(Re-)Conceptualizing water inequality in Delhi, India through a feminist political ecology framework

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ABSTRACT

This article demonstrates how a feminist political ecology (FPE) framework can be utilized to expand scholarly conceptualizations of water inequality in Delhi, India. I argue that FPE is well positioned to complement and deepen urban political ecology work through attending to everyday practices and micropolitics within communities. Specifically, I examine the embodied consequences of sanitation and 'water compensation' practices and how patterns of criminality are tied to the experience of water inequality. An FPE framework helps illuminate water inequalities forged on the body and within particular urban spaces, such as households, communities, streets, open spaces and places of work. Applying FPE approaches to the study of urban water is particularly useful in analyzing inequalities associated with processes of social differentiation and their consequences for everyday life and rights in the city. An examination of the ways in which water practices are productive of particular urban subjectivities and spaces complicates approaches that find differences in distribution and access to be the primary lens for viewing how water is tied to power and inequality.

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1. Introduction

On any given day in Delhi, India, residents across the city depend on a variety of informal, and often illegal, techniques and practices to access water and sanitation. Although Delhi reports relatively high levels of water running through its piped infrastructure, the water supply is characterized by such unreliability that even some of Delhi's more elite neighborhoods average only 0–2 h of running water per day (Zerah, 2000; Sagane, 2000). For example, official data estimate that the municipal water supply provides 250 l per person per day, yet a combination of unequal distribution, "missing or wasted water," and chronic unreliability leave many households' water and sewerage requirements unmet (DJB, 2007; Delhi HDR, 2006; Zerah, 2000; Kandra et al., 2004).

Research on Delhi's water elucidates the broad range of everyday "compensation" practices that residents utilize to access water and sanitation facilities, including staying back from work to access water, walking miles in search of sanitation, and procuring water from illegal and informal sources (Zerah, 1998, 2000; Haider, 2000). The meanings and consequences of such practices challenge scholars to grapple more fully with the complex ways that social

power, identity and subject formation[1] are tied to the regulation of water resources. Water is closely linked with gender, class, and religious identities and is embroiled in competing understandings of the urban environment and the state (Batra, 2004; Coles and Wallace, 2005; Bapat and Agarwal, 2003). As such, the meanings and consequences of water practices vary considerably, shaping power, rights and citizenship in the city (Swyngedouw, 1999, 2004). While urban political ecological (UPE) analyses have given attention to the socio-environmental processes that produce water inequality in the city, such studies have been more inclined towards analyzing the production of class and distributional dimensions of inequality on a city-wide scale rather than illuminating how multiple social differences are (re)produced in and through everyday water practices (Swyngedouw, 1995, 2004; Bakker, 2000, 2003; Gandy, 2008; Kaika, 2003).

This article contends that a feminist political ecology (FPE) framework is particularly useful for analyzing everyday dimensions of resource inequality through directing attention to the

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[1] Identity and subjectivity, while often used interchangeably in literature, stem from two theoretical strands. Subjectivity comes from a Foucauldian approach to power that gives less attention to human agency, but rather attends to the discursive rendering of subjects. Studies of identity are more inclined to acknowledge how human agency interacts with a variety of other (discursive and structural) forces in shaping identities (Silvey, 2004, pp. 498–499). In this article, I analyze how discourses and practices shape subjectivities, but also attend to the agency of urban dwellers in creatively navigating their lives and identities.

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ways daily practices are produced by, and productive of, gender, class and other social power relations. In particular, through examining the embodied consequences of water and sanitation practices, I will argue that an FPE framework enables a re-conceptualization of water inequality to more fully include inequalities associated with processes of social and spatial differentiation and their consequences for daily life in the city. Feminist approaches to political ecology are particularly useful for understanding the production of, and inter-connections between, scales of analysis, specifically revealing how everyday practice is tied to the construction of scales such as the body, household, and city at large. An understanding of the ways in which gendered and cultural water practices are productive of particular social differences disrupts a framework in which distributional differences and "access and control" become the only means for understanding how water practices are tied to power and inequality.

Understanding the 'everydayness' of water is particularly important and timely given recent global efforts to create a unified discourse of how to solve global 'water problems' (Goldman, 2005, 2007). For example, Goldman (2007) demonstrates the ways that international discourses on water are converging to serve the narrow interests of international water companies, primarily supporting privatization as the key mechanism for providing 'water for all.' Internationalized discursive formations on privatization serve to promote a nearly uniform set of proposed solutions for addressing highly diverse water problems that range from irrigation water shortages in India to inadequate water flows in townships in Johannesburg, South Africa. Goldman reports an alarming lack of debate and difference within forums such as the World Commission on Water and the World Water Council, illuminating how a limited set of global actors and interests dominate international water doctrine and policy, and are congruently able to wield a powerful influence on both the state and even local water-related NGOs (Goldman, 2007). The silencing of a diverse range of ideas, opinions, and actors within international water forums ultimately sidelines the complex ways that place specific dynamics and daily lived practices shape drastically different waterscapes. By attending to embodied experiences, this research seeks to further understand how urban water regulation is experienced within the unique context of Delhi's urban geography.

The article stems from qualitative fieldwork conducted in Delhi, India between January and August of 2008. Everyday water practices are predominately carried out by girls and women (Agarwal, 1992; Bapat and Agarwal, 2003; Haider, 2000), and this group also faces a unique set of obstacles with regard to sanitation. I worked with women whose socio-economic class gave them little financial recourse to invest in purchasing water or water-related technologies, conducting 40 interviews with women either living in slums, or former slum-dwellers who have moved to a resettlement colony. Three focus groups (one from each colony studied) and participant observation included men in order to gain data across gender groups. The research specifically took place in two slum settlements in South Delhi and one recently developed resettlement colony on the periphery of Delhi. The two slum settlements are classified as illegal within government discourse, housing short and long term slum-dwellers who have no legal rights or ownership over their homes. The resettlement colony consisted of legal housing lots established for some of the families who lost their homes in recent slum demolitions. However, many families in the resettlement colony were unable to access legal deeds to a house, becoming homeless squatters on land far outside of Delhi's urban center.

