Title
The Politics of Pipes: The Persistence of Small Water Networks in Post-Privatization Manila

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Publication Date
2013

Peer reviewed|Thesis/dissertation

The Politics of Pipes:
The Persistence of Small Water Networks in Post-Privatization Manila

By

Deborah Cheng

A dissertation submitted in partial satisfaction of the

requirements for the degree of

Doctor of Philosophy

in

Energy and Resources

and the Designated Emphasis

in

Global Metropolitan Studies

in the

Graduate Division

of the

University of California, Berkeley

Committee in charge:

Professor Isha Ray, Chair
Professor Ananya Roy
Professor Peter Evans

Spring 2013

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Abstract

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This project examines the politics of water provision in low-income areas of large, developing cities. In the last two decades, water privatization has become a global paradigm, emerging as a potential means for addressing the urban water crisis. In Manila, the site of the world's largest water privatization project, service to low-income areas has improved significantly in the post-privatization era. But whereas expansion of a water utility typically involves the replacement of informal providers, the experience in Manila demonstrates that the rapid connection of low-income areas actually hinges, in part, on the selective inclusion and exclusion of these smaller actors. Based on an ethnography of the private utilities and community-based providers, I use the persistence of small water networks as a lens for exploring the limits of water privatization in Manila.

I focus on what I call *micro-networks*—community-built infrastructure that extends the formal, private utilities into low-income neighborhoods that the utilities do not wish to serve directly. In such a setup, the utility provides water only as far as the community boundary; beyond that, the micro-network operator constructs internal infrastructure, monitors for leakage and theft, and collects bills. But while these communities may gain access to safer water, they are also subject to higher costs and heightened disciplinary measures. By tracing the ways in which the utilities selectively use micro-networks to manage sub-populations, I show how the utilities make low-income spaces more governable. Delegating localized water management to micro-network operators depoliticizes the utilities' roles, shifting the sociopolitical difficulties of water provision to community organizations, while allowing the utilities to claim that these areas are served.

This research leads to three related arguments. First, the persistence of small water networks highlights lingering inequities in access to water, for micro-network consumers are subject to disparities in cost, materials, and personal freedoms. Though Manila's water privatization project has resulted in significant improvements to the centralized system, its success must be tempered by the inequalities that remain. Second, the two utilities are largely able to shape both the geographies of water access and the production of knowledge. For this reason, the utilities typically use micro-networks where cost recovery may be difficult—such as in areas with uncertain land tenure or where higher levels of nonpayment are perceived—while including these areas in their aggregate coverage

statistics. Third, the presence of multiple providers of water and other basic services blurs the boundaries between public, private, and community. But that blurriness serves to consolidate the private utilities' power, while increasing the opacity by which citizens navigate processes related to urban water provision.

The persistence of micro-networks thus allows us to understand the ways in which low-income spaces are made more governable. By focusing on this peri-urban frontier, this project asserts that differentiation and discipline serve simultaneously as tools of governance and as points of contestation. What emerges is a waterscape consisting not of one type of privatization—where service and access are uniformly provided—but multiple, coexisting, and differentiated privatizations.

For M.

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Acronyms and Abbreviations

ADB	Asian Development Bank
AWCP	Associated Water Center Philippines
BT	*Bayan Tubig*
CBO	Community-based organization
CDI	Carmel Development, Incorporated
CMP	Community Mortgage Program
GI	Galvanized iron
GK	*Gawad Kalinga*
GOCC	Government-owned or –controlled corporation
GPOBA	Global Partnership on Output-Based Aid
HUDCC	Housing and Urban Development Coordinating Council
IBRD	International Bank for Reconstruction and Development
IFC	International Finance Corporation
IFI	International financial institution
IMF	International Monetary Fund
IPD	Institute for Popular Democracy
LUPON	League of United People's Organization Network
MDG	Millennium Development Goal
MERALCO	Manila Electric Railroad and Light Company
MMDA	Metropolitan Manila Development Authority
MPIC	Metro Pacific Investments Corporation
MRT-7	Metro Rail Line Transit 7
MWD	Metropolitan Water District
MWSS	Metropolitan Waterworks and Sewerage System
MWSS-RO (or RO)	Metropolitan Waterworks and Sewerage System Regulatory Office
NGO	Nongovernmental organization
NHA	National Housing Authority
NRW	Nonrevenue water
NWRB	National Water Resources Board
NWSA	National Waterworks and Sewerage Authority
NAWASA	National Water and Sanitation Association
PAWS	Public Assessment of Water Services
PD	Presidential Decree
PHP	Philippine peso
PO	People's organization
PPP	Public-Private Partnership Program
PSP	Private sector participation
PVC	Polyvinyl chloride
SIKAD	*Sugpuin ang Illegal na Koneksyon AgaD*
STM	*Samahang Tubig Maynilad*
TPSB	*Tubig Para sa Barangay*
UDHA	Urban Development and Housing Act

UK	United Kingdom
UPA	Urban Poor Associates
US	United States
USD	United States Dollars

Acknowledgements

Seven years ago, when I started the Masters program at the Energy and Resources Group (ERG), I could not have predicted that my dissertation project would involve a return to my hometown of Manila, or an intellectual turn toward the social sciences. I am forever indebted to the many people who have helped me along the way, during what has been an incredible personal and academic journey.

Isha Ray, my committee chair, always strikes just the right balance between unwavering encouragement and scholarly rigor. Isha helped me to navigate the rich but daunting vastness that ERG provides through its uniquely interdisciplinary space and dedication to intellectual freedom. I am truly grateful for her mentorship. In particular, this project has benefitted immensely from Isha's remarkable ability to repackage my nascent ideas in much more enticing ways. Ananya Roy has also been a source of inspiration from the onset, and her scholarship and pedagogy have frankly changed me and my worldviews. Ananya's delving questions have always compelled me to interrogate an issue or an approach more closely. Peter Evans, leading as much by example as by tireless engagement, helped me to theorize my observations and, as importantly, see my own work as a contribution to existing scholarship. Alison Post was so instrumentally helpful to me from the very earliest stages of my research process. Dick Norgaard and the ERG staff have been responsible for sometimes thankless work behind the scenes. Dick Walker and the Global Metropolitan Studies program provided great inspiration and valuable support during the writing process. In addition, the ERG Water Group has been both a helpful and an enjoyable space of intellectual exchange and camaraderie.

My work in Manila would not have been possible without the help of many individuals and organizations. In particular, I am extremely indebted to the three communities in which I was based, which I call Santa Ana, Salcedo, and Pagasa. The women of Santa Ana (especially Mary Jane and Joy) were generous with their time and with their friendship, and I am so grateful for their willingness to host me. Two organizations—the Institute for Popular Democracy (with Jude Esguerra, Erik Villanueva, and Kristine Quiray) and Streams of Knowledge (led by Rory Villaluna)—introduced me to these communities and enabled me to gain a footing in Manila's water world. Marilou, whom I describe throughout my dissertation, made time for me by taking time away from her own schedule and allowed me to observe her many micro-networks in action. Various managers at Manila Water, Maynilad, the Metropolitan Waterworks and Sewerage System, and its associated Regulatory Office were also helpful in providing key pieces of information. I am extremely grateful to Tony La Viña for hosting me at the Ateneo School of Government, and most importantly, to my two research assistants from Ateneo—Famela Listana and Christine Liclican—whose thoughtful assistance and warm company I enjoyed immensely.

This project has been generously supported by numerous funding sources, including: the Social Science Research Council International Dissertation Research Fellowship; the University of California Dissertation-Year Fellowship; the John L. Simpson Memorial Research Fellowship in International and Comparative Studies, offered by Berkeley's Institute of International Studies; the

Foreign Language and Area Studies Fellowship; the California Public Utilities Commission; and block grants from ERG.

I am incredibly fortunate to have friends near and far that have contributed to this effort, by providing both intellectual inspiration and welcome distractions. At Berkeley, I have spent so many unforgettable moments with Christian Casillas, Anand Gopal, and Liz Pimentel-Gopal, and my life at ERG would not have been nearly as enjoyable without their incisive wit. Malini Ranganathan, Asher Ghertner, Mike Dwyer, and Carolina Balazs have provided invaluable advice along the way. My writing buddies, Emily Kumpel, Fermin Reygadas, and Zach Burt, have helped keep things moving even at moments when that seemed unlikely. Freyja Knapp, Jia-Ching Chen, and the Urban Political Ecology graduate group offered an enjoyable space for intellectual banter. At ERG, I am fortunate to have had Anna Kantenbacher, Danielle Christianson, Julian Fulton, Lara Cushing, and so many others as compatriots. An all-consuming project consumes all, so I wish to acknowledge some of the many friends and friendships that have helped to sustain me outside of Berkeley, whether through their curiosity, good humor, or simply forbearance: Betty Chang, Aaron and Carletta Wong, Farhan Zaidi and Lucy Fang, Shih-Yu Wang and Ervin Tu, Ana Sandoval, Stacie and Eduardo Navarro, Kim Miller and Ian Pancham; my *kalokohan barkada* (Zarah Lim, Maita Lauchengco, and Celina Agaton) and *butanding buds* (Mike Gonzales, Lex Reyes, and Marielle Nadal) in Manila; and my Irvine crew (Tommy McClain, Jenn Chin, Meg Tanaka, and Zeenat Hassan).

I owe a great debt of gratitude to my family for their unquestioning support. My parents, Chi Mo (the original Dr. Cheng) and Jane, sparked my intellectual curiosity at an early age and have been so supportive ever since, most especially during my time in Manila. My siblings, Caroline, Lawrence, and Rebecca truly paved the way for my educational pursuits by constantly raising the bar. I am particularly indebted to Rebecca for setting me up with a New York home-office, where the beginnings of this dissertation were formed. My family has been the beneficiary of the great skill of an expert driver and navigator for some 30 years. Without Feliciano Tuyor and his ability to get anywhere in Metro Manila with grace and humor, I would not have seen what I have seen, met who I have met, or written what I have written. I am also grateful to our other household helpers for their thankless work. On this side of the world, Bernie and Eda Klinger have been my extended family. Finally, none of this would have been possible without the enduring love and support of mk, who has offered unwavering encouragement ~~(and editing)~~ throughout every stage of this long process. This dissertation is as much his project as it is mine, and I could not have done this without him.

Chapter 1. Introduction: Manila's Water Privatization Project

> *There are mighty historical and economic forces that keep the poor down; and there are human beings who help out in this grim business, many of them unwittingly. There are sociological and political reasons why poverty is not seen; and there are misconceptions and prejudices that literally blind the eyes. The latter must be understood if anyone is to make the necessary act of intellect and will so that the poor can be noticed.*
>
> —*Michael Harrington* (1997, p. 14)

Manila, 1995. The water crisis that gripped the capital arrived fresh on the heels of the country's energy shortage and, like the earlier power crisis, spared no one. A report from the Singapore-based Straits Times: "Taps ran dry yesterday morning in much of the upmarket financial district of Makati for the first time this year, in an early indication of an unprecedented water crisis in Metro Manila. Water supply is intermittent throughout the year in some of the outlying areas of the capital, home to some 10.5 million people. But Makati—home to banks, large corporations, embassies and high-end residential areas—has seldom been affected" (Ghosh, 1995). That poorer areas lacked water was the norm. But that the rich had water problems too—this was the sign of an impending crisis.

The success of the Electric Power Crisis Act inspired the House of Representatives to push for a similar solution to this water crisis.[1] The initial version of the Water Crisis Act sought to grant the President the authority to negotiate contracts for the water sector, reduce the water utility's staff, and criminalize water theft. But the bill met opposition in the Senate, where members wanted to delete the clause on negotiation. It was then, according to government insider Mark Dumol, that bill backers altered that clause to allow for the option of privatization instead. Dumol (2000, p. 25) writes, "In one sentence, almost as an afterthought, the law gave the President the authority to privatize MWSS"—the Metropolitan Waterworks and Sewerage System, Manila's water utility.

The world's largest water privatization project thus began to take shape—as the result of an afterthought.[2]

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[1] Rolling blackouts plagued Manila and other cities in the Philippines in the early 1990s. The Electric Power Crisis Act allowed the government to engage in rapid negotiations with independent power producers, and resulted in a marked increase in electricity generation capacity (Woodhouse, 2005).

[2] Manila's project is the largest in terms of investment commitments, as I describe in Chapter 2.

Manila, 2010. In the first few months of my fieldwork, two moments served to amplify the incongruity of the reality of water access in Manila.[3]

First, I attended the Asian Development Bank's (ADB's) Water Crisis and Choices Conference, held at the Bank's Manila headquarters. I had been to the ADB compound several times in the past and knew that a marbled world lay inside its fortressed gates, jarringly different from the gridlock of Ortigas, the commercial district in which it sits. But this time, I was even more astonished. Entering from these crowded streets to the hall where the keynote talk would be given, I was taken aback by both the size of the space (three projectors operating in concert seamlessly, displaying images on a screen that was the width of several cinemas combined) and the sea of suits inside (an overwhelmingly male environment). This was Goldman's (2005) "transnational policy networks" in action, I thought to myself. Manila's home-court advantage meant that it was featured prominently in the panels, and by and large, the image that was offered was rosy. An ADB executive extolled the accomplishments of Manila Water, the private concessionaire that serves the eastern half of the metropolis, by pointing to its enviably-low levels of non-revenue water (NRW, or the percentage of water lost to theft and leakages).[4] Though nearly one third of Manila Water's 6-million customers were low-income, the company cited its ability to serve nearly all of that population, using a combination of flatter management practices and customer participation in its monitoring efforts. The accomplishments of Maynilad—the concessionaire serving the western half of the city—were also highlighted, despite Maynilad's financial bankruptcy several years earlier. As the hours and days wore on, I saw that many of the men in suits were, like me, nodding off, soothed by the repetitive sound of technocrat talk.

Some months later, I paid a visit to Salcedo—a dense, low-income community where life necessarily spills out onto the alleyways.[5] In these narrow streets, the same shallow basins that are used as sinks for laundry and dishes also function as occasional bathtubs for small children. Marilou,[6] an entrepreneur, runs the water system within this community and in others like it. Years ago, she paid Manila Water for one connection, from which she now runs several metered hoses. It is Julio's job to facilitate the distribution of water, and the task of delivering water from house-to-house consumes his entire day. Meanwhile, for Sophie, collecting payments and managing the books is a negotiated process, and she is frequently torn between her empathy for households lacking money and Marilou's need for the strict compliance of all customers. Because there are bound to be some households that cannot pay regularly, Marilou's tariffs are inflated to cover internal losses, as well as to subsidize her projects elsewhere. For residents of Salcedo, daily access to water often means waiting for the hose to arrive, and may even involve some altercations with neighbors. But for

[3] Following Ribot and Peluso (2003), I interpret water access as the ability to benefit (as opposed to the right to benefit) from a supply of water. The ways in which water is controlled and managed affect the terms upon which access is gained.

[4] The operation of Manila's water system was awarded to two concessionaires, who are responsible for capital investments in the system. I discuss this in more detail in the following chapter.

[5] See Appendix A for a map of Metro Manila and all referenced areas.

[6] All names are pseudonyms.

Manila Water, the concessionaire that serves this part of the city, water provision in Salcedo is relatively easy because the company can reliably count on a monthly payment from Sophie.

Figure 1.1. Scenes from the alleys. To the left, a resident of Salcedo. To the right, children in Tondo, another low-income area, bathing in the streets. Both areas are included in the concessionaires' aggregate coverage statistics, despite the delivery of water by hose. Photos by author.

1.1 Toward universal water access

This dissertation examines the politics of water provision in low-income areas of large, developing cities. The number of people without safe access to water is staggering—according to the United Nations, more than 780 million people still remain unserved (UNICEF and World Health Organization, 2012). Since the Millennium Development Goals (MDGs) were established in 2000, there have been concerted efforts to address inadequacies in access to water; indeed, in 2012, the world met the target of halving the proportion of people without access to safe drinking water.[7] However, much work remains, particularly in sub-Saharan Africa and in rural areas, which are disproportionately underserved. Furthermore, though access is generally better in urban areas, households in slums and other low-income areas remain challenged by disparities in access. Development agencies (United Nations Development Programme, 2006; United States Agency for International Development, 2006) and critical urban theorists (Gandy, 2008; Kooy and Bakker, 2008; Swyngedouw, 2004; Loftus and McDonald, 2001) recognize these remaining inequities as cause for concern.

[7] The World Health Organization/UNICEF Joint Monitoring Programme (2006)—the official United Nations mechanism tasked with monitoring the MDG for water and sanitation—defines an improved drinking water source as follows: piped water into dwelling, yard, or plot; public tap or standpipe; tubewell or borehole; protected dug well; protected spring; and rainwater collection. Though these are all considered improved sources, there are disparities between various types of access.

In the last two decades, water privatization has become a global paradigm, emerging as a partial means for addressing the urban water crisis and, consequently, engendering a polarizing debate. Advocates hail the improved efficiency of the private sector compared with the bureaucracy of public utilities (World Bank, 1993; Ogden, 1995), while critics claim that the financial motivations of private companies are often incongruous with human rights goals and the needs of the poor (Public Citizen, 2003; Bakker, 2010). However, beyond the assumption that marginalized areas are simply unprofitable, little ethnographic work has been done to assess the ways in which private operators actually operate in low-income areas. In part, this critical component has been missing because many utilities (both public and private) continue to be challenged by low-income areas, and often evade them entirely (Budds and McGranahan, 2003).

My project focuses on Manila, where service to low-income areas has improved significantly in the post-privatization years but where, arguably, inequities still remain. Despite the massive scale of Manila's water privatization project, only a handful of academic studies have examined how access has unfolded since the system was privatized. Among those, Chng (2008, 2012) focuses on the ways in which nongovernmental organizations (NGOs) and community groups supplement the state's weak regulatory functions by influencing service provision in low-income communities. Matouš (2004, 2010) surveys early partnerships between the concessionaires and community groups, demonstrating how residents with increased social capital generally have better access to water. Others have documented the trajectories of the two concessionaires, particularly in the initial years after privatization (Wu and Malaluan, 2008; Rosenthal, 2001). For the most part, however, international financial institutions (IFIs) such as the Manila-based ADB have produced most of the literature on the MWSS privatization, largely hailing the project a success (Asian Development Bank, 2004; International Finance Corporation, 2010). Such perspectives vastly outnumber the handful of critical texts, mostly written by leftist NGOs, that find the concessionaires' operations problematic (Esguerra, 2003; Freedom from Debt Coalition, 2007).

In examining the Manila concessionaires and the extension of water services to low-income areas, my research contributes to the literature on the political economy of water by examining both the benefits and limitations of privatized provision in peri-urban areas. In particular, I focus on a specific type of setup that I call micro-networks—community-built infrastructure that extends the formal, private utilities into low-income neighborhoods that the concessionaires do not wish to serve directly, for a variety of reasons. In a typical setup, the concessionaire provides water only as far as the community boundary; beyond that, the micro-network operator constructs internal infrastructure, monitors for leakage and theft, and collects bills. Rather than interacting with many individual customers, some of whom may find it difficult to pay bills regularly, the concessionaires delegate local management of the system to the micro-network operator. With less at risk, the concessionaires are more likely to serve low-income areas, overcoming some of the barriers that utilities commonly face. Some actors, such as ADB, view the micro-network scheme as pro-poor because it enables low-income communities to obtain safer, cheaper water compared to that offered by independent vendors (Asian Development Bank, 2008a).

But while the relationships that bind large and small water providers together are symbiotic—the concessionaires transfer some responsibilities to the small providers, while the latter obtain water for their communities—they are also highly asymmetric. That is, it is often the case that the two private water concessionaires actively use micro-networks to manage sub-populations, while essentially providing differentiated service in these communities with respect to cost, materials, and personal

freedoms. The concessionaires' roles increasingly become technical and depoliticized, shifting the sociopolitical difficulties of water provision to the community organizations. At the same time, the concessionaires are able to claim that micro-network areas are served, boosting their reputations as successful private operators, and masking the inequalities that remain. Through this shift in water provision and governance, access to water *appears* inclusive but may actually be contingent on enhanced regulation and competing claims to physical space.

This research leads to three main arguments. First, while the agents of Manila's privatized utility have made significant improvements to the system at large, their expansion into low-income areas relies in part on micro-networks—a relationship that remains largely hidden from the state, the public, and development institutions. The much-cited success of Manila's water privatization must thus be tempered by evidence of remaining inequities. Second, the concessionaires are largely able to shape geographies of access because they are able to configure individual and community water connections. For this reason, micro-networks generally appear under two conditions—where land tenure is insecure, and where disciplinary concerns related to non-payment may hinder cost recovery. Third, the presence of multiple providers of water and other basic services—including different levels of the state, various private entities, and community organizations—creates not only a disjointed pattern of access on the ground, but also a disjointed sense of what actors are involved. In other words, for micro-network communities, the opacity surrounding the business of water provision makes it difficult to hold the proper actors accountable, further marginalizing these households while consolidating power in the hands of a few, key corporate actors.

It is important to recognize that the concessionaires do not use micro-networks to serve all low-income communities, and that there are more equitable forms of pro-poor access, including direct connections and clustered metering.[8] However, I focus on micro-networks because they offer one way of exploring the limits of Manila's privatization project. By examining communities where access is compromised, I uncover the concessionaires' rationale for differentiated service, as well as consumer perceptions on differentiated access. Together, these factors can help identify remaining inequities and barriers to access.

In the following sections, I describe the ways in which I arrived at these arguments. Section 1.2 provides an overview of the broader theoretical concepts that I draw upon, while Section 1.3 focuses on the methods that I used to gather this data. Section 1.4 summarizes the remaining chapters.

1.2 Governing flows

At the heart of the state's project is a desire to improve water access for its metropolitan population. But the task of doing so is a difficult one, involving not just technical feats related to water transport and distribution, but the governing of subjects such that they comply with the terms of provision.

[8] I discuss clustered metering in Chapters 2 and 5. While still not on par with middle-class connections (where meters are placed immediately outside one's house instead of along a main road), clustered metering offers more equitable access than micro-networks.

Here, Foucault's brief writings on government—what he defines as the "conduct of conduct," and what Gordon (1991, p. 2) clarifies to be "a form of activity aiming to shape, guide or affect the conduct of some person or persons"—provide an underlying theoretical framework for my analysis. Rather than dominating citizens through the exercise of sovereign power, Foucault argues that the modern art of governing entails the state's recognition of and adaptation to its citizens' capacity for action (Rose, 1999). Governmentality, then, consists of the rationalities and mentalities that authorities employ to produce social order (Foucault, 1991). Within this broad notion of governmentality, Miller and Rose (2008) distinguish between two aspects: (1) the rationalities or programs of government, which help to understand ways of thinking and forms of reason; and (2) the technologies of government, which refer to the ensemble of tools and people that allow authorities to govern.

These mentalities have shifted in the last quarter of a century with the advent of neoliberalism—a broad set of principles that generally supports individual freedoms through institutional structures such as strong private property rights, free markets, and free trade (Harvey, 2005a).[9] Three aspects of neoliberal governmentality are particularly relevant for my analysis. The first is the contracting-out of the provision of public services to private and community entities, moving toward forms of governance that extend beyond the state (Dean, 2010; Swyngedouw, 2005b). As Miller and Rose (2008, p. 34) describe, "government at a distance" involves a "loose assemblage of agents and agencies into a functioning network." Dolan and Johnstone (2011) note how development practices have shifted in the neoliberal era, such that workers traditionally thought of as informal are now being repurposed as entrepreneurial partners. In Manila, we see evidence of the state contracting out water provision to large, private companies, which then solicit the assistance of community-based organizations and entrepreneurs in managing certain sub-populations. Relations of power have thus shifted from a state-centric model toward a more diffuse one, involving many more actors. In micro-network areas, these shifts have resulted in the empowerment of some members of the community, while also altering internal power relations.

The second and related point is that in the neoliberal era, which privileges individual freedoms, the citizen is transformed into an active and responsible one who self-regulates and enhances her life by making calculated decisions (Rose, 1999). Rather than governing the population as a whole, the new era aims to produce responsible subjects who make choices that are both best for themselves and that comply with societal norms. For instance, the state generally takes a less direct role in ensuring the health and hygiene of individuals but, instead, trusts that people will want to seek healthy lifestyles on their own accord (Rose, 1999). Critically, however, the neoliberal era sees a separation of individuals who are capable of self-regulation from those who are not—what Fraser (2003, p. 169) calls "segmented governmentality: responsibilized self-regulation from some, brute repression for others." Miller and Rose (2008, p. 102), too, find that "governing the margins" entails "the intensification of direct, disciplinary, often coercive and carceral, political interventions in relation to particular zones and persons." Likewise, we see the segmentation of Manila's population into those that need to be micro-managed and those that are capable of being responsible consumers. Though the freedom that a regular consumer experiences may not be as extensive compared with other targets of government (for instance, the freedom to make choices about one's health), regular consumers have a variety of payment options and are less likely to be cut off for arrears. In contrast,

[9] I discuss the concept of neoliberalism in greater detail in the following chapter.

micro-network operators must monitor their consumers more closely, for any defaults in payment have the potential to affect the water supply to the entire community.

Third, government is increasingly being evaluated through calculative means—what Dean (2010, p. 197) calls "technologies of performance"—such as indicators, audits, and benchmarking. Numbers have made complex, modern forms of governing possible through the delineation of boundaries, the characterization of populations, and the comparability of subjects (Rose, 1999). But numbers also lead to the depoliticization of government, what Li (2007) calls the "rendering technical" of messy realities. There is, of course, a longer lineage of calculative measures that predates the neoliberal era (Mitchell, 2002). But with an increasing emphasis on cost recovery and fiscal prudency over recent decades, the use of technologies of performance has arguably intensified. Given that, it is perhaps unsurprising that water utilities are most easily evaluated using common metrics such as coverage, NRW, and average tariffs (The Southeast Asian Water Utilities Network and Asian Development Bank, 2007).[10] By these indicators, Manila Water appears to be performing extremely well, with Maynilad not too far behind. But what these metrics fail to reveal are the ways in which consumers are actually governed—how they access water, and on what terms. In the remaining chapters, I explore the use of micro-networks as technologies of government, and the ways in which their existence disrupts the success that these indicators purport.

In part, this project joins a small collection of studies that apply Foucauldian frameworks to questions of water politics (Kooy and Bakker, 2008; Ekers and Loftus, 2008; Ranganathan, 2010). An analytical framework of governmentality helps to clarify how the project to improve water access in low-income communities is carried out, and how relations between the state and other actors are articulated. More generally, such an analysis is useful for disentangling development "interventions" that are often imposed from above. However, reliance on theories of governmentality alone privileges a top-down perspective focused on the techniques of subject formation. Such an analysis fails to take into account citizen perspectives, historical patterns of development, and other forms of governance that are not necessarily directed at the control of human behavior.

Thus, in subsequent chapters, I draw upon theories that situate this project within broader patterns of development. For instance, an analysis of the political economy of water places the Manila privatization project within a longer history of local and global efforts to address inadequacies in water provision. Likewise, understanding the state's selective acceptance and rejection of informal practices helps explain governmental rationalities in ways that a strict focus on subject formation cannot. None of these theories are inherently incompatible with a Foucauldian framework. However, incorporating a more diverse set of theories allows us to situate the Manila project in a longer and broader context of urban development and basic needs provision.

In doing so, I attempt to place Manila back on the map, so to speak. Despite being the site of the largest water privatization project, relatively little has been written about Manila's water system, particularly from a critical perspective (see previous section), or the city itself (see Shatkin, 2004; Berner, 2000; Garrido, 2013). In part, this is due to Manila's bygone status as a colonial and modernist Asian capital (Shatkin, 2005) and the tendencies of academic research to focus on more

[10] NRW is the percentage of water that enters the distribution system but is lost to theft, leakages, and meter errors. Utilities are unable to recover consumer payments for lost water.

"global" or hyper-developing cities (Robinson, 2002). But that historical prominence and the current overshadowing of Manila by other Asian cities, such as Singapore and Shanghai, means that Manila, itself, is trying to restore its regional importance. The ways in which the private governance of low-income spaces is implicated in Manila's water privatization project—and in the larger endeavor of city-building—thus has greater significance that extends beyond water provision. Therefore, while this research focuses on the particularities of micro-networks, it reflects more broadly on Manila's position relative to its Asian neighbors.

1.3 Methods and limitations

This project is based largely on ethnographic fieldwork that I conducted from August 2010 to May 2011, with two preliminary research trips to Manila in the summers of 2008 and 2009. I can go no further without first explaining that I grew up in Manila, and that my parents still live there. I have visited the Philippines occasionally—often once or twice a year—for the past two decades. My perspective—with one foot in the country and the other out—undoubtedly shaped my observations, findings, and interactions with informants. My insider/outsider status offered me both familiarity and discomfort, allowing me to ground myself in past experiences and knowledge while discovering whole swaths of the city as if for the first time.

From 2010 to 2011, I spent much of my time in three micro-network communities that I selected, which I describe in greater detail below. Based in these three communities, I grew to know the micro-network operators in each of them, observing their practices and operations. Indeed, it was at the local micro-network offices, usually over meals (as per Filipino customs of hospitality), where I learned about many of the rewards and difficulties associated with managing small water networks. But while it was important for me to hear the stories associated with micro-network management, I also felt that it was necessary to speak with consumers. My relationship with the operators gave me entry into the houses of community members. I was thus able to conduct household surveys with the help of two research assistants, the results of which are summarized in Chapter 6, where I reflect on citizen perceptions of water provision. In addition, I visited other micro-network areas in order to gain a sense of the generalizability of my observations. I conducted semi-structured interviews with representatives from the concessionaires, various levels of the government (ranging from MWSS staff to mayors to *barangay*[11] officials), NGOs, and community members, and also engaged in media and archival research of developments related to Manila's water networks. Those interviews and background research form the basis for my analyses, contained largely in Chapters 4 and 5, of the reasons behind the concessionaires' continued use of micro-networks. Appendix B also includes more detailed information on my research methods, and lists the questions that I asked informants through household surveys and interviews.

During my initial research trip in 2008, I was fortunate to connect with two NGOs that are involved in this arena—the Institute for Popular Democracy (IPD) and Streams of Knowledge. These NGOs have been working with community-based partners to establish or maintain micro-networks, and it

[11] A *barangay* is the smallest administrative division and lowest level of government in the Philippines.

is through them that I was able to identify the communities I focused on. However, because I did not know of any other NGOs working directly with micro-network communities, and because it was challenging to reach these communities without the help of NGOs, I was substantially limited to IPD's and Streams' networks of associates. This meant that I only had a handful of communities to choose as focal points, even though there are undoubtedly many more micro-networks operating in the Metro Manila area. Indeed, the government's lack of a centralized list of micro-networks and other informal water providers remains a barrier not only to my work but also to that of the state; it is difficult to regulate or study that which you do not know exists. And while I tried to contact other NGOs that work with urban poor communities (such as *Gawad Kalinga* [GK])[12] and Urban Poor Associates [UPA]), I was able to visit only a handful of additional communities that faced similar issues. Future research could address these limitations by looking beyond micro-network provision and engaging in a broader analysis of water access in urban poor communities. Such an effort could yield more evidence in support of the theses presented here—that the concessionaires claims are inflated. But it will be a difficult endeavor, particularly because of the lack of centralized data and the fragmentation of the NGO sector.

In theory, the concessionaires have a very detailed knowledge of access, especially considering Manila Water's organized field management. However, I found that the concessionaires—and, particularly, Manila Water—were less than forthcoming with this information. Representatives from Manila Water's headquarters were hesitant to divulge information related to micro-networks; I suspect this is because of earlier contestations in some areas, where community members and local politicians complained about differing terms of access. Rather, Manila Water's corporate social responsibility staff maintains a well-groomed image of the company, one that has put them in the national and global spotlight. Despite this, I was able to glean some data from field managers who, while unable to give me more general information on aggregate numbers or company policies, were very knowledgeable about their specific areas. Compared with Manila Water, Maynilad's staff proved to be more accommodating, though perhaps also less organized. By triangulating between different informants, I was able to piece together a picture of the concessionaires' operations, even though more direct access would have been preferable.

I refer to my three communities of focus as Santa Ana, Salcedo, and Pagasa (all pseudonyms). I chose these sites because of the access that IPD and Streams afforded me, but also because they are sufficiently different from one another. Santa Ana is located in Caloocan City, on the northern outskirts of Metro Manila. It is a relocation area for households that had settled informally in more centralized and contested parts of the city, with lots provided by the National Housing Authority (NHA) for an amortized fee (a payment scheme that is not heavily enforced). Because NHA provided lots on the outskirts of the city, space is at less of a premium, and houses are larger and more durable than those associated with more slum-like conditions. In 2010 and 2011, when I was conducting the bulk of my fieldwork, the Mayor's office was in the process of paving some streets, though others remained rocky (and thus a source of minor citizen frustration, as I describe in Chapter 6). In 1997, IPD helped to organize a water cooperative in Santa Ana that built and constructed its own micro-network. But because tariffs are higher than those of Maynilad's

[12] *Gawad Kalinga* is a large Filipino NGO working on poverty issues. I describe the organization more in subsequent chapters.

customers, and because it is unclear why Maynilad will not serve this area directly, some residents feel that the cooperative is blocking Maynilad's entry.

In contrast, the reasons for Manila Water's non-entry into Salcedo may be more evident—Salcedo, located on the border of Makati City and Manila, is what we may more generally envision as a stereotypical urban slum. Though small in size, consisting only of a few hundred households, Salcedo is marked by narrow alleyways, with one- or two-room houses built largely of metal sheeting and plywood (though one house stood out as being three stories, concrete, and nicely tiled inside!). Marilou, an entrepreneur whom I describe in Chapter 3, runs the water business in Salcedo, though Manila Water supplies direct connections to a select few that can afford to pay the hefty connection fees (not surprisingly, the owners of the three-story house fit into this category). Everyday, Marilou's employees haul garden hoses from house to house, selling water at inflated prices, in part because of the staffing requirements for such a system. Marilou also provides water through a piped network, but most residents purchase water from the hosed system because there is no upfront fee, and it allows for the flexibility to make decisions on a daily basis, depending on one's water needs and disposable income.

Meanwhile, Pagasa lies beyond the eastern edge of Metro Manila in Rizal Province. Though Pagasa has a centralized commercial area (known as the *Municipio*, where the municipal government sits), a "highway" (a two-lane road that traverses the length of the town), and paved roads, some areas are more rural. A water cooperative—the oldest one in the Philippines—has served the more residential areas of Pagasa since 1969, sourcing from the groundwater that lies beneath it. The cooperative now operates three pumps and tanks, delivering water for 13 hours per day, based on what they claim are members' preferences (I attended the cooperative's annual meeting in 2011 and it was a sleepy affair; members largely approved the Board's proposals with little discussion or debate). About five years ago, Manila Water began serving the *Municipio* (which had previously been supplied by a municipal utility), and also some houses along the highway. The cooperative now faces increasing competition from Manila Water, as it has steadily expanded further into Pagasa and surrounding towns. This encroachment is a politicized issue for the cooperative, the government representatives that they petition, and Manila Water (which is expanding more cautiously than it might otherwise choose to). But the concerns of many residents have more to do with the terms of service, rather than a preference for either provider.

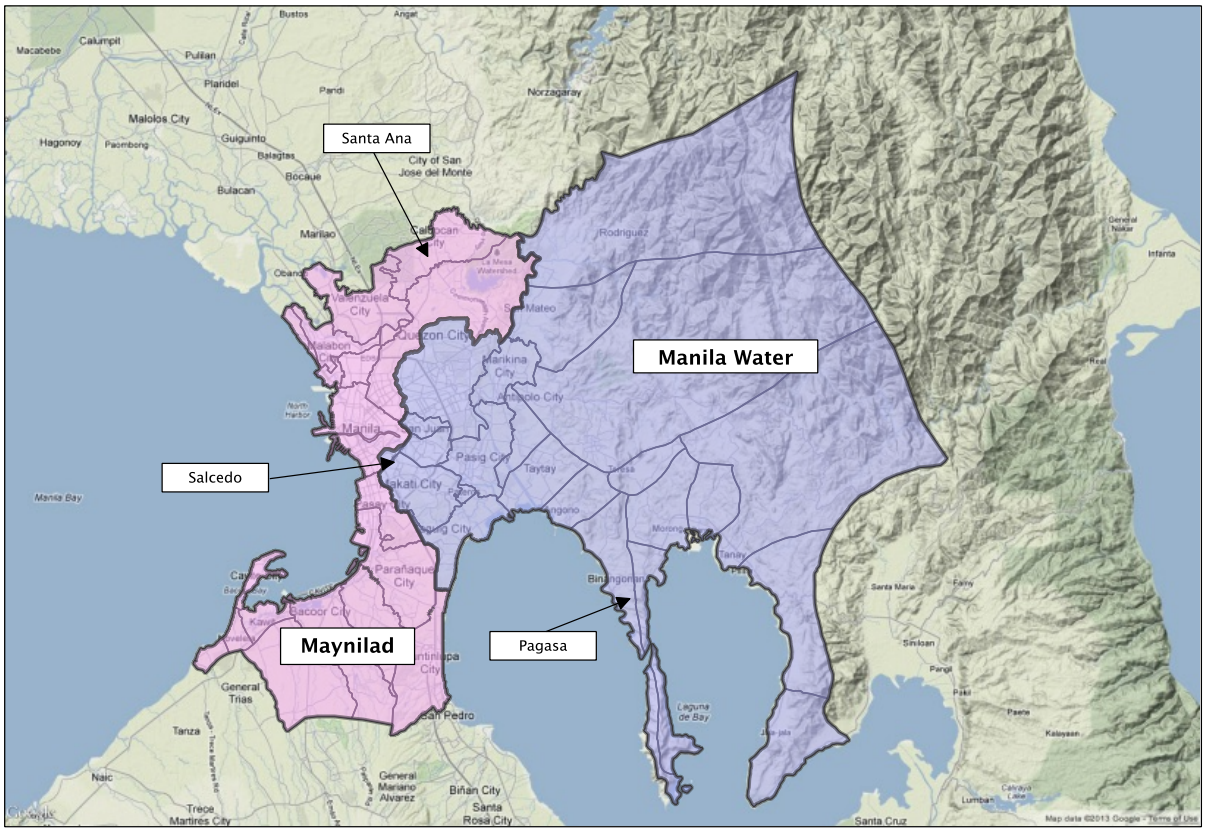

Figure 1.2. Location of my three project sites within the concessionaires' service areas. Metro Manila consists of 16 cities and one municipality, and is bordered to the east by Rizal Province. Quezon City is the most populated area, while Makati City houses the commercial core. Map by author using QGIS.

In all three of these communities, I spent time with the micro-network operators. This was particularly true in Santa Ana, where I developed a close relationship with some of the women that formed and managed the cooperative there. Much of my time was spent in their open-air office, separated from the street by thin steel bars, offering a view of the events happening inside and outside of their space. Filipino culture privileges eating, and my research assistants and I spent many lunches chatting with these women about their daily concerns. I gained tremendous insight from these micro-network operators but I also wanted to hear citizen perceptions of water access. With the help of my assistants, who were more conversant in Tagalog, we surveyed about 100 households in each of the three areas. Through that process, we were able to ascertain a more balanced sense of community sentiments and priorities.

One challenge for me, as I returned "home" to Manila to conduct my research, was to re-learn that my status rendered me an outsider twice over—first, as a foreign researcher, and then as a child of Makati, as a student at the international school there, and as someone who travelled to the US to study and live. As a researcher engaged in ethnographic work, one's (self) constructed identity influences the way in which relationships form. For me, because I do not necessarily look or sound Filipino, most of my informants treated me as somewhat of a foreigner (case in point: one day, when I was walking down the street in Santa Ana with my assistants and some of the cooperative managers, a young boy whom I did not know pointed at me and said, "Koreana!" I can only guess

that he thought I was Korean because of the popularity of Korean soap operas on Filipino television stations). When I did tell them more about myself—my local origin, as I saw it—those facts also served to reinforce my otherness. While I cannot know whether, or to what extent, my identity influenced the information that I collected, my outsider status—as both a foreigner and as an expatriate with local roots—must be assumed to have had some impact on my interactions. I can only hope that the measures that I took to speak the language and to work closely with local research assistants helped to address this.

1.4 Outline of chapters

The remainder of the dissertation is structured in the following manner.

I begin in **Chapter 2** by situating Manila's current use of micro-networks within a longer history of national and global approaches toward urban water provision. Rooted in a colonial past, Manila's water system has consistently been challenged by poorer sections of the growing metropolis; in particular, the post-Second World War population boom proved to be a major obstacle from which the utility never fully recovered. In the 1990s, the global trend toward water privatization seemed like a palatable option for the poorly-functioning system. Indeed, the last decade and a half of private involvement in Manila's water sector has delivered promising results, despite major financial setbacks shortly after privatization. But class differentials entrenched during the colonial period have led to the domination of an oligarchical business class—the class that is now instrumental in water provision and other privatized modes of metropolitan development. The neoliberal state's support of private, profit-oriented enterprises is cause for concern. As I discuss in subsequent chapters, the results of privatization must be more carefully scrutinized, specifically where low-income communities are concerned.

Chapter 3 begins this inquiry by more closely examining a particular setup used to serve low-income areas: community-built and -managed micro-networks. I examine the evolution of micro-networks in the post-privatization era as a means of interpreting how and why the two concessionaires have used this specific type of access in low-income areas. Through a typology of known micro-networks, I find that they are generally employed under two conditions—where there are issues of land tenure, and where there are disciplinary concerns related to nonpayment. The concessionaires' use of micro-networks relies on partnerships with community representatives and NGOs, and is therefore not a wholly top-down effort. However, despite the existence of some grassroots support, I suggest that the concessionaires have largely been able to determine geographies of access and the terms of (in)formality. For this reason, micro-networks in partnership with the concessionaires (such as the ones in Santa Ana and Salcedo) are sanctioned—considered by the concessionaires as already served—whereas those operating outside of the concessionaires' zones (such as the long-standing cooperative in Pagasa) are slated to be replaced. The persistence of post-privatization micro-networks reveals three problems: (1) prices tend to be significantly higher compared with households that are directly served by the concessionaires; (2) the setup results in increased surveillance and disciplining of customers; and (3) the concessionaires largely decide the terms of access.

Chapters 4 and **5** explore the two conditions under which the concessionaires use micro-networks. In **Chapter 4**, I analyze spaces of informality, where land tenure is particularly contested. By examining historical policies regarding the state's treatment of informal settlers, I demonstrate how the proliferation of such communities is deeply tied to employment opportunities in the urban core, and how government attempts to resettle these communities have largely failed. Though residential requirements have been relaxed in the post-privatization era, reducing the barriers to urban water access, the concessionaires still refuse to provide direct connections in areas where resettlement appears imminent. Thus, the seemingly precarious nature of informal settlements leads to the use of temporary water solutions, despite the reality that these settlements are more durable. I examine two case studies to show how micro-networks are used in spaces that have long histories of urban contestation. The connections between land and water, and the prevalence of informal settlements in Manila, support my claim that the concessionaires are overstating their accomplishments, minimizing the persistence of differentiated access and remaining inequalities.

Chapter 5 probes the use of micro-networks as a means of disciplining the poor. I argue that the concessionaires use micro-networks to improve legibility, facilitating their management of low-income communities. By delegating some of the sociopolitical difficulties of water management to cooperatives or entrepreneurs, the concessionaires are able to claim greater coverage, profits, and progress, even though access on the ground may only be marginally improved. Micro-networks—which place pressure on communities to police individual connections and to regularize payments—can be seen as technologies of government, intended to help transform low-income citizens into responsible consumers. In other urban poor areas, the use of clustered metering and exposed piping situate meters along central roadways, instead of directly outside individual houses. Since customers are always responsible for maintenance beyond the meter, this scheme again increases individual household responsibility. By referencing other Filipino programs where discipline is key, I locate my observations of micro-networks and clustered metering within a broader history and landscape of urban upgrading and subject formation.

In **Chapter 6**, I examine water provision—specifically in micro-network communities—from the citizen's perspective. Though individuals that are heavily invested in the formation and operations of micro-networks tend to feel empowered by this setup, my observations reflect a lack of any widespread sense of ownership among most residents. Drawing upon survey data from three communities, I demonstrate how the variation in sentiment is due to three structural factors: the pluralism of community, the blurring of providers, and the relative importance of other social issues (including, for instance, the lack of livelihood opportunities). The latter two help explain the somewhat muted response from many community members toward water provision, contributing to the former. These sentiments reinforce the dominance of the concessionaires in setting the terms of access, for they are able to draw upon community partners when needed, but also replace micro-networks with individual connections when they are ready to do so.

I conclude in **Chapter 7** with thoughts on the progress that Manila's concessionaires have made, as well as the limits of privatization. I offer policy suggestions that strive toward more equitable access, asking whether we can transform incentives such that less significance is placed on profit-making and the creation of "model" utilities, and more emphasis is given to a transparent understanding of the un- and underserved. Finally, I reflect on the increasing faith placed in public-private partnerships in the Philippines and elsewhere, and suggest that there may be lessons learned from Manila's water privatization project.

Chapter 2. Water and Power: The Evolution of Manila's Water System

In the middle of the MWSS compound stands a fountain. It is ornately sculpted with cherubs and goddesses, an Italianate monument in an otherwise modernist concrete landscape. The fountain celebrates the Carriedo Waterworks, the 19th century precursor of Manila's present-day piped water system.[13] Within this compound, the offices of MWSS, its two private concessionaires, and its regulatory arm sit in close proximity to one another, snugly occupying the small cluster of 1950s-era buildings. This is where the past and present of Manila's water system meet—where the public and private are juxtaposed in ways both iconic and functional. It is a place of occasional protest, scandal, and progress—a symbol of the hope, disparity, and contradiction that is so emblematic of Manila.

