upper caste. In Mathnaa, borewells are collectively owned by a group of relatives.[6] The membership in the collective borewells ownership is purely male based.

Irrigation is a resource of 'unusual social power,' as argued by Hunt and Hunt (1976), contributing to better harvests and poverty reduction, but it can also increase social inequality (Epstein 1973). There is clear inequality around landholdings and access to water in Mathnaa. This can be observed in the context of irrigation facilities and ownership patterns of borewells, which intensify social inequality in my case study. Thus, privatisation and inequality in landholding leads to inequity in access to groundwater, as poor farmers are unable to invest in the required technology, and as a consequence remain excluded from beneficial groundwater extraction. This in turn further perpetrates inequality along caste lines.

Women in Mathnaa, do not formally own any land or enjoy water rights like in many cultures. I observed that gendered power relations operating in the watershed committee and user group have serious implications for women's participation in watershed interventions in Mathnaa.[7] For example, the watershed project, which was implemented in Mathnaa in 1999, had nine user

groups, which were constituted around the nine water harvesting structures (check dams) and consisted only of male members. There was gendered exclusion in the formal, i.e., in the user groups, and inclusion in the informal spheres, i.e., cleaning and maintaining of the check dam structures happened concurrently, as women were influenced by patriarchal norms, caste-based differentiations and practices operating at the informal level.

Though not formal members in the user groups, women were mainly responsible for the maintenances of the check dams. Even in the village panchayat (council) or watershed committees of Mathnaa, women were just present to fulfill the criteria of various government guidelines. Thus the real decision-making power and authority rests with the male members leading to masculinisation of the space – which means an access to and control over resources of various kinds, material, sociocultural, political and ideological by male members (Chowdhry 2014).

Furthermore, class, caste, religion, wealth and other symbolic and structural systems have it's a strong binding force on gender (Mehta 2005; Ahmed 2001; Joshi and Fawcett 2005, Krishnaraj 2011). Gender relations and social structures determine at what level women, can participate in decision-making and what that mechanism will be (UNESCO 2012; Kulkarni 2011). For example, a Dalit woman is considered inferior to all the women – even to an Adivasi woman in Mathnaa. Thence, gendered inequalities are further aggravated by factors like caste, class and religion; and thence women should not be seen as a homogenous group (UNICEF, FAO and SaciWATERs 2013).

Mathnaa Groundwater Market: A Gendered Perspective

Gendered locations influence access to control over and knowledge of natural resources; in rural India, the concept of public and private sphere is extremely sensitive issue when it comes to gender. Public spaces have been historically interpreted as masculine and private or domestic spaces as feminine; and therefore men and women who infringe in the domain of the other gender are often seen 'out of place' (see Sultana 2009a, 2009b, 2011; Massey 1994; McDowell 1999; Creswell 1996). In this context of masculinisation space, groundwater market in Mathnaa can be seen as gendered.

Mathnaa did not have an extensive water market before the year 2000, as irrigation was through open dug wells run on electric motors and rain-fed irrigation. Three factors led to the groundwater market: (1) Bore well technology came to the village in the year 2000; (2) The majority of the dug wells had dried, no longer meeting the agricultural water demand (although subsistence agriculture continued to be practiced); and, (3) Check dams were constructed near the borewells as part of the watershed project.[8]

There was no standardised price for water, as the price negotiations took place betweenindividual buyers and sellers, ranging initially from Indian Rupees

(INR) 15 to 25 per hour of water supplied (in terms of quantity) for irrigation; as electricity was available at a flat rate (Naz 2015).[9] After 2005, the price of water intensified and now a uniform water price for irrigation is prevalent (see Table 1). As I have described elsewhere (Naz 2014) this is a result of the newly introduced Jyotirgram Scheme (JGS) as a result of which electricity is no longer available at a low flat rate.[10] In response, Mathnaa's upper caste water-lords increased prices.

Table 1: Increase in price over last 10 years

Years	Price of water (per hour in INR)
2005-06	50
2006-07	50
2007-08	50
2008-9	65-75
2009-10	65-75
2010-11	90
2011-12	90
2012-13	100
2013-14	100

Source: Author field-notes and survey

Eighty per cent of water buyers and 64 per cent of water sellers noted that prices had increased in the informal groundwater market due to the Jyotirgram Scheme (Naz 2014). Water prices continued to increased from 65 to an unprecedented 100 Indian Rupees.[11] Different reasons have been cited: less rainfall, depleting water resources, rising electricity cost, wear and tear of the bore-wells along with the extortion of rents by castes controlling water. In addition, one-third share of the crop or *trijobhagpanino* may be paid in lieu of cash. As the result of increase in water prices, the lower castes have turn into sharecroppers and are often participating in off-farm activities such as working as daily labourers or casual labour on construction sites in nearby towns.

