

CHAPTER 9

Intersectional Water Justice in India

At the Confluence of Gender, Caste, and Climate Change

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Introduction

India's water crisis has been widely covered in the international and national press. In the summer of 2019, the *New York Times* published a series of reports and features on the prospects of Chennai and other large Indian cities running out of water (Subramanian 2019). Data on the absolute scarcity of water, sometimes illustrated using dramatic satellite imageries of water bodies, often dominate discussions on India's water crisis (Sengupta 2019). Recall, for example, the 2019 report about 21 Indian cities running out of groundwater by 2020 (ANI 2019a). We are now well past the dreaded summer of 2020 but there has been no follow-up reportage. The argument that India's water crisis lingers because its effects are experienced unequally along multiple dimensions – caste, class, and gender – is hardly a controversial one for scholars. However, there has been very little discussion in both the international and domestic press of the gross inequalities in access to water. The *New York Times* report mentions the poor, while another describes how women sacrificed daily showers so that office-going male members of the family could afford the luxury instead (Denton and Sengupta 2019). An overwhelming focus on water scarcity instead of water inequalities, we argue, is one of the major causes for the perpetuation of India's water crisis. In this chapter, we seek to examine how the intersection of social inequalities and climate change contributes to water injustice.

In India, access to water is determined by a complex entwining of caste, class, and gender identities that work to perpetuate structural inequalities. While geography and the quality of physical infrastructure greatly influence the extent of water insecurity, they are not entirely responsible for it. In some parts of the country, safe drinking water is inaccessible, causing widespread suffering, illness, and disease. In other regions, cheap and state-subsidized access to water is taken for granted and easily abused (Fatah 2013). The army cantonment and government districts in Delhi receive 375 litres of water per capita per day. On the other hand, South Delhi's Sangam Vihar, an area with a large number of 'unauthorized colonies' and home to many lower-income religious minorities, receives a meagre 40 litres of municipal water per person. In the Bhalswa dairy district, just 30 kilometres from Sangam Vihar, water from community water sources and hand pumps is highly toxic and polluted, so residents are compelled to queue up and collect their quota of drinking water from the government tanker that supplies water to the area once a day (Reuters 2019). In Pune, a bustling metropolis in Maharashtra, each person uses 352 litres of water per day, while the residents of Latur, another district in the same state, are forced to make do with a mere 60 litres per person per day (Waghmare 2016).

Evidently, social and cultural norms and regional inequalities create formidable barriers against equitable access to water. As the impacts of climate change become more prominent, people will experience heightened vulnerability along similar axes. In this chapter, we intervene in an ongoing, vibrant debate on the complexities of water access and water justice (Joshi 2015). We use a framework of intersectional water justice to address some of the analytical gaps that scholars of water justice in India have very insightfully highlighted.

First, we choose to focus on access to clean and safe drinking water, even though we acknowledge that water and sanitation must go together. Water and sanitation are also conceptualized together in the United Nation's Sustainable Development Goals for 2030 and in many debates on human rights to water and sanitation. However, for the sake of analytical clarity, we focus on what we consider to be one of the most urgent social and environmental concerns of the twenty-first century – the lack of access to safe drinking water. Second, while recognizing the importance of policies and governance in determining the outcomes of water allocation and access, we approach the question of water justice from the bottom up to map how multiple social inequalities constrain household access to water (Roth et al. 2018). The goal is to investigate how social and economic inequalities shape access to and the benefits of policies and programmes related to the provision of drinking water, including those led by non-governmental organizations.

In the next section we discuss inequalities in access to water in India. The goal is to highlight the gravity of the situation and communicate the importance of applying an intersectional approach to water justice. This is followed in the third section by a brief discussion of the concept of intersectionality; we apply it to analyse how class, caste, and gender inequalities produce unique experiences of water-based vulnerabilities. We illustrate these arguments in the fourth section by developing grounded analyses of access to drinking water in two different regions. First, we examine how, within the context of 'tubewell capitalism' gender and class inequalities intersect to disproportionately burden poor women from the so-called lower castes in north Gujarat (Dubash 2002). These women are forced to walk long distances to fetch drinking water for the household. Second, we analyse the dynamics around access to freshwater sources in the state of Uttarakhand.

In these two case analyses, we emphasize how socio-economic and gender inequalities create formidable barriers that limit access to drinking water for marginalized groups, with or without climate change. We do this to avoid the 'climate bandwagon effect', which translates, in many cases, to a reductive framing of important questions as simplistic arguments about the effects of climate change (Jinnah 2011). Having demonstrated the presence of deep-seated social inequalities that shape access to drinking water, we also demonstrate how these social barriers undermine community-based climate adaptation and resilience programmes. In the concluding section of this chapter, we summarize our key arguments and reflect on the analytical benefits and challenges of employing an intersectional approach to water justice.

Background: water scarcity meets social inequalities

As water scarcity has become a lived reality for millions, national and international institutions have amplified the need for water-specific legal instruments or legislations. In 2010, the United Nations General Assembly formally recognized the Human Right to Water and Sanitation (HRtWS). In practice, the realization of HRtWS would mean the provision of safe water in sufficient quantities (that is, 50–100 litres of water per person per day) at affordable costs (such that water costs do not exceed 3 per cent of the household income).