Figure 2.1. Water mascots. The mascots of Manila Water (left) and Maynilad (center) stand at the entrance of the companies' offices, representing the softer side of corporate water provision. To the right, Manila's mascot is a crowd favorite at Manila's commemoration of World Water Day. Photos by author.

Like many other large urban areas of the global South, Manila is, in the words of writer Arlene J. Chai (1997, p. 30), "a city of extremes." It has long been a dual city, its origins rooted in the Spanish walled city of Intramuros, beyond which the natives (whom the Spaniards referred to as *brutus salvajes*, or brute savages) lived (Devilles, 2000). Today, the metropolitan region consists of 16 cities and one municipality, densely teeming with some 12 million people. But its inequality is complex, no longer stratified as a dualistic core and periphery model. Wealth and poverty sit side-by-side, often separated by little more than "the width of a cinder-block wall, a tinted car window" (Syjuco, 2013). And though poverty is visibly extant—even more so during massive flooding events caused by episodic super typhoons—there are hopes of economic resurgence, fueled largely by the Filipino diaspora of migrant workers and their remittances (Ko, 2012).

This schizophrenic mix of wealth and poverty is due, in part, to the weakness of the central government and the erratic nature of urban planning. Indeed, Manila has had an especially long and

[13] The original Carriedo Fountain was built in 1882 and now sits in Plaza Santa Cruz, after having been moved several times.

intense relationship with private sector developers, dating back to its status as an American colony in the early 20th century (Michel, 2010). A political and economic oligarchy composed of a handful of powerful families has, for the most part, dominated the independent Republic and has long been involved in Manila's spatial development (McCoy, 2009). For instance, the Ayala Corporation built the master-planned, modernist enclaves of Makati in the 1950s, predating the global proliferation of gated communities by decades (Garrido, 2013). Shatkin (2008) refers to the "privatization of planning" in Manila, while Hutchcroft (1998) describes the Philippines' banking sector as "booty capitalism." Though the Philippines went through a period of nationalism under the Marcos-led era of cronyism, the overthrow of Marcos' regime was met with a resurgence of private sector participation. That the private sector has reemerged as a significant force therefore comes as no surprise; but what is remarkable is the scale and intensity of private sector participation, particularly in areas such as basic needs provision, which the state had previously overseen. Such trends follow increasingly neoliberal patterns of economic development elsewhere.

Thus, Manila's recent experiment with water privatization fits within a broader landscape of national and global development regimes. Seen as part of this longer history, Manila's water privatization project is the product of three main factors. First, it is the legacy of two centuries of colonial and post-colonial rule. The pioneering development of a water system, intended to serve the core, was unable to keep pace with a rising population. Second, Manila's privatization project is a reflection of the global response to the perceived inefficiencies associated with public water provision, which resulted in a shift toward increased private sector participation. And third, it is representative of the Philippines' homegrown neoliberal turn in the years following Marcos' state-centric regime. I discuss these factors in the following three sections. In Section 2.4, I review the decade and a half that has elapsed since the privatization of MWSS, summarizing the major events, accomplishments, and setbacks that the two concessionaires have experienced. I conclude in Section 2.5 with thoughts on the ways in which a closer examination of access in low-income areas—in communities where micro-networks operate, for instance—may give us a better understanding of some of the limitations of Manila's water privatization project.

Such an analysis follows recent historical studies of the political economy and ecology of water in other cities. Swyngedouw (2004), for instance, demonstrates how flows of power, money, and water coalesce to form an uneven sociological terrain in Guayaquil, Ecuador—a concept that Budds and Hinojoso-Valencia (2012) succinctly capture through their use of the term "waterscape." Similarly, Kooy and Bakker (2008) reveal the ways in which present-day water systems in Jakarta reproduce colonial-era fragmentation and differentiation. These studies trace the circulation of water though a hydrosocial cycle, following the ways in which water is temporally and spatially mediated through a complex network of pipes, meters, laws, administrators, and consumers (Bakker, 2003a). They also complicate Graham and Marvin's (2001) notion of splintering urbanism—which examines the contemporary fragmentation of centralized infrastructure, largely in the global North—by demonstrating a much longer history of separation in cities of the global South. As Gandy (2004, p. 373) writes, "water is at the same time a brutal delineator of social power which has at various times worked to either foster greater urban cohesion or generate new forms of social conflict." Through an examination of the evolution of Manila's water system, we gain a better understanding of moments of inclusion and fragmentation, drawing some continuity between historical patterns and the current landscape of access.

2.1 Manila's water system, 1882 to 1996

Manila's water system is said to be the oldest urban network in Asia, and two individuals are credited with its birth—General Francisco Carriedo y Peredo and Father Felix Huerta. Both have been referred to at various times as "Manila's (greatest) benefactor" (United States War Department General Staff, 1904; Philippines Free Press, 1932). Carriedo, a former general in the Spanish Army, amassed a considerable fortune as a merchant in Manila. Upon his death in 1743, he left 10,000 Philippine Pesos (PHP) to establish a water system for the city of Manila (more specifically, this system was intended to serve the walled core of Intramuros, where the Spanish settlers ruled and lived).[14] For the next century and a half, the money remained under the control of several trustees—mismanaged at first, but then increasing through investments to nearly PHP 180,000. However, the existence of these funds had been forgotten by most, including the state. It was not until 1874 that the Franciscan friar Huerta proposed pursuing the missing funds (no small feat, as this involved tracking down legal documents, corporations, and creditors), and convinced the government to fulfill Carriedo's wishes.

Construction began on January 31, 1875, and was completed on July 24, 1882. The inauguration of the new Carriedo waterworks system was celebrated with "great rejoicing in Manila" (United States War Department General Staff, 1904, p. 19), and similar festivities in 1932 commemorated 50 years of potable water in Manila (Philippines Free Press, 1932). The initial system consisted of some 42 miles of piping, sourced from Santolan—a point along the Marikina River nearly 7 miles northeast of Manila—allowing for a daily consumption of 30 gallons per person and a total capacity of 400,000 gallons per day (United States War Department General Staff, 1904; Metropolitan Water Works and Sewerage System, 1978).

After the occupation by the United States (US) in 1898,[15] the government expanded the system to allow for increased daily capacity and coverage, and moved the source along the Marikina River to an area above Montalban, where the watershed could be better protected (Metropolitan Water Works and Sewerage System, 1978). Many of the concerns that inhere around today's systems are, to some extent, echoes of concerns widely held and voiced then. A report by the US Philippine Commission (1905) cites the need to maintain deteriorating pumps, pipes, and reservoirs, and expresses concern for the procurement of laborers given the challenge of low wages. The report also reveals indications of a growing urban and peri-urban poverty problem, producing concerns about sanitation and water quality that continue to persist even for present-day water authorities. In making the case for moving the source to Montalban, Acting City Engineer Robert G. Dieck expressed disdain for the locals living along waterways: "A more dangerous condition can hardly be conceived. Directly above Santolan and between that point and Montalbon [*sic*] are about 25,000 people whose only drain is the river" (United States Philippine Commission, 1905, p. 150).

[14] Areas outside of the walled city were considered outlying villages (United States War Department General Staff, 1904).

[15] Spain ceded the Philippines to the US for USD 20 million in the 1898 Treaty of Paris, despite Filipino attempts to declare independence from Spain. The Philippine-American War took place from 1899 to 1902 and resulted in American control.

For the Americans, modernization of the water system could not be conducted in isolation; improving the health and welfare of the colonial city entailed a broader campaign of assimilation. Anderson (1995) describes how the Filipino body was viewed as dirty, immoral, and dangerous, calling the American obsession with transforming hygiene practices a form of "excremental colonialism." Indeed, the American attitude at the time fits into a much broader emergence of what Gandy (2004) terms "the bacteriological city," in which new notions of cleanliness were tied to judgment of moral character. Similar patterns of colonial rule have been noted in Bombay (McFarlane, 2008a) and Rio de Janiero (Meade, 1986). In all cases, improvements in basic infrastructure, hygiene, and sanitation were seen as civilizing projects, aimed at producing clean, moral, and self-governing citizens (Joyce, 2003).

The Engineer in Charge of Manila's Sewerage System, O.L. Ingalls, expressed this concern as follows:

> A very large per cent of the native population in Manila reside in houses built of light material, one story in height, and constructed by the occupants upon ground rented from landowners who possess large and generally unsubdivided tracts of land. The lives of these houses, at best, are but about five years, and their valuation generally not more than a few pesos each. In the thickly populated districts among the poorer classes these houses in the past have been extremely close together, and often had only sufficient room for narrow passageways between. All culinary and washing arrangements and toilet accommodations, if any exist, are extremely simple. All water for household use is carried in buckets from the nearest street hydrant (Manila at present having a very good yet totally inadequate water supply of about 8,000,000 gallons per day) and all wastes are dumped upon the ground . . . The introduction of plumbing into houses of this kind is the problem that confronts this city, in order that the proposed sewerage system may benefit not only the well-to-do, but also that part of the population (estimated at perhaps 50 per cent) who are very poor and who reside in the class of houses just described. It is believed that these obstacles can be overcome, however, by resorting to the use of one building, which shall be constructed and cared for by the landowner in each colony or square for the purpose of affording toilet, bath, and lavatory accommodations to the lessees of his property. By this arrangement one water and sewer connection can be made to serve a large number of people and greatly lessen the cost for plumbing work than would otherwise be possible. The introduction of public toilet and washing accommodations, inexpensive and simple in design, in the vicinity of the more densely populated portions of the city, would undoubtedly be of great use, *especially during the first few years of the transformation, for the purpose of educating the people and causing them to adopt more sanitary methods of living* (United States Philippine Commission, 1905, pp. 169-170, emphasis added).

In comparing the dominant sanitation discourses in colonial and contemporary Bombay, McFarlane (McFarlane, 2008a) describes the historical connections between the two periods, highlighting the ways in which infrastructure has been used to reinforce notions of self-governmentality. The same may be said for Manila's water system. As I describe in the following chapter, the concessionaires use specific infrastructure configurations to delegate increased responsibility to the consumer or community organization, with the aim of turning them into more responsible consumers. These

contemporary practices can be seen as a continuation of the civilizing projects initiated during the colonial era. But, crucially, the last few decades have witnessed a shift away from centralized management of the bacteriological city toward a more diffuse and market-oriented infrastructure system (Gandy, 2004). Thus, in Manila, the moral element of this transformation has been supplemented by additional concerns about cost recovery and profitability.

In 1919, while still under US control, the Philippine Legislature created the Metropolitan Water District (MWD), a corporation governed by directors (Act No. 2832) (Posados v. City of Manila, 1927). An MWD report (1925) stresses the public nature of the agency's duties: "The Metropolitan Water District is not a private company operating for the pecuniary profit of shareholders. All profits derived from the operation of the Metropolitan Water District are returned to the residents in the form of improved service, extension of water and sewer mains, betterments, etc." MWD oversaw the development of a new source, the Angat River, through a massive project that took 15 years and cost PHP 15 million. When it was completed in 1939, the system was able to supply 80 million gallons of water per day.

But two related events would frustrate the narrative of modernization and progress. First, the Second World War wrought havoc on the city. Funds to maintain the network were inadequate, and only minor repairs could be made after the War. Second, Manila's population boomed in the post-War years, partly a result of flourishing industrial establishments in the capital and rural unrest in the provinces. Metro Manila's population increased from 913,000 in 1939 to 1.6 million in 1948 to 2.5 million in 1960 (Metropolitan Water Works and Sewerage System, 1978). Furthermore, the utility had expanded to include 14 adjoining cities and municipalities. By then, the system was unable to meet the needs of the urban population.

The Philippines gained independence in 1946. In 1955, the National Waterworks and Sewerage Authority (NWSA) took over the functions of MWD (Republic Act No. 1383).[16] Its mission was to centralize the control of all waterworks and sewerage systems in the country, but a lack of financing resulted largely in stagnation. In 1962, NWSA obtained a 20.2 million US Dollar (USD) loan from the World Bank/International Bank for Reconstruction and Development (IBRD), largely funding the construction of the Angat Multi-Purpose Project (a hydroelectric dam, with a reservoir that continues to serve as Manila's primary source of water today) (National Waterworks and Sewerage Authority, 1970). Due to worsening water shortages in Metro Manila, NWSA was also forced to adopt limited relief measures, including reactivating the retired Montalban system and drilling artesian wells. But while the system's delivery capacity increased to more than 300 million gallons per day by 1972, the supply was still inadequate for Manila's growing population.

[16] In Chapter 6, I describe how some residents still refer to their current water source as NWSA, in a reference to this system.

The creation of MWSS in 1971 dissolved NWSA and was part of a broader wave of Marcos-regime reforms (Republic Act No. 6324; amended by Presidential Decree No. 425 in 1974).[17] The Act (1971) begins with a declaration of policy that places water provision firmly in the hands of the state:

> The proper operation and maintenance of waterworks system to insure an uninterrupted and adequate supply and distribution of potable water for domestic and other purposes and the proper operation and maintenance of sewerage systems are essential public services because they are vital to public health and safety. It is therefore declared a policy of the state that the establishment, operation and maintenance of such systems must be supervised and controlled by the state.

The service area grew to comprise five cities and 22 municipalities, covering a total land area of 1470 square kilometers, and a population of 5.4 million growing at an annual rate of 4.3 percent (National Waterworks and Sewerage Authority, 1970). Among the most ambitious of MWSS' projects was the USD 390 million-Manila Water Supply Project (partially financed through a USD 100.3 million from ADB and a USD 85 million loan from the World Bank/IBRD), intended to expand and rehabilitate the system such that it met anticipated water demand in 1982. Indeed, over the next two decades, ADB continued to support large-scale projects aimed at bolstering Manila's water and sewerage systems, including the following:

[17] Marcos was known for "surround[ing] himself with competent officials who would help him execute his program" (Sicat, 2011, p. 11). Indeed, he appointed a Board of Directors for MWSS, whose first act was a new organizational structure that weeded out "incompetents, deadwoods and undesirables" (Metropolitan Water Works and Sewerage System, 1978).

Project	Amount [USD]	Approval Year	ADB Rating
Manila Water Supply	51.30	1974	Generally successful
Second Manila Water Supply	49.00	1978	Generally successful
Manila Water Supply Rehabilitation Project	39.30	1983	Unsuccessful
Second Manila Water Supply Rehabilitation Project	26.40	1989	Unsuccessful
Angat Water Supply Optimization Project	130.00	1989	Partially successful
Manila South Water Distribution Project	31.40	1991	Unsuccessful
Umiray-Angat Transbasin Project	92.00	1995	Successful

Table 2.1. Select ADB projects related to the improvement of Manila's water system (Asian Development Bank, 2008b). ADB did not play a large role in Manila's water privatization project because of the involvement of the International Finance Corporation.[18]

However, as ADB's internal performance assessments reveal, most of the projects had limited success. The two Manila Water Supply Rehabilitation Projects, for instance, aimed to reduce MWSS' NRW from about 53 percent to 30 percent (Asian Development Bank, 1997). But by the end of the USD 142.5 million-project, NRW was close to 60 percent, higher than its initial level. MWSS had rehabilitated less than half of the intended target zones, and most of the repairs that were made were not maintained after project completion.

By the mid-1990s, the MWSS was in a state of disarray, serving water to only two-thirds of Metro Manila's population, with each household receiving water for an average of 16 hours per day (Dumol, 2000). Nearly 30 percent of households relied solely on vended water, while another 10 percent supplemented their MWSS water with water from wells and vendors (David and Inocencio, 1996).[19] The public placed much of the blame on MWSS, considering it to be one of the most ineffective government agencies in the country (Argo and Laquian, 2004). Thus, after half a century of deteriorating conditions, two factors set the stage for Manila's water privatization in 1997. A severe, El-Niño-induced drought worsened conditions in Manila, prompting then-President Fidel V.

[18] ADB's (2003b) water policy promotes PSP and it has funded such projects in other cities, such as in Chengdu (Corral, 2003b).

[19] David and Inocencio (1996) found that nearly 80 percent of households relying on vended water were buying MWSS water indirectly from other consumers with legal or illegal connections.

Ramos to introduce the Water Crisis Act. And, perhaps more significantly, the Philippines was undergoing a neoliberal shift, emblematic of a broader trend in global governance.

2.2 Toward global (water) privatization

In the last three decades, the debate on private sector participation (PSP) in the water sector has been polarizing—much more so than the marketization of other utilities, such as electricity and telecommunications. Water has been more difficult to commodify because of its physical characteristics (it is difficult to transport and contain water), as well as its essential nature and lack of substitutes (Bakker, 2003a). While the global discourse on PSP perhaps reached its peak in 2000, when the infamous "water wars" took place in Cochabamba, a longer history of shifting regimes of urban water management can be traced back to the 19th century.

Urbanization in North American and European cities in the 19th century prompted the rapid growth of water networks. While municipal governments managed water systems in some areas, many of the networks in larger cities—including Boston, New York, London, and Paris—were built and maintained by small, private companies (Bakker, 2010). These companies largely served wealthier neighborhoods and were profit-generating endeavors. As Engels (1943, pp. 36,51) writes in *The Conditions of the Working Class in England in 1844*, "Water can be had only from the public pumps, and the difficulty of obtaining it naturally fosters all possible filth . . . How can people wash when they have only the dirty Irk [stream] water at hand, while pumps and water pipes can be found in decent parts of the city alone?" Indeed, at the time, only 10 percent of the population in England had access to piped water (Bakker, 2010). However, as cities grew denser, concern over the spread of fires and waterborne diseases led to a push for universal coverage, leading to the advent of Gandy's (2004) bacteriological city. Such systems required a significant amount of investment, and most customers could not afford to pay the full cost of these services, resulting in a decline in private sector interest. Thus, municipal governments gradually assumed the ownership and management of urban water systems in the global North, providing water at highly subsidized rates. By the turn of the century, a new standard of water supply and sewerage had emerged—one that was centralized, universal, and comprehensive—and cities in the global South began to replicate this pattern of expansion.

Following the post-First World War recession, many states shifted toward a Fordist-Keynesian model of economic development, infusing more public dollars into the water sector. Investment in large infrastructure projects was seen as a means of generating economic growth and redistributing wealth (Swyngedouw, 2005a). In the US and elsewhere, the so-called "big dam era" began, while in the United Kingdom (UK), water provision was largely nationalized. This period of municipalization continued into the years following the Second World War, in what Hart (2001) refers to as the "big D" Development project of intervention. Development institutions promulgated the "municipal hydraulic paradigm" in cities of the global South, based largely on a logic that sufficient water supplies would facilitate unfettered economic growth and modernization (Bakker, 2010).[20]

[20] Mason and Asher (1973, p. 152) write that by the late 1960s, "[t]he [World] Bank became the leading proponent of the view that investment in transportation and communication facilities, port developments, power projects, and other public utilities was a precondition for the development of the rest of the economy."

Furthermore, in the 1960s, the Development discourse shifted from one solely focused on economic growth to a broader agenda that addressed poverty, inequity, and unemployment—so much so that the 1970s came to be known as the basic needs decade (Jolly *et al.*, 2004). Two key events signaled a new, global level of engagement with water-related issues: the United Nations' 1977 Conference on Water—held in Mar del Plata, Argentina—and its ensuing declaration of the 1980s as the International Drinking Water Supply and Sanitation Decade. But though international support and rhetoric grew, this translated into relatively little action on the ground (Jolly *et al.*, 2004).

In large part, the global recession and debt crisis that affected countries in Latin America, Africa, and Asia during the late 1970s and early 1980s hampered progress toward increased water access. A concomitant shift in World Bank ideology and leadership—from an emphasis on poverty alleviation to one driven by macroeconomic stabilization—changed the Development discourse. The new set of policies recommended by the World Bank and International Monetary Fund (IMF) included structural adjustment programs that required financial liberalization, deregulation, reductions in taxes and welfare spending, and the privatization of state-owned utilities and enterprises—known colloquially as the Washington Consensus. They also came as a result of internal reviews of World Bank policies that identified a low-level equilibrium plaguing public water utilities, in which a vicious cycle of low prices, bad service and corruption, and the politicization of service provision led to operational inefficiencies (Spiller and Savedoff, 1999). Private companies, the thinking went, would operate more efficiently, reducing water prices while expanding coverage and eliminating subsidies that had largely been benefitting the middle and upper classes. The Bank's 1994 World Development Report (1994, p. 7) confirmed this position, concluding that "a consensus [was] emerging on a larger role for the private sector in infrastructure provision."

These policies coincided with a broader ideological shift toward a process that has come to be known as neoliberalism, characterized by the liberation of individual freedoms within a market-based institutional framework (Harvey, 2005a). Critically, neoliberalism does not entail the retreat of state power, but rather the reformulation of state-economy relations such that the state actively supports market-based policies (Brenner and Theodore, 2005). As Brenner and Theodore (2002) have argued, the implementation and outcomes of specific neoliberal projects have depended on the historical, political economic, and sociospatial conditions in which they are embedded, producing not one uniform ideology, but what the authors call "actually existing neoliberalism." In general, however, the neoliberalization of water has entailed varying degrees of privatization (the change in management or ownership from the public to private sector) and commercialization (the introduction of commercial practices that focus on factors such as efficiency, cost-benefit analysis, or profit maximization) (Bakker, 2003b).

The 1990s thus saw a resurgence in PSP in the water sector, spearheaded by IFIs such as the World Bank and IMF, as well as private water companies that had largely exhausted domestic investment opportunities.[21] The Bank propagated its neoliberal ideology perhaps most directly through the imposition of loan conditionalities tied to PSP or dramatically improved cost recovery, but also through what Goldman (2007) calls transnational policy networks—multinational corporations, NGOs, and policy experts that helped disperse this new consensus on water. In terms of Bank loans

[21] The largest water companies are based in France (Veolia Water/Vivendi, Suez Environment/Ondeo, SAUR), England (Thames Water, United Utilities), and the US (Bechtel, American Water).

dedicated solely to water supply projects, those with PSP conditionalities tripled between the first and second half of the 1990s; out of 276 loans awarded between 1990 and 2002, 21 loans contained privatization conditionalities in the first half of that period, compared with 61 in the second half (The Center for Public Integrity, 2003). By the end of 2000, at least 93 countries had engaged in some form of PSP (Davis, 2005).[22]

However, large-scale PSP peaked in 1997 with the Manila concessions, due in part to financial risks that threatened profitability, including currency devaluations and anti-privatization protests. For instance, Argentina's 2002 macroeconomic crisis resulted in massive exchange rate losses for Aguas Argentina, which operated the water concession in Buenos Aires. In 2006, the Argentine government rescinded Aguas Argentina's contract, citing the company's inability to meet its stated coverage targets. A similar outcome occurred in Manila, as I describe in Section 2.4. The failure of PSP to improve water and sanitation services, particularly in low-income areas, led to widespread protests that further complicated multinational involvement. The most well-known symbol of the anti-privatization movement—the Cochabamba "water wars"—took place in 2000 and brought tens of thousands of people to the streets, eventually resulting in early termination of the concession contract there.

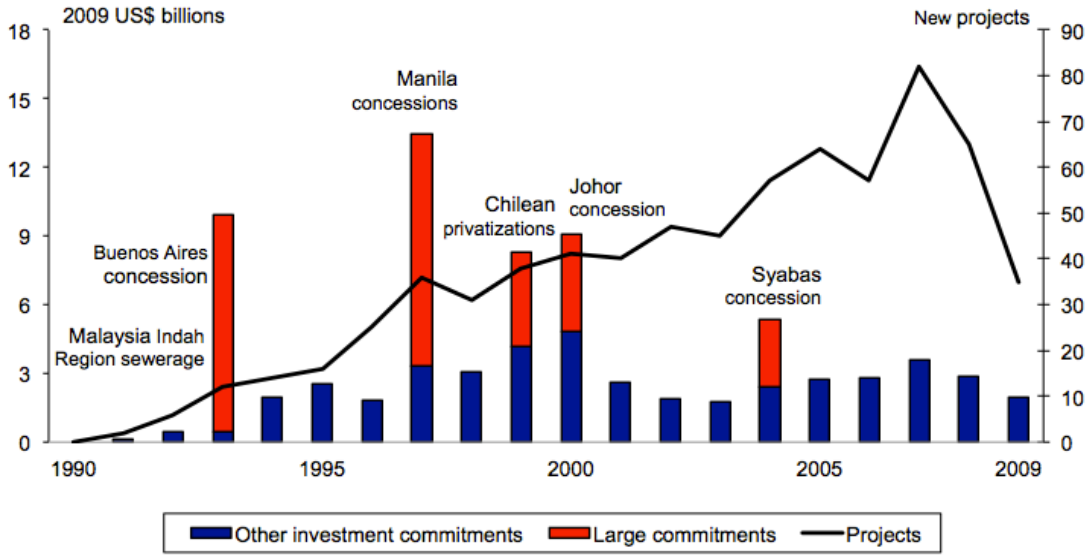

Figure 2.2. World Bank investment commitments to water projects with PSP (figure from World Bank and PPIAF, 2009). Manila's two concessions represent the largest total commitment at USD 7.9 billion (USD 5 billion for Maynilad and USD 2.9 billion for Manila Water). Other major investments include the Aguas Argentinas concession in Buenos Aires (USD 4 billion) and the Johor Water Supply concession in Malaysia (USD 3.4 billion).

[22] There are several types of PSP arrangements, including service or management contracts, leases, concessions, build-operate-transfer schemes, and divestitures (Davis, 2005). Large-scale PSP projects have typically been concessions, as in the Manila case. A concession involves the public ownership of assets but private responsibility for capital investment and commercial risk. The duration of a concession contract is typically 20 to 30 years in order to allow the company to recoup its investments, and the state usually acts as the regulator of the contract.

Despite the growth of a global anti-privatization movement and nearly two decades of experimentation, there has been no consensus on the public-versus-private debate. On the one hand, private providers have largely evaded extending services to low-income settlements, particularly those that lack legal claim to their land (Budds and McGranahan, 2003). On the other hand, in cities like Cochabamba, where privatization contracts have been prematurely terminated, a return to public and community provision has brought mixed results. What is clear is that multinational firms appear increasingly wary of the significant political and financial risks associated with large concession projects, favoring "lighter" forms of PSP such as service and management contracts. However, PSP is not in full retreat. For one, local private firms (like Manila Water and Maynilad, which are largely locally owned) have entered the water sector in some middle-income countries. In addition, the number of PSP projects continues to rise, particularly in China. And the IFIs are still largely in favor of PSP, though both the Bank and IMF appear to have softened their tone since the heyday of structural adjustment.

2.3 The privatization of the Philippines

Though the global trend toward increased neoliberalism and PSP in the water sector certainly influenced the Philippines' trajectory, a longer history must be considered. Indeed, as I describe at the beginning of this chapter, the private sector has maintained a strong presence in the Philippines, rooted in the American legacy of *laissez-faire* economics. The Marcos administration sought to limit private sector involvement, increasing the number of government-owned or -controlled corporations (GOCCs) from 37 in 1965 to 120 in 1975. Though this rise in government involvement was ostensibly to boost economic development, it is widely suspected that such a move heightened cronyism and consolidated political and economic power (Manasan, 1995). The creation of MWSS in 1971 can thus be seen as part of a broader wave of GOCC formation, despite its roots in past iterations of national and metropolitan-wide water agencies. But, toward the end of Marcos' regime, the inefficiencies of crony capitalism became more apparent. In the early 1980s, the Philippines was faced with a growing balance-of-payments crisis—culminating in the government's default of its USD 28 billion foreign debt in 1983, 80 percent of which was tied to GOCC operations (Corral, 2003a). In response, the World Bank and IMF pushed for greater economic efficiency through a process of liberalization, deregulation, and privatization.

Marcos' 22-year reign came to an end in 1986 as a wave of democratization swept through the country. The government began to privatize GOCCs in an attempt to reduce Marcos-era cronyism, as well as to repay foreign debts. President Corazon Aquino (who served from 1986 to 1992) launched a privatization program in 1986 and initiated the sale of some GOCCs, including enterprises that had been taken back from Marcos cronies and that were no longer profitable (Bello *et al.*, 2005). But the bulk of privatization occurred under Aquino's successor, President Fidel V. Ramos (1992 to 1998), who sold profitable assets (known as the "crown jewels" of the state sector), such as Petron (the national oil company), Manila Hotel, Philippine Airlines, and Fort Bonifacio (a military base). In response to the 1993 electricity crisis that caused 10-hour rolling blackouts throughout Metro Manila, Ramos initiated the privatization of the National Power Corporation, the

largest company in the country.[23] The ability of independent power producers to provide additional capacity and restore electricity in the capital region supported the pro-privatization movement.[24]

These factors—as well as global trends toward neoliberalism—paved the way for privatization of the water sector. The government began to meet with representatives from French and English water companies, who dominated the private water sector, and learned about privatization projects in Buenos Aires, Macao, and Paris (Dumol, 2000). In 1995, Ramos enacted the Water Crisis Act, giving him the legal basis to privatize MWSS. The Act also allowed MWSS to retrench personnel, and criminalized the theft of water.[25] Later that year, the MWSS board hired the International Finance Corporation (IFC) as its consultants on the project, agreeing upon a concession model (inspired by Buenos Aires) and the division of the metropolitan area into two concession areas (à la Paris). As preparations for bidding began to unfold, the government and IFC had to take several considerations into account. First, Philippine law specified that domestic companies must own and control at least 60 percent of public utilities, and that the officers had to be Filipinos. Because there were no Filipino firms with expertise in the water sector, partnerships between international and Filipino companies were essential. Second, the MWSS Privatization Committee knew that a reduction in labor force would be warranted in order to improve efficiency. Relying on the Water Crisis Act, the Committee negotiated early retirement packages with MWSS employees.[26] Third, the Committee felt that water tariffs should decrease after privatization, as had been done in Buenos Aires. But because tariffs had been kept artificially low for decades, MWSS actually raised tariffs by 38 percent in 1996, five months prior to the bid submission. Fourth, the metropolitan area was split in half, with population roughly equal. Because the East Zone required a higher per capita investment, the Committee decided to split MWSS' debt such that the West Zone (the older part of the metropolitan area, where there was more existing infrastructure) inherited 90 percent of it. Finally, the Committee created a semiautonomous Regulatory Office (known as the RO, or MWSS-RO) that would oversee the concessionaires' operations.[27]

Based on the experiences of other cities, the Committee knew that there would be few companies qualified to bid on and execute MWSS' privatization project. In December 1996, four prequalified teams were announced, each composed of large international and national partners.

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[23] The deal was finalized in 2001 under President Gloria Macapagal-Arroyo's watch.

[24] Though independent power producers did increase capacity, critics have argued that the government, taxpayers, and consumers have been subject to higher prices (Corral, 2003a).

[25] MWSS had 8000 employees at the time, which was equivalent to 13 employees per 1000 connections (a metric that those concerned with efficiency, such as the IFIs, taken into consideration). This ratio was about two to five times that of similar utilities in the region. The Civil Service Commission guaranteed job security, and executive positions were held by political appointees (Dumol, 2000).

[26] MWSS implemented three phases of labor reduction, during which there were some protests and strikes (Corral, 2003a; Cruz, 2001). I also met some members of the Manila Water Employees Union, who described ongoing labor concerns.

[27] IFC wanted to create an independent Regulatory Office, but that would have required legislation and much more time (Dumol, 2000).

International Partner	Local Partner
International Water (United Utilities [(UK)] and Bechtel Corporation [US])	Ayala Corporation
Lyonnaise des Eaux (France)	Benpres Holdings
Compagnie Generale des Eaux (France)	Aboitiz Equity Ventures
Anglian Water International (UK)	Metro Pacific Corporation

Table 2.2. Prequalified bidders for MWSS privatization.

A month later, the winners were announced. Manila Water, the joint venture between International Water and Ayala Corporation, had submitted the lowest bids for both the East and West sides—PHP 2.32 per cubic meter for the East side and PHP 2.51 for the West side—a fraction of the existing MWSS tariff of PHP 8.78.[28] Because no consortium could win both concessions, the West zone was awarded to the next lowest bidder—Maynilad, the Lyonnaise des Eaux/Benpres Holdings venture, which bid PHP 4.97 per cubic meter.

In succeeding years, as tariffs surpassed MWSS' 1997 rates, critics pointed to the companies' dive bidding—the offer of unsustainably low bids in order to secure these massive contracts (Esguerra, 2003). Even at the time, the media and public raised concerns that the bids were too good to be true. In addition, there was some apprehension that the oligarchical Ayala and Lopez families—who owned the Ayala Corporation and Benpres, respectively, as well as several other large holding companies—could abuse their power. But for the most part, there has been little public opposition to the MWSS privatization, perhaps because of MWSS' poor track record. One newspaper editorial summarized some of the frustration that the public had felt about MWSS:

> Beginning next March, water rates in the metropolitan area will be drastically reduced. That is just the most visible public benefit derived from the privatization of the notoriously inefficient Metropolitan Waterworks and Sewerage System. As a public enterprise, the MWSS is a dinosaur that has miraculously survived the ice age. Bound by our archaic civil service rules, it retained more people than it needed. As a government institution, it was prone to corruption—a carcass that was prey to racketeering contractors. The service that MWSS delivered was, to put it lightly, bad. It was inefficient and never had enough money to fix the leaks and to install new water technologies that would improve delivery and collection inefficiencies. . . . The public will not only enjoy lower water tariffs. The public purse will also be spared the wasteful task of subsidizing an inefficient enterprise. On top of those, about $7 billion will be infused into our economy in the form of investments in new water technologies to improve distribution and collection efficiencies, deliver water to more residents and upgrade the sewerage system. . . . Such is the joy of the

[28] According to Dumol (2000, p. 97), Ayala "desperately wanted to win [the East Zone] because of their numerous real estate projects in that area." As I mention in the introduction to this chapter, the Ayala Corporation built most of Makati's high-end subdivisions in the 1950s and continues to be among the country's largest companies.

> privatization program. It not only unburdens government of fiscal dinosaurs, the program also induces investments, improves service and restores justice to the way we do things. (in Dumol, 2000, pp. 106-107)

Though widespread opposition to water privatization has not been apparent, a handful of leftist NGOs have voiced criticism, particularly in the aftermath of Maynilad's fiscal crisis (which I describe in the subsequent section). Groups like Freedom from Debt Coalition and Focus on the Global South have been ideologically opposed to water privatization from the onset, and have since pointed to the concessionaires' unfulfilled coverage goals and price increases as evidence that privatization has failed (Freedom from Debt Coalition, 2007).[29] IPD makes a related claim, suggesting that privatization has neglected the involvement of local communities (Esguerra, 2003). As I discuss in Chapter 3, IPD engages in citizen projects that try to rectify this disjuncture. In recent years, Representative Bernadette Herrera-Dy has called for a full audit of the MWSS and its concessionaires in light of what she finds to be excessive tariff increases (Rosario, 2011). And in 2011, I attended a protest organized by a Marxist group, Socialista, which consisted of about a hundred people marching to the MWSS compound. For the most part, however, these critiques have been episodic and disjointed. Unlike in cities such as Cochabamba, where privatization made the collection of free water illegal and resulted in massive rioting, the terms of access have generally improved in Manila's post-privatization era. In Chapter 6, I take a closer look at the ways in which access to water is perceived in micro-network communities.

Figure 2.3. A rare anti-privatization protest. To the left, police guard the MWSS compound while protestors hold a rally. To the right, a sign displays the protestors' message: "Water is life, the prices are killing us!" Photos by author.

[29] The leftist sociologist Walden Bello founded and continues to run both NGOs.

2.4 Manila's water privatization project

In the decade and a half since the privatization of MWSS, the two concessionaires have taken divergent paths. Manila Water has, for the most part, been billed by the IFIs as a success story—a model utility for others to follow (International Finance Corporation, 2010). Maynilad, however, underwent serious financial difficulties and corporate restructuring. Though Maynilad's operations are now relatively stable, its earlier setbacks have had implications for access to water, particularly in low-income communities.

Two unforeseen events occurred shortly after the concession agreement was signed, disproportionately affecting Maynilad, which had inherited 90 percent of MWSS' debt. First, a severe, El Niño-related drought reduced Manila's primary water supply, contained in the Angat Reservoir, by 30 percent.[30] Second, the Asian financial crisis depreciated the peso against the dollar by more than 100 percent, nearly doubling MWSS' debt burden. During the first two years of operation, the concession fees that Maynilad paid to MWSS exceeded the company's revenues, preventing it from investing in capital and operational expenditures (Chiplunkar *et al.*, 2008). Although Maynilad successfully petitioned MWSS for an extraordinary price adjustment in 2000, allowing it to raise tariffs and recover foreign exchange losses, the company soon became unable to make its concession fee payments. Following further unsuccessful negotiations, Maynilad returned the concession to MWSS in December 2002, declaring formal bankruptcy a year later (though not before seeking reimbursement for USD 303 million in investments, which an international arbitration panel ruled against) (Wu and Malaluan, 2008). By then, Maynilad owed MWSS over PHP 6.8 billion in unpaid concession fees. In 2005, control of Maynilad was granted to MWSS in a debt-for-equity exchange, in which the original investors relinquished their shares in exchange for absolution from unpaid debts and concession fees. It was not until 2007 that new investors—a consortium of local firms DMCI Holdings, Inc., and Metro Pacific Investments Corporation (MPIC)—assumed ownership of Maynilad after a new round of bidding.[31]

Until the entry of DMCI-MPIC, Maynilad had been unable to generate profits and also failed to meet both its coverage and NRW targets. Manila Water, on the other hand, was profitable by 1999 and held an initial public offering of its stock in 2005.[32] Though the Asian financial crisis and Maynilad's disproportionate assumption of MWSS' debt burden were instrumental factors in the company's premature demise, management differences may have also played a role. Manila Water reportedly recalibrated MWSS' corporate culture shortly after taking over, decentralizing decision making and instituting performance reviews, while also training employees and garnering their trust (Wu and Malaluan, 2008). In contrast, Maynilad initially appeared hesitant to damage labor relations, offering former MWSS employees more generous packages. But salaries eventually leveled off, and Maynilad's employees began to lose morale, as the company was increasingly relying on managers

[30] The Angat Reservoir supplies 98 percent of Metro Manila's water.

[31] Like the Ayala Corporation, DMCI and MPIC are holding companies with extensive real estate assets. The Japanese firm Marubeni Corporation acquired a 20 percent-stake of Maynilad in 2013.

[32] In 2011, stocks were divided as follows: 43.3 percent for Ayala Corporation; 7.0 percent for Mitsubishi Corporation; 5.2 percent for IFC; and 44.5 percent for public shareholders (Marcial, 2011). IFC invested in 2005, and United Utilities sold its stake in Manila Water to Ayala Corporation in 2009.

from Suez and Benpres (Mendoza, 2010). Maynilad was also allegedly profligate with its use of Suez and Benpres sister companies, supporting internal interests rather than sourcing the cheapest options. For instance, Maynilad purchased its computers from IBM France, an affiliate of Suez, spending about 80 percent more per employee on computers compared to Manila Water (Diokno-Pascual, 2004). Whereas Maynilad awarded management and service contracts to its subsidiaries, Manila Water outsourced to many companies outside of its network. Indeed, even through my recent observations of the two concessionaires, there is an apparent difference in corporate culture—Manila Water appears to run a tighter ship, and its employees seem (from what I can observe) proud to work for the company.

The two concessionaires' methods of extending services in low-income communities also had marked differences. On the east side, Manila Water initiated its flagship pro-poor program, *Tubig Para sa Barangay* (Water for the Poor, henceforth referred to as TPSB)—a program that has reportedly served some 1.7 million people since its inception in 1998 (Manila Bulletin, 2012). Three schemes were established under the TPSB program: (1) bulk water provision, wherein Manila Water supplied water to the community edge, beyond which a cooperative or entrepreneur constructed and managed a micro-network;[33] (2) small group taps, where two to five households shared one meter; and (3) individual household meters, often clustered along major roads rather than immediately outside one's home (Inocencio and David, 2001; Manila Water Company Inc., 2008).[34] Through a combination of these schemes, as well as a shift toward decentralized management practices and territory management,[35] Manila Water was able to expand its network rapidly. In particular, the use of bulk and clustered meters allowed Manila Water to transfer some of the localized monitoring responsibilities to communities and individuals, as I describe in Chapter 5. Under the bulk metering scheme, for instance, Manila Water used one meter to serve an entire community, ensuring that monthly payments were received in full—a method of cost recovery that was particularly useful in communities that might otherwise have presented challenges in regular payment collection or investment justification. Critically, Manila Water considers these communities served, aggregating them into the coverage data that the utility reports.

[33] Manila Water also constructed some public standpipes, though these were largely intended to be temporary. Various documents also refer to slight variations of these setups—for instance, Manila Water later built the internal infrastructure within some bulk water communities, as I describe in the following chapter.

[34] To my knowledge, and based on communication with other researchers, Manila Water has never released numbers indicating the breakdown of these schemes, including how they have evolved over time. As I describe in Chapter 3, the RO and some communities have pressured Manila Water to convert bulk connections into individual ones. The relative stigmatization of bulk metering may be one reason why Manila Water is unwilling to share this data.

[35] Through territory management, Manila Water initially divided its jurisdiction into seven business areas, which were further subdivided into 43 demand monitoring zones, each with about 10,000 water connections (Wu and Malaluan, 2008). The zones were further subdivided into district metering areas with 500 to 1000 connections, each managed by a territory team that was responsible for new and existing connections, as well as NRW reduction. More recent figures show that Manila Water now has eight business areas, 36 supply zones, 258 demand monitoring zones, and 1600 district metering areas (Luczon and Ramos, 2012).

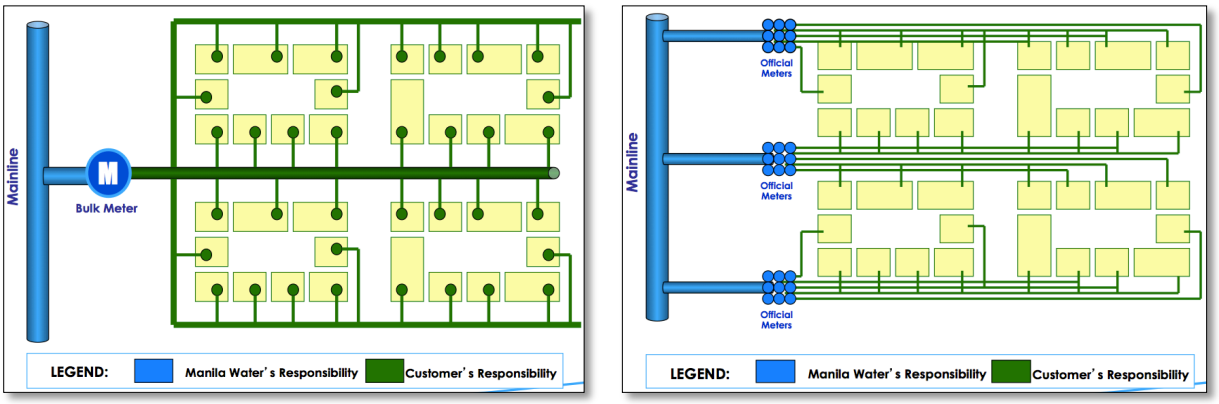

Figure 2.4. Manila Water's TPSB schemes. To the left, the bulk water provision scheme, in which customers are responsible for constructing and maintaining all infrastructure beyond the bulk meter (what I refer to as a micro-network). To the right, Manila Water places individual household meters on a main street, leaving customers responsible for piping and monitoring after the meter (figures from Manila Water Company Inc., 2008).

Meanwhile, on the west side, Maynilad developed a pro-poor program known as *Bayan Tubig* (loosely translated as Water for the Nation, and henceforth referred to as BT). A variety of schemes have been implemented under this program, including the use of community labor to reduce connection fees (Matouš, 2004). Public standpipes were also installed in some areas, though Maynilad quickly encountered problems in non-payment and mismanagement (Inocencio and David, 2001). For the most part, Maynilad chose to install individual meters—either directly outside low-income homes (as is common for non-poor customers) or at a nearby cluster—particularly during the earlier incarnations of BT. According to Maynilad (2008b), residents of urban poor areas preferred individual connections to public faucets or communal systems because it made water cheaper and easier to access, and avoided social tension. But relative to the TPSB program, Maynilad's decision to install individual meters in this manner was less financially viable, as this scheme left much of the burden for monitoring theft and leakages to the company (UTCE Ltd., 2003). The extent to which such practices contributed to Maynilad's financial difficulties is unclear. What is evident is that by 2009, after the DMCI-MPIC venture had taken over, Maynilad shifted its approach in low-income areas toward one that resembled Manila Water's bulk supply scheme. Under the *Samahang Tubig Maynilad* (Water Association of Maynilad, or STM) program, Maynilad now partners with cooperatives and entrepreneurs to serve urban poor communities, replicating the expansion patterns that Manila Water had successfully implemented several years earlier.

If a utility's progress is measured by its coverage rates and NRW (the metrics that many IFIs use to evaluate utilities), then Manila Water and the newly-revitalized Maynilad have done well. Manila Water reports that 99 percent of its jurisdiction is covered, with NRW as low as 11 percent. Maynilad, despite its initial difficulties, has regained its footing and now reports 91 percent coverage and 48 percent NRW.[36] Both concessionaires are financially profitable and are well-rated by consumers, as gauged by the RO's Public Assessment of Water Services (PAWS) survey.

[36] Following Manila Water's success in NRW reduction, Maynilad divided the West Zone into 35 hydraulic areas and 1245 district metered areas. It also hired the foreign consulting firm Miya, which specializes in NRW reduction.