Lastly, while the experiences of slum and resettlement colony residents differ, the inclusion of a resettlement colony in the research helps to further capture the range of experiences and practices that women engage in to supplement water insufficiencies

across Delhi's diverse land space.[2] The two slum colonies in South Delhi were made up of Hindu families, spanning multiple caste groups; participants from the resettlement colony included both Hindu and Muslims, although the connection between water and religion in Delhi requires further ongoing research. Data from each colony illustrates the ways that the conceptual scope of water inequality can be broadened and deepened by attending to the ways that practices are tied to space, identity, and local politics that serve to produce gender, class and other social differences.

2. Gaps and intersections between UPE and FPE

By focusing on the politics of water, and critiquing purely technocratic approaches, urban political ecology (UPE) scholarship offers a critical framework for dissecting how water is connected to social power in the city. Through employing the concept of 'socionature,' or the idea that environments (in this case urban) are both socially and ecologically produced, urban political ecologists focus on the ways that resources such as water are shaped by social relations of power, not just "natural" or "scientific/technological" factors (Heynen et al., 2006; Gandy, 2002). Gandy states:

Water is a multiple entity: it possesses its own biophysical laws and properties, but in its interaction with human societies it is simultaneously shaped by political, cultural, and scientific factors (2002, p. 22).

It is through dissecting the links between control and access to water and social relations of power that scholars demonstrate the ways that urban waterscapes are never socially, nor ecologically, neutral (Swyngedouw et al., 2002, p. 125).

For example, recent UPE research seeks to tease apart the historical social power geometries that shape urban water flows, and thus who benefits, and who is disadvantaged, from particular water regulation mechanisms (Bakker, 2003; Kaika, 2003; Swyngedouw, 1995, 2004). By placing class and water distribution differences in the center of analyses, this scholarship is particularly useful in illuminating the production of uneven waterscapes, including the production of inequalities in water access, control and pricing for urban residents. For example, Swyngedouw's work on Guayaquil, Ecuador illuminates the exclusions inherent in the organization of Guayaquil's public water that work to continually marginalize and disempower the urban poor, primarily migrants (Swyngedouw, 1995, 2004). While he notes general ecological limitations on the availability of fresh water resources in the region, Swyngedouw finds the aggregate water supply in the city to be nonetheless sufficient for providing high per capita water levels. Tracing the politics that have shaped city decisions concerning the infrastructure of the piped water supply, Swyngedouw uses a Marxist-informed analysis to reveal the mechanisms that locate privileged middle and upper class homes with subsidized, low-cost city water, while the poor remain disconnected and continually dependent on expensive privately vended water supplies. The state's discursive deployment of a 'productivist logic' authorizes priority to be placed on water production and transmission over problems associated with maintenance, organizational reform, and water treatment.

In terms of conceptualizing water inequality, critical urban political ecology examinations of water have largely focused on detailing how social power relations serve to produce class and community-wide distributional inequities within the regulation of water in cities. However, by conceiving the politics of control

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[2] Baud et al. (2008) reveal that poverty in Delhi may be highest in areas that are not slums. My focus on slum women is not intended to suggest that they constitute the most impoverished group.

as primarily nested in city-wide structures of water governance, urban political ecologists devote less time to everyday practices and the micropolitics of control that are forged between residents as they respond to inadequacies in the public water supply. Hence, urban political ecology studies focusing on unequal "access and control" may inadvertently sideline additional dimensions, scales and spaces of water-related inequality. These include investigations of how informal everyday water activities forge subjectivities and additional dimensions of inequality, such as unequal bodily experiences, access to rights and critical life opportunities within (and through) specific urban spaces. This article seeks to detail some of the ways that FPE is well situated to address current gaps and silences in the UPE literature, asserting that the two overlapping frameworks provide a deepening of how both literatures conceptualize and analyze urban water inequality.

Specifically, an FPE framework shares a UPE focus on water inequalities that extend beyond differences in water quantities and quality to show how water is connected to social power. However, an FPE approach provides a more focused attention on constructions of social difference and micropolitics within the scale and spaces of the everyday, an area of analysis often underexplored within UPE. In particular, FPE approaches help illuminate inequalities forged on the body and within particular urban spaces (such as households, communities, streets, open spaces and places of work) that UPE has been slow to account for, demonstrating how gender and other social differences operate (and are re-produced) within communities and class groups themselves. Such an approach is well positioned to deepen UPE work that focuses on class and city-wide inequalities by more specifically tackling the multiple meanings and micropolitics of daily water and sanitation practices. For example, an FPE framework supports analyses of who accesses water and sanitation, the practices by which access is achieved, and the physical, social and spatial meanings of the multiple water activities of everyday life. As FPE has had a predominately rural focus (occasionally including cities in the global North), the rich literature within UPE on the socionature of water in cities provides a strong foundation for FPE analyses to branch into cities in the urban South.