The right to water is implicit in Article 21 of the Indian Constitution, which guarantees the right to life. However, the debates on the topic are entangled in the questions of whether to conceptualize water as a private commodity or part of the commons (Moench 1998). A National Commission that was mandated to review the Constitution, recommended in 2002 that a new Article 30D be inserted to recognize that '*Every person shall have the right—(a) to safe drinking water ...*' but

this recommendation is yet to be implemented (Upadhyay 2011, 57, italics added for emphasis). Despite international impetus and national debates, India continues to face an increasingly serious water crisis. According to one estimate, in 2015, only 46 per cent of Indian households had access to piped water supply. WaterAid UK estimates suggest that around 7.6 crore people in India do not have assured access to safe, drinking water, making India home to the largest population without access to safe drinking water (Burgess 2016). India ranked 120 out of 122 countries in the Safe Water Index released in December 2019 (*Down to Earth* 2018; *FnBnews.com* 2019). According to the analysis presented in the *Aqueduct Water Risk Atlas* prepared by Washington DC-based World Resources Institute, India is the 13th most water-stressed country among the 150 countries they analysed (Dormido 2019).

These large gaps in access to safe drinking water, despite vast reservoirs of traditional knowledge on the management of water resources and decades of 'double-digit' economic growth in India, suggest that the root cause of the problem is neither lack of knowledge nor scarcity of resources. The alarming state of the drinking water crisis cannot be blamed entirely on water scarcity, as huge quantities of water are also wasted routinely. Rather, the crisis is the result of the deplorable state of policy-making processes and inequalities related to the distribution and allocation of safe drinking water. As such, the challenge of achieving water justice in India is not about framing access to water as part of the right to life, but that this right must also be universally implemented (Cullet 2013). Thus, the real measure of such interventions lies in how effectively such legal and normative discourses are translated into substantive outcomes in practice. While we recognize the ways in which climate change exacerbates water deprivation, a deeper understanding of the social roots of water inequalities is also crucial in the search for enduring solutions to India's water woes. In this spirit, and to counter climate bandwagoning of water inequality, it is helpful to situate the present analysis within a broader historical context.

The Mahad Satyagraha of March 1927, led by Dr B. R. Ambedkar, in conjunction with the conference organized by the Bashikit Hitakarini Sabha, offers an instructive point of departure and a source of inspiration in this context. Through the Satyagraha, Dalits sought to claim their right to water enshrined in a resolution adopted by the Bombay Legislative Council in August 1923, which stated that 'the Untouchable classes be allowed to use all public watering places, wells, Dharmshalas which are built and maintained out of public funds, or are administered by bodies appointed by Government' (Moon et al. 2014). Despite such a resolution, the Dalits of Mahad continued to be denied water from the public tank. To fight this, on 20 March 1927,

Ambedkar led a march of about 2,500 participants of the Dalit conference to a public tank in the centre of Mahad for a symbolic drink.

Even though it was a peaceful protest, upper-caste men from the village mounted a violent attack against the caravan led by Ambedkar (Moon et al. 2014). Keeping with segregationist casteist norms, upper-caste Hindus performed purification ceremonies to cleanse the well of the 'sins' of defilement caused by the protestors (Narake et al. 2003, 12). Later that year, when Ambedkar and his followers decided to hold a second Satyagraha, caste Hindus successfully secured a judicial injunction against any attempt to draw water from the well. Unwilling to break the law, on the night of 25 December, Ambedkar and his followers returned to Mahad and publicly burnt copies of the *Manusmriti*, the book of conservative Hindu laws that equates women and untouchables to cattle. This second Satyagraha also saw an exponential increase in the participation of women. Ambedkar inspired women to challenge the practice of untouchability, emphasizing their responsibility to the movement (Deepa 2017). Ambedkar's dual approach to this struggle – that is, his focus on access to water, which is indispensable to living a dignified life, along with the broader agenda of restructuring Indian society – suggests why this fundamental right continues to be elusive in the Indian social hierarchy.

The deep inequalities within Indian society and culture produce unequal access to water along the axes of caste, class, and gender. In the face of increasingly precarious access to water, girls and women spend an extraordinary amount of time collecting potable water. In areas without accessible freshwater sources, young girls from poor families walk long distances to fetch water, making them vulnerable to various types of harassment and violence. Some are forced to sacrifice their education to carry out these domestic chores, as the high school dropout rate for girls in India indicates (Seymour 2020). Not all women experience this exclusion similarly, as norms related to untouchability and segregation add to the difficulties of Dalit women. As we discuss later in this chapter, menstruating lower-caste women find themselves without access to any water when they need it the most. A rigorous understanding of these disadvantages, therefore, requires an intersectional understanding of water justice. The next section offers a brief introduction to the framework of intersectionality.

Water rights, social inequalities, and intersectionality: a conceptual discussion

The United Nations General Assembly formally recognizes the HRtWS as part of international legal norms, thereby creating an impetus for governments to integrate

it into national policies and plans. The international and national legal recognition of HRtWS makes it an internationally accepted normative framework that activists and policymakers can use as a reference (Zwarteveen and Boelens 2014). However, in most cases, such international instruments do not account for the countervailing force of neoliberal reforms, which undermine state interventions in the provision of basic civic amenities (Kashwan, Maclean, and García-López 2019). They also, of course, cannot account for the social and political barriers that prevent the realization of justice and human rights in practice.