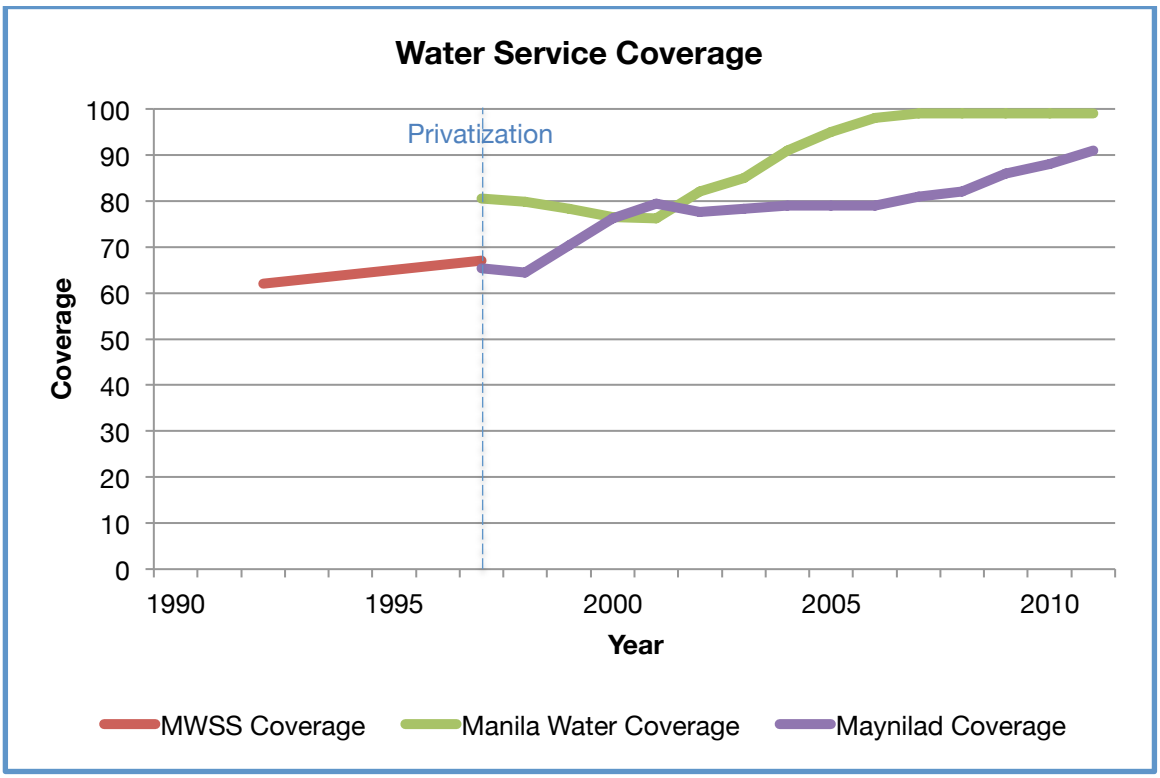

Figure 2.5. Coverage statistics, as reported by MWSS, Manila Water, and Maynilad. The concession agreement specified the following targets: 87.4 percent in 2001, 97.1 percent in 2006, 97.4 percent in 2011, 97.7 percent in 2016, and 98.4 percent in 2021 for Maynilad; 77.1 percent in 2001, 94.1 percent in 2006, and 94.6 percent in 2021 for Manila Water (Metropolitan Waterworks and Sewerage System, 1997).[37] I compiled this data using several sources (Belleza, 1994; Metropolitan Waterworks and Sewerage System Regulatory Office, 2004; Cuaresma, 2004; Marcial, 2011; Maynilad Water Services, 2011b; Maynilad Water Services, 2008a; Dimaano, 2012).

[37] The concession agreement excludes users who are connected to an alternative piped source of water from coverage targets. In practice, it is unclear whether the concessionaires include non-MWSS networks in their coverage statistics, although they do count micro-networks that are connected to their networks.

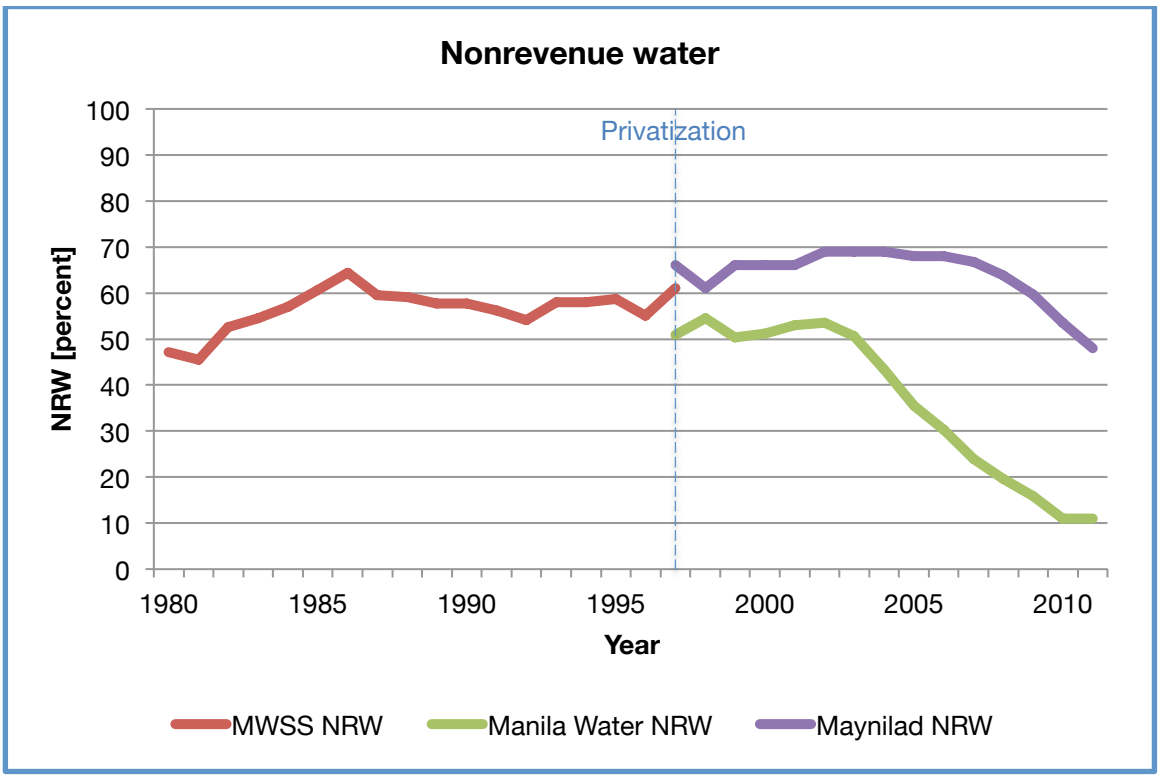

Figure 2.6. NRW statistics, as reported by MWSS, Manila Water, and Maynilad. I compiled this data using several sources (Asian Development Bank, 2008b; Rivera Jr., 2006; Manila Water Company, 2008; Manila Water Company, 2010; Manila Water Company, 2011; White and Flor, 2009; Maynilad Water Services, 2009; Maynilad Water Services, 2011a).

But, as I discuss in subsequent chapters, these aggregate statistics provide overly rosy characterizations of access on the ground. This is because the concessionaires—in addition to determining geographies of access—are largely responsible for the production of knowledge. They are the ones that report data on coverage, NRW, and other metrics to the RO, which does not have the capacity to verify this information. The only independent data that the RO gathers is through the PAWS survey, which is administered by the National Engineering Center at the University of the Philippines. But, critically, PAWS only visits *barangays* that the concessionaires operate in, surveying five random houses within each of those *barangays* that currently purchase water from the concessionaires. PAWS does not survey houses that are disconnected or have never been connected to the central system, providing—in my opinion—a perspective that is positively biased in favor of the concessionaires. While Manila Water and Maynilad have made significant improvements in coverage and efficiency since MWSS' pre-privatization days, the statistics that they self-report fail to convey the ways in which some citizens are considered served when, in actuality, they may not have direct connections to the centralized network. As one ADB report notes, a more objective way to measure coverage may be to divide the total population by the number of domestic utility connections (McIntosh, 2003). In making the case for individualized connections, the same report suggests that "shared connections, neighborhood resale of water, vended supply of water, standpipes, and intermittent supply are not good enough" (McIntosh, 2003, p. 27)

However, during my visits to the RO, staff members would repeatedly emphasize the small size of their office, which consists of some 70 employees, compared to those of Manila Water and Maynilad. As one manager remarked, "Each scenario is different. It's impossible for the RO to micromanage the concessionaires." For instance, the department that handles customer satisfaction estimates that it only receives 1 percent of the complaints lodged by consumers. That is, the concessionaires attempt to address most complaints before elevating it to the RO, often outsourcing initial troubleshooting to local call centers. But the system, as it is currently set up, implies that the concerns of certain customers are not heard, particularly by the RO—including those of customers who are not directly connected to the concessionaires, or those who might not have the time or resources to navigate the complaint process (Ranganathan, 2008). For these reasons, the RO managers have heard very few complaints related to micro-networks.[38] Arguably, the limited role that the RO plays further consolidates power and decision making within the concessionaires.

I suggest that the concessionaires are motivated by two goals: profitability, and the desire to maintain a positive public image. The former incentivizes the concessionaires to become more efficient, but operating on the basis of profits alone runs the risk of bypassing low-income communities, in ways similar to that observed in other cities. While I claim that the concessionaires do, in fact, bypass some areas, this is not the image that is offered. Rather, Manila Water, in particular, is keenly focused on becoming a model utility, and its corporate social responsibility team ensures that Manila Water has a strong presence at public events, in schools, and in the media. The company has been rewarded for these efforts with numerous awards, as well as increased profitability and new contracts in other cities. But without the independent evaluation of the concessionaires' progress, it is difficult to separate the advancements that they have actually made from those that they claim to have made.

Figure 2.7. The Manila Water Company's stock price, from 2008 to 2013 (Bloomberg Businessweek, 2013). Stock prices are shown in Philippine pesos.

[38] The RO managers said most complaints are related to disputes over excessive billing, rate classification, meters, leaks, and low pressure.

Furthermore, as some critics of the MWSS privatization project have pointed out, average tariffs have far exceeded the concessionaires' initial bids because of automatic price adjustments that account for inflation and foreign exchange losses. Compared to Manila Water's bid of PHP 2.32 per cubic meter and Maynilad's bid of PHP 4.96, average tariffs are now PHP 27.44 and PHP 32.92, respectively (Padilla, 2013).[39] To critics, the RO's approval of tariff increases is evidence of their bias toward the concessionaires, prioritizing corporate profitability over public welfare. As I mention in Section 2.2, neoliberalism does not entail the roll-back of the state but, rather, the reformulation of the state such that it facilitates market-oriented economic development (Brenner and Theodore, 2005). The RO—acknowledged by the framers of the concession agreement as lacking in independence (Dumol, 2000)—has been seen by IPD, Representative Herrera-Dy, and others as largely conceding to the concessionaires. Maynilad's financial crisis revealed just that. During the prolonged negotiations between the MWSS and Maynilad, it was the chief regulator, Rex Tantiongco, who pushed for an amendment of the original concession agreement in favor of Maynilad, even though the agreement already contained mechanisms to address foreign exchange differentials (Esguerra, 2003). When met with some resistance from within the RO, Tantiongco first tried to have the opposing regulators removed, then worked with Maynilad to lobby cabinet committees, technical working groups, and the media.[40] While there were disagreements from within the state on the proper course of action, the government ultimately settled on a pro-bailout, pro-privatization stance. Thus, in Manila's case, "actually existing neoliberalism" means that the very visible hand of the state facilitates privatization, even in its direst moments, while consumers wait on the sidelines. It is no surprise that in 2009, the concessionaires' initial 25-year contracts were renewed and extended by 15 years, despite Maynilad's financial hurdles and the inability of both concessionaires to meet sanitation targets.

2.5 Conclusion

Forbes Magazine (2013) identifies the following family conglomerates as being among the Philippines' 40 richest: at number 5, David Consunji and family, of DMCI; at 7, Jaime Zobel de Ayala and family, of the Ayala Corporation; and at 31, Oscar Lopez and family, of Benpres.[41] The collective wealth of these 40 families rose by nearly 40 percent in 2010, equivalent to more than 75 percent of the country's increase in its gross domestic product—representing the highest income disparity in Asia (Keenan, 2013). In Manila, private interests—the same interests that are also heavily invested in land development and other infrastructure projects—are largely responsible for shaping geographies of access to water. Here, Shatkin's (2008) notion of "the privatization of planning," in

[39] This data comes from the MWSS-RO but is summarized on Padilla's blog. Average tariffs are calculated based on a monthly consumption of 30 cubic meters and include all additional fees and taxes.

[40] The RO continues to be plagued by scandal. During the 2010 State of the Nation address, current President Benigno S. Aquino III revealed that the MWSS leadership had been rewarding themselves with excessive perks and bonuses, effectively quadrupling the authorized payroll.

[41] One newspaper article suggests that Manuel V. Pangilinan of MPCI has remained off this list through creative methods of hiding his wealth (Lucas, 2012).

which private actors have now supplanted the public sector as the key architects of urban space, is clearly at work. But arguably, the involvement of dominant private interests in the provision of basic needs exacerbates already-existing power imbalances. As Gandy (2004, p. 22) writes, "the history of cities can be read as a history of water." When the owners of water concessions also rule over significant sectors of the economy, the role that water plays in the production and reproduction of power is even more pronounced. The same processes that lead to advancements in coverage may also reconfigure inequalities, with the former overshadowing the latter. With the balance of power tipped heavily toward the concessionaires, it is they—and not the state—that are able to reshape access to water to help serve their interests.

In this chapter, I have situated Manila's water privatization project within historical and global patterns of urban water provision. My aim has been to demonstrate how we have arrived at the present moment, and to understand the ways in which we might evaluate ongoing events. Manila's urban poverty problem seems to have complicated water provision from the onset, escalating during the post-Second World War population boom. Given that history, Manila's experiment has delivered some promising results, particularly when compared with the publicly-managed version of MWSS and with some of the well-known privatization failures in other cities. Nevertheless, the very visible nature of urban poverty in Manila today—along with the consolidation of power within the hands of a few—raises some cause for concern.

In the following chapters, I probe the limits of MWSS' privatization project, focusing on low-income communities that have proven to be the most challenging areas to serve. By examining one particular type of setup—the use of bulk metering and micro-networks in some areas—I uncover some of the unevenness and inequalities in Manila's water privatization project. I begin in Chapter 3 by taking a closer look at the ways in which micro-networks have evolved in the post-privatization era.

Chapter 3. Bridging the Gap: Micro-networks as a Means of Connecting the Poor

We were sitting inside a cool, air-conditioned office, here to see Marilou's latest micro-network project. Marilou, a housewife-turned-water entrepreneur, was running late—not surprising given the array of projects that she maintains, scattered across the country, in addition to the many speaking engagements and leadership roles that come to her as a result. A few minutes later, she came in beaming, offering a quick apology for keeping us waiting before gleefully announcing her latest windfall. A vice president at Maynilad had just spoken with her on the phone and offered her the opportunity to build and operate additional micro-network sites throughout the western concession area.[42] "He told me, 'I want this long list of projects done at the end of the month!' The areas they gave me are all good areas. The thing I should consider is the distance from my existing project—which project is near this place so that monitoring and investment costs for the interior are less." Maynilad's offer, of course, would be a huge boost to her company, which already included eight projects serving some 40,000 households.[43] Marilou showed us around her nascent operations in Biñan, Laguna—an area about one hour south of Metro Manila, where the NHA had relocated several large communities of informal settlers away from the city.[44] As we walked around, I was astonished by the scale of this project, as well as the prospect of things to come. In Biñan, Marilou had competed directly with Laguna Water—a sister company of Manila Water—for this contract, a decision that she claimed had been made by residents. As a result, she was now preparing to serve some 10,000 households in this community alone.

[42] I attempted to contact and interview this Maynilad vice president, but he was unreceptive to my requests. Based on the criticism that Manila Water received regarding their partnerships with micro-network operators, which I describe in this chapter, I suspect that Maynilad does not want to publicize their involvement with Marilou and other small water providers.

[43] The company initially produced water tanks for small towns. Marilou's water service business began when she noticed that some of her husband's employees were unable to access safe drinking water.

[44] According to Marilou, the NHA supplied only one or two standpipes that drew water from very shallow sources, producing water that was of poor quality and that could not even be used for washing clothes. She was drilling two deep wells of her own and seemed mildly insulted when I asked whether NHA had provided those wells for her to use: "I put up my own system, excuse me."

Figure 3.1. Marilou's micro-network project in Biñan. To the left, a cordoned-off area where she is installing a deep well. To the right, the shallow handpumps that the NHA supplied. Photos by author.

Marilou had come a long way since venturing into the water industry shortly after the concession agreement was signed. She had sensed a business opportunity in the government's desire to expand water coverage, and also saw how her husband's construction firm could assist her in this new venture. In 1999, working in coordination with the office of then-First Lady Loi Estrada, Marilou built her first major micro-network system in New Santolan, serving about 4000 families spread out over some 41 blocks. According to Marilou, however, Manila Water found out about her operations and displaced her from the area. Where the company had once avoided serving low-income residents, it was now offering direct, individual connections and socialized tariffs to these households.

> I don't know if it was out of jealousy or misunderstanding. It happened during the World Water Forum in Japan. I was invited by ADB to present the system—why it works in urban poor areas. I had the presentation not knowing that Manila Water also had a presentation. I was focused on the urban poor—why it is that my collection is very effective, why I am able to address NRW. The backdrop is shanties. After me, here comes Manila Water. Their backdrop is commercial buildings, industries. They said they do not prioritize the poor. When you are talking to the international community wherein everyone is focused on the poor, here is a big company that is saying their priority is not to prioritize the poor and here is another small company that is serving 17,000 households within the concession area. Right then and there, the Manila Water representative got out of the room. When we got back to Manila, they took over the operation.

As suggested by these two anecdotes, the relationships between large and small water providers can be complex, but they are rarely discussed in the literature on small-scale water providers.[45] In this

[45] I discuss some of the key texts within the literature on small-scale water providers in the following section.

chapter, I examine the evolving nature of formal and informal provision in Manila's post-privatization era, highlighting the ways in which the concessionaires and micro-network operators have collaborated on some occasions, and competed on others. Through that genealogy, I clarify the role that micro-networks have played in the concessionaires' rapid expansion and the success of Manila's water privatization. These relationships are critical in further understanding the realities of urban water provision because they challenge the assumption that the expansion of a city's formal water utility is accompanied by the elimination of informal water providers, as illustrated in this diagram.

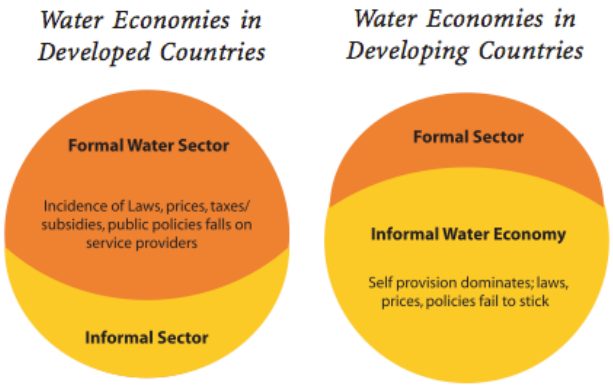

Figure 3.2. Formal and informal water sectors. A report by the International Water Management Institute (2007, p. 2) explains the dichotomy between formal and informal water provision with this simple diagram.[46]

This dichotomy is false. Rather than viewing formal and informal providers as independent entities, operating in their own separate arenas, I suggest that the lines between formal and informal provision can be blurred and that, furthermore, more powerful actors—the state or the concessionaires—use such blurring to facilitate urban water management. The Manila case demonstrates that partnerships between the concessionaires and micro-network operators have actually been critical to the concessionaires' growth. Instead of displacing small providers entirely, the concessionaires have thus reconfigured the nature of informal water provision in Manila's post-privatization era to suit their needs. By focusing on the spatial and temporal evolution of micro-networks in Manila, the waterscape becomes a less even terrain; rather, certain spaces can now be seen as less serviceable than others.

The following section begins with a review of the conceptual debates on informality, linking the literature on informal water providers with those that focus on informality as a mode of urbanization. In Section 3.2, I describe some of the key community-based and entrepreneurial actors involved in the production of micro-networks, including Marilou, whom I mention above. Sections 3.3 and 3.4 examine the historical evolution of micro-network usage by Manila Water and Maynilad, respectively, while Section 3.5 assembles those patterns of expansion into a typology of micro-network use. Section 3.6 returns to the question of informality, focusing on differentiation within

[46] The United Nations Environment Programme (2006) uses a similar diagram, though the spheres are represented as water drops.

the range of informal water providers. Finally, I conclude, in Section 3.7, with some thoughts on the limitations of micro-networks and their perpetuation of inequitable access.

3.1 The informality of water provision

Over the past four decades, the concept of informality has appeared and reappeared in various manifestations within debates concerning the global South, with no clear consensus on a single definition or interpretation. On the one hand, development practitioners and economists tend to view informality as descriptive of an economic sector that lies outside of formal, legal, and regulated space. On the other hand, critical urban theorists suggest that informality is not a separate sector but, rather, "an organizing urban logic" that "operates through the constant negotiability of value and the unmapping of space" (Roy and AlSayyad, 2004, p. 5). As my own framing of informal water provision is in conversation with both sets of literature, I begin by situating myself in relation to these key texts.

The concept of informality was "discovered" in the 1970s, when anthropologist Keith Hart coined the term "informal sector" to refer to workers who engaged in low-income labor practices because they were denied access to formal wage employment (AlSayyad, 2004). Based in part on analyses conducted by the development economist W. Arthur Lewis, the dualistic notion of two separate economies gained salience among international agencies—most prominently, the International Labor Organization. Later, informality debates were broadly divided between structuralists (who found informality to be the product of the unevenness of capitalism, therefore requiring state intervention) and legalists (who argued that cleavages were caused by the state's legal and bureaucratic constraints) (Rakowski, 1994). Within development circles (Swedish International Development Cooperation Agency, 2004) and among economists (Guha-Khasnobis *et al.*, 2006), the persistence of the informal economy remains a topic of interest. Though some characterizations are dismal (United Nations Human Settlements Programme, 2003; Davis, 2006), many recent texts suggest a shift in attitude, moving away from a portrayal of informal workers as disadvantaged, toward an emphasis of their entrepreneurial nature (Maloney, 2004; de Soto, 2003).

The literature on informal water providers, much of which is also produced by IFIs and development agencies, similarly draws a clear line between formal and informal. Whereas formal utilities are typically large and publicly-owned (barring a handful that have been fully divested[47]), informal water providers are often defined by their small size, independence, and private ownership. The range of terms that are used to denote these providers consists of permutations of these very words, each accompanied by their own dizzying abbreviations: small-scale private service providers (Kariuki and Schwartz, 2005; Baker, 2009); small-scale providers (Snell, 1998); small-scale water providers (Troyano, 1999; United Nations Development Programme, 2011); small private water providers (Dardenne, 2006); small-scale private water providers (Conan, 2005); small piped water networks (Asian Development Bank, 2008a); small water enterprises (McGranahan *et al.*, 2006; Opryszko *et al.*, 2009); small-scale independent providers (Plummer, 2002); small-scale independent

[47] Davis (2005) reports that full divestiture has only occurred in the United Kingdom, while partial divestiture has been done in Chile.

private water providers (Conan, 2003); independent water and sanitation providers (Collignon and Vézina, 2000); independent water entrepreneurs (Solo, 2003); independent service providers (Davis, 2005).[48] Sometimes, they are simply referred to as the "other" private sector (Solo, 1999; Davis, 2005).

In these texts, informal water provision is seen as a complement to the formal provision offered by utilities, serving areas and communities that the utilities fail to reach. Solo (1998), for instance, refers to small water providers as entrepreneurs that compete with utilities and that meet the needs of unserved communities. Similarly, Schaub-Jones (2008) calls for the harnessing of the creative and innovative efforts of independent water providers. Kjellén and McGranahan (2006) describe how informal water vendors work in unserviced areas, sometimes operating illegally and without licenses. Moretto (2007) surveys the usage of informality in the literature on urban services and—despite acknowledging the lack of consensus on one definition—finds similar notions of illicitness, exchange through gifts or clandestine connections, and deviations from official rules. Such a framing has much in common with Innes' (2007) definition of informality as "unregulated behaviour," often thought of as illegal or operating outside of formal rules. These perspectives draw a clear line between the formal and informal. Furthermore, because the relatively scant literature on small water providers tends to come from IFIs and practitioners, these texts often focus on the characteristics that define these providers, without closely examining the politics of their existence and operations.[49]

In contrast, the work of Roy and AlSayyad (2004, p. 26) rejects the notion of an informal sector, instead shifting toward a more contemporary epistemology of informality as an "organizing logic which emerges under a paradigm of liberalization." Here, rather than viewing informality as constitutive of the behavior of the marginalized, informality is seen to be a mode of urban governance. Roy (2005) demonstrates that there are two factors that are critical to this latter interpretation—the production of informality by the state, and a differentiation within informality largely based on class. This framing has, for instance, been used to describe the Indian state's simultaneous sanctioning of middle class developments and criminalisation of urban slums, even though both defy official planning documents (Roy, 2009b; Ghertner, 2011). Likewise, Yiftachel and Yakobi (2004) demonstrate how the Israeli state has created mechanisms of informality to facilitate the spatial management of Arab subpopulations. Hossain (2011) uses a similar conception to describe the public water utility in Dhaka, where access is mediated by informal, political negotiations between the utility staff and citizens.

My interpretation of informality borrows from both sets of literature. On the one hand, the community-based organizations (CBOs) and entrepreneurs that operate micro-networks are small-scale and often fail to comply fully with legal requirements, and they do tend to complement the services of the formal utilities. On the other hand, I focus on a particular aspect of water governance that differentiates between various types of informal providers. Those that lie outside the realm of micro-networks—including tanker trucks and deep-well operators—are considered informal, to be replaced by the concessionaires. In contrast, micro-networks working in concert with the

[48] My own desire to call these systems "micro-networks" is an attempt to avoid these unwieldy terms.

[49] The Water and Sanitation Program (Snell, 1998) and the World Bank (Solo, 1998) were among the first to identify small water providers as a point of inquiry.

concessionaires fall, at least temporarily, into a hybrid space. There, the formal and informal are linked, the lines between providers blurred. As I describe in this chapter, the concessionaires and micro-network operators have a symbiotic relationship—one that is tilted heavily in favor of the concessionaires, but that nonetheless results in a collaborative service. By considering the historical evolution of this partnership and the politics behind these relationships, I show how the state and the concessionaires are able to change the nature of informality over time and space, and that they produce modes of informality that are treated differentially, based on particular interests.

3.2 NGOs, IFIs, and the state

Though I suggest that the concessionaires have largely been able to determine the types of access employed in particular locales—a claim that I support with historical evidence in Sections 3.3 and 3.4—it is critical to note that the concessionaires could not have accomplished these efforts on their own, as Marilou's thriving business demonstrates. Rather, micro-networks have arisen out of partnerships between the concessionaires, community representatives, NGOs, and entrepreneurs. Following Mohan and Stokke (2000), recent development policies have romanticized the importance of local participation—a sentiment that is shared, perhaps optimistically, by some on both the left and the right. To that point, two Manila-based NGOs have been key participants in the concessionaires' use of micro-networks as an expansionary tool. IPD, a leftist NGO, works toward strengthening the community management of water.[50] Motivated by community empowerment, IPD has helped form cooperatives that construct and manage micro-network systems. Another NGO, Streams of Knowledge (henceforth referred to as Streams), appears to be driven less by ideology and more by the practicalities of water provision for urban poor communities.[51] Streams' efforts have largely been policy-driven, though it also facilitated Marilou's project in Hope Hills, legitimizing her work with an NGO stamp-of-approval. As components of the project of water provision, IPD and Streams exercise what Roy (2009a) calls "civic governmentality"—the participation of grassroots organizations in the art of government and their negotiation of top-down policies. In engaging with the concessionaires, however, both of these NGOs and the micro-networks that they support are compelled to operate within a generally neoliberal environment—one focused on cost recovery and regular payment. In this sense, the NGOs and their micro-networks are complicit in producing governable subjects and spaces, maintaining the dominant narrative of neoliberalism, even while espousing differing ideologies.

Of the two organizations, IPD is more involved with micro-networks on the ground. Founded in 1986 in the aftermath of the Marcos dictatorship, IPD's research and advocacy focuses on various aspects of political reform. IPD's initial involvement in the water sector was spurred by the 1997 MWSS privatization and the subsequent events leading to Maynilad's financial demise. Along with other leftist groups (Akbayan Citizens' Action Party, Alliance of Progressive Labor, Focus on the

[50] IPD is one of many NGOs located near the liberal-leaning University of the Philippines Diliman and established by alumni.

[51] Streams is an international NGO focused on water, sanitation, and hygiene advocacy and capacity building. Its secretariat has been based in Manila since 2003.

Global South, and Freedom from Debt Coalition), IPD formed *Bantay Tubig* (translated as Water Watch, and meant as a play on Maynilad's *Bayan Tubig* program). Operating as a "citizens' network for adequate, potable, and affordable water," *Bantay Tubig* called for the concessionaires to be held more accountable, particularly with respect to rate increases (Alliance of Progressive Labor, 2002). As of 2008, however, former-IPD Executive Director, Jude Esguerra, described the movement as "dormant" (Esguerra, 2008). By then, IPD had become involved with specific communities where they were strengthening on-the-ground operations. In 2006 it began working in Santa Ana—one of the "waterless areas" identified by the Philippine government[52]—though its initial proposal to construct a rainwater harvesting system was not well-received by residents. At around the same time, several CBOs in Taguig (an area that I describe in more detail below) solicited IPD's help in mediations with Manila Water and the MWSS-RO. Perhaps as a result of *Bantay Tubig's* dormancy, IPD also formed the Associated Water Center Philippines (AWCP) in 2008—an umbrella organization that would help form, link, and finance water cooperatives. IPD continues to work with new and existing cooperatives (such as in Binangonan, a peri-urban municipality in Rizal Province) and formed three micro-networks in Caloocan City (including one in Santa Ana).[53]

IPD's efforts to establish a network of water cooperatives operate in parallel with that of the National Water and Sanitation Association (NAWASA, an acronym that is intended to remind citizens of the MWSS predecessor that went by the same name).[54] NAWASA was formed in 2007 and Marilou elected its president; Streams' Executive Secretary, Rory Villaluna, has also provided organizational support. Since then, NAWASA has convened national and regional conferences that focus on knowledge transfer and capacity building of participating small water providers.[55] But ideological differences prevent AWCP and NAWASA from combining efforts. Micro-networks are generally structured as either member-owned cooperatives (which tend to share their profits with members) or entrepreneurial ventures (which have limited ownership, even if some of their revenue streams may be used to fund community projects). Tariff structures are usually such that entrepreneurial micro-networks charge significantly more than cooperatives per unit of water. IPD, operating based on a desire to reclaim community ownership of water provision, tends to work with new or existing cooperatives, while Marilou's ventures are for-profit, with an average cost recovery of four years per project. Though many of NAWASA's members are cooperatives or government-run waterworks projects, this fundamental divide between IPD and Marilou/Streams hinders collaboration. In general, Marilou and Streams have received more attention in national and international development circles. Both Marilou and Villaluna have participated in international workshops such as the World Water Forum and World Water Week, and the ADB has repeatedly profiled Marilou as a "water champion."

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[52] The National Anti-Poverty Commission's Water and Sanitation Coordinating Office (2005) identified 212 waterless *barangays* in Metro Manila and 432 municipalities outside of Metro Manila that were "waterless." Waterless areas were defined as having less than 50 percent water supply coverage.

[53] See Appendix A for a map of these locations.

[54] In Chapter 6, I describe how some people refer to their water provider as NAWASA, regardless of who it might be.

[55] I attended the 2008 NAWASA national conference in Davao and the 2010 NAWASA regional (Luzon-based) conference in Batangas.

Indeed, ADB has played a critical role in the production and dissemination of knowledge on micro-networks. As I mention in the previous section, much of the literature on small water providers comes from IFIs. In the last decade, ADB—itself based in Manila—has contributed to this literature through surveys of informal water practices in various Asian cities, as well as a pilot project funding micro-networks in Manila, Vietnam, and India. In general, ADB finds micro-networks to be viable, innovative, inexpensive, and empowering solutions for low-income areas, but recommends that they operate on an interim basis only until the water utility is able to provide direct connections (Conan, 2005; Asian Development Bank, 2007b). ADB identifies several barriers to direct utility connection, including insecure land tenure, a household's inability to pay connection fees or regular tariffs, and physical difficulties that prevent the utility from applying its own technical standards (Asian Development Bank, 2008a). In those cases, it recommends that the small piped water networks—similar to the ones constructed through ADB's pilot program—be used.[56] But it cautions that these systems should only be used in the interim: "Government bears the responsibility for providing piped water to its constituents. Government does this by providing authority (franchise) to government-owned utilities or private groups (either community-based or private businesses) to act as the main utility for certain towns or cities" (Asian Development Bank, 2008a, p. 4).

In theory, the government should also be regulating small water providers. But the National Water Resources Board (NWRB), the agency that is responsible for overseeing small providers, is also charged with regulating all of the country's water utilities, except for the Manila concessionaires and those managed by provincial water districts. Given this broad mandate, it is perhaps understandable that the NWRB has little involvement in the operations of individual micro-networks. Though micro-networks are legally required to register with the NWRB, secure relevant permits, and comply with annual water quality tests, few micro-networks appear to do so, especially because there are no repercussions. As Dondi Alikpala, the former Executive Director of the NWRB (and current Chairman of MWSS) told me, the NWRB will not terminate the operations of small providers because of the essential nature of water provision.[57] In 2010 and 2011, I did attend a few workshops sponsored by the NWRB, which aimed to convene small water providers in order to help them set proper tariffs (with the goal of cost recovery) and simplify registration (a process that they call "light-handed regulation"). These workshops demonstrated some level of engagement between the state and small providers. However, given the large number of small providers operating around the country, the efficacy of NWRB's efforts seems limited.

In the following two sections, I provide a more detailed account of the ways in which micro-networks have evolved in Manila's post-privatization context. Although ADB and the NGOs that I mention here have helped support on-the-ground operations, the concessionaires have largely been able to determine the geographies and conditions of micro-networks use.

[56] ADB defines a small piped water network to consist of materials that meet the utility's standards but the Maynilad/Makawili pilot case that I describe below did not conform to this specification.

[57] Alikpala was surprised that I had been spending time in micro-network communities. Although he had been Executive Director of NWRB, the agency that regulates small water providers, he said that he had never visited any such areas.

3.3 Micro-networks, part 1: Manila Water

There have been three main phases in Manila Water's history of partnering with micro-network operators: (1) an initial push toward partnerships and rapid expansion; (2) state and IFI intervention, prompting a conversion to individual metering; and (3) the limited continuation of some existing micro-networks. Through an examination of Manila Water's chronology of expansion, I demonstrate how micro-networks have been used to manage certain spaces. The evolution of micro-networks reveals a differentiation within informality, suggesting a spatial hierarchy that considers some spaces less serviceable than others.

In the previous chapter, I describe how Manila Water's flagship pro-poor program, TPSB, was established in 1998 and continues to grow. Under this program, Manila Water uses three schemes to connect low-income users—bulk, small group, and individual connections. Because the company has been unwilling to share information regarding the number of connections in each category, I have used various sources to triangulate data on Manila Water's micro-network usage.

The initial use of micro-networks as an expansionary tool began in the first few years of the TPSB program, arising out of a confluence of concessionaire, entrepreneurial, and community interests—a development that is perhaps better described as ad-hoc, rather than a deliberate strategy. Marilou, whom I mention above, was one of the earliest and most successful pioneers of this setup. She was able to initiate projects in New Santolan and another low-income settlement, Rivera, which consisted of a set of condemned tenement buildings. In both locations, the local government could not guarantee that the housing units would remain undemolished in the near future—and in both cases, this meant a financial risk that Manila Water was unwilling to take (Inocencio and David, 2001). Thus, rather than investing in small group taps or individualized connections, Manila Water offered Marilou bulk connections, from which she constructed micro-network systems using a series of garden hoses to deliver water to various areas. In Rivera, for instance, she installed one faucet for each of the seven floors, for a total of 28 faucets spread out throughout the four buildings. Inocencio and David (2001) note that although Marilou's tariffs were significantly more expensive than that of Manila Water—PHP 75 at the time, which was more than 12 times that of the concessionaire—water supplied directly by Manila Water was not made available to these communities. The alternative suppliers, deep well owners, sold water for 25 percent more than Marilou, making her tariffs comparatively affordable. Even in Rivera, where residents could purchase water from a nearby vendor for cheaper, the convenience of having a hose on one's floor made Marilou's option palatable to them. Her operations in New Santolan were, of course, taken over in 2003. But in Rivera, the tenements remain, more than a decade after she first started her operations, and there are no signs of Manila Water's desire to take over the system.[58] I shall return to the issue of land tenure in Chapter 4, where I go into further detail on the links between water, housing, and livelihood opportunities.

[58] Though Marilou has established several more sites around the country, only a few of her smaller operations—including those in Santa Ana and Salcedo—remain within Manila Water's jurisdiction because of the contestation over New Santolan. On the surface, most of her projects are associated with local governments or NGOs (such as Streams). For instance, in Salcedo, she has wisely aligned herself with the local government and residents refer to her system as belonging to the *barangay*.

At around the same time that Marilou was beginning her operations, Manila Water began soliciting the assistance of CBOs and entrepreneurs in other parts of the metropolitan area, most significantly in Taguig City.[59,60] There, Manila Water enlisted the help of the local government, church, and other organizations in identifying community leaders, who were then tasked with providing water to new or existing people's organizations (POs)[61] through self-constructed micro-networks (Matouš, 2013). At its peak in 2007, there were an estimated 90 POs operating in Taguig, each serving between 40 and 400 households (Chng, 2008; Matouš, 2013). But trouble soon began to brew. Manila Water was charging POs using commercial tariff rates based on the total amount of water that they purchased each month, bringing them to some of the highest levels of the stepped tariff structure.[62] Furthermore, most POs were adding on additional surpluses in order to cover internal material and staffing costs, as well as earn profits. The result: water tariffs in Taguig, while lower than fees charged by deep-well owners or mobile tanker trucks, were about four times higher than those of Manila Water.[63] Then-Mayor Freddie Tinga (2006), reportedly acting on behalf of his constituents, accused the POs of being "oppressive syndicates," prompting Manila Water to begin converting bulk meters into direct, individual connections.[64] Several POs enlisted the help of IPD, which helped mediate discussions between the POs and regulators, and IPD has been able to translate these initial forays into the water sector as the bases for additional micro-network projects elsewhere (Chng, 2012). For the most part, however, Manila Water's individualization obviated the water operations of POs in Taguig. As of 2008, only a dozen or so remained (Chng, 2010).

The contestation over water in Taguig led to the passage of a resolution by the MWSS-RO (2005) to individualize bulk connections, in which the agency "declares as policy that for water connections in Open Communities and Depressed Areas, the ultimate aim for the Concessionaires is to provide an individually metered and billed water service connection for each household." However, this resolution has only implemented only loosely by Manila Water, and not at all by Maynilad.[65] That same year, ADB provided grants to both concessionaires, funding pilot projects involving small-

[59] Manila Water also started working with organizations along the Manggahan Floodway, as I describe in Chapter 4, beginning in 2001.

[60] Taguig is a city in southeastern Metro Manila that has historically been low-income. With the conversion of Fort Bonifacio into a high-end residential and commercial space (billed as Bonifacio Global City), the area is becoming increasingly gentrified.

[61] People's organizations are associations, cooperatives, federations, and other groups that address community concerns. I use the term only when the organization identifies as such; otherwise, I refer to them more generally as CBOs.

[62] According to MWSS-RO staff, in 2008, the RO stipulated that bulk connections should be billed at residential rates based on average household consumption in the community, rather than the commercial tariff corresponding to total community usage.

[63] POs in Taguig were charging about PHP 30 per cubic metre (Matouš, 2013). This is compared to Manila Water's lifeline rate of PHP 7 per cubic meter.

[64] It is unclear whether Tinga accurately represented the sentiments of his constituents. While Chng (2008) suggests that Tinga felt threatened by local PO leaders, representatives from the MWSS Regulatory Office indicated that they facilitated negotiations between both PO leaders and groups of concerned citizens that wanted individual connections.

[65] Though this resolution was passed in 2005, the debates in Taguig continued to unfold over the next few years.

piped water networks (Asian Development Bank, 2008a).[66] Manila Water used that funding to further develop a modified micro-network scheme that it had been testing. The company selected four pilot sites, including two situated amidst the vast, low-income settlements that line the Manggahan Floodway.[67] Rather than tasking organizations with construction—a strategy that led to consumer complaints over the additional expenses and subpar materials used in Taguig and other areas—Manila Water shifted toward a model in which the company, itself, installed all internal infrastructure. The CBOs, however, were still tasked with collecting payments and monitoring for leaks and theft, thus ensuring that Manila Water still received full monthly payments. As I describe in Chapter 5, such schemes suggest that informal providers are increasingly becoming the policing arm of the utilities, responsible for the socio-political difficulties of urban water management.[68] But for both the state and ADB, the modified micro-network scheme was a more acceptable version of its earlier incantation, no longer as informal as the original bulk metering scheme. For one, an upfront agreement stipulated that the CBOs would manage the system for a trial period of three years, during which installation fees would also be amortized. If, within this time frame, residents demonstrated that they were responsible payers, Manila Water would individualize the connections and treat them as regular consumers.

By 2011, Manila Water had reportedly converted 474 of the 761 POs into individualized connections (Metropolitan Waterworks and Sewerage System Regulatory Office, 2010).[69] The process of conversion, however, has tended to be one-sided, and POs are rarely compensated for the investments that they make. In my conversations with some PO leaders, they reveal how Manila Water did not give them the option to choose bulk meter setups or to individualize connections later. Indeed, Inocencio and David (2001) corroborate these statements by pointing to another community in Quezon City, where the CBO "chose" the bulk metering scheme because Manila Water would only install meters at the entrance to the settlement, along the main road. For those living within the settlement, the average cost of a direct connection would have been as high as PHP 20,000.[70] Instead, the "community was convinced by . . . Manila Water that it was best for them to organize and be serviced as one community through the bulk water with just one mother meter"

[66] As part of this study, ADB (2007a) interviewed 46 piped and 449 nonpiped water providers around Metro Manila, and also surveyed 13,791 households in 20 sites. ADB found that households relying on piped water providers paid the least and consumed the most water, compared to alternative providers (not the concessionaires). I tried to get data from ADB on the specific providers that they interviewed in order to return to those areas, but these records were not available.

[67] The Manggahan Floodway is an artificial waterway that links diverts water away from the Pasig River. I go into more detail on this area in the following chapter.

[68] In the ADB case, the setup was intended to last for three years, during which connection fees would be amortized. At other sites, this setup was used without a predetermined time frame.

[69] Manila Water reported this data to the MWSS-RO, but the regulator does not have the capacity to verify it. It is unclear whether Manila Water considers all bulk meters to be operated by POs.

[70] This setup is similar to the one I observed in Salcedo and that I describe in Chapter 5, where those who do have individual Manila Water connections paid between PHP 15,000 and 20,000.

(Inocencio and David, 2001, p. 17).[71] These accounts are in tension with Manila Water's own claims that it consults communities to determine the most appropriate forms of access, taking residents' preferences into consideration.[72] Rather, it appears that Manila Water presented a false choice to low-income communities. Furthermore, the company has used the MWSS-RO regulation to later justify the conversion of POs where it is financially sound.

In other areas though, the company has been able to defend the continued use of the micro-network setup. Of the POs remaining, Manila Water cited various reasons preventing conversion, such as impending demolitions, on-going court cases, and petitions from PO leaders to allow for cost recovery—all reasons that the MWSS-RO staff finds legitimate (Metropolitan Waterworks and Sewerage System Regulatory Office, 2010). For instance, there are about 50 POs remaining along the Manggahan Floodway.[73] In Chapter 4, I describe how there has been much debate on the resettlement of these households, exacerbated by recent bouts of intense flooding, which have deterred Manila Water from making more permanent investments in the area. However, a longer history of failed policies and debate around housing issues suggests that resettlement may be a lengthy and contested process, and meanwhile, in the last few years, only a small percentage of houses in this area have willingly relocated. What is evident is that Manila Water continues to use micro-networks to manage certain spaces, particularly those that have contentious land tenure issues and that thus present obstacles to cost recovery.

The evolution of Manila Water's use of micro-networks reveals a hierarchy in spatial valuation. During the first phase of expansion, Manila Water solicited the assistance of micro-network operators in many low-income areas where bill collection may have been challenging. Micro-networks thus served as a tool for cost savings, as the company was able to reduce investment expenses and maximize payment recovery. Upon shifting toward a modified micro-network scheme where Manila Water constructed the internal infrastructure, the role of CBOs focused on bill collection and the disciplinary nature of water management. Intervention by the state also led to a shift in micro-network use, such that they were no longer employed as freely in all low-income areas. Rather, the uncertainty of bill collection was no longer sufficient to justify subpar infrastructure, although land tenure issues are still accepted as valid reasons for underinvestment in certain communities. The rationale for the use of micro-networks as a temporary solution persists, despite evidence that demonstrates that contestations in localized housing can mean a long and protracted process.

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[71] In this community, Inocencio and David (2001) find that while residents paid less than PHP 4000 for installation fees, they were spending more than twice as much on tariffs compared to those with direct Manila Water connections. More generally, a WSP survey (2004) finds that local entrepreneurs and water truckers in Manila tend to serve lower-income households but also tend to charge higher tariffs because of the concessionaires' bulk water charges.