3. FPE Contributions to conceptualizations of urban water inequality

Rocheleau et al. (1996, p. 4), in their initial volume *Feminist Political Ecology*, state: "[FPE] seeks to understand and interpret local experience in the context of global processes of environmental and economic change." By drawing from a rich tradition of feminist analyses of informal practices and the economies and micropolitics of everyday life (for example, Cameron and Gibson-Graham, 2003; Nagar et al., 2002; Mohanty, 2003), this work examines how lived experiences and practices are productive of, and produced through, gendered ideologies, structural power relations, and processes of both local and global change. For example, Nagar et al. (2002) call for increasing research into the "informal" spaces and practices of globalization, including household relations and the feminization of spaces and labor within communities in order to reveal how gender and women's lives are shaped by larger economic forces. Similarly, Mohanty (2003) argues that the "micropolitics of context, subjectivity, and struggle" provide critical insights into the operation and consequences of global economic and political systems. Such analyses allow us to link "everyday life and local gendered contexts and ideologies to the larger, transnational political and economic structures and ideologies of capitalism" (Mohanty, 2003, p. 225).

One way in which FPE studies examine everyday environmental practices in the context the production of inequality and difference

is by focusing on shifting regimes of gendered access and control over resources at the local scale of households and communities. For example, Mehta's work (1996) on the Garhwal Himalaya region in India analyzes changes in rural women's agricultural practices in order to understand the ways that land reforms have diminished women's control over and access to agricultural resources, and consequently re-shaped the meaning and lived experience of gender and space in local communities. While men and women used to work together on agricultural plots, Mehta (1996) demonstrates how men's increasing roles in cash economies serve to further segregate and de-value women's "private" work on agricultural plots as non-monetary and lacking social prestige. Mehta notes:

> "While men's spaces are expanding (if not literally, then in terms of the importance associated with them), women's are shrinking without enabling them access to new arenas of prestige" (1996, p. 193).

Recent feminist contributions to the study of water and sanitation specifically analyze the importance of everyday practices in shaping gender ideologies and processes of social differentiation, illuminating the complex ramifications of water and sanitation governance strategies (O'Reilly, 2010; Sultana, 2009; Harris, 2009; Laurie, 2005). Work in South Asia particularly illustrates the complex ways that gender is experienced, contested and re-enforced within households and communities through differing lived experiences of water and sanitation regulation (O'Reilly, 2010; Sultana, 2009; Meinzen-Dick and Zwarteveen, 1998; Zwarteveen and Meinzen-Dick, 2001). For example, O'Reilly (2010) details the ways that a German-funded sanitation project in rural Rajasthan re-shaped gendered practices, consequently producing new gendered ideologies and unequal gender spaces for women and men. While the project was intended to alleviate gender inequalities by including women and focusing on their empowerment, O'Reilly finds that the installation of latrines within homes re-configured gender inequalities, at times with the unintended consequence of confining women's mobility. She states,

> "Having a latrine at home did not eradicate gendered, social conventions about women's modesty. Latrines did not enable women to move about freely or relieve themselves unconcernedly. Instead, women's need for privacy from men was reconfigured around having a latrine at home" (O'Reilly, 2010, p. 53).

Similarly, Sultana's examination of the materialities of the body within her work on arsenic and the water supply in Bangladesh illuminates the ways that socio-spatial subjectivities are reproduced in water management that reinforce existing inequities (Sultana, 2009, p. 427). By demonstrating the ways that water experiences are inherently bodily and physical, she finds that the embodied practices of navigating arsenic and accessing household water produce particular gender subjectivities. For example, Sultana details the ways notions of femininity are reinforced and/or challenged as a result of the spatialized nature of tubewell contamination. Women's entry into formerly masculinized spaces to procure safer water reconfigures notions of femininity, while women's avoidance of such spaces requires them to access water with greater contamination, yielding physical and symbolic ramifications. Sultana highlights the need for further research on everyday bodily practices of water, stating:

> "Paying attention to embodied subjectivities demonstrates the ways that embodiment and spatial relations both enable and constrain certain relations to water" (Sultana 2009, p. 439).

Such studies demonstrate the ways that everyday practices relating to resources and technology contribute to social

differentiation and new gender configurations of power. This work supports the recent call within a special issue on gender and water within *Gender, Place and Culture* for increased work on "the multi-faceted ways that experiences, discourses and policies are gendered, and how gender is created through processes of access, use and control of water resources" (O'Reilly et al., 2009, p. 381).

Feminist approaches that give attention to embodied experiences and the micropolitics of resource use and management are particularly relevant for broadening and deepening scholarly approaches to water inequality. By examining the meanings and spatialities of everyday practices, particularly in reproducing patterns of social difference and exclusion, FPE scholarship gives analytical attention to the myriad and diverse water practices that residents employ unequally within communities. If practices are conceptualized as anything a person does that has "intentional or unintentional political implications" (Ortner, 1984, p. 393), then analyzing unequal water access *practices* and their consequences begins to open a whole world of activities that are marked by a politics of difference and inequality. Consequences of the *practices of access* may range from the effects of unequal labor and missed work to gain water and illnesses associated with contaminated water sources, to the gendering of particular bodies and spaces that become associated with specific water roles (Zerah, 2000; Mehta, 1996). Only when analyses target inequalities that result from differing everyday practices does it become apparent that increased quantities of water and lower pricing may nonetheless do little to improve either water justice or the equitable distribution of benefits across communities (Truelove, 2006; Coles and Wallace, 2005). Such analyses are thus needed to further illuminate the ways that some actors are both dominant and subordinate within the relationships that shape access, an area within urban political ecology work that requires much further scholarly attention (Ribot and Peluso, 2003, p. 159).