Legal precedents from various Indian courts recognize the right to water as indispensable to the right to life enshrined in the Indian Constitution, but the Indian state is yet to come up with legally enforceable provisions for the execution of these rights (Upadhyay 2011). While the legal provisions are necessary, they are insufficient for the realization of universal, safe, and affordable access to drinking water. An important part of this challenge is the social reality that hampers universal access to safe drinking water. The neoliberal policies and programmes of the last quarter-century, as well as the ostensibly welfare-oriented policies in the past, relied on 'tokenistic ... and apolitical' references to gender and caste concerns, which have only reinforced pre-existing inequalities (Joshi 2011, 56). Moreover, the limitations of the legal process also apply to policies, which are necessary but rarely sufficient to bring about transformative changes. For example, the oft-cited 'traditional' water harvesting systems, such as Dharas, exclude Dalits (Krishnaraj 2011). Some of the best non-governmental organizations (NGOs) and social movements struggle to reach the most marginalized because of the socio-economic realities that keep them from participating in community-based institutions or rights-based social mobilization (Kashwan and Lobo 2014).

Effective legal, policy, and programme development require a deeper understanding of the workings of social inequalities linked to caste, class, religion, and gender. These social 'structures' that shape access to safe drinking water are entrenched in the everyday life of the marginalized via tacit codes of conduct that maintain and perpetuate caste-based segregation, practices of untouchability, and gender-based inequalities in both rural and urban areas (Mehta 2016). Some types of policy work seek to sidestep these problematic aspects of access to water and other natural resources by framing water scarcity as a 'natural' and inevitable result of climate change, without considering the effects of severe imbalances in social, economic, and political power (Zwarteveen and Boelens 2014). Such efforts at naturalizing social inequalities are bound to end in disappointment, especially if the goal is to promote just and enduring responses to climate change. To shine a light on the folly of depoliticizing environment and development interventions

and legislation, we adopt a framework of intersectional water justice and illustrate its application in researching the water injustices faced by the members of socially, culturally, and politically marginalized groups.

Originally conceptualized by Kimberlé Crenshaw as a mechanism to analyse the marginality of African-American women, intersectionality emphasizes the cross-cutting nature of socio-cultural and economic inequalities (Crenshaw 1989). While it is essential to investigate how the disadvantages of gender, caste, and class limit access to drinking water, a failure to investigate their intersections produces an incomplete, even distorted view of reality (Kaijser and Kronsell 2014).

In its simplest form, intersectionality has been used to highlight the *convergence* of multiple forms of oppression – for example, the double disadvantages experienced by lower-caste women. However, intersectionality also helps us focus on ‘privilege and demonstrates that intersectionality and interlocking oppressions are time and context contingent’ (Hulko 2009, 44). In the Indian context, intersectionality points to how injustice is experienced differently by upper-caste women compared to lower-caste woman; or by relatively well-off lower-caste women as compared to poor lower-caste men. In other words, due to the complex intersections of the multiple layers of identity, the same person may be either privileged or marginalized in different contexts or at different times (Thompson 2016).

Interdisciplinary research on environment and development contribute important insights that are especially relevant for studies of intersectional water justice. One, environmental social scientists show how embodied experiences of social difference – such as gender, caste, and religion – are produced and expressed through everyday material realities, including those linked to the use of natural resources (Nightingale 2011, 154). Two, in many cases, outcomes of contested claims to material resources may reveal additional layers of (dis)advantage and alter the socio-economic status of claimants. Three, by making visible the broader political economy of resource control, the environmental social sciences draw attention to the structural politics of resource poverty and deprivation that a disproportionate focus on social difference may disguise (Rao, Min, and Mastrucci 2019). Each of these insights is also relevant to the contestation over societal responses to climate change. The possibility that those with certain types of socioeconomic privileges may benefit from the disruptions of a climate-changed world adds another layer to an intersectional analysis of climate justice. The use of intersectionality as an analytical tool highlights the importance of carefully analysing the differentiated and cross-cutting nature of inequalities and privileges. We reflect on some of these possibilities in analysing the intersectionality of water justice.

Climate stresses meet caste, class, and gender inequalities: two cases

Access to groundwater in rural Gujarat

Groundwater is a major source of drinking water in India. This is especially true of the arid and semi-arid regions of North Gujarat, which stand on top of rechargeable aquifers. The region relies on groundwater to meet its water requirements amidst pervasive scarcity owing to unpredictable and scanty rainfall. Additionally, increasing salinity of coastal aquifers presents new threats of water stress. Water scarcity is also strongly linked to the increased use of tubewells, which has led to nearly unchecked extraction of groundwater for irrigation (Bhatia 1992).