[72] Manila Water does appear to inform communities about upcoming construction and connectivity plans, but none of the PO leaders that I spoke with were given a choice in type of access. In contrast, Ostrom (1996) describes how the planning and construction of condominial sewers in Brazil have been more participatory processes.

[73] This data is based on my interviews with Manila Water staff in 2011, who shall remain nameless.

3.4 Micro-networks, part 2: Maynilad

If Manila Water's evolution and expansion has been on a somewhat clean trajectory, Maynilad's fitful history has followed a less direct path. Indeed, though Maynilad also initiated a pro-poor program shortly after the concession agreement was signed, the *Bayan Tubig* program has encompassed many different schemes. For the most part, especially in its earlier years of operation, Maynilad provided low-income households with individual meters, situated either directly outside homes (as is common for non-poor customers) or at a nearby cluster. The ADB pilot project appears to be the first instance of micro-network use within the western concession area. Since Maynilad's new investors took over, the STM program has led to an increased deployment of this distribution scheme.

In 2005, ADB provided a grant to Maynilad under its small-piped water network pilot program. But unlike Manila Water, which set up a modified micro-network scheme, Maynilad experimented with the original micro-network setup, perhaps for the first time. Maynilad selected a site in Flores, located in Caloocan City, where the Makawili Jay C. Foundation was already helping residents purchase land through the Community Mortgage Program (CMP).[74] Because Maynilad was undergoing financial restructuring, ADB's USD 100,000 grant was passed through an intermediary, Metro Bank, to the Makawili Foundation. That complication—along with a larger community (650 targeted households, compared to 160 to 395 households in each of Manila Water's four pilot areas)—delayed installation until 2007. UTCE, ADB's consultants that evaluated the project, found the setup to be problematic in multiple ways (UTCE Ltd., 2008). For one, UTCE observed that information, especially regarding connection fees, was disseminated poorly, in part because 60 to 70 percent of residents did not have time to attend community meetings. During the construction phase, UTCE determined that costs in this area were double that of Maynilad's other pro-poor projects, where residents had contributed labor. In addition, the Foundation added on a surcharge of PHP 13 per cubic meter, nearly doubling Maynilad's tariffs. Only three bill collectors were charged with managing the 650 households, and the lack of monitoring resulted in 15 percent NRW. Compared with Manila Water's modified micro-network setup—where tariffs were PHP 13 per cubic meter, bill collectors managed 20 households within one street, and NRW was at 2 percent—UTCE found the Flores project to be much more inefficient.

Though perhaps disorganized internally, the micro-network setup allowed Maynilad to expand more rapidly and recover costs more effectively—as Manila Water had discovered some years earlier. Indeed, Maynilad's subsequent establishment of micro-networks through its STM program, launched in 2009, reproduces the Flores setup. First piloted in a 1000-household community in Tondo—a historically impoverished section of Metro Manila—the STM program comprised ten communities in 2011. Again, the use of micro-networks is directed at areas where new or existing CBOs are willing to engage in water management, such as some GK villages.[75] In the Tondo

[74] I discuss the CMP in subsequent chapters. Other community organizations were also operating in the same area, but it is unclear how Maynilad's selection of the Makawili Foundation affected local political dynamics.

[75] *Gawad Kalinga*, translated as "to give care", is the largest private organization working toward poverty alleviation in the Philippines. With the help of low-income families that are accepted into the community, the organization builds villages that consist of homes, schools, and, importantly, a set of values consistent with their moral ideology. I revisit the GK program briefly in Chapter 5.

community, for instance, Maynilad helped form a local cooperative that manages the sale of water. Maynilad installed a public faucet and tasks *aguadors*—local residents who read meters and collect bills—with water management and distribution. In exchange, the *aguadors* are paid a small fee, which is included in the price of water. But, like in Flores, water is relatively expensive at PHP 50 per cubic meter. Though it can now be purchased for about a third of the price offered by alternative private vendors, tariffs are still about four to seven times as expensive as those offered by Maynilad, and water is distributed through a significantly less convenient system.[76] Maynilad, in describing the STM project, does not mention these facts; rather, they use a rhetoric of cooperation, empowerment and participation. In response to a survey issued by the Commission on Human Rights of the Philippines, Maynilad (2010) described the STM program in Tondo as follows:

> Maynilad transformed the marginalized community into a cooperative that will manage the bulk water distribution system it installed in the area. Thus, this program empowered residents of the community to help themselves, to gain control of the water management needs of their neighbors, and earn a profit that can be plowed back into the community through the funding of small-scale livelihood projects.

However, as critics of similar partnerships have noted (Miraftab, 2004; Jaglin, 2002), such schemes rarely result in empowerment for more than a handful of invested citizens.[77] For instance, Maynilad and IPD have worked to establish three additional STM sites in Caloocan City. In each of these communities, IPD organized new cooperatives dedicated solely to water management. I spent much of my time in the field at one of these projects, in Santa Ana, though I also visited the other two sites periodically. The cooperative leaders have been incredibly empowered by this process—they now have opportunities to engage in conversations with representatives from the government, NGOs, and concessionaire. The majority of the community, however, is apathetic or even antagonistic toward the cooperative's operations. Some accuse the cooperative of blocking Maynilad's entry, and most do not understand why the cooperative charges prices that are about double that of the utility. Indeed, the circumstances for Maynilad's non-entry are hard to understand; the Maynilad manager indicated that it was due to high levels of non-payment in surrounding communities, but the area that was demarcated as an STM project was not defined by visible, physical boundaries.[78] As Manila Water had done in previous years, Maynilad is now using this micro-network to serve areas where bill collection may be problematic. Such a setup works much to Maynilad's advantage, ensuring full cost recovery, but the high tariffs relative to direct utility service are biased against low-income consumers and have, at times, led to discontent within the community. I shall return to Santa Ana in subsequent chapters with a deeper analysis on the ways in which micro-networks are used to manage certain populations and the discontent that can arise as a result of their usage.

If Maynilad does indeed follow Manila Water's trajectory, it is easy to imagine that these micro-networks will eventually be converted into individual connections in a process that does not

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[76] Aguadors deliver water through hoses that are hauled to each house.

[77] In Chapter 5, I explore the limitations of these partnerships in more detail.

[78] This information is based on conversations that I had with Maynilad staff, whose identities shall remain confidential.

necessarily take into full consideration the concerns and investments of the cooperatives, as was the case in Taguig. As of now, the MWSS-RO does not seem to be concerned—or even aware—of the use of micro-networks in Maynilad's jurisdiction.[79] In the meantime, Maynilad is poised to expand this setup, as evidenced by Marilou's offer.[80] Here, a differentiation within informality is apparent. For reasons having to do with the need to increase provision of water and the desire to prevent another concession failure, the state is invested in Maynilad's success, and it appears willing to condone practices even when they go against its official policies. In some ways, the Maynilad of 2012 is the Manila Water of five years ago, operating largely with the freedom to expand at will.

3.5 A typology of micro-networks

Thus far, I have focused on micro-networks that have arisen in the post-privatization era—those that resulted from some degree of concessionaire, community, NGO, and entrepreneur coalescence. However, some micro-networks existed prior to the concession agreement; indeed, the cooperatives in Binangonan and other parts of Rizal formed as early as 1969. In general, pre-privatization micro-networks tend to draw water from deep wells and are thus located on the outskirts of Metro Manila, where groundwater is more readily available.[81] A 2006 ADB study (2007a) found that 38 out of the 46 micro-networks that they surveyed also sourced water from their own deep wells. But like the post-privatization micro-networks, they distribute water to a small community of houses, sometimes using much of the same internal infrastructure. I consider these systems to be micro-networks because there are no significant differences between the pre- and post-privatization setups, save for water source and relationship with the concessionaires.

[79] This is based on information provided by MWSS-RO staff.

[80] Marilou and Streams operate a micro-network in Hope Hills, located in Caloocan City, which I describe in the following chapter. Maynilad also considers this project part of its STM program.

[81] Groundwater assessments reveal depleted aquifers and saline intrusion in much of Metro Manila (Crane, 1994).

Figure 3.3. Pre-privatization micro-networks. Existing rural and peri-urban micro-networks tend to use their own groundwater sources to distribute water. To the left, a deep well and tank belonging to one cooperative. To the right, the chairman of another cooperative shows us a map of his service area. Photos by author.

Given the variations in use and setup, a typology of micro-networks helps identify some existing patterns.

Concessionaires' concern	Barrier to direct provision	Examples of affected communities
Use of space	Insecure land tenure—competition for land from other residential or commercial actors	STM sites in Tondo and Hope Hills; ADB/Makawili project in Flores; some IPD projects in Caloocan City
	Land not intended for housing	Berm side (sloped walls) of Manggahan Floodway
	Physical access—concessionaires only willing to serve on main road because of narrow alleyways	Marilou's project in Salcedo
Consumer management	Disciplinary issues—high levels of nonpayment perceived	IPD projects in Caloocan City; other STM sites
	Ability to delegate to willing organization	STM sites in GK villages
	Initial disciplinary concerns	ADB project along Manggahan

Concessionaires' concern	Barrier to direct provision	Examples of affected communities
	with established trial period	Floodway
	Initial disciplinary concerns but individualized	Taguig; embankment side of Manggahan Floodway; Marilou's project in New Santolan
Expansion of centralized network	Pre-privatization providers in existence	Rizal (Binangonan, Antipolo)

Table 3.1. A typology of pre- and post-privatization micro-networks. Other known examples of micro-networks generally fit into the categories defined here.

Two categories of post-privatization micro-networks are apparent: (1) those that are used in areas that have existing land issues, particularly settlements with insecure land tenure; and (2) those where there are perceived disciplinary concerns related to potential nonpayment and theft. In both cases, the use of micro-networks minimizes financial risk because it reduces the amount of infrastructure needed and guarantees full monthly payments. Initially, Manila Water used micro-networks to address both concerns, which helped facilitate its rapid expansion even during a period of financial difficulty. Pressure from some community members, politicians, and the MWSS-RO led to the individualization of micro-networks in areas with disciplinary concerns. Now, the micro-networks that remain in the eastern concession area tend to be in highly contested areas, such as on the berm side of the Manggahan Floodway (which I explain in further detail in the following chapter) or in very dense areas that the company is unwilling to enter (as discussed in Chapter 5). For Maynilad, all of the concerns listed above are still fair game, particularly as they continue to find financial and managerial success through the STM program.

3.6 The persistence of informality

In Manila's post-privatization era, informal water providers have not been eliminated—an outcome that one might expect with the successful expansion of a utility. Rather, the concessionaires and the state treat various types of informal providers differentially primarily based on their spatial configuration. Those that lie in areas that the concessionaires have yet to venture into—including tanker trucks and deep-well operators that serve communities beyond the central network—are considered informal and sub-standard, to be replaced by the utility. This is also true of the cooperatives in Rizal, despite their long history of having served their communities. On the contrary, micro-networks working in concert with the concessionaires fall, at least temporarily, into a hybrid space. There, the formal and informal are linked, the lines between providers blurred. Within the concessionaires' stated coverage area, communities in which micro-networks operate are clearly considered served, figuring into aggregate coverage statistics.

But in what ways are micro-networks inside the concessionaires' covered areas significantly different from those outside of those areas? If we compare the cases of Pagasa (in Binangonan, Rizal) and

Santa Ana (in Caloocan City), we find two main differences in setup.[82] In Pagasa, a cooperative has been serving the community for decades, sourcing its water from its own groundwater reserves. A similar setup exists in Santa Ana, except that water comes not from the ground, but from Maynilad's mother meters, which lie at the community edge. One may argue that there is a difference in water quality and treatment between Pagasa's groundwater and Maynilad's piped surface water, but there have been no definitive tests to support this claim.[83] Price also varies between the two, as I explain in greater detail in Appendix C. But, perhaps contrary to what one might expect given that the concessionaires benefit from economies of scale and their tariffs are comparatively low, Pagasa offers water tariffs that are on par with those of Manila Water. Furthermore, water in Pagasa is significantly cheaper than in Santa Ana; connection fees are about the same (PHP 5,760 in Pagasa versus PHP 5,675 in Santa Ana), but the first 10 cubic meters costs PHP 167 in Pagasa and PHP 280 in Santa Ana. Thus, the micro-network that purchases water from the concessionaire is actually more expensive than the one that has its own source of groundwater.

However, while Maynilad helped establish the Santa Ana micro-network and relies on its operations, at least in the short-term, the Pagasa cooperative faces severe competition and encroachment from Manila Water.[84] This is because the first setup—where the micro-network purchases water in bulk—is advantageous to the concessionaires since it allows them to recover costs completely while delegating day-to-day management to the micro-network operator. In the second scenario, the concessionaire does not benefit at all because it is not selling water to the micro-network and its users. Under such circumstances, the concessionaire must try to compete with the micro-network or supplant it entirely. Thus, there is a differentiation within informality—those working in partnership with the concessionaires are sanctioned, while those working independently are to be replaced.

Who decides what is informal? In the case of water provision, delineations of informality begin with the concessionaires. On that basis, Manila Water initially designated many low-income communities as suitable for micro-network provision, as seen in Taguig and along the Manggahan Floodway. Contestations arising from community members and the state forced Manila Water to redefine its frontier, pushing the boundaries of individualized connections. But even as this frontier has been negotiated and extended, there are still spaces that are deemed less desirable for investment than others—in highly contested areas, such as on the embankment side of the Floodway and in Hope

[82] I introduce these two sites in Chapter 1.

[83] I performed some spot checks of fecal and total coliform levels using samples collected from Pagasa and Santa Ana, as summarized in Appendix D. More than half of the samples collected in Pagasa did fail coliform tests. However, to my knowledge, the state has not used water quality violations as a reason to shut down the operations of small water providers, even though the cooperatives in Binangonan and elsewhere submit samples for routine water quality testing, as required by the NWRB.

[84] In some ways, the replacement of small water providers by the concessionaires can be thought of a form of creative destruction—the repetitive cycle of building and destroying that is emblematic of modern capitalist development (Berman, 1983). This is clearly the case in Rizal, where water cooperatives existed as early as 1969. But, arguably, micro-networks are also complicit in this process. In the 1980s, the Caloocan city government installed the *Patubig* system—a local micro-network that still serves some households—and a system that the Santa Ana cooperative is now trying to supplant (as I describe in Chapter 6). How these processes of creative destruction unfold reveals some of the underlying spatial contestations in each area.

Hills. In these areas, informal water providers continue to exist, serving a function that is arranged by the concessionaires and supported by the state.

3.7 Conclusion

Because the concessionaires have been able to extend connections into areas that were previously unserved, international institutions have referred to these public-private-community partnerships as innovative and "win-win" solutions, improving access while also enhancing cost recovery (Asian Development Bank, 2008a; World Economic Forum and The Boston Consulting Group, 2011). Prior to the concessionaires' entry, many low-income communities depended on alternative water vendors such as tanker trucks, which typically charge PHP 35 per drum of water.[85] The concessionaires and other advocates of micro-networks point to reduced prices under the new setup. Through Maynilad's STM program, for instance, a drum of water now costs about PHP 10 to fill (Chavez, 2011).[86]

But there are three problems with the micro-network setup. First, though prices are lower than those offered by tanker trucks, they still usually result in significantly higher tariffs—up to eight times that of the concessionaires.[87] This is because the concessionaires sell water to the micro-network operators at the average household rate or higher,[88] even though the small water providers have to add on costs for staff and materials. With the exception of the setups in which Manila Water has constructed internal infrastructure, low-income communities that use micro-networks pay more than the middle-income households that Manila Water serves directly. Second, the micro-network setup results in increased surveillance and disciplining of customers, potentially infringing on personal freedoms. Whereas middle-income consumers are not required to coordinate with their neighbors, micro-network users must pressure each other to pay monthly bills in full or risk the disconnection of the entire community. But peer group pressure, analyzed in a microfinance context, has been shown to entrench and even exacerbate social hierarchies (Fernando, 2006). Third, the concessionaires largely decide when and whether to use micro-networks, and when to subsequently replace them with individualized connections, even though they do work with NGOs to facilitate these partnerships.[89] Because of the uncertain conditions under which micro-networks function,

[85] Plastic drums are frequently used to store water in Manila. A typical drum holds about 200 liters of water.

[86] This is equivalent to PHP 50 per cubic meter. In comparison, the concessionaires' tariffs start at around PHP 7 per cubic meter for lifeline customers, who use less than 10 cubic meters of water per month. Those who consume slightly more water pay PHP 9 per cubic meter on Manila Water's side, and PHP 12 on Maynilad's side.

[87] Tariffs vary widely. Those that charge very high tariffs, such as some of the STM projects and Marilou, tend not to charge connection charges. In contrast, tariffs for the ADB/Manila Water pilot project are just a few pesos above the direct utility price scheme.

[88] As I mention above, the concessionaires were initially selling water based on a community's total consumption. Because of the stepped tariff structure, this put communities at the highest tariff levels. The MWSS-RO intervened and required the concessionaires to sell water based on average household consumption.

[89] Community leaders have indicated this to me, as I describe above, even though Manila Water claims that it asks communities which setups are most preferable to them.

operators may charge higher tariffs in order to ensure cost recovery, particularly if they are entrepreneurs. In some areas, operations have been prematurely terminated, ignoring the community organizing efforts or investments that might have gone into micro-network formation. Though there have been efforts to address this shortcoming in international and national policy debates (Solo, 2003; Streams of Knowledge, 2009), the terms of operation still remain murky and are generally biased in favor of the concessionaires.

The following two chapters examine the ways in which the concessionaires have used micro-networks to serve two types of areas. In Chapter 4, I focus on areas where uncertain land tenure may lead to the imminent displacement of residents. Though changes implemented in the post-privatization era simplify the requirements for water connections, the concessionaires will not invest in areas where there are forthcoming land use changes. In Chapter 5, I examine communities where the concessionaires perceive a potential problem in recovering monthly payments. Enlisting the help of a micro-network operator—who, at the very least, can help enforce bill collection—minimizes the risks involved in service extension by imposing stricter disciplinary measures on individuals and communities. Together, these two chapters help explain the motivations behind the particular pattern of expansion observed in Manila.

Chapter 4. (Sk)water Settlements: The Struggle for Land, Livelihood, and Water[90]

At first glance, Sitio Panghulo seemed to be a "model" micro-network system—indeed, this was ADB's intent in funding it as a pilot project. I first visited the micro-network site, which is situated along the Manggahan Floodway, in July 2008. Manila Water installed all of the internal infrastructure to meet its technical standards; tariffs were only PHP 2 higher per cubic meter than the norm, intended only to pay the street leaders that monitored usage and collected payments; connection fees were amortized over three years, resulting in affordable monthly payments of PHP 180; and the collection efficiency was reportedly 100 percent, with NRW as low as two percent (UTCE Ltd., 2008). The terms of operation had been codified in advance in a Memorandum of Agreement, stipulating that this setup would only be in place for three years before connections were individualized, and Manila Water had trained the street leaders on proper accounting procedures. As Tomas, the president of the homeowners association, took us on a tour of the neighborhood, he explained these details with pride. It was clear that we were not his first visitors, nor would we be his last; this was a site that Manila Water and ADB were proud to show off.[91]

We were standing on East Bank Road, the main artery that traces the length of the Floodway on the eastern side, when I noticed a small pipe running across the street, half buried in the concrete. Curious, I asked Vicky, the Manila Water territorial manager accompanying me on this visit, where the pipe led. Vicky speculated that someone must have been selling water to neighbors across the street, but then shrugged it off. I asked whether the houses on the western side of the road—those that were perched on the sloped walls of the Floodway—had been included in the ADB project. They had not, and Vicky, who was aware of the discrepancy, was willing to look the other way, even though reselling water should technically have elevated the vendor's tariffs (and perhaps even those of the entire community) to commercial rates. I asked if we could talk to the people living in those houses across the street—the ones not included in the ADB project—but Vicky said that it might be risky because she did not have a relationship with them.

Though I returned to the ADB site a few more times over the course of the next few years, it was not until 2011 that Manila Water managers took me on a more complete tour of the Floodway. On that visit, the Manila Water managers referred to the houses as belonging to two separate areas—the embankment side, where houses were situated on NHA[92] land, and the berm side, where houses

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[90] The term "skwater" is one way of spelling the word "squatter" in the Philippines. Though its spelling is phonetic rather than purposeful, I use it deliberately here in order to make the connection between water and housing issues.

[91] For instance, ADB offered field visits to this site during its 2010 Water Crisis and Choices conference. Visitors see that, in addition to the direct improvements to water provision, the community has also benefited in other ways—the municipal government and electricity utility provided paved roads, electricity, and other services after ADB announced the siting of its pilot project here.

[92] The NHA is responsible for providing socialized housing for low-income families. Some of its projects involve acquiring tracts of available land and allowing households to make amortized payments toward ownership of their lots. This is the case for the embankment-side houses along the Manggahan Floodway, as well as the houses that we surveyed in Santa Ana. As with many NHA sites, most households have rights to the land but most have not received their titles yet because they are still making payments.

were built on the sloped Floodway walls. There was a clear distinction between the two—the families on the berm side were to be resettled and their houses demolished. These houses were seen as limiting the capacity of the Floodway to redirect water away from central, flood-prone areas, and they had to go. In contrast, although the houses on the embankment side did not necessarily have title to their land—many were still making payments to NHA (and probably some were not even doing that)—they did not face the same danger of being relocated.[93] For those reasons, Manila Water was willing to serve the embankment side houses, while hesitant to make further investments on the berm side.

Figure 4.1. Aerial photograph of the Manggahan Floodway. The East Bank Road is the artery that is clearly visible on the eastern side of the Floodway. Embankment-side houses lie to the right of this road (the ADB project is in one of these areas, though not shown in this photo), while berm-side houses are to the left, densely situated on the Floodway's sloped walls. This setup is mirrored on the west side of the Floodway. In the southeast corner of the photo, a demolished site is visible, with a few houses remaining. © Google 2010.

Manila Water is justifiably proud of extending water service throughout the eastern concession area. But why do they draw a line through a single community—sometimes down a single street—and refuse to extend service to some homes? Over the course of several years and visits, I gathered that a distinction—based largely on future expectations of revenue—motivated the line drawing. Following Leitner *et al.* (2007, p. 312), the East Bank Road could be seen as a point of demarcation—the boundary of formality, beyond which lay a frontier, or a "sociospatial zone[] of contestation." My interest in exploring these frontiers rests in identifying the boundaries of

[93] There are physical differences between the berm- and embankment-side houses, with the former being bigger and made of more robust materials. This is evident in Figure 4.1. Security of tenure likely plays a key factor in the amount of money and time a household is willing to invest in construction.

privatization, for it is in these spaces that access remains compromised. I shall revisit the Manggahan Floodway case in Section 4.3, examining the history of the area and the ways in which access to water in this area has been mediated by competing uses of space. As part of that story, I show how the frontier of (in)formality has shifted in this area from a wider zone that once encompassed both the embankment and berm sides, to the narrower belt that it now occupies. The delineation of this frontier, I argue, involves a process of negotiation between the state, citizens, concessionaires, and other interests, producing an uneven and fluid terrain of access. Furthermore, its shifting nature suggests that there are gradients of (in)formality and (il)legality composed of varying forms of land ownership, housing type, and water service.

In this chapter, I explore the connections between access to water and contested urban spaces, using the presence of micro-networks as a lens for understanding how certain spaces are deemed less serviceable than others. "(Social) space is a (social) product," Lefebvre (1991, p. 26) writes, and the ways by which certain spaces are produced reveal the sociopolitical values and decisions underpinning them. Rather than the flat, uniform service that the concessionaires would like us to believe they provide, what I am drawing here is an explicit link between insecure land tenure and the differential service afforded to these communities. Access, then, is not universal, but selective and contingent on factors that the concessionaires and the state deem appropriate. In particular, I want to emphasize that the water issue is closely connected to the housing issue, which is in turn linked to the livelihood issue—and that the seemingly precarious nature of informal settlements leads to the use of temporary water solutions, despite the oft-observed reality that these settlements tend to last longer, and more durably, than those who oppose them argue they will or should.

In the following section, I examine current housing policies regarding the treatment of informal settlers, demonstrating how the proliferation of such communities in Manila is deeply tied to the availability of employment opportunities concentrated in the capital area. Section 4.2 examines the broader relationship between insecure land tenure and water provision, acknowledging how the concessionaires have incorporated pro-poor strategies into their business models, yet also recognizing remaining inequalities. The next two sections focus on case studies, both of which have long histories of urban contestation—the bases of which have been used to justify micro-network setups. Those cases reveal the tensions inherent in the coexistence of low-income citizens, who are staking their own claims to the city, and the state's pressures to meet environmental, social, and modernist goals. I conclude in Section 4.5 with some remarks on the implications of these tensions, demonstrating how the ties between micro-network use and land tenure can inform our understanding of remaining barriers to access.

4.1 Manila's housing crisis

Manila's housing crisis is a well-known reality, apparent even to the first-time visitor. Some estimates speculate that over a third of Metro Manila's population, or more than 4 million people, live in

informal settlements, with this number rapidly increasing each year (Ballesteros, 2010).[94] Most of the people living in these informal settlements are drawn by the livelihood opportunities that are more readily available in the metropolis, and that are severely lacking in rural areas and small towns. However, the shortage of affordable and available land results in widespread informality, replicating a pattern of circulation and settlement that is seen in many developing cities (AlSayyad, 1993; Neuwirth, 2007). In Manila, larger assemblages of informal housing are situated by waterways, near the sea, by garbage dumps, along former railways, and around gated communities (Alcazaren *et al.*, 2011). Smaller clusters are spread throughout the city, wherever pockets of land are available. The number of people living in dilapidated, inadequate, or extremely crowded housing is significant. It is estimated that from 2005 to 2010, about 2.2 million housing units were in need of improvement, with an additional 1.5 million new households anticipated in the metropolitan area (Monsod, 2011). The contestation over urban space, and the dominant claim by more powerful interests, is evident in the decades of settlement and resettlement that have taken place, and in the overcrowded conditions that many are forced into. Furthermore, globalization has likely exacerbated the housing crisis, bringing about an intensifying informalization and flexibilization of labor, as well as a concomitant rise in property values and acceleration of urban redevelopment—conditions that are making the city even more unwelcome for low-income residents (Shatkin, 2004; Aoki, 2008). Indeed, Manila appears to be bursting at the seams, a place where, in Harvey's (2008, p. 37) prophetic words, "the planet as building site collides with the 'planet of slums.'"

The urban housing issue has been on the government's agenda for decades but, for the most part, policies have failed to address the crux of the issue—that is, the dual necessities of both housing *and* livelihood opportunities. Though signs of informality were documented at the turn of the century, it was in the post-World War II years that Manila's population surged; in-migration soared due to the push of rural peasant rebellions and the pull of booming industrialization.[95] Initial policies focused on the resettlement of squatters—as informal settlers are colloquially known—who were taken to rural areas where there were no existing housing structures or social provisions. Under the *Balik Probinsya* (Return to the Province) program, more than 7000 families had been relocated by the early 1960s (Arn, 1995). Given the poor and distant conditions of their relocation sites, however, many returned to Manila, some circulating back and forth between rural and urban—settling and resettling multiple times. Nevertheless, mass evictions increased in the 1960s and 1970s. The Marcos administration made squatting a criminal offense, conducting large-scale evictions in preparation for international events (such as the 1974 Miss Universe pageant, the 1976 World Bank-IMF Conference, and, perhaps ironically, the 1979 visit of Mother Teresa's Missionaries of Charity); in

[94] Other estimates are much lower, depending on the definition of informality used. For instance, the Housing and Urban Development Coordinating Council (HUDCC)—which coordinates government housing agencies—estimates that there are nearly 200,000 informal sector families in Metro Manila, based on the definition of informal settlers as households whose tenure is rent-free, without consent of the landowner (Cruz, 2010). In contrast, the NHA considers nearly 600,000 households to be informal, taking into account other factors such as the household's location, income, and occupancy. Berner (2000) suggests that more than half of Metro Manila's population lives in illegal settlements, though it is unclear where he has gotten this data. Compared to the HUDCC and NHA reports, the Ballesteros (2010) report that I cite takes a more liberal definition of informality and refers to another HUDCC report that includes an estimate of over 4 million people in slums in 2010.

[95] The government began to face serious difficulties in water provision in the post-war era due to this population boom, as I describe in Chapter 2.

support of Imelda Marcos' attempts at urban beautification;[96] and to clear space for government economic development projects. While there were several projects aimed at slum upgrading and on-site development, including a pilot project funded by the World Bank, these failed to address the housing situation for the masses. For the most part, these projects were costly and corrupt, as well as unaffordable for the poorest, and only a tenth of the targeted areas were fully developed (Berner, 2000).

In the post-Marcos years, attempts have been made to decentralize housing policies toward local governments and to design alternative modes of housing access, including creative financing mechanisms like the CMP. Through the CMP, squatters can collectively purchase the land that they occupy by negotiating a sale price with the landowner, and then making amortized payments through the state and with the assistance of NGOs. While it is the most promising of recent housing policies, the CMP faces heavy backlogs and is estimated to have reached less than 5 percent of its intended target population, favoring higher-income informal settlers (Shatkin, 2004; Berner, 2000).[97] Furthermore, mass evictions continue to occur despite the implementation of the 1992 Urban Development and Housing Act (UDHA), which discourages eviction and mandates the provision of a relocation site for justifiable demolitions. UPA estimates that nearly 74,000 people were evicted in 2011, most under conditions that would be considered illegal by the UDHA—the highest number of documented cases since 1994 (Urban Poor Associates, 2012).[98] Those who are resettled are sent to housing projects on the outskirts of the city, often lacking in basic services such as water provision, and sometimes far from employment opportunities.[99,100] In some areas, the *Balik Probinsya* program has been recently reinstated or proposed, albeit with promises of land or money tied to relocation.

Despite the efforts of public and private actors to clear these informal settlements, there have also been moments of community-based resistance. The most concerted efforts were directed against Marcos' sweeping demolitions; in 1970, the Zone One Tondo Organization was established as a

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[96] Imelda Marcos called squatters "opportunists who take advantage of the compassionate programs of the City of Man," the latter referring to her term for the cosmopolitan metropolis that she believed Manila could become (Doherty, 1985, p. 13). A 1982 article in the Manila Bulletin put it succinctly: "Squatter colonies irk the First Lady" (Doherty, 1985, p. 12).

[97] In Chapters 5 and 6, I go into further detail on the divisiveness of the CMP, as described by Berner (2000), and its relation to micro-networks.

[98] UPA acknowledges that it is able to document fewer than half of all actual demolitions (Shatkin, 2004).

[99] To provide an example of the lengthy distance separating resettlement sites from the urban center, I refer to a piece by the British investigative journalist, Paul Mason (2011). He visited an informal settlement alongside a waterway that the Pasig River Rehabilitation Commission, spearheaded by the philanthropist and local celebrity Gina Lopez, had recently cleared. (She is a member of the Lopez clan, the original co-owners of Maynilad.) Upon hearing that some resettled women had secretly returned to the city, Mason asked Lopez to see the resettlement site. "No problem," she said, commanding to her staff, "Get me aviation." The site, a few minutes away by helicopter, is four hours away by road. There, Mason reports that there are no employment opportunities and no electricity, prompting many men to return to Manila for work. The waterway that used to be their home has been landscaped, the water treated. "The clearance programme works like a giant scalpel," Mason writes.

[100] Another example of the lack of social services in these resettlement areas is a site that I visited in Biñan, Laguna, just south of Metro Manila, that I describe in Chapter 3. The large housing project only came equipped with communal handpumps.

federation of 20 community organizations representing some 4500 people from the Tondo Foreshore, the largest informal settlement in Southeast Asia at the time. However, Shatkin (2002) argues that the coherence of these community organizations began to diminish in the 1980s. Perhaps as a result of the decentralization of government, there has been a concomitant shift in NGO activities from large-scale political mobilizations to more local community improvement projects. But although the scale and success of the housing movement may be in decline, there is no doubt that individual and community efforts to stake claims on the city are still in full force, as demonstrated by the extent of informal housing still present in Manila.

Mitchell (2003, p. 19), interpreting Lefebvre's concept of the "right to the city," stresses Lefebvre's focus on the "right to *inhabit* the city," distinguishing the use-value of housing from the exchange-value associated with property rights. In this chapter, I discuss how land titles and housing are points of contestation. To be more specific, my observations suggest that low-income households seem to be more concerned with the use-value of their housing, as Mitchell suggests. For instance, households living in Santa Ana and on the embankment side of the Manggahan Floodway do not feel the imminent threat of eviction because NHA awarded them the right to live on that land—the first step in property ownership. Many of the people that I spoke with have not fully paid their amortized dues to NHA, and thus did not possess proper land titles yet. Of course, a formal title is desirable (Porio and Crisol, 2004). However, the distinction between initiating the land ownership process and living in an informal settlement, where official rights to inhabit are not recognized, is evident to both residents and the concessionaires.

In Manila, it is impossible to ignore the ways in which social issues are deeply tied to a shortage of available and affordable land. Berner's (2000, p. 555) research shows that "most of the respondents in our surveys of poor urban areas say that 'land', and not livelihood, is the most pressing problem they are confronted with."[101] Indeed, many low-income households practice what Holston (2008) calls "insurgent citizenship"—the staking of a claim on contested land to assert the right to livelihood opportunities. Furthermore, informal urbanization undoubtedly continues to persist in part through the negotiations that occur between settlers and various levels of the state, sometimes in a subversively political manner that Benjamin (2008) terms "occupancy urbanism." It is an uphill battle, though. As Mitchell (2003, p. 18) writes:

> The problem with the bourgeois city, the city in which we really live, of course, is that this *ouvre* is alienated, and so not so much a site of participation as one of expropriation by a dominant class (and set of economic interests) that is not really interested in making the city a site for the cohabitation of differences. More and more the spaces of the modern city are being produced *for* us rather than *by* us.

Informal settlements continue to persist in Manila because policies have failed to address the twin challenges of housing and livelihood provision. This is well-recognized. What needs further elaboration is the way in which the concessionaires and the RO use the (seemingly) imminent demolition of communities as a rationale for the partial provision of water. As I have demonstrated

[101] In Chapter 6, I describe some of my own surveys in micro-network communities, which reflect that livelihood is a chief concern. However, a key difference is that two of the communities in which I conducted surveys did not have land tenure issues, while the third community did have such issues, although community members were not presented with threats of imminent displacement.

in this section, however, the durability of informality can be strong, and the result is that so-called intermediary systems of access—such as micro-networks—can be long-lasting.

4.2 Where land and water meet

Insecure land tenure is a significant barrier to proper water access in many developing cities because utilities are often concerned that they will not recoup their investments in informal settlements (Allen *et al.*, 2006b). A formal utility connection may also help legitimize an informal settler's claim to a parcel of land (Estache *et al.*, 2001; Ranganathan, 2010), and proactive public or private landowners may place pressure on utilities or the state to prevent such claims from occurring. Land tenure as a barrier to water access has been documented in several large, urban settings. Surveys of water usage in Manila prior to privatization indicate that most low-income households were unable to connect to MWSS because they either lacked formal titles to the land on which they were residing or were prevented from connecting by the land's rightful owners (Inocencio and David, 2001). In Cebu—the second largest city in the Philippines—residents must still show proof of a land title, house ownership, and tax payments in order to apply for a utility connection (Conan, 2005). Elsewhere, these patterns of exclusion also hold true. In Mexico City, for instance, access to networked services is contingent on the possession of legal land titles, as well as the utility's ability and desire to extend pipes to particular neighborhoods, which can often be hampered by geographical and political complications (Castro, 2006). Such requirements prevent the poor from connecting to formal water utilities, forcing them to rely on informal providers that often do not have such stringent terms of access.

Indeed, critics of water privatization have specifically pointed to the reluctance of private utilities to extend services to areas with insecure land tenure (Budds and McGranahan, 2003). For instance, in Buenos Aires, Almansi *et al.* (2003) find that private water companies use the lack of land tenure to exclude the poor from services, despite having legal mandates to provide universal access. Nickson (2001) observes similar patterns of exclusion in Córdoba, though he points to the lack of a legal requirement for expansion into low-income settlements. In Jakarta, Bakker *et al.* (2008) note that the World Bank's Global Partnership on Output-Based Aid (GPOBA) project—which was also implemented in Manila—intended to subsidize the water supply connections of 20,000 households.[102] However, most households in the targeted low-income category did not have legal land tenure status, barring them from participating in the program. As Hardoy *et al.* (2005) suggest, many of the issues that were initially used to justify private sector participation—including the lack of services in areas with insecure land tenure—remain problematic even for privatized utilities.

[102] In Manila, the GPOBA program has been seen as a success (Menzles and Suardi, 2009), and I have indeed visited some areas that have benefited from it. The program reportedly targets small clusters of households located within areas that Manila Water serves; it subsidizes connection fees and provides household taps and toilets. However, when I spoke with World Bank and Manila Water managers, it became clear that once again, Manila Water operates subjectively, without much verification. Manila Water managers are able to select the areas that they deem to be good candidates for the program, and the managers I spoke with said they chose large communities rather than small pockets of unserved households. The World Bank manager said that he hired an independent consultant to look over Manila Water's data, but that nobody verifies conditions in the field, or ensures that the needs of unserved households are being met.

In Manila, the concessionaires have arguably made deeper inroads into low-income communities than in the cities mentioned above. The 1997 Concession Agreement did not directly address improved access for the poor (Cuaresma, 2004). Within two years of its implementation, however, both concessionaires had established pro-poor initiatives, as described in Chapter 2, venturing not just into low-income areas but communities of informal settlers. These initiatives included the relaxation of connection requirements and, significantly, the waiving of land title possession (Inocencio, 2003). Rather than insisting on formal occupancy, the concessionaires asked for local government assurance that informal communities were not to be displaced imminently (Asian Development Bank, 2003a). Maynilad executive Lisette Provencher described the company's rationale at a 2001 seminar:

> On the risks regarding the fact that people can be resettled, the risk is taken fully by the concessionaire. At the same time, nothing in the concession agreement was forcing the concessionaire to do so. We do not do it for charity, we do it because it makes sense from a business point of view. It represents at least 20% of our customers, so it is a market. Once they are connected, they take as much water as the other customers, so they are good customers and we want to reach them. In addition, in many of those cases, we avoid [] illegal connections, not only that with illegal connections, we loose [sic] the water, the money, but we also have a big risk of contamination of the network with all those illegal connections running in the water all around the place. For us, when we take all of this into account, we consider this risk that exists, is a risk that we are ready to take because we think that from a business point of view, it makes sense. Actually, from the short-term experience that we have, the major risk we have seen is not to have those people moved and resettled (because we checked that they will not be resettled in at least a timeframe of 5 years) but it is fire.[103] Because those slums, when fires come in there, they disappear in one night. We had some of those areas which were equipped and then you come there after, and nothing is left. Today, this is more this than the fact that they might be resettled. It means also that we really need to have the lowest cost for the investment, and that is why we make above ground investments, we take pipes that will bring the same service to the people but we try to have the lowest investment cost, so that we can depreciate over 5 years. So if after 5 years, they are moved, that's good because you can equilibrate the cost (Garrido *et al.*, 2001, p. 135).

From that perspective, it seems that the market logic underpinning privatization has worked, incentivizing the concessionaires to make investments in risky areas and waiving the otherwise prohibitive requirement of formal land titles. Indeed, the international development community has recognized such practices as innovative and pro-poor—an example for other cities to follow (United States Agency for International Development, 2006).

It is true that the concessionaires have eased conditions for access, extending networks beyond the limits of the pre-privatization MWSS. However, Provencher's statement reveals a marginalization of areas that face imminent demolition and resettlement even though, as I discuss in this chapter,

[103] Fires are a persistent problem in Manila's informal settlements, as the dense living environment provides the conditions for rapid destruction. It is suspected that some fires are cases of arson, intentionally set off by landowners or other parties that have a vested interest in the displacement of these residents.

eviction processes can take many years. Closer examination of the spatialization of water access shows that land tenure remains a barrier because many informal areas are, at most, supplied with bulk water connections rather than individual household ones. Representatives from Manila Water, Maynilad, the MWSS-RO, and Streams of Knowledge have all confirmed that bulk connections are the only options available where land issues are of concern.[104] But if more than a third of Metro Manila is occupied by informal settlers, and if some fraction of those settlers are served via micro-networks, should this not cloud the rosy statistics that the concessionaires put forth? In the previous chapter, I describe how most micro-networks beyond the mother meter are unregulated, resulting in differentiated costs and terms of delivery compared with individual connections. I further suggest that the use of micro-networks allows the concessionaires to embellish their claims of service, while minimizing risks and delegating responsibilities to community organizations.

In the following sections, I examine two cases of selective micro-network use to illustrate how the concessionaires address areas with competing claims to land. While this is not intended to be a comprehensive analysis of the ways in which the concessionaires service informal settlements, I draw on these next two cases to examine the limits of privatization when addressing areas with uncertain land tenure.[105] The stories of these contested spaces reveal the longstanding and ongoing tension between the social needs of low-income citizens—who are claiming their rights to housing and livelihood—and the rest of the city. In Section 4.3, I revisit the Manggahan Floodway case, where berm-side residents are pitted against the state and broader public, who have seemingly valid concerns over the compromised environmental benefits of the waterway. In the Hope Hills case that I describe in Section 4.4, modernization and capitalism paint a more familiar story of urban displacement. Both of these cases highlight the linkage between housing, livelihoods, and water—a linkage that needs to be clarified because, while access to water has arguably improved compared to the pre-privatization days, communities such as these two continue to face inequitable conditions.

4.3 Managing Manggahan

The Manggahan Floodway is a canal stretching from the Marikina River to Laguna de Bay. Constructed in 1986, it was designed to alleviate flooding in Metro Manila by reducing the amount of water flowing into the Pasig River and the central, urban areas that surround it. As with many other waterways in Manila, though, the Floodway's 10-kilometer length is now lined with informal

[104] Neither concessionaire was willing to share quantitative data on the number of areas that actually fall into this category. I suspect that the general policy of using bulk connections in areas with land disputes is a subjective one, based on the decisions of territorial and business area managers, and that data related to these decisions is not maintained centrally because it is of relatively little importance to the main offices.

[105] A follow-up study might involve a more systematic characterization of water access in informal settlements across the metropolitan area. The difficulties of this work would lie in identifying and locating all informal settlements and gaining access to them, since presumably not all are associated with NGOs or state agents. As I mention in Section 4.1, there is no consensus on the number of informal settlements in Metro Manila, nor where they are. In my current analysis, I have only been able to create a partial list of micro-networks, as the reluctance of the concessionaires to speak about the extent of their micro-network use and the lack of centralized documentation on such communities inevitably render some areas invisible.

housing.[106] While some on the upper half of the banks may at some point been given official rights to reside there, they have since been threatened with displacement—along with their neighbors on the lower half, who are clearly violating a restriction preventing development within 10 meters of major waterways (Eva VIII *et al.*, 2010; Alcazaren *et al.*, 2011). It is estimated that there are some 25,000 structures fitted into this space, with structures starting just beyond the water's surface and proceeding up the Floodway's berm walls about five rows deep until meeting the East and West Bank Roads, which mark the frontier of formal housing (Santiago, 2009). The more permanent of these structures are built of concrete hollow blocks; others are made of flimsier materials, such as wooden planks and sheet metal. A report prepared by the Rizal Provincial Government (2000) estimated that 20 percent of those households maintained commercial establishments along the Bank Roads, including medical clinics, hardware and auto-supply stores, barber shops, junk shops, and funeral parlors. Another 20 percent were employed in factories and other businesses, while an additional 20 percent were fishermen or *kangkong* (water spinach) growers. The remaining 40 percent were un- or underemployed.

In 2000, the Rizal Provincial Government partnered with a Presidential Commission tasked with the development of areas adjacent to Metro Manila, as well as the architecture firm P.C. Cruz and Associates. Together, they proposed the construction of several mixed-use, medium-rise buildings on the upper section of the Floodway's berms that would help meet the residential and livelihood needs of current residents. The project—known as "Home Along the Floodway"—was to include space for schools, cooperative markets, and civic services directed at low-income families, while commercial space aimed at the general public was intended to generate revenues that would subsidize housing costs. In theory, the project would have helped alleviate the informal housing situation along the Floodway and in other parts of Metro Manila. But it never came to fruition. Leftist, party-list representatives from the Gabriela Women's Party, *Bayan Muna*, and *Anakpawis*, reportedly acting on behalf of thousands of residents, claimed that the houses of 20,000 families would be demolished in the process, forcing their displacement during the construction process (Largoza-Maza *et al.*, 2008).[107] Furthermore, the representatives suggested that most prior residents would be unable to afford the monthly amortization or meet other requirements of moving into the planned development. In 2008, the government shelved this project, leaving behind the informal structures.

Many have blamed these houses for reducing the capacity of the Floodway to divert water and, specifically, for exacerbating the devastating effects of 2009's Typhoon Ondoy, which resulted in massive flooding throughout most of the metropolitan area (Merueñas, 2012). Experts and authorities from the University of the Philippines and the Laguna Lake Development Authority, the agency that oversees the body of water that the Manggahan Floodway leads into, have suggested that informal settlements have constricted the Floodway's width and flow (Sisante, 2009). In October 2009, following the typhoon, then-President Gloria Macapagal-Arroyo ordered the relocation of such settlers as part of a nationwide climate change adaptation plan. But this rhetoric appears mainly

[106] More than 500,000 people are estimated to live in "danger zones"—areas along waterways and *esteros* (estuaries), and under bridges (Manila Bulletin, 2011a).

