Amsterdam University Press

The Twelfth International Convention of Asia Scholars (ICAS 12)
https://doi.org/10.5117/9789048557820/ICAS.2022.073

# Marginality and Informality in Domestic Water Scarcity
## Case of a Self-Service Mountain Town

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**ABSTRACT**

Marginalization of the mountain regions is manifold – environmental, political and financial. These get exacerbated by the geographical distance from administrative and development centers. Marginalization can be categorized as societal and spatial. For Darjeeling, West Bengal, the marginalization is as much economic as much as it is ethnic. Darjeeling lies in the Eastern Himalayan Region, one of the highest rainfall receiving regions in India. But the communities here have been facing water scarcity for decades. Amid marginalization, water injustice manifested as water scarcity gets obscured. Water scarcity, however, is a lived reality that is normalized along with the experiences of marginalization. In this paper, using the case of Darjeeling Municipal town, I examine the marginalization of the region through the informal nature of domestic water provisioning. The extensive presence and prevalence of informal systems and their intertwining with the formal, the pseudo municipality systems, and the over-dependence on the community organizations spell out the inability or unwillingness of the state towards alleviating the water scarcity. Through this paper, I explore the relationship between informality and marginality through a case of domestic water scarcity in Darjeeling. I carried out preliminary studies in 2014-15 and 2016 followed by year-long fieldwork from April 2018 to April 2019. I conducted key informant and water supplier interviews, transect walks, and review of public records and secondary literature followed by household questionnaires across the town. If we focus only on the state supplies, then we miss out a lot on how the informal supplies which are the majority of water suppliers. There is a reification of the formal initiatives. Despite the prevalence of informal water providers which have helped in providing water to households, the state needs to play a crucial role to address the public interest in urban development as a regulator.

**Keywords**: Informality, Marginality, Domestic water scarcity, Urban mountain towns.

## 1. INTRODUCTION

Studies on water scarcity tend to focus on the formal institutions under the state. It has also been seen that the coverage of such institutions is far from universal. Such a scenario, on the one hand, highlights the inefficacies of the formal institutions to provide universal water access and on the other raises the question “where are the majority of the households getting their water from”?

Spatial and social marginalization affects resource access (Gurung and Kollmair 2007, 9). Areas that are distant from the administrative centres or “informal settlements” where the urban poor live

face such marginalization. The lack of political will and funding for such areas is also observed. The mountainous regions are one such landscape where marginality is a key feature along with inaccessibility, fragility and heterogeneity that makes them specific or unique (Jodha 1990, 1-3). These factors shape the manifestation of domestic water scarcity in the mountainous region along with the political economy and development history of the region. The households turn to a plethora of water suppliers in order to cope with the domestic water scarcity. Here, the informal suppliers make a major share.

For this paper, I will focus on the prevalence and predominance of informal water suppliers and how they can be construed as an outcome of marginality. Marginalization is a condition that emerges out of interactions with the state for provisioning of various services and water is one of them. The alleviation schemes and projects they take up highlight their views of water scarcity, in this case, and if they address marginality. The inability of the state to provide for basic services and enable access highlights the marginality of the region which pushes them towards informal water suppliers. I will be presenting insights from my PhD thesis to make a case between marginality and informality and how the acknowledgement of informality is essential in the legal and formal planning and for the rematerialization of urban governmentality (Kooy and Bakker 2008, 386; Roy 2009, 82).

The study overall looks to disentangle the drivers of domestic water scarcity in the Eastern Himalayan Region of India. Interestingly, this is also one of the highest rainfall receiving regions of the country. Three-fourths of future urban growth is predicted to be in cities, towns and urban areas other than the megacities which have no plans or provisioning services in place (Davis 2006, 7). I focus on Darjeeling Municipal town my primary study site which lies in one of the two mountain districts in the state of West Bengal.