At the beginning of each season in Mathnaa, leaders of different castes jointly decide the price; the sellers do not meet individually to discuss explicitly the price. These meetings happen face-to-face, and phone calls are used to inform members to gather, in order to discuss the price of the water. This was illustrated in focus group discussions with women farmers:

> *Water is a serious business here, and the price of the irrigation water is decided by the prominent caste leaders of the village. This meeting happens at the village community hall at times or at the house of the*

> *Jadeja's. Once the decision taken, everyone abide by it and no one meets individually to discuss the price of water individually. (Field Notes, 2012-14)*

Women form an integral part of work-force in the agricultural sector, however they have no decision-making power or bargaining capacity when it comes to the pricing of water for selling in Mathnaa's informal groundwater market. In my interactions with women from across the caste groups, it was revealed:

> *Water is a male-centric arena, as the price of water for irrigation in each season is decided by men. Water is an important commodity and only men have the decision-making power, as they have more knowledge about how things work in the market. Men are more knowledgeable about money matters relating to water. We (women) do not know how things work in the outside world. Our intelligence is doubted and is not considered wise enough to make a decision about a commodity like water, which is so scarce in the village and has a tremendous economic value attached to it. (Field Notes 2009, 2012-14)*

> *We do all the work in the agricultural fields but have no land rights, no say in the crop choice. Although we are also responsible for domestic water needs, but when it comes to participation in the groundwater market, we are considered unwise to make decisions by our men. Men of our households considered that water pricing is no silly game (sic); apart from cost factors; caste prestige is also at stake. Men have to also maintain the caste superiority in the negotiations process at the groundwater market. These gathering are also on the line of caste council. (Women, FGD, December 2014)*

The strength of all male decision making power is visible in the thriving and exclusive all-male spaces in groundwater market in Mathnaa, as it is a predominantly patriarchal setting. The meetings of the groundwater markets are like masculine spaces where traditionally men congregated. These meetings, are reserved exclusively for the male population, since this is the spaces where power, legitimacy and supremacy of caste is at displayed – it was revealed in my interaction with women across the various caste groups:

> *Groundwater market meetings are all male centric due to our cultural/social norms, which considered*

> *inappropriate for women to be with men in public meetings. (Field Notes 2009, 2012-14)*

> *It will send a bad signal, if women participate in all male gatherings. The man who lets his wife attend this meeting, will be look down upon. It's our duty to maintain the households respect and dignity, so what is the need to go there, let it be man's world, why unnecessary invite any problems in the household, family life and in the community. (Women, FGD, January 2014)*

In FGDs with all men group,it was disclosed that men had completely different perceptions of women's abilities to control water or take decisions regarding. Women were perceived to have limited knowledge on solving technical water issues and thus requiring men to do the fixing work.

> *Men are the head of the household and it's our tradition, that men should take all-important decisions of life, whether it is social, religious or economics. Water has so much economic value attached here and groundwater markets negotiations are no child play. At times, caste prestige is at stake in the negotiations, women cannot handle this. Right from hiring the people for drilling the borewells, to getting it install and any maintenance required, is taken care by men; all this require money and knowledge. (Men, FGD, January 2014)*

> *If a time comes, when women will start taking decision and participating in ground market meetings, it will be a matter of shame for the entire village. Economic decisions should be in the hand of men only and not to be given to women. They do not know the economic value attached to water and the prestige it brings in dictating the price in the groundwater market.(Men, FGD, January 2015)*

> *Water is a serious business here, and how can you let your women take part in these economic decisions; they do not know how economic cycle works. Furthermore, the meeting is all male-caste gathering, so there is no need for women to be present their; it's a public affair, so why do we need to have women presence; their responsibility in agriculture is what we*

tell them, they dare not interfere in water issues. (FGD with men December 2014)

Identities are created and negotiated in the water management, by letting the women being the part of the formal sphere in watershed committee, but not in the groundwater market; which is all male dominated.[12]In terms of organisation, artifacts and manifestations, water is still a masculine subject (UNICEF, FAO and SaciWATERs 2013).The notions of masculinity and femininity have been associated with particular tasks related to water management, as in most part of the world, irrigation is considered as a masculine activity, whereas, managing household water is constructed as feminine activity.

Therefore, the symbolic and material dimensions of water is reflected in men's power over women, while asserting their decisions and making the groundwater market meetings all male centric arena. The masculisation of space in the groundwater markets, for constructing gender identities and creating unequal relations of gender in water negotiations. The unwillingness of men to recognise the full and equal involvement of women in agricultural sphere and water governance, leads to creation of water decisions and control in groundwater market as masculine.

Conclusion

It is now widely recognised that water is notgender-neutral and women and men have unequalgender power and access to water resources in particular and natural resources in general. Cultural and social dynamics of the community is reflected through distribution of decision- making power in all aspects of life. The places and spaces of gendered decision-making practices become significant in curtailing gendered participation (Cornwall 2000).

