Cheng, D. 2014. The persistence of informality:
Small-scale water providers in Manila's post-privatisation era
Water Alternatives 7(1): 54-71

The Persistence of Informality: Small-Scale Water Providers in Manila's Post-Privatisation Era

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ABSTRACT: This article troubles the notion of a formal-informal dichotomy in urban water provision. 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. In this sense, privatisation has not eliminated small-scale water provision, but has led to the reconfiguration of its usage, blurring the boundaries between formal and informal. By examining the spatial and temporal evolution of small-scale water provision in Manila's post-privatisation era, I show how certain spaces are seen as less serviceable than others. Critically, small providers working in partnership with the utilities are sanctioned because they supplement the utilities' operations. The areas in which they work are considered served, factoring into aggregate coverage statistics, even though their terms of service are often less desirable than those of households directly connected to the utilities. In contrast, small providers that operate outside of the utilities' zones of coverage are considered inferior, to be replaced. The result is a differentiation in informality – one in which the private utilities largely determine modes of access and thus the spatialisation of informal water provision.

KEYWORDS: Urban water utilities, informality, privatisation, small-scale water providers, Manila

INTRODUCTION

Marilou arrived at her office beaming, offering a quick apology for keeping us waiting before gleefully announcing her latest windfall. A vice president at Maynilad, one of the two utilities serving the metropolitan area, had just spoken with her on the phone and had offered her the opportunity to build and operate additional sites throughout the western concession area. "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".[1]

As one of the most successful small-scale water providers (SSWPs) in Manila, Marilou – a housewife-turned-entrepreneur – had come a long way since her initial foray into the water business some 15 years earlier. Back then, she 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 the then-First Lady Loi Estrada, Marilou built her first substantial community-based water system in New Santolan, serving about 4000 families spread out over some 41 blocks (Inocencio and David, 2001). But Manila Water, the utility that won the contract to serve this portion of Manila, found out about her operations and displaced her from the area. Where the utility had once avoided serving low-income residents, it began offering direct, individual connections and socialised tariffs to these households, dissolving Marilou's operations.

[1] I have changed the names of people and places in order to preserve anonymity. This conversation with Marilou took place in February 2011.

> 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 [the Asian Development Bank (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 [non-revenue water (NRW)]. The backdrop is shanties. After me, here comes Manila Water. Their backdrop is commercial buildings, industries. They said they do not prioritise 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 prioritise 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.

Marilou's business is an example of the type of small-scale water provision that is often considered informal (Kariuki and Schwartz, 2005). Whereas formal water providers are typically defined as public utilities or large, private companies that the government contracts to distribute networked water (Allen et al., 2006), informal providers broadly encompass a range of vendors operating outside the utilities' systems (Kjellén and McGranahan, 2006). Thus, in cities where formal utilities are unable to provide universal service, many observations point to the existence of dual, disconnected circuits of water delivery (Marvin and Laurie, 1999). In these depictions, informal vendors tend to occupy the marginalised, interstitial spaces that exist between the archipelagos of formal provision (Bakker, 2003).

The literature on urban water provision generally views formal and informal providers as operating in separate spheres. Moreover, though policy-makers have increasingly recognised the role that small-scale water providers can play in serving the urban poor (Solo, 1998; Kjellén and McGranahan, 2006; UNDP, 2011), most national and international policies still implicitly favour formal mechanisms of service provision. For instance, international finance institutions (IFIs) like ADB benchmark utilities, measuring their 'success' through metrics such as coverage – often defined as the percentage of the population served by the formal utility (Clarke et al., 2009; SEAWUN and ADB, 2007). Likewise, critics of privatisation have been quick to point toward the private sector's unwillingness to enter low-income communities and the continued reliance of those populations on informal water providers (Hall and Lobina, 2007). Thus, while many recognise that small-scale water provision may be a reality in the short- to the medium-term, a utility's long-term success largely hinges on its ability to provide universal coverage, including to low-income communities. The normative nature of coverage data suggests a dichotomy between formal and informal provision, where a gradual increase toward full utility coverage leads to a corresponding decrease in informal water service. A report by IWMI (2007) explains this binary with a simple diagram: to the left, a circle representing water economies in developed countries, where the formal water sector serves the majority; to the right, a circle for developing countries, showing the reverse.[2]

This dichotomy is false. Marilou's dualistic relationship with the utilities – sometimes collaborative, sometimes competitive – suggests that a complex power dynamic can exist between large and small providers. Rather than viewing formal and informal providers as independent entities, I suggest that the lines between formal and informal provision can be blurred and that, furthermore, more powerful actors – the state or the utilities – use such blurring to facilitate urban water management. Following Roy (2005), we must ask whether differentiation within informality reveals conflicts and contradictions in regimes of governance. Examining how some modes of informal water provision may be vilified, while others are justified or enabled, can complicate the notion of a formal-informal dichotomy.

