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Learning with overflows

Feminist engagements with water in agriculture in Maharashtra (India) and beyond

Leonardelli, I.

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OBLIQUENESS AS A FEMINIST MODE OF ANALYSING WATERSCAPES: LEARNING TO THINK WITH OVERFLOWS¹⁰

Abstract

In this paper, we propose obliqueness as a feminist mode to analyse waterscapes, intersecting feminist political ecology with post-human feminist scholarship. Obliqueness means cultivating attentiveness to those things and events that at first sight appear inconsequential because they do not fit with official plans or predominant (power) structures. Through a methodological focus on the continuous making-of such structures – on acts of tinkering with institutions, ideas and technologies – obliqueness notices not just how structures are reproduced, but also helps draw attention to inconsistencies, divergences and transgressions – what we call overflows. Hence, our oblique analysis of a waterscape of a village in Maharashtra, India revealed overflows to two kinds of structuring: one stemming from the infrastructural lay-out of an irrigation system, and one stemming from intersecting hierarchical relations of caste and gender. These overflows point to possibilities for being and relating beyond those that can be contained in already identified social or planned material structures. In this way, an oblique analysis expands the theoretical and political space to co-enact more equitable human-water relations in Maharashtra, and elsewhere.

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3.1 INTRODUCTION

Vidya is standing proud in front of her household's farm in Pravah,¹¹ a drought-prone village in the Pune district in Maharashtra, India. She has been weeding all day, with her 2-year-old daughter playing next to her. She invites us to sit on the grass, to keep her company while she works "*The onions are growing well and will be harvested in a few weeks, then we [she and her husband] will purchase wastewater and plant flowers*",¹² she explains. It is March, one of the driest months in Maharashtra: the wells are almost empty and at least 3 months will pass before the monsoon season starts. In order to irrigate their crops, therefore, farmers in Pravah depend on the wastewater they can purchase through the Purandar Lift Irrigation Scheme. Sponsored by the Government of Maharashtra, the scheme consists of a series of pipelines and pumps that transport wastewater from the city of Pune to land located in a rain-shadowed area south-east of this city. Since around 2010, this water allows those with access to it in Pravah to cultivate all year round. After having requested and paid for the water, Vidya and her husband Renie wait for it to flow from their private outlet point, next to their farm.

The Purandar Lift irrigation System lifts wastewater from the Mula-Mutha River in Pune up to approximately 370-m height. From the highest point, main and minor pipelines transport it to dozens of outlets serving 60 villages, to irrigate up to 25,000 hectares of land. Farmers submit their demands for water to a field officer working for the Irrigation Division of the Water Resource Department and pay accordingly. Once enough farmers request and pay for water to cover the costs of operating the irrigation system, the engineers based in Pune activate the pumps.

The irrigation scheme forms part of wider and long-standing efforts by the Government of Maharashtra to solve problems of water scarcity in drought-prone rural areas (GoM, 2018; see also Joy et al., 2014; Shah et al., 2021). Thanks to it, it is possible for farmers like Vidya and Renie to irrigate their farms throughout the year and to cultivate both traditional crops, such as millets and pulses, as well as commercial cash crops like flowers, vegetables, fruits and spices (see also Joy et al., 2014; Prasad and Sohoni, 2020). For the farmers of Pravah, the possibility to access irrigation water from the new system marks a significant transition: from an earlier period characterized by subsistence rain-fed farming, scarce groundwater resources and labour migration to a comparatively prosperous present where they can irrigate market crops with plenty of wastewater.

Vidya shows us the outlet point which releases the wastewater to her household's private water pond located next to their farm. Here, the water is stored before it percolates into

¹¹ Pseudonyms are used for all personal names and place names to protect the identity of the research participants.

¹² Interview Vidya_01, February 2020.

their recently constructed well. With the help of a pump, she and Renie channel it to their field to irrigate their crops. She explains that their outlet point was not part of the original government plans. Instead, it was built as part of the initiative of a group of farmers in the village, some years after the government finalized the construction of the scheme. At first, also many other farmers in Pravah did not have direct access to the wastewater provided by the scheme, because their farms are located too far from the government-designed and constructed outlet points. To nevertheless benefit from the scheme and allow wastewater to also flow into their ponds and wells, they started engaging in negotiations with engineers and government officers; liaised with their neighbours; and began reworking the infrastructure.

