

**Understanding why public-private partnership cannot fix
sewerage services in Metro Manila, Philippines:
A network perspective**

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June 2017

A thesis submitted for the degree of Doctor of Philosophy of
The Australian National University

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Declaration

This thesis contains no material which has been accepted for the award of any other degree or diploma in any university. To the best of the author's knowledge, it contains no material previously published or written by another person, except where due reference is made in the text.

Allinnettes Go Adigue

June 2017

Acknowledgments

This thesis evolved from my interest in the topic of water privatisation for my Master's degree thesis in 2004. As one of the millions of customers of the former MWSS, I too hoped for better water and sewerage services after the Metro Manila water concessions were awarded, having experienced those days when rust-coloured water came out from our tap and sewage water flows back into our bathroom drain during floods. As a former policy analyst for the Philippine government for many years, I was concerned with formulating policies that would improve government bureaucratic processes to better serve the Filipino people. This research is a continuation of that passion.

My deepest and sincerest gratitude goes to all who made this Ph.D. journey possible. I am especially grateful to my primary supervisor, Bingqin Li, for her brilliance, intellect, patience, guidance, kindness, candidness, encouragement and impeccable timing, i.e., moving to Crawford School when I was looking for the perfect supervisor. I am also thankful to my supervisory panel members, Bjoern Dressel, Jeroen Van der Heijden and Bob Warner, for their insightful, invaluable and honest feedback on my work. I wish to express my appreciation to Megan Poore, for not just being great at her job as academic skills advisor but also for being an amazing friend and human being. I am also thankful to Frank Jotzo for giving me research work opportunities that introduced me to a world outside of sewerage, i.e., the world of climate change economics and policy. This research would not have been possible without the funding from the Australia Awards-Endeavour Scholarships and the Crawford School of Public Policy.

I would also like to thank my own personal network for helping make this research on interorganisational network happen. My friends, former colleagues, fraternity brothers and sorority sisters who helped me gain access to sources of information during my fieldwork: Judy Saclamitao, Geraldine Bacani, Virginia Ballesteros, Virginia Octa, Boying Remulla, Mehol Sadain and Ariel Tanangonan. My dear friends, near and far, who would indulge me to an online or real time chat to talk about the mundane when the cerebral drudgery of Ph.D. wore me down. I also thank my sister, Arabelle, who encouraged me to read books without pictures at a very young age and my mother, Teresita, who, through the years, has learned to support my quest to chase my dreams even when they take me far away from home. Finally, I dedicate and offer this to my father and my hero, Pedro A. Adigue, Jr. (1943-2003), for giving me what he didn't have — a university education— and for teaching me to dream and making them happen. A world champion boxer and a world champion daddy.

Abstract

Improving public sanitation is one of the major urban health and environmental issues that confronts most cities in the developing world. Sanitation-related diseases have been practically eradicated in the developed world but these diseases continue to threaten lives in the developing world. It is estimated that poor or inadequate access to sanitation kills some ten million children below the age of five every year. More than half of the world's rivers, oceans and lakes are polluted with untreated wastewater, which contributes to environmental degradation as it pollutes surface water, rivers and groundwater. This holds true for the Philippines where cholera and diarrhoea remain endemic. In Metro Manila, the country's capital region that is home to at least 12 million people, less than 15% of the population are connected to the sewage system, some 85% are served by improperly constructed and ill-maintained septic tanks and the rest of the populations still practise open defecation. In 1997, the Philippine government awarded long-term concession contracts to two private concessionaires to bring in the much-needed capital and private sector efficiency to upgrade and expand water and sewerage services in Metro Manila. Some 20 years after the concession contracts were awarded, the two private concessionaires have achieved or nearly met their target of providing 100% water supply connections in the capital. Sewerage services, on the other hand, are at less than 15% of the population.

Why has public-private partnership (PPP) failed to fix the sewerage problems in Metro Manila? To answer this question, this research analyses the performance of Metro Manila sewerage services through the lens of the network governance theory. This thesis suggests that the concessionaires were not able to timely deliver the intended outcomes because of the network effect of PPP. The network effect of PPP refers to outcomes that are caused by the emergence of network features created as a result of bringing in the private sector in the governance of public services. PPP has exhibited certain network features that altered the rules of infrastructure service delivery and allocated new roles among the state, the market and civil society. The network features created by PPP are (1) resource interdependence between the stakeholders both in the private and public sectors, (2) challenge of achieving goal congruence in a multi-stakeholder setting and (3) unclear management roles.

Data collection for this research in the form of documentation, interviews and direct observation, was conducted in Metro Manila, Philippines. Interviews were the key source of information for this thesis to elicit information on the respondents' interorganisational

relationships and dynamics and how such interactions impact on the service delivery outcomes as documentary information mainly provided information on the legal, political and performance aspects of the Metro Manila water and sewerage concessions

This research contributes to both research and practice. This research contributes to the literature on network governance, PPP and policy implementation. By using the network perspective to analysing PPP performance, this research augments the current literature on understanding PPP outcomes by filling out the administrative analysis gap that has not been explored in the literature. Second, it also offers a new perspective on evaluating and understanding PPP outcomes by developing an analytical framework that examines networks, not just a single organisation, as the unit of analysis to analyse the performance of sewerage services. Third, it aims to contribute to the growth of a more specialised and differentiated study in the field of network governance theory. For policymakers and practitioners, this research promotes the understanding that policies are implemented by multiple institutional actors, which can make policy implementation a complex process. An acceptance of the perspective that policy implementation is interorganisational in nature contributes to effective and responsive policy design. This can guide governments in considering the potential network features that may arise when adopting a new policy, such as PPP, that can hinder the achievement of the desired goals or effects.

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Acronyms and abbreviations

AEPA	Accelerated Extraordinary Price Adjustment
ADB	Asian Development Bank
ADR	Appropriate Discount Rate
BEM	Business efficiency measures
BOD	Biochemical Oxygen Demand
BOT	Build-Operate-Transfer
CA	Concession Agreement
CERA	Currency Exchange Rate Adjustment
CIT	Corporate income tax
DCRA	Debt and capital restructuring agreement
DENR	Department of Environment and Natural Resources
DILG	Department of Interior and Local Government
DOH	Department of Health
DOF	Department of Finance
DPWH	Department of Public Works and Highways
EIA	Environmental Impact Assessment
EMB	Environmental Management Bureau
EPA	Extraordinary Price Adjustment
FCDA	Foreign Currency Differential Adjustment
ICC	International Chamber of Commerce
IMF	International Monetary Fund
KPI	Key performance indicator
LGU	Local Government Unit
LLDA	Laguna Lake Development Authority
LWUA	Local Water Utilities Administration
MBAC	Manila Bay Advisory Committee
MBCC	Manila Bay Coordinating Committee
MBCO	Manila Bay Coordinating Office
MDBs	Multilateral development banks
METROSS	Metro Manila Sewerage and Sanitation program
MMDA	Metropolitan Manila Development Agency
MSSP	Manila Second Sewerage Project
MWSS	Metropolitan Waterworks and Sewerage System
MWSS-RO	Metropolitan Waterworks and Sewerage System-Regulatory Office

NAWASA	National Waterworks and Sewerage Authority
NCR	National Capital Region
NGO	Non-government organisations
NIMBY	Not-in-my-backyard
NPM	New Public Management
NRW	non-revenue water
NSSMP	National sewerage and septage management plan
OPMBCS	Operational Plan for the Manila Bay Coastal Strategy
PPP	Public-private partnership
PROGRESS	Program comprising of minor drainage projects for the depressed areas
ROW	Right-of-way
SAP	Structural Adjustment Program
SOE	State-owned enterprises
STAMP	Septic tank desludging programme
STP	Sewage Treatment Plant
UN	United Nations
USAID	United States Agency for International Development
WARM	Water for All Refund Movement
WQMA	Water Quality Management Area

Units of measurement

has	hectares
kms	kilometres
km ²	square kilometres
m	meters
m ²	square meter
m ³	cubic meter
mld	million litres per day
PhP	Philippine peso
US\$	United States dollars

Sanitation is more important than independence.
Sanitation is fundamental to personal dignity and
for personal and community health,
to prevent contamination and disease.

Mahatma Gandhi

Chapter 1

Introduction

1.1 The need to improve access to sewerage services

The subject of shit has always been talked about in euphemism. As early as 1842, Edwin Chadwick made the causal link between lack of sanitation and infectious diseases and campaigned for sanitary reform through for engineering-based water and sewage system (Mara et al. 2010; Black & Fawcett 2008). Not until it literally stank during the 'Great Stink' of 1858 in Great Britain that sanitation and sewage were elevated as a legitimate public policy agenda and addressed in a systematic, massive and concerted manner (Black & Fawcett 2008, pp.15–16). This prompted the 19th century sanitary revolution, which was the precursor to the modern time sewerage system. Following Britain's success, the idea spread soon after throughout Europe and the US and eventually brought by the European powers to their colonial administrations in Asia, Africa and the Americas, primarily to keep the imperial troops and administrators alive (Curtin 1989; Curtin 1998). Today, most homes in high-income countries have access to toilets that are connected to a sewerage network sewage that conveys wastewater for treatment to before it is discharged in the environment.

After the 19th century sanitary revolution, sewerage and sanitation suffered decades of neglect in middle and low income countries. Access to improved sanitation is not catching up with continued population growth, especially in urban areas where around one billion people live in urban slums with poor or no sanitation (Gambrill 2016). In 2015, 2.4 billion people still lack access to improved sanitation (UNICEF and World Health Organization 2015, p.5). The indiscriminate disposal of untreated sewage to the environment increases the risk of sanitation-related diseases, such as diarrhoea and cholera, that continue to take millions of lives in the developing world (Lopez et al. 2015; Black & Fawcett 2008). Every year, some ten million children below the age of five are killed by sanitation-related diseases (Cumming 2008, p.3). More than half of the world's rivers, oceans and lakes in the world are polluted with untreated sewage, which contains pathogens that contribute to environmental degradation and causes diseases through direct contact or exposure to contaminated drinking water, fish and shellfish-growing waters or irrigated crops (Baum et al. 2013, p.1994). This increases the likelihood of epidemics of catastrophic proportions (Saier 2008; Mara et al. 2010).