In this article, I examine the evolving nature of formal and informal water provision in Manila's post-privatisation era. Many international actors have hailed the Manila case as a successful example of

[2] The United Nations Environment Programme (UNEP/GRID-Arendal, 2006) uses a similar diagram, though the spheres are represented as water drops.

water privatisation (IFC, 2010), in part because the two utilities[3] that serve the metropolitan area now report coverage rates of 99 and 88% (Manila Bulletin, 2012; Philippine Daily Inquirer, 2012). While the utilities have made significant progress in the last 15 years, these aggregated coverage statistics mask the reality that SSWPs remain a key component of the utilities' patterns of expansion. As Marilou's experience reveals and as I describe in more detail below, the partnerships that the utilities have established with community-based organisations (CBOs) and entrepreneurs – who help extend the utilities' networks into low-income areas – have been critical to their growth. Rather than displacing small providers entirely, the utilities have entered into selective partnerships with micro-network operators, thus reconfiguring the nature of informal water provision in Manila's post-privatisation era to suit their needs.

For instance, in a typical set-up, the utility provides water only as far as the community's edge, beyond which the CBO or entrepreneur constructs and manages an internal infrastructure – what I call a micro-network. Such a scheme allows the utility to treat the community as a single, unitary customer, transferring the burden of payment enforcement to the micro-network operator. This setup facilitates the utility's management of low-income communities; however, it usually translates into higher costs and subpar materials for consumers, compared to households that are directly reached by the utilities.[4] For these reasons, the state, IFIs, and community actors intervene at certain moments, although these interventions generally do not threaten the utilities' ability to configure the terms of service. Access, then, is not flat and uniform, as the utilities would have us believe, but selective and contingent, based largely on a calculus of anticipated cost recovery.

In what follows, I describe the ways in which new forms of informality have arisen in Manila's post-privatisation era. These analyses are based on 9 months of ethnographic fieldwork, which I conducted in Manila from 2010 to 2011. During that time, I interviewed key representatives from various levels of the state, the two utilities, micro-networks, and nongovernmental organisations (NGOs). In addition, I selected three micro-network communities in which to conduct more in-depth research, including participant observation and household surveys of consumer opinions. I triangulated information through media research and interviews, enabling me to reconstruct a chronology of micro-network use in Manila, which forms the basis of my analysis below.

By focusing on the spatial and temporal evolution of micro-networks in Manila, I show how certain spaces are seen as less serviceable than others. Micro-networks – as one manifestation of lingering informality – can be used to interpret the ways in which space is treated differentially. While the expansion of a formal network necessarily occurs in stages, the political and power-laden process by which this type of modernisation takes place must be scrutinised. It is a form of what Harvey (2008), borrowing from Schumpeter, refers to as 'creative destruction' – a process in which "violence is required to build the new urban world on the wreckage of the old". By examining the historical production of micro-networks in Manila's post-privatisation era, we begin to understand the ways in which the expansion of formal infrastructure replaces some forms of informality, while producing others. I begin 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 urbanisation, before examining the case of Manila, where micro-networks have played a critical role in the two utilities' expansionary efforts.

[3] In this paper, I use the terms 'utility' and 'concessionaire' interchangeably to refer to Manila Water and Maynilad.

[4] Many micro-networks consist of galvanised iron pipes, which are usually cheaper and of lesser quality than the utilities' poly vinyl chloride and steel pipes. Some operators, like Marilou, use garden hoses to deliver water from house to house.

THEORIES OF INFORMALITY

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). 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 were engaged in low-income labour 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 Labour Organization. Within development circles, the persistence of the informal economy remains a topic of interest (SIDA, 2004). Though some characterisations are dismal (UN-HABITAT, 2003; Davis, 2006), many recent texts suggest a shift in attitude, moving away from a portrayal of informal workers as disadvantaged, towards an emphasis of their entrepreneurial nature (de Soto, 2003; Maloney, 2004).

The literature on informal water providers, much of which is also produced by international development agencies, similarly draws a clear line between formal and informal. Whereas formal utilities are large and, for the most part, publicly owned, informal water providers are often defined by their small size, independence, and private ownership. Indeed, 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 SSWPs as 'small-scale 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 et al.'s (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 SSWPs tends to come from international finance institutions and practitioners, these texts often focus on the more operational characteristics that define these providers – such as their size, water source, and tariff structure – without closely examining the politics of their existence.[5]

In contrast, the work of Roy and AlSayyad (2004) rejects the notion of an informal sector, instead shifting towards 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 behaviour of the marginalised, informality is seen to be a mode of urban governance. Two factors are critical to this latter interpretation – the production of informality by the state, and a differentiation within informality largely based on class (Roy, 2005). 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, 2009; Ghertner, 2011).