The Purandar Lift Irrigation Scheme provoked a major re-arrangement and re-alignment of the relations between people, and between people and water, within Pravah. These exemplify the co-constitution (co-evolution or co-emergence) of nature and society noted by political ecology scholars interested in water when wanting to emphasize that the hydrological and the social should not be treated as separate. The term waterscapes (Baviskar, 2007; Karpouzoglou and Zimmer, 2016; Swyngedouw, 1999) expresses this co-constitution and inseparability. Waterscapes are permeated and shaped by power relations that are tenacious, even when – as feminist political ecologists have insisted – they are also open to contestation and re-negotiation (Harris, 2006; Sultana, 2011). Indeed, in Pravah, like in other rural areas of India, intersecting structures of class, caste and gender make for the enduring existence of often exploitative relations of dependence that allow some to flourish at the expense of others (Kerr, 2002; Shah et al., 2021). Hence, in Pravah, and throughout Maharashtra, almost all land titles are owned by men, because it continues to be difficult for women to inherit land (Bhat, 2016). Also labour roles and responsibilities are shaped by patriarchal and caste relations and norms (Krishna and Kulkarni, 2019; Mehta, 2016; Prakash, 2012). Landowning male farmers belonging to upper castes are for instance the ones dominating in market-related activities (e.g. transporting the produce to the market and selling it). Also, the construction, operation and maintenance of water infrastructures such as ponds, wells, pipelines and canals are tasks mostly performed by men (Mehta, 2016; Mitra and Rao, 2019). Because of how these activities are associated with the public and political domain, men tend to be more readily identified and institutionally recognized as political actors. Though women perform most of the everyday farm work – including sowing, weeding and harvesting, and often also irrigating – they do not benefit from the same social, and institutional recognition, nor are they similarly rewarded for their labour (Agarwal, 2003; Krishna, 2007; Krishna and Kulkarni, 2019; Kulkarni and Joy, 2012; Padhi, 2012). Indeed there is a rich and insightful body of (feminist) political ecology scholarship documenting and exposing such enduring forms of discrimination and marginalization. Much of this scholarship explains resulting inequities and conflicts over water and the environment, in India and elsewhere, as being associated with or reinforced by distinct capitalist and

neoliberalism-driven processes of development (see among others Ahlers and Zwartveen, 2009; Crow and Sultana, 2002; Harris, 2009; Kulkarni and Joy, 2012; O'Reilly, 2006; Sultana, 2013; Zwartveen, 1997).

We do not set out to re-do such an analysis in this paper, to expose how the life of smallholder farmers in Pravah is conditioned and shaped by neoliberal water reforms and plans, including the implementation of the Purandar Lift Irrigation Scheme. Nor do we aim to yet again confirm the existence of power structures – capitalism, patriarchy, caste – and associated relations. This is because doing so comes with limitations. For one, it risks reiterating and somehow strengthening the overwhelming power of such plans and (infra)structures, as well as reconfirming the oppressions and marginalizations that they create (Latour, 2005). It may homogenize, and overlook or silence whatever does not fit or falls beyond those patterns, categories or processes that can be identified before the analysis (see among others Ahlers and Zwartveen, 2009; Anand, 2011; Domínguez Guzmán, 2019, 2021; Gibson-Graham, 2014; Harris, 2009; Hart, 2006). Second, as a critical feminist mode of analysis, identifying and exposing structures of power or the unevenness of processes of development leaves little theoretical space for ‘the oppressed’ or ‘marginalized’ themselves to articulate and make sense of their practices and experiences (see also Bossenbroek and Zwartveen, 2018). And third, such an analysis risks to restrict possibilities for political-feminist transformation to either resistance to or escape from structural forms of dependence and exploitation.

We are instead interested in nuancing, expanding and moving beyond more structuralist feminist political ecology analyses of waterscapes, to identify other avenues for transformative change. To do this, we propose experimenting with a mode of analysis that foregrounds those things, events, relations or processes that overflow, exceed or appear to be in friction with official plans and regulations, but also with explanations that posit the existence of enduring patterns of marginalization, exclusion and exploitation (see also Bossenbroek and Zwartveen, 2018; Callon, 1998; Domínguez Guzmán, 2019, 2021; Gibson-Graham, 2014; Law, 2004; Law and Mol, 2002; Tsing, 2005).

Inspired both by Actor Network Theory (ANT) and feminist post-development and post-human scholars, this starts by seeing the world as the product of relational and partly contingent interactions between human and more-than-human actors shaping one another both discursively and materially (Barad, 2007; Haraway, 1989; Latour, 1993; Law and Mol, 2002, 2008).

3.2 OBLIQUELY THINKING WITH A WATERSCAPE

Critical water scholars have noted how smallholder farmers may access and use water in ways that do not entirely conform to neoliberal schemes (or existing power structures), but also cannot be simply understood as resistance to or escape from them (see for instance Domínguez Guzmán, 2019, 2021). Studying forms of irrigation in the Motupe Valley in Northern Peru, Domínguez Guzmán (2019, 2021) for instance shows that many smallholder farmers are only ‘partially connected’ (Strathern, 2005) to the capitalist system: their farming practices and forms of accessing water are partly their own choice, and partly imposed; they partly trace back to a larger, grand (neoliberalism-oriented) narrative, but also partly fall beyond it (Domínguez Guzmán, 2019, 2021). To make sense of how these farmers deal with water, she borrows the term ‘overflowing’ from Callon (1998). Noticing overflows comes with the acknowledgement that it is impossible to frame a totality, one coherent and overarching structure that contains everything and everyone (Callon, 1998; Domínguez Guzmán, 2019, 2021; Haraway, 1991). Rather than adhering to the one-world-world (Law, 2015) premise of much scientific and political reasoning, therefore, noticing overflows is premised on pluriversality (Strathern, 2005; also see De La Cadena and Blaser, 2018; Escobar, 2020; Mol, 2002).