## 2. MOUNTAINS AND MARGINALITY

Gatzweiler et al. (2011, 3) define marginality as "an involuntary position and condition of an individual or group at the margins of societal, political, economic, ecological and biophysical systems, preventing them from access to resources, assets, services, restraining freedom of choice, preventing the development of capabilities and eventually causing extreme poverty." Marginalization occurs or gets created much like the creation of binaries such as the civilized and the primitive which is born as a state effect as it cannot exist as a concept in itself if it is not placed with respect to the position of the state (Scott 2014, 116). Marginalized social groups are products of multiple failures of markets, institutions and policies. The history of colonization, apartheid and ethnicity are also drivers of marginalization where one set of communities express superiority over the other. Drawing from Sen's capabilities approach [Sen 1987], marginality also implies the consideration of capabilities and functionings. Poverty and capability deprivation overlap with marginality and marginality goes a step further to include spatial and environmental dimensions (Gatzweiler et al. 2011, 3).

Marginality is frequently defined by 2 conceptual frameworks - spatial and social (Gurung and Kollmair 2007, 9). Spatial marginalization occurs in various ways – distance from the administrative centres, physical accessibility of the place due to difficult terrain, and the legality of one's residence. Social marginalization occurs due to the socio-economic status of the communities which also interacts with the legality of a citizen. Such marginalization disables communities from accessing even those resources that are available in their vicinity but get barricaded from due to the institutions that come into existence. Social vulnerability factors such as immigration status and ethnicity are of particular importance to marginality (Sommers et al. 1999 in (Gurung and Kollmair 2007, 9)).

Within the urban settlements across the world, households marginalized from state water systems such as the municipality are dependent on the natural hydrological systems for their survival (Wutich 2006, 207). Spatial and social marginalization interacts and affects each other, for instance, households on the outskirts of an urban town experience geographic marginalization which

deepens their economic marginalization. Differential access created with the establishment of the water supply system in colonial times highlighted the social and spatial distance between the colonizers and the natives. This segregation continues in postcolonial times with the colonizers' position taken over by the regional and local elite. For "more equitable approaches to provide access to all a historicized and politicized understanding of the cultural and discursive as well as economic and technical dimensions of exclusion" need to be looked at (Kooy and Bakker 2008, 386).

Where spatial and societal marginality overlap, is where the vulnerability of a population is most evident such as the mountains. Social and spatial marginality is one of the factors that make the mountains specific requiring planning and development that adheres to these specificities (Jodha 1990, 5). Harnessing resources such as water becomes expensive in the mountains due to high energy costs for the terrain. The resources of the mountains historically are seen to be developed for the plains creating a plains bias (Bandyopadhyay and Gyawali 1994, 14). The mountains are marginalized due to their biophysical characteristics as well as socio-politics. The mountains are considered the water towers of the world with innumerable glaciers and rivers emerging out of them. However, very few communities in the mountains depend on the glaciers themselves and draw their water from streams and springs. Most of the "development" around rivers such as dams and reservoirs feed the cities and towns of the plains, providing none to the mountain communities. Marginality is the root cause of poverty manifested in informality with societal and spatial dimensions (Braun and Gatzweiler 2014, 17).

## 3. EMERGENCE OF THE INFORMAL

Institutions and people shape each other within multiple degrees of formality and organization which makes their interactions dynamic. The physical and social locations of the peoples are a major driver (Cleaver 2000, 362). How social relations affect institutions and vice versa are determined by the social, historical and ecological location of the people making it dynamic with varying degrees of organization and formality.

To gain rights and access to the systems communities have been excluded from, the communities turn to quiet encroachment which is a sustained non-collective action and sometimes termed illegal. Such actions are carried out to gain access but are not always meant to be political(Bayat 2000, 536) or a collective action (Cleaver 2000, 366) but as probably the only way to lead a dignified life. Formalising also tends to make the community the lowest rung of the government. The bureaucratisation fails to recognise informal institutions which might have been in existence for decades and oftentimes managed by women. Their invisibility is linked to the water being 'non-productive' and how management has rules of use which is followed by everyone (Cleaver and Elson 1995, 5). Continuous disconnection being perpetuated by the state systems and their lack of political agency leads to the creation of informal systems. The absence or unwillingness of the state in addition to the low expectations of communities creates a self-service city (Roy 2009, 83; Gandy 2006, 383).