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

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 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 utility. On the contrary, micro-networks working in concert with the utilities fall, at least temporarily, into a hybrid zone – what Yiftachel (2009) refers to as a gray space "positioned between the 'lightness' of legality/approval/safety and the 'darkness' of eviction/destruction/death". There, the formal and informal are linked, and the lines between providers blurred. As I describe below, the utilities and micro-network operators have a symbiotic relationship – one that is tilted heavily in favour of the utilities, but that nonetheless results in a collaborative service. By considering the historical evolution of this partnership, I show how the state and the utilities 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.

"(Social) space is a (social) product", Lefebvre (1991) writes, and the ways by which certain spaces are produced reveal the socio-political values and decisions underpinning them. Because micro-network communities operate at the limits of privatisation, they represent areas that the utilities are hesitant to serve directly. Following Leitner et al., (2007), these zones demarcate a "socio-spatial zone of contestation…" – an "urban frontier" – where the spheres of formality and informality overlap. Examining the processes that lead to shifts in this frontier allows for an understanding of Manila's water governance as a political process dominated by the utilities.

PRIVATISING MANILA'S WATER

Based on some accounts, the Metropolitan Waterworks and Sewerage System (MWSS) has the oldest urban water infrastructure in Asia, its roots dating back to the late 19th century (Dumol, 2000). By the mid-1990s, however, the system had long since failed to meet the needs of Metro Manila's burgeoning population.[6] Only about two-thirds of residents received water for an average of 16 hours per day, and more than half of the water transmitted was lost to leakages or theft (Dumol, 2000). An estimated 30% of the city's population relied almost exclusively on non-MWSS water (David and Inocencio, 1996). As with many other urban networks in the global South, the present-day utility originated from a system largely serving colonial interests, expanding in a fragmented manner over time to serve those at the geographical and financial core, leaving much of the periphery reliant on alternative forms of water service.[7]

Though access did not fall solely along class lines, MWSS was significantly challenged by the large and growing number of low-income settlements, which collectively housed as much as one-third of the urban population, and which still persists today (Ballesteros, 2010).[8] Larger groupings of informal

[6] The greater Metro Manila area comprises 16 cities and one municipality, with a population of some 12 million. While Manila is the name of one city within this region, it is often used to refer to the entire metropolitan area.

[7] Similar patterns of expansion have been noted in Guayaquil, Ecuador (Swyngedouw, 2004) and Jakarta, Indonesia (Kooy and Bakker, 2008).

[8] There is a lack of consensus on the definition and scale of informal housing in Manila. The Ballesteros (2010) report that I cite relies on a more liberal definition of informal housing and references a report by the Housing and Urban Development Coordinating Council (a government agency) that estimates over 4 million people in slums in 2010.

housing were situated in more exposed areas – such as by waterways, garbage dumps, and former railways (Alcazaren et al., 2011) – while smaller clusters were scattered throughout the metropolitan area, wherever pockets of land were available. Year by year, the city grew, extending further out while also growing denser, rapidly outpacing the financially strapped utility. In order to supply water to low-income areas, MWSS installed some 200 public standpipes, each serving at least 50 households, with the help of participating CBOs (Rivera Jr., 2006). In some areas, households could build their own private extensions to the 'mother meters' that MWSS installed at the community edge – meters that allowed the utility to treat the community as one customer, and that served as precursors to the post-privatisation micro-networks. However, the failure of many CBOs to pay MWSS regularly led to the decommissioning of most of these public faucets (UTCE Ltd., 2003). In addition, MWSS left many areas completely unserved.

The privatisation of MWSS in 1997 was seen as a means of meeting the twin challenges of investment in an ailing system and provision of water services to a large and growing population. Under the concession agreement, the state cut the metropolitan area in half, awarding 25-year contracts to Manila Water on the east side and Maynilad on the west.[9] In the process, Manila's waterscape (Budds and Hinojoso-Valencia, 2012) shifted from a statist model toward one that more actively incorporated elements of neoliberalism (Brenner and Theodore, 2005). Rather than function as a service provider, the state – in the form of the newly created MWSS Regulatory Office (MWSS-RO) – became a regulator and mobiliser of private-sector participation. But, for the most part, the strategies and intricacies of urban water provision were left to the two concessionaires and to market forces.

Though the concession agreement did not directly address improved access for urban poor communities, it did specify coverage targets, implying that low-income areas had to be connected. For that reason, both Manila Water and Maynilad engaged in various pro-poor initiatives within their first few years of operation, venturing not just into low-income areas but communities where households did not have proper land titles.[10] Former Maynilad executive Lisa Provencher described the company's rationale for extending services to urban poor areas as follows:

> Nothing in the concession agreement was forcing the concessionaires 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 (Garrido et al., 2001).