Taking inspiration from the analysis of Domínguez Guzmán (2019, 2021), we likewise mobilize the term ‘overflows’ (Callon, 1998) to refer to those practices, events and experiences that do not fit – or somehow interfere with – either theoretical expectations about the existence of social structures or policy prescription about how water governance needs to be done. Cultivating sensitivity to empirical findings that ‘overflow’ such explanations or prescriptions is a good way to remain grounded and appreciate the uniqueness of each case (Domínguez Guzmán, 2019, 2021; see also Law, 2004; Law and Mol, 2002). Although overflows are defined with reference to pre-identified systems or structures, they are not necessarily understood in terms of these systems or structures, which is what happens when interpreting them as exceptions, resistance or retreat. Instead, overflows are treated as potential evidence of other ways of being or relating, or even of new patternings or orderings. By allowing for the possibility that things, events or relations matter even when they cannot be contained in pre-identified binaries or categories, attention to overflows can open up possible new ways of understanding and engaging with reality.

We would like to propose the term obliqueness for a mode of analysis that nurtures attentiveness to overflows. An oblique mode of analysis, then, allows (re-)appreciating that what may appear inconsequential – or perhaps even anomalous, devious or transgressive – as potentially important and central. It is an invitation to take seriously those things, acts and events that are difficult to capture or notice by more structuralist intersectional theories of waterscapes, even when these acknowledge contestation, re-negotiation and change (Ahmed and Zwartveen, 2012; Harris, 2006; Loftus, 2009; Mitra

and Rao, 2019; Sultana, 2009, 2011; Truelove, 2019). Obliqueness builds on a long epistemological feminist tradition to attribute significance to that what, or those who, at first instance – or in conventional or mainstream thinking and theorizing – is/are marginalized or neglected (bell hooks, 1984; Lindén and Singleton, 2021). This comes with the recognition that decisions about what and who to include or exclude from narratives and analyses are never innocent, but the product of distinct ethical and political choices that are part of specific enactments of the world (Barad, 2007; Haraway, 2016; Law and Singleton, 2013; Puig de La Bellacasa, 2017).

Obliquely thinking with Pravah can for instance consist in shifting the attention from what are widely considered the ‘main’ crops – flowers and other crops grown for the market – to subsistence crops, thereby provoking critical reconsideration of why (and according to whom) crops are seen as either central or marginal. While women farmers spend a lot of time taking care of flowers and other commercial crops, they also use the wastewater from the irrigation system to irrigate crops for their own consumption. In fact, a major recurring effort that women engage in consists of spatially arranging the farm so that all crops get enough water throughout the season. Hence, while proudly showing us her farm, Nisha, a 45-year-old woman farmer of Maratha caste, explains that she and her husband decide together on which ‘main crop’ (meaning the cash crop) to cultivate each season. This is the crop that they sow ‘*in the centre of the farm*’. Yet she adds: “*I decide what to cultivate in-between the lines, and the crops to cultivate at the periphery of the farm. This time, I planted beans in-between the chrysanthemums, so that the drips water both the beans and the chrysanthemums. (...) And at the periphery of the farm I planted coriander, garlic, chili and lady’s fingers*”.¹³ Obliquely listening to the story of Nisha comes with and provokes a useful troubling of taken-for-granted categories and binaries: between ‘main’ and ‘secondary’ crops, between ‘production’ and ‘reproduction’, between ‘female’ and ‘male’, between ‘centre’ and ‘margins’ and so on. Obliqueness belongs to a mode of interpretation and analytical reflection in which theories do not exist above or before empirical realities. Rather, the two feed or are in conversation with each other (see also Bonelli, 2016; Domínguez Guzmán, 2019; Kemerink-Seyoum et al., 2019; Leonardelli et al., 2021). An oblique analysis entails mobilizing empirical findings not to provide consistency to predetermined narratives or patterns, but to interfere with those (see also Domínguez Guzmán, 2019; Gibson-Graham, 2014; Haraway, 1988; Kwa, 2002; Law and Mol, 2002; Tsing, 2005).

Inspired by ANT and post-human scholars, thinking obliquely entails considering structures, patterns or orders – whether material or immaterial – as never fully stable, self-evident or fully predictable (Barad, 2007; Haraway, 1989; Latour, 1993; Law and Mol,

¹³ Interview_Nisha02_February2020.

2002, 2008). It invites appreciation of the world as always changing and in-the-making. Patterns, structures and orders are the product of work (of ordering, organizing and patterning), including the work of the researcher herself (Latour, 2005; Law, 2004; Law and Mol, 2008). This work of patterning and ordering entails bringing together and aligning words, materials, people and much else in more or less stable configurations. Paying attention to and carefully documenting, and explicitly reflecting on, practices of alignment is a useful starting point for obliquely analysing a waterscape. In irrigated agriculture, such practices often have to do with the *tinkering* and making-do needed to make technological or institutional water arrangements function (Kemerink-Seyoum et al., 2019; Silva-Novoa Sanchez et al., 2019). Interactions between more-than-humans co-shape such arrangements, moulding water flows and human-water relations in ways that may deviate from – or overflow – initial plans and designs (see Anand, 2011; Chitata et al., 2021; Jensen and Morita, 2017; Kemerink-Seyoum et al., 2019; Kuper et al., 2017; Naouri et al., 2020; Silva-Novoa Sanchez et al., 2019). Just like water infrastructures, also power relations (shaped by intersecting factors such as gender, caste, class) need to be continuously re-made to exist and obtain stability and legitimacy (Butler, 1990).