The public space of the all-male gathering meeting for the groundwater market is seen as masculine and thereby not a place for women, as caste-power dynamics are at stake. The social custom does not deem fit for women to participate in the all-male gathering of the groundwater markets; as the strength of all male decision making power is visible in the thriving and exclusive all-male spaces in groundwater market in Mathnaa, as it is a predominantly patriarchal setting. The meetings of the groundwater markets are like masculine spaces where traditionally men congregated.

These meetings are reserved exclusively for the male population, since this is the spaces where power, legitimacy and supremacy of caste is at displayed. Women presence is considereddeemed unfit to speak therefore, and the notions of caste honour are at stake in these all male gatherings of groundwater meeting. The gendered locations, here in case of groundwater market meetings, influenced water decisions, and management's realities, which influence how gendered identities and roles are understood and practices in Mathnaa. Both

men and women are actively taking part in the reproduction of gendered inequalities and relation to water.

The need of the hour is to change the mind-set of the social fabric at the community level, is required which recognises women as equal in capacity to makedecision and provides equal opportunity for thesame.The lack of recognition of the role women play as decision makers is one of the major reasons for women's poor access to productive resources and this is further reinforce by patriarchy and caste hegemony. An overall change in the attitude towards the women's potential and participation in management activities beyond the virtual boundaries of the household are important indicators of the envisaged women's empowerment through facilitating water access.

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Notes

[1]Hegemony, a significant concept in Gramsci's Prison Notebooks and his most crucial contribution to the Marxist thinking, is about the winning and holding of power, formation of social groups and the ability to set the terms in which events are understood and issues discussed, are an essential part of this process (Connell 1987). I use this concept, to study about the ways in which men establishe and maintains their domination in the groundwater market.

[2]Patriarchy refers to a system of organising social life that is based on the idea of the superiority of all men to women (Srivastava 2015).

[3]I chose pseudonyms for the village and the participants due to research ethical reasons.

[4]Caste is a pan-Indian phenomenon. Castes are endogamous and segmentary, all divided into sub-caste. The social hierarchy of the caste system in Hindu society allegedly originated from the four-fold class system (Das 1982; Fuller 2003; Murray 1994). The word caste is sometimes used to translate varna denoting the four 'classes' of the Hindu society with the Brahmins, the priestly class; Kshatriyas, the warrior class; Vaishya, the merchant class; Sudras, the service class; and finally, the Untouchables (also known as Harijans, Dalits, or the Scheduled Caste, their official designation) are the social bottom and are outside the four-class system, an object of extreme stigmatisation. The Rig-Veda hymn 'the Purusha Sukta' describes how from the Purusha (primeval man) body the four varnas originated, i.e., from his mouth came the Brahmins, his arms the Kshatriyas, his thighs the Vaishya, and from his feet the Sudras (Fuller 2003). Whereas tribes comprise a list of marginalised indigenous (tribal) people, including different ethnic sub-groups.

[5]*Kharif* or rainfed crops are sown in June and July and are harvested in September-October. In Mathnaa, they consist of maize, millet, pulses, castor and cotton. *Rabi* or irrigated crops are sown in October-November and harvested in February-March. Rabi crops grown in Mathnaa are wheat, mustard, gram, potatoes and turmeric.

[6] These collective borewells of Mathnaa cannot be classified as 'tubewell companies,' which exist in the Mehsana and Banaskantha districts of northern Gujarat and consist of rich farmers. For more details see, Naz 2014.

[7]The watershed development project in Mathnaa was started under the Integrated Wastelands Development Programme (IWDP) in 1999 by a local NGO, under the Common Guidelines of 1994. For more detail see, Naz 2014.

[8]Check dams are low cemented or earthen barriers made to capture monsoon run-off in empty streambeds, creating a series of small reservoirs which percolates to nearby wells and recharge the groundwater aquifers.

[9]1 Indian Rupees is equal to 0.014 USD. Therefore 15 INR = 0.21 USD and 25 INR = 0.36 USD respectively.

[10]Under the *Jyotirgram* (Lighted Village) Scheme (JGS), a separate electricity supply is provided to domestic and agriculture-related activities in villages. The scheme was initially launched as a pilot project in eight districts of Gujarat, but by November 2004 it was extended to the entire state, assuring 24-hour supply for domestic use and 8 hours for agriculture. This has helped in curtailing the overexploitation of groundwater pumping through illegal means and is described by the government of Gujarat as a win-win solution (Shah et al. 2008).

[11]65 INR = 0.94 USD and 100 INR= 1.45 USD respectively.

[12]Please note, women were made members in the watershed committees of Mathnaa, as part of the requirement to fulfill the criteria of the government guidelines, but in reality, they had no say in the decision-making.

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