On the east side, Manila Water initiated its flagship pro-poor programme, *Tubig Para sa Barangay* (Water for the Poor, henceforth referred to as TPSB in this paper) – a programme that has reportedly served some 1.7 million people since its inception in 1998 (Manila Bulletin, 2012). Three schemes were established under the TPSB programme: (1) bulk water provision, wherein Manila Water supplied water to the community edge, beyond which a CBO or entrepreneur constructed and managed a micro-network;[11] (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

[9] These contracts have since been extended an additional 15 years.

[10] While land titles – often a requirement for water connections in other cities – were waived in Manila, the concessionaires did consult local government authorities to ensure that informal settlements were not under immediate threat of eviction (Garrido et al., 2001). However, this approach is problematic in areas where housing debates have seemed imminent but are actually prolonged, resulting in the longer-term use of a temporary water provision system.

[11] Manila Water also constructed some public standpipes, though these were largely intended to be temporary. Various documents refer to slight variations of the three set-ups that I mention here – for instance, Manila Water later built the internal infrastructure within some bulk water communities, as I describe in the following section.

(Inocencio and David, 2001; MWIC, 2008).[12] Through a combination of these schemes, as well as a shift toward decentralised management practices, Manila Water was able to expand its network rapidly. In particular, the use of bulk meters and micro-networks allowed Manila Water to transfer some of the localised monitoring responsibilities to communities and individuals (Cheng, 2013). Under that scheme, 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.

Meanwhile, on the west side, Maynilad developed a pro-poor programme known as *Bayan Tubig* (loosely translated as Water for the Nation, and henceforth referred to as BT in this paper). A variety of schemes have been implemented under this programme, including the use of community labour to reduce connection fees (Matouš, 2004). Public standpipes were also installed in some areas, though Maynilad quickly encountered problems in nonpayment 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. Relative to the TPSB programme, Maynilad's decision to install individual meters in this manner was financially less 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.[13] What is evident is that in 2009, after new investors had taken over, Maynilad shifted its approach in low-income areas towards one that resembled Manila Water's bulk supply scheme. Under the *Samahang Tubig Maynilad* (Water Association of Maynilad, or STM) programme, Maynilad now partners with CBOs and entrepreneurs to serve urban poor communities, replicating the expansion patterns that Manila Water had successfully implemented several years earlier.

In both cases, the utilities have used micro-networks to serve two types of areas where cost recovery appears more difficult. The first includes low-income communities where the utilities 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 – minimises the risks involved in service extension by imposing stricter monitoring measures on individuals and communities.[14] In some official resettlement areas, for instance, the use of micro-networks allows for increased cost recovery from households that have the right to live there but may not have dependable sources of income. The second consists of areas where uncertain land tenure may lead to the imminent displacement of residents. Though changes implemented in the post-privatisation era simplify the requirements for water connections, the utilities will not invest in areas where there are forthcoming land use changes. Representatives from the MWSS, utilities, and NGOs have confirmed that bulk connections are the only options available where land issues are of concern. In addition to the economic disincentives of

[12] 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. While micro-network communities only represent a fraction of the urban poor served, their presence illustrates lingering informalities. As I demonstrate in this paper, MWSS-RO and some communities have pressured Manila Water to convert bulk connections into individual ones. The relative stigmatisation of bulk metering may be one reason why Manila Water is unwilling to share these data. In general, Manila Water maintains a strong public image by emphasising its corporate social responsibility and pro-poor programmes, while perhaps minimising remaining inequalities.

[13] Maynilad's initial investors terminated their concession agreement prematurely after suffering debilitating financial losses during their initial years of operation, particularly as a result of the Asian financial crisis. From 2002 to 2006, MWSS resumed control of Maynilad's operations but largely focused on maintaining, rather than expanding, operations.

[14] I describe this shift in monitoring responsibilities in more detail elsewhere (Cheng, 2013).

investing in such locations, housing in these areas tends to be denser and more temporary, presenting physical challenges to the utilities.

Although the utilities have largely been able to determine the types of access employed in particular locales, it is critical to note that these efforts could not have been accomplished by the utilities alone. Rather, micro-networks have arisen out of partnerships between the utilities, community representatives, and NGOs. As Mohan and Stokke (2000) describe, recent development policies have romanticised the importance of local participation – a sentiment that is shared, perhaps optimistically, by some on the left and the right of the political spectrum. To that point, two Manila-based NGOs have been key participants in the utilities' use of micro-networks as an expansionary tool. The Institute for Popular Democracy (IPD), a leftist NGO, works toward strengthening the community management of water. Motivated by community empowerment, IPD has helped form cooperatives that construct and manage micro-network systems. Another NGO, Streams of Knowledge (Streams), appears to be driven less by ideology and more by the practicalities of water provision for urban poor communities. Streams' efforts have largely supported Marilou's projects, legitimising her work with an NGO stamp-of-approval. The involvement of these two NGOs, as well as other community-based groups, suggests that the location of micro-networks depends partly on the willingness of small providers to work with the utilities in this manner.