An oblique mode of analysis expands feminist political ecology scholarship: from exposing and confirming enduring processes of marginalization and tenacious structures of power, an oblique analysis also takes seriously things and events that exceed or defy such processes or structures to identify potential openings for change other than resistance or escape. Through a focus on acts of tinkering, based on an appreciation of how patterns and structures are always-in-the-making and therefore changing (even if only subtly), it creates attentiveness to slight diversions from known scripts or relations. The hope is that these may potentially contain surprising possibilities for progressive change (see also Jackson, 2014). Hence, the purpose and merit of an oblique analysis is that it can yield new starting points for differently imagining and enacting possible ways of ordering and structuring human-water relations, or human-human relations around water.

In what follows in this paper, we document our attempt at an oblique mode of analysis to notice and think a series of overflows in Pravah. We first zoom in on how different actors (farmers, engineers, field officers) tinkered with the Purandar Lift Irrigation Scheme in order to make water flow to their farms. We notice how some of the changes they made to the materiality and the functioning of the scheme indeed sometimes ‘overflowed’ the formal technical design, or created deviations from the official policies and regulations that guide its operation and management. We then shift the attention to events and relations that defy – or indeed overflow – prevailing power hierarchies in rural Maharashtra, especially those based on gender and caste. We conclude by reflecting on how obliqueness as a feminist mode of analysis can open up spaces to study human-water relations and help articulate processes of agrarian transformation in a situated, cautious and non-tautological manner.

3.3 THE WATERSCAPE OF PRAVAH: NOTES ON FIELDWORK

This paper draws on data collected by the first author, and her research assistant, during fieldwork in the village of Pravah, located in the district of Pune, in India. The analysis of the data emerged from conversations among us – the co-authors – as well as among the first author and the interviewees and scholars-activists she collaborates with in India. We chose Pravah among the many villages served by the Purandar Lift Irrigation Scheme because – through collaboration with local NGOs – we had contacts and information about this village which facilitated our stay and initial interaction with farmers there. By selecting this specific village, we do not claim that it is representative of all the villages served by the same infrastructure. Instead, we treat this village as a case that is “sensitizing but also unique” (Mol and Law, 2002, p.16; see also Kwa, 2002).

Pravah is a relatively small village composed of about 600 inhabitants. Though nowadays not everyone in Pravah practices farming, villagers, both men and women, commonly identify themselves as *shetkari* (farmers), for farming has always been the main activity in Pravah.¹⁴ The size of land holdings varies significantly among different people and households, but most farmers own less than two hectares of land. People in Pravah belong to different castes, the most prominent being the Maratha caste, one of the traditionally upper castes in Maharashtra. They cultivate the largest plots in the village and are relatively the wealthiest and the most represented in the *Gram Panchayat*, the village council. Other castes include the Nai caste (traditionally barbers), the Mali caste (traditionally gardeners) and a herding caste. About one-third of the people living in Pravah belong to Scheduled Castes, meaning castes that have been economically, politically and socio-culturally marginalized throughout Indian history (Gnana, 2018). These people live in a separate part of the village: only few still farm their own land. Many women of Scheduled Castes households are housewives or work as agricultural labourers; men work as wage workers in nearby towns.

The first author and her translator lived and conducted ethnographic fieldwork in Pravah between December 2019 and March 2020. They used ‘guided walks’ or ‘go-along’ as qualitative research tools (Kusenbach, 2003). This meant being guided by farmers through the village and their farms, with them allowing the researchers to participate in their everyday life. Detailed field notes, annotated maps, drawings and pictures were used to document the guided walks and converse about what was witnessed. Moreover, series of in-depth interviews, conversations and focus group discussions were conducted after

¹⁴ While remaining aware of the fluidity of gender, and adhering to an understanding of gender as a “performative accomplishment” (Butler, 1990), in this paper we use the terms ‘women farmers’ and ‘men farmers’ because this is how the people we engaged with during our fieldwork in Pravah identified themselves. The categories provide a pragmatic starting point of our analysis, helping to make sense of different people’s tasks, roles and responsibilities as well as power relations.

and during the guided walks. In total, they engaged with more than 60 farmers across gender, caste and age. All the conversations were recorded, transcribed and analysed, together with the fieldnotes and the rest of the empirical material. Particular attention was paid to the places and modalities through which different farmers (across gender and caste) access and use water to irrigate their farms; how they engage with the wastewater infrastructure and with the wastewater that it transports; how pipelines, canals, wells and ponds used to transport and store wastewater are built and tinkered it, and by whom; how the rotational turns to access and use wastewater are organized. Forms of collaboration between different farmers were noted employing an intersectional lens – both in relation to accessing water and to organizing farming practices. The first author and her translator also talked to four engineers working for Water Resources Department of the Government of Maharashtra, both in their offices and while visiting the different pump houses of the Purandar Lift Irrigation Scheme. Engineers provided official documents (including maps) describing the design and expected functioning on the scheme as well as its rationale. The difference between the original design and the initial rationales offered by the engineers, and the system-in-use as it evolved (among others) through the tinkering practices of farmers in Pravah, allowed us (all co-authors in conversation) to trace important overflows to further study and analyse. Thereafter, we started cultivating sensitivity for those relations that could not fully be explained by feminist political ecology theories on how water access, use and knowledge are predicated upon the existence of intersecting social hierarchies based on gender, caste and class.