Informal organizations are considered weak among many other misconceptions that were teased apart by Perlman ( 1986, 40-41). According to Roy ( 2009, 80-81), informality becomes a part of the urbanization and planning process in two ways – as the shifting relationships between legal-illegal, legitimate-illegitimate, etc. and "unmapping of cities". Informality and illegality are scrutinized – illegal use is seen as a social bad and ramifications of a weak state. They are also seen to be different from state systems and in opposition to them but scholars have pointed otherwise too. Social norms, their changes and negotiations of rights, and the collective decision making by the representatives are the drivers behind resource use and decision making. Apart from the formal and political authorities, there is also a need to look at the everyday social relations and compliances with community norms and decisions (Cleaver 2000, 374).

India as a state is an informalized entity which is also seen via its planning regime. This occurs when the state can place itself outside the law to carry out development (Roy 2009, 81). She argues for a framework to acknowledge informality as an extra-legal domain that needs to be integrated into the "legal, formal, and planned sectors of political economy". The distinction between the informal and formal is the basis of inequality in urban India (Roy 2009, 80).

Informality has been explored concerning the economy and housing but the emergence of informal water institutions have not been paid much attention. Where they have been studied, it is primarily done in terms of common property resources or how households interact with the informal water supplies in place. In this paper, we argue, that the marginalization vis-à-vis the state is a driver for informal water institutions.

Water informality is an indicator of uneven spatiality of state power (Meehan 2013, 319). Due to the requirements for acquiring formal connections via policies and rules, households get marginalized on grounds of proof of legality, tenancy and property – in a way determining their right to the city (Anand 2011, 193; Harvey 2008, 1). Households on the lower socio-economic rung face abjection since they do not have rights and electoral mobilization like the one on the higher rung. The usage of informal water supplies and practices are a manifestation that is inevitable to lead a life with basic human dignity (Anand 2012, 19).

The informal nature of water supply highlights the marginalization of the region and in such instances, state water systems, where they exist, cannot work without the informal. Rules of both state and non-state water suppliers exclude certain groups of people. Households build networks and organize water collection among them.

Mountain towns in the Andes (Wutich 2009, 184; Paerregaard 2019, 743) and the Himalayan Region (Shrestha et al. 2020, 438; Pal and De 2015, 488; Shah and Badiger 2020, 8-9; Ghatani 2015 66-72; Madan and Rawat 2000, 251) face water scarcity and turn to a variety of informal water suppliers. It ranges from natural sources such as springs that do not fall under the ambit of the state to water tankers, water porters and water sellers. The dependence on informal water suppliers can be attributed to the lack of state supplies and the restrictive measures which disable the communities to not only gain access to formal water systems but also imagine it.

## 4. DARJEELING – A SELF-SERVICE CITY

Darjeeling municipal town lies in a district by the same name (Figure 1). It is one of the two mountain districts, Darjeeling and Kalimpong, in the predominantly lowland state of West Bengal, India. Darjeeling experiences environmental, financial and political marginalization. Environmental as it is located in the mountains, one of the most marginalized spaces in the developing world; financial because the revenue generated from the region especially the internationally acclaimed tea is rarely invested back into the region, and politically since it has a century-old history of ethnicity related movements which culminate into statehood agitation time and again. The town also has an ethnic differentiation with respect to the province it belongs to which compounds the marginality. Darjeeling is located thousands of miles away from its provincial capital causing the geographical distance to exacerbate this marginalization which is based as much on economic conditions as on ethnicity. Marginalization is experienced by the region as a whole and is experienced heterogeneously among the households within the town.