Because the utilities 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 (ADB, 2008; WEF and BCG, 2011). Prior to the utilities' entry, many low-income communities depended on alternative water vendors such as tanker trucks, which typically charge PHP 35 per drum of water.[15] The utilities and other advocates of micro-networks point to reduced prices under the new set-up. Through Maynilad's STM programme, for instance, a drum of water now costs about PHP 10 to fill (Chavez, 2011).[16]

But there are three problems with the micro-network set-up. First, though prices are lower than those offered by tanker trucks, they are still usually significantly more than the utilities' tariffs – up to eight times higher.[17] This is because the utilities sell water to the micro-network operators at the average household rate or higher,[18] even though small-scale water providers have to add on costs for staff and materials. With the exception of the set-ups in which Manila Water has constructed internal infrastructure, as I describe below, low-income communities that use micro-networks pay more than the middle-income households that Manila Water serves directly. Second, the micro-network set-up results in increased surveillance of customers. Whereas middle-income consumers are not required to coordinate with their neighbours, 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, analysed in a microfinance context, has been shown to entrench and even exacerbate social hierarchies (Fernando, 2006). Third, the utilities largely decide when and whether to use micro-networks, and when to subsequently replace them with individualised connections, even though they do work with NGOs and

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

[16] This is equivalent to PHP 50 per m^3. In comparison, the utilities' tariffs start at around PHP 7 per m^3 for lifeline customers, who use less than 10 m^3 of water per month. Those who consume slightly more water pay PHP 9 per m^3 on Manila Water's side, and PHP 12 on Maynilad's side.

[17] Tariffs vary widely. Those that charge very high tariffs, such as some of the STM projects and Marilou, tend not to charge connection fees. In contrast, tariffs for the ADB-funded pilot project that I discuss in a subsequent section are just a few pesos above the direct utility price scheme.

[18] Initially, the utilities sold water based on a community's total consumption. Because of the stepped tariff structure, this put communities at the highest tariff levels. The MWSS Regulatory Office intervened and required the utilities to sell water based on average household consumption.

CBOs to facilitate these partnerships.[19] Because of the uncertain conditions under which micro-networks function, operators may charge higher tariffs in order to ensure cost recovery, particularly if they are entrepreneurs. Marilou, for instance, recovers costs for a new project within the first four years of operation (Mejia, 2011). In some areas, micro-network projects have been prematurely terminated, ignoring the community organising 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), for many micro-networks, the terms of operation still remain murky.

The following two sections provide more detailed accounts of the ways in which both concessionaires have partnered with informal organisations to extend services into low-income areas. By analysing the ways in which the utilities have selectively deployed micro-networks, we begin to see how space and water access are unevenly managed. The presence of micro-networks thus acts as a critical lens for examining the limits of privatisation, for it is here that access to water remains compromised and contested.

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.

The initial use of micro-networks as an expansionary tool began in the first few years of the TPSB programme, arising out of a confluence of utility, entrepreneurial, and community interests – a development that is perhaps better described as ad hoc, rather than a deliberate strategy. Marilou, whom I described above, was one of the earliest and most successful pioneers of this set-up. 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 un-demolished in the near future – and in both cases, this meant a financial risk that Manila Water was unwilling to take (Inocencio and David, 2001). Her operations in New Santolan were taken over in 2003, as I described in the opening vignette. 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. She has since established several more sites around the country, estimating her current customer base to be about 50,000 households, and the success of her business suggests that there remains some demand for micro-network operations.[20]

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. There, Manila Water enlisted the help of the local government, church, and other organisations in identifying community leaders, who were then tasked with providing water to new or existing CBOs through self-constructed micro-networks (Matouš, 2013). At its peak in 2007, there were an estimated 90 micro-networks operating in Taguig, each serving between 40 and 400 households

[19] In my interviews, many community leaders indicated that they were given no alternatives other than micro-network delivery, even though Manila Water claims that it asks communities which set-ups are most preferable to them.

[20] Only a few of Marilou's smaller operations remain within Manila Water's jurisdiction because of the earlier contestation over New Santolan.