3.4 OVERFLOW 1: TINKERING WITH THE MATERIALITY OF THE WATER INFRASTRUCTURE

Pranav and Shristi are a married couple with two sons. Their household is among the wealthiest in the village, belonging to the Maratha caste. Thanks to the wastewater provided by the Purandar Lift Irrigation Scheme, Pranav and Shristi can farm large tracts of land throughout the year. Farming is their main source of income, though Pranav earns additional money through a job in a nearby town. In the narratives of Pranav and Shristi, the implementation of the Purandar Lift Irrigation Scheme differentiates a past – or in their own words “a before” – characterized by poverty, subsistence farming and water scarcity from a present characterized by a comparative prosperity, subsistence and commercial farming and plenty of water, or better said, plenty of wastewater. Yet, that the scheme would so drastically alter their lives and livelihoods was not straightforwardly self-evident for most farmers in Pravah when it was first constructed.

When the Purandar Lift Irrigation Scheme started functioning around 2009, there were only a few villagers whose land was located close enough to the outlet points. These outlet points were constructed by the government; they represent the locations on the three secondary pipelines from where water can flow out of the system into open canals that

direct the wastewater to the farms. The fields of most farmers, including those of Pranav and Shristi, were located too far from these outlet points to make it possible to benefit from the scheme's wastewater: connecting their fields to the scheme would be too difficult and costly. According to the farmers, the government engineers had rather arbitrarily decided on the location of the outlet points, without consulting with the farmers. The new scheme, therefore, randomly benefitted only a few of Pravah's farmers. Yet, many needed and wanted water. This is why they decided to organize themselves, joining efforts in an attempt to benefit from the irrigation system. Pranav explains: "*While they [the construction workers paid by the government] were building the pipelines and outlet points, we [the farmers] were thinking "how is the water ever going to reach our farms?" (...)* We started wondering: *we also need water, so what can we do about it?*"¹⁵

This last question of Pranav was what prompted a group of farmers – all men, mostly belonging to the Maratha caste – to approach the Irrigation Division of the Water Resources Department of Pune to ask if it was possible to build another secondary pipeline. They envisaged this fourth pipeline to run downhill, allowing it to serve the farms of many more villagers than in the present layout. Their request remained under examination for a few years without being approved; the government appeared reluctant to fund the construction of yet another pipeline. Determined to nevertheless go ahead with their plan, around 2014 a group of seventy farmers – including Pranav and all belonging to Non-Scheduled Castes – arranged a private company based in Pune to build the fourth secondary pipeline. They got a collective loan to fund the construction works with their own money. As it did not entail any financial contribution from the government, the Irrigation Division of the Water Resources Department granted permission to start the construction works. Pranav admitted that for obtaining this permission it helped that they knew someone at the department. The construction works of the fourth secondary pipeline were finalized around 2017.

According to the farmers we talked to, the fourth secondary pipeline is much longer and wider than the other three built by the government: it runs downhill for about one kilometre before forking into three tertiary pipelines. Along these tertiary pipelines, there are enough outlet points to serve all the seventy farmers who were involved in the collective action. With the income they earn through farming, these farmers are slowly – through yearly instalments – repaying the debts incurred to pay for the pipeline. The level of debt of each farmer varies according to the size of their farm.

The initiative of these farmers also inspired other farmers in the village – those not involved in the collective efforts and without access to the government-constructed outlet points – to build their own private connections. They pierced the main pipeline, to connect

¹⁵ Interview Pranav_02, March 2020.

pieces of tubing that allow channelling the wastewater to their farms. At the same time, one of the three secondary pipelines and outlet points constructed by the government remains unused, as this is not serving any farm. In fact, the flow of wastewater through the secondary and tertiary pipelines is controlled by valves that field officers and farmers can open and close in order to steer the direction of the flow to where it is needed.

Farmers proudly talked about these material alterations to the water infrastructure. In contrast, the engineers working at the Irrigation Division of the Water Resources Department initially appeared reluctant to admit that the government's formal plan to provide wastewater for irrigation purposes had not fully fulfilled farmers' expectations and needs. Yet and at the same time, they did empathize with and appeared to silently accommodate farmers' initiatives to adapt the infrastructure. The knowledge of farmers and the material alterations – or their acts of tinkering – were necessary to make the infrastructure work, so that it could fulfil its planned function. Hence engineers, in negotiation with farmers, partly dismissed initial institutional technological arrangements to meet farmers' needs, or more simply to make the system work, to make water flow (see also Kemerink-Seyoum et al., 2019).

Tracing these acts of tinkering allows seeing beyond the formal infrastructural plans and designs, not taking them as the norm or structure to be either adhered to or resisted. This, then, is one way of practicing obliqueness: it entails a way of appreciating and accepting that the layout and materiality of the water infrastructure are continuously changing in function of how different human and more-than-human actors (farmers, engineers, field officers, pipelines, water, etc.) keep re-aligning and thus re-shaping it. How the system performs also changes in the process, partly shaped by the shifting priorities of and agreements between those engaging with it. This becomes even more evident by looking at how the functioning of Purandar Lift Irrigation Scheme is organized.