Landowners hold *de facto* property rights over groundwater. However, the interconnectedness of underground aquifers means that groundwater reservoirs are effectively open-access resources. The extraction of groundwater is constrained only by the availability of means of extraction, such as tubewells, electricity, or other sources of energy (Moench 1992). This means that access to groundwater is directly tied to economic status and inequalities. Casteist social structures that restrict property inheritance and ownership of land among the lower castes also explain disparities in access to water. According to one study in the Kutch district, there is one tubewell for every 1.4 Patidar households, but the ratio falls to one well per 30 families among the lower-caste group, the Vankars (Bhatia 1992). Moreover, these inequalities have worsened with the introduction of modern water extraction technologies, such that all tubewells in the village Bhatia studied are owned by the Patidar caste, who constitute a mere 23 per cent of the village population.

By heavily investing in tubewells, upper castes in Gujarat and elsewhere free-ride on underground aquifers that should ideally be managed and regulated as commons. Exploitation of groundwater has so severely depleted water tables that it threatens a complete collapse of groundwater resources. Moreover, because the intersection of caste- and class-related inequalities shapes inequalities in the distribution of modern technologies, the collapse of underground aquifers is rooted in – and further reinforces – socio-economic inequalities.

The environmental collapse caused by socially and economically powerful groups directly contributes to poor and lower-caste farmers' dispossession of their rightful share of groundwater, including safe drinking water. For example, the residents of Mathnaa village in Sabarkantha district in north-east Gujarat have relied historically on shallow dug wells for their supply of irrigation and potable water. However, ever since the upper-caste families started using tubewells to extract water faster from the aquifer, shallow wells no longer supply sufficient water. The resulting exacerbation

of water inequalities led to a concentration of power in the upper-caste households, who are also known as the 'Water-Lords' (Naz 2015, 89). Poor farmers, who are unable to invest in costly tubewells, became dependent on the upper castes for fulfilling their water requirements, which pushed them further down the spiral of social and economic subordination.

Tubewell-assisted exploitation of aquifers is not necessarily an example of improved overall social welfare at the cost of environmental sustainability – in most cases, it exacerbates social inequalities while also undermining the sustainability of groundwater in these arid and semi-arid regions. However, this does not mean that communities can switch back to some form of traditional water harvesting system. In many cases, better regulated and socially equitable management of tubewell-based groundwater extraction seems to be the only option. One such reform advocated for by small and marginal farmers in water-scarce North Gujarat is to make tubewells a public good. They propose that the pipe that runs through the ground should be considered public property, equally shared by all members of the community, while individual families or smaller groups of families may invest in motors or pumps to extract water at a small cost (Bhatia 1992). This would reduce the monopoly of land-owning farmers over water resources and might also help regulate the amount of water that upper-caste families extract.

In the arid and semi-arid states of Rajasthan and Gujarat, women spend an average of three hours collecting drinking water from wells – which, along with public taps, form one of the two major sources of drinking water in the region. This is a major source of drudgery in their daily lives (Varua et al. 2018). The drinking water supply in arid and semi-arid regions is often controlled by state agencies charged with the task of supplying water in dry months. For example, the Gujarat Water Supply and Sewerage Board (GWSSB) is a statutory body in charge of managing and regulating water supply in the state. However, like many other state institutions, the GWSSB's performance is often erratic. The water that they supply is also of inferior quality, supplied on alternate days, and amounts to an average of five litres per person per day (Agarwal 2019). This falls short of the minimum water requirements of 20 litres per person per day, as laid out by the United Nations (Watkins 2006). However, such scarcity of water is not exceptional.

In villages throughout the northern and western parts of the state, wells often run out of water by early March. However, GWSSB operates water tankers from late April until early May. In the meantime, lower-caste villagers must rely on the wells and tubewells owned by the upper castes or travel miles to get water from faraway public tanks (Prakash and Sama 2006; Kulkarni et al. 2020). In Merka, a village in Kutch with no reliable source of safe drinking water, GWSSB tankers are supposed to supply

water three times a day. However, the tankers show up erratically and sometimes not at all; when they do appear, they supply poor-quality water that is too saline to drink. In most cases, villagers use the water only for washing, cleaning, and other domestic tasks, but rely on village wells for their supply of drinking water (Mehta 1997). Even in villages where the state has installed public standposts to provide sufficient quantities of potable and drinking water, caste-based discrimination limits lower castes' access to water, sometimes leading to violent attacks on Dalits (Mehta 1997). A study of 1,589 villages in the state of Gujarat showed that Dalits are denied access to public drinking water infrastructure in 29 per cent of villages, and Dalit settlements have no public taps or wells in 71 per cent of the villages (Armstrong and Davenport 2010).

The GWSSB's unreliable operation of water tankers exposes Dalit women to increased vulnerability and harassment, as it renders them entirely dependent on the upper castes for employment and drinking water supply (Prakash and Sama 2006; Armstrong and Davenport 2010). Dalit and other lower-caste women are therefore subject to intersectional injustices linked to the concentration of multiple vulnerabilities arising out of their caste and gender identities. They are relegated to a life of extreme marginality and experience continuous physical and sexual threats by upper-caste men, and verbal abuse and taunts by upper-caste women (Dhar 2017). Patriarchal norms that exist within the community are often replicated within the household, making Dalit women highly vulnerable to intra-household violence. While instances of violence against Dalit women are most often observed in public spaces, like open fields and streets, the second-most common space for violence is the household. Dalit women's efforts to challenge patriarchal authority often result in domestic violence, which points to Dalit men's acceptance and perpetuation of gender-based inequalities (Irudayam, Mangubhai, and Lee 2006).