(Chng, 2008; Matouš, 2013). But trouble soon began to brew. Manila Water was charging CBOs 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.[21] Furthermore, most CBOs 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.[22] Then-Mayor Freddie Tinga (2006), reportedly acting on behalf of his constituents, accused the CBOs of being "oppressive syndicates", prompting Manila Water to begin converting bulk meters into direct, individual connections.[23]

The contestation over water in Taguig led to the passage of a 2005 resolution by the MWSS-RO to individualise bulk connections – a resolution that has been implemented only loosely by Manila Water, and not at all by Maynilad.[24] That same year, ADB provided grants to both concessionaires, funding pilot projects involving SSWPs (ADB, 2008). Manila Water used that funding to further develop a modified micro-network scheme that it had been testing. Rather than tasking CBOs and entrepreneurs with construction – a strategy that led, in the past, to consumer complaints over the additional expenses and subpar materials – Manila Water shifted toward a model in which the company, itself, installed all internal infrastructure. CBOs, however, were still tasked with collecting payments and monitoring for leaks and theft, thus ensuring that Manila Water received full monthly payments. As I describe elsewhere, 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 (Cheng, 2013).[25] But for both the state and ADB, the modified micro-network scheme was a more acceptable version of its earlier incarnation, no longer as informal as the original bulk-metering scheme.

By 2011, Manila Water had reportedly converted 474 of the 761 CBOs into individualised connections, shifting the frontier of micro-network use (MWSS-RO, 2010).[26] The process of conversion, however, has tended to be one-sided, and CBOs are rarely compensated for the investments that they make. In my conversations with some CBO leaders, they reveal how Manila Water did not give them the option to choose bulk meter set-ups or to individualise 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. 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" (Inocencio and David, 2001). These accounts are in tension with Manila Water's own claims that it consults communities to determine the most appropriate forms of

[21] In 2008, the MWSS Regulatory Office 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.

[22] CBOs in Taguig were charging about PHP 30 per m^3 (Matouš, 2013). This is compared to Manila Water's lifeline rate of PHP 7 per m^3.

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

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

[25] In the ADB case, the set-up was intended to last for three years, during which connection fees would be amortised. At other sites, this set-up was used without a predetermined time frame.

[26] Manila Water reported these 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 CBOs.

access, taking residents' preferences into consideration.[27] Instead, it appears that Manila Water has used the MWSS-RO regulation to justify the conversion of CBOs where it is financially sound.

In other areas though, the company has been able to defend the continued use of the micro-network set-up. Of the CBOs remaining, Manila Water cited various reasons preventing conversion, such as impending demolitions, ongoing court cases, and petitions from CBO leaders to allow for cost recovery – all reasons that the MWSS-RO staff finds legitimate (MWSS-RO, 2010). For instance, there are about 50 CBOs remaining along the Manggahan Floodway, an artificial waterway lined with tens of thousands of informal housing structures.[28] 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 households 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 maximise 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 customer management. Intervention by the state also led to a shift in micro-network use, such that their deployment in low-income areas became more restricted. But while the uncertainty of bill collection was no longer sufficient to justify substandard infrastructure, land tenure issues remain accepted as valid reasons for underinvestment in certain communities. Thus, the rationale for the use of micro-networks as a temporary solution persists, despite evidence demonstrating that contestations in localised housing can mean a long and protracted process.

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. In 2005, ADB provided a grant to Maynilad under its SSWP pilot programme. But unlike Manila Water, which set up a modified scheme, Maynilad experimented with the original micro-network set-up, perhaps for the first time. Maynilad selected a site in Flores, located in North Caloocan, where a local NGO was already helping residents with housing issues. UTCE, ADB's consultants that evaluated the project, found the set-up 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% 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 labour. In addition, the NGO added on a surcharge of PHP 13 per m^3, nearly doubling Maynilad's tariffs. Only three bill collectors were charged with managing the 650 households, and the lack of monitoring resulted in 15% NRW. Compared with Manila Water's modified micro-network setup – where tariffs were PHP 13 per m^3, bill

[27] Manila Water does appear to inform communities about upcoming construction and connectivity plans, but none of the CBO leaders that I spoke with were given a choice (other than a false one) in type of access. In addition, while Manila Water offered Memoranda of Agreement to some micro-network partners, the utility simply made verbal agreements with others.

[28] These data are based on my interviews with Manila Water staff in 2011, who shall remain un-named.

collectors managed 20 households within one street, and NRW was at 2% – UTCE found the Flores project to be much more inefficient.