This holds true for the Philippines where sanitation-related diseases remain endemic (Lopez et al. 2015, p.2). From 2008 to 2103, there were 42,071 suspected and confirmed cholera cases reported in 87% of provinces and metropolitan areas in the country (Lopez et al. 2015, p.2). Around 3% of the urban population still practise open defecation and less than 4% of the urban wastewater is collected and treated in the Philippines. Sewerage systems are mainly concentrated in urban areas such as Metro Manila, Baguio, Iloilo and Subic and a few select tourist resort areas (World Bank 2013, p.2). The sewerage system established in the capital of Manila in 1909, which was only intended to serve a population of 440,000 (Caoili 1999, p.76), predated all other sewerage systems in Asia (Doeppers 2009; Torres 2010; Mactal 2009). By the 1990s, less than 10% of the 7.3 million inhabitants of Metro Manila were connected to the sewerage network (Hartman & Werhane 2009; Kearton et al. 2013). Around 85% of the population were served by over two million ill-maintained septic tanks that are connected directly to public drainage or by pit latrines (World Bank 2012, p.2). Untreated wastewater ends up in storm drains or open waterways into the Pasig River, which flows between Laguna de Bay (the largest freshwater lake in Asia) and Manila Bay (Kearton et al. 2013; Tetra Tech & Berkman 2013).

Cash-strapped and mired in debt, the state-owned Metropolitan Waterworks and Sewerage Services (MWSS) could not afford to upgrade and expand sewerage services in Metro Manila. In 1997, the Philippine government privatised MWSS through a long term concession agreement (CA) to bring in the much-needed capital and private sector efficiency that was expected to improve water and sewerage services in the capital. The Metro Manila water and sewerage concessions were financed under the Structural Adjustment Program (SAP) loan agreement signed by the Philippine government with the International Monetary Fund (IMF) (Bello 2004, p.12). Public-private partnership (PPP) was one of the fiscal austerity and market liberalisation measures imposed by the IMF and the World Bank on developing countries to ensure that the borrowing countries did the right thing with the billions of dollars they borrowed (Stiglitz 2002). PPP was 'heralded as an elixir that would rejuvenate lethargic industries' and resuscitate ailing economies in the developing world (Prasad 2006, p.673). By the end of the year 2000, some 93 countries had partially privatised water or wastewater services or were in the process of doing so (Brubaker 2003, p.1). After the international exuberance on PPP waned, the World Bank reported that by 2002, some 75% of water concession contracts in Latin America, Caribbean and Asia were either renegotiated or cancelled. A large number of these concession contracts were in Asia and were renegotiated or cancelled during the Asian

financial crisis due to disputes over water tariff increases (Hall et al. 2005; Kwak et al. 2009; Gómez-Ibáñez et al. 2004).

Notwithstanding the controversies that shrouded PPP, water supplies managed to see improvements due to strong demand and political enthusiasm (Black & Fawcett 2008, p.7). Water has received more attention in terms of research, policy development, programmatic support and resource allocation. Sewerage and sanitation services, on the other hand, have been lumped under the topic of 'water and sanitation' but have rarely been given much attention on their own and any mention of sanitation is 'purely cosmetic' (Black & Fawcett 2008, p.67). Sanitation and sewerage services have been politically neglected and therefore received far less resources (Black & Fawcett 2008, p.8). It is estimated that funding for water in the 1990s was four times higher at US\$12.6 billion annually compared to sanitation, which received US\$3.1 billion (Hutton et al. 2008, p.18). In Asia, the factor difference between spending on water and spending on sanitation in the same period was 5.5 times. In 2008, a joint USAID and World Bank study on the Economic Impacts of Sanitation in the Philippines reported that, since 1970, public expenditure for urban sanitation in the Philippines accounts for a mere 1.5% of that disbursed on urban water supply (Rodriguez et al. 2008, p.1).

Lack of funding is not the only challenge impeding sanitation and sewerage development. Planning and implementation for sewerage infrastructure takes time even with the availability of scientific evidence and vast engineering possibilities in modern times. Urban centres are faced with a myriad of convoluted problems, which can be any one or a combination, of natural, technological, biological and social nature. Implementing sewerage projects are complex due to higher population densities, less-coherent community structure and absence of opportunities for open defecation (Saier 2008, p.3).

Sanitation is still seen as a purely private matter and not an inherently attractive and photogenic subject; thus discussion thereof is viewed as taboo (Black & Fawcett 2008). Even in the academic literature, the subject of shit is rarely talked about. One book that explored the dirty world of sanitation in great detail is Black and Fawcett's (2008) *The Last Taboo*. This seminal work argued resolutely for the unlinking of sanitation and sewerage from water supplies to give the former their rightful place and airtime in public policy conversations. For the longest time, sanitation specialists have failed to persuade politicians, the media and other influential people on the importance and urgency of sanitation and sewerage services. It was not until 2008, which was declared by the United Nations (UN) General Assembly as the International Year of Sanitation, that this important

but neglected sector was finally given attention by international organisations and national governments (Black & Fawcett 2008, p.4).

The focus of this research on sewerage services in Metro Manila, Philippines is timely and highly needed. Poor sanitation is not only a burden to the individual but a deadweight for governments as well. A government's inaction to improve the sanitation sector costs that country more than the amount of investment needed for sanitation infrastructure.

According to the World Bank, Cambodia, Indonesia, Philippines and Vietnam collectively lose US\$9 billion a year because of poor sanitation (based on 2005 prices) or at least 2% of their combined gross domestic product (Hutton et al. 2008, p.1). Health costs resulting from diseases and deaths from sanitation-related diseases are estimated at US\$4.8 billion, the majority of which money is allocated on health care and medicines to combat easily preventable, sanitation-related diseases. In the Philippines alone, the country's overall economic losses due to poor sanitation amounts to about US\$1.4 billion or PhP 77.8 billion per year (Rodriguez et al. 2008, p.1). On the other hand, the cost of implementing ecological sanitation approaches is estimated at US\$270 million on an annual basis (Hutton et al. 2008, p.1).

The issue of funding to construct, upgrade and maintain water supply and sewerage infrastructure in Metro Manila, Philippines was supposed to have been addressed by the CA with the two private companies, Maynilad Water Services, Inc. and Manila Water Company, Inc. Water and sewerage services in Metro Manila were privatised in 1997 and, to date, the two concessionaires have reported water supply coverage to nearly 100% of the population. However, the same cannot be said for sewerage services. As of December 2011, it was reported that Manila Water's service coverage was at 13% of the population with a treatment capacity of 128 mld while Maynilad Water was at 6% of service area population with a treatment capacity of 468 mld (Kearton et al. 2013, p.37). During the same period, it was expected that sewerage coverage would have been at 21% and 13%, respectively (Tetra Tech & Berkman 2013). The concessionaires have proven to be technically competent and financially healthy enough to expand the water supply aspect but why are they behind their sewerage targets? This thesis is motivated by this puzzle.

1.2 Problem statement and central argument

The main question that this research aims to answer is: Why has PPP failed to deliver the expected outcomes in infrastructure services? This research attempts to answer the central question by exploring the links between the network features of PPP and the effects of

these features on the performance of the privatised infrastructure services. To answer the main question, the following sub-questions are raised. First, what are the network features created by PPP? Second, what are the effects of these network features on PPP outcomes?

This thesis suggests that the concessionaires were not able to timely deliver on the outcomes because of the network effect of PPP. The network effect of PPP refers to outcomes that are caused by the emergence of network features created by PPP. The core argument of this thesis is that PPP created distinct network features that potentially prevent it from functioning as a competitive supplier in the market. As a result, the desired outcomes associated with PPP as suggested in the market competition theories cannot be achieved or can only be partially achieved. This is the network effect of PPP and this thesis explains the causes of the network effect of PPP.

The failed cases of PPP have been well-documented but it is unclear why they failed (Araral 2009, p.226). A number of reasons have been offered in studies that analysed PPP in many countries, which can be categorised based on the economic and societal effects. The economic effects of PPP analysed the impact of ownership on performance by drawing the relationship between economic performance and ownership as the dependent variable, and outputs, inputs and controls as independent variables. Studies on the societal effects of PPP examined the importance of the social and institutional contexts that can provide a susceptible environment for private sector participation in public services to flourish. These factors are competition and regulatory capability, institutional capacity and public sector governance capacity. These studies focused on a single organisation, i.e., either the private sector or the government, as the unit of analysis.

Current public management theory is lacking in the practice of managing governments comprised of relational networks (Goldsmith & Eggers 2004, pp.21-22). Existing studies on the performance of PPP in developing countries, including the Metro Manila Water concessions, have analysed the outcomes from a principal-agent and organisation-set perspective and mainly examined the water aspect and not the sewerage services. The focus on contributions of individual organisations has deflected attention on the impact interorganisational collaboration in public management (O'Flynn et al. 2013, p.17). Using the network governance theory, this research aims to examine the effects of PPP on the governance structure of public infrastructure services that the literature on PPP outcomes neglected to consider, i.e., (1) government no longer has the monopoly of decision-making; (2) contractual relationships are created between the government and the private sector provider but not in the tradition of principal-agent where one party is assumed subordinate

to another; (3) market sector actors are a part of the accountability network, and (4) accountability is a complex web of relationship between individuals and institutions (Osborne, 2010 p.5).

PPP brought the private sector into the fold of governance of infrastructure services but there is dearth of empirical research on how the change in network structure in these services impact on the intended policy outcomes. There is a vast literature on PPP in infrastructure services but its network effects on the outcomes have largely been overlooked. This research posits that PPP failed to yield the expected outcomes due to the network effect of PPP. The policy objectives of PPP were not achieved because its proponents assumed that the superiority of the private market alone is enough to improve public infrastructure services. In reality, PPP created complex and numerous relationships within a network of public and private actors who need to work together to deliver vital public infrastructure services. While PPP has made the private sector the direct provider of public services, the private sector still has to work with a number of private and public organisations in the performance of its service delivery functions. There is a pressing need for a more comprehensive and integrated approach to the study and practice of privatisation.