3.5 OVERFLOW 2: TINKERING WITH THE FUNCTIONING OF THE WATER INFRASTRUCTURE

According to the Maharashtra Management of Irrigation Systems by Farmers Act (MMISFA) of 2005, the Purandar Lift Irrigation Scheme is supposed to be organized around Water User Associations (WUAs) operating at the village level. WUAs should be composed of farmers residing in the same command area (the boundaries and size of which are determined by the government), being served by the same irrigation system. All farmers are entitled to request and pay for specific volumes of water in accordance with the amount of land they can and want to irrigate. Each WUA is supposed to be represented by a committee – with quota set for the number of women to be included – responsible, among other tasks, to maintain the irrigation system in the command area, to address water demands by its members, to collect the fees and to organize irrigation shifts.

However, in Maharashtra (like in other parts of the world) WUAs exist mainly on paper (SOPPECOM, 2012). The engineers we interviewed at the Water Resource Department confirmed that this is also the case in the Purandar Lift Irrigation Scheme. Though many WUAs – including Pravah – are formally registered, they do not perform as stipulated in the MMISFA of 2005. Instead, the maintenance of the infrastructure, the collection of fees as well as the distribution of water at the village level are organized through more ad-hoc and informal negotiations between farmers, engineers and field officers. Ensuing arrangements are attuned to their needs, as well as to what is possible, or to what works. The specific, contingent ways through which water is governed in Pravah thus overflow the rules established by the government, and are difficult to understand with reference to them.

Farmers buy the wastewater transported by the Purandar Lift Irrigation Scheme regardless of the size of their landholding. The amount bought is translated by the field officers of the Irrigation Division into a duration of water flow based on the design pressure of the pipelines. Yet the actual in situ pressure at different outlet points varies across the infrastructures, because of gravity and because new pipelines were added to those planned and constructed by the government. For this reason, after discussing this dynamic with government field officers and engineers of the Water Resources department, it was eventually agreed that the price of one hour of water supply would be adapted to the in-situ pressure. In the words of Pranav: “*Pressure can be different, especially at the end of the pipelines, but if someone is getting water with very low pressure, then the officer can come and adjust the rate for that person*”.¹⁶

Ultimately, water charges are established to cover the costs of operation and maintenance of the scheme, while ensuring the functioning of the infrastructure. Sachin, one of the engineers we talked to, admitted: “*The scheme is designed [to deliver] the same amount of water for the same type of pipeline, for every outlet point, but farmers punctured the pipeline (...). So for the ease of our work, this is a mutual understanding between the field officer and the farmers. This is the understanding part, not the calculating part*”.¹⁷

The scheduling of water distribution thus happens – at least partly – through “*mutual understanding to ease the work*”, an understanding that is the result of continuous negotiations. In this way, farmers (meaning men farmers belonging to non-scheduled castes, as outlined before) buy as much wastewater as they need or can afford in order to irrigate their farms.

¹⁶ Interview Pranav_02, March 2020.

¹⁷ Quote from fieldnotes taken during the interview Sachin_02, March 2020.

Hence, the Purandar Lift Irrigation Scheme comes into being and functions as an infrastructure through engagements and negotiations that overflow initial designs and official plans. This also means that formal designs of infrastructures and institutions provide a poor guide for understanding the working of the scheme: both how the scheme operates and its outcomes are subject to continuous adaptations and changes that happen as a result of often contingent relations between different actors: including between farmers, between farmers and engineers, farmers and pipelines, as well as between farmers and their watery environment.

Here, it is important to note that abilities to tinker are not equally or fairly distributed. The Purandar Lift Irrigation Scheme, like many other projects implemented by the government of Maharashtra to address water scarcity in the state, did not explicitly try to address the needs of the most marginalized farmers. The project may even have reinforced gender and caste differences and power hierarchies (see also Joy et al., 2014; Kerr, 2002; Shah et al., 2021). There is no doubt that men belonging to the Maratha caste are most influential in reshaping the Purandar Lift Irrigation Scheme, Pranav being among them. They are the ones to have engaged in the negotiations, design and coordination of the construction of the fourth secondary pipeline. They approached and consulted with government officers, engineers and construction workers to do this, sometimes making use of their networks. The same men are also the registered members of the formal, yet inactive, WUA committee. It is through their narratives that we could trace and start understanding the functioning of the wastewater infrastructure in the village. Our analysis thus underscores the structuring force of caste and gender relations, confirming the dominance of these high-caste men in determining what happens to and who benefits from the new irrigation scheme.

Yet an oblique mode of analysis of the waterscape of Pravah allows to appreciate that there is more. It reveals engagements, practices, relations and contingencies that shape the making of the waterscape in ways that partly overflow dominant structures of power. This brings us to the second part of our argument, which we elaborate in the next section of this paper. Here we shed light on how obliquely thinking with the waterscape of Pravah not just allows appreciating how the functioning of an irrigation system exceeds (overflows) material and institutional designs and plans, but also helps in taking seriously the occurrences that are difficult to explain in terms of the workings of dominant power structures (most notably of gender and caste).

3.6 OVERFLOW 3: WOMEN FARMERS' INVOLVEMENT IN IRRIGATION

Let us return to Vidya, the woman we introduced in the beginning of this paper. She now stands in front of the wastewater outlet point next to her household's farm. "*Maybe today the water will come*", she tells us. She says it as if waiting for the canal water is like waiting for the rain; something that she has little influence on. Yet, rather than for water to fall from the sky, she is either waiting for the government officer to call her, or for her neighbour – a man farmer – to inform them that the infrastructure will be activated soon, so that they will finally receive the wastewater they have paid for.