In particular, the practice of accessing is often achieved via one's positions and relationships within households and communities, instead of from one's interaction directly with a local water source. Thus, residents depend on a variety of relationships, spaces, networks, water-related understandings, and local political arrangements to find and use water, demonstrating the need to dissect not only intra-community dynamics but also intra-household differences. Everything from one's age and gender identity to one's position in networks of social capital shape the means by which water is actually personally procured, the household distribution of such water, and the meaning of particular water-related interactions—which in turn are productive of subjectivities. An FPE approach targets the social relations surrounding who accesses and how access is achieved, including direct versus indirect access within communities. If such micropolitics are by-passed by scholars and practitioners, the poor become lumped together as the recipients of uneven urban rights and governance, rather than actors who may experience differing levels of empowerment or disempowerment as they negotiate daily spaces and networks for gaining and controlling their own personal water (Ribot and Peluso, 2003). An analytical focus on practices thus helps to illuminate the ways in which additional subjectivities intersect with, and complicate class positions in day to day life.

As FPE work has predominately focused on rural locations (Schroeder, 1996, 1997; Rocheleau et al., 1996; Carney, 2004), with most scholarship on the urban taking place in Northern cities, combining the insights of FPE and UPE can provide a useful contribution to much needed research on the lived experience of resource inequality in cities across the global South. Such research can examine micropolitics within and between communities produce particular urban socio-environments (Swyngedouw, 2004; Swyngedouw et al., 2002; Heynen et al., 2006), and further theorizations on the relationship between bodies and cities (for example, see Grosz, 1998) to explore how "the city is made and made over into the simulacrum of the body—and the body, in its turn, is transformed, "citified," urbanized as a distinctive metropolitan body" (Grosz, 1998, p. 42). This exciting cross-fertilization can further work on how the body and the city are in part produced through the regulation of resources such as water and are connected to patterns of social inclusion and exclusion and rights to urban citizenship.

4. Delhi's urban poor: in the nexus of the planned and unplanned city

Before turning to an analysis of daily practice, it is important to situate residents' diverse water experiences within broader processes of historical change and development in the city. In particular, this section details the ways that Delhi's urbanization since independence has both relied on, and consistently marginalized, economically disadvantaged residents in contradictory ways—helping to situate contemporary experiences of everyday rights to resources in the city. From the first decade of its independence, the state declared Delhi to be threatened by "haphazard and unplanned growth" (quoted in Sajha Manch, 1999, p. 3), and launched the Delhi Development Authority (DDA) in 1957 with the mandate of overseeing city planning in an orderly fashion (Sajha Manch, 1999, p. 3). Faced with managing residents' many diverse uses of city space, including Shahjehanabad's mixed land use, the DDA authored and attempted to enact Delhi's First Master Plan, calling for a hygienic and properly ordered city (Baviskar, 2003, p. 91). Ironically, the planning of such a city and subsequent construction and state rationalization of city space, relied upon large populations of working class laborers, whom the city had no plans for housing or incorporating. Thus Baviskar notes, "The building of planned Delhi was mirrored in the simultaneous mushrooming of the unplanned Delhi" (Baviskar, 2003, p. 91). The unplanned Delhi consisted of migrants and poor workers (and their spaces of home and livelihood) whom the city desperately needed for its development initiatives, but who could only find residences through building shanty towns and residing in slums within the city as well as its periphery—the very structures and specter the city planners wished to eradicate. Thus, the unplanned city was a necessary, if contradictory, component of Delhi's planning and development (Baviskar, 2003, p. 91; Dupont et al., 2000; Dupont, 2007). With every renewal of the state's efforts to create infrastructure, thousands of migrants entered the city to work as laborers on its many development initiatives and often struggled to carve out livelihoods after the termination of temporary employment.

While clearly marginal within the state's vision of its new orderly city, residents residing in slums nonetheless began to secure their housing and livelihoods through both bribes and the intervention of local politicians, who needed to secure the votes of this burgeoning population. As this population began to grow to millions, Chatterjee notes the rise of vast informal structures to accommodate the needs of the "unplanned city" within urban centers across India roughly beginning in the 1970s, stating:

> One might say that this was perhaps the most remarkable development in the governance of Indian cities in the 1970s and 1980s—the emergence of an entire substructure of paralegal arrangements, created or at least recognized by governmental authorities, for the integration of low-wage laboring and service populations into the public life of the city (2004, p. 137).

Entire economies and the development of growth and employment for these populations grew out of informal practices and the mixed land use of slums (Solomon, 2004). The degree to which the urban poor were actually extended secure rights is certainly

contentious, but the state nonetheless was forced during particular development projects to at least "tolerate" and even extend amenities to the urban poor and growing slums in order to facilitate the building of its planned architecture. For example, the city underwent rapid construction in the 1970s to erect building facilities for the 1982 Asian Games to be held in Delhi. This urban project required negotiations and accommodations (albeit temporary) for the housing and employment of an estimated one million laborers (Baviskar 2003, p. 92).

However, with economic liberalization projects in the mid-1980s, and the more recent mobilization to turn Delhi into a global center, both the state and middle-class have articulated overlapping critiques of prior "welfarist" policies. While Delhi's concurrent Master Plans (specifically the plan for 2001, and the Draft Plan for 2021) continue to articulate the goals of creating a modern, rationalized city space, neoliberal discourse is now dominating the logic of how to enact further development, justifying the demolition of squatter settlements for the sake of cleaning the city's spaces and creating a more aesthetic ideal (Ghertner, 2010; Dupont et al., 2000). This has resulted in efforts to de-industrialize the city and a city-wide call for limiting (working class) employment generation in order to make room for global circuits of finance and services. The criminalization of the poor, which I discuss in greater detail below with regard to water and gender, provides substantiation for changing notions of rights and citizenship in the city, mirroring what Mitchell calls, in reference to New York City, the "re-establishment of exclusionary citizenship as just and good" (Mitchell, 2003, p. 183). Here, quality of life and urban citizenship are proclaimed as distinct rights of the middle and upper classes, at the expense (and even erasure) of the "quality of life" of the urban poor, who are often criminalized in the process of re-making Delhi (Truelove and Mawdsley, 2011).