This research departs from the prevailing approaches of understanding PPP outcomes by examining the new network features created by PPP and what the effects of these features are on the intended policy outcomes. This thesis does not discount the other causes explaining the shortcomings of PPP put forward in the literature. Instead, this thesis seeks to augment the underexplored administrative analysis of PPP by examining its network effect. This research offers an alternative analytical framework to understand the complexity of the network governance structure in PPP.

PPP has been variably defined, ranging from the complete transfer of enterprise ownership or productive assets from the public to the private sector (Jomo 2008) to any cases where private enterprises are enlisted to perform activities previously under the realm of the government (Jomo 2008; Parker & Kirkpatrick 2005; Gleick & Cain 2004). These different definitions are embodied in the range of options available to governments in enlisting the participation of the private sector in infrastructure provision. These arrangements vary from the least private sector commitment, such as supply and service contracts, to divestiture that involves complete transfer of ownership assets to the private sector (Guislain & Kerf 1995, p.1). Somewhere in the middle are concession-type arrangements where a public entity grants the private company the right and the obligation to provide an infrastructure

service, whether gas, power, water, transport, sanitation or telecommunications. The terms and conditions of this arrangement is specified in a contract or license (Guislain & Kerf 1995, p.1).

As will be discussed in Chapter 2, the supporting theories of PPP provide that this strategy will flourish under competitive conditions but will face a challenging environment when applied to naturally monopolistic services. In the range of PPP options, concession contracts are deemed most suitable for services that are naturally monopolistic, such as water and sewerage services (Kerf et al. 1998; Guislain & Kerf 1995). Most of the PPP contracts on water and sewerage services in the developing world are concession arrangements. When discussing the Metro Manila case, PPP and concessions shall be used interchangeably.

1.3 Structure of the thesis

Examining the network features and its effects on the privatised sewerage services in Metro Manila, Philippines is explained in this thesis in eight chapters. Chapter 2 surveys the literature analysing the effects of PPP. This chapter reviews the theory and application of PPP and explains why the network perspective is appropriate in understanding the performance of PPP. PPP transformed the network governance structure of infrastructure services because it dispersed the responsibility over a public service to public and private actors (Vincent-Jones 2000, p.319). It is more appropriate and comprehensive to examine network-level activities and structure when several actors work together to deliver a vital public service rather than the individual actions of organisations. This chapter also explains how PPP created new network features and how these can create negative network effects.

Chapter 3 presents an analytical framework to analyse multi-causal and multi-level relational networks and how these impact on the outcomes of privatised infrastructure services. This research refers to the literature on network governance theory in developing the analytical framework to evaluate the impact of interorganisational relationships on the performance of PPP networks. This study applies the analytical framework to the case of the privatised sewerage services in Metro Manila (hereinafter referred to as 'Metro Manila concessions'). Network outcomes are shaped by numerous important decisions that occur in different arenas. This study focuses on three arenas in the Metro Manila sewerage services network where vital decisions and negotiations on sewerage services take place: (1) tariff setting, (2) construction of sewage treatment plants (STPs) and (3) interagency monitoring. Each arena will be examined in detail in separate chapters. This chapter also

describes the data collection and analysis procedures adopted to study the Metro Manila sewerage network, as well as the ethical concerns and challenges encountered in pursuing this research.

Chapter 4 presents a historical overview of the sewerage services in Metro Manila by identifying crucial government policies and developments relating to the sewerage sector since the emergence of the first sewerage system and how these have shaped the governing structure of the sewerage sector in Metro Manila over time. The purpose of the historical review is to draw out crucial decisions and events over the years that helped shaped the current institutional design of the sector. Public services are governed under governance structures and changes in policies alter the landscape of these structures. The historical review revealed that PPP is the most crucial and most recent policy implemented on sewerage services that effected considerable change in its governance structure that may have influenced the outcomes.

Chapters 5, 6 and 7 examine the three major areas of decision making that impact the most on the outcomes in the Metro Manila concessions: (1) tariff setting arena, (2) STP construction arena and (3) interagency monitoring arena, respectively. These three chapters are structured in a similar way. First, I discuss the problems that the concessionaires encounter in the decision making arena. Second, I examine the issues created by the network features of PPP in the arena. Third, I analyse the network effects of the network features in the arena.

Finally, Chapter 8 presents a comparison of the outcomes from the three decision making arenas. In this chapter, I highlight the three main findings that emerged from examining the Metro Manila sewerage services from a network perspective. First, I discuss that vital decisions in privatised infrastructure services are made by public and private actors in different arenas. Second, I argue that PPP created new network features and that, third, these network features created negative network effects that hindered the accomplishment of intended outcomes. This chapter also discusses the contribution of my research to the literature on network governance, PPP and policy implementation, and the practical lessons for policy makers and advocates. I also identify the methodological and research observations arising from this research. Finally, I offer suggestions for future research.

1.4 Summary of findings

With the Metro Manila sewerage sector as the case study, this research finds that PPP has transformed the network governance structure of infrastructure services by bringing

together public and private actors in different arenas who have to work together to deliver a public service. Using the network perspective in analysing PPP outcomes provides a more comprehensive understanding of PPP. This bridges the administrative analysis gap in the PPP literature.

The Metro Manila sewerage network is complex because of its sheer size: it is comprised of several sub-networks, arenas, actors and resource interdependencies. While the responsibility of providing sewerage services in Metro Manila has been transferred to the private sector, the concessionaires are dependent on a number of actors in implementing sewerage projects. Most if not all aspect of the concessionaires' vital operations are dependent on accessing resources that are under the control of other actors, and these resources exist within sub-networks and arenas comprised of numerous actors and governed by different rules. Implementation of sewerage projects impacts on a number policy sectors, such as health, environment, urban development, economics and utilities regulation. It traverses temporal dimensions as the concessionaires' contract is for 40 years. It crosses vertical and horizontal administrative jurisdictions as the concessionaires have to coordinate with a gamut of national, sub-national, private and non-government entities.

This research concludes that PPP failed to deliver the expected outcomes in the Metro Manila sewerage services network because the network features created by PPP created negative network effects. PPP changed the governance landscape of public infrastructure services. As a result, management of privatised infrastructure services is not just about service provision but equally important is managing the interorganisational relationships in PPP networks.

This conclusion was established by examining the different arenas where important decisions about sewerage service delivery take place. The different arenas reveal the numerous challenges encountered by the concessionaires at different stages of implementing sewerage projects due to the many actors they have to work with and the copious rules and procedures they have to comply with. PPP has dispersed accountability to a number of actors and, when the areas of accountability are not clear among the actors, this can hinder effective service delivery. PPP has also vested the government with multiple roles of policy maker, regulator, commercial signatory to the contract and contract manager from its former role as the sole public service provider. These multiple roles can conflict and compete and, when the government prioritises one over the other, this can create relational issues with the concessionaires, other government agencies and/or the consumers. The

effectiveness of a policy, such as PPP, is not only shaped by the strategies and action plans formulated to carry out the policy but also by the relationships among the actors tasked to collectively implement the policy.

This research does not offer generalisations on the outcomes or performance of the Metro Manila concessions against other PPP in infrastructure services in other cities or countries. I am mainly interested in understanding the performance of PPP on sewerage services in Metro Manila, guided by the broader literature on PPP, sewerage and network governance. However, the analytical framework to analyse the network effects of PPP in the Metro Manila concessions developed in this research can be used to examine other privatised public infrastructure services in the Philippines and other developing countries to test its robustness. The MWSS is only one of the many government enterprises privatised by the Philippine government. One privatised utility that may benefit from the analytical framework is the power sector. Like water and sewerage, the electricity sector also failed to meet the expectations of PPP (Roxas & Santiago 2010) and it would be worth looking into if and how much the network effect of PPP contributed to this outcome. In that regard, this thesis aims to contribute to understanding interorganisational collaboration in PPP networks and in the broader topic of policy implementation.

Chapter 2

Networks, network effects and the performance of PPP in public infrastructure services

2.1 Introduction

This chapter develops a theoretical framework to understand the performance of PPP policy in infrastructure services, such as water and sewerage services, which was prevalent in the late 1990s and early 2000s. Governments have been plagued with the problem of effectively converting policy recommendations into action as there is often a disparity between the intended effects and actual outcomes. PPP was one of those policy reforms where governments found themselves with outcomes that did not yield or fell short of the results that the champions of PPP expected.

The promotion of PPP policy focused on its effects of achieving the intended economic and social objectives. In explaining the outcomes, scholars often examined the performance of a single actor, either the private actor as the provider of the service or the government as enforcer of the policy and regulator. PPP created new rules and allocated new roles among the state, the market and civil society (Prasad 2006, p.672) and yet this new governance structure has not been explored in the PPP literature. With PPP, the private and public sector have to work interdependently, not independently of each other. This thesis argues that the expected outcomes were not achieved because PPP created new network features, which can be barriers to service delivery.

To understand how PPP created new network features, this chapter reviews the literature on PPP and network governance. The second section presents the arguments for PPP and the supporting theoretical foundations. The third section discusses the importance of considering industry characteristics and context when implementing PPP in natural monopoly services. Given the mismatch between the supporting theories of PPP with the economic characteristics of natural monopoly infrastructure services, such as water and sewerage services, the fourth section suggests that PPP results in a relational network governance structure rather than a free market structure. As such, it is proposed that the network governance theory captures the interactions and interdependency of organisations in PPP. To support this argument, a review of the network governance literature is undertaken to draw a link between PPP and the emergence of a new governing network, which makes it impossible for organisations to function like free market players.

2.2 Arguments for public-private partnership

There is a range of options in enlisting the participation of the private sector in infrastructure provision, which varies from the least private sector commitment, such as supply and service contracts, to divestiture that involves transfer to the private sector of the ownership of existing assets (Guislain & Kerf 1995, p.1). Bringing in the private sector to operate services traditionally performed by the government was a strategy championed and implemented in the West in the late 1970s to enhance efficiency of the services concerned (Jomo 2008; Bortolotti & Millella 2008; Roland 2008). The logic is that, under a private provider, public services will be more economically viable as it faces competition from other private providers in the market. Expectations on PPP have its supporting theoretical foundation from public choice, property rights and principal-agent theories, which support the notion that private ownership reduces the cost of public service delivery.