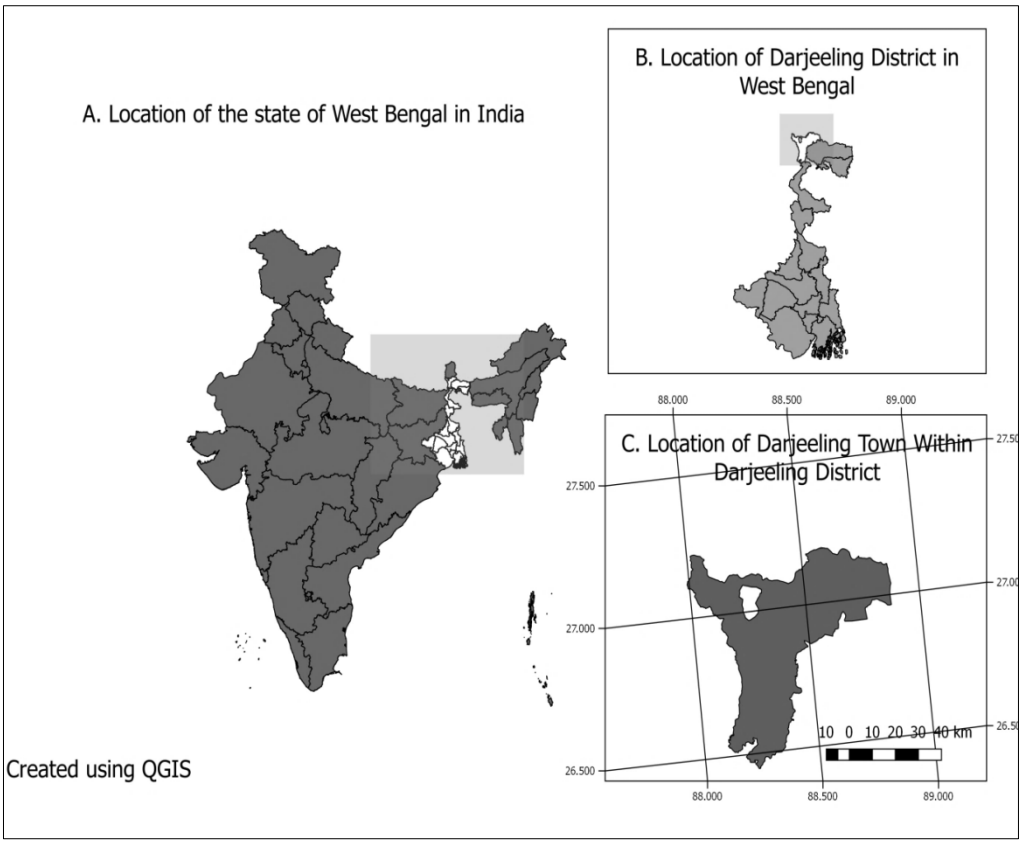


**Figure 1. Location of Darjeeling town. (Illustration by the author, 2018)**

In Darjeeling, the formal water coverage is at a maximum of 15% but the numbers could be lower. The rest 85% get their water from a plethora of informal water suppliers. Additionally, the 15% with the formal supply also use the informal suppliers regularly or during emergencies. Formal water supply within Darjeeling town falls under the Darjeeling Municipality, an elected body of 32 councillors from the 32 wards. They have a Water Works Department with a few engineers who focus on the water supply. The bulk water supply from the neighbouring sources into the Municipality supply tanks is carried out by the Public Health and Engineering Department (PHED). There are two PHEDs, one under the state of West Bengal and the other under the Gorkha Territorial Administration (GTA – Autonomous Hill Council erstwhile Darjeeling Gorkha Hill Council). The autonomous hill council was an outcome of the 1986 statehood agitation movement, and with every other state agitation uprising, the autonomous councils have been repackaged and presented.

Under the informal water supply, I have included springs and a variety of private water suppliers. Springs can be community springs or private springs. I came across 9 different kinds of private water suppliers which included 6000-litres water tanker trucks, 2000-litre pick-up trucks, hand-drawn carts, households who share/sell 'their' spring water or surplus water, self-drawn supplies directly from the springs or streams (Figure 2), or indirectly via a broker, and the cantonment of the Indian Army. Private water suppliers were the primary and prevalent water source across the town. More than half of the households use more than one water source. They use the water sources that are available, accessible and preferable to them.