[107] The Gabriela Women's Party is named after Gabriela Silang, a female revolutionary who led a revolt against the Spanish in the 18th century. *Bayan Muna* is translated as Country First, and *Anakpawis* literally means Child of Sweat, but has often been used to mean the Toiling of the Masses. All three political parties are progressive and a product of the party-list system initiative signed into law in 1995.

to have added to decades of debate related to social housing policies, and so far, only a few small pockets of households have voluntarily agreed to move. When Typhoon Gener struck in 2012, current-President Noynoy Aquino, who had been visiting one of the nearby elementary schools then serving as an evacuation center for Floodway residents, once again broached the issue—he announced his intention to provide formal housing projects for these residents, this time suggesting that the government could perhaps subsidize the residents' transportation costs if they were to resettle on the city's outskirts (Philippine News Agency, 2012). Aquino then revealed a PHP 50-billion, 5-year project to relocate informal settlers along such "danger zones," tasking the Metro Manila mayors with their clearance. Vice President Jejomar Binay confirmed these plans by, once again, using a narrative of broader social and environmental concern: "The massive floods in Metro Manila and nearby provinces is nature's way of telling us that we need to consistently push for urban development policies that are sustainable and relevant in the midst of climate change," noting that over 100,000 squatters are living in danger zones (Alcober, 2012).

Figure 4.2. Houses on the berm side of the Manggahan Floodway. To the left, a man walks down the slope of the Floodway to his house, bottled drinking water in hand. To the right, water lilies and farmed *kangkong* thrive on pollution and blanket the water surface, periodically creating a thick, green carpet that looks solid enough to walk on. Photos by author.

Given the precarious nature of housing along the Floodway's berm side, it is perhaps unsurprising that Manila Water has been unwilling to provide direct connections to these houses. But the company's initial treatment of this entire area—including the households on the embankment side, which have legal housing rights—reveals their financial motivations and broader concerns with low-income consumers. When Manila Water first started serving this area in 2002, the company only offered bulk connections and public faucets, working with POs that served clusters of houses situated on both the embankment and the berm sides. According to Manila Water managers, bulk water connections were initially offered because households could not afford the upfront costs associated with individual connections. The PO officers with whom I spoke, however, suggested that households preferred individual connections from the onset, and that Manila Water refused to provide these. Communities on the western side of the Floodway were served first; Manila Water installed mother meters along the West Bank Road, and delegated everything beyond that point to POs, which were put in charge of construction, maintenance, and billing of the micro-networks. Several problems arose, though. Tariffs were high, materials were substandard, and those

households that could not afford the connection fee remained marginalized (Water and Sanitation Program, 2009a). Two years later, when Manila Water was ready to expand to the eastern side of the Floodway, several POs approached the MWSS-RO, complaining that the services offered were not pro-poor. The League of United People's Organization Network (LUPON) was thus born, representing 21 POs and nearly 9,000 households situated along the east bank. But although LUPON tried to educate its constituents on the various setups available and negotiated with Manila Water and the MWSS-RO, individual connections were still not permitted. Instead, Manila Water compromised on a hybrid setup in which the company would continue to use mother meters, but also construct some of the internal infrastructure within these communities, delegating management of smaller areas to street leaders, who were responsible for billing and maintenance.[108] While this setup minimized mismanagement, it still did not address the needs of households that could not afford the connection fees, nor of consumer preferences for individual meters (League of United People's Organization Network of Manggahan Floodway, 2007). Furthermore, some street leaders felt burdened by individual payment defaults, the weight of which was borne collectively because of the group payment scheme (Zvinakis, 2008). On both the east and west sides of the Floodway, however, POs served any households in their vicinities that were willing to pay, regardless of whether they lived on the berm or embankment side.

Starting in 2009, Manila Water began converting most of the bulk connections on the embankment side of the road into individual household connections. Once again, households were not given a choice; Nony, the president of one of the homeowners associations, said that his organization had surveyed households regarding the individualization of meters and that the majority had voted to keep the bulk meter arrangement. But the Manila Water managers claimed that the MWSS-RO had ordered all bulk meters to be individualized; indeed, this is exactly what the agency's resolution (2005) on meter individualization stipulates. What is perhaps more problematic, however, is Manila Water's demarcation of formal and informal, and the RO's condoning of this segregation. Thus far, Manila Water has left the berm-side houses reliant on bulk meters; according to utility managers, there were 15 POs operating micro-networks on the West Bank and 38 on the East Bank as of April 2011. But Harry, a PO leader, said that he had stopped extending the micro-network within his berm-side community in 2010 because he did not want to deal with consumer complaints of increasing connection fees. Though people were still asking for new connections, they were relegated to purchasing water periodically, in small quantities, from their neighbors. Along the berm areas, Manila Water and the RO have placed responsibility for the supply of water in the hands of community leaders, who do not necessarily have the capacity or desire to serve everyone.

Even with Manila Water's use of micro-networks—a scheme that allows for increased cost recovery—there are still risks of payment default. In one area along the Floodway, a cluster of some 250 households agreed to move to a resettlement site, but about 40 of their neighbors resisted, staying behind amidst the rubble of demolished houses. Prior to their relocation, many of the households that intended to move stopped paying their water bills, as there was no longer any fear of cutoff. But because the entire cluster shared one mother meter, the nonpayment of the departing households resulted in a debt of some PHP 230,000, which the remaining residents were left to shoulder. In addition, the local mayor ordered Manila Water to disconnect the bulk meter serving the area, presumably with the intention of further prodding the remaining households to relocate.

[108] The ADB-funded Manila Water pilot projects described in Chapter 3 are examples of this system, though those projects also allowed for the amortization of connection fees over a three-year period.

When I last visited the area in April 2011, Manila Water managers were discussing options with these households, offering more flexible payment schemes in the hopes of recovering some of the community's debt.

Manila Water's pattern of expansion along the Manggahan Floodway illustrates the cautious treatment by which low-income communities have been approached—the use of micro-networks is a more reliable means of recovering costs and investments in areas where repayment might be an uncertainty. Along the way, community leaders and the RO have pushed for more pro-poor considerations—first through the construction of hybrid micro-networks on the eastern side of the Floodway, and then through the individualization of most embankment side connections. It is possible that the berm-side areas may see improved access in the next few years, and some community leaders are indeed in conversation with Manila Water and the RO. For now, however, the RO seems amenable to the micro-network setup because of the precarious nature of these houses, especially given the intensified calls for their removal after recent typhoons.

For the berm-side communities, access to water is still intricately tied to the overtly political issue of land tenure. Here, the specific tension is between the competing needs of urban poor residents and the environmental and social value of a fully functional Floodway. The Floodway's oversaturation during major typhoons affects a wide expanse—far beyond the berm-side houses themselves, which are surely deluged and sometimes destroyed—and informal housing therefore becomes a target for criticism from both state and non-state actors. Unlike the "bourgeois environmentalism" (Baviskar, 2003) that has emerged in other cities, where middle-class appropriations of urban space have been cloaked in the language of environmental improvement, the social ramifications of a cleared Floodway appear to have more validity. Nevertheless, critics have seized upon the vulnerability and visibility of informal settlers, which are comparatively more susceptible and weaker targets compared to middle-class developments and industrial practices that have also exacerbated flooding in the metropolitan area. Berner (2001, p. 294), quoting a Filipino NGO's newsletter, writes that, "The urban poor have been commonly associated with unemployment, shanties, overcrowding, filth, stink of uncollected garbage, lack or total absence of social services, malnutrition and just about everything that makes life miserable." Given that image, it is no wonder that they do not fit into the imagined aesthetic of the city (Ghertner, 2011).

What is telling, however, is the way in which the narrative of slum-as-problem has been transformed from one of eyesore to one of environmental import, producing a new basis for illegitimacy (Rademacher, 2009). In contrast, for instance, Provident Village—a gated community built on former farmland immediately adjacent to the Marikina River—does not receive the same degree or type of criticism, despite being one of the middle-class subdivisions most badly affected by Typhoon Ondoy because of its encroachment into areas around the river now plainly and seriously threatened by flooding (Salazar, 2009). While flood mitigation is a high priority and government policies attempt to address many factors—for example, it is well-recognized that the 22-hectare forest that once comprised the Marikina Watershed has been nearly denuded—the clearing of informal housing along waterways remains a focal point of state efforts to address flooding risks. But as the issue of flooding continues to frustrate, as it has for decades, it is evident that would-be short-term and temporary fixes such as micro-networks have a tendency to become a kind of shadow norm, as medium- or long-term setups leave those without direct utility access in a state of permanent marginality.

4.4 The legal limbo in Hope Hills

Meanwhile, on the northern outskirts of Metro Manila, a 40-year-old land conflict festers. Hope Hills is a low-income settlement of some 40,000 people sprawled over 156 hectares and comprising two *barangays*. Originally part of a much larger parcel of land known as the Tala Estate—a government-owned "Friar Land" that was once used as a leper colony—the area was first purchased from the government in 1934, subsequently changing hands several times over the following two decades. In 1956, Carmel Farms, Incorporated (now Carmel Development, Incorporated, or CDI) assumed control of the land. But this sale and all prior sales were invalidated in 1973, when then-President Marcos issued Presidential Decree (PD) Number 293 cancelling all transfers related to this particular parcel, citing incomplete payment on the land. The area was instead pronounced available for sale to the Malacañang Homeowners Association, Inc., a group of low-income residents that had settled in that area the prior year.[109] However, in 1988, the Supreme Court declared PD Number 293 to be unconstitutional and void, nullifying the titles that had been awarded to individual Malacañang homeowners. Despite that finding, the number of residents in this area has continued to grow.

In the last decade, CDI has demonstrated its intent to reclaim ownership of this land, prompting a prolonged and still-ongoing legal battle (Demolition Watch, 2011). A judicial decision issued by the Metropolitan Trial Court of Caloocan City in 2002 ruled in favor of CDI, paving the way for CDI's demolition of some low-income houses. CDI reports that those demolitions were "undertaken not only in the most lawful manner but also in the most humane and considerate way possible" (Faustino, 2002). The 2002 decision in favor of CDI was later reversed, in 2006, when the Regional Trial Court of Caloocan City ruled in favor of the Office of Solicitor General, which had filed a case against CDI on behalf of the Department of Environment and Natural Resources' Land Management Bureau. CDI appealed that ruling, and in 2008, the Court of Appeals overturned the Regional Trial Court's decision. Though the Office of Solicitor General filed motions for reconsideration and review in the Court of Appeals and the Supreme Court, those motions were denied in both courts. The only allowance given by the courts to the residents was a temporary restraining order against CDI issued by the Supreme Court in June 2009 and lifted in March 2011.

Barely one month after the temporary restraining order was lifted, CDI and its armed security force began taking physical measures to remove some residents from the area. Gates and checkpoints were installed around the village and in April 2011 demolition teams descended upon several houses in the middle of night (Cruz, 2011). In response, residents began holding nightly vigils to fend off the demolition teams. On two separate occasions in April and July 2011, CDI security guards fired on residents, killing two and injuring others, and garnering the attention of the media and liberal lawmakers. Those events have prompted Representative Teddy Casiño of the progressive party-list, *Bayan Muna*, to initiate a congressional probe into alleged human rights violations. The battle for Hope Hills seems far from a final resolution.

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[109] I have not been able to determine why Marcos issued this decree, though it is likely that he was granting a favor to the Malacañang Homeowners Association, Inc., which was originally formed by employees of the Office of the President and the Presidential Guard Battalion that had been ordered to vacate Malacañang Park, an area adjacent to the presidential palace. In the Supreme Court's ruling of PD Number 293 as unconstitutional, Justice Narvasa cites the decree as a "despotic, capricious, oppressive and unjustifiable exercise of government power," ultimately finding that Marcos performed a judicial function that was beyond the aegis of his executive authority (Republic of the Philippines Supreme Court, 1988).

Perhaps contributing to CDI's recent escalation of efforts is the planned construction of the Metro Rail Line Transit 7 (MRT-7) Project due for completion in 2014 (angrymob1973, 2011). The project is an extension of the light rail system from Quezon City, through Caloocan City, and into San Jose del Monte (a city just outside of the Metro Manila boundary in Bulacan province). Tala Station, the penultimate of the 14 planned stops, is to be located in Caloocan City, near Hope Hills. The terminal station, Araneta, will be the site of a large-scale, intermodal transportation hub, connecting the rail line to the existing North Luzon Expressway via a new six-lane highway. It will also lie adjacent to the Colinas Verdes Residential Estates and Country Club, a gated community currently being developed by a company owned by the Araneta family—the same family that owns CDI and many other major businesses.[110] It may thus come as no surprise that the Aranetas are aggressively pursuing expansion in this area, especially as San Jose del Monte is heralded as a new "super city," with planned high-rise commercial and residential buildings around this proposed transportation center (Balabo, 2007). Consequently, Maynilad is operating responsibly (from the perspective of its investors, at least), in proceeding with caution and hesitating to (over)invest in what is now Hope Hills; Maynilad's investors also have their own various stakes in the planned infrastructure projects, with a USD 1 billion engineering and construction contract for MRT-7 recently awarded to DMCI and Marubeni.[111]

Rather than investing in individual water connections, Maynilad has arranged for a bulk meter setup, with Marilou operating the micro-network and the non-profit Streams of Knowledge serving as managerial facilitator. Initiated in 2008, the system currently serves several thousand households.[112] As with Marilou's other sites, the area is divided into smaller territories run by *aguadors*, local residents who manage the water delivery and payment collection of between 25 and 100 customers in their assigned section. This particular project has featured prominently in national and international discussions on the potential roles of small water providers, including at high-profile events such as the Stockholm World Water Week and at ADB conferences, perhaps because of Streams' involvement and legitimizing role (Jain, 2010). But while the system has been praised for reducing household expenditures on water—residents were paying PHP 30 per drum[113] for water purchased from tanker trucks prior to the installation of the micro-network—tariffs are still significantly higher than those of houses directly served by Maynilad. The Streams-Marilou venture sells water for PHP 15 per drum, of which PHP 5 goes to the *aguador*, which is equivalent to PHP 50

[110] The Aranetas are a wealthy landholding and political clan. Greggy Araneta, the head of CDI, married the Marcos' daughter, Irene, in 1983. President Marcos' PD Number 293, which once issued operated to the detriment of the Araneta family, may thus be seen as piece of a more complicated family affair. Whether or not personal or family relationships underlie the order, the state's intent through the order was never explained and is thus officially unclear.

[111] DMCI and Marubeni are two of Maynilad's current investors.

[112] According to Streams, the system served about 500 of the 3500 households living in the area in 2008 (Villaluna, 2008; Baudry, 2010). Marilou's 2009 presentation at the World Water Week in Stockholm states that she served more than half of some 4000 households by that time (in order to protect her identity, I am not providing a reference for this presentation). In 2011, Marilou told me that the system served about 8000 households, though this was likely an overestimation on her part.

[113] As mentioned in Chapter 3, plastic drums are frequently used to store water in Manila. A typical drum holds about 200 liters of water.

per cubic meter.[114] This is certainly more affordable than the previous alternative. But one must also consider that Maynilad's 2011 tariff schedule listed rates of PHP 12 per cubic meter for the first 10 cubic meters, assuming the household consumed more than that per month; the lifeline rate, for those consuming less than 10 cubic meters per month, was just under PHP 8 per cubic meter. Although one fifth of the Streams-Marilou revenue is set aside for community projects related to water and sanitation improvement (such as the maintenance of public toilets and the digging of drainage canals[115]) and households do not have to pay installation fees, residents are still arguably paying significantly more than those with direct connections.[116]

Furthermore, because of the most recent Court of Appeals decision in favor of CDI, the Streams-Marilou venture has limited the expansion of its micro-network, although it has continued to operate and maintain existing infrastructure (Villaluna, 2011). Small water providers tend to be more willing than the utilities to invest in risky ventures, but in this case, even Marilou (who is perhaps the most successful of micro-network operators) has been hesitant. Thus, while households that are already connected may benefit from lower tariffs, those that remain outside of the micro-network's grid must rely on tanker trucks, neighbors, and more expensive alternative forms of water provision. Despite this patchwork of varying and possibly inequitable water provision, Maynilad's informal records reflect a consideration that the entire area is served.[117]

[114] Based on the assumptions that water costs PHP 50 per cubic meter and that there are 200 liters in a drum, a drum of water should cost PHP 10. However, Villaluna, the Executive Secretary of Streams of Knowledge, informed us that the going rate of a drum was PHP 15 (Villaluna, 2008; Baudry, 2010).

[115] For instance, in 2009, PHP 90,000 of the community fund was used to construct a public toilet, while another PHP 20,000 was used for the operation and maintenance of toilets in the elementary school (Baudry, 2010).

[116] Installation fees can be significant barriers to connection, especially if they are not amortized. However, the Maynilad scheme still compares favorably with the Streams-Marilou tariffs, even with its installation fee. Based on my calculations (and based on the assumptions that a household consumes 10 to 15 cubic meters per month, has a discount rate of 5 percent, recovers the money dedicated to community projects, and must pay the connection fee upfront), I estimate that a household would spend less money using the Streams-Marilou model for the first month of service. After that, the high monthly tariffs would outweigh Maynilad's installation fees, and the household would spend more money through the Streams-Marilou system.

[117] A Maynilad manager gave me a spreadsheet listing the number of micro-network beneficiaries in Caloocan, allowing me to make this inference.


Figure 4.3. An *aguador* and the meter that is attached to the end of his hose. Photos by author.

What is evident from the Hope Hills case is that access to water is manifestly tied to the politics of space. That micro-networks are used to serve areas where land is contested reveals a spatial valuation by both the state and its private agents—a valuation that tends to place weight on projects of modernization and neoliberalism. Here, Harvey's (2008, p. 33) notion of "surplus absorption" is visibly evident—a physical manifestation of the "repeated bouts of urban restructuring through 'creative destruction,' which nearly always has a class dimension since it is the poor, the underprivileged and those marginalized from political power that suffer first and foremost from this process." The concessionaires, sensing the possibility of inadequate cost recovery from potentially displaced communities, opt to invest halfheartedly, using strategies such as mother meters to minimize their expenditures.

But while various arms of the state ultimately condone these investment practices, in effect reinforcing the capitalist mode of production, it is not a wholly uncontested process. In the Hope Hills case, some branches of the government have acted on behalf of residents (the Office of Solicitor General, the Land Management Bureau), while others have ultimately supported CDI (the Supreme Court, the MWSS-RO) and modernist development efforts, in general. Even within the state, the production of space is a fluid process—one that privileges what Roy (2011b, p. 8) terms the "territorial circuits of late capitalism," but that also consists of struggle and contradiction.

4.5 Conclusion

In this chapter, I have demonstrated how access to water (or the lack thereof) is intricately connected to contestations over access to land. The use of micro-networks to serve such spaces leads to four conclusions. First, although the concessionaires have eased the rigidity of their requirement of land title as a prerequisite for obtaining formal access to water, some of the most contested spaces—which are arguably occupied by some of the most marginalized residents—continue to receive differentiated services. Identifying these spaces is a challenge in a city like Manila, which produces only limited data on informal housing and water provision. Using micro-

networks as a lens for identifying the frontiers of (in)formal water access allows us to better delineate the edges of this fluid boundary. Second, these frontiers are evolving as a result of negotiations between the concessionaires, various arms of the state, and community members, as we have seen along the Manggahan Floodway. But while the state and citizens can influence water policy and modes of access in specific locations, the concessionaires still have the upper hand when it comes to these decisions because they are, relative to other actors, the most directly involved in water provision. For that reason, Manila Water continues to use micro-networks to address areas with land tenure issues, despite the pressure exerted by the RO and some communities, as I describe in the previous chapter. Third, contestations over land can involve class tensions, as we have seen in Hope Hills and in the long history of urban struggles in many parts of the world, particularly those undergoing processes of modernization. But they may also be due to a more complex and ambiguous tension between a broader social and environmental concern, applicable to both rich and poor, and to the specific rights of low-income citizens to inhabit and work in the city. Along the Manggahan Floodway, the state's desire to mitigate flooding for the general population is at odds with its structural policies of housing and resettlement, and the inability to reach a consensus on these issues leaves a more sustainable or long-term solution to water access hanging in the balance. Fourth, these contestations may continue to play out in the medium- to long-term. As they do, purportedly temporary solutions to water access, such as micro-networks, risk becoming entrenched as durable solutions despite their inherent inequities.

The concessionaires' use of micro-networks to address access needs in contested areas in Manila is consistent with a general pattern of differentiated access in low-income areas across the global South. However, this only explains part of the story of inequity in water delivery. In the following chapter, I demonstrate how micro-networks are also being used to serve communities where the concessionaires perceive disciplinary issues related to theft and nonpayment. There again, access to water is spatially uneven, but in these areas, the frontiers are more subjective, ambiguous, and seemingly arbitrary.

Chapter 5. Micro-networks of Discipline and Reform

The 200 households served by one of Marilou's micro-network systems are densely packed into a single city block in Salcedo.[118] Some of the smallest homes consist of just one room, barely enough space for a family of six to sleep. Life, then, necessarily spills out into the crowded alleyways within the settlement. On any given day, these alleyways are teeming with semi-clothed toddlers, rats scurrying through cracks in the pavement, vendors hawking home-cooked food and, always, the sounds of a karaoke machine in the distance. Wire strippers—men and women who buy electrical wires that have been removed from appliances, searching for some remnant copper of value—work next to a makeshift basketball court (the latter a staple in every Filipino community).[119] Saturdays are laundry days for many, with row after row of (mostly) women squatting over their washbasins, their dripping clothes hanging overhead. Beleaguered by my terrible sense of direction, I am always hopelessly lost inside the settlement, the meandering alleys—some barely wide enough to walk through, single-file—presenting an intricate maze that is beyond my grasp. Meanwhile, the city streets that border that block are, by comparison, capacious—practically four lanes wide, with squat palm trees in the middle providing shady refuges for elderly residents. Indeed, from the street, it is difficult to guess at the extent of the labyrinthine settlement just a few feet away.

Figure 5.1. Scenes of everyday life in Salcedo. Photos by author.

It is estimated that about five million households live below the poverty line in Metro Manila and, while there are some larger clusters of informal settlements, most of the urban poor are dispersed, living in pockets of availability—smaller spaces that may appear to be otherwise empty of investment or development—such as this one in Salcedo (Ragragio, 2003). In cities like Manila, the

[118] There are about 100 additional households in this settlement that are not served by her water system.

[119] Bartholomew (2010) provides a journalistic account of the centrality of basketball in Philippine culture.

challenge of expanding water provision thus amounts to significantly more of a task than that facing cities with well-established populations and infrastructure, where maps and other data may provide a better framework for more completely and accurately understanding settlement patterns and underground networks. Rather, prior expansionary efforts in large, metropolitan areas of the global South have often been piecemeal and incomplete, occurring under the aegis of different authorities and administrations. In these cities, formal infrastructure tends to be hidden underground (Kaika and Swyngedouw, 2000), while informal infrastructure may consist of interwoven "spaghetti networks" that are often unregistered and always unmapped (Water and Sanitation Program, 2009b).[120]

It is my contention, then, that the two Manila water concessionaires have been engaged in an ongoing process of improving legibility as they attempt to expand their networks, particularly in low-income areas—and indeed, any serious project to embark on improvements of this nature and scale must do the same. The notion that legibility may be a central component of large-scale development has been theorized mostly in the context of grand social engineering schemes conducted by the state. For Scott (1999, p. 183), legibility "is a condition of manipulation. Any substantial state intervention in society . . . requires the invention of units that are visible." Similarly, Mitchell (1991, 2002) describes military and planning projects that instilled social order and new modes of legibility in colonial Egypt. The Manila concessionaires, while acting on behalf of the state, do not have the authority of the state itself. But as I have suggested in Chapter 2, the concessionaires are the primary producers of knowledge concerning access to water, generating statistics and creating maps to explain Manila's water system to national and international actors. Though unable to execute legibility projects at the level of high modernist plans—and indeed, present-day interventions are rarely the type that Scott and Mitchell describe (Li, 2007)—the concessionaires nevertheless engage in processes of simplification and rationalization that may be seen to iron out some of the more complex wrinkles in Manila's water system. As I describe in this chapter, their use of micro-networks and other strategies are ways of rendering more legible the city's low-income populations. But, critical to my argument is a notion of scale, for while utility managers possess an incredibly rich knowledge of on-the-ground access to water, much of this knowledge is lost through the propagation of metro-wide statistics. The apparent project of addressing access to water thus operates amid various levels of legibility and visibility.[121]

Legibility makes the city more governable, but I contend that the concessionaires are further engaged in a process of subject formation: they use micro-networks and other physical schemes, such as clustered meters and exposed piping, to coerce behavioral changes in certain low-income populations. As I describe in Chapter 1, my interpretation is rooted in Foucault's (1991) view of governmentality as occurring in both state and non-state spaces. Alternative modes of access can be

[120] Spaghetti networks are informal systems of aboveground and often flexible piping.

[121] I make a distinction between the terms legibility and visibility, as I explain in Section 4.5. Furthermore, unlike Lynch's (1992, p. 3) definition of legibility—where "a legible city would be one whose districts or landmarks or pathways are easily identifiable and are easily grouped into an over-all pattern," I do not find that the particular processes that I describe make the city any more legible for ordinary citizens.

interpreted as tools that the concessionaires employ to deliver services to these communities while still recouping payments and addressing other financially-oriented or status-driven goals.[122][123]

In this sense, the application of Harvey's (2005b) "accumulation by dispossession" argument is relevant but requires modification. Harvey compares present-day water privatization to the historical enclosure of common land in England, an analysis that is clear-cut when access to water shifts from being publicly available through common property resources to being privately controlled. However, in cities like Manila, the supply of water has mostly undergone some degree of commodification; free water is virtually unavailable (with one notable exception being of the municipal tanker trucks in Santa Ana that I describe in Chapter 6). Most households were already subject to accumulation by dispossession prior to the large-scale water privatization of Manila's utilities, and while privatization shifts the beneficiaries or accumulators of these profits, it is less obvious whether low-income citizens have been more or less dispossessed following this transformation.

Harvey's thesis that privatization is an ongoing process of commodification, however, holds true; specifically, I suggest that access to water in present-day Manila is about the *consumerization* of the citizen. By that, I suggest that efforts are being made to transform the ordinary citizen into a good consumer—one that pays on time, respects local rules of enforcement and honesty, and acts responsibly and morally. These attempts to transform the citizen-consumer are apparent at multiple levels, in multiple schemes. As I discuss in this chapter, such attempts are evident in the language used by the concessionaires, as well as in comparisons of the Philippines to its more disciplined neighbor, Singapore. While the concessionaires are primarily motivated by cost recovery and other financial goals, I propose that their practices can lead to subject formation, for it is arguably changes in physical and human infrastructure—such as highly policed micro-networks—that have the most direct impact on the reformation of the citizen-consumer.

Of course, the project of governing people, specifically with respect to water, has a much longer and established history. Writing about the nineteenth century "bacteriological city," Gandy (2004, p. 363) describes how modern infrastructure transformed the ways in which people both conducted and conceived of themselves; in so doing, they created "new moral geographies and modes of social discipline based upon ideologies of cleanliness." Tynan (2002, p. 355) describes how London's private water providers used "farming out (subcontracting) of rate collection to someone living in the poor neighborhood as a way to increase payment rates by the poor"—a mode of payment enforcement that is remarkably similar to the use of micro-networks in Manila today. More generally, Loftus (2006)—writing about the "dictatorship of the water meter" in the South African context—argues that meters and pricing schemes allow utilities to achieve the twin goals of profit accumulation and consumer control through the rational disciplining of household water use.

Though operating at a much smaller scale, and with a much more limited potential for transformation, I suggest that the strategies currently employed in Manila's low-income communities

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[122] In Chapter 2, I suggest that one of the factors driving the concessionaires is a desire to become a "model utility."

[123] This is not to suggest that power, or even the desire to create micro-networks, emanates solely from the concessionaires; as I describe in Chapter 3, the establishment of micro-networks often entails a combination of both top-down and bottom-up efforts. Nevertheless, this chapter explores one of the reasons why the concessionaires may want to use micro-networks and other strategies—to transform undesirable communities into more manageable ones.

can be viewed as parallel attempts to shift moral and behavioral frameworks through the reconfiguration of infrastructure. The goal, in this case, is to further close the narrow gap between citizen and consumer by framing responsible citizenship as responsible consumerism (Morgan, 2006). In operating within a broader framework that emphasizes cost recovery and responsible consumption, NGOs and micro-networks are also complicit in processes of subject formation. For instance, at the annual cooperative meeting that I attended (which I describe in Chapter 6), only members without outstanding debts were allowed to vote.

Furthermore, while the concessionaires attempt to increase coverage and reduce losses throughout the city, technologies of government are applied differentially to the poor and non-poor. That is, while some customers from all income levels may evade payment, the mechanisms of payment recovery targeted at low-income consumers focus on increased policing and a transfer of responsibility toward communities and individuals, and away from the private concessionaires. In contrast, payment recovery targeted at high-volume customers typically involves technical improvements and arrears settlements. This is problematic for two reasons: first, there is an asymmetry of treatment for nonpayment in poor and non-poor areas, which can result in higher costs in poorer areas; and, second, the same processes that lead to advancements in coverage and loss reduction also reconfigure inequalities.

I begin the following section by demonstrating how NRW reduction is a major driver of the concessionaires' operations, providing a brief summary of some of the techniques that deal with all nonpayers, as well as those directed at high volume users.[124] In Section 5.2, I look more closely at two schemes targeted at low-income areas—micro-networks and clustered metering—to show how they enhance cost recovery, as well as transfer responsibilities toward communities and individuals. Section 5.3 examines the discourse surrounding technologies of government directed at the poor—the ways in which these technologies are framed in a language of partnerships, ownership, and morality—even though they are mechanisms for increased policing and discipline. In Section 5.4, I look to other ongoing projects in Manila that cast a wider shadow of reform and behavioral change, and which may perhaps explain the general sense of citizen complacency that I describe in Chapter 6. Section 5.5 returns to the notion of legibility, continuing the argument that I have laid out above regarding scales of visibility and invisibility. I conclude in section 5.6 with thoughts on how small water providers are evolving to become the policing arm of the concessionaires.

5.1 Down with NRW

At ADB's 2010 conference on water, the first breakout session of the five-day event was devoted to increasing utility efficiency, specifically through the reduction of NRW.[125] As noted in previous chapters, NRW is the percentage of water that enters the distribution system but is not recovered from consumer payments; reduction of NRW, the panelists proclaimed, could be seen as a critical

[124] Portions of this chapter have been published in Cheng (2013).

[125] I begin this dissertation with a brief description of this conference.

step toward improved utility performance.[126] It was a relatively new topic of discussion too, one panelist said, recognized as an important issue only in the last decade or so. But it made economic sense now, claimed another, because reducing NRW was significantly less expensive than new source development. The statistics that they provided were impressive: Phnom Penh's NRW, reduced from 72 percent in 1993 to an astonishing six percent in 2006; Hai Phong's NRW, down from 70 percent in 1993 to 25 percent in 2008; Manila Water's NRW, from 63 percent in 1997 to 16 percent in 2009, and still decreasing.

Since the early 1990s, IFIs, private water companies, and utilities have increasingly looked to NRW reduction as a primary mechanism by which to improve efficiency in water provision. NRW reduction appears to fit into the broader neoliberal shift in water policy and provision that I described in Chapter 2. Indeed, that may explain why NRW reduction has only relatively recently come into the foreground; it was only after the privatization of the UK water sector that the International Water Association developed a range of performance indicators establishing best practices, tools, and methodologies to address water losses (Frauendorfer and Liemberger, 2010). The accompanying shift in terminology—from unaccounted-for-water to non-revenue water—highlights the focus of these improvements in minimizing revenue losses, as opposed to water extraction or consumption. The recent spotlight on NRW is clearly about cost recovery.

A 2010 ADB report states (Frauendorfer and Liemberger, 2010, pp. 2,11):

> The need for NRW management in general, and in Asia in particular, is so obvious that it is hard to understand why efforts to improve the situation have been so limited. . . . The level of NRW is one of the best indicators of water utility efficiency. A utility with a high level of NRW either has a management who is not aware of the benefits of NRW reduction or is simply not capable of introducing and managing these complex and interrelated activities. A utility with a low level of NRW obviously must be well managed, as NRW management is one of the most complex and difficult tasks of a water operator.

The rhetoric contained in this report and propounded at the ADB conference tends to frame the need for NRW reduction as *obvious*, equating utilities that have achieved low levels of NRW with success. It is not surprising that, given this framing, utilities feel the pressure to demonstrate improvements in NRW reduction.

This commonsense understanding ignores a potentially disruptive truth: that most utilities estimate NRW data—the accuracy of which rests on a particular utility's ability to manage internal water accounting—often without external validation. The same ADB report admits, "Most of the published water utility data, especially from low- and middle-income countries are unaudited, resulting in sometimes significantly incorrect data being included in databases and publications, which can be very misleading" (Frauendorfer and Liemberger, 2010, p. 5). Yet, for lack of better alternatives, it is this data that ADB and other international organizations use to benchmark utilities across regions. And it is arguably the pressure exerted by organizations and investors to become

[126] In Chapter 2, I discuss how both concessionaires have reduced non-revenue water from pre-privatization levels. Manila Water, in particular, has demonstrated incredible success.

"model utilities" that drives utilities to downplay the ways in which their services may be lacking, as I suggest in Chapter 2.

NRW consists of commercial losses and physical losses. The former refer to losses caused by theft and nonpayment, meter under-registration, or data errors, while the latter refer to leakages that occur throughout a utility's system. In general, ADB estimates that physical and commercial losses comprise 75 and 25 percent of NRW, respectively (Frauendorfer and Liemberger, 2010). While any attempt to significantly reduce NRW must address both types of losses, my interest here is solely on the concessionaires' efforts to reduce commercial losses because, unlike physical losses, losses due to theft and nonpayment are necessarily social and political issues.[127] The manner in which they are addressed thus provides some insight into the nature of urban water governance and the implications of these new governance initiatives on citizens.

And, indeed, the politics of nonpayment is a tricky one. Those who engage in nonpayment do so for a variety of reasons and—as evidenced by pre-privatization NRW estimates—may do so with some significant frequency and, over time, by significant amounts. What is important to recognize is that both the poor and non-poor engage in this politics for a variety of reasons. But though the informality of nonpayment connects the separate spheres of the poor and non-poor (Roy, 2011a), the concessionaires apply different technologies of government to each, arguably holding the poor to stricter standards. The application of different mechanisms to deter nonpayment still varies depending, seemingly at least, on class lines. This holds true even while the concessionaires and international organizations do generally acknowledge that nonpayment among the poor constitutes a relatively small percentage of commercial losses—in other words, that the volume of water that each urban poor household consumes, as well as the revenues that are then lost, is relatively low. Instead, even though there may be many nonpaying households among the urban poor, the bulk of commercial losses and missed revenues have come from industrial establishments and other large users (Frauendorfer and Liemberger, 2010). In what follows, I interrogate the methods by which the concessionaires have attempted to reduce NRW, focusing first on methods of commonality, followed by those that apply to non-poor customers. Section 5.2 then explores the technologies of government directed solely at poor communities.

In general, Manila Water's policies have proven to be more effective than those of Maynilad, as evidenced by their coverage and NRW achievements; this was perhaps even more apparent during the initial years of privatization, when Maynilad was struggling just to stay afloat. One of Manila Water's first orders was to hold an amnesty period from Dec. 15, 1997, to Jan. 31, 1998, during which 13,000 users—including 3500 commercial establishments—legalized their connections in order to avoid prosecution (Manila Standard, 1998). At the time, Manila Water estimated there to be an additional 20,000 illegal users remaining.[128] The company also initiated a "walk the line" program

[127] The anti-pilferage measures listed here are intended to highlight the differences between treatment in poor and non-poor nonpayers, rather than serving as a comprehensive summary of the concessionaires' strategies. The concessionaires have implemented other techniques to address physical losses, some of which also make theft more apparent. For instance, the division of their jurisdictions into smaller management zones allows for more accurate accounting and holds managers responsible for localized NRW reduction.

[128] Manila Water reported its NRW to be 11 percent in 2010, so the number of illegal users has presumably decreased dramatically (Manila Water Company, 2011).

in which managers inspect their assigned areas periodically, both in order to improve customer relations and to identify illegal connections. Today, Manila Water's walk the line policy continues to be a key feature of their rhetoric and practice, featuring internationally as a best practice (Asian Development Bank, 2010) and an example of good corporate social responsibility (Skibola, 2011).

Both concessionaires maintain official policies to cut off service after two months of nonpayment. In reality, some degree of flexibility exists, in part because the concessionaires sometimes fail to register when those two months of delinquency have passed and because there may be room for negotiation between consumers and the local staff. Varying degrees of enforcement and billing became apparent through my household surveys, some of which were directed at Manila Water and Maynilad customers. For instance, several new Manila Water customers in Pagasa had not been charged their amortized connection fees, while others indicated that they found the cooperative to be stricter about collecting monthly payments.[129] Indeed, Manila Water's walk the line program allows customers to develop more of a relationship with their local manager and allows for some degree of negotiation. Ironically, though small water providers are often heralded for their flexibility in accommodating customers (Solo, 1999), it is the large providers that have economies of scale that allow more room for individual negotiation.

Arguably, the degree to which low-income households may negotiate with the concessionaires is much less significant than that of high-volume users, in part because the latter demonstrate more clout and are usually dealing with vastly greater sums of money. Though the National Water Crisis Act of 1995 declares water pilferage unlawful and allows for the prosecution of nonpayers, in actuality, most cases appear to be settled out of court, often for a much lower amount. For instance, in 2000, Maynilad revealed that the Coca-Cola Bottling Company had an illegal connection installed in 1984 that, by then, amounted to PHP 27 million in arrears; however, Coca-Cola ended up settling for PHP 2 million in an agreement that evaded allegations of illegality (Philippine Center for Investigative Journalism, 2000). Corruption and bribery are also common occurrences in the Philippines, particularly in business practices, and it is not difficult to imagine that some amount of negotiation revolves around these exchanges.

Despite my contention here that the concessionaires are willing to negotiate with some high-volume users, both Manila Water and Maynilad have taken specific measures that target these nonpayers. Maynilad ran a campaign from April 1 to September 30, 2011, called *Sugpuin ang Ilegal na Koneksyon AgaD* (Stop Illegal Connections Immediately, with the acronym, *SIKAD*, translating to "kick"). Targeted at illegal industrial and commercial users, it offered rewards ranging from PHP 15,000 to 120,000 for the reporting of each transgression (Maynilad Water Services, 2011c). Maynilad received 330 reports through the *SIKAD* program by December 2011; it estimated that 42 illegal connections had consumed over 12,000 cubic meters of water, and planned to grant PHP 1.5 million in rewards (Philippine News Agency, 2011). Maynilad has also been replacing and registering meters, such that high-volume users have the most accurate ones (Frauendorfer and Liemberger, 2010; Liemberger, 2010). In April 2012, the company announced that it would be replacing 150,000 residential meters each year to address their seven-year estimated lifespan (Philippine Information Agency, 2012). The PHP-170-million meter replacement program is intended to address more technical problems related to under-registration and data quality errors. And, in a rather bizarre case of nonpayment in 2011,

[129] So far, about 30 households have switched from the Pagasa cooperative to Manila Water.

various police departments throughout the metropolitan area were found to have amassed a collective debt of PHP 16 million (The Local Government of Quezon City, 2011). This discovery, in turn, prompted Maynilad to cut off supply to the City of Manila's police department in July 2011, but only after six years of nonpayment had led to PHP 14 million in debt (Andrade, 2011). In Quezon City, the mayor's office offered partial settlement of that city's police department debt, representing a circuitous form of subsidization in which local government units bail out public sector users.

My interest in laying out the significance of NRW reduction in policy circles and the measures aimed at high-volume users is to establish a basis for comparison with those techniques used in low-income areas. As I demonstrate in the following section, measures directed at the poor alter the physical nature of access and seek to elicit behavioral changes in consumers. Arguably, these infrastructural modifications enhance policing within low-income areas by shifting responsibilities to individuals and community groups.

5.2 Managing the poor

In Chapter 3, I describe the ways in which the concessionaires have used micro-networks to facilitate their expansion into certain low-income areas. To reiterate, micro-networks allow the concessionaires to provide a single connection for an entire community via bulk meters. A CBO or an entrepreneur will then manage, and sometimes construct, the internal infrastructure that begins at the bulk meter and delivers water to individual households, whether that be through immobile, piped systems or flexible hoses. From the concessionaires' standpoint, the use of bulk meters and micro-networks has many advantages, allowing for faster expansion and simpler management. Crucially, it also allows for full recovery of the communal monthly bill, for it is the CBO or entrepreneur that must produce this lump sum or risk arrears and cutoff. It is thus the micro-network operator who must handle individual household delinquency, forcing households to more strictly adhere to internal payment policies. Furthermore, bulk meters reduce localized NRW to zero, as losses after the bulk meter do not enter into the concessionaires' calculus. In other words, the sociopolitical costs of water provision—those that relate to nonpayment and theft—are passed on to the community.

In Salcedo, for instance, I arrived one day to find Marilou's field staff scrambling about, frantically searching for the sources of two fairly significant illegal connections. About 85 households in Salcedo receive water through a piped micro-network, while the remaining consumers receive water through flexible hoses on a periodic basis. The piped micro-network consists of a bulk meter near the street and a handful of secondary meters inside the settlement, which each serve about 10 households. Felipe and Sophie, the husband-and-wife team that oversee Marilou's daily operations there, detected some unusually high activity on one or two of the secondary meters, prompting the investigation that I happened upon. Over the course of several days, Felipe and Sophie notified the households that were supplied by each secondary line that their water supply would be temporarily disconnected. By asking each line's customers to halt the use of their piped connections, the staff were able to detect the secondary meters that were still recording usage, thus isolating the site of illegal tampering (clearly this operation was conducted surreptitiously enough such that the violators

were not aware of the ongoing experiment). It was later surmised that about 30 cubic meters were being lost each day to two illegal connections—one that was allegedly operated by a local elected official (a *kagawad*, or *barangay* councilor)—covering a period that was perhaps as long as six months. To Manila Water, of course, none of this even took place; instead, costs were indirectly deflected to Salcedo residents, while the onus of leak detection and reconciliation fell to the local micro-network staff.

In addition to increased surveillance, costs can be more expensive compared to the concessionaires' published tariffs. This is because, as described in Chapter 3, the concessionaires' tariffs at the point of the bulk meter are the same as those for direct household connections. Beyond the bulk meter, household tariffs include a surcharge for internal staff and material costs of the micro-network—costs that can be significant if the concessionaire does not construct the internal infrastructure. There are no enforced regulations limiting the amount of this surcharge, although various governmental actors are taking measures to standardize micro-network tariffs and convert bulk meters into individual connections.[130] In Santa Ana, for instance, where individual Maynilad connections were denied, micro-network tariffs begin at PHP 28 per cubic meter—nearly double Maynilad's tariffs, which begin at PHP 16.[131] This is because Maynilad sells bulk water to the cooperative at a per unit rate of PHP 16, on top of which the cooperative must add on fees for staff, materials, meetings, and other internal costs. As I describe in Chapter 6, the cooperative's higher tariffs obscure many of the benefits the organization does provide and raises suspicion among some community members about its legitimacy.

The modified micro-networks that I discuss in Chapter 3—cases where Manila Water constructs the internal infrastructure in some micro-network communities but (crucially) still delegates monitoring and bill collection to CBOs—are perhaps the most obvious articulation of the disciplinary role that CBOs must play. In these cases, tariffs and materials are comparable to those used for direct connections, but the CBOs, which have to produce collective monthly payments, still strictly police households. Only after a trial period of about three years, during which the community has to demonstrate that they can be responsible consumers, are the bulk connections converted into direct, individual ones. Manila Water's ADB-funded pilot project along the Manggahan Floodway is an example of this model (Asian Development Bank, 2008a).

The concessionaires' use of bulk meters and micro-networks thus shifts the space of regulation toward individuals and communities, because it is the small water providers that must address any internal tensions over theft and nonpayment. With these setups, the concessionaires can deal with one representative in micro-network communities, rather than the hundreds of households that lie beyond the bulk meter. For the concessionaires, water provision stops at the gates, simultaneously

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[130] The National Economic Development Authority and NWRB are working to register micro-networks and assist in tariff setting, while a MWSS-RO resolution (2005) calls for the eventual conversion of bulk meters to individual ones. The former is in progress and has had no noticeable effect yet, and the latter is being partially implemented by Manila Water, but not by Maynilad.

[131] These tariffs apply for the first 10 cubic meters; Maynilad's rate takes into account all surcharges except for the sewerage charge (because most low-income customers do not have a sewer connection yet) and assumes that the household will consume more than 10 cubic meters per month (Maynilad Water Services, 2011d). Connection fees for the two providers are different and are listed in Appendix C.

depoliticizing the nature of their work, as well as solving the twin challenges of localized coverage and NRW reduction.

Figure 5.2. Micro-networks shift responsibilities from the concessionaires to CBOs. At left, micro-network operators maintain monthly budgets that must allow for full cost recovery. At right, bulk meters signal the end of the concessionaires' territory and the beginning of the micro-networks' infrastructure. Photos by author.

While the focus of my project is on micro-networks, Manila Water's use of clustered metering and exposed piping is also relevant to my current argument. Banks of both water and electricity meters have become highly visible throughout lower-income parts of Metro Manila, serving many more households than micro-networks.[132] For now, this scheme is limited to Manila Water's jurisdiction, though Maynilad may follow suit, as it did with the micro-network setup. In this scheme, Manila Water clusters meters belonging to neighboring houses along a more central roadway rather than situating meters directly outside each house. Since customers are always responsible for maintenance and monitoring after the meter, this scheme again transfers some costs and responsibilities from the concessionaires to individual households. The pipes that lead from clustered meters to households are generally exposed and aboveground, facilitating monitoring, but increasing a household's susceptibility to theft.