Public choice theory emphasises the importance of competition in achieving cost savings under private ownership while property rights theory focuses on ownership and service quality (Bel & Warner 2008, p.1342). For a competitive market to flourish, the market should have (1) many buyers and sellers, (2) symmetric information on the price of the products, (3) sellers that sell similar products, (4) no transaction costs and (5) no barriers to enter and exit the market. Under these conditions, it is expected that the market will be Pareto efficient. This assumption works provided that there are no externalities in production or consumption, the product is not a public good and the market is not monopolistic in structure (Megginson & Netter 2001, p.321). In the absence of competition, property rights theory predicts excess profits or corruption in private production and overemployment and patronage in public production (Bel & Warner 2008:1342). If the market fails, the government is justified to intervene and resolve market failure or improve efficiency (Megginson & Netter 2001, p.321).

According to the principal-agent theory, the poor performance of state-owned enterprises (SOEs) emanate from the difficulty of the government to monitor the performance of these enterprises because (1) there is no individual owner with strong incentives to monitor the managers of SOEs and (2) there is no public share price to inform the actions of public managers (Gupta 2008, p.172,188). The agency problem will be addressed when management control is transferred to the private sector as it is assumed that it is incentivised to operate the enterprise efficiently to reduce costs and maximise profits (Bortolotti & Millella 2008, p.69). By delegating public infrastructure services to the private sector through competitive tender, it is assumed that any government can fulfil its

efficiency and equity goals (Cavaliere & Scabrosetti 2006, p.4). In a competitive market, private firms have incentives to achieve both productive and allocative efficiency by reducing excess supply or reduce inefficiencies in public service delivery to earn profits. Their market longevity depends on their profitability (Bel & Warner 2008, p.1342). The private operator is expected to maximise profits by reducing costs through improvements in efficiency, leading to improved service delivery and lower costs for all consumers. With lower costs and higher profits, the private owner/operator will invest to further improve and expand services (Tan 2011, p.50).

In middle and low income economies, however, the motivation to privatise was pragmatic albeit more ambitious. Due to poor performance of SOEs that only exacerbated their worsening fiscal conditions, developing countries succumbed to donor pressure to involve the private sector in the provision and financing of public infrastructure services (Araral 2008, p.528). By the late 1980s, PPP in infrastructure services, particularly water and sanitation utilities, reached the developing world with higher expectations riding on its coattails, i.e., to stimulate economic growth, alleviate poverty and ease the macroeconomic burden brought about by inefficient public enterprises (Parker & Kirkpatrick 2005; Parker & Kirkpatrick 2007; P. Cook & Kirkpatrick 1995; Ramamurti 1992). Government agencies or public enterprises were viewed as a major contributor for fiscal imbalances that crowded out the available funds for social services and private sector borrowing, which undermined the development of the private sector (Paul Cook & Kirkpatrick 1995, p.15). The IMF and World Bank assisted these countries out of their fiscal problems through loans on the condition that structural reforms, such as fiscal austerity and market liberalisation measures, will be implemented (Stiglitz 2002).

The failure of governments in the developing world to improve and expand water supply and wastewater services motivated governments to resort to the private sector to infuse the much-needed investment capital, technical expertise, innovation and efficiency into the sector (Malaluan & Wu 2008; Brubaker 2003; Brubaker 2001). From 1990 to 2001, there were some 202 projects amounting to US\$39.7 billion in investments by the private sector in water and sewerage services in developing countries (Harris et al. 2003, p.4). However, enthusiasm over PPP in water and sewerage services was soon dampened when, a few years into its implementation, higher water tariffs imposed by private operators were met by intense opposition by the public. By 2003, the World Bank reported that 3.5% of water and sewerage concessions valued at US\$11.3 in developing countries were cancelled (Harris et al. 2003, p.4).

Following the controversies that shrouded PPP, academic literature analysing its performance flourished during the first decade of the 21st century, which analysed its effects on the government's economic and social objectives. Research on the economic effects generally indicates that PPP had positive impacts, especially from the microeconomic perspective (Kikeri & Kolo, 2005; Megginson & Netter, 2001; Parker & Kirkpatrick, 2005; Cook & Uchida, 2003; Shirley & Walsh, 2001). Cook & Uchida (2003), however, concluded otherwise and suggested that while there is a robust partial correlation between PPP and economic growth, it has contributed negatively to economic growth. They observed that measuring the impact of PPP on macroeconomic growth is more complicated because economic performance is influenced by a number of factors exogenous to the firm. PPP can have a positive impact on economic growth if it is accompanied by effective competition and regulation (Cook & Uchida 2003, p.123).

On the other hand, research on the societal effects of PPP indicates that this policy has resulted to some 'improvements in productivity and profit but the process is much more complex and the benefits are not automatic' (Parker & Kirkpatrick 2005, p.517). These studies are mainly comprised of case studies that use both qualitative and quantitative methods and provide descriptive data and responses that are not specifically tackled by econometric analysis. A key contribution of this perspective is the importance of the social, institutional and local context on the outcomes of PPP, which cannot be measured by econometric models. There is evidence that a number of PPP cases failed in the developing world because the proponents lacked understanding of the local context and readiness to implement this policy (Prasad 2006, p.683-684). PPP was deemed to have been undertaken abruptly with 'little prior analysis of market conditions, leading to the importation of inappropriate models and without ample deliberation on the sustainability of reforms' (Desai & Imrie 1998, p.638). Specifically, these flaws include poor contract design, corruption, donor pressure to privatise, failure of private operators to comply with the contract, abrupt currency fluctuations and controversy over drastic price increases (van de Walle 1989; Kikeri & Kolo 2005; Prasad 2006; Haarmeyer & Mody 1998). Most of the case studies suggest that tariffs increased under the privatised regime and higher tariffs increased inequality, considering the low-income elasticities that apply to water (Prasad 2006, p.675).

2.3 Significance of industry characteristics and context in implementing PPP

This thesis attempts to answer the main question as to why PPP failed to deliver the expected outcomes in infrastructure services. This section discusses the inherent economic

characteristics of water and sewerage services and the prevailing conditions in the developing world where most cases of PPP in water and sewerage services took place. This section explains that there seems to be a mismatch between these characteristics and the supporting theories of privatisation. These theories justified the objectives that policymakers aimed to achieve in adopting PPP as a policy reform strategy (Kay & Thompson 1986, p.19). According to these theories, PPP will flourish under competitive conditions. However, these theories face a challenging environment when applied under the monopolistic conditions that characterise public infrastructure services, such as water and sewerage services (Kettl 2010, p.244). Another issue confronting the application of these theories is the fact that developing countries, where most cases of water and sewerage PPP take place, lack liquid capital markets and strong legal systems that can protect property rights and allow PPP in infrastructure services to flourish (Parker & Kirkpatrick 2007, p.528).

2.3.1 Natural monopoly characteristics of water and sewerage services

The principal-agent theory justifies the delegation of infrastructure services to the private sector but in reality, it cannot guarantee improved services as goal incongruence and information asymmetry can create problems between the principal and agent (Brown & Potoski 2003, p.277). According to the public choice and property rights theories, PPP works well when there are no externalities and no public goods, the market is not monopolistic and there is no asymmetry of information (Megginson & Netter 2001, p.329). Competition can be challenging to achieve for water supply and wastewater in view of its inherent characteristics, as follows.

2.3.1.1 Limited number of suppliers

Water and sewerage services have been traditionally performed by the government and as such, the available suppliers are limited (Barnekov & Raffel 1990, p.148). The high capital needed in this service also inhibits competition as market fragmentation limits the economies of scale (Pérard 2009, p.197). Constructing infrastructure for water and wastewater services is generally capital intensive and has high sunk cost making it difficult to introduce competition in the sector (Prasad 2006, p.672). Thus, there can only be one water and wastewater services provider in a defined geographical supply area.

Competition can only be imposed during the procurement stage and managers cannot rely on a continuing process of competition in the market to secure cost savings (Bel & Warner 2008, p.1338). The competitive bidding is for the right to operate a monopoly service (Shirley & Walsh 2000, p.13). Once the contract is awarded, the service is a monopoly as

there are no other suppliers in the market competing with the winning bidder to provide water and sewerage services. This undermines the argument for cost savings under the public choice theory (Bel & Warner 2008, p.1342). The long-term nature of water concession contracts also creates monopoly with a single supplier in the market (Brown & Potoski 2003, p.277).

2.3.1.2 High barrier to entry and exit

Due to the high capital and operating costs required to operate the service, there is a high barrier to entry into and exit from the water and sewerage services sector, thus restricting competition in the sector. There is a high barrier to entry because the interested private provider would have to go through the rigors of a public bidding and contract negotiation process with the government (Price 2007; Hodge & Greve 2007). The public sector's main interest is public service while the private firm is motivated by profit, i.e., 'Money is the end of private business while money is a means in the public sector to achieve social outcome' (Moore 2000 as cited in Greve & Hodge 2010, p.158). Because of this goal incongruence, the government has to ensure that the bidding process is fair, above-board, rigid and thorough to ensure that only qualified suppliers participate in the process. The terms of the contract are clear and specific to protect the public interest (Gómez-Ibáñez et al. 2004, p.9).

Water and sewerage infrastructure have long, useful lives and the long term-duration of water concession contracts creates a barrier for firms to exit the sector. Water concession contracts usually span from 20 to 40 years due to high sunk costs in fixed infrastructure (Bel & Warner 2008; Prasad 2006). A long-term contract allows for affordable pricing for consumers while providing for stable and reasonable rates of return for the provider. Early contract termination is subject to stiff penalties (Haarmeyer & Mody 1998, p.21). In a monopolistic environment, there is a risk that the private sector may deliver the service at a lower quality to reduce costs and raise profits because the private sector is more prone to opportunism than mission-driven, such as non-profits and governments (Brown & Potoski 2003; Shirley & Walsh 2001).