Vidya and her husband Renie are part of the group of farmers that took the collective loan for constructing a fourth secondary pipeline. They own a farm of about seven acres, which is located far away from the outlet points built by the government. Because Renie works all day as a wage worker in a nearby town, it is Vidya who takes care of most of the farming activities. Even though Renie is the official owner of their land, and his name appears in the list of farmers who got the collective loan, Vidya and Renie jointly decide how much wastewater to buy and which crops to cultivate each season. Vidya often is also the one in charge of irrigation. She takes on these responsibilities with enthusiasm. She is well acquainted with how the Purandar Lift Irrigation Scheme works and how the fourth secondary pipeline was designed and constructed. She also knows all the wells and outlet points located around their household's farms and is able to provide an accurate estimate of how much wastewater they need to buy each season in order to irrigate the different crops.

When the field officer calls the farmers in Pravah to inform them that the wastewater will soon reach the village, it is Vidya who coordinates the rotation of irrigation turns among the outlet points with the neighbouring farmers. She is also the one who opens their private outlet point and sits next to it to control that all the wastewater they have paid for is delivered. She has to improvise and make changes if unexpected things happen during their irrigation turn. When adding her farm and irrigation work to the tasks she does at home (cooking, washing, cleaning, fetching water), it becomes clear that Vidya makes very long days. Although the farm work is a lot and physically demanding, Vidya talks about it with passion. The fact that she gets little formal recognition or reward for her work does not prevent her, just like many other women farmers we met in Pravah, from taking pride in knowing how the irrigation scheme works, as well as actively participating in its functioning.

The fact that she actively and knowingly engages with tasks and responsibilities that continue to be seen as typically male, such as the scheduling of water turns and overseeing the water flow, is difficult to understand when using the existence of strong gender hierarchies as the main explanatory framework. Vidya herself prefers making sense of

her involvements in farming and water by emphasizing the collaborative nature of relation with overflows more structural accounts of waterscapes in rural Maharashtra, those that rely on positing intersecting relations of patriarchy, caste and class to explain behaviours and processes. Vidya's story suggests that there are more and different ways to live, do and enact gender subjectivities and relations than those prescribed by such structures. Vidya's relation with the wastewater infrastructure, with the wastewater itself (through irrigating and farming) and with her husband and other more-than-human actors co-shape her subjectivity as a woman farmer in a way that cannot be fully grasped through predominant patriarchal power structures.

3.7 OVERFLOW 4: WOMEN FARMERS COLLABORATING ACROSS CASTE

Similarly to Vidya, Aditi also takes care of most farming and irrigation activities within her house-hold. Aditi is a woman farmer belonging to a Scheduled Caste. She is married to Rahul, who works as a wage labourer in a nearby town. For this reason, Aditi manages their small farm of about half an acre almost entirely by herself. Besides traditional millets, garlic and chillies, which she cultivates for their own consumption, Aditi plants onions and flowers to sell at the market. She practices rain-fed agriculture during the monsoon season, while the rest of the year she irrigates with the groundwater stored in an old well belonging to Rahul's extended family and located next to their farm. Aditi and Rahul do not buy wastewater through the Purandar Lift Irrigation Scheme: the outlet points constructed by the government are too far from their farm and they did not have the financial resources to participate in the construction of the fourth secondary pipeline. However, because their land is located downhill in comparison to the land of most of the other villagers served by the fourth secondary pipeline, part of the wastewater bought by others percolates into their well, recharging it.

The impossibility to fully control and steer water flows thus works to the advantage of Aditi, making it possible for her to irrigate all-year-round. In this way, she indirectly benefits from the Purandar Lift Irrigation Scheme. In addition, Aditi and Rahul make farming agreements with their farmer neighbours, Priya and Arjun, a couple belonging to the Maratha caste who did contribute to the construction of the fourth secondary pipeline. Sometimes Aditi and Rahul contribute to the payment of the wastewater bought by Priya and Arjun, in return for being allowed to directly recharge their well with this water. In other occasions, they cultivate a piece of land together, split-ting the cost of the wastewater necessary to irrigate it, and dividing the earnings from the harvest Aditi and Priya often work together, sharing tasks and making decisions jointly – for instance about when to irrigate and when to harvest. As caste-based segregations continue to shape the spatial and social organization of life in rural Maharashtra, women turn mostly to women of the same caste if they need help with farming. This is why it is easy to consider

collaborations and arrangements across caste as exceptions that confirm the rule. An oblique analysis instead treats them as over-flows, leaving open the possibility that there are more and other ways of relating than those ruled by gender and caste-based hierarchies.