The cultural politics of access to and control over water infrastructure in Uttarakhand

In several regions across India, especially in the hills, perennial streams are considered sacred. The Himalayan state of Uttarakhand is endowed with major riverine networks that feed several traditional water systems to bring water to mountain villages (Acharya 2011). Highly localized ecological knowledge systems, developed over several hundreds of years, enable indigenous communities to cope with drastic environmental changes and hold the key to culturally appropriate climate adaptation strategies. However, patriarchal and casteist structures define customary sacred norms around these local water systems. The purity–pollution divide, which

is central to Hindu rituals, means that the access of Dalits and menstruating women remains fragile and highly restricted, thus severely damaging lower-caste women's ability to withstand the impacts of climate change.

Dharas, traditional water systems where subterranean or spring water is directed to the surface through well-adorned and specially carved outlets, are a crucial source of domestic water supply in the Garhwal region. The norms around the use of water from a *dhara* are heavily embedded in socio-cultural structures and religious symbolism. A *dhara* is marked by a small shrine, dedicated to a deity, either inside or close to the spring. Small temples are often constructed close to *dharas*, and in the absence of a temple, the *dhara* itself serves as a place of worship. A selective understanding of religious norms associated with traditional water harvesting structures can produce a misleading picture of the lived experiences of different groups within a community. In Chunni village, upper-caste Khanka Kshatriya women attributed the abundant availability of water to the blessings of Jal Devi and claimed that there was more than enough water to use in daily rituals (Joshi 2011). On the other hand, Dalit women in the same village face acute water scarcity – they are subjected to water apartheid, as they are assigned separate *naulas* (a water harvesting structure that taps into subterranean springs) only from which they are allowed to collect water (Joshi 2011). Some of them are compelled to reuse wastewater from cleaning utensils and laundry as feed for farm buffaloes. Young Dalit girls who are sent to collect water from *naulas* are often subject to sexual harassment and violence; there have even been instances where men have raped girls as young as nine years old (*Hindustan Times* 2019).

In Rautgara village in Pithoragarh tehsil in Kumaon division, menstruating girls are forbidden from going to school for at least five days to avoid 'contaminating' a temple that is located on their way to the school (Punetha 2018). Menstruating girls are also forbidden from collecting water and from touching or even coming close to the *dhara* (Acharya 2011). Such norms not only significantly limit their access to water when they need it the most, potentially endangering their health, but also dictate their access to other crucial resources and services. The practice of untouchability also influences how spaces around these traditional water sources are used. In Garhwal, separate *dharas* are assigned to the lower castes depending on their location and water quality (Asthana 2003). In areas with a single *dhara* for all the castes, Dalit women can collect water only after upper-caste women have collected their share (Acharya 2011). The lower castes are often verbally and physically abused for attempting to use upper-caste water sources.

This is not to suggest that no advancements have been made in improving drinking water infrastructure in Garhwal. The introduction of piped water has improved

the drinking water supply for Dalit households and reduced the distance that Dalit women need to walk to collect water. However, researchers suspect that these gains are unlikely to be sustainable without the incorporation of traditional water conservation practices and conservation in catchment areas, as there has been a disastrous reduction in the overall water supply (Acharya 2011). More importantly, addressing gender- and caste-based inequalities is crucial for just and equitable access to water. In 2018, a Dalit man was allegedly murdered by two Gujjar men in what started as a squabble over the usage of a water canal in Haridwar (*Scroll.in* 2018). These atrocities reflect the deeper social reality of caste-based discrimination in Uttarakhand, where, according to a recent survey, over 50 per cent of upper-caste individuals admitted practising untouchability, and 68 per cent of the Brahmins in rural Uttarakhand confessed to the practice (Thorat 2020). As expected, Brahmins and other upper-caste men also dominate the state's politics and policy-making processes.

Social inequalities and implications for climate adaptation and resilience

Both Gujarat and Uttaranchal are among the most climate-vulnerable states in India, though for very different reasons. While rising atmospheric temperature is associated with melting glaciers and drying of perennial springs in the Himalayas, it is likely to contribute to increased aridity and scarcity of water resources in the semi-arid environments of Gujarat. Despite these and other differences, the social realities of caste and gender present similar stories of exclusion, oppression, and overburdening of women with households responsibilities, especially Dalit women.

Scholarly and activist arguments in favour of aggressive and timely climate action are often justified in the name of social justice concerns – such as the argument that climate adaptation and resilience are likely to alleviate the disproportionate burden that climate change imposes on marginalized groups. Yet these arguments are accurate only in a very superficial sense; they are premised on the assumption that addressing climate change will also address its disproportionate social effects without active interventions targeting deeply embedded social inequalities. Second, even when social inequalities are considered, climate policies and programmes cannot be made gender-sensitive simply by 'adding on a concern for women' (Ahmed and Fajber 2009, 33). The intersectional approach helps deepen our understanding of the detrimental effects of the multiple, intersecting disadvantages that individuals face based on their social and cultural positioning. More importantly, as we demonstrate in this section, intersectional inequalities also shape the distribution of costs, burdens, and benefits related to climate adaptation and resilience interventions.