2.3.1.3 Information asymmetry

Property rights theory emphasises the importance of regulating utility services to ensure that cost savings are due to efficiency and not quality erosion (Bel & Warner 2008, p.1342). To ensure that the supplier fulfils its duties and obligations under the contract, government has to monitor the performance of the supplier. In monitoring PPP contracts, the government has to rely on the information provided by the private sector on its

compliance to the terms of the contract (Brown & Potoski 2003, p.277). This creates information asymmetry, which is not a conducive condition for competition to flourish. With asymmetric information, the government cannot directly guarantee that the private sector is acting in the public's best interest, particularly when activities preferred by the principal are costly to the agent or where agents pursue activities that are deemed costly by the principal. An example would be a contract provision requiring the private firm to ensure that water supply services are provided to the poor at affordable rates, or when the private sector opts for a technology that is deemed expensive by the government that can raise tariffs.

The private sector also runs the risk of encountering information problem from the government. It is difficult for the private sector to ascertaining the quality of water and sewerage infrastructures during contract negotiation as these are buried underground. The actual condition will only be known during physical rehabilitation after the contract has been sealed. It is highly likely that the actual magnitude of costs involved is higher than they have originally estimated (Araral 2009, p.226).

2.3.1.4 High transaction costs

Because of the sector's inherent characteristics, private providers incur transaction costs that otherwise would not have been necessary in competitive markets. The private sector supplier has to interact with numerous government agencies at different levels and the more actors that the supplier has to interact with, the higher the transaction cost (Zhou & Peng 2010, p.358). The provider would have to go through the rigidities of competitive bidding, regulation, reporting and monitoring (Vincent-Jones 2000, p.343). Water supply and sewerage services impact on a number of sectors, such as health, environment, urban planning and utilities regulation, which are handled by different government agencies that the private supplier has to coordinate with.

Contract monitoring increases transaction costs, which conflicts with the cost savings claim of PPP as supported by the public choice theory. While the government no longer operates the public service, it still incurs costs in the regulation and monitoring of the contract (Brown & Potoski 2003, p.279). The private provider is subjected to regulation by the government because water and sewerage services are of paramount public interest (Bakker 2003; Rees 1998; Gómez-Ibáñez et al. 2004). The sector is affected by various externalities that impact on its production, such as health and environmental factors that expand government regulation beyond pricing alone (Prasad 2006, pp.672–673). The government sets specific terms and conditions in the contract to ensure that public health,

environmental and affordability concerns are complied with by the supplier. The provider is also required to prepare for contingencies as the water sector is vulnerable to climactic conditions and long-term storage options can be problematic, especially in times of drought (Prasad 2006, p.672).

Transaction costs can be lowered if governments can identify in the contract all the service obligations and outcomes expected from the private sector (Brown & Potoski 2003; Freeman 2000). Contractual specificity on the duties and responsibilities of the supplier can also protect the public against acts of opportunism (Freeman 2000, p.668), such as the level of water quality, number of water connections, among other things. However, it would be impossible to predict and address every possible complications that may arise for the duration of long-term contracts. It is for this reason that regulation of water quality is so tight and might explain why most cases of privatised water services failed to generate savings and instead saw increases in tariffs (Bel & Warner 2008:1342). Further problems are created if the monitoring system is ineffective and parties have to resort to a remediation process, which is an additional transaction cost (Vincent-Jones 2000; Jackson & Stainsby 2000; Williamson 1999).

2.3.2 Higher expectations on PPP in the developing world

Public choice theory, property rights and principal-agent theories were intended to support the government's objectives of improving firm efficiency and not to resolve macroeconomic issues. Developed economies adopted PPP in order to increase economic efficiency, with much emphasis placed on raising productivity and reducing costs of production at the enterprise-level (Parker & Kirkpatrick 2005, p.528). This was expected to improve the economic performance of underperforming industries and resolve the persistent problems of management and control (Kay & Thompson 1986, p.19). With mature capital markets, well-functioning legal system that protects private property rights and conventional standards of business behaviour, developed economies provide a setting conducive for PPP.

Implementing PPP in a capital market lacking in liquidity, operating within a weak regulatory and supervisory regime may not yield the same outcomes. A public sector having difficulties creating the right regulatory environment for public utilities is also likely to have trouble with private utilities (McGranahan & Satterthwaite 2006, p.8). PPP was seen as the 'magic bullet' that would solve the macroeconomic burden brought about by inefficient public enterprises, stimulate economic growth and alleviate poverty in the developing world

(Parker & Kirkpatrick 2005; P. Cook & Kirkpatrick 1995). PPP was advanced as a policy condition SAP, the agenda of which was broader than the efficiency and resource allocation objectives of the developed economies (Cook & Uchida 2003, p.122). In the developing world, the productivity of a state enterprise is typically two to three times lower than private firms and in some cases significantly lower (Kikeri & Kolo 2005, p.3). Government enterprises were a major contributor to fiscal imbalances and private investment capital was deemed the solution to finance the upgrade and improvement of public services. Transferring these functions to the private sector was expected to ease the financial burden of the government and free up some money to finance social services.

The problem with saddling PPP with broader and more ambitious objectives is that it is incompatible with the theoretical foundations of privatisation. Much of the developing world suffer from flaws in competition and regulatory capability, institutional capacity and public sector governance capacity, which do not provide a susceptible environment for private sector to flourish (Gómez-Ibáñez et al. 2004; Hall et al. 2005; Kwak et al. 2009). The effects of PPP in the provision of infrastructure services are greatest, ironically, in weak and corrupt government states but expectedly, regulation would be weak in these countries (Prasad 2006, p.686).

2.4 Network effects: integrating networks in the study of PPP

The existing literature analysing PPP outcomes analysed the economic and social effects of implementing this policy based on the actions of a single organisation, either the government or the private sector. While numerous studies have been conducted on how the 'amount' of public and private sector participation impacts on service delivery, the relationship between public and private sector organisations involved in service delivery has rarely been looked into (Van der Heijden 2011, p.368). Focus on organisational effectiveness is appropriate when outcomes can readily be attributed to the activities of individual organisations but not all problems can be solved by the actions of a single organisation.

The implementation of the PPP policy also created a network effect caused by new network features. PPP changed the composition and governance of public infrastructure services. The new PPP network is comprised of autonomous but interdependent public and private actors who have to work together towards a common goal of delivering a public service. The governance of privatised infrastructure services should be viewed as horizontal, relational and self-organising coordination networks where private and public actors resolve and negotiate problems and decisions jointly. Network governance theory is deemed to be the

appropriate analytical lens to understand these relationships. Network analysis is relevant to public management because there is an overdeveloped capacity for policy analysis and an underdeveloped capacity for administrative analysis and network analysis is seen to potentially to correct this disparity the balance (Milward & Provan 1998, p.388).

In establishing the argument that PPP creates network effect caused by new network features, the first subsection defines network and its relevance to this research. The second subsection identifies the different network features that impact on network management and outcomes identified in the network governance literature. The third subsection discusses the different network governance structures in public infrastructure services and explains how new policies can change the network structure and create new network goals. The fourth subsection discusses the network effect of PPP. The fifth subsection identifies the distinct set of network features created by PPP and how these features created barriers for effective policy implementation.

2.4.1 Definition of networks

The study of networks and network management has acquired considerable significance in policy implementation research (O'Toole 2000, p.279). A number of scholars have highlighted the networked character of policy implementation (cf. Osborne 2010a; Kettl 2010; McGuire & Agranoff 2007; Rhodes 2007; Bryson et al. 2006; Klijn & Koppenjan 2000; K. G. Provan & Milward 2001; Kickert et al. 1997; Bardach 1994; Benson 1975). Governance networks theories span at least 40 years built around the different research traditions of political science, organisational science and public administration (Klijn & Koppenjan 2012), social network analysis, political science and public administration/management (Berry et al. 2004). Under the public administration stream, it was further broken down into policy formation networks, governance networks and policy implementation networks (Kapucu et al. 2014). Each of the streams is concerned with different types of networks. The last two decades had seen a surge of interest on networks in the academic literature (Kapucu et al. 2014; Klijn & Koppenjan 2012; Berry et al. 2004; Provan et al. 2007).

The growing network literature, while it has provided understanding on networks, has also created confusion with the different definitions, terminologies and conceptual frameworks used. The study of networks has yet to arrive at a unified language with a concrete definition (Provan et al. 2007, p.480). One of the earliest definitions was formulated by Benson who viewed networks as 'a number of distinguishable organisations having a

significant amount of interaction with each other' and are 'connected with each other by a series of mutual resource dependencies and their relationship may be direct or indirect, consensual or competitive' (Benson 1975, p.230). Brass et.al. (2004) broadly defines network as a 'set of nodes and the set of ties representing some relationship, or lack of relationship between nodes'. These definitions emphasise the interactions and relationships among the different actors who have to work together.

Some have defined network as a governance structure or an organisation form. Networks are 'structures of interdependence that exhibit both formal and informal linkages and include exchange or reciprocal relationships, common interests, and bonds of shared beliefs and professional perspective' (Frederickson 1999, pp.704-705, as cited in O'Flynn, Blackman, et al. 2013, p.26). Network is the governance structure that acts as a vehicle for the generation and distribution of public knowledge among stakeholders, which informs rational decision making on the reform and management of operations (Lobina & Hall 2008, p.85). In public administration, networks refer to the interorganisational collaboration arrangements or new governance structures where a common goal cannot be accomplished by a single organisation (Kapucu et al. 2014; Agranoff & McGuire 2001; O'Toole 1997).

There are those who viewed networks on the basis of a common objective or goal to be achieved. Rhodes (1995, p. 9) described network as the interdependence of several actors who need to exchange resources (money, information, expertise) to achieve their objectives. Network has been defined as 'groups of three or more legally autonomous organisations that work together to achieve not only their own goals but also a collective goal' (Provan & Kenis 2007, p.231). Network also refers to 'initiatives deliberately undertaken by government to accomplish public goals, with measurable performance goals, assigned responsibilities to each partner, and structured information flow...to produce the maximum possible public value, greater than the sum of what each lone player could accomplish without collaboration' (Goldsmith & Eggers 2004, p.8).

Sorensen and Torfing (2005) proposed a more exhaustive description of governance network that captures most of the elements identified by other authors. They defined networks as '(1) a relatively stable horizontal articulation of interdependent but operationally autonomous actors (2) who interact through negotiations (3) that take place in regulative, normative, cognitive and imaginary framework (4) which to a certain extent is self-regulating and (5) contributes to the production of public purpose within or across particular policy areas'(Sorensen & Torfing 2005, p.203).