These pipes can be lengthy, sometimes adding a significant amount to the official connection fee—though these surcharges rarely factor into policy discussions on the formidability of connection fees. While clustered metering is supposed to translate into reduced connection fees—a MWSS-RO resolution (2007) states that one-third of the connection fee should be borne by the low-income consumer, while the remaining two-thirds is to be borne by the concessionaires—this policy is not uniformly implemented. In Salcedo, for instance, Manila Water has placed clustered meters along a main road. Pipes that are connected to these meters snake through the settlement's narrow alleyways,

[132] Similar techniques have been used to cluster electricity meters high above the ground, making them more difficult to tap and lengthening the wires belonging to each household. Clustered electricity meters may have inspired Manila Water to embark on their clustered metering schemes.

eventually reaching a few homes. Because the one-third/two-third scheme was not offered, and because the after-the-meter pipes are so long, those that are directly served by Manila Water paid connection fees that are as much as double the official amount—ranging from PHP 15,000 to 20,000, compared to just under PHP 8000. The cost of after-the-meter piping varies based on local prices, and the PHP 20,000 connection fees are likely on the high end of the spectrum.[133] Nevertheless, Manila Water's prohibitive connection fees in this informal settlement drive most residents to purchase water from Marilou's co-located micro-network instead.

From Manila Water's perspective, clustered metering facilitates monthly readings and, critically, reduces NRW by shifting ownership to households. In doing so, meter clustering effectively tries to link access to individual surveillance. It attempts to change the way that access is perceived by the individual, forcing an awareness of other people's behavior and of one's surroundings. While I suspect that clustered metering can induce these behavioral changes, this hypothesis is not grounded in my own ethnographic observations; the relatively few households in my field sites that did have lengthy after-the-meter connections did not appear to monitor their pipes, as none had experienced any threat of illegal tapping. Nevertheless, I still contend that as with micro-networks, the role of the concessionaires becomes increasingly technical, focused on the maintenance of mainlines and meters. The burden on the concessionaires is reduced, whether people are deterred from stealing from their neighbors (versus the utility) or confrontations are handled between neighbors.

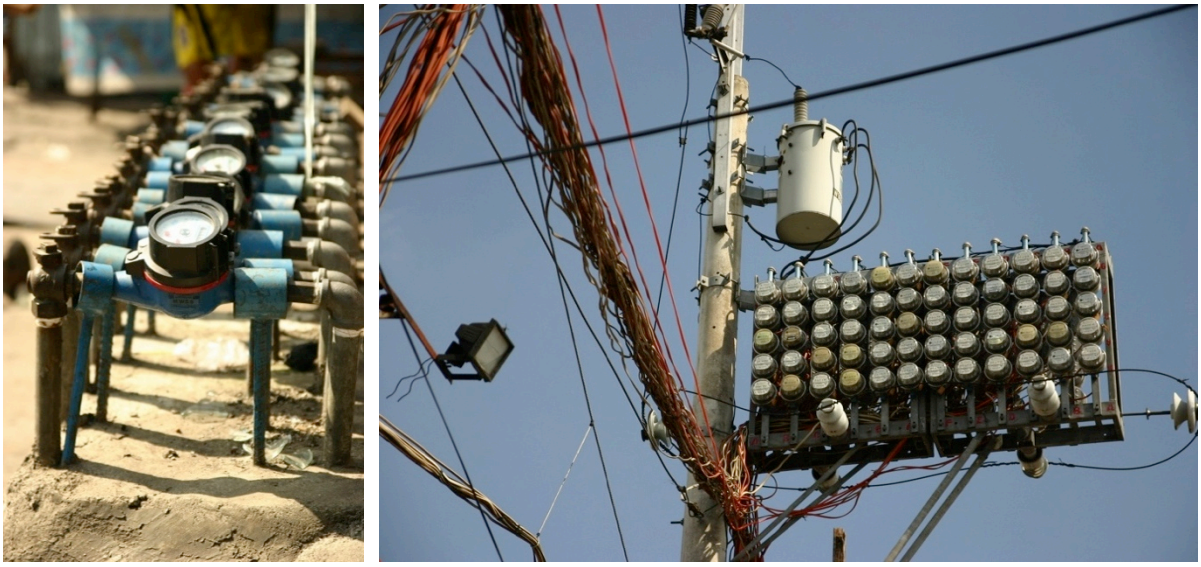

Figure 5.3. Banks of clustered water and electricity meters in Salcedo. Photos by author.

As I suggest in Chapter 1, the heightened disciplining of certain subpopulations in Manila's neoliberal era can be seen as consistent with current modes of governmentality, in which a "marginal sector of excluded low-achievers" is subject to heightened disciplinary interventions (Fraser, 2003, p. 169; Miller and Rose, 2008). Interpreted in this manner, the technologies directed at low-income communities fit into a broader schema of neoliberal government, in which most citizens are charged with their own self-government, but a minority are subject to increased policing and attempts at

[133] In Pagasa, the Manila Water customers that we surveyed could not remember how much they paid for their after-the-meter hosing, suggesting that it was a rather negligible amount.

behavioral normalization. In the following section, I examine the language of partnerships and morality that articulate these attempts at citizen reform and consumerization.

5.3 Partners in the provision of water

As the concessionaires have expanded their operations into low-income communities, they have modified the terms by which water may be accessed in order to deter nonpayment, as I have described above. The result is a partial transfer in monitoring responsibilities—from the utilities to individuals and communities. Such a shift can be seen as a means of depoliticizing NRW for the concessionaires, as they increase their technical roles in NRW management while decreasing some social and political interactions. But, rather than framing this shift as such, the concessionaires couch access to water in the language of partnerships, ownership, morality, and empowerment—referring, often, to a sense of "Filipino values."[134] Regarding new connections provided to low-income residents, a Manila Water manager remarked, "the Filipino value of *utang na loob* (debt of gratitude) comes in . . . community policing comes in because they have a connection . . . they have a sense of ownership in the project so they themselves watch their meters."[135] To be fair, such calls for morality are not limited to low-income consumers. A Maynilad manager said of the *SIKAD* program (mentioned in Section 5.1) that is aimed at curbing high-volume illegality: "We want to tap into the Filipino's sense of heroism. Water is a precious resource. We need to make sure it is utilized efficiently and managed in an optimal manner. The campaign to eradicate illegal connections plays a big part in making sure this happens" (Maynilad Water Services, 2011c).

Nevertheless, it is the concessionaires' discourse of innovative, pro-poor participation that is rebroadcast in international circles, where organizations have helped to paint a similarly rosy picture. A United Nations report (2005, p. 10) describes Manila Water's TPSB program as fostering partnerships that enhance "the community's sense of ownership and increase the willingness to pay, encourage residents to closely monitor and guard against pilferage, improve collection efficiency, increase transparency and expedite public consultations, all of which make the TPSB programme manageable, financially viable and sustainable." This is echoed in a World Economic Forum report (2011, p. 25): "Manila Water's micro-business model enables low-income communities to become part of the system, turning residents from customers into partners in the provision of water. Not only do the communities gain an additional source of income, but there is less incentive to resort to illegal tapping."[136] Though these characterizations may very well have some truth to them, they mask the underlying reasons behind this newfound sense of ownership.

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[134] The term "Filipino values" refers to a commonly-held notion that associates certain traits with the Filipino culture. These include concern for others (*pakikipagkapwa*), shame (*hiya*), debt of gratitude or good will (*utang na loob*), and social acceptance (*pakikisama*) (Gripaldo, 2005).

[135] This is based on an interview with a Manila Water manager on October 20, 2010. The manager's identity has been protected.

[136] Some schemes generate small sums of money that are used to support livelihood opportunities or improve common property resources.

Rather, as critiques of similar partnerships in other cities have demonstrated, these relationships can not only effectively transfer costs and responsibilities from utilities to low-income households, but paternalistically demand behavioral changes (Miraftab, 2004). Writing about various partnership schemes in sub-Saharan Africa, Jaglin (2002) demonstrates how such models have been used to offload some utility management risks onto low-income communities, describing this externalization as the "miracle of participation." Instead of bringing the poor into more democratic forums, as participatory metaphors imply, she suggests that they are coerced to abide by market-driven mechanisms. Likewise, von Schnitzler (2008, p. 913) examines South African attempts to "empower[] customers to take ownership of consumption" through the forced calculability of prepaid meters. In Mumbai, McFarlane (2008b, p. 105) considers attempts to use participatory slum sanitation schemes to "foster a particular kind of civic consciousness of community responsibility deemed lacking among those living in informal settlements"—to remedy, in particular, a lack of discipline and the "wrong mentality." Kooy (2008, p. 110) finds that "private sector operators are seeking 'creative partnerships' with Jakarta based NGOs to change the moralities of low-income residents, and institute self-regulation and community surveillance." And in Chile, Paley (2001) asks whether participation paradoxically offers a sense of meaning and gratification to citizens that are helping their communities, while also limiting the ways in which those activities can be pursued.

My observations in Manila are thus emblematic of a broader pattern in the current provision of social goods. I therefore suggest that these technologies of government aimed at the poor are attempts not simply to extend services at the moment, but also to develop future responsible consumerization. Following Morgan (2006, p. 281), such technologies can be seen as "procedural attempts to institutionalize routinized practices of 'ordinary consumption' around water." In Manila, this is most obvious in the modified micro-networks that I describe in Section 5.2—temporary schemes for which the sole purpose of the CBO is to ensure that consumers pay their bills on time. The hope, in these setups, is to teach residents about budgeting, responsibility, and discipline, with the eventual reward of an individualized, unpoliced water connection. In regular micro-network setups, similar reform is forced by the CBO's need to pay their total monthly bills on time, with little room for flexibility in nonpayment. In that case, though, the duration of reform is less certain; several Maynilad managers have confirmed this for me, suggesting that they would like for micro-networks to remain until levels of localized NRW can be maintained at sufficiently low levels. For clustered metering setups, it is perhaps no surprise then that the concessionaires speak of households as having more ownership of their connections; quite literally, the exposed pipes extending from houses to the meter banks are the property and responsibility of individual households.

However, the concessionaires' rhetoric fits squarely into current goals of the global water community to promote participatory development, attracting the seemingly disparate interest of both large, international organizations and local NGOs (Mohan and Stokke, 2000). Moreover, they speak to neoliberal interests to improve utility efficiency while expanding water coverage. For these reasons, access to water in Manila's low-income communities is rarely problematized; rather, the use of micro-networks is seen as innovative and effective. Furthermore, I suggest that the heightened policing aimed at low-income communities has much broader reach. In the following section, I speculate that the general notion of the undisciplined poor, as articulated discursively and materially through other social programs, helps to normalize the treatment of low-income communities as subjects of reform.

5.4 The Philippines' "undisciplined and disorderly conditions"

In 1992, then-Senior Minister of Singapore, Lee Kuan Yew, famously said of the Philippines that, "the exuberance of democracy leads to undisciplined and disorderly conditions which are inimical to development" (Ong, 1999, p. 71). Lee's statement, and his general ranking of the Philippines as low on the Confucian values-ladder (Ong, 1999, p. 71), has arguably pervaded the Philippine conscience for decades. This is particularly true because of the Philippines' economic demise in the last half century and its unfortunate label as the "sick man of Asia" (Kind, 2000).[137] Michel (2010, p. 387) writes, "Singapore, in particular, is regarded by [urban managers]—and in some way also by the narratives of Filipino migrants to these cities—as a shining example of a successful, modern, progressive, clean, and orderly global metropolis, which Manila is not." In many ways, the worlding (Ong and Roy, 2011) of Manila cannot be imagined without reference to Singapore. What this implies, though, is that both state and non-state actors attempt disciplinary practices at various levels. In this section, I examine three programs—the CMP, GK, and *Metro Gwapo*—to understand the ways in which heightened policing in the water sector fits into a broader schema of policies directed at urban upgrading and poverty alleviation.

1. *The CMP*. The group loan model that forms the basis of the CMP bears organizational resemblances to micro-network setups and informs my findings on intra-network access that I describe in Chapter 6.[138] Launched in 1988, the CMP offers informal settlers the opportunity to purchase the land that they are already occupying by giving them access to formal credit markets (Berner, 2000).[139] The program requires informal settlers to form neighborhood associations, which are responsible for negotiating a price with the landowner and ensuring that mortgages are repaid over the established payback period of 25 years. As with the micro-network setups, dealing with community organizations simplifies logistics and enhances legibility for the external parties involved—in this case, this can include various arms of the state, landowners, and NGOs. The association maintains responsibility for bill collection and community policing, and titles are individualized only after the full loan amount is paid off. But, critically, the success of the program—both at the community and national level—relies on heightened discipline and policing in order to ensure a high collection efficiency. A United Nations report (2009) that highlights the success of one particular community's dealings with the CMP features two photos—one in which the belongings of a "recalcitrant" household are sequestered and another in which that housing unit is demolished. Ironically, the report fails to describe the violent and segregationist outcomes that can occur even within a "successful" implementation. I shall return to the CMP in Chapter 6 and use Berner's (2000) findings on the internal divisiveness of group loan programs to further my argument on the limitations of community empowerment through the micro-network schema.

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[137] In February 2013, World Bank Country Director Motoo Konishi commented on the Philippines' recent economic growth: "The Philippines is no longer the sick man of East Asia, but the rising tiger" (Keenan, 2013).

[138] Group-loan microfinance operations, while not specific to Manila, can also exert similar disciplinary pressures (Brigg, 2006).

[139] Much of this land is owned by the government and even in the situations where land is held privately, it is often the case that longstanding and futile attempts have been made to get the squatters off this land (Berner, 2000). The CMP offers a compromise in which landowners are able to recoup some payment, while the settlers obtain legal titles at significantly discounted prices.

2. *GK*. In the Philippines, the state's inability to provide sufficient social welfare support means that there is much room for private participation in this domain, and perhaps the most well-established private organization is GK. Founded in 1995 by religious leader Tony Meloto, the organization's name means "to give care" and its slogans reveal much of its underlying ideology: "Poverty is not an economic problem, but a behavioral one;" "Slum behavior breeds slum mentality;" "Poverty is not a lack of resources, but a lack of caring and sharing" (Gawad Kalinga, n.d.). These tenets materialize through the non-monetary transactions by which residents become part of GK villages. In exchange for a guaranteed, sturdy home in one of these villages, households must contribute 1500 hours of sweat equity (which may include the building of their own homes), attend a thirteen-week series of values formation workshops and weekly mass, and behave within the approved norms of the community (the list of actions that are prohibited include fighting between couples, mistreatment of children, gambling, and consumption of alcohol) (Coloma-Moya, 2009). The ideal GK citizen is thus one that has been rid of her former slum mentality, whose behavior fits squarely into the religious and moral figure that Meloto has imagined. With the ambitious goal of ending poverty for 5 million families by 2024, GK is poised to make a significant impact on the formation of the low-income subject.

3. *Metro Gwapo*. Initiated in 2002, the Metropolitan Manila Development Authority's (MMDA) *Metro Gwapo* (Handsome City) project focused on the beautification of Manila, targeting areas that were potentially visible to tourists and foreign investors.[140] In doing so, *Metro Gwapo* engaged in the removal of visible poverty, creating task forces such as the Sidewalk Cleaning Operations Group that drove away illegal vendors and structures from specified areas (Manila Bulletin, 2011c). Arguably taking its cue from zero-tolerance and broken window policies heralded by the likes of Singapore's Lee and New York's Rudy Giuliani, the MMDA was driven by a belief that physical improvements would elicit behavioral and moral changes, particularly among the city's poor (Michel, 2010). Through punitive and sometimes violent measures, *Metro Gwapo* concealed unsightly spaces behind high concrete walls, evicted informal settlers, destroyed street vendors' goods, and forced jeepney and bus drivers to adhere to dress standards. Michel (2010, p. 395) writes, "The problem to be solved and regulated, therefore, is not poverty alleviation and denial of basic rights but poverty as unseemly conduct." *Metro Gwapo* was replaced in 2011 by a new program titled *Metro Ko, Love Ko* (My Metro, My Love), a slogan intended to embody notions of ownership, care, and sustainability (Manila Bulletin, 2011b). While taking a comparatively softer approach to urban renewal, *Metro Ko, Love Ko* has initially focused on disciplining litterers through arrests, fines, and community service. In both cases, heightened policing is targeted at certain offenders, and it is likely the poor that bear the brunt of these reforms.

What I have summarized here are three contemporary projects aimed at poverty alleviation and urban renewal in which the reform of the poor is a critical component. In all cases, heightened disciplinary techniques are used to try to normalize the poor subjects into responsible homeowners, vendors, and citizens. These projects are arguably part of a much longer history, and one can see the

[140] The MMDA is a rather incapacitated state agency that is nominally responsible for planning at the metropolitan-wide scale. The 1991 Local Government Code, implemented in the wake of the Marcos dictatorship, was part of a national (and international) shift toward decentralization of state power (Eaton, 2001). As a result, local government units are now relatively stronger than the MMDA (Michel, 2010). Metro Gwapo was arguably one of MMDA's few initiatives to have a significant impact on the urban landscape.

formation of the docile Filipino subject as the product of centuries of colonial and postcolonial rule (Coloma-Moya, 2009). As I noted earlier, as well, references to more disciplined and economically powerful cities like Singapore cast a long shadow over Manila. The point of this section, however, is not to trace this development historically or spatially, but to situate my observations of Manila's water system within a broader landscape of urban upgrading. That is, the reform of poor individuals through heightened disciplinary treatment is practically the norm, and both program implementers and recipients generally accept it, at least in theory. In practice, there are people who resist of course, most notably at the level of individual actors, as opposed to on a mass scale or as part of any movement response—they steal water, do not pay on time, or violate disciplinary codes in some way. But they are usually apologetic and bashful, acknowledging that they would choose to abide by social norms if it were not for other exigencies. Resistance is often more of a coping mechanism than a political statement (this is more true for water than, say, the housing sector). In Chapter 6, I examine these sentiments further, arguing that the ubiquity of discipline and inequality results in a lackadaisical acceptance of differentiated forms of access.

5.5 The (in)visibility of urban water networks

This chapter has examined the increased legibility of urban water networks through the use of micro-networks and other schemes that help make the urban landscape more readable. It is critical to remember that Scott's (1999) usage of legibility, upon which I base my argument, denotes a process of simplification. Thus, in Salcedo, where the physical layout of the densely-packed settlement is mazelike, the use of micro-networks and clustered metering facilitates urban water provision. Instead of hundreds of households, each with their own access issues, Manila Water views the community as consisting of one bulk meter and about fifteen household meters, all conveniently lined up in a row. This reworked legibility simplifies the frenetic geography of this informal space and others like it, obscuring internal sociopolitical tensions. I have argued that the concessionaires use these techniques in part to reduce NRW and that they are applied differentially in poor and non-poor areas. In low-income areas, the technologies of government directed at curbing nonpayment predicate access to water upon the increased policing of certain citizens and spaces. That policing has partially been transferred from the concessionaires to individuals, CBOs, and entrepreneurs, shifting the politics of nonpayment closer to the community level. Attempts to foster the responsible consumerization of the poor citizen share similarities with other projects of disciplining and reform. Unlike high modernist interventions, this legibility project relies less on heroic feats of engineering than it does on mobilizing low-level individuals to produce a particular expertise.

Micro-networks and clustered metering simplify urban water provision to an extent, but they still give a sense of access and non-access. The concessionaires' field staff, for instance, may not know the inner workings of micro-network communities, but they can distinguish between those households that are directly and indirectly served. At this level, issues of access and non-access are fairly visible to these managers. Here, I use visibility in a very literal sense to denote knowledge of the modes by which households and communities obtain water—as opposed to legibility, which I

use to denote a process of simplification.[141] But as one zooms further out from the narrow scope of the field manager toward regional and central offices, this legibility is reworked. Rather than understanding access as pockets of micro-networks and rows of clustered metering, metrics and maps are used at various stages along the way, simplifying urban water provision even further.

Thus, as the concessionaires produce and propagate aggregate statistics in the national and international arena, households that are un- and underserved remain obscured in two critical ways. First, the aggregate data does not distinguish between types of connections—direct, clustered, or bulk—even though there are financial and behavioral implications associated with each. Second, the concessionaires do not define coverage consistently—at times, it refers not to actual connectivity, but to the possibility of connecting. Therefore, it is most likely that those who do not connect to the utilities—because connection fees are prohibitive, or for other reasons—but live in proximity to a mainline are considered covered. In Santa Ana, for instance, Maynilad records reflect that the two bulk meters serve 800 households, because that is the approximate number of households in the vicinity.[142] In actuality, the micro-network currently serves about 300 households, with the remainder finding water from alternative sources. Here, the stakes can be very high—the most vulnerable members of the population can be overlooked, exacerbating poverty and inequality conditions for these households. A similar (though less dire) overestimation became apparent during the initial post-privatization years, when both concessionaires were using a multiplier of 9.2 persons per household (Esguerra, 2005). Because the same multiplier was used for all cities in Metro Manila, it was later discovered that there were some cities in which the coverage claimed by the concessionaires exceeded official census numbers.

As Rose (1999) suggests, numbers are politicized judgments reflecting what and how to measure, and the ways that we interpret the results of those measurements. Numbers, he adds, make it possible to evaluate the progress of modern modes of government. In the course of this project, I have discovered an overwhelming eagerness to estimate—often to overestimate—the number of households that are connected to the centralized system; after all, coverage is one of the major indicators of utility success, as I discuss in Chapter 2. The translation from a desire to improve access into a desire to improve numbers is a faulty process that Li (2007) might describe as "rendering technical," wherein the highly political question of extending access to low-income households is reinterpreted as one of improving utility benchmarks. This is the way the current international system of evaluation is constructed.

But by choosing to focus on those that are connected, we fail to adequately recognize those that are unable to connect, that are disconnected, or that are connected through alternative schemes such as micro-networks. When Manila Water reports that it now supplies 99 percent of its jurisdiction with 24/7 water, not surprisingly, it receives much national and international praise. I have been troubled by this statistic, given the high number of informal settlers in the city, and when I have pressed others who are in the local water policy scene, they have admitted that Manila Water is probably

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[141] I do not, for instance, use invisibility to refer to imagined cities in the way that Calvino (1978) and de Boeck (2006) suggest.

[142] This information is based on documents that a Maynilad manager gave me. However, I am not citing the specific documents in order to protect the manager's identity.

overestimating their numbers. The problem, however, is that in the absence of meaningful data, it is difficult to prove the assertion. As I have commented on in Chapter 2, it is the concessionaires that are the producers of knowledge on access to water, and they have an incentive to produce favorable information, because their financial outlooks and reputations improve in direct relationship to the metrics of success that they report.

Legibility, then, occurs at different scales. In its actually-occurring variations, it reflects gradations of (in)visibility that complicate the high modernist legibility described by Scott (1999) and Mitchell (1991). At the field level, concessionaire staff appear to demonstrate an incredibly rich knowledge of household access, particularly on Manila Water's side, where the walk the line program does seem to be quite effective. Technologies of government targeted at low-income communities, such as micro-networks and clustered metering, do improve the manager's legibility at this scale, but also afford a generous visibility of actual access. As these numbers get aggregated at the concessionaires' central offices, however, most of the qualitative details of this on-the-ground knowledge are understandably lost. But it is my suspicion that the central offices—particularly that of Manila Water, the concessionaire that I have described to be quite a well-oiled machine—still maintain statistics that provide a fairly sophisticated picture of individual and community access. In my attempts to gather such data from them, though, I often found myself frustrated at their guarded (Manila Water) or disorganized (Maynilad) nature, and made little progress in the way of gathering numbers related to micro-networks.

Perhaps what was most disturbing was my observation that the MWSS-RO—the regulatory agency that, in theory, would be most interested in a detailed understanding of access on-the-ground—had only a very coarse-grained view of the concessionaires' operations. During my visits to that office, I did manage to get some data that Manila Water had generated—and which the RO accepted as accurate, without any external validation—on the progress that they were making with respect to the individualization of micro-networks. But what about Maynilad?, I asked. I had been observing the system in Santa Ana and I had met with the Maynilad area manager there, who explained that this system was being used in that community because of high levels of theft and nonpayment in surrounding areas. This manager went on to describe how the company was planning on replicating such systems elsewhere—a notion that I had also heard from Marilou who, as I describe in the previous chapter, was overjoyed at the prospect of so many new entrepreneurial ventures. But Maynilad does not use these systems, I was told by the RO even after I had revealed that I had been researching them. The RO was simply unaware that micro-networks existed in Maynilad's jurisdiction because neither the RO nor Maynilad had broached the subject.

To a large extent, then, the un- and underserved remain invisible because the current incentive structure is such that utilities are rewarded for their perceived accomplishments, rather than actual accounts of on-the-ground conditions. In large metropolitan areas, the use of aggregate statistics simultaneously helps to clarify and obscure the complexity of urbanization. Statistics like Manila Water's 99 percent coverage give us a sense of progress, but also underestimate the scale and particularities of urban poverty and inequality. Manila Water's remarkable ability to reduce NRW to 11 percent does not inform us of the ways in which arrears are negotiated, subsidized, or overlooked. Arguably, the inflation of statistics can be tied to financial motivations, political success, or other perverse incentives that detract from actual poverty and inequality alleviation. When the producers of access to water and knowledge are also those with vested interests in the shaping of the urban landscape—as they are in Manila—this manufactured (in)visibility is perhaps of even greater concern.

This is, of course, a much more critical argument than an enumeration one—that the most marginalized are being overlooked has direct implications for their wellbeing. Perhaps one can claim that a fine-grained visibility is only necessary at the field manager level—that central office executives and RO directors do not need such precision. This may be true; however, I would argue that if universal water access is the ultimate goal, then the rich, on-the-ground knowledge that field managers maintain must be available to the public and to others who are interested. I further address questions of knowledge and transparency in Chapter 7, where I offer some suggestions for rethinking incentives for urban water provision.

5.6 Conclusion

In Manila's case, the dual processes of rendering networks visible and invisible have four implications. First, the most marginalized—those that are un- and underserved—remain invisible at the macro-level. This complicates the notion of Manila Water as a model utility. While there is no doubt that Manila Water has made massive improvements in the last decade and a half, the terms by which low-income users access water need to be clarified. Second, the asymmetry in treatment of the poor and non-poor can lead to differentiated terms of access, including higher costs. Such schemes cement inequalities in the medium- to long-term. Where micro-networks supply community water, this differentiation is complicated by the legitimate claims of small water providers to continue operations, at least until their investments are recovered. Third, the same processes that lead to advancements in coverage and NRW reduction reconfigure inequalities, with the former mostly overshadowing the latter. Aggregate statistics fail to reflect asymmetries in modes of access, techniques for addressing commercial losses, and household costs. This raises the question of whether advancements can be made without marginalizing certain populations.

My last point requires more attention because it speaks to the gap in the literature on small-scale water providers that I describe in Chapter 3. Because the coexistence of large and small providers is rarely studied, this project changes how we understand urban water governance, particularly in low-income areas. As privatization expands, small water providers are evolving to become the unofficial, policing arm of the concessionaires, accountable to both the customer and the concessionaire, with their operations tied to the utilities' rules of engagement. Rather than serving as competitive, alternative providers—as Solo (1999) and others have depicted—small water providers are increasingly being used to handle the sociopolitical complexities of urban water provision. What we see here is a depoliticization of the concessionaires' roles and a shift in monitoring toward the community—a move that is highly visible at the local level but that is obscured by the overall efficiency improvements that are highlighted at the macro-level.

This chapter has argued that the concessionaires use micro-networks as technologies of government to serve the dual purposes of increasing legibility (for themselves) and instilling responsible consumerist behavior among low-income households. My contention is that these actions are rooted in the neoliberal foundations of efficiency and profit maximization, as measured by a need to demonstrate progress with respect to coverage and NRW reduction, as well as financial returns. While both concessionaires have engaged in pro-poor initiatives that dampen the cold calculability of a pure neoliberal approach, I suggest that the persistence of micro-networks illustrates the limits

of privatization, for it is in these communities that the profit-oriented concessionaires are still unable to justify direct connections. Here, I have highlighted the use of micro-networks as a disciplinary tool for reform.

In the following chapter, I turn to citizen perspectives, examining how the use of micro-networks has altered community dynamics and perceptions on access to water. By shifting power relations within communities, micro-networks have empowered some, antagonized others, and are largely ignored by the rest. I discuss the implications of these varied sentiments for achieving universal water access.

Chapter 6. The Pluralistic Nature of Community

Act 1.

> The first to come down here was really Akbayan.[143] IPD got them to come here because Jude and the others at IPD were in Bantay Tubig.[144] Bantay Tubig—I don't know if it's a government project or what—they were going to work in all the waterless areas. They looked for areas where they were going to start projects. They saw that Santa Ana was a strategic location because, as Jude said, it's like New York—if you can do it in Santa Ana, you can do it anywhere.

Laughter.

On my final visit to the water cooperative in Santa Ana in April 2011, I asked Joy to recount the story of the organization's formation. I had heard this story many times, usually in bits and pieces, but I wanted the women of the coop to relive their experiences with me one last time before I parted ways with them.[145] As we sat around the plastic dining table in the front half of their office, lazily grazing on the afternoon snack of *kamoteng kahoy* that they had prepared for our visit, Joy continued. She had a history of community organizing, and helped form a much earlier version of a small water system in Santa Ana, although it failed to survive after the local government assumed control of it. Because of her background, IPD had recruited her to their nascent project to bring water to this section of Santa Ana—a project that began to materialize in 2005 but did not deliver water until 2008. "Because I had previous experience in the old water system, I could do it. They trained me in coops. The rest is history." More laughter.

Maynilad had indicated from the beginning that they would not extend services to this part of Santa Ana because of high levels of NRW elsewhere, and also because they lacked the necessary investment capital.

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[143] Akbayan is a leftist political party. Walden Bello has been a Congressman representing Akbayan since 2007.

[144] In Chapter 3, I introduce IPD (one of the NGOs working with water cooperatives) and Bantay Tubig (a now-dormant, NGO-led project that arose in response to Manila's water privatization project).

[145] The cooperative was formed by a group of women and one man, and continues to be managed mostly by women. Joy told me that this was because the burden of fetching water had primarily fallen on female residents, whose husbands were usually working during the day. Though gender roles were not as pronounced as in rural settings, and though the cooperatives in Binangonan seem to be run by both men and women, the gendered division of labor in Santa Ana fits into more general observations of water management in the global South (Ray, 2007).

Maynilad gave us the area and said we could have two mother meters for 326,000.[146] After negotiations, they allowed us to give a down payment of 76,000 and they would connect the two meters. But our next problem was that we didn't have money. We didn't have money—we didn't have 76,000. IPD hadn't raised money—we only had 12,000. Philip's idea was that in order to get money from the people, why not offer that the coop pay double their contribution—a 100 percent profit, a come-on to bring out the money.[147] He said that in Taguig, it is also an urban poor community. When the people see that they connect a line, they find a way to pay even if they have no money. . . . But after that, no one gave money—just Teacher. No one gave. Just Teacher, she borrowed from 5-6.[148] I gave 10,000. Our money was so little, 17,000—we needed 76,000 and we spent some at the bank, that was our only money. Maynilad wouldn't allow us to connect the mother meter. The money came from Jude—20,000 from Jude—from Erik, Frances, those from IPD. That's how we got 76,000.

When we finished connecting the mother meter, we had no more money again, because it was 76,000. We had no more money. How would we continue and open the meter? At that time, while we were organizing, we were also talking to City Hall. We asked for help but not money. We asked for an ordinance from the local government to give us priority—a performance-based grant for coops that are working because our rationale was that this is your job, to bring water to the communities. But since they didn't do it, they should give us support. And stop the inefficient supply of water.[149] Instead of answering us, the son of the mayor gave us 20 pipes. That's how we started—with 20 GI pipes.[150] But we didn't have any money. You need fittings, someone to do the work, tools. We didn't have any of that! We didn't know how to do anything. Our mother meter was already being billed. We did it with inner strength (*lakas ng loob*). I talked to the people I knew, the ones I used to work with. It was really free work; we just gave them food. We helped connect the

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[146] This is equivalent to about USD 7500—a formidable amount for a low-income community. Payment for the mother meters has not been taken into consideration in other communities where bulk connections have been individualized, such as in Taguig or along the Manggahan Floodway, meaning that customers have often had to pay two significant connection fees.

[147] Philip was one of the main organizers of water cooperatives in Taguig. In Chapter 3, I describe how some of Manila Water's first forays into micro-network partnerships took place in Taguig.

[148] 5-6 is a popular, informal, money-lending scheme in which one pays 20 percent interest on loans. For example, if one borrows PHP 5000, one must return PHP 6000.

[149] The Santa Ana cooperative asked the local government to let them take over the supply of water in this area by limiting the government's use of its *Patubig* system (an existing micro-network managed by the city) and tanker trucks. Both the *Patubig* system and tanker trucks use local deep wells to source groundwater. While the *Patubig* system is affordable (PHP 66 for the first 10 cubic meters) and the tanker trucks are free, service is erratic and unpredictable. According to the coop, the local government agreed to do so but has taken no steps toward this; the *Patubig* manager that we spoke to did not know about the coop's operations.

[150] Some micro-network operators use galvanized iron, or GI, pipes to distribute water. Manila Water's exposed pipes (such as those that I describe in Chapter 5) are made of polyvinyl chloride, or PVC.

> pipes. The expansion was so slow because the local government was giving free water where we were putting lines. It was really hard to organize.

Joy went on to describe the coop's difficulty in securing payments from the coop members, as well as a loan from another NGO, the Peace and Equity Foundation. Mary Jane added that they had approached their local Congressman to ask for additional funds. "He said, 'you only have 20,000—you're going to bring water?' It became like a challenge to us!" Eventually the coop leaders turned down the Congressman's offer of 100,000 because of concerns that the coop members would simply want to split the money, without using it to build the water system, as had happened in the past. "It becomes really political. [The Congressman] will use you." Pleased with turning down the grant, even during a time of difficulty, she proclaimed, "I'm so arrogant, but it was really our own effort!" The laughter continued.

Act 2.

The third annual general assembly of the Santa Ana water cooperative took place on a particularly hot day in March. By 10 am, a quorum of about 70 people had gathered. Most of the attendees were huddled across the street in the narrow patch of shade temporarily offered by a row of homes blocking the direct sun, while a lucky few were able to squeeze inside the coop's small office. Some of the coop officers, clad in matching purple shirts, shared this same space—writing last-minute informational posters, guarding the ballot box, and counting the growing crowd outside. I had attended the Pagasa coop's general assembly a week earlier and expected the same sort of sleepy affair today.[151] In Pagasa, the coop leaders had mostly gone through a series of PowerPoint presentations, updating their quorum on the state of coop finances and membership, as well as relevant regulation. Based on rising electricity costs—which they had loosely connected to the recent earthquake in Japan and the events surrounding the Arab Spring—the coop had been able to raise tariffs by PHP 4 per cubic meter without any protest from the audience. I was fairly surprised, as this represented a 30 percent increase in rates, but the crowd seemed relatively indifferent about it. Was it overly skeptical of me to wonder whether most people had attended the meeting in order to get the free handouts and potential raffle prizes? I was expecting a similar turnout and sentiment at Santa Ana's general assembly.

[151] When I went to a seminar that is mandatory for new cooperative members in Pagasa, the proceedings were similarly calm, and the audience raised few questions. Of the 11 prospective members (including three that were existing members but had various reasons for wanting refreshers), five or six were interested primarily in the cooperative's credit services. As I describe in Section 6.4, access to money (in the form of livelihood opportunities or credit) may be of greater urgency than access to water for many community members.

Figure 6.1. The third annual Santa Ana general assembly. Photos by author.

The next few hours saw a raucous contestation over coop policies and management. Almost immediately after the meeting began, Mike, who was vying for a seat on the coop board, challenged Joy on the eligibility of certain voters. When it was his turn to present an update on the Ethics committee, he took the opportunity to defend Cory, a former Board member whom Mike suggested had been wrongly ostracized (Joy and Mary Jane claim that Cory resigned because she wanted to be hired as the coop's paid cashier, which they were not willing to do). Lex, chair of the Audit committee and an ally of Mike's, suggested foul play and missing funds in the coop's accounts. Later, in an interview with two visiting Swedish students, Lex claimed that the coop was mismanaged, and that certain Board members and the coop manager were simply profiteering. He concluded his interview by telling the Swedish students to take their money elsewhere, possibly to charity—a comment that the visitors were understandably confused by, particularly because they were not investors, and had no money to give or invest.[152] Back outside at the general assembly, Jean created the biggest spectacle—repeatedly waving fistfuls of cash at Joy and screaming at full force, though never actually resolving her large debt with the coop.

After lunch was served, the meeting gradually ended, as many attendees returned to their daily activities. Later that day, the election results were dramatically tabulated in front of a few remaining people. Mary Jane won by a landslide, earning another term as chair of the coop.

Act 3.

We asked the residents of Santa Ana to share their opinions on their water providers.

[152] In December 2012, the cooperative inaugurated a multi-purpose community center that was partially funded by the Swedish Cooperative Centre, the organization that had sent the students to Santa Ana.

Maria stood just inside the screen door to her house, shyly answering our questions while maintaining some distance. She joined the coop two years earlier after her deep well, located behind the house, had stopped producing water. She applied directly to Maynilad, which turned her down and referred her to the coop instead. This was fine with her, although she would have preferred Maynilad's direct service because it is cheaper. She also had no desire to attend the coop's meetings or to vote. "I just say yes, yes, yes," she said quietly, referring to the coop's affairs.

Francisco was managing the lunchtime crowd at his *karinderia*—a roadside eatery that, in this case, consisted of a simple table and a few home-cooked dishes. He said that his wife had applied for a *Patubig* connection over a decade ago, and that he thought the setup was acceptable, even though the system was sometimes down for three to four weeks at a time, forcing him to fetch water from a neighbor for PHP 1 per pail, and even though the water pressure was now weak. *Patubig* was cheap—PHP 66 per month—and he could go five months without paying or incurring a penalty. He did not want to switch to Maynilad or the coop. "We'll just manage," he said.

"*Sanay na*." In Santa Ana and elsewhere, one hears this expression. Speaking about water service, over and over, people say, "*sanay na*" ("used to it"). Aside from the coop leaders and the handful of residents who had issues with the coop management, most people seemed complacent. When asked what they thought of their water service, the majority responded by saying, "*OK naman*" ("it's okay").[153]

This chapter explores the pluralistic nature of community, specifically around the struggle for water. I suggest that a lack of community cohesion both facilitates and complicates the concessionaires' expansionary missions—paradoxically allowing the concessionaires to use certain expansionary strategies, such as micro-networks, when they want to, but also hindering universal piped coverage of the metropolitan area. In Santa Ana, for instance, disparate community sentiment enabled coop formation, but may also foreseeably lead to the individualization of connections. Even then, the needs of different socioeconomic groups may require that alternative forms of water provision remain in place. To understand why this is so, I examine three structural factors that contribute to these disjunctions. Sections 6.1 and 6.2 describe the pluralistic nature of community—or the impossibility of a wholly inclusive unity(Mouffe, 2005)—from theoretical and empirical perspectives, respectively. In Section 6.3, I discuss the opacity of public and private provision in the Philippines, while in Section 6.4, I assesses the relative importance of water access vis-à-vis other social issues among the households that I observed. Together, I suggest that these factors create conditions under which "community" sentiment around water is muddled in Manila. I conclude in Section 6.5 by asking how we might better understand the politics of water provision and access given these factors.

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[153] In a newspaper piece on waterless residents in Manila, one interviewee expresses a similar sentiment that captures a cultural and fatalistic way of dealing with life's difficulties. She uses the term "*bahala na*"—which is roughly translated as "what will be, will be"—when she says, "I don't know if the water gets tested, sometimes I fear that it might be the reason why my children get sick . . . but I just steel myself and think, let's just leave it up to God (*bahala na si God*)!" (Guidaben, 2012)

6.1 The pluralism of community

In Santa Ana, the range of sentiment regarding the local water cooperative varied from passionate (the coop leaders), to accepting (households that are not too concerned with their current water options), to antagonistic (those who have issues with the coop personnel). While the atmosphere was considerably less divisive in Pagasa and Salcedo, households in those communities still harbored a variety of opinions on water service. These were reflected in the multiple modes of water access that currently exist at each site, as well as in speculation on future household behavior (as elicited through our survey questions).

Following Mouffe (2005), it is perhaps not surprising to see a lack of consensus in these communities; rather, she highlights the impossibility of full inclusiveness within *any* community. Through Mouffe's (2005, p. 84) notion of a "constitutive outside"—in which "every definition of a 'we' implies the delimitation of a 'frontier' and the designation of a 'them'"—she suggests that all consensus is based on "acts of exclusion." Mouffe (2000, 2005) is concerned primarily with the possibility of an agonistic pluralism in democratic politics—that is, moving away from antagonism between enemies to agonism between adversaries in order to include competing conceptions of citizenship in the democratic process.[154] But what is most relevant to my argument is her interpretation of the lack of consensus within communities, and the range of pluralism that can occur between individuals, groups of citizens, politicians, and authorities over a multitude of issues (Pløger, 2004). In the case of low-income communities, the issues of concern may well include matters that are otherwise moot to non-poor constituents. Where household expenditures may be spread more thinly, it is conceivable that the "we" that benefits from the consensus-driven form of water supply—whether consisting of direct utility connections or some other mode of provision—leaves out a "them" whose desires have not been fully considered.

The reality of this pluralism, however, contradicts both the notion of the modern infrastructural ideal of centralized water provision (Graham and Marvin, 2001) and community-based arguments against it (Bakker, 2008). First, piped water infrastructure is typically perceived to operate most efficiently at a monopolistic level—at a scale at least the size of a community, if not an entire metropolitan area (Hanemann, 2004). But it is not always the case that an entire community—or even a group of neighboring houses—shares the same preferences. In the following section, I examine the results of our household surveys on perceptions of water access, finding that while a significant percentage of respondents prefer the concessionaires' services in the abstract, limitations on household budgets and other considerations may prevent them from making that switch. Others prefer alternative modes of water provision because they provide benefits that are sufficiently different from those that the concessionaires offer. To the extent that monopolistic provision of water achieves greatest efficiencies, such divergent micro-preferences cannot be directly satisfied.

In Pagasa, some consumers have had the opportunity to choose between remaining with the cooperative or switching to Manila Water. In the areas where Manila Water has offered services—mostly along the "highway" and a few side streets—about half of the households have switched, while the rest remain divided between those who want to switch in the future, when personal

[154] Henceforth, I use the term "pluralism" to denote Mouffe's (2000, p. 17) observation of the "impossibility of establishing a consensus without exclusion."

finances become more available, and those who prefer the coop. Manila Water plans to expand into Pagasa over the next two years. A few months before we conducted our surveys there, Manila Water sent their own team to do some preliminary research—a few young women who, in appearance at least, were not so different from us. This led many residents to mistake us as having the same agenda as the earlier visitors. But unlike us, Manila Water's representatives came with tentative offers of connection—if at least 10 neighboring houses along a short stretch of road all agreed to connect. For this reason, when we asked people whether they wanted to switch to Manila Water's services, many mentioned that it would depend on their neighbors' decisions. Benjamin, though, had acted prematurely; he had applied to Manila Water one year before we spoke to him and had already disconnected from the coop, after having been a member for some 30 years. But because Benjamin was the only person on his street to express a desire for Manila Water, the concessionaire did not provide him with a connection, and he has since relied on his niece, who lives next door, for his everyday water needs. Making the switch to Manila Water thus can involve a degree of coordination and consensus along neighbors, which can be a sufficient barrier to connection. Furthermore, those who are excluded from the dominant mode of water provision are often rendered invisible, as Manila Water's 99-percent coverage statistic appears to suggest.

Though this monopolistic method has been the dominant form of water provision, a number of activists and scholars have placed some faith in the notion of community-based water systems as a progressive alternative to the global wave of water privatization, particularly in the post-Cochabamba era. The push toward water independence can be linked to a broader political movement and concomitant academic focus on grassroots resistance to neoliberal tactics, in which subaltern claims to citizenship are valorized (see Holston, 2008; Bayat, 2000; Benjamin, 2008)—a literature that tends to focus on communities where resistance to hegemonic forms of governance has been somewhat successful, due in part to a degree of social capital and other commonalities that bind communities together. However, this, too, conflicts with the reality of pluralism within communities. Bakker (2008, pp. 245-246) writes, "much of the literature on collective, community-based forms of water supply management tends to romanticise communities as coherent, relatively equitably social structures, despite the fact that inequitable power relations and resource allocation exist within communities." While the management of common-property resources has been successfully noted under certain conditions (see Ostrom, 1990; Berkes, 1989), there are also ample critiques on the limitations of communally-managed water systems (see Mehta, 1997; Mosse, 1997) and, more generally, of participatory development projects (see Mohan and Stokke, 2000; Mosse, 1994). Nelson and Wright (1995, p. 15) express a concern that supports Mouffe's notion of the impossibility of consensus: "Community is a concept often used by state and other organizations, rather than the people themselves, and it carries connotations of consensus and 'needs' determined within parameters set by outsiders."

In the Philippines, the push to reclaim community management of water resources is led by the arguably well-intentioned IPD. Erik Villanueva (2010), its current head, admitted: "What popular organization and community groups are doing for the moment is to fill the gaps of provision rendered by the water districts or the two concessionaires in Manila. It's not yet even on the agenda how organized consumers can be taken as a serious offer for the entire service area." He placed more faith in the viability of community organizations to gain control in areas outside of the capital.