Climate impacts and social responses in Gujarat

The decentralization of decision-making power to community organizations and locally elected governments, along with the intervention of NGOs, are often recommended as the preferred approach to climate resilience and adaptation (DasGupta and Shaw 2014). It is worth considering an example of such a partnership between two very reputed governmental and non-governmental organizations active in Gujarat: (a) the Water and Sanitation Management Organisation (WASMO), a governmental agency charged with overseeing community-managed water supply development in rural Gujarat, and (b) the Aga Khan Rural Support Programme (India) (AKRSP [I]), an internationally renowned NGO with expertise in provisioning of drinking water in rural areas, which has been working with local communities in the drought prone-district of Surendranagar since 2002.

WASMO and AKRSP joined hands to implement a successful desilting project, which led to improved water availability in Vadali in Surendranagar. As a follow-up project, they proposed the construction of a common drinking-water well close to the check dam to improve water security in the village. However, influential village leaders, each of whom owns large areas of land and has access to sufficient water through their private wells, blocked these efforts. They feared that the newly proposed village well would deplete the aquifer and reduce the amount of water available to them for irrigating their fields. The lower castes, fearing repercussions, were unable to voice their opposition or exercise any bargaining power after the NGOs called off the project. They then chose an alternative site acceptable to the upper-caste households for the construction of a new well, even though it was located outside the area that would have benefitted from the desilting project (Prakash and Sama 2006). We observe similar dynamics in the Earthquake Rehabilitation and Reconstruction (ERR) programme that WASMO implemented in consultation with ASRSP (I) in Surendranagar in 2003. For instance, in Navagam village of Surendranagar district, project staff chose the sites for the construction of water storage tanks as per the wishes of the middle-caste Bharvad community instead of through a scientific analysis of the aquifer (Kulkarni et al. 2020).

Other attempts to decentralize water governance through *pani samitis* (water committees), duly linked to locally elected village councils, have also failed to challenge the dominance of caste- and gender-based community norms (Krishnaraj 2011). In Ghogha and Navagam villages in Kutch and Surendranagar respectively, *pani samitis* have failed to ensure the equitable distribution of water to distant hamlets, which, in most cases, are impoverished Dalit settlements (Kulkarni et al. 2020). Socially and economically powerful households often tamper with water pipes to withdraw additional water than their allocated share more frequently,

thereby diminishing water availability for users downstream. The construction of new infrastructure and the constitution of local community organizations, while necessary, are insufficient to alleviate the vulnerability of the most marginalized.

Climate change is likely to stress existing supplies of groundwater, especially for marginalized groups, whose access is already precarious. Gujarat happens to have the longest coastline of all states in India, which makes its groundwater-stressed coastal areas highly prone to the intrusion of salinity. Well water in villages in Jafrabad *taluka* have already become too saline for human consumption, forcing women to walk for over a kilometre to secure their necessary supplies of drinking water (Brahmbhatt and Ved 2019). Many of these communities already recycle household wastewater for multiple domestic chores. However, the problem of salinization of groundwater is not restricted to coastal areas. In Becharaji village of Mehsana district, wells in Dalits neighbourhoods have turned saline. However, Dalits are not allowed to collect water from the community well at the centre of the village. They are expected to collect their drinking water supply from a separate tank constructed some distance from the well, so that the water from the Dalit tank does not mix with the well water; the upper-caste villagers believe that it will 'pollute' the community well (Dhar 2017). Such discriminatory practices are rooted in the local social context, but they are reinforced further as the state fails to invest in basic amenities, leaving marginalized communities to fend for themselves.

The significance of the intersection of longstanding social inequalities with the salinization of groundwater resources goes beyond the state of Gujarat. South Asia is projected to witness a massive, long-term loss of groundwater because of the intrusion of salinity in its coastal areas. Climate models suggest that the region is likely to see an estimated 0.075 per cent loss of fresh groundwater per year in both high emission and low emission scenarios leading up to 2099 (Ranjan, Kazama, and Sawamoto 2006). India's long and densely populated coastline presents formidable challenges for the pursuits of socially just climate adaptation.

Climate impacts and social responses in Uttarakhand

In the age of climate change, the Himalayan region faces the threats of melting glaciers, destabilization and landslides, rapid erosion of terrace farms, and drying of perennial streams and other water sources (Chrisensen 2019). Climate change and frequent forest fires have significantly reduced vegetation and increased surface run-off, reducing the quantity of potable water and transforming once perennial water springs into seasonal sources, with less and less water able to percolate through the terrain every year (Acharya 2011). Scholars are debating whether migration from

hilly areas is a feasible climate adaptation strategy (Datta 2019). However, the lens of intersectionality should serve as a reminder that the ability to migrate is not distributed equally among different sections of society. This is especially pertinent in light of the precarity of the urban context for migrant workers, especially Dalit and women workers (Sirimane and Thapliyal 2020). Even if migration to urban centres becomes more precarious, administrative neglect, increasing water scarcity, and irregular drinking water supply has driven large-scale outmigration. This is especially true of the Pauri district of Uttarakhand, where many towns are turning into 'ghost towns' (Singh 2019). In most cases, migration from hills is a male phenomenon, leaving women to take care of agriculture and other household affairs (Tata-Cornell Institute for Agriculture and Nutrition 2019–2020).