In addition to the proliferation of network definitions, the concept has also been synonymously linked to different terminologies, such as social interaction (of individuals acting on behalf of their organisations), relationships, connectedness, collaboration, collective action, trust, cooperation, joint ventures, consolidations, networks, partnerships, coalitions, alliances, consortiums, associations, conglomerates, councils, task forces and groups (Gajda 2004; Provan et al. 2007; O'Flynn, Blackman, et al. 2013; Donahue & Zeckhauser 2011). There is also an extensive literature on networks as a form of crossing boundaries (O'Flynn, Blackman, et al. 2013) and collaboration (Bardach 1994; Gray 1985; Gajda 2004; Bronstein 2003; Cross et al. 2009). Adding to these growing network concepts, Klijn and Koppenjan (2012, p.594) observed that the concept of network has also been increasingly linked to the concept of governance. Where it used to be referred to as policy networks and network management, we now speak of governance networks and network governance.

This research does not attempt to formulate a comprehensive and unifying definition of interorganisational network. Notwithstanding the variety of network definitions, what is consistent in all these is interorganisational relationships and collaboration to achieve a shared or common goal (Provan et al. 2007; Kapucu et al. 2014). This thesis focuses on interorganisational networks as a governance structure formed as a result of implementing a policy designed to achieve specific objectives that serve as a common goal for the network.

2.4.2 Network features of governance structures

Network features have been identified to measure network success or effectiveness (Kickert et al. 1997; Provan & Kenis 2007) or conversely identified as challenges to a program's success or failure (Goldsmith & Eggers 2004, p.40). These features are also referred to as 'clusters of enablers' that impact on successful interorganisational collaboration and if not cultivated properly, can also serve as barriers for effective interorganisational collaboration (O'Flynn, Blackman, et al. 2013, p.29). O'Flynn's book, *Crossing Boundaries in Public Management and Policy: The International Experience*, is significant as it has compiled various case studies on cross boundary or interorganisational collaboration from different countries with different political and administrative traditions. From these different case studies, the most critical network factors were distilled, which included formal structure, commonality and complexity, people, culture and leadership, power and politics, performance, accountability and budgets, and boundary objects. These

factors are context-specific, some more dominant in certain settings but not others and are often in bundles (O'Flynn, Halligan, et al. 2013, pp.299–300).

The purpose of these features is to understand how these contribute to or hinder network success. However, analysing network success creates confusion as it is unclear if the success being measured is collaboration or accomplishment of network goals. Success is defined as the realisation of collective action in order to attain formal policy goals or avert common threats (Kickert et al. 1997, p.7). This definition of network success requires that network actors agree on the policy goal as the network goal. However, agreeing on a network goal does not automatically result to accomplishment of network goals and vice-versa. Network actors may agree on the network goal but may have a poor working relationship. Conversely, they may agree on the role of each actor in the network and have a high degree of work coordination but may have a poor opinion of each agency's contribution to the network (Lupton et al. 2001, p.16). A network can achieve its goals even without the cooperation of all actors but only of one or few actors. Also, organisations may have agreed to join the network just because they are legally obliged to do so but may not agree on its purpose. The topic of network effectiveness has been one of the most controversial subjects in the literature and deemed inconclusive so much so that some scholars have suggested that discussions on the matter should be halted altogether (Kenis & Provan 2009, p.441)

On the other hand, Benson (1975) and Bryson, Crosby and Stone (2006) have characterised network features as measures to understand the relationships and dynamics in the network. Rather than use these features to gauge a network's success or failure, these features are used to understand the environment where the network operates, which can impact on the nature and quality of relationships or network interactions and how these interactions impact on the outcome. The study of interorganisational network as a fundamental unit of analysis in the study of advanced industrial societies was pioneered by J. Kenneth Benson (1975) in his ground breaking work *The Interorganisational Network as Political Economy*. In this seminal work, Benson (1975) noted that much of the research has been devoted to different elements, components and levels when in fact, interorganisational relations is a complex, variegated, multilevel phenomenon that should be studied as a whole and not in parts (Benson 1975, pp.229–230). He posited that interorganisational network is a political economy concerned with the distribution of two scarce resources, money and authority. The network is linked to a larger environment consisting of legislative authorities, bureaus and public and that the flow of resources in to

the network depends upon the development in this larger environment (Benson 1975, p.229). Table 2.1 lists some of the different sets of network features in the literature.

Some network theorists deemed that a combination of different network features form a network typology (Van Waarden 1992; O'Flynn, Blackman, et al. 2013). Network typologies provide insights on the functioning of networks to understand why networks produce certain outcomes, regardless of whether networks are formed by bottom-up processes or strategic decisions by one or few network actors (Provan & Kenis 2007, p.233). Table 2.2 enumerates some of the network typologies in the literature. Provan and Kenis' (2007, p. 237) network typologies are based on four key structural and relational contingencies: trust, number of participants, goal consensus and the nature of the task. The typologies presented by Bardach (1994) are based on factors that will measure the capacity of the network to organise working relationships and the capacity to transmit information efficiently. Abramson, Breul and Kamensky's (2006) network typologies are similar to Bardach's (1994) which are function-based (O'Flynn, Blackman, et al. 2013, p.26).

Table 2.1 Network features

Concepts to analyse interorganisational networks (Benson, 1975)	Conditions facilitating interorganisational collaboration (Gray,1985)	Factors for potential network success (Kickert, Klijn & Koppenjan, 1997)	Analysis of uncertainties in dealing with complex problems in networks (Klijn & Koppenjan, 2000)	Challenges of the network model (Goldsmith & Eggers, 2004)
Patterns of interactions: Domain consensus Ideological consensus Positive evaluation Work coordination	Problem-setting: Recognition of interdependence Identification of requisite number of stakeholders Perceptions of legitimacy among stakeholders Positive beliefs about outcomes Shared access outcome	Political and social context	Cognitive factors: Divergent perceptions/ joint image building Cognitive fixations/ variety of content Asymmetrical debates/ substantive cross-overs Advocative versus joint analysis	Goal congruence
		Diversity within networks		Contorted oversight
		Closed nature of networks		Communications meltdown
		Leadership and commitment power		Coordinating multiple partners
				Data deficits and benchmarks
Processes influencing participants' behaviour: Key service delivery objectives Public legitimacy and support for service agenda Technological-ideological commitment to organisation's paradigm	Direction-setting: Coincidence of values Dispersion of power among stakeholders	Costs of network management	Social factors: (Lack of) interactions Coupled arena/fragmentation Strategies and game types Integrative solutions	Capacity shortages
		Number of actors		Relationship stability
		Conflict of interests		
		Skills	Institutional factors: Presence of joint orientation, rules, language and trust	
	Structuring: High degree of ongoing interdependence External mandates Redistribution of power Influencing the contextual environment		Management of Content, Processes, Institutions	
			External developments Developments in the environment which lead to changing perceptions, changing power relations, or changing institutional structures	

Table 2.1 Network features

Framework for understanding cross-sector collaboration (Bryson & Crosby, 2006)	Key predictors of effectiveness of network governance forms (Provan and Kenis, 2007)	Clusters of enablers for successful working across boundaries (O'Flynn, 2013)
Initial conditions (environmental factors, sector failure, direct antecedents of collaboration formation)	Trust	Formal structures
Process components (Forging initial agreement, building leadership, trust & legitimacy, managing conflict, planning)	Number of Participants	Commonality and complexity
Structure and Governance (Planning, structure in context, structural configuration, governance)	Goal Consensus	People, culture and leadership;
Contingencies and constraints affecting process structure and governance (collaboration type, power imbalance, competing institutional logics)	Need for Network-level Competency	Power and politics;
Outcomes (public value; 1 st , 2 nd & 3 rd order effects; and resilience & reassessment		Performance, accountability and budgets;
Accountability		Boundary objects.

Table 2.2 Network typologies

Provan and Kenis (2007)	Abramson, Breul and Kamensky (2006)	Bardach (1994)	Van Waarden (1992)
Shared participant-governed networks	Service implementation networks, which are intergovernmental programs	Provider network, which performs a mix of services such as advocacy that is directed towards outsiders;	Statism, Pantouflage
			Captured Statism
			Clientilism
			Pressure Pluralism
			Sectoral corporatism
Lead-organisation-governed networks	Information diffusion networks, which are networks for sharing information across boundaries	Contributors network, which links individuals and agencies that are in a position to provide financial and political contributions of various kinds to operate in new domains to make a collaborations effective	Macro corporatism
			State corporatism
			Sponsored pluralism
			Parental relations
			Iron triangles
Network administrative networks	Problem solving networks, which set agendas related to important policy areas	Reputation network, which facilitate the workings of both the provider and the contributions network	Issue networks
	Community capacity-building networks, built to develop social capital to enable communities to better address a range of problems	Constitution-building network, which combines planning, external political advocacy, and internal negotiating functions.	

Van Waarden's (1992) inventory of the literature on network typology yielded 11 types, which are characterised by seven network factors with each factor explained by several variables. However, he finds this discourse to be 'obscure and confused' as most typologies are 'crude labels' that create misunderstanding as authors have different opinions based on different definitions adopted. The problem with adhering to typologies in network analysis is that the factors constituting each typology are numerous that makes it challenging to get a clear idea on the difference of each type of network (Van Waarden 1992, p.49).

While preconditions to understand network interactions are plentiful in the literature, such as network features and typologies, empirical studies on network governance are scarce (Klijn & Koppenjan 2012; Provan et al. 2007; Jackson & Stainsby 2000). The first decade of the 21st century saw a rise in studies on networks as a central concept. Koppenjan and Klijn's (2012, p.593) review of the governance network theory's history and future prospects reveal a growing number of comparative studies in Western countries, such as the US (Mandell, 2001; Agranoff and McGuire, 2003; Huang and Provan, 2007), the Scandinavian countries (Sørensen and Torfing, 2007), the UK (Sullivan and Skelcher,

2002), the Netherlands (Koppenjan and Klijn, 2004; Edelenbos and Klijn, 2006), Italy, Belgium and Germany (Klijn et al, 2010a).