> In the case of the areas outside Metro Manila, the gap is so huge. The alternative can just as well serve as the solution. In the case of the Cagayan de Oro Water Districts,

> a local consortium of cooperatives actually sought to buy out and operate the water district. And that's one possible expression of the return of community control. It seems that in Cagayan de Oro, also possibly Iligan, or probably Bacolod even, or Iloilo—the secondary cities—that's a real possibility. Because in the areas outside Metro Manila, popular economic organizations have more proportionate bargaining power compared to organizations here in Metro Manila. In many areas of the country, the community savings cooperative is the only financial institution. The rest are just beginning or starting to penetrate or serve those poorer markets. So there's possibility outside Metro Manila. (Villanueva, 2010)

Though he also clarified that the issue of organizational setup should come secondarily to people's needs, all of IPD's water-related projects are directed toward improving access through cooperative control. IPD's desire to set up water cooperatives in marginalized communities means that their projects can reconfigure local power relations, empowering the coop leaders and supporting the NGO's visions of development, while distancing others. For the women who organized the Santa Ana cooperative, the experience has been transformative, particularly for Mary Jane, who is occasionally invited to share her experiences at government meetings and at IPD's other project sites. But the majority of residents, even those who are coop members, have not engaged with the cooperative in this manner. Our surveys and observations reveal that most people are actually quite indifferent about the coop, perhaps exhibiting what Swyngedouw (2004) has described as "passive acceptance" of their situation. A few are even antagonistic, as I saw firsthand during the general assembly.

The danger of forcing community solidarity is that it may actually increase intra-community divisions, as the households that are poorer or have fewer social ties become increasingly marginalized. These divisions can be observed in other community-based projects across Metro Manila. In the case of the CMP, for instance, Berner (2000, p. 563) writes that, "the association willingly or unwillingly excludes a substantial part of the residents. It has to give up its claim to represent the whole community and becomes the instrument of a faction of beneficiaries."[155] As with the coops, Berner (2000, p. 562) observes that, "whereas the relations among the 'core' of officers and active members becomes more intensive, the margins, consisting of nominal members, many of them poor and uneducated, are crumbling away." The result is that those who cannot contribute to group payments are driven out, often violently, and land is consolidated amongst those that are relatively better off. In other informal settlements where land tenure is also of concern, Shatkin (2007) finds that citizens are more likely to participate in a CBO-led project if they have stronger social ties within the community, especially to more powerful members, and a higher income. However, even in communities that have demonstrated high levels of participation, a percentage of the residents do not participate at all (it is unclear whether they were ostracized as a result). Likewise, Matouš and Ozawa (2010) find that residents with higher levels of social capital are better able to procure official water connections from the utility. To a lesser extent, the same patterns of empowerment and disenfranchisement hold for the micro-networks that I observed. The micro-networks have clearly empowered a core group of coop members, at least temporarily. But

[155] In the CMP case, there are actually incentives to further segregate the marginalized; those who cannot keep up with payments are expelled by their communities and forced to move to other areas, while the land that they were occupying is consolidated with that of the more dominant homeowners.

whether the micro-network remains or is replaced by direct utility connections, it is likely that costs will remain prohibitive for the most marginalized, leaving them to continue seeking alternative forms of water provision.

Neither the monopolistic nor the resistant conceptions of water provision fully address the intrinsic contradictions within communities, where the different needs of households and competing visions of survival might create an environment of disjuncture. However, the heterogeneity of community is a reality, and it can both facilitate and complicate the concessionaires' expansionary strategies. In Santa Ana, for instance, demand for more reliable water enabled the formation of a local cooperative, as described at the beginning of this chapter. Maynilad, sensing some demand from the community but wary of overall losses in surrounding areas, was able to insist on a micro-network setup in which the cooperative was willing to partake. But there is clearly some demand for direct Maynilad services as well, as I discuss in the following section, and it is certainly feasible to imagine that Maynilad's offer of direct services, at some point in the future, would be met with somewhat favorable responses. In this sense, the pluralism of community may help the concessionaires meet their temporary goals (partnering with local organizations) and facilitate future plans (individualizing bulk connections). However, it may also contribute to a lack of total coverage and cost recovery, as it is unrealistic to envision that all households in a low-income community like Santa Ana will subscribe to or fully abide by the terms of Maynilad's services. Instead, these households may continue to rely on more needs-driven modes of access (Allen *et al.*, 2006b). Even when the concessionaires do eventually attain "full" coverage, the question remains as to whether those households that choose alternative forms of provision will be recognized for doing so, with an intention of understanding their concerns and improving their access.

In the following section, I explore the empirical basis for my claim that community pluralism creates the conditions for the coexistence of multiple water providers. I suggest that there is demand for a variety of modes of water service because each offers slightly different features. Given the constraints of low-income households, full consensus may never be achieved on centralized water service, whether it is managed by public or private entities (Allen *et al.*, 2006b; Budds and McGranahan, 2003).

6.2 Valuing water

The three communities in which I was based each had multiple, co-located forms of water provision. In order to understand consumer preferences and the choices available to households, based in part on their socioeconomic status, my research assistants and I conducted surveys, which are included as part of Appendix B. In Pagasa, most people subscribed to the longstanding water cooperative, some households along National Road had switched over to Manila Water, and others purchased water in small amounts from their neighbors. In Salcedo, only the relatively well-off could afford to pay the inflated connection costs that are required to extend pipes from Manila Water's meters, situated outside the informal settlement, to their houses deep within the community. Many others subscribed to one of Marilou's two systems—delivered either through fixed pipes or flexible hoses—while those who lived just beyond the reach of those systems relied on their neighbors. The

most options were available in Santa Ana, as presented in Table 6.1. Additional data on all three communities can be found in Appendix C.

Mode of Water Access	Connection Cost [PHP]	Tariff [PHP/ cubic meter]	Number of Surveyed Households		
			Total	Poor[156]	Non-poor
Cooperative	5675[157]	28	33	12	21
Patubig	2000 + materials	7	13	6	7
Tanker (*rap rap*)	0	0	24	17	7
Maynilad[158]	7616	16	4	2	2
Neighbor	0	100[159]	39	26	13
Deep well[160]	Unknown	Depends	12	5	7
Mineral	0	1057[161]	25	9	16
Rainwater	0	0	1	1	0

Table 6.1. Water usage among 89 households surveyed in Santa Ana. Many households used multiple sources of water.

The data summarized in Table 6.1 suggest that poor households tended to depend most on their neighbors (who typically obtained water from paid sources), as well as through the free, municipal tanker trucks (referred to by local residents as *rap rap*). However, none of the households relied solely on *rap rap* water, as the trucks do not come on regular schedules, and residents generally considered this water to be of inferior quality (not to mention that *rap rap* water was often stored in large drums, with only tarps or plastic lids to cover them). Not surprisingly, cooperative membership was highly skewed toward households that were non-poor because of the significant upfront and recurring costs. The surveys reflect the multitude of options available in Santa Ana, and that demand for these services will most likely remain for the foreseeable future, unless political or environmental factors lead to the discontinuation of some sources. Some internal variation within communities is

[156] I define a poor household to be one in which monthly income is less than PHP 8000, as self-reported through our surveys. The PHP 8000 limit is based on Philippine National Statistical Coordination Board estimates that families in Metro Manila needed a monthly income of PHP 7854 in 2005 to remain above the poverty line (National Statistical Coordination Board, 2007). The self-reported nature of household income is clearly an approximation, as is the use of the Metro Manila-wide poverty line. About half of the households that we surveyed in Santa Ana reported their monthly income as falling below PHP 8000.

[157] The cooperative offers a promotional connection fee in which PHP 3500 is due upfront, with the remainder payable in installments.

[158] We surveyed a few households along the perimeter of this area of Santa Ana that were Maynilad customers.

[159] This is based on the going rate of PHP 20 per 55-gallon drum. Households also tend to pay between PHP 1 and PHP 3 for a bucket, despite variances in the size of the bucket.

[160] The cost of installation of the deep well is unknown, as most wells were installed at least 10 years ago. The wells that are manually operated have no recurring costs, while the wells that rely on electricity have some cost (which we did not determine, as it was included in a household's monthly electricity bill).

[161] This is based on the going rate of PHP 20 per 5-gallon container, as reported by most of our survey respondents. Others said they spent PHP 25 per 5-gallon container.

likely to persist, with the exigencies of peri-urban living continuing to drive households toward different options, depending on their household needs and preferences.

Figure 6.2. Alternative means of accessing water. To the left, tanker trucks in Santa Ana (known locally as *rap rap*) deliver free water but on irregular schedules. To the right, large blue drums are commonly used to store water. Photos by author.

Most households, however, did indicate an abstract preference for the centralized utility. When asked whether the household might desire a direct Maynilad connection in the future, the majority of poor and non-poor households indicated that they would switch, primarily because they had heard that Maynilad offered cheaper tariffs. These responses are reflected in Table 6.2. Fifty one percent of poor households cited Maynilad's affordability as their main reason for wanting to switch, although 20 percent also suggested that their decision would be contingent on Maynilad's actual prices and their own savings at that time. Of note are the number of current cooperative members who expressed a desire to switch to Maynilad in the future; of the 33 coop members surveyed, 25 indicate that they would switch to Maynilad—again, mostly driven by price. Several members could not understand why the coop maintained such high prices. Luigi said to us, "Since it's a coop, it should be cheaper," while Rose commented, "Of course the coop is making money." Only four of those surveyed—all founding members—demonstrated a strong loyalty to the coop.[162] Even then, opinions were varied; two said, "the most important thing to us is water," while the other two were less aware of coop policies and favored lower prices. But though these responses and the numbers below indicate a general desire to switch to Maynilad, a majority of households also appeared to be satisfied with their current provider(s), suggesting that switching might not occur absent sufficient incentives or pressure to do so.

[162] We did not survey residents who were the most active coop board members; however, based on my frequent conversations with Mary Jane and others, I can safely assume that they would be quite loyal to the coop.

Maynilad Desired	Percentage of Surveyed Households		
	Total	Poor	Non-poor
Yes	71	73	68
No	12	11	14
Does not know	12	11	14

Table 6.2. Stated preference for Maynilad among 89 households surveyed in Santa Ana. Some households did not respond to this question.

More than 60 percent of surveyed residents in Salcedo who were not currently Manila Water customers said that they would prefer the concessionaire's services. However, given the extremely high costs of connection there—connection costs ranged from PHP 15,000 to 20,000 because residents have to pay for lengthy pipes after the meter, as I describe in Chapter 5—it will continue to be infeasible for most households to do so unless current policies change. Instead, the majority of households opted for Marilou's hosed water system, while others used her piped water system or purchased water from their neighbors. The high price of Marilou's system, compounded by bottled water expenses, means that households spent a significant amount of their income on water; our surveys reflected an average monthly expenditure of nearly PHP 800, or about 8 percent of household income.[163] Many residents also preferred to pay for water consumption on a daily basis, as this seemed to alleviate their monthly burden of expenses. This mode of water consumption—in small quantities, despite higher per-unit prices—fits in with other types of expenditures; low-income communities in the Philippines are dotted with *sari sari* stores, which sell sachets of food, personal items, and other products in a similar manner (Anderson and Billou, 2007). However, while daily payments may ease the burden on households, particularly if their income streams are not regular, such payment schedules do not detract from the high cost of water in the area.

In Pagasa, where Manila Water is present and expanding, residents face the very real possibility of switching to the concessionaire in the next few years. But our surveys reveal that they were divided between wanting to switch to Manila Water and preferring to stay with the coop. Others were simply unsure about their options. These responses are summarized in Table 6.3.

[163] This average includes Manila Water consumers, who actually had higher monthly expenditures than the average—most likely because they consumed more water.

Reason	Prefers Manila Water	Prefers Cooperative	Does Not Know
Manila Water is cheaper	18	0	3
Manila Water is 24/7	14	0	2
Prefers coop water taste	1	13	1
Prefers coop services	2	7	0
Coop has benefits	0	6	0
Manila Water is less strict	4	0	0
Does not want to pay connection fee again	0	3	0
Manila Water has better quality	1	0	1
Already coop member	0	0	1
Coop is cheaper	0	1	0
Coop services are erratic	1	0	0
Manila Water has problems	0	1	0
Total responses	**34**	**34**	**29**

Table 6.3. Stated reasons for preferring Manila Water or the Pagasa cooperative. Some households provided multiple answers.

The difference in rationale between those who preferred Manila Water and those who preferred the cooperative is revealing—Manila Water was valued for its cost and availability, while the cooperative was thought to provide better-tasting water, as well as services and benefits for its members. The taste of the water, I should add, was an attribute that many commented on, and it is not adequately reflected in Table 6.3's results. When we asked residents to identify the water source with the best quality, about half of those that responded chose the coop, with many suggesting that Manila Water contained too much chlorine or "medicine" (*gamut*).[164] Thus, although the two providers both delivered piped water and maintained similar tariff structures (see Appendix C for an analysis of costs), there were perceived differences in water attributes. This does not imply that households will refuse to switch providers, particularly if they have no other options. Very few residents have participated in the coop's struggle against Manila Water's encroachment. However, barring the forced termination of the coop's operations, it seems likely that the community may be divided between these two providers.

The variation in responses to our survey questions reflects a disjuncture between policy and reality, and between the actors involved. Though the concessionaires have instituted policies that allow for vastly increased coverage in low-income areas—such as allowing for discounted or amortized connection fees—they have not necessarily made piped water attainable for the most marginalized. Furthermore, their service of a particular area depends on a critical—though not universal—mass of interested and responsible consumers agreeing to their terms. Because the need for a critical mass of consumers can delay utility expansion into particular areas, groups like IPD and the Santa Ana coop leaders have stepped in to fill the gap. However, whereas they struggle to build and maintain coop operations, residents appear to be more complacent about this setup. The alleged social benefits of

[164] We collected some samples for water quality analysis from all these sites, as shown in Appendix D. Out of the three batches, the Pagasa cooperative's samples contained the most elevated levels of total and fecal coliform. Ironically, residents in Pagasa were also the most vocal about the superior taste of their coop water.

belonging to a coop, such as participatory decision making, are not perceived by most members. Rather than bringing citizens into a more democratic forum, the broader neoliberal environment within which the coops exist forces them to become mini-utilities, focused on cost recovery (Jaglin, 2002). Neither the concessionaires nor the coops have fully managed to meet the needs of low-income residents. For this reason, it seems unlikely that Manila Water's claim of 99 percent coverage means that there is full coverage and consensus in the areas that they serve. Rather, it is more likely that the pluralism of community still results in the exclusion of the most marginalized.

6.3 The specter of NWSA

Alternative water providers have attempted to fill the gap in peri-urban areas, where the centralized utility has never been present or has only partially fulfilled residents' needs. Some of these alternative systems have arisen out of local government projects, while others are independent ventures. For the ordinary consumer, however, it is not often obvious who provides water, as I describe below. Furthermore, the evolution of Metro Manila's centralized water utility—and its most recent manifestation involving private sector participation—appears to have gone relatively unnoticed. In this section, I consider how the opacity of public and private provision of basic needs in the Philippines contributes to the pluralism described above.

Several levels of government operate in Metro Manila, such that responsibilities are shared between the *barangay*, city or municipality, and some metropolitan-wide agencies. While water provision for Metro Manila has always been entrusted to a metropolitan-level agency, as described in Chapter 2, full coverage has never been achieved. The result is that lower-level governments have intervened at various moments to construct smaller systems for some or all of their jurisdictions. In Pagasa, the *barangay* councilors established the water cooperative in 1969, and though the coop has technically remained independent from the local government, there was significant overlap in initial leadership (Capistrano and Gutierrez, 2003). In Santa Ana, the municipal government has been providing water via tanker trucks and its *Patubig* system for more than a decade, taking over this responsibility from the NHA.[165] And in Salcedo, the residents attribute Marilou's micro-network system to the *barangay*, ironically masking the entrepreneurial nature of her endeavor. By aligning herself with the *barangay* officials, to whom a percentage of revenues goes, Marilou effectively evades questions of legitimacy, while the *barangay* benefits politically by appearing to provide a service for which they expend no effort. This relationship stands in contrast to the situation in Santa Ana, where residents are suspicious of the cooperative's efforts to supply water. While the Santa Ana coop is accused of profiteering from residents and blocking Maynilad, the system in Salcedo (which *is* profit-driven) is legitimized by the *barangay*'s apparent participation in its operations.

The involvement of multiple levels of the state means that it is not always obvious who should be supplying water in any given community. For some residents, it may not matter, as long as they have

[165] According to the coop leadership, the mayor provides water for political gain, increasing the reliability of these services during election season. The residents that we surveyed did not confirm these allegations, as none reported any change in services prior to elections. However, it is conceivable that a termination of these services might result in a decrease in popular support of the current local administration.

options that meet their household needs. This sentiment is corroborated by McFarlane's (2008b, p. 104) observations in Mumbai, where he writes that, "most people care little about who is maintaining [toilet] blocks as long as they are being maintained, whether it is a political party, BMC staff, or a local CBO." A few residents had difficulty distinguishing between providers when we asked for their opinions on water quality, service, and cost. Others perceive water that is provided by the government, even at the *barangay* or municipal level, as more legitimate than that provided by individuals or CBOs. It may be for this reason that Marilou has wisely aligned herself with the *barangay* and homeowners' association in Salcedo, and why she tries to partner with NGOs and various government agencies in her other project sites.[166] It is also one of the reasons why some residents exhibit a level of distrust toward the Santa Ana cooperative; the coop is seen as an independent entity, not aligned with the *barangay* or Maynilad. That local residents are managing the coop and collecting payment from their neighbors is cause for suspicion.[167]

For others still, water provision *is* perceived as handled by a centralized utility but, paradoxically, this utility is one from a bygone era. Many citizens refer to their water provider—no matter who it is—by the term NWSA, the acronym for the 1950's-era, metropolitan-wide water agency.[168] Mel, a Santa Ana resident who obtains water from her neighbor (a coop member) and from the tanker trucks, told us that she got her water from NWSA. The same was true for Bernard, who purchases his water from a neighbor who subscribes to *Patubig*'s service. Cherie said, "NWSA is expensive," though she, too, relies on her neighbor's connection. Several residents said that they obtain their water from NWSA, then pointed down the road toward the coop office. In Pagasa, there are similar sentiments about that coop. Crisanto, the nephew of the current coop chairman, proclaimed, "We are loyal to NWSA." Meanwhile, Daniel, somewhat envious of those that had been able to connect to Manila Water, scoffed at the coop: "The NWSA employees have the highest salaries." In Salcedo, residents seem to use the term particularly to refer to Manila Water's system, as Marilou's micro-network was attributed to the *barangay*. Elena, who obtained water via the hosed system, expressed her understanding of the relative costs involved: "NWSA is cheaper because the *barangay* has to pay workers."

What this suggests is that NWSA is a term used almost synonymously with water, regardless of where that water comes from, though it is generally not used for water sources that have other names associated with them (for instance: *rap rap*, *barangay*, or *Patubig*). Of course, many residents do refer to their local coop as just that. Nevertheless, while NWSA is not a term that is used universally, it serves as a reminder that there is a general blurring in people's understanding of water provision, and that the actual identity of the entity behind this water provision may not be of great importance

[166] In Chapter 3, I discuss Marilou's evolution as a small water provider, operating independently at first, and then later aligning herself with an NGO and *barangays* in order to gain legitimacy in the eyes of community members, the concessionaires, and national and international actors.

[167] The suspicion that some residents exhibit is enhanced, in my opinion, by the very visible coop office, where the coop management can often be seen chatting, eating lunch, and generally enjoying each others' company.

[168] In Chapter 2, I describe how the centralized utility has evolved in the last century, undergoing changes in management and jurisdiction.

to at least some users.[169] Privatization of the water utility seems to have little effect on the ways in which ordinary consumers view their water consumption, especially in areas where the utility has had limited or no presence. This may be partly due to the nature of water privatization in Manila, and in these three communities in particular, where privatization has so far offered competitive tariffs and has not resulted in the forced abandonment of prior modes of water access. Unlike in Cochabamba, where privatization led to the illegalization of community wells and rainwater harvesting, resulting in large-scale protest (Olivera and Lewis, 2004), Manila's concessionaires have not implemented any widely controversial policies. The policies that do raise some concern—such as their selective use of micro-networks—are sufficiently complex that it is not always apparent which actors are involved or responsible for decision making, as seen in Santa Ana.

Furthermore, the use of the term NWSA has a close parallel in the electricity sector—MERALCO is the sole provider of electric power in Metro Manila. MERALCO, originally known as The Manila Electric Railroad and Light Company, was formed in 1903 while the Philippines was still an American territory, and was then purchased by a Filipino company in the post-independence era.[170] With the exception of a decade-long period of nationalization, when Marcos declared martial law, the company has always been under private control. However, for ordinary consumers, particularly those that do not have investment stakes in these companies, ownership appears to be of little concern. Many simply refer to their electricity provider as MERALCO, because that is always what it has been called. The use of the outdated term NWSA, despite several changes in organization and ownership, suggests that these changes have had little impact on the ways in which some people perceive of their water provision. Lucy, a longtime resident of Salcedo, remarked, "We applied for NWSA in 1980 but were denied. Maybe now it will be easier." Such a comment reveals the continuity between the NWSA of then and the NWSA of now. Similarly, the designation of NAWASA—the grassroots network of small water providers that I describe in Chapter 3—as such is deliberately intended to evoke notions of legitimacy and state provision associated with NWSA.

In Chapter 5, I describe the ways in which the concessionaires use micro-networks and clustered metering to make sense of low-income communities—to make them more legible. Borrowing from Scott (1999) and Mitchell (1991), I claim that legibility is a top-down process by which the concessionaires are trying to manipulate the organization of certain spaces and simplify the provision of water. Building upon that argument, I now suggest that legibility can proceed in multiple directions, and that everyone partakes in some degree of rendering things legible in order to better understand their surroundings. For some low-income consumers, using the term NWSA simplifies water provision from what can actually be quite a complex process, with multiple agencies and actors involved, to one that has a single and consistent name. It can be a somewhat subconscious simplification—for those that referred to the coop as NWSA, for instance, they were usually able to identify their water provider as the coop when we pressed them. A similar process of

[169] When pressed, respondents were mostly able to distinguish between different providers in terms of perceived cost, quality, and responsiveness. These answers are reflected in Section 6.2 and Appendix C. However, I still contend that there is a general blurring of the identities of different providers, particularly with respect to the agents behind specific modes of water provision.

[170] The Filipino business tycoon, Eugenio Lopez Sr., bought MERALCO from its American owners, and the Lopez family continues to be a major shareholder of MERALCO today. The Lopez family was also an original co-owner of Maynilad.

legibility is applied to Marilou's association with the *barangay*—it is simpler for everyone involved to think of the water system as belonging to the *barangay*. This is true even of the concessionaires; Manila Water has been wary of Marilou's operations, as I describe in Chapter 3, but they appear to take no issue with the Salcedo *barangay*'s micro-network operations. While Scott (1999) uses the term legibility to denote a particular process of top-down governance, I find that a broader understanding can help clarify the ways in which various actors make sense of one another. To some extent, there is a degree of depoliticization occurring from the bottom-up as well, as citizens overlook many of the idiosyncrasies of actual water provision, with its multiple actors stemming from various public and private spheres, instead taking in only the elements that matter to them. This process of simplification becomes even more logical when one considers the importance of water vis-à-vis other social issues, as I discuss in the following section.

6.4 Problematizing water

I selected these three study sites because they represented areas that did not have direct utility connections. Water, I thought, was presumably a matter of some importance to these households, especially because my preliminary research had mostly involved speaking with micro-network leaders, who did believe that water was a significant issue. While conducting our surveys of community residents, however, it became evident that most citizens were not terribly bothered by the lack of direct connections—not because they did not care about water and other basic needs, but because the severity of other concerns outweighed those related to water. In each of the three communities, we asked residents to identify the issues that they personally perceived to be the most important problems affecting their community. The figure below summarizes the survey responses and overwhelming reflects a lack of concern for water; rather, livelihood opportunities and vice appeared to be the two most prominent issues on people's minds.

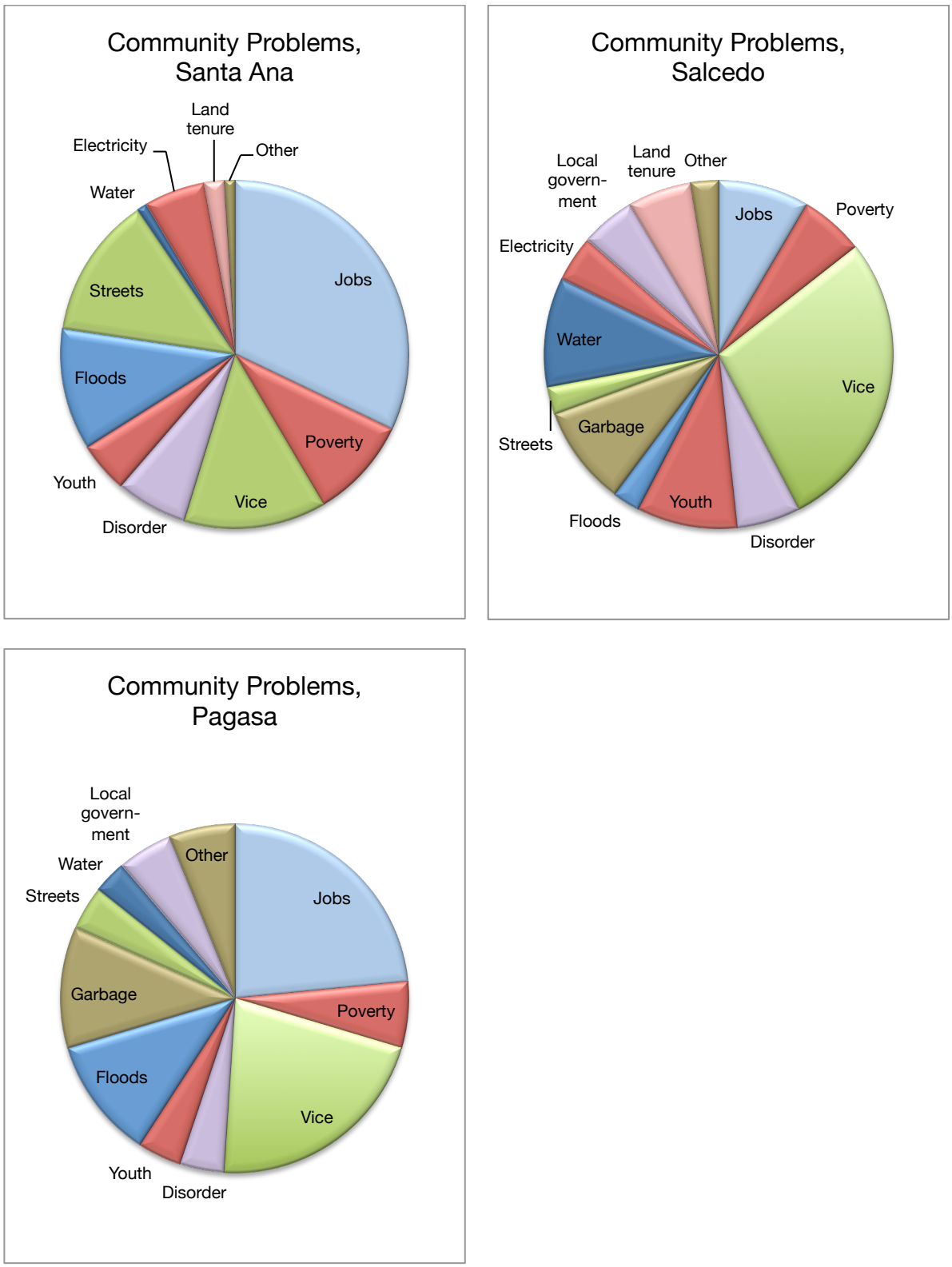

Figure 6.3. Self-identified community problems in Santa Ana, Salcedo, and Pagasa.

In Santa Ana, once considered by the government to be a "waterless community" because of Maynilad's absence in the area, only one person suggested that water was of concern to her. However, Santa Ana *is* on the northern outskirts of Metro Manila, so it is perhaps not surprising that residents identified the lack of jobs and the presence of *tambay* (a term derived from the English word "standby," and referring to one who does not have anything to do) as primary concerns. These sentiments were stronger among households that we classified as poor. Four additional issues can be seen as related to the lack of livelihood opportunities: (1) poverty, with some respondents specifically citing a lack of money for food; (2) vice, a term that I have used to encapsulate both the literal translation of *bisyo*, as well as specific acts that residents deemed to be in this category, such as theft and drugs; (3) disorder or trouble (*magulo*), which could include things like noise; and (4) youth, most of whom had finished school but were lacking employment (many specifically referred to "out-of-school youth"). Separately, but quite fitting for this location, many residents were concerned about flooding and drainage. In September 2009, the devastating typhoon Ondoy swept through Metro Manila, causing major flooding in many areas. Some of the houses in Santa Ana, especially those adjacent to the nearby river, had experienced flooding above the first story, and these memories remained fresh in people's minds when we arrived. At the time, the municipal government was also repairing some streets, and those whose alleys had not been paved noted the imbalance. A few residents also identified electricity—both payment and theft related to it—as a matter of concern. But water was not a problem precisely because there were many options for accessing it, such that even though the community was lacking in services, other issues took greater precedence.

Residents gave similar responses in Salcedo and Pagasa, where the lack of jobs and presence of vice were deemed most problematic. In Salcedo, a centrally-located, informal settlement, about a third of the residents whom we interviewed fell under the poverty line for Metro Manila, compared to about half in Santa Ana. My suspicion is that Salcedo's location and the presence of several micro-industries within the community (junkshops, in particular) contributed to the relatively improved income status there, despite the crowded and informal living conditions. Thus, jobs were reported to be less of a concern, whereas vice—identified in Salcedo as theft, drugs, and gambling—were of greater importance. Compared to the other two communities, more residents in Salcedo suggested that water was an issue: one complained that there were not enough hoses; another said that the meters were inaccurate; and two others commented on the general difficulties of waiting for water delivery. We had heard through our surveys that arguments sometimes broke out over the hosed system, so it was not surprising to see these complaints arise again. But in Pagasa, water was again less of an issue compared to those related to jobs, vice, and flooding. Its peri-urban location, adjacent to a large body of water (Laguna de Bay), most likely contributed to those priorities, whereas the relative availability of water within the community made water less of an issue for those residents.

I do not mean to suggest that water is of no concern to residents of these three communities, or to "waterless" communities in general. Nor do I suggest that access is equitable or even acceptable from a social justice standpoint. What these surveys reflect, however, is that there are tolerable—though perhaps not ideal—solutions for water access within each of these communities, whereas there may not be sufficient livelihood opportunities for the un- and underemployed, or alternative outlets for vice-prone residents. Even in Salcedo, where there have been anecdotal reports of fighting over the hose system, arguments seem to be mostly directed at fellow citizens, rather than at

the *barangay* or external figures. For this reason, the politics of centralized water provision—controversial in some other cities—is mostly diminished in Manila. It is a space occupied by a few that are deeply invested in particular forms of access, such as the coop leaders or a handful of NGOs. This supports Swyngedouw's (2004, p. 151) observation that, "while the demand for the provision of roads, schools, health services, or public transport is often subject to collective action and struggle, water (and waste disposal) has rarely resulted in popular and collective revolts." And it again contributes to the concessionaires' ability to operate largely on their own terms, using micro-networks when it works to their advantage, and displacing them when feasible.

6.5 Conclusion

In disentangling the communities in which micro-networks operate, I have examined the internal tensions occurring within these areas, suggesting that the variation in sentiments is due in large part to three structural factors: the pluralism of community, the blurring of providers, and the relative importance of other social issues. The latter two help explain a somewhat muted response from many community members toward water provision, contributing to the former. But while it may be tempting to construe this muted response as an absence of politics, I do not believe that to be the case. Rather, I found a desire among some people to make the most of their situation—to minimize criticism of their lives and environs. "It is calm here," they would say, proudly, when we asked about community problems.[171] For those that had dealt with the disastrous effects of Typhoon Ondoy, or with recurring issues related to livelihood opportunities or vice, they seemed to make a semi-conscious effort not to complain about their present water situation. Moreover, their decisions—however passively they may have been made—do continue to influence the operations of water providers around the city and the structural changes that policy makers attempt to institute.

In addition, the lack of resistance among the masses should not detract from the overtly political struggles of those who are directly involved in water provision. This is most evident in Binangonan, where the Pagasa operation is one of 17 longstanding coops fighting off Manila Water's encroachment. Manila Water, cognizant of the fiercely political battle being waged by the coop leaders, has thus proceeded carefully. The company has expanded slowly, striking a deal with the *Municipio* (the more "downtown" area of Binangonan, where the municipal government has an office) to replace the water system there, and using that project to justify their service along National Road.[172] Manila Water has also offered promotional connection fees selectively, only in barangays where the coops are stronger, such as in Pagasa.[173] In Santa Ana, the formation of the cooperative was challenging, as I describe at the beginning of this chapter, but Mary Jane and Joy describe it as

[171] This was a more common response in Santa Ana and Pagasa, which are located on the outskirts of Metro Manila, and where the pace of life seems a bit slower.

[172] National Road is the main artery leading to the *Municipio*. In Pagasa, Manila Water offers direct connections along National Road and a few side streets. Manila Water replaced the now-defunct Binangonan Waterworks in the *Municipio* area.

[173] Our fieldwork reflects that Manila Water did not offer discounts on connection fees in some of the other *barangays* in Binangonan where less stable cooperatives operate.

personally fulfilling and socially important. There, the politics is as much local as it is about improving water access. While Mary Jane and Joy recognize that the organization could be more inclusive, they are wary of new officers potentially abusing finances (as a former treasurer had done) and they are also aware that many members do not necessarily feel the need to participate in decision making processes. For now, the relationship between the coop and Maynilad is amicable, but it has been one-sided from the onset, with Maynilad determining the rules of engagement. In particular, the cost of water for the coop—which is equivalent to the tariffs for a direct household connection—sets them up for failure, as it necessitates higher tariffs compared to Maynilad. I discuss some of these issues in my concluding chapter, where I offer some feasible recommendations for increased equity.

The general lack of participation in community struggles for water does, however, challenge the efforts of the resistance movement, leading to two problematic results. First, community disjunctures can help contribute to the concessionaires' uneven expansionary strategies, facilitating both the formation and displacement of micro-networks, as there is demand for both. Such a pattern of expansion occurred in Taguig, where the individualization of micro-network connections—albeit driven in large part by political pressure—would not have taken place had residents been more supportive of the community operations there. The concern, in part, is that micro-network operators have previously been displaced in a somewhat violent manner, without allowing for negotiations or a recoupment of their investments. Second, there is a lack of consensus on a single form of water provision, suggesting that it is unlikely that the concessionaires will ever achieve full coverage, where every household has a direct connection to the centralized, piped system. As I have mentioned in previous chapters, the most marginalized tend to remain invisible—a reality that has not been sufficiently addressed by existing governance strategies, and one for which I offer some suggestions. These are discussed in the conclusion.

Chapter 7. Conclusion: On the Limits of Privatization

In a recent issue of the Harvard Business School Alumni Bulletin (2011), Jaime Augusto Zobel de Ayala—Manila Water vice chairman, Harvard alumnus, and heir to the Ayala fortune—explained how his company had been able to expand into low-income markets:

> Unlike most companies, which disregard lower-income groups because they seem to be an unattractive market, Manila Water took a particular interest in addressing their needs. We saw an opportunity to help uplift the quality of their lives, provide a much-needed service, and, at the same time, make reasonable returns on our investment. It was a conscious effort on the part of Manila Water to provide the same level of service to all customers, including those in low-income communities. These disadvantaged communities were actually paying a great deal more for their water at the time through middlemen who saw opportunity in the lack of service. By disenfranchising these traders, we earned the goodwill of the community and built a loyal market for our service.

The improvements in overall access to water that Manila's concessionaires have made cannot be ignored. Compared with the previously-stagnant MWSS, the concessionaires have demonstrated impressive gains in terms of coverage, NRW reduction, and other aggregate and commonly-used metrics.[174] Barriers to connection have been lowered—land titles are no longer needed, and many low-income customers are eligible for amortized or discounted connection fees, as well as lifeline tariff rates. Even within micro-network communities, water quality has improved, for customers are now able to connect (indirectly) to the centralized network. However, despite these advancements, it cannot be said that the same level of service is delivered to all customers. The most marginalized still appear to be paying more for water, and the concessionaires rely, in part, on middlemen to facilitate cost recovery in micro-network communities. In much the same way that Gerlach and Franceys (2009) trouble the Jordanian government's claim that there is complete water coverage in Amman, this project points to residual disparities as evidence of the limitations of Manila's privatization efforts.

In the remaining sections, I offer some thoughts on the limits of privatization and potential options for improving equity. I begin in the following section with a summary of my key arguments. In Section 7.2, I describe the ways in which the micro-network model is being propagated elsewhere, as well as the rise of public-private partnerships in many sectors within the Philippines. Section 7.3 explores some policy options that aim to help the most marginalized obtain access to basic services on more equitable terms. I conclude in Section 7.4 with a final note on universalizing water access.

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[174] One metric that is frequently used to measure the efficiency of utilities is the number of employees per 1000 connections. Prior to privatization, MWSS had 9.8 employees per 1000 connections (World Bank, 2010); in 2010, that number was 1.4 for Manila Water (Marcial, 2011) and 2.5 for Maynilad (Aquino-Jose, 2010). Many of the tasks that were previously conducted in-house are now being outsourced to smaller firms, including pipe-laying activities. Thus, the use of this metric not only gives an inflated sense of efficiency, but also incentivizes utilities to contract out services.

7.1 Testing the waters

This dissertation focuses on certain low-income communities—those where the concessionaires do not work directly, but instead rely on micro-networks to deliver water—because they test the boundaries of Manila's privatization project. As I mention in Chapter 1, there are relatively few communities that fit this mold. Nevertheless, examining urban water provision and network expansion through the lens of micro-networks allows us to understand how the concessionaires attempt to make low-income spaces more governable. We see how the concessionaires are able to shift responsibilities toward communities and individuals—making the city more legible for their operations, while masking the inequalities that remain. Micro-networks, despite their outlier status, thus help us to understand Manila's water privatization project. I close here with three arguments.

First, while the concessionaires have made vast improvements to Manila's water system, the success of their efforts must be tempered by the inequities that marginalized communities continue to face. In micro-network communities, tariffs are at least double that of directly connected households, largely because the concessionaires sell water to the micro-networks at the average residential rate. Micro-networks must add on costs to recover material and staffing expenses, meaning that consumers do not benefit from the centralized utilities' economies of scale. Furthermore, entrepreneurial micro-networks charge additional profits that are not subject to regulation. In addition to higher costs, consumers are subject to enhanced monitoring because micro-network operators must pay their full monthly bills or risk being cut off by the concessionaires. Governing—once primarily the role of the state—has now been transferred to private corporations, which in turn rely on community organizations to manage certain populations. As I describe in Chapter 6, in some cases, this shift in power relations can result in discontent and confusion within the community. Finally, we see that even in micro-network communities, there are some households that are unable to comply with the terms of access. These households, scattered around the metropolitan area, are invisible to policymakers because the concessionaires' coverage data masks their persistence.

Second, the state has largely given the concessionaires the authority to shape geographies of access, determining the terms of provision in specific communities. Thus, we see that the concessionaires use micro-networks to serve areas where land is contested and where cost recovery seems more problematic, as I discuss in Chapters 4 and 5. Manila Water and Maynilad are also responsible for the production of knowledge, generating data on coverage and NRW that national and international actors take at face value. We are led to believe that Manila Water serves 99 percent of its jurisdiction because we cannot prove any different; the MWSS-RO, the authority that might be most likely to verify the concessionaires' data, does not have the capacity (or, seemingly, the desire) to do so. Whereas the ideal developmental state would be one that seeks to improve the welfare of all of its citizens, large private companies—such as the owners of Manila Water and Maynilad—must also consider issues related to profitability and conflicting business interests when making decisions on access.

Third, the coexistence of multiple providers in certain communities creates a disjointed pattern of access, which can undermine the efforts of micro-network operators while further consolidating the private utilities' power. In Santa Ana, for instance, some residents are unsure about the cooperative's functions, creating an environment of distrust that may facilitate Maynilad's eventual entry. For this reason, Marilou wisely aligns herself with the *barangay*, giving her operations an air of authority associated with the local government. Interestingly, in Manila, the participation of large private

companies in the water sector does not seem to have generated much protest, save for the more ideological complaints lodged by leftist NGOs. Rather, it is the continued participation of small water providers that have caused local disruptions. Many citizens seem to believe that it is the government's responsibility to provide water, and for them, the role of small water providers in that process is uncertain.

More broadly, these arguments contribute to a rethinking of privatization as concomitantly occurring in multiple ways—that is, the manifestation not of a single type of privatization within a given locale, but the coexistence of multiple privatizations that may have disparate effects on different sub-populations. Borrowing from Hart's (2002) concept of "multiple trajectories of socio-spatial change"—the myriad, interconnected processes that, together, constitute globalization—my notion of multiple privatizations is useful in disentangling Manila's remaining inequalities. Whereas the majority of the metropolitan area has benefited from post-privatization improvements to the centralized water system, this project demonstrates that there remain sites of ongoing differentiation and contestation, including communities where the concessionaires delegate everyday water management to micro-network operators. Considering the coexistence of multiple privatizations thus allows for a more nuanced understanding of processes of uneven development, by which I am able to move beyond Brenner and Theodore's (2002) concept of "actually existing neoliberalism"—which privileges the city as the scale of difference—toward a more localized interpretation of the ways in which processes of neoliberalism and privatization can unfold.

Furthermore, the uneven terrain resulting from multiple privatizations maps onto an uneven demand for community participation in facilitating local governance. Such a demand is not limited to low-income spaces. Community, as Rose (1999) articulates, has emerged in the neoliberal era as a "third space," beyond the state and the market. Through community, members are morally bound via shared values, producing governable subjects that adhere to certain norms. But while communities may exist around a variety of issues, surpassing class or race stratifications, the insistence of community participation in some development contexts cannot be ignored. In those instances, participation can be used as a means of shifting state and corporate responsibilities onto citizen groups (Paley, 2001; Miraftab, 2004), while doing little to improve inequitable conditions for the most marginalized (Maskovsky, 2006).

Arguably, the emergence of Asian cities as the loci of new experiments in urbanism (Roy and Ong, 2011) places increased pressure on cities like Manila and companies like Manila Water to perform at a world-class level. In April 2013, the Philippine Stock Exchange Index reached an all-time high, surpassing the 7,100 mark, shortly after the country received its first investment grade status from the global credit agency Fitch Ratings (Austria, 2013; Wagstyl, 2013). As I describe in the following section, speculation and investment are booming in Manila, as well as in other cities where Filipino companies are now expanding. The governance of low-income spaces—in part, through an enhanced reliance on community—will likely continue to be an integral part of world-class city-making. In this hyper-financialized context, the ways in which multiple privatizations unfold may inform our understandings of urban poverty and inequality.

7.2 The ongoing rise of the private

Compared with the overall wellbeing of the metropolitan population, the communities and households that remain left behind constitute a relative minority. However, their low numbers should not be a reason to ignore them. In addition, my observations of micro-networks have broader implications, especially because of the increased role of the private sector in basic needs provision, both in the Philippines and elsewhere. IFIs, development agencies, and other members of Goldman's (2005) transnational policy networks facilitate the knowledge transfer of "best practices," sometimes passing on both the benefits and limitations of such practices. For instance, during my initial trip to Hope Hills, a delegation of water management staff from Mozambique also visited the site, hoping to learn how such setups could be replicated in their country. Recently, I met another doctoral student who is studying water access in Mozambique, and she confirmed that water authorities there still praise Marilou for her business acumen. But Marilou, though she has certainly extended access to low-income communities, also charges inflated prices, and it is unclear whether those practices have also been passed on. It is, however, proof that partnerships between utilities and community-based actors are gaining traction, especially in Africa. A report by the Water and Sanitation Program (2009b) describes how the micro-network setup—what the authors refer to as a "delegated management model"—is being used to serve Nyalenda, the largest urban slum in Kisumu, Kenya. As in Manila, the Kenyan model seems to improve services for the poor, while also increasing the utility's revenue. Critically, however, the utility in Kisumu establishes end-prices for consumers, addressing some of the concerns expressed by citizens in Manila. In Indonesia, a program sponsored by the US Agency for International Development enables Maynilad to share its best practices with Tirtandi, the utility in Medan. That utility is now poised to serve nearly 20,000 low-income households using micro-network setups (United States Agency for International Development, 2010).

In recent years, both Manila Water and Maynilad have broadened their investments into other national and international cities. Manila Water's range of investments is particularly impressive. Within the Philippines, it now operates the water utilities in Laguna, an area south of Metro Manila and a growing center of commerce, and in Boracay, the country's most popular beach destination. Manila Water also has significant investments in Ho Chi Minh City and Jakarta; in the latter, the company took over the French multinational Suez's shares, demonstrating its global competitiveness. Until recently, Manila Water also maintained investments in India and Australia, though it withdrew from those projects in order to focus on more profitable endeavors elsewhere. The company is doing very well financially, and has earned multiple awards for its corporate governance (Manila Water Company Inc., 2011). Similarly, Maynilad's current investors, though only involved in the company since 2007, have also looked to expansion markets elsewhere. Maynilad has a stake in Subic Water, which serves the area formerly occupied by a US military base and that is now a special economic zone. And in 2012, the government of Cebu, the second largest city in the Philippines, awarded a deal to the Manila Water Consortium (comprised of Manila Water and MPIC, one of Maynilad's chief investors) to source and treat water from a nearby river prior to its distribution within the city. With all of their varied investments, it is possible that Manila Water and Maynilad will use the micro-network model—or some other means of treating low-income consumers differentially—because of its demonstrated ability to improve cost recovery and coverage in Manila. Such patterns of expansion place Manila Water and Maynilad at the core of regional infrastructural megaprojects, re-centering the locus of investment in Manila. They also raise the

question as to whether Filipino ratepayers are indirectly cross-subsidizing the companies' initial investments in external projects (Corral, 2008). Finally, water and other infrastructural reforms can have the perverse effect of further consolidating power relationships in the hands of a few (Budds, 2013).