5. Introduction to Delhi's unequal waterscape

The urban poor, now constituting roughly one third of Delhi's population of 15 million, have particularly vulnerable water access, but residents across social groups face regular problems in procuring water. The water supply is marked by such dramatic unreliability that the majority of residents engage in informal, and supplemental, water sources and practices (Zerah, 2000; Tovey, 2002). Unreliability of the public water supply is categorized by the intermittent hours that water runs, insufficient and irregular pressure of water when it is running, sudden breakdowns in infrastructure such that water may cease to flow for days or weeks at a time, and problems with contamination (Zerah, 2000, p. 53; Sajha Manch, 1999). In fact, it is estimated that the inadequacies of public water provisions are so extreme that residents spend around Rs. 3 billion ($60 million) each year to counter unreliability – twice the municipality's total expenditure on its water supply (Zerah, 1998, 2000).

Millions of Delhi's poor lack official connections, and even rights, to public water supplies (Delhi HDR, 2006), and this population is sporadically serviced by DJB tanker water deliveries. Residents living in unauthorized colonies[3] (where private land has been exchanged without government sanction) and slum settlements have no legal access to the piped water supply. Those who have been (often forcefully) re-located from slums to legal resettlement colonies often cannot access Delhi's central piped water infrastructure because such colonies reside far away on Delhi's periphery. Although such resettlement colonies now provide a legal means to water, the water provided by the state via tubewells is often

insufficient, erratic, and highly contaminated—as it is untreated ground water. Occupants thus often complain that accessing "illegal" water and sanitation in slums, though far from perfect, was in reality a large step up from the legal provisions provided by the state in some of Delhi's recent resettlement colonies.

In addition, all residents face problems associated with poor water quality (Zerah, 2000). While more extreme examples of this can be seen in the 1988 cholera outbreak, affecting over 30,000 residents, diarrhea and other water-related illnesses remain a regular problem, especially in those homes where water treatment is not employed as a strategy (Voluntary Health Association Delhi, 1994). There remains wide debate about the sources of water contamination among state officials, scientists, activists and residents, with competing claims ranging from the contamination of most ground water to the city's failure to provide healthful piped water (Zerah, 2000; Batra, 2004; DJB, 2007).

Residents across Delhi resort to a wide variety of measures and compensation tactics to procure daily water, from locating open taps and water tankers to illegal connections, urban ponds and the use of handpumps (Batra, 2004). As the price for piped water remains highly subsidized by the state, the costs to the poor, who must frequently seek water from non-state sources, remain disproportionately high (Batra, 2004; Delhi HDR, 2006). Since the responsibility to gain and manage household water often fall to women and girls, the consequences and dangers associated with accessing both water and sanitation differ significantly across social groups and contribute to processes of stratification and social differentiation, as I will discuss in fuller detail below. Because residents employ a diverse range of practices and tactics as they interact with city water, or the lack thereof, the scope for inequality as it relates to everyday practice is quite broad and requires inquiries into many avenues of everyday living.

6. Embodying everyday water practices across three study sites

Women within the three communities studied depict their social positions and access to rights—both within households and communities—as being tied to the ramifications they face in compensating for Delhi's "unreliable" water supply. As one woman from a slum summarized,

> "Only women go to fetch water. Our husbands always think about their work and job, but they never think about collecting water. They of course need water, but they do not have the headache of collecting water. They do not want to know which types of problems are being faced by ladies in fetching water."

While women and girls certainly face differing sets of life conditions, some finding wider networks (including neighbors and employers) to depend upon for procuring and managing household water, women across locations consistently describe the risks, hazards, and shame that circumscribe daily practices. Women's bodies encounter differing degrees of gendered hardships, physical labor, and public shame that are shaped by their situated position within families, communities, and class groups in the city. Women's subjectivities and experience of difference are like-wise impacted by their creative navigation of bodily practices and their life's circumstances (Nightingale, 2011).

Bodily experiences, including the wear and tear of water labor, water-related health problems, the physical experience of criminalization for illegal practices and the disciplining required for water-related health issues (including diarrhea and menstruation for example), are intimately tied to the experience of urban space and rights. Such embodied experiences serve to re-enforce gendered and classed social differences, materially shaping and constraining physical hardships and life opportunities while

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[3] Unauthorized colonies house residents from diverse income groups, including poor households as well as members of the middle class.

discursively producing social differences and particular groups of women as excluded from rights and spaces in the city. Thus, social status and the meanings of gender, class and at times criminality become mapped onto the body through the physicality of accessing water and sanitation, as well as the social and emotional consequences and ramifications of the practices of access itself. Here, the material practices, conditions and encounters of the body are firmly tied to the symbolic experience of difference (Nightingale, 2011).

For example, girls and young women often experience a constricting and re-patterning of movement and spatial mobility in the city due to problems accessing water that leads to a simultaneous re-shaping of life opportunities. Due to the infrequency of tanker water deliveries, girls are often kept out of school to stay home and help with either procuring tanker water or watching the youngest children while older women leave on water outings. This further jeopardizes these women's available hours for paid employment, as well as time for other domestic responsibilities. The curtailment of opportunities (from income to education) due to water and sanitation activities reinforces a further level of physical insecurity and emotional violence, as some women become locked in a feedback cycle that brings them into distinct spaces and networks in order to access water and sanitation.

One example of the gendered spatiality of water access can be seen in women's efforts to access water within their work spaces. Similar to Mehta's (1996) work on the ways that gendered resource practices lead to a devaluation of women's work spaces and access to social prestige in rural India, women often experience deleterious effects as water practices spill over into work spaces. Women describe the ways that daily water problems further the physical and psychological hazards they faced as part-time domestic workers in middle-class homes. Here, women turn to their employers to gain extra buckets of water (due to the failure or inadequacy of tanker deliveries), sometimes two to three times per week, stating that this type of water dependence gives employers an extra advantage to withhold pay and/or make increasing demands on their time and labor. One woman states:

"In order to take water regularly from our workplace, we have to give them [our employers] more time than normal. Also, we have to always make them happy to get water; it always takes a lot of energy."

The loss of a degree of control over their labor and negotiating power, coupled with the physical and emotional stress of sometimes working extra hours for less pay, indicates how the space of the work place takes on new gendered meanings and constraints. Water access practices contribute to the devaluation of women's labor and rights within spaces of work, placing increased constraints on women's leverage and rights relating to their employment. However, women who creatively cultivate a reliance on employers for water often experience greater water and financial security at times when tankers fail to come. Such women find a way to continue to maintain some level of income and save time from scouting for alternate water sources.

The hazards, risks and shame involved in entering dangerous spaces for both sanitation and water activities also take on embodied consequences that serve to re-produce the experience and meaning of over-lapping gender and class subjectivities in the city. For example, due to a lack of local toilet facilities in one of the slums, women rise at 4:45 am, and begin a half hour early morning walk to find a relatively uninhabited forest area to urinate and defecate in. Joining the women on their walk one morning, I was told that the particular location of "jungle" had been chosen, despite being quite distant from the slum settlement, because of safety concerns and the fear of attack in locations that were closer to

home. Specifically, women recount stories of harassment, abduction, and rape, while traveling to closer (but less protected) sanitation points. Having no access to toilets in their own slum cluster, they resort to traveling together each morning in large groups for an approximate one hour return journey. One woman describes,

"We can never go to the latrine [jungle] alone, even in the day, or in any time, because there is always a fear of outsiders, truck drivers and some other bad people in the area. We are always worried about these bad people. That is why we never go alone."

Because stomach illnesses are quite common (one woman estimated that most adults in the slum get diarrhea once a month), these women must discipline their bodies around a lack of accessible and private sanitation, or face public shame, humiliation and embarrassment. At night, women cannot risk the long journey to the jungle, even in groups, and thus have no place in which to have privacy. One woman recounts:

"It is extremely bad, particularly at night, when someone has a stomach problem. We do not have other option except going outside; it is a very pathetic situation at night, particularly for ladies."

Similarly, in the resettlement colony, sanitation practices coupled with the search for adequate water to wash clothes leads women into increasingly dangerous spaces, inflicting gendered and classed forms of both physical and emotional violence. The installment of several tubewells across the colony provides an erratic, often contaminated, and unequal waterscape for tens of thousands of residents. While women now have access to a legal water source, local tubewell water only surfaces twice a day, requires standing in a long line and is often faecally-contaminated. Sanitation facilities are both costly and far away from many homes, requiring women to seek out additional water and sanitation sources to meet daily household needs. To supplement the inadequate water and sanitation facilities, women face increasing bodily threats and violence, as well as public shaming. As women rely on open fields nearby for sanitation, and often travel to a dangerous canal area to find water for washing, their bodies are caught in the nexus of local cultural relations (which ascribe a sense of shame to the visibility of women's sanitation practices) as well as local political tensions, which are making women's ventures into nearby fields and canal areas more dangerous. These women are often harassed by men living in and nearby the colony, abused, sometimes raped, and face increasingly high levels of shame and fear as they try to conduct their daily activities amidst the threat of violence. Here, the move from slum housing to a legalized resettlement colony has in fact leveraged an additional gendered and classed set of hazards to women's bodies. While accessing water in their previous slums presented a daily challenge, women now describe the tension, hazards, and time involved in water activities as exponentially worse even as the state has formalized their housing and water rights. Thus, the 'footprint' that water/sanitation activities take on economically disadvantaged women's bodies in the resettlement colony vastly increases even as the availability of a legally sanctioned water source appears to suggest an improvement in water access.

In its most extreme physical form, women's journey to the nearby canal poses such severe dangers that women come to feel they are risking their lives, just to wash clothes and gain water access to compensate for the inadequate tubewell supply. Here, women who have few alternatives find themselves with little other choice than to use the local canal for water. One local woman recounts:

[The canal] is very deep. Many people have died while they fetch water from this canal because of the heavy weight of

the water bucket and steep slope of the canal. Many people fall into the water and die, also because the flow of the water is very high so it is very difficult to get out of water. There is no way to survive once you have fallen inside the canal, unfortunately. In the last month, three people have died in this canal.

The accumulation of these experiences contributes to women's sense that their bodies and lives have been 'de-valued' within particular spaces of the city.

7. Criminality and Informal and extra-legal water practices

Due to the irregularity and insufficiency of DJB tanker water deliveries in South Delhi, on which women depend as the primary household water source, women from slums depict a variety of "illegal" and/or "informal" methods for accessing water. As such, they face particular embodied forms of criminality and risk that re-produce their gender and class positions. Tankers, while scheduled to arrive daily, often fail to come for days on end. When they do arrive, both unpredictable timings and insufficient quantities leave women to resort to a variety of other water sources on a nearly daily basis, often requiring women to compensate through practices that bend and break laws.

Women describe informal water arrangements as taking place between slum-dwellers themselves, as well as between slum-dwellers, the middle-class, and state officials and tanker drivers, revealing a variety of gendered and classed micropolitical networks. For example, slum women describe their dependence on a local henchman, who stands over a tubewell and extracts fees, to supplement insufficient DJB tanker water deliveries. The tubewell in question had been installed several years previously by a local government official, but fell out of use and repair once the official left the area. Now, women face increasing charges from the local strongman who has taken over the previously public well. One woman recounts:

"This is the main water problem of this area. This local person who put his motor on the tubewell is a very bad person and does not allow us to take water. In fact, this bad man made so much money, at least 8000 rupees. This is very bad person. And we always give him 50 rupees every few days, but again just after another few days he collects money from us. He is always taking money from us in the name of providing water from his motor."