A gender-differentiated understanding of migration also often prompts NGOs and policymakers to ensure that women are represented and that they even lead the committees for community-based natural resource management and climate adaptation interventions. However, research shows that women from upper-caste landowning families often occupy these remedial spaces, in which they exercise limited decision-making authority over, say, the management of water resources. However, despite intense engagement and knowledge of water resources, Dalit and other lower-caste women face a variety of barriers that prevent them from experiencing the benefits of these representation processes (Khandekar et al. 2019). As the next example demonstrates, this should not be read as an argument in favour of taking responsibility away from local communities or bringing in NGOs for the arbitration of social conflicts.

Deepa Joshi's research on the World Bank-financed project, Swajal, provides important insights on the stubbornness of caste-gender hierarchies and the failure of NGOs and multilateral agencies in accounting for and addressing them. The Swajal project, led by a prominent NGO, employed a significant number of female employees who occupied lower-level positions in the field. However, the project did not make similar efforts to employ Dalit women or men (Joshi 2011, 61). This was perhaps not a coincidence, considering that the local NGO involved in the project, well-respected for its work on community-based environmental and development work, was founded by an all-Brahmin leadership team and did not have any Dalit staff members (Joshi 2011, 61). With such a complete lack of Dalit staff and lack of women in senior positions, the project also produced socially discriminatory effects.

In the village of Mala, which was also the project's flagship village and the first to complete implementation, the project appropriated the water source of a Dalit woman-headed household. Even more tragically, this Dalit household did not receive any benefits from the project. Therefore, notwithstanding the liberal

rhetoric of gender-sensitive project strategies, multilateral projects meant to promote community resilience and adaptation could significantly exacerbate the vulnerabilities of marginalized households.

Conclusion

The international media's focus on 'Day Zero', when large metropolitan cities must shut off their metaphorical taps, has drawn attention to the issue of water stress. However, as we mentioned in the introduction, the media's focus on the water crisis in Chennai, as well as its reportage on the 21 Indian cities that would run out of groundwater by the summer of 2020, was characterized by remarkable blindness to deep inequalities in access to safe drinking water. Amidst a deepening water crisis in the summer of 2019, Dalit households living at the foothills of the sacred Otthakadai Yanamalai were barred from drawing water from a public well. Powerful upper-caste community leaders sought to explain this by arguing that the well is 'sacred' and that 'other people are not allowed to visit the well because they are not clean' (ANI 2019b). However, villagers also revealed an equally important source of upper-caste anxiety when they mentioned that more than 150 people already use the water from the same well for drinking purposes. This was not an isolated case, with at least one other report suggesting that Dalits in more than 100 villages faced similar discrimination when accessing public wells (Pal 2019). Climate change-related stresses will certainly exacerbate the social production of discrimination; so, social factors cannot be left aside for post-facto or marginal considerations in NGO projects and government interventions.

Quite evidently, the long and inspiring history of social struggles exemplified by the historical Mahad Satyagraha should continue to guide our present-day thinking on widespread discrimination in access to water. As is evident from the reports that suggest that such incidents worsen during the summer months, climate change-related stresses on water supply are likely to deepen the discriminations that Dalits, especially Dalit women, experience. While intersectionality has become a popular social science concept somewhat recently, for Ambedkar, caste and gender oppression were both rooted in the deeply hierarchical and exploitative philosophy of orthodox Hinduism. This was evident in the protest that Ambedkar staged as a follow-up to the Mahad Satyagraha, where he performed a symbolic burning of the *Manusmriti*, the main source of the anti-woman and anti-Dalit ideology of orthodox Brahminism (Vajpeyi 2016, 5). Yet popular approaches to discussing gender- or caste-related vulnerabilities in the context of climate change do not sufficiently

account for the differentiated and intersectional effects of multiple disadvantages in a person's lived worlds.

A deeper analysis of intersectional vulnerabilities to climate change reveals why it is difficult to address these vulnerabilities by introducing apparently gender-sensitive or pro-poor climate adaptation interventions. As we observed in both the Gujarat and Uttarakhand cases, these interventions are invariably appropriated to serve the goals of locally powerful actors. Yet powerful agencies, including multilateral agencies such as the World Bank, have done little to incorporate a nuanced understanding of these realities into their programmes and projects. Instead, they have settled into pro forma responses in the form of local committees, which are endowed with symbolic authority and functional mandates, as a substitute for structural transformations. Such neglect is especially surprising given that the Bank's in-house research has shown how their 'participatory' projects are often subject to elite capture (Mansuri and Rao 2012). Examples from the water sector include attempts to decentralize water governance through *pani samitis*, which have also failed to challenge the dominance of caste and gender-based community norms (Krishnaraj 2011; Kulkarni 2011).

In this chapter, we have sought to shine light on these complacencies and argue for a sustained focus on social power as perhaps the most important ingredient in climate adaptation via water resource management. Socio-political movements that develop 'alternative cultural, social and political paradigms' are a necessity; yet they form an insufficient prerequisite for transformative change (Kulkarni 2011). Large-scale social transformation requires formidable coalitions between state and non-state actors who adopt strategies of 'aggressive partisanship[s]' in favour of socially and politically marginalized groups (Mehta 1997). Moreover, these partnerships would need to marshal a combination of discursive, material, institutional, and ideational powers and counter-powers to displace the stubborn endurance of the status quo (Kashwan, Maclean, and García-López 2019).