As illuminating as these case studies were, it is noted that these are limited to the developed world. Empirical research within the developing world context is wanting. Peng and Qi Zhou's (2005) *How Network Strategies and Institutional Transitions Evolve in Asia* ventured into the uncharted territory of theorising on network beyond the western borders. This article contributes to the literature on network governance by going beyond the discussion on network components that is prevalent in the network literature and delving into the importance of institutional transitions on networks in emerging economies in Asia. Peng and Zhou identifies a realistic and intermediate phase between the early and late phases of institutional transitions (Peng & Zhou 2005, p.322). In the early phase when formal rules of market systems are not well entrenched, firms' strategic choices will be network-centred, heavily relying on the strong personal ties. However, the relative benefits and costs of network strategies will shift with the development of market-oriented institutional frameworks. At the later stage, as more mature formal rules are established in place, a gradual shift is expected where transactions will eventually be impersonal and rule-based consequently, firms' strategic choices will shift toward more market-centred strategies (Peng & Zhou, 2005). Peng and Zhou (2005) suggest that the strength or weakness of network ties during institutional transitions will impact on the effectivity of network strategies. Business networks in Asia differ in strength and content, and their evolution is driven by the impact of different dimensions of institutional transitions. Peng and Zhou's framework is consistent with Benson's (1975) caution on studying networks, i.e., that it should be studied in whole and not in parts and that the network is linked to a larger environment consisting of different institutions.

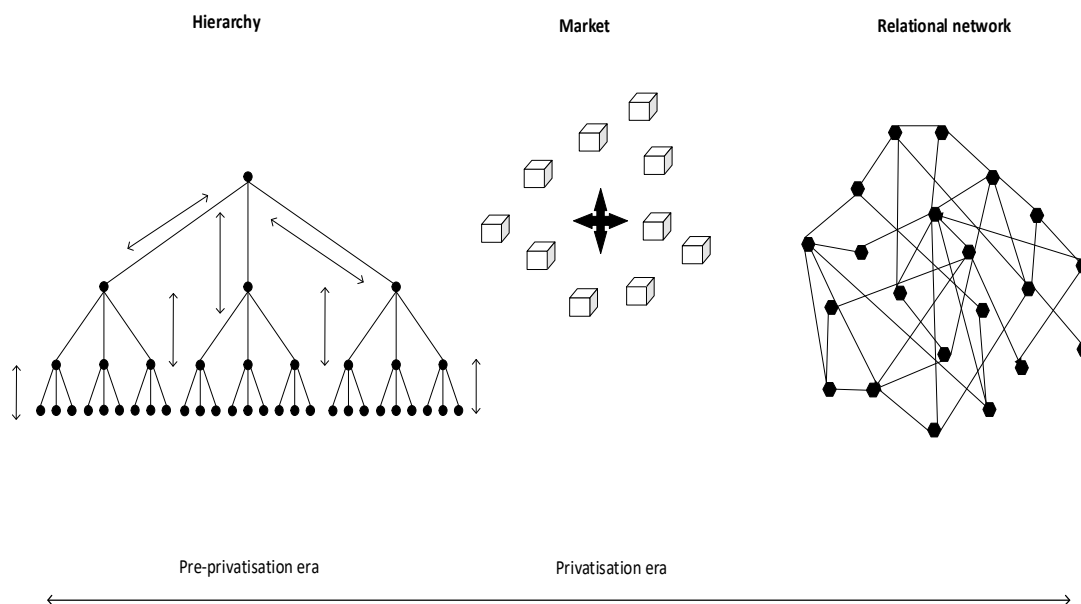
While the importance of network-level studies has been recognised, Provan's (2007) review of existing empirical studies on interorganisational networks found that little research has been done on network-level outcomes. In Kapucu, Hu and Khosa's (2014, p.24) content analysis of 81 network articles, they observed that most network studies focused on the organisation or agency as a unit of analysis. Kapucu, Hu and Khosa recommend that more research on the substructures of networks and multilevel network research is needed to understand the network content and context. An analysis of the whole network, not just a single organisation, can provide a deeper insight on the interpersonal relationships or interactions between and among actors in the network and how such dynamic relationships impact on the policymaking, policy implementation or governance processes (Kapucu et al. 2014, p.23-24). The literature is still wanting on interest in network-level outcomes and

while there is growing interest on network-level studies, these has primarily been conceptual, anecdotal or based on single, descriptive case studies performed at one point in time (Provan et al. 2007, p.485).

2.4.3 Network governance in public infrastructure services

Networks have been offered as an alternative to the traditional hierarchical and market forms of governance for implementing policies and providing services (Kenis & Provan 2009; Provan et al. 2007; Hudson 2004). However, the common themes of interdependence, numerous organisations working together and goal congruence among network definitions indicate that public services have been delivered under different governance network structures. These definitions effectively describe hierarchies and markets as forms of networks governance structure. The change from one structure to another is brought about by the introduction of a new policy. With a new policy, a network goes into transition which can result to functional changes such as new actors, new resources and new network goal (Li et al. 2017).

Prior to PPP, public services were governed by hierarchical networks that were comprised of purely public actors. The concept of network emerged in the post-war period where the increase in scope, sectoralisation, decentralisation and fragmentation in public services after the war has expanded the number of public actors involved in public service delivery (Kenis & Schneider 1991; Adam & Kriesi 2007). Market-like networks replaced hierarchical networks with the adoption of the PPP policy in the 1990s to early 2000 when governments deemed that state-owned infrastructure services were no longer effective in serving the public need. PPP envisioned a governance network that is purely private in nature where market forces are expected to improve public services. In a market-like network, actors interact at arms-length, there is perfect competition and the market produces the best outcomes for the consumer (Barnekov & Raffel 1990; Brubaker 2003). In reality, however, PPP has created a network governance structure of public and non-public actors that is relational in nature. Figure 2.1 shows the different governing networks in the pre-PPP and the PPP era.

Figure 2.1 Governance structures in public service delivery

2.4.3.1 Hierarchical networks

Public services were governed by hierarchical networks, which were vertically organised hierarchical structures composed of a number of public actors (Adam & Kriesi 2007; Osborne 2010a). This structure is similar to 'closed village communities' held together by mutual trust, confidence, common calculations and specific 'climates' (Kenis & Schneider 1991, p.29). In a hierarchical structure, the government is assumed to be a social welfare-maximising government. Public interest is politically defined and expressed in law and public services are performed by a number of public organisations. The government is the direct provider of public services through a centralised, top-down control bureaucracy (Denhardt & Denhardt 2000, pp.551–552). The government itself carries out the orders within its hierarchy. Public managers implement the policies determined by those at the top of the hierarchy, who are usually elected politicians and appointed officials (Hjern & Porter 1981, p.218). Administrators exercise limited discretion and are accountable to elected and appointed political leaders. Politicians, in turn, are accountable to the voters. Politicians are expected to formulate and implement policies that best represent the interests of the citizenry. In return, voters reward them by keeping them in office.

As history has shown, however, governments have failed as providers of public services. Contrary to the assumption of social welfare-maximising government, politicians and bureaucrats behaved as rational players who maximised their own welfare and used government offices to advance their own interests (Shirley & Walsh 2000, p.28). With the

gamut of issues that the government has to address, an astute politician will prioritise the narration of success stories to voters. SOEs are susceptible to political intervention due to lack of transparency. SOEs are usually attached to a department or ministry and its managers are directly appointed by the minister or chief executive, which can be used by politicians as success stories. Votes do not necessarily translate to a demand for more efficient public services as the average voter may not be or not made aware of the performance of SOEs (Shirley & Walsh 2000, p.24).

2.4.3.2 Market-like networks

Following the oil crisis in the early 1970s, there was a growing disillusionment with government performance by the late 1970s and 1980s in the developed world (Kickert et al. 1997, p.1). The bureaucratic, hierarchical and control-driven mode of the public administration tradition had been criticised for its excessive rules, rigid budgeting and personnel systems that ignores citizens' needs and shuns innovation (Denhardt & Denhardt 2000, p.551). The failure of the hierarchical governance structure to efficiently and effectively deliver public services paved the way for the birth of New Public Management (NPM) in the early 1990s. The NPM approach to running public service organisations was framed from neoclassical economics, particularly the public choice theory. NPM encouraged public managers 'to steer rather than row,' i.e., government should establish an entrepreneurial government that ensures that public services are provided rather than delivering services itself (Denhardt & Denhardt 2000, p.550). Policy making and policy implementation were treated separately and actors pursue their own strategies.

As governments have proven to be ineffective in delivering public services, the efficiency of the private sector was expected to turn around inefficient SOEs (Shirley & Walsh 2000; Bryson et al. 2006; Price 2007). PPP is one of the strategies under NPM. PPP addresses the problem of lack of transparency under a hierarchical network through the establishment of 'clear and simple selection criteria for evaluating bids, clearly defined competitive procedures, disclosure of purchase price and buyer, well defined institutional responsibilities and adequate monitoring and supervision of the program' (Kikeri, Nellis, and Shirley 1992 as cited Hodge & Coghill 2007, p.683). Government functions that can be more efficiently performed by the private sector were privatised. The policy objectives of PPP assumed that the superiority of the private market alone is enough to improve public service delivery. The introduction of superior private management efficiency and market mechanisms were expected to transform public services organisations into efficient and effective organisations (Megginson & Netter, 2001 as cited Pérard 2009, p.197). PPP has been viewed as abandonment of the government of its public responsibilities and the

failure or success of the privatised infrastructure service has become the sole responsibility of the private firm.

From vertical networks, PPP has changed the governance structure of public services into horizontally-organised market structures (Adam & Kriesi 2007, p. 130) where the state is a disaggregated entity within a principal-agent context (Osborne 2010b, p.8). Government itself is run like a business and government units are in competition with non-profit and for-profit sectors to 'loosen the inefficient monopoly franchise of public agencies and public employees' (Denhardt & Denhardt 2000, p.551). Whereas public interest is defined by law and public services are performed by the government under a hierarchical market, public services under a market-like network are performed by the private sector whose obligations are defined under a contract. Market-like networks view the public and private sectors as independent entities. The state takes on the role of regulator and the private sector delivers the public service. The performance of the private sector is measured based on its intraorganisational processes and management to produce the public service in the most efficient and economical way (Osborne 2010, p.8).