3.8 CONCLUDING REFLECTIONS

In this paper, we propose obliqueness as a feminist mode of analysing waterscapes. Thinking obliquely means cultivating explicit attentiveness to overflows, which – following Callon (1998) – we define as those mundane occurrences, acts and relations that do not fit, deviate from, or exceed known hierarchies, structures or plans – whether material or immaterial. This is inspired by ANT and feminist post-human theorizations that look at the world as the product of continuous re-alignments and relations between human and more-than-human actors – e.g. people, water, technology, words (Barad, 2007; Haraway, 1989; Latour, 1993; Law and Mol, 2002, 2008). In these theorizations, structures, patterns and orders do not pre-exist the analysis, but emerge as people – including researchers – engage in the often-repetitive work to enact them. In the process, they reiterate, but also subtly modify their existence. Feminist political ecology scholars have documented the tenacity of structures and orders – intersecting axes of class, gender and caste – to explain enduring injustices and inequities in water (see among others Crow and Sultana, 2002; Harris, 2006; O’Reilly, 2006; Sultana, 2011; Zwartveen, 1997). While acknowledging and depending on such explanations, an oblique analysis invites to see more than, or beyond, them. By focussing on acts of tinkering – the day-to-day work needed to establish and keep-up the infrastructures and patterned relations that shape how and where water flows – an oblique analysis conceptualizes waterscapes as always-in-the-making. This underscores that while seemingly enduring and tenacious, structures, patterns, orders – whether material or immaterial – also are fragile: they need continuous care, repair and maintenance (also see Domínguez Guzmán, 2021; Jackson, 2014).

A main premise of obliquely analysing is that the continuous work of patterning and ordering may also, even if only subtly, change and transform these patterns and orders. This may partly happen because of the capriciousness of water itself, which prompts and forces adaptations and adjustments. By foregrounding such overflows, obliquely analysing and describing waterscapes pays fine-grained attention to the neglected and devalued (Lindén and Singleton, 2021). This squarely fits with a long-standing feminist tradition that refuses to homogenize, simplify or surrender to dominant discourses. The political and feminist hope that animates this tradition – just as our plea for an oblique analysis and attention to overflows – is that it may provide inspiration for more situated and less deterministic ways of understanding processes of agrarian transformation and water governance, in Maharashtra and elsewhere. Showing that there is always more than what can be contained in broad generalizations or structures by cultivating attentiveness to the many inconsistencies and things that do not fit, add up or easily commensurate can

potentially yield new ways of imagining and co-enacting more equitable human-water relations.

One of the overflows that we documented in this paper for instance helps re-imagine how farmers (across gender and caste) are involved in the planning and construction of water infrastructures. By drawing attention to how they re-designed and re-constructed the government irrigation system through their acts of tinkering, their de facto involvement – and by extension their interest, knowledge and mobilizing power – also becomes visible. The material infrastructure as we encountered it in the villages, but also the scheduling of irrigation turns, was different from that described in formal plans or designs. Rather than as resistance to or escape from these, as more structuralist analysis would have it, an oblique analysis interprets tinkering actions by farmers as interferences with them. In the process of interference, farmers turned formal plans and designs into something else altogether.

Another overflow that we noted had to do with members of Scheduled Castes households who successfully negotiated for a share of the irrigation water with higher-caste landowning households. Through these sharing arrangements, prevailing caste relations were re-negotiated, even if only subtly or even if only temporarily. The joy that women displayed in their farming efforts was another overflow. While spending time with them on their fields, women not just proudly showed us their crops and harvests, but also took the time to explain how they creatively arranged their plots and distributed the available irrigation water to be able to cultivate not just cash crops but also subsistence crops. In seriously assuming the identity of a farmer, these women changed prevailing notions of what it means to be a woman, as well as prevailing notions of what it means to be a farmer. Acknowledging this provides a potentially interesting starting point for re-appreciating them as political actors in the waterscape. The sometimes-unlikely friendships and collaborations between women, yet another overflow, in turn nurtures new hopes about how alliances between women farmers across caste can emerge and perhaps be supported.

The emphasis of an oblique analysis on waterscapes as being-always-in-the-making also creates conceptual space to acknowledge more-than-human actors, and in particular the ‘agency’ of water itself. This is needed as it helps decentre humans and the social in feminist political analysis, and allows better bridging feminist struggles with environmental concerns. In how it flows, carries sediments, dissolves pollutants, percolates, feeds algae, or destabilizes soil, water often behaves in ways that are specific and difficult to predict or plan. In thus exerting its ‘agency’, water changes the relations that it forms part of in sometimes unexpected and contingent ways. Even though we did not dwell on it in this paper, in Pravah the use of wastewater for irrigation for instance provoked a deterioration in the quality of groundwater, including in the well-water used for domestic uses. This in turn prompted a series of adjustments and changes in the organization of, for instance, the provision of drinking water.

The account of a waterscape that an oblique analysis generates is never analytically or politically conclusive or complete, but always partial, tentative and situated. The analysis itself depends and co-emerges with the specific political-analytical choices of those producing it (Barad, 2007; Haraway, 2016; Law and Singleton, 2013). In Pravah, it for instance matters if one starts the analysis from a concern about drinking water and health, or from a concern about farm incomes and food security, or instead from a concern about soil degradation and groundwater contamination. In fact, overflows that appear to hold transformative feminist potential from a feminist water security perspective may appear troublesome from a health perspective. Analytically, therefore, obliqueness calls for and comes with modesty, and with a willingness to remain open to multiple co-existing and troubled worlds and narratives. Politically, obliqueness calls for remaining firmly connected to and grounded in the relations, actions and concerns of those who live in and experience the waterscapes studied, while acknowledging ambiguities and unevenness as well as hopeful transformations and alliances.