Though perhaps disorganised internally, the micro-network set-up allowed Maynilad to expand faster and recover costs more effectively – as Manila Water had discovered some years earlier. Indeed, Maynilad's subsequent establishment of micro-networks through its STM programme, launched in 2009, reproduced the Flores set-up. First piloted in a 1000-household community in Tondo – a historically impoverished section of Metro Manila – the STM programme 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 *Gawad Kalinga* villages.[29] In the Tondo community, for instance, Maynilad helped to 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 m^3. 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.[30] 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 described the STM programme in Tondo as follows (MWSI 2010):

> 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 (Jaglin, 2002; Miraftab, 2004), such schemes rarely result in empowerment for more than a handful of citizens who are directly invested in the outcomes of the projects. For instance, Maynilad and IPD have worked to establish three additional STM sites in North Caloocan. Maynilad installed bulk meters at the edge of each community, and IPD organised new cooperatives that built and manage the micro-networks. In 2010 and 2011, I spent several months observing one of these communities. The cooperative leaders have been empowered by this process – they now have opportunities to engage in conversations with representatives from the government, NGOs, and utility. The majority of the community, however, is apathetic or even antagonistic towards 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 more than double that of the utility. Indeed, the circumstances for Maynilad's non-entry in the area are hard to understand; the Maynilad manager indicated that it was due to high levels of nonpayment in surrounding communities, but the area that was demarcated as an STM project was not defined by visible, physical boundaries.[31] Furthermore, tariffs are high because Maynilad charges the cooperative PHP 13 per m^3 – equivalent to the residential rate that a customer directly served by Maynilad would pay, and a price that does not discount for reduced staffing and materials. The cooperative marks this tariff up to PHP 28 in order to compensate for three paid staff members, monthly rent for an office space, micro-network materials, and an honorarium for board members. In essence, residents pay for operations and maintenance twice. As Manila Water had done in previous years, Maynilad is now using this micro-

[29] Gawad Kalinga, translated as "to give care", is the largest private organisation working towards poverty alleviation in the Philippines. With the help of low-income families that are accepted into the community, the organisation builds villages that consist of homes, schools, and, importantly, a set of values consistent with their moral ideology.

[30] Aguadors in Flores deliver water through hoses that are hauled to each house.

[31] This information is based on conversations I had with Maynilad staff, whose identities shall remain undisclosed.

network to address perceived nonpayment concerns. Such a set-up works much to Maynilad's advantage, ensuring not only full cost recovery, but additional profits. However, the high tariffs relative to direct utility service are biased against low-income consumers and have, at times, led to discontent within the community. Participation, then, is a means of incorporating informality into formal water provision by delegating management to CBOs.

If Maynilad does indeed follow Manila Water's trajectory, it is easy to imagine that these micro-networks will be eventually converted into individual connections in a process that does not 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 with, or even aware of, the use of micro-networks in Maynilad's jurisdiction.[32] In the meantime, Maynilad is poised to expand this set-up, as evidenced by Marilous's offer. Here, a differentiation within informality is once again apparent. For reasons having to do with the need to increase provision of water and the desire to prevent another concession failure, the state would like Maynilad to succeed, 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.

WHO ARE THE 1%?

Manila Water and Maynilad now report impressive coverage statistics – 99 and 88%, respectively, as I mentioned above. Who, then, constitutes the 1% that Manila Water does not serve? I have asked this question of Manila Water staff but have not been able to get a straightforward answer. Given that urban poor households constitute up to a third of Metro Manila's population (Ballesteros, 2010), it seems infeasible that nearly everyone in Manila Water's jurisdiction purchases water directly from the company. Rather, it is more likely that, as several Maynilad managers have indicated, definition of coverage is proximity to a mainline – the ability to connect, versus an actual connection.

Based on that interpretation, those who are considered to be outside the zone of coverage most likely live in areas where the utilities have not yet been able to extend their mainlines, like in parts of southern Metro Manila that are geographically farthest from the city's water source.[33] In these areas, actors that we typically deem informal – tanker trucks, households or cooperatives that use wells to extract groundwater, and kiosks – dominate water provision. Though the utilities do not have the exclusive right to sole water provision in the metropolitan area,[34] they have been making steady progress in these areas, in part to reach additional customers, and in part to demonstrate to investors and international agencies that they are expanding coverage. For instance, in Rizal, a province adjacent to Metro Manila, Manila Water has been extending networks into communities traditionally served by water cooperatives.[35] Manila Water is now estimated to serve 40% of Rizal (Ablaza Jr.; 2012) – its efforts rewarded in the form of a larger customer base, rising profits, access to additional service areas, and a strong public image.

Within the utilities' stated coverage areas, communities in which micro-networks operate are clearly considered served. But in what ways are micro-networks inside the utilities' covered areas significantly different from those outside of these areas? Let us take two cases based on actual configurations. In the first, a micro-network operator buys water in bulk from the utility and then distributes it to a

[32] As in the previous note, this is based on information provided by MWSS-RO staff.

[33] Both utilities source water primarily from the Angat Dam, located 40 km north of Metro Manila. Most of Maynilad's remaining work is in the southern part of Metro Manila.

[34] In Cebu Water District vs. Margarita A. Adala, the Supreme Court ruled that a water district or public utility's claim of exclusive franchise is unconstitutional, and that the National Water Resources Board can grant licenses to other water providers within the same district (Supreme Court of the Philippines, 2007).