2.4.3.3 Relational networks

Contrary to the notion under market-like networks that public and private actors are independent, PPP transformed the governance structure of public services into a relational network where public and private actors work together. The focus of NPM on the contributions of individual organisations deflected attention on the impact of interorganisational collaboration in public management (O'Flynn et al. 2013, p.17). Unlike hierarchical networks, relational networks are autonomous and self-governing and resist government steering (Adam & Kriesi 2007, p.130). There is now an increasing number and wide variety of autonomous public and private actors involved in policy making and policy implementation whose relationships are interdependent and non-hierarchical (Adam & Kriesi 2007; Kenis & Schneider 1991; Herranz 2006; Provan & Milward 1991; Van Gils & Klijn 2007).

While PPP has made the private sector the direct provider of public services, the private sector still has to work with a number of public organisations as service provider. PPP has created a relationship between the public and private sector that is characterised by 'long-term social exchange, mutual trust, interpersonal attachment, commitment to specific partners, altruism and cooperative problem-solving' (Davis 2007, p.386). Relationality is created in PPP because contracts for privatised public infrastructure services are a result of rigorous negotiation between legally equal and autonomous parties (Ring & Van de Ven

1992, p.487). These contracts usually involve long-term and highly specific investment that cover a continuum of operations, including financing, design and development, operation and ownership that span from 20 to 40 years (Ring & Van de Ven 1992; Hodge & Greve 2007). Contract is the device that facilitates exchange between parties, creates rights and duties that have legal force and sets legal sanction in case of failure to comply (Vincent-Jones 2000, p.320). The extent, coverage, and duration of these contracts make it imperative for parties to commit to the contract and trust that each party will comply with its terms over the contract duration.

Contracts are not self-implementing but require the commitment of parties to make it effective. In this contractual relationship, the 'responsibility for service provision is dispersed among competing private, voluntary, and public providers, while responsibilities for policy making and purchasing are retained within the state sector, with purchaser-provider relationships taking a variety of contractual, partnership and mixed ownership forms' (Vincent-Jones 2000, p.319). While the contract dictates that parties be cooperative with each other, it is inevitable that the relationship can be conflictual at times. These actors come from different organisations, each having its own goals and objectives to fulfil, and as such, each may have different strategies to achieve their goals, which may conflict with one another (Adam & Kriesi 2007; Van Gils & Klijn 2007).

2.4.4 Network effect of PPP

The network effect of PPP refers to outcomes that are caused by the emergence of network features created by PPP. The network effect of PPP are created by the new network features created as a result of public and private actors that perform different roles who need to collaborate in delivery of a public infrastructure service. The performance of PPP has been evaluated using a single organisation as a unit of analysis. The theoretical and practical issues of policy implementation, such as PPP, go beyond the boundaries of a single organisation (O'Toole 2000, p.266). Stoker (1989, p.44) argues that policy implementation should be seen as a problem of governance wherein cooperation between independent authorities must be induced. For a more holistic understanding of policy implementation, it should be acknowledged that policy action entails the involvement of multiple institutional actors (O'Toole 2000, p.266). As a report by Sweden's Statskontoret (2007) argued, 'Modern ("new") public management is much focused on the contributions of individual organisations, which makes it difficult to handle collaboration and complexity' (Statskontoret, 2007:27-28 as cited in O'Flynn 2013, p.17). The network effect of PPP has been overlooked in the current literature on privatisation, which largely examines the

economic and social effects (Figure 2.2). This thesis does not undermine these studies but seeks to supplement the literature by examining the network effect of PPP.

Figure 2.2 Understanding the performance of public infrastructure privatisation

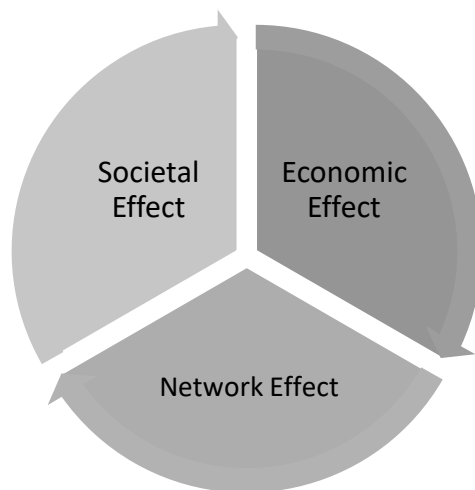
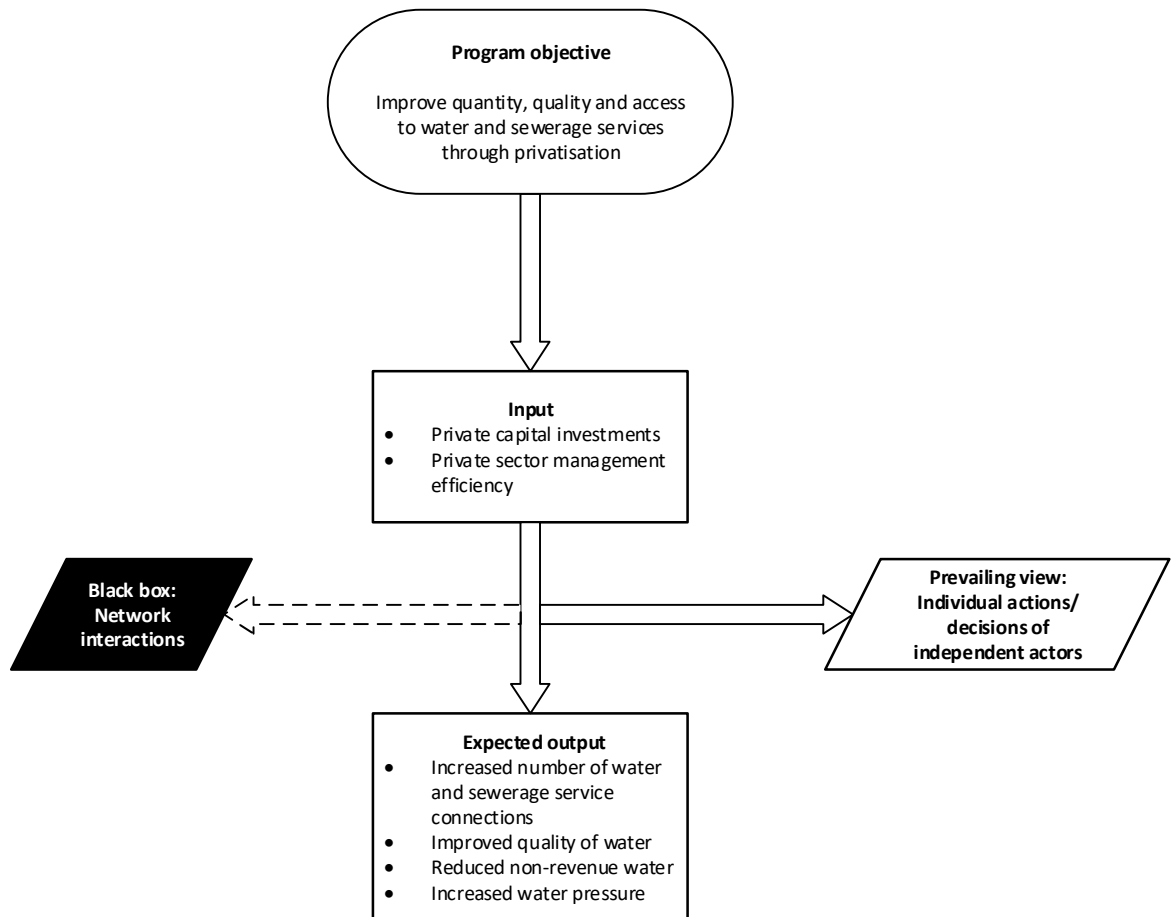


Figure 2.3 shows the prevailing analytical framework on PPP outcomes. The black box in this framework is that evaluation of policy implementation should examine the interactions among the numerous actors in the network. The traditional methods of dealing with problems is no longer sufficient in addressing the wicked issues that confront relational networks (Koppenjan & Klijn 2004; Van Bueren et al. 2003; Bryson et al. 2006). Where service delivery outcomes depend on the coordinated and concerted actions of multiple organisations, it is more appropriate and comprehensive to examine network-level activities and structure. There is a need for an evaluation criteria that will address inter-subjectivity and exclusion in the network, i.e., the diverging interests and shifting objectives of the various actors in the network and that there may be interests that may be overlooked (Klijn & Koppenjan 2006; Provan & Kenis 2007; Klijn et al. 2010).

The challenge of network-level analysis is the complexity of interactions in the network. Networks traverse different layers of government and link government actors with private and semi-private actors thereby creating multi-actor interaction processes with regard to problem solving. As a result, public service delivery becomes erratic as they are developed in non-linear and sequential phases (Klijn & Koppenjan 2012, p.592). Interagency collaboration is convoluted that makes the task of evaluating network interactions particularly challenging (Cross et al. 2009, p.311). Adding to this challenge is the fact that network-level theories examine behaviours, processes and structure, which are measured based on the concepts designed by organisation-level researchers to explain the network

as a whole (Provan et al. 2007, p.484). The network features to analyse network-level activities presented in Table 2.1 are just a few of the network dimensions but the literature abounds.

Figure 2.3 Analytical framework on PPP outcomes



2.4.5 The network features that may determine the network effects

Benson's observation four decades ago that discussion on interorganisational network is still plagued with conceptual confusion and overlap remains true to this day. Different authors use 'similar labels to describe different phenomena or different labels used for similar phenomena' and the difference in definitions may merely reflect differences in opinions (Van Waarden 1992, p.49). With the abundance of criteria to evaluate network interactions and effectiveness, it will be foolhardy to adjudge one set of criteria better than another as each network possesses distinct characteristics as result of exogenous conditions and the larger environment where it operates (Kenis & Provan 2009; Benson 1975). Klijn and Koppenjan (2012) foresee that such diversity may lead to a more specialised and differentiated governance network theory. Networks exist in different

sectors and confront different issues, and the diverse and generic concepts and assumptions of governance network theory will be applied with other