We have also sought to contest apolitical discourses that focus on water scarcity without accounting for the effects of various types of inequalities. By developing an intersectional analysis, we showed how individuals experience water insecurity to different degrees depending on the intersection of various layers of their identity. These layers may take the form of one's caste, class, gender, or religion, with their effects contingent on specific historical and cultural settings. For some, as in the case of Dalit women facing verbal, physical, and sexual abuse at community water sources, societal norms function as deeply entrenched, localized, and, yet, normalized forms of crisis. In a country as demographically and topographically diverse as India, addressing a problem as complex as inequities in access to water

requires a multi-pronged approach – one that not only addresses the perpetuation of inequalities linked to neoliberal infrastructural development and privatization but also the inequalities embedded in enduring social structures and the rules, norms, and customs that are often celebrated rather uncritically in climate policy circles.

The analyses that we have presented in this chapter should also serve as a cautionary note for external agencies and experts who look at caste-based inequalities as a result of some kind of social anachronism. Top-down neoliberal interventions not only fail to serve the interests of the marginalized in many cases but they also end up reinforcing these unequal structures. Uncritical promotion of community-based natural resource management, especially through the celebration of multiple award-winning social activists despite their superficial engagement with local communities, has undermined the agenda of socially just water resource management (Kashwan 2006). The non-existent Dalit representation in the World Bank-supported Swajal programme in Uttarakhand, and WASMO's appeasement of upper-caste agendas in Gujarat, and agency officials' unquestioning acceptance of these inequalities, require serious administrative and institutional measures. Officials must be held accountable for failing to respond to the apparently discriminatory workings of participatory processes. It is challenging to find 'fixes' to such an incredibly complex issue so deeply entrenched within Indian society, which cannot be addressed easily, especially when the commitment of state machinery to transformative social change is suspect. Even so, it is evident that lasting impacts can only be made via a combination of political and institutional reforms, along with social interventions that undermine the entrenched inequalities within communities and households. Superficial representation and thoughtless legal provisions must be remedied or abandoned entirely. The pursuit of intersectional water justice will be a long-drawn battle, but it is not one that we can ignore any longer.

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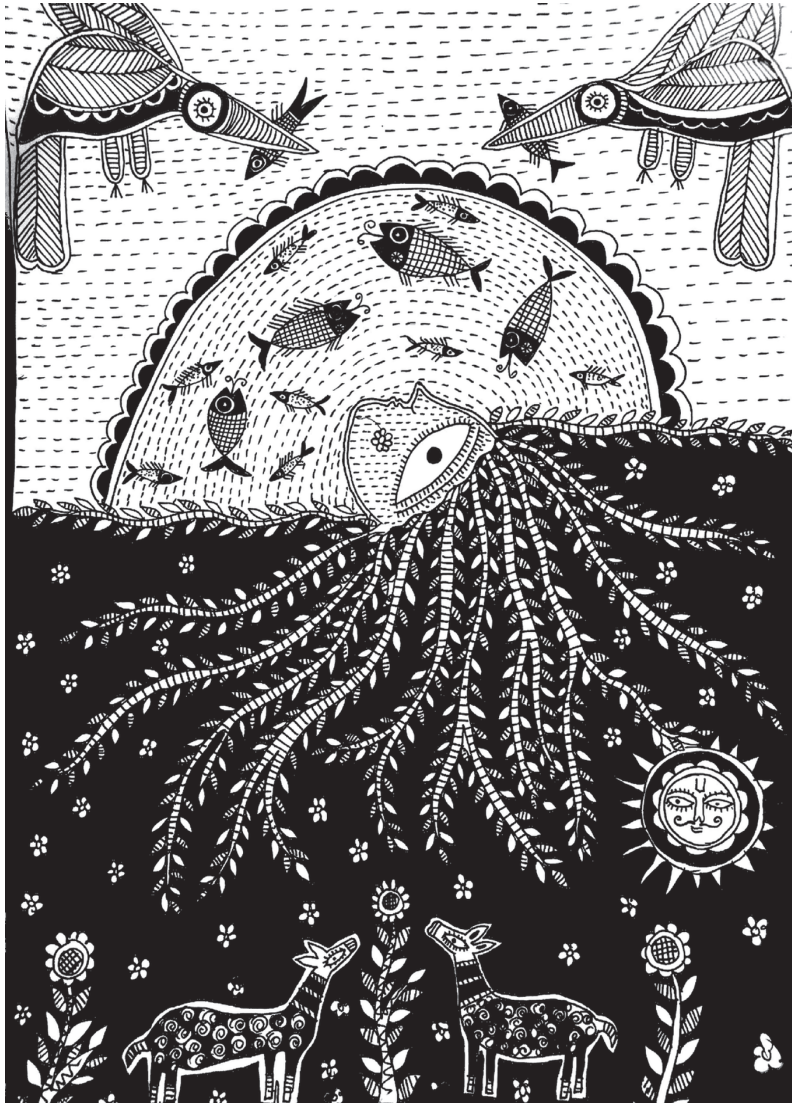
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