**Figure 2. Self-drawn water pipes hanging in the town. (Photo by the author, 2018)**

Springs are the primary water sources of the people and the private water suppliers (Figure 3). They are outlets of groundwater from the cracks formed on the earth. In Darjeeling, there are around 100 springs within the town itself (Boer et al. 2011, 7; Darlong 2017, 2). Those marginalized and excluded households from the state water systems are dependent on the natural hydrologic systems such as springs (Wutich 2006, 207) .

**Figure 3. Water jerry cans waiting to fill water from a spring (Photo by the author, 2018)**

Most studies assess the existence of marginality and the households look for informal ways as a workaround to connect to the state water systems. The difficulties are evident. However, in the case of Darjeeling, the marginality that exists pushes them to seek sources outside the state system. Households aspire to be connected to the municipality which is a mark of luxury at a much lower water fee (Rs.500/year) compared to other sources (Rs.500/month). Municipality connections in Darjeeling are a luxury rather than a basic necessity[1] because of the conditions placed by the state system and a convoluted set of rules. The factors include exorbitant connection costs running up to Rs.1.6 lakh, multiple proofs of legality and a waiting time of 3-5 years. The majority of the households do not have the capability to make such choices. There have also been instances where a household losing a pre-existing municipality connection is not immediately refurbished but they have to undergo the whole process again.

These factors point to the how the bureaucracy reacts to the water scarcity conditions at multiple levels. When searching for answers to grievance redressal mechanisms for those households that were connected to the municipality most of them stated that they handle the pipeline issues themselves. Some of them are unaware and some of them think solving issues by themselves is faster and simpler. As for the households who are not connected to the system but want to be, in addition to the costs, time taken, infrequent supplies, and uncertain quality of water, the lack of social capital that shows them the process and helps in moving the files within the municipality are also factors.

The emergence of the informal is an outcome of circumstantial constraint and not a conscious collective action task (Cleaver 2000, 366). The ingenuity of coping with persistent scarcity in the absence of universal water provisioning by the state makes Darjeeling a self-service city (Gandy 2006, 383). The multiplicity and hybridity of institutions, the low success rates of state projects and

the dependence on the "add more" framework have not alleviated the water scarcity of the town. This has led to the emergence of a plethora of informal water suppliers. The possibility of informal connections aplenty could be due to the fact that it is a mountainous hill town with forests in close proximity. Most of the informal water suppliers are directly or indirectly dependent upon springs and water sources in the adjacent forests and tea plantation areas.

Focusing on the everyday social relations illuminates how compliances with norms and rules take place (Cleaver 2000, 374) . Tapping of water from the formal sources do exist but it isn't as rampant that it can be hailed as the problem that affects state water provisioning. It must also be kept in mind that the coverage of the municipality is low at 15% or lesser. Hence the tapping of water from the sources will happen only in the areas where the coverage exists. During my fieldwork, most of the households got water from informal sources. One's location determines the amount of water that can be tapped. Considering that there is a main pipe that goes into a particular area and this area is further divided into 2-3 zones. The three zones will have different water timings – say Monday, Tuesday and Wednesday. The main pipelines will have running water all these three days. So, if you lie along this pipeline, the ones tapping the water get more regular supply than any of the zones. This was observed along the main pipeline which brought water into Darjeeling town via the Eastern Slope and in spots within the town between the town supply tank and the zones towards the North of the town.

Informal settlements are marginalized by the state itself. Legal recognition of such a place does not happen, which disallows them from getting the documents related to land. Further, such documents are a part of the application for the municipality which means they cannot apply. Such places then have to turn to municipal public taps, springs and other private water suppliers depending on what is available. The availability of such sources is dependent on where they are spatially located and their access is further defined by the nature of the water source and the associated rules of access.