[35] Rizal, although outside of Metro Manila proper, is part of Manila Water's concession area.

community via self-constructed infrastructure. In the second, the operator uses a similar network but extracts groundwater from its own source.[36] The first scenario is what we see occurring throughout Metro Manila, where micro-network operations are allowed to exist, even if for only a few years. This set-up is advantageous to the utilities because it allows them to recover costs completely while delegating day-to-day water management to the micro-network operator. In the second scenario, the utility does not benefit at all, because it is not selling water to the micro-network and its users. Under such circumstances, the utility must try to compete with the micro-network or supplant it entirely. This is the case in Rizal, where the oldest water cooperative in the Philippines, established in 1969, now competes directly with Manila Water for customers.

Thus, 'coverage' is not defined as the area that the utilities serve directly. Rather, it is the area that the utilities seek to serve through a combination of formal and informal means. This includes households that are not served by the utilities or micro-networks – those that may rely on water purchased from their neighbours, for instance. In contrast, the areas outside of the utilities' aegis are considered unserved, even though those communities may rely on similar types of water providers. Here, there is a differentiation within informality – those working in partnership with the utilities 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 utilities. On that basis, Manila Water initially designated many low-income communities as suitable for micro-network provision, as seen in Taguig. Contestations arising from community members and the state forced Manila Water to redefine its frontier, pushing the boundaries of individualised 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 along the banks of the Manggahan Floodway. In these areas, alternative water providers continue to exist, serving a function that is arranged by the utilities and supported by the state.

CONCLUSION

A dichotomy between formal and informal provision exists in the water literature, where large utilities and small-scale vendors are generally seen as operating in separate spheres (IWMI, 2007). This paper calls into question that assumption by asserting that there are grey spaces (Yiftachel, 2009) in which the formal and informal are linked. Through an analysis of the evolution of micro-networks in Manila's post-privatisation era, I demonstrate how the utilities have partnered with micro-networks in order to manage some low-income spaces. These areas are counted in official coverage statistics, even though micro-network households may face higher tariffs and lower water quality compared with directly-connected customers. In contrast, micro-networks that operate independently are considered informal, to be replaced. Such a distinction supports Roy's (2005) notion of differentiation within informality, in which the state and other powerful actors apply differential treatment in order to organise urban space. Focusing on the relationships between formal and informal providers also adds nuance to the literature on SSWPs, which tends to gloss over the politics of SSWP existence.

If we accept Lefebvre's premise, as summarised here by Molotch (1993), that space is "a project shaped by interests of classes, experts, the grassroots, and other contending forces", then we can see how spaces of water access and (in)formality are shaped by the utilities, various levels of the state, CBOs, and citizens. Within this constellation of actors, it is clear that the utilities dominate the waterscape, with the state intervening or CBOs participating at key moments. Indeed, the utilities largely determine the terms by which households and neighbourhoods obtain water – they can initiate

[36] One may argue that there is a difference in water quality and treatment between the utility's chlorinated piped water and independently sourced groundwater, but there have been no definitive tests to support this claim.

partnerships with CBOs, as well as terminate them. But as I mention in this paper, micro-networks can be problematic because they can result in higher tariffs, increased surveillance, and uncertain terms of operation. Utility decisions regarding when and where micro-networks are used can therefore affect the built environment, as well as household capabilities and ways of life. This suggests that the utilities are critical actors in the production of space, and that the persistence of informality is, in large part, due to the utilities' calculus and the state's willingness to allow such practices to continue.

In Manila's post-privatisation era, informal water providers have not been eliminated – an outcome that one might expect with the successful expansion of a utility. On the one hand, the growth of a formal network is piecemeal, occurring in stages. On the other hand, that process is a political one, laden with power and decision-making. Manila's privatisation brought hopes for increased inclusiveness by reducing barriers to connection. But closer scrutiny of the ways in which this expansion has been carried out reveals lingering biases and inequities. Elsewhere, I have suggested that increased transparency and access to information might help address remaining disparities (Cheng, 2013). Indeed, if so-called "creative partnerships" (Weitz and Franceys, 2002) between utilities and community-based agents are to be propagated as models of development, then we must scrutinise further both the benefits and limitations of such forms of access, asking ourselves what inequalities persist.

ACKNOWLEDGEMENTS

This work was supported by a Social Science Research Council International Dissertation Research Fellowship. I am grateful to UNESCO-IHE and the participants of the paper workshop in Delft, and in particular to the guest editors of this issue. I must also thank Isha Ray, Ananya Roy, the ERG Water Group, Michael Klinger, and three anonymous Water Alternatives reviewers for their insightful comments. All errors, of course, remain my own.

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