Based partially on the success of these companies, the Philippine government has vastly expanded the scope and scale of PSP. Through the Public-Private Partnership Program (PPP), the government plans to tap PSP in a range of major projects, including the construction and rehabilitation of infrastructure for airports, schools, water and energy facilities, hospitals, roads, and transportation systems (Public-Private Partnership Center, 2012). In 2011, the Ayala Corporation won the first of these projects—the construction and operation of a toll road in the southern part of Metro Manila.[175] Meanwhile, the Ayala Corporation is also bidding for the largest of the PPP projects—the construction of the Light Rail Transit line into Cavite Province, estimated at PHP 60 billion—partnering with MPIC, while DMCI and Marubeni are also offering a competing bid.[176] In this era of heightened privatization, power and money are increasingly being consolidated in the hands of a few, further elevating the already-prominent oligarchical class. Arguably, these investments will help boost the Philippine economy and build key infrastructure that the government has so far failed to develop. However, as the private sector becomes increasingly involved in the provision of basic services, it will become even more critical to establish regulatory measures, overseen either by the state or independent watch groups, that question issues related to equity and access.

7.3 Reimagining the future

"Philippine politics—the way it is practiced—has been most hurtful to us as a people. It is possibly the biggest bane in our life as a nation and the most pernicious obstacle to our achieving full human development." So goes the now-famous statement issued by the Catholic Bishops Conference of the Philippines in 1997 (Tale, 2012). Given this political climate, it is difficult to offer policy recommendations that may actually gain traction. Nevertheless, I offer some thoughts on how access to water and other basic services may become more equitable in the future.

Moving forward, it would be prudent to enhance the strength and capacity of the RO and regulatory agencies in other sectors. This is certainly easier said than done; the recent MWSS scandal over excessive bonuses is just one example of the corruption often associated with the public sector. But according to Dumol (2000), the government insider who helped formulate Manila's water privatization project, the RO was hastily created, and its full independence forsaken in order to expedite the process. Empowering the RO with the broad mandate to ensure the welfare of all

[175] Ironically, the Ayala Corporation's bid was nearly 50 percent higher than the only other bid, and triple the floor price. Public Works Secretary Rogelio Singson (who was the former President and Chief Executive Officer of Maynilad) said that it was a good entry-level project for Ayala, who has no experience in toll roads (Alcuaz, 2011).

[176] MPIC, DMCI, and Marubeni all currently invest in Maynilad.

citizens, especially the most marginalized, may help address remaining barriers.[177] Concrete steps might address concerns including that there are currently no external verifications of the concessionaires' progress and their production of knowledge; PAWS is the only program that surveys consumers, and it ignores those that are not connected to the centralized network. The RO largely accepts the concessionaires' self-reported data as truth, and there are no incentives for the concessionaires to reveal areas that are un- and underserved. Households in these areas are thus rendered invisible. But, as I discuss in Chapter 5, the concessionaires' field staff appears to have a very rich knowledge of the waterscape, particularly managers that "walk the line" in Manila Water's jurisdiction. If the state (whether it be the RO, or other agencies such as the National Anti-Poverty Commission) could tap into that knowledge base, we would be able to generate richly detailed data on the limitations of current approaches. As I see it, there are two ways to obtain this information: either require the concessionaires to supply it (though that will likely have limited efficacy), or negotiate with the concessionaires such that they are not penalized for the households that they cannot reasonably serve.[178]

Furthermore, the state could work in closer partnership with NGOs, which are often already well-connected to certain communities, to assist areas that are lacking in services. For instance, IPD has exerted tremendous effort in organizing water cooperatives around the country. But these efforts have been relatively neglected by the state, and may even be seen by some actors as interfering with the concessionaires' projects. Marilou and Villaluna, of Streams, have a closer relationship with the state, and a particularly close relationship to Alikpala, the current chairman of MWSS. However, that means that Marilou operates with greater freedom than IPD, even though her motivations are more profit-driven. These relationships are personal and messy, and there are no easy answers. But it is a pity that the Philippines' rich and diverse civil society is, at the moment, relatively diffuse and focused on more localized issues (Shatkin, 2002). If the state is intent on pursuing modes of good governance, as it claims, then it must work more closely with civil society. Passage of a proposed Freedom of Information bill would be one step in allowing for greater government transparency.[179]

In Chapter 4, I describe the ways in which access to water is closely tied to the housing and livelihood issues in Manila. It seems unlikely that the state or concessionaires will be able to provide universal access to water without also addressing these related issues, making the problem much more complex. While, ideally, all citizens should have the option of connecting to the centralized network, this is difficult to imagine in the near-term, given current contestations over space. Some authors suggest that the "one size fits all" mode of centralized provision is inappropriate for

[177] During my first year as a graduate student at the University of California Berkeley, I worked at the California Public Utilities Commission, interning in the Division of Ratepayer Advocates. I was part of a team that evaluated the proposed construction and operation costs for a desalination plant that is proposed for Monterey County. Even in that limited role, I was able to help verify the private utility's assumptions and calculations, and my team's efforts led to a cost savings of over USD 1 million. If a similar agency were to exist in Manila, its function could be to protect the needs of consumers, particularly low-income households.

[178] One problem may be that certain households or communities may not want to be made visible to the state—because they lack land tenure, for instance. Gathering more data on barriers does not necessarily involve exposing individuals or communities; rather, NGOs could work to help identify remaining issues.

[179] The passage of this bill has met strong resistance in the House of Representatives, and President Aquino is said to be unenthusiastic about it (Salaverria, 2013).

developing cities, for there are bound to be households that will be unable to connect (Jaglin, 2008; Allen *et al.*, 2006a). I am perhaps more optimistic, and would like to think that we must find ways to make piped water attainable and affordable for everyone. But I also recognize that there are many more complex issues related to water provision, including shortages in housing and livelihood opportunities. Furthermore, rural and smaller urban areas are often far worse off, and one must decide whether to prioritize those areas or the remaining, unserved minority in the capital region.

In the short- to medium-term, micro-networks can be a more promising solution provided some amendments are made to the current setup. First, the concessionaires should sell water to small providers at a discounted rate, taking into account the transfer of costs and responsibilities for this last mile of service. However, IPD and its associated cooperatives have tried to negotiate with Maynilad on this point, to no avail. A WSP report (2004) on Manila's small water providers also suggests rationalizing bulk water rates such that low-income communities benefit from the concessionaires' savings. A more empowered RO, whose mandate is to ensure the welfare of consumers, might regulate end-prices, as tariff disparities (and not the participation of specific providers) seem to be the main source of discontent among micro-network consumers. Second, future partnerships with micro-networks might include binding, upfront contracts between large and small water providers, allowing micro-networks to plan for medium-term operations. The state or concessionaires should explain these partnerships to residents, citing specific issues such as land tenure as reasons for micro-network involvement. This would deter citizen unrest and sudden takeovers, such as the events that unfolded in Taguig. The state's recognition of the role that small water providers can play—and a more overt partnership between large and small providers—could help legitimize micro-network operations, while also protecting consumers' needs. Third, there should be greater communication between the concessionaires and communities, such that the latter's needs are actually heard and respected. Though the concessionaires claim to consult communities, the process is typically one-sided, with the concessionaires deciding the terms of access. Of course, it will be difficult (or perhaps impossible) to obtain full community buy-in, as I allude to in Chapter 5. Nevertheless, a process that better engages community members could help elucidate the multiple roles that various actors may play in delivering services.

This speaks to a more general point on the need for "state-society synergy," where governments and communities collaborate and negotiate to foster each other's developmental efforts (Evans, 1996). Comparative studies have shown that states that are more engaged in societal projects tend to produce more effective outcomes (Heller, 1996; Kuriyan and Ray, 2009). At the moment, the Philippine state is largely removed from both the projects of large private developers and grassroots community organizations. It seems to be supporting the further entrenchment of an already-powerful political and economic oligarchy. But the state is not monolithic, and I have come to know some progressive and dynamic government employees. And, without a doubt, many of the people that I met through NGOs and micro-network organizations want to improve the plight of low-income communities. Though the Philippines is perhaps still far from the ideal developmental state (Evans, 1995), there seem to be multiple possibilities for creative synergies.

7.4 Endnote

Manila, 1970s. As Governor of Manila and First Lady of the Philippines, Imelda Marcos' vision of a beautiful and modern City of Man did not include slums. Through her beautification campaign, Marcos built fences, billboards, and walls to hide the urban poor, particularly from visiting foreign dignitaries such as representatives from the World Bank and IMF, who convened in Manila in 1976 for their annual meeting (Berner, 2000).

Manila, 2012. In preparation for the annual meeting of the ADB Board of Governors, the Philippine government erected a makeshift wall along a bridge near the airport, shielding arriving delegates from the very issue that they had come to discuss. Francis Tolentino, Chairman of the Metropolitan Manila Development Authority, said of the wall: "I see nothing wrong with beautifying our surroundings. We are not trying to keep the poor out of the picture" (The Huffington Post, 2012).

Figure 7.1. The wall that hides the poor. Local government officials received media criticism for erecting a wall that promotes the country's tourism (with its current slogan, "It's more fun in the Philippines") and economic industries, while hiding informal settlements from foreign delegates. © The Associated Press/Bullit Marquez 2012.

In a sense, the concessionaires' overestimation of their own progress whitewashes the reality of Manila's poverty. If Manila is to move toward the goal of universal water access, then it must acknowledge remaining barriers and tear down the walls that conceal these issues from the public.

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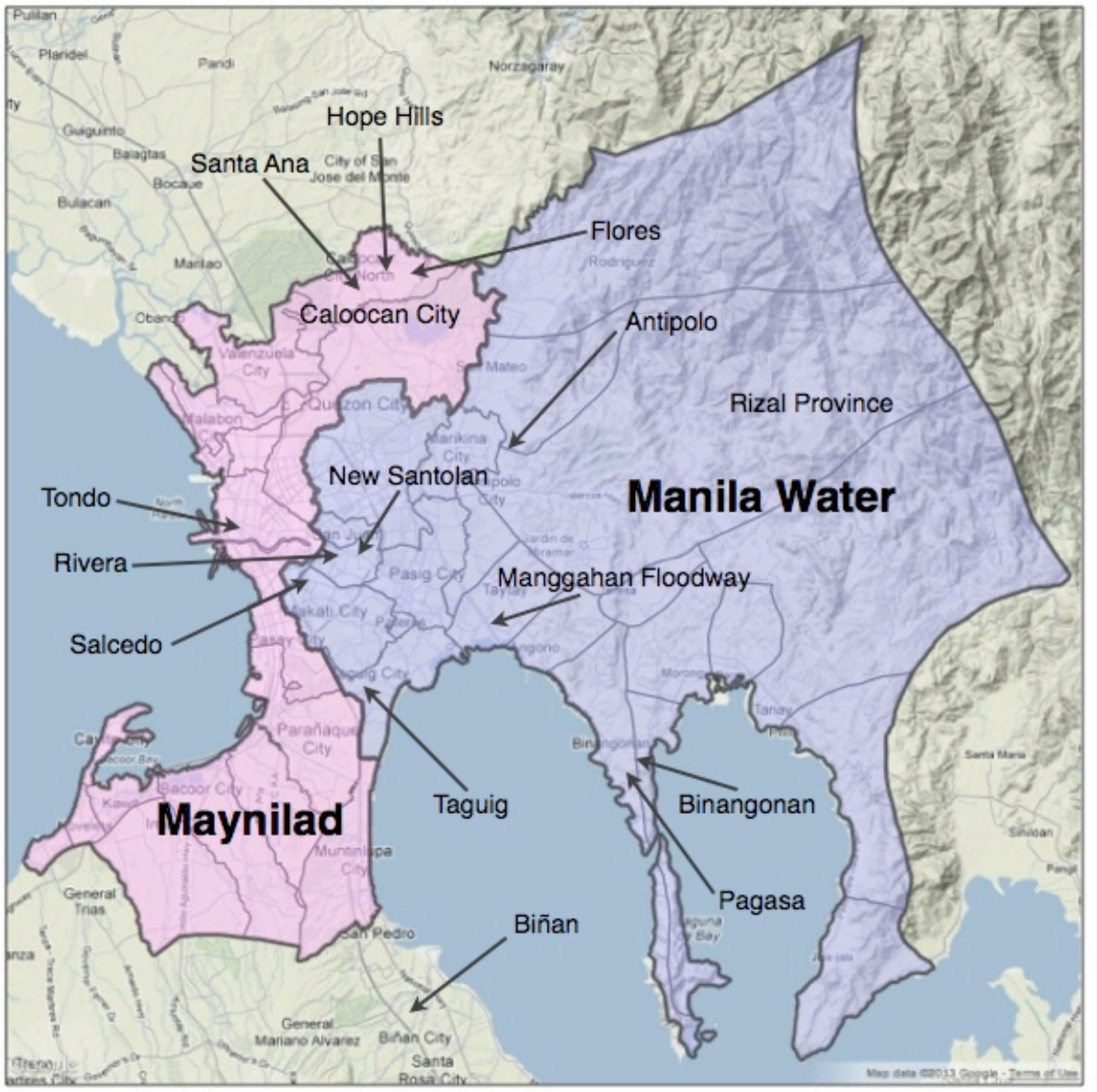
Appendix A. Map of Metro Manila and Referenced Areas

The following locations are mentioned throughout this dissertation.



Appendix B. Research Methods

My intention in conducting this research was to assess how the privatization of Manila's water utility impacted low-income communities. But though a significant portion of Manila's population can be considered low-income, it is not a simple matter to locate many of these areas. I was thus fortunate to meet several key informants during my initial research trip, in the summer of 2008, who allowed me access to the community groups with which they were working. Through IPD, for instance, I was able to interview the operators of many micro-networks—mostly existing cooperatives in Rizal that are being threatened by Manila Water's expansion, and also new cooperatives that IPD was helping to establish. Marilou and Streams of Knowledge allowed me to observe a different model—one that was more entrepreneurial, but also better connected to national and international water organizations. During the summers of 2008 and 2009, I visited more than 25 areas where some type of micro-network was in operation.

Over the course of my fieldwork, I tried to compile a comprehensive list of existing micro-networks, using the following sources: (1) The National Economic Development Authority contracted a local research organization—Resources, Environment, and Economics Center for Studies—to assist with their policy work on small water providers, and through them, I was able to get a list of operators that had filed the required Certificate of Public Convenience (a prerequisite for water provision that is very loosely enforced by NWRB). But it was evident to me that only a minority of operators had registered with NWRB (for instance, the three sites that I eventually chose were not on this list). (2) In 2005, the national government issued a list of 212 waterless areas in Metro Manila, and I also tried contacting many of the *barangays* associated with these communities. However, with the notable exception of Santa Ana and Hope Hills, whose concerns I was aware of already, the few that I was able to contact said that they did not have ongoing water issues. Because the official "waterless" list had been passed through several government agencies, I was unable to determine the basis on which the initial list had been created. (3) Marilou supplied me with her own list of NAWASA members and I attended two NAWASA conferences, but most of the member organizations turned out not to be located in Metro Manila. For reasons that I describe in Chapter 3, the communities that IPD is working with are not associated with NAWASA. (4) ADB conducted their own survey of small water providers in 2002 and while I was able to get some of the raw results, this data did not include the names or locations of individual providers. Given these limitations, my efforts to compile a more comprehensive list of small water providers are partial, at best. Future work, preferably conducted with the support and authority of government, could harness the concessionaires' in-depth knowledge of on-the-ground access to create a more accurate picture of existing micro-networks and other barriers to direct utility provision.

Thus, my study of micro-networks was largely limited to those that had relationships with IPD and Streams. Based on the preliminary work that I did in 2008 and 2009, I selected three sites from which to base my ethnographic work. I selected them because they were in geographically distinct parts of the metropolitan area (Salcedo in the urban core, versus Santa Ana and Pagasa in peri-urban areas), with a range of characteristics (type of ownership, relationship with the concessionaires, presence in Manila Water or Maynilad's jurisdiction, *et cetera*). During the nine months that I spent in Manila in 2010 and 2011, I traveled between these three sites. Before beginning work in Pagasa and

Salcedo, the micro-network staff suggested that I first get permission from the *barangay* captain, in order to avoid any concerns that may arise when a newcomer is asking for information about their communities. I then spent approximately three continuous weeks in each area (Pagasa in September, Santa Ana in October and November, and Salcedo in December and January) conducting the surveys, which are described in greater detail in the following section. I enlisted the help of two research assistants, Fam and Tin, who helped to administer the survey and filled any gaps in my spoken Tagalog. I accompanied Fam one day and Tin the next, noting any additional comments that they did not record in the survey forms. Each time that we visited an area, we also took some time to speak with the micro-network operators in order to find out what was happening on the operations side. Joy, Mary Jane, and the other women who run the cooperative in Santa Ana were especially welcoming, and we spent many middays eating lunch with them in their open-air office.[180] When we were not administering surveys or interviewing other informants, I moved between the three sites, sometimes accompanied by Fam and Tin. I attended relevant events when they took place, including the annual cooperative meetings at Pagasa and Santa Ana, and a seminar for new members in Pagasa (there were no such events held in Salcedo).

I conducted most of the interviews that took place outside of the three areas (described in more detail in Section B.2) by myself, using a combination of English and Tagalog that is colloquially known as Taglish. However, it was not easy getting information from the two concessionaires, especially Manila Water. For instance, I thought that I had secured an interview with a senior vice president, after approaching him at an ADB conference; when I showed up for our meeting, I found out that he was having a long lunch and had sent two managers—one from the Corporate Social Responsibility office, and the other from TPSB—in his place. Both managers were guarded with their information, and it took them several weeks to respond to some of my requests for additional data. The Territory Managers that I spoke with were more forthcoming and they knew their operation areas well, giving me a sense of the types of knowledge that these field managers possess. On the Maynilad side, I was once again limited to field managers and the Corporate Social Responsibility office. Nevertheless, I found the Maynilad staff to be more open and less defensive about their work with community organizations. I attribute this to Manila Water's mixed history with micro-network operators—for instance, their earlier, tense encounters with Marilou and the Taguig water providers—and their subsequent guardedness. Despite this, both concessionaires provided me with PowerPoint presentations and documents that were useful for triangulating information.

As I note in Chapter 1, my insider/outsider status must also be taken into consideration. In some ways, having roots in the Philippines facilitated my research, allowing me to build upon the knowledge I acquired while growing up there, and easing my connections with informants. But it was clear that many people also did not see me as a local, especially during our initial interactions. The extent to which my otherness affected my ability to gather data seems limited, however, based on my observation that most people did not seem troubled by the presence of an outsider in their communities. I suspect this is because of the large number of NGOs working in various capacities in low-income communities, and even the occasional presence of the non-local state (for instance, I

[180] Though some residents undoubtedly saw us in that office, I doubt that this distorted their survey answers, as most people seemed to view the cooperative in a neutral vein. However, it is something to consider, in addition to the comment that some Pagasa residents made asking whether we were from Manila Water.

was pleasantly surprised to see that even in Salcedo, a dense informal settlement, each house had stickers reflecting the most recent visit of a census taker).

In addition to surveys, interviews, and participant observation, I conducted archival and media research of related events. The libraries at the University of the Philippines Diliman and Ateneo University, as well as the National Library, proved useful for older documents on the history of Manila's water system. Much of the media coverage of Manila Water, Maynilad, and the MWSS was available online through newspaper websites associated with The Philippine Daily Inquirer, The Philippine Star, The Manila Bulletin, and other sources. In general, however, the media coverage seemed to be based on press releases that the concessionaires had issued, demonstrating their latest expansionary or financial progress. With the exception of a handful of stories, there was almost no media coverage on the realities of water access in low-income communities, further demonstrating that the concessionaires are largely able to control the production of knowledge. However, media reports did support my research of the land struggles along the Manggahan Floodway and in Hope Hills.

B.1. Surveys

During my preliminary field visits, I spoke mostly with micro-network operators, who provided me with a detailed view of water provision from their perspectives. When I returned for the main portion of my fieldwork, I wanted to make sure that I also incorporated the opinions of community members. I thus conducted household surveys in Pagasa, Santa Ana, and Salcedo—the results of which I summarize in Chapter 6 and Appendix C. The three surveys were adjusted to incorporate the presence of multiple, site-specific water providers. For instance, I used the following survey in Santa Ana, asking questions related to *Patubig*, the free tanker trucks, and Maynilad.

Background information:

1. Respondent's name
2. Gender (M/F)
3. Address (or approximate location)
4. Respondent's age
5. How many people live with you in your home? (note if anyone else is present during survey)
    a. What is their relationship to you?
    b. Number of adults
    c. Number of children (17 or younger)
6. Who is the head of your household?
7. How long have you been living in this house?
    a. How long have you been living in Santa Ana?

Water-related questions:

8. How do you get water? (circle all that apply)
    a. Santa Ana Water Cooperative
    b. *Patubig* (municipal waterworks system)
    c. Free tanker truck
    d. Maynilad

    e. Bottled or mineral water
    f. Other _____
    g. If more than one source: Why do you get water from multiple sources?
9. How long have you used this provider(s)?
    a. If less than 10 years, how did you get water before that?
    b. Who decided which provider(s) to use?
    c. Why do you use this provider(s)?
10. Approximately how much do you spend on water? (Amount per month. Ask to see receipt if possible.)
    a. If previous provider mentioned, how much did you use to spend?
11. Do you drink the water from this system?
    a. If so, do you do anything to treat it (e.g. filter, boil)?
12. Does anyone else get water from you, like your neighbors?
    a. Number of adults
    b. Number of children
    c. How much do they pay you? (note whether by volume or time)

Coop-related questions:

13. Which members of your household belong to the cooperative? (Ask to speak with them if they are at home.)
    a. What are the primary reasons that you or your family member joined the cooperative?
    b. Are you or your relatives full or associate members?
        i. Why did you or your relative choose to be a full or associate member?
    c. Have you or your family members gone to the general assembly meetings?
    d. How much share capital do you have?
    e. Did you get a patronage refund last year? How much?
    f. Do you like being a part-owner of your water system, or does it not matter?
    g. Do you or your family members know the cooperative officers or staff personally?
    h. How do you think being a member of the coop has impacted your life?
    i. Do you think you have any input on any of the cooperative's decisions regarding water, like the price?

***Patubig*-related questions:**

14. Does *Patubig* require you to pay your bills every month? What happens if you are late?
15. Was there an initial fee to join? How much?
16. How many hours a day do you get water?
17. If you don't have water 24/7, do you find that inconvenient?
18. How much water do you consume per month?
19. Do you notice any difference in service during election season?
20. Would you prefer to be connected to the coop or directly to Maynilad?
    a. If yes, which do you prefer?
    b. What is preventing you from joining?

Tanker-related questions:

21. How often do you get water from the trucks? (What days?)
22. Is it a regular schedule? If not, how do you know when the truck is coming?
23. Do you find it inconvenient?
24. How much water do you get each time the truck comes? (i.e. Number/size of containers)

25. Would you prefer to be connected to the coop, *Patubig*, or directly to Maynilad?
    a. If yes, which do you prefer?
    b. What is preventing you from joining?

Maynilad-related questions:

26. What was your connection fee? Were you able to pay it in installments?
27. Have you ever had problems paying your monthly bills?
28. Would you prefer to be connected to the coop instead? Why or why not?

For all consumers:

29. What do you think of your water service? (circle or try to write down exactly what s/he says)
    a. "OK *naman*" or "*ayos na*" ("It's ok" or "it's alright")
    b. Other _____
    c. Are there things that you like, in particular?
    d. Are there any improvements that you would suggest?
30. What do you think about the price of water? (circle or try to write down exactly what s/he says)
    a. "OK *naman*" or "*ayos na*"
    b. Other _____
31. Do you know if people tap water illegally or steal meters in Santa Ana?
    a. What about in this phase [neighborhood], specifically?
    b. If so, why do you think they do it?
    c. Do they get caught? What happens to them?
32. Would you like to be directly connected to Maynilad someday?
    a. Why or why not?
    b. Do you know people that are directly connected to Maynilad, like in other parts of Santa Ana or Caloocan?
        i. If so, what do people say?
33. Who do you think provides the best quality water – the cooperative, the *Patubig* system, the free trucks, or Maynilad?
    a. Who do you think provides the worst quality water?
34. Who do you think provides the most expensive water?
35. Who do you think is the most responsive provider?
    a. Who do you think is the least responsive?
36. Do you have enough water for your household's needs?
    a. If not, why can't you get enough water? (circle all that apply)
        i. Too expensive
        ii. Not enough supply
        iii. Other _____

Demographic information:

37. What types of jobs do the members of your household have?
38. Can you estimate your weekly or monthly income?
39. Do you have: (circle all that apply)
    a. A television
    b. A bicycle or non-motorized tricycle
    c. A tricycle or motorcycle
    d. A cell phone
    e. A refrigerator

40. Do you or a family member have the title to this land?
41. What do you think are the most important problems affecting life in your community?
    a. Is anything currently being done about these problems? By whom?
    b. What do you think the community or government should do about these problems?
42. Can we do a follow-up interview with you later on if we need to?

Observations (for surveyor only):
Describe the respondent's attitude toward his/her water service.

B.2. Interviews

The following is a list of organizations where I conducted semi-structured and open-ended interviews. The number in parentheses represents the number of different people with whom I spoke.

- ADB (4)
- Cooperative Development Authority (1)
- Local government (3)
- IPD (4)
- Manila Water (13)
- Maynilad (8)
- Micro-networks—entrepreneurial (6)
- Micro-networks—cooperatives and POs (27)
- Municipal water providers (1)
- MWSS (2)
- MWSS-RO (3)
- NWRB (2)
- Other NGOs (7)
- Resources, Environment, and Economics Center for Studies (2)
- Streams of Knowledge (2)
- University professors and graduate students (11)

Sample interview questions:

1. Questions for micro-network operators:
    a. How long has this system been in operation? How did it start—initial financing, operators, *et cetera*? How many people does it employ now?
    b. How many customers does the system serve? How many are full/associate members? Are you planning to expand? How do residents that are connected to the micro-network obtain water?
    c. What is the tariff schedule? Does this cover expenses? Is the system subsidized in any way?
    d. What are the costs and revenues for the system?
    e. How much water is lost to theft and leakages?

f. What is the micro-network's relationship with Manila Water/Maynilad? Has the micro-network lost any customers to Manila Water/Maynilad?
g. What is the legal situation of this community? Are there any reasons that you think Manila Water/Maynilad would/would not want to serve this community directly?
h. What is the micro-network's relationship with public officials? What type of assistance do they provide?
i. What is the micro-network's relationship with NGOs? What type of assistance do they provide?
j. What kind of water quality tests do you do? How frequently?
k. Are you in compliance with NWRB regulations?

2. Questions for Manila Water/Maynilad managers:
    a. What percentage of customers get water through individual connections, shared standpipes, micro-networks, *et cetera*?
    b. Are there any unserved areas remaining in your jurisdiction? If so, why are they unserved?
    c. What is the company's policy on micro-networks?
    d. Are there any micro-networks remaining in your business area? If so, which ones and where? Why are they still in operation?
3. Questions for NGOs, IFI representatives, and public officials:
    a. What is your opinion of the water situation in Manila?
    b. How do you feel about Manila Water/Maynilad?
    c. Are you aware of micro-networks? What is your opinion of them?
        i. Do you think micro-networks can play a long-term role in the provision of water in Manila? Why or why not?
        ii. Are you helping any micro-networks? In what way?
            1. If not, are you familiar with any specific micro-networks?

Appendix C. Select Data from Household Surveys and Interviews

The data shown here summarize the results of my household surveys and supplements the information that I reported in Chapter 6. The data are used in support of my qualitative analysis, and cannot be used in a statistical manner. Nevertheless, these surveys enabled me to gain a better understanding of residential water consumption and preferences in the three communities. The following three sections summarize the surveys that I conducted in Pagasa, Santa Ana, and Salcedo, respectively. Section C.4 compares costs between the three micro-networks and the two concessionaires.

C.1 Pagasa

Number of surveyed households: 113
Average age of respondent: 46
Average size of household: 6
Average monthly income for household: PHP 12,100
Number of poor households (income less than PHP 8000): 42

Water Provider	Number of Households	Uses Mineral Water	Average Monthly Water Bill (Including Mineral)	Percentage of Income Spent on Water
Coop (full member)	49	27	479	6
Coop (associate member)	47	16	406	6
Manila Water	16	5	293	5
Neighbor	3	1	208	3

Manila Water Available	Number of Households	
	Poor	Non-poor
Switched	6	9
Stayed with Coop	3	7

Stated Reason for Switching to Manila Water	Number of Households
24/7	8
Cheaper	7
Better service, including payment policy (two respondents said the coop was too strict)	5
Better quality	2
Better taste	2
Not a coop member	1

Manila Water Desired	Number of Households	
	Poor	Non-poor

Yes	14	20
No	12	22
Does not know	10	19

Stated Barrier to Manila Water Connection	Number of Households
Manila Water connection fee	16
Manila Water has not offered service	10
Depends on neighbors connecting	9
Not sure about Manila Water's quality	8
Not enough information to make decision	5
Does not want to lose benefits	5
Housing situation is uncertain	2
Not sure about switching	2
Concerned about possible increase in bill	1
Distance from road	1
Total respondents (some had multiple answers)	**58**

Stated Reasons for Liking Coop	Number of Households	Stated Reasons for Disliking Coop	Number of Households
Good service	15	Bad service	2
Flexible	14	Strict	9
Benefits	13		
Service hours	12	Service hours	1
Taste	8		
Know staff	4	Bad relationship	2
Cheap	3	Expensive	6
Clean	3		
Convenient payment	3		
Good quality	3	Slow flow	2
Total respondents (some had multiple answers)	**56**	**Total respondents** (some had multiple answers)	**17**

C.2 Santa Ana

Number of surveyed households: 89
Average age of respondent: 45
Average size of household: 6
Average monthly income for household: PHP 10,300
Number of poor households (income less than PHP 8000): 45

Water Provider	Number of Households	Uses Mineral Water	Average Monthly Water Bill (Including Mineral)	Percentage of Income Spent on Water
Coop	33	11	527	6
Patubig	13	2	232	3
Tanker (rap rap)	24	7	290	5
Maynilad	4	1	390	5
Neighbor	39	8	328	7

Water Provider	Number of Households	Uses Mineral Water	Average Monthly Water Bill (Including Mineral)	Percentage of Income Spent on Water
Deep well	12	3	403	3

Maynilad Desired	Number of Households	
	Poor	Non-poor
Yes	33	30
No	5	6
Does not know	5	6

Stated Opinion of Maynilad	Number of Households
Maynilad is cheaper	41
Depends on price and savings	12
Wants own connection	6
Maynilad is 24/7	5
Satisfied with current provider	5
Prefers direct Maynilad connection	4
Likes coop	4
Maynilad is more expensive	2
Maynilad has worse service	1

Position on Water Service	Number of Households
Loyal coop member	4
Coop member but would consider switching	25
OK with getting water from neighbors	18
OK with *Patubig*	12
OK with deep well	7
OK with Maynilad	4
Dissatisfied	1
Does not have enough money to connect to better service	11
Finds coop too expensive	9
Thinks coop is blocking Maynilad	6

Water Provider	Number of Households that Expressed Preferences				
	Best Quality	Worst Quality	Most Expensive	Most Responsive	Least Responsive
Coop	43	6	71	38	1
Patubig	17	3	0	3	18
Tanker (rap rap)	7	33	0	6	22
Maynilad	16	3	3	9	1
Deep well	8	19	7	4	5

C.3 Salcedo

Number of surveyed households: 90
Average age of respondent: 43

Average size of household: 7
Average monthly income for household: PHP 14,400
Number of poor households (income less than PHP 8000): 29

Water Provider	Number of Households	Uses Mineral Water	Average Monthly Water Bill (Including Mineral)	Percentage of Income Spent on Water
Piped micro-network	10	6	871	6
Hosed micro-network	41	24	752	10
Manila Water	9	5	946	6
Neighbor	19	12	749	7
Deep well	2	1	950	12

Desired Connection	Number of Households	
	Poor	Non-poor
Manila Water	15	37
Piped micro-network	6	8
Does not know	4	4
No new connection desired	3	3

Stated Barrier to Manila Water Connection	Number of Households
Manila Water connection fee	50
Just renting home	1
Total respondents	**51**

Position on Water Service	Number of Households
OK with piped micro-network	6
OK with hosed micro-network	45
OK with Manila Water	9
OK with fetching from neighbors	17
Piped micro-network is expensive	4
Hosed micro-network is affordable compared to Manila Water	1
Hosed micro-network is difficult	3
Difficult or expensive to fetch from neighbors	5

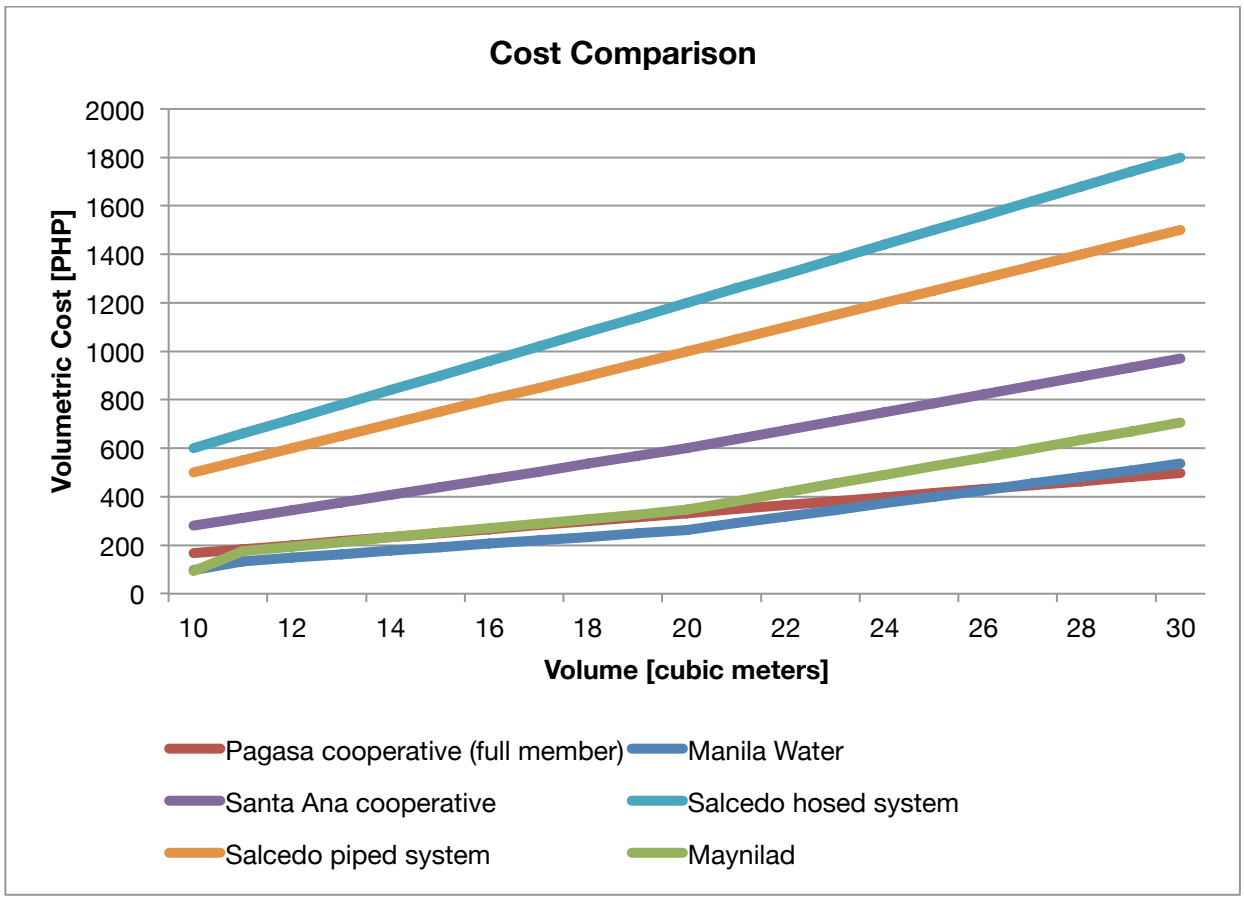
Water Provider	Number of Households that Expressed Preferences				
	Best Quality	Worst Quality	Most Expensive	Most Responsive	Least Responsive
Piped micro-network	13	1	37	38	0
Hosed micro-network	15	2	37	42	0
Manila Water	27	0	0	4	2

C.4 Cost comparison

Water Provider	Volume [cubic meters]	Tariff [PHP]	Unit
Pagasa (full member)	1 to 10	167	
	11+	16.5	Per cubic meter
Pagasa (associate member)	1 to 10	202	
	11+	20	Per cubic meter
Pagasa (commercial member)	1 to 10	222	
	11+	22	Per cubic meter
Santa Ana	1 to 10	280	
	11 to 20	32	Per cubic meter
	20 to 30	37	Per cubic meter
Salcedo hosed system	Any	60	Per cubic meter
Salcedo piped system	Any	50	Per cubic meter

Water Provider	Base Fee [PHP]	Guarantee Deposit [PHP]	Share Capital [PHP]	Miscellaneous Fees [PHP]	Total Connection Fee [PHP]
Manila Water	6854.99	600.00			7454.99
Maynilad	7115.49	500.00			7615.49
Pagasa			5000.00	760.00	5760.00
Salcedo hosed system					0.00
Salcedo piped system	3500.00				3500.00

Volume [cubic meters]	Manila Water	Maynilad	Note
Below 10	72.45	70.00	
First 10	89.25	119.31	
11 to 20	10.89	14.58	Per cubic meter
21 to 40	20.65	27.70	Per cubic meter
41 to 60	27.19	36.38	Per cubic meter
Foreign Currency Differential Adjustment	0.0121%	-0.001%	Of basic charge
Environmental Charge	18%	16%	Of basic charge
Sewerage Charge	0%	0%	Of basic charge; 0 if no sewer connection
Maintenance Service Charge	1.50	1.50	Per connection depending on pipe size
Value Added Tax	12%	12%	Of everything

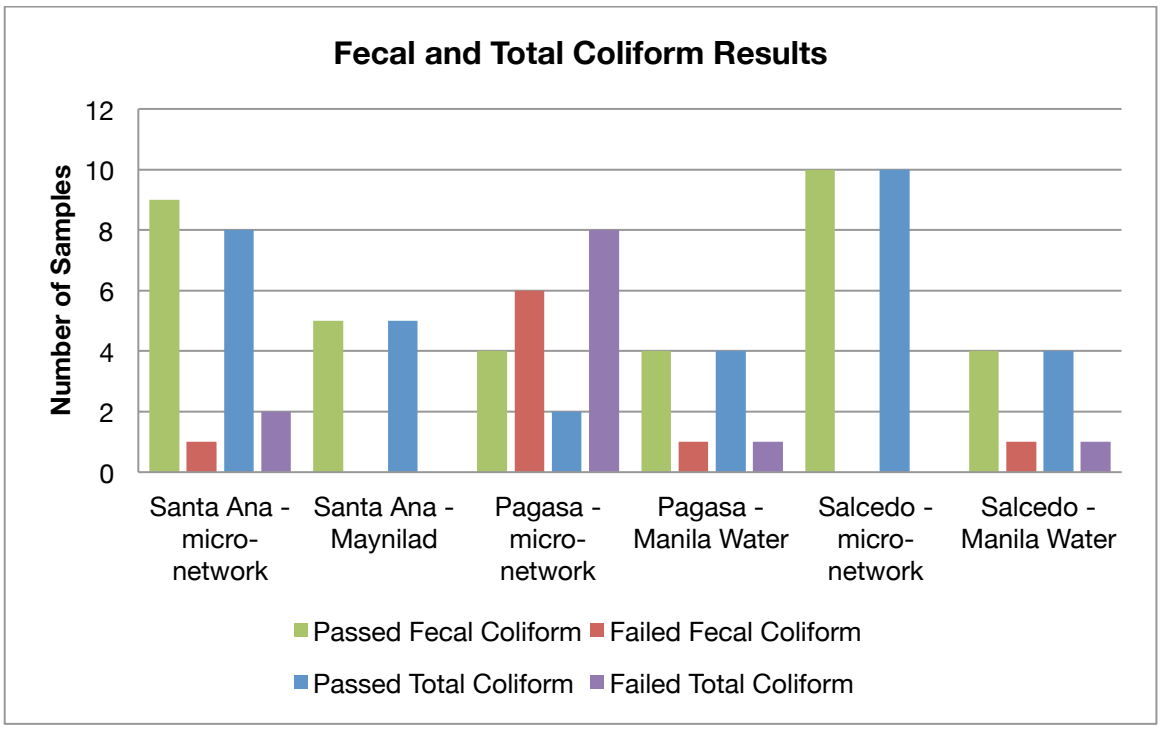

Cost Comparison
Volumetric Cost [PHP]
2000
1800
1600
1400
1200
1000
800
600
400
200
0
10
12
14
16
18
20
22
24
26
28
30
Volume [cubic meters]
Pagasa cooperative (full member)
Manila Water
Santa Ana cooperative
Salcedo hosed system
Salcedo piped system
Maynilad

Appendix D. Water Quality Data

In March 2011, I collected a limited number of water samples from each of my three sites—10 samples from each of the micro-networks, and 5 samples from the co-located concessionaires. Each of these samples was then analyzed at NCA Labs, a facility that is affiliated with the TestAmerica laboratory. The purpose of this exercise was not to carry out an extensive study using different water quality parameters and a representative number of samples from each site. Rather, I wanted to conduct simple tests in order to assess whether water quality—particularly in the micro-network systems—should be an issue of concern. Given that I had a limited budget for laboratory analyses, I chose to have total and fecal coliform tests performed. The presence of fecal coliform is an indication that water may be contaminated by human or animal waste, and they may pose health risks, particularly for vulnerable populations.[181] In the Philippines, the Department of Health standards for total and fecal coliform are less than 1.1 MPN per 100 milliliters of water, based on the commonly-used most probable number (MPN) method. The samples were taken from either the tap or containers that households used to store drinking water, depending on household preferences. My intent was to get a sense of possible health risks, and thus allowed for the possibility of contamination coming from drinking water containers.

The figure below shows the results of these analyses. The majority of the samples collected from the micro-network in Pagasa failed total and fecal coliform tests, which may be due to a deteriorated groundwater source. I relayed these results to the cooperative in an attempt to help them improve water quality there. Aside from Pagasa, only one or two samples failed total or fecal coliform tests in each of the other areas. The samples collected from Manila Water and Maynilad users largely passed these tests. In addition, the two micro-networks that redistribute concessionaire water—in Santa Ana and Salcedo—seemed to produce fairly comparable results to their co-located concessionaires. Since I only collected samples once—during the dry summer season—it is possible that the risk of cross-contamination might increase during heavy rains and flooding.

[181] See United States Environmental Protection Agency. (2013). Basic Information about Pathogens and Indicators in Drinking Water. Retrieved May 7, 2013, from http://water.epa.gov/drink/contaminants/basicinformation/pathogens.cfm.


Fecal and Total Coliform Results
Number of Samples
12
10
8
6
4
2
0
Santa Ana - micro-network
Santa Ana - Maynilad
Pagasa - micro-network
Pagasa - Manila Water
Salcedo - micro-network
Salcedo - Manila Water
Passed Fecal Coliform
Failed Fecal Coliform
Passed Total Coliform
Failed Total Coliform

Appendix E. Photo Essay

This photo essay documents my field research in Manila. It was published online as part of the 2012 International Dissertation Research Fellowship Photo Competition sponsored by the Social Science Research Council.

1. In 1997, the largest water privatization project to date transformed Manila's water system. Since then, the two private utilities have made inroads in serving low-income areas. Manila Water installs banks of meters adjacent to some communities, beyond which lengthy hoses snake through narrow alleys, delivering water to houses. Since customers must monitor their connections beyond the meter, such a scheme transfers some costs and responsibilities from the utility to individual households.

2. In other areas, the utilities use bulk meters to provide a single connection for an entire community. A cooperative or entrepreneur then constructs and manages the internal infrastructure—what I call a micro-network—that begins at the bulk meter and delivers water to houses through fixed pipes or flexible hoses. From the utilities' perspective, the use of micro-networks allows for faster expansion while shifting some of the sociopolitical difficulties of water management to the community.

3. Micro-networks help deter non-payment in low-income communities. They increase the likelihood that the utilities' will recover the communal monthly bill because the community organization must make the entire payment or risk being cut off. It is thus the micro-network operator who must handle individual household delinquency, forcing households to adhere more strictly to internal payment policies.

4. But the utilities' seemingly arbitrary demarcation of some communities as potentially non-paying can lead to internal tension. In Santa Ana, water cooperative leaders feel empowered by their new positions. The majority of the community, however, is apathetic or even antagonistic toward the cooperative; some believe that the cooperative is blocking the utility's entry. The last annual meeting saw a raucous contestation over cooperative policies and management.

5. In micro-network communities, consumers typically pay higher tariffs and are subject to heightened disciplinary measures. Despite these disparities in service, the utilities consider micro-network areas served, and include them in aggregate coverage statistics. Manila Water's global image as a model utility relies, in part, on this rapid method of expansion. Here, the Manila Water mascot appears to be a crowd favorite.