The multiplicity of institutions also implies that the households have to meander through a maze which creates a differentiated experience of scarcity. "Differentiated water system, shared problems" – when carrying out the fieldwork, starting from the southern outskirts of the town, to every household I asked they said "we are doing fine", the houses beyond that turn of the road, they have more issues. Hence water problems were shared among all the households in varying degrees within a differentiated water system (Anand 2012, 7). So much so, that this can also be considered as an opening and evergreen conversation within the town.

## 5. CONCLUSION

Darjeeling is an urban mountain town that has been facing water scarcity for decades, despite being located in the water-rich Eastern Himalayan Region. Due to various degrees of marginality, universal water access is a distant dream with only 15% of the households covered. The insufficiency of the state and their inability to enable access to their systems has led to the households depending on informal water sources which according to them are more dependent and regular. Hence, access to state water systems in Darjeeling is an indicator of luxury rather than a basic necessity.

Usage of informal water sources and contaminated water sources without ascribing to the state water infrastructure can be construed as their resistance to the systems that always excluded and marginalized them. Acknowledging such actors, their marginalized status and their informal ways as an extra-legal domain needs to be integrated into the "legal, formal, and planned sectors of political economy" and make space in the rematerialization of urban governmentality (Kooy and Bakker 2008, 386; Roy 2009, 82). The state is essential in providing universal access because of the nature of water as a resource and the nature of scaling up of services that are required. Hence, the state needs

to acknowledge its deficiencies and create just spaces for water provisioning by the informal institutions.

## ACKNOWLEDGMENTS

I am grateful for the institutional support provided by the Ashoka Trust for Research in Ecology and the Environment (ATREE), and by the Manipal Academy of Higher Education (formerly, Manipal University), and for the financial support provided by the Government of India's National Mission on Himalayan Studies Grant. I would also like to thank my supervisor at ATREE Dr Shrinivas Badiger for his guidance and encouragement to explore newer ideas apt for my studies. Finally, I would like to thank the 12th International Convention of Asia Scholars and the International Institute of Asian Studies for providing me with a space to explore this piece of writing and with financial support to attend the conference. It was a fulfilling experience where I was able to seek feedback on my work, and come in touch with scholars working closer to home.

## REFERENCES

Anand, Nikhil. 2011. "Ignoring Power : Knowing Leakage in Mumbai's Water Supply." In *Urban Navigations: Politics, Space & the City in South Asia*, edited by Jonathan Anjaria and Colin McFarlane, 191–212. New Delhi: Routledge Publishers.

———. 2012. "Municipal Disconnect: On Abject Water and Its Urban Infrastructures." *Ethnography* 13 (4): 487–509. https://doi.org/10.1177/1466138111435743.

Bandyopadhyay, Jayanta, and Dipak Gyawali. 1994. "Himalayan Water Resources: Ecological and Political Aspects of Management." *Mountain Research and Development* 14 (1): 1–24.

Bayat, Asef. 2000. "From 'Dangerous Classes' to 'Quiet Rebels': Politics of the Urban Subaltern in the Global South." *International Sociology* 15 (3): 533–57. https://doi.org/10.1177/026858000015003005.

Boer, Liekel, Deepa Joshi, Suman Rai, and Samuel Thomas. 2011. "The Perennial Springs of Darjeeling, a Survey to Community Based Conservation."

Braun, Joachim Von, and Franz W. Gatzweiler, eds. 2014. *Marginality: Addressing the Nexus of Poverty, Exclusion and Ecology*. Springer International Publishing.

Cleaver, Frances. 2000. "Moral Ecological Rationality , Institutions and the Management of Common Property Resources." *Development and Change* 31 (June 1998): 361–83.

Cleaver, Frances, and Diane Elson. 1995. *Women and Water Resources: Continued Marginalisation and New Policies*. London: Sustainable Agriculture Programme, International Institute for Environment and Development. http://mekonginfo.org/assets/midocs/0003073-environment-women-and-water-resources-continued-marginalisation-and-new-policies.pdf.

Darlong, Francis H. 2017. "Urban Water Governances Focussing on the Springs of Darjeeling."