The politics of accessing this water places a severe burden on local women who cannot easily travel to another water source, but who face bullying and escalating monetary demands every time they attempt to procure the water. Such local social relations illuminate another dimension of water inequality noted in studies such as Bapat and Agarwal's (2003) examination of women in Bombay and Pune, which found that, "anyone can take charge of water and collect money" (Bapat and Agarwal, 2003, p. 74). Women also report arranging regular informal payments to other slum households in exchange for water tools (such as the tube households use to extract water from tankers, bicycles to transport heavy water containers, and buckets of water itself).

In addition, slum women frequently give small sums of money to tanker-drivers to try to "persuade" them to make more regular deliveries, and often attempt to "illegally" tap into nearby water pipes and tankers intended for middle-class neighborhoods, to access a bucket or two of water. Such activities bring women into more high-risk spaces as they fear being caught in the act by local home owners, guards, or police. Women often report being harassed and "shooed" away from water sources intended for the middle-class. Economically disadvantaged women thus face abuse, violence, and a re-enforcement of exclusive spatial boundaries in the city that ultimately serve to de-value their rights as citizens. In particular, such residents who take extra-legal water face a re-articulation of the boundary between the "legal" rights of citizens who have a right to the city's piped water supply, and the "criminal" or illegal status of slum-dwellers who are excluded from the rights and spaces of Delhi's more elite groups. For example, such social and spatial division was remapped when one woman attempted to catch a bucket of water from a leaking tanker meant for a middle-class colony, and was abused in public. Afterwards, the woman said that only the "royal" people of the colony have a right to water. Through such exchanges, women's "rights to water" become tied to the spatial delineation of class in the city, furthering the experience of social exclusion.

As slum women's domestic water roles place them disproportionately in positions in which they must break or bend laws and rules in order to secure water, their activities are also increasingly targeted as "criminal" within recent state discourse on regulating Delhi's water. Despite most residents employing extra-legal methods to boost their water access, recent state discourse is directing visibility on the water practices of the urban poor, particularly in light of state calls to redress Delhi's "missing" or unaccounted for water. While data differ on the quantity of this missing water, estimates indicate that as much as 50% of Delhi's water is unaccounted for in official meter readings, and thus "wasted." The factors contributing to unaccounted for water are of course multiple and complex, as residents of all castes and classes practice a range of unsanctioned water access activities, including middle-class illegal connections and piping. In addition, meters are often inaccurate or broken down, pipes often break and have leaks, and some poorer neighborhoods have access to non-metered running taps (Zerah, 2000; Shiva, 2004; Delhi HDR, 2006). However, as the state asserts that wasted and stolen water is robbing the city of a sustainable water supply, new campaigns are calling attention to the "criminal" practices of the urban poor, particularly the water accessing practices that women most commonly carry out, as strongly contributing to the city's water loss.

Specifically, the state defines water stealers as those who have illegal connections to the water supply, primarily due to the illegality of their presence on land (see Sivam, 2003). While this includes residents from unauthorized colonies (some of whom are much wealthier than slum dwellers), the state's discourse targets the vast number of slum settlements that have no legal rights to tap into Delhi's piped infrastructure (Truelove and Mawdsley, 2011). In particular, as water policy highlights the illegality of water activities commonly carried out by slum women, the consequences of discourses on water criminality hold strong gender and class implications. For example, the former CEO of the DJB, P.K. Tripathy blamed 'entire colonies' as being the primary culprits of water theft. The Delhi Development Authority states:

"About half of the water that is treated and distributed at public expense is non-revenue water. This is due to unrecorded usage or illegal taps and water connections. Reducing water losses is cheaper than augmenting water capacity for such losses" (DDA, 2005, p. 105).

Thus, the logic goes that if illegal water taps and connections were curtailed, then the city's need to augment its water supply could also be curbed, and greater efficiency achieved. While such logic both highlights and criminalizes those slum communities that tap into illegal connections, it remains highly contradictory given the state's own data that the poor consume the very least amount of water in Delhi—often below water minimums suggested for basic survival (Government of India, 2001; Gleick, 1996). In addition, because of their often marginal water status, economically disadvantaged residents (particularly women) are usually

more concerned with recycling and conserving the limited water supplies they manage (Batra, 2004; Voluntary Health Organization, 1994; Bapat and Agarwal, 2003)—a fact that actually turns the state's discourse of conservation, and those bodies that threaten it, on its head.

Nevertheless, the targeted criminalization of the poor has strong legal and material impacts that are increasingly backed by the threat of state violence (although in practice it is unclear how often such penalties are incurred). While the most recent Five-year Plan states, "Severe penalties should be levied on those found responsible for leakage and wastage of water" (Government of India Planning Commission, 2002, p. 640), Delhi's 2021 Draft Master Plan employs the most vindictive language yet, stating:

> Wastage and theft of water will have to be curbed *mercilessly*. Suitable amendments are necessary in the Delhi Water Board Act to provide for stringent measures for enforcing curbs on theft/wastage of water (DDA, 2005, p. 143, my italics).

The state's plan to escalate the consequences levied on everyday activities of the poor for water 'thefts' is particularly alarming given the DJB's already severe policies that impose heavy penalties on those who are found to have illegal connections. Not only does the DJB currently have the authority to disconnect all unauthorized connections that it locates, but it also concurrently fines residents who have such connections a penalty of 3 years worth of (estimated) retroactive water charges as well as an additional Rs. 3000—a sum that may be equivalent to 1–2 months' worth of wages for Delhi's poorest (Delhi Jal Board, 2007).

The state's focus on water thefts thus brings particular visibility to water practices of the poor as criminal (Truelove and Mawdsley, 2011). Criminality serves to justify the chronically low levels of water working class households consume, and reinforces patterns in which tanker drivers, DJB officials, and the legal system itself bypass the needs and services or Delhi's poor, as they are increasingly viewed as 'nuisances' who drain resources in the city (Ghertner, 2010; Truelove and Mawdsley, 2011). However, as women predominately carry out the particular informal practices that bend and break state laws and rules, the gendering of water practices places poor women in a particularly unique and often vulnerable position in relation to the law and the rights of legal citizens. The gendered forms of violence and risk that accompany access and sanitation practices are accompanied by further risks of state disciplining that escalate the danger and consequences of water-related activities. As women face a series of increasing threats—from the embodied and psychological impacts of breaking laws to the physical dangers associated with accessing extra-legal water sources, many experience compounded forms of classed and gender-based exclusion from the rights of a 'legal' citizen. How women navigate illegal practices and networks, and whether gender norms can also provide particular strategic advantages with regard to navigating law-breaking, is the subject of much-needed further research.

8. Conclusion

Through utilizing the theoretical insights of a feminist political ecology approach that is attentive to everyday politics and lived experiences of water, I have aimed to demonstrate some of the ways that conceptualizations of water inequality can be deepened to incorporate differences that arise from daily water practices and their consequences in urban India. In particular, this article brings attention to a diverse host of daily practices in spaces such as households, communities, and places of work in order to argue for further examination of how water policies and improvement strategies contribute to wider patterns of urban and social differentiation. Specifically, I examined how gender and class formations

and patterns of risk, criminality and social exclusion are tied to— and re-produced through—daily water practices. An analysis of wide-ranging and complex water-related experiences helps to demonstrate that a sole focus on access, control, and distributional differences is insufficient for capturing the scope of inequalities related to water in the city. FPE approaches to urban water help to illuminate how and why social inequality continues to be tied to water even when water quantities and access points are improved.

For example, the findings of this research suggest that the embodied consequences of water and sanitation practices on economically disadvantaged women can actually increase and become much worse even as water sources are legalized and "improved," as seen in the resettlement colony studied. FPE thus helps to contribute and deepen work on water inequality within UPE by revealing a whole host of inequalities and social and spatial differences that are produced around shifting regimes of resource practice and access. An FPE framework demonstrates that analyses of improvement need to be attentive to the ways that policies and interventions are experienced materially and symbolically, as well as contested, in everyday life. Such inquiries can be used to further the work of scholars and practitioners to help produce greater social and resource-related equality with regard to the urban water resources.

A discussion of the micropolitics of everyday water practices bears particular relevance for more nuanced analyses and understandings of the state and larger macropolitical forces at work (Mohanty, 2003; Nagar et al., 2002). By looking at experiences of the everyday as a source of counter-narratives to the state's representation of water in Delhi—which reports average per capita water levels double those of many European cities—we can better understand how stated water policies and governance shifts are actually experienced and navigated in everyday lives in sometimes unexpected, and often contradictory, ways. As articulated by Nagar et al. (2002, p. 261), analyses of daily and often informal practices help to illuminate "how informal economies of production and caring subsidize and constitute global capitalism," and the ways that gender is often "central to the operation of this subsidy." The gendering and classing of practices for procuring household water, and the consequent production of gendered spaces and patterns of mobility, reveal the many ways that particular bodies bear the brunt of subsidizing, and compensating for, state water governance strategies. Thus, Nagar et al. state:

> As neoliberal states withdraw from the provision of social services, this work is most often assumed by women in the feminized spheres of household and community (Nagar et al., 2002, p. 261).

As scholars such as Zerah (2000) enumerate this subsidization, estimating that Delhi residents spend Rs. 3 million a year compensating for city failures in the water supply, more work is needed on understanding the nuanced dimensions of how particular identities, bodies, and spaces are forged through everyday practices that emerge to supplement city inadequacies. The state's reliance on gendered and classed practices to subsidize its supply and delivery of water and sanitation reveals the need for scholarly work to more carefully connect gender ideologies of household resource management to the ways that cities such as Delhi are regulating its water resources, as well as its citizens.

In addition, an analytical focus on daily life extends to examinations of how informal and illegal practices shape, and are productive of, social differentiation through the connection of such practices to differing experiences of the state and the law. Because illegal practices are so widespread (Davis, 2004), they offer a key practice by which residents encounter and come to understand and construct particular attributes of the power and reach of the

state and the law (Gupta 1995, 2005; Secor, 2007). Gupta (1995) and Li (1999) both emphasize that "there is a gap between the state idea and the reality of more or less contradictory programs, initiatives and statements that people encounter directly" (Li, 1999, p. 315). Examining how daily extra-legal practices to access water shape residents' experiences of the state and the law in socially differentiated ways provides a critical lens through which to examine how residents experience widely varying degrees of inclusion and exclusion to rights and resources in Delhi. For example, working class women's experiences of illegality and criminality, particularly their engagement with extra-legal water networks and the bribing of DJB officials for water, have profound implications for how experiences of the state perpetuate or (re-)construct gender and class subjectivities. Future feminist political ecology research can thus be of utility for investigating how water-related bodily experiences are connected to unequal material conditions and wider discourses of social differentiation and exclusion in contemporary cities. Through further understanding the multiple embodied consequences of water and sanitation access, this work can also support policy makers and practitioners in being more attentive to solutions that go beyond water itself to include how water is tied to work, space, health, identity, power and rights in the city.

Acknowledgements

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