Davis, Mike. 2006. *Planet of Slums*. First. Verso.

Gandy, Matthew. 2006. "Planning, Anti-Planning, and the Infrastructure Crisis Facing Metropolitan Lagos." *Urban Studies* 43 (2): 371–96. https://doi.org/10.1057/9780230603349.

Gatzweiler, Franz W., Heike Baumüller, Christine Ladenburger, and Joachim von Braun. 2011. "Marginality: Addressing the Root Causes of Extreme Poverty." 77. ZEF Working Paper Series. Bonn.

Ghatani, Suvechha. 2015. *"Sustainable Urban Water Management in Darjeeling."* MPhil diss., Sikkim University. https://doi.org/27 June 2016.

Gurung, Ghana S., and Michael Kollmair. 2007. "Marginality : Concepts and Their Limitations." 12. NCCR North-Sourh Dialogue. Bern.

Harvey, David. 2008. "The Right To the City," 1–16. https://doi.org/10.1080/13698010500268189.

Jodha, N.S. 1990. "A Framework for Integrated Mountain Development." Kathmandu: International Centre for Integrated Mountain Development (ICIMOD).

Kooy, Michelle, and Karen Bakker. 2008. "Technologies of Government: Constituting Subjectivities, Spaces, and Infrastructures in Colonial and Contemporary Jakarta." *International Journal of Urban and Regional Research* 32 (2): 375–91. https://doi.org/10.1111/j.1468-2427.2008.00791.x.

Madan, Sapna, and Laxmi Rawat. 2000. "The Impacts of Tourism on the Environment of Mussoorie, Garhwal Himalaya, India." *The Environmentalist*, 249–55.

Meehan, Katharine. 2013. "Disciplining de Facto Development: Water Theft and Hydrosocial Order in Tijuana." *Environment and Planning D: Society and Space* 31 (2): 319–36. https://doi.org/10.1068/d20610.

Paerregaard, Karsten. 2019. "Liquid Accountability: Water as a Common, Public and Private Good in the Peruvian Andes." *Water Alternatives* 12 (2): 488–502.

Pal, Manoranjan, and Utpal Kumar De. 2015. "Informal Household Water Market and Determinants of Price: Evidence from an Indian Hill City." In *The 2nd ISM International Statistical Conference 2014 (ISM-II): Empowering the Applications of Statistical and Mathematical Sciences*, 1643:487–93. https://doi.org/10.1063/1.4907484.

Perlman, Janice. 1986. "Six Misconceptions about Squatter Settlements." *Development*, 40–44.

Roy, Ananya. 2009. "Why India Cannot Plan Its Cities: Informality, Insurgence and the Idiom of Urbanization." *Planning Theory* 8 (1): 76–87. https://doi.org/10.1177/1473095208099299.

Scott, James C. 2014. *The Art of Not Being Governed: An Anarchist History of Upland Southeast Asia*. Yale University Press.

Shah, Rinan, and Shrinivas Badiger. 2020. "Conundrum or Paradox : Deconstructing the Spurious Case of Water Scarcity in the Himalayan Region through an Institutional Economics Narrative." *Water Policy*, 1–16. https://doi.org/10.2166/wp.2018.115.

Shrestha, Sadhana, Yoko Aihara, Arun P. Bhattarai, Niranjan Bista, Naoki Kondo, Kazama Futaba, Kei Nishida, and Junko Shindo. 2020. "Urban Household Water Resilience and Source Selection in Nepal Pre-and Post-Disaster." *Journal of Water Sanitation and Hygiene for Development* 10 (3): 435–46. https://doi.org/10.2166/washdev.2020.042.

Wutich, Amber. 2006. "The Effects of Urban Water Scarcity on Sociabilty and Reciprocity in Cochabamba, Bolivia." University of Florida.

———. 2009. "Water Scarcity and the Sustainability of a Common Pool in the Urban Andes." *Human Ecology* 37 (2): 179–92. https://doi.org/10.1007/sl0745-009-9227-4.

## ENDNOTES

[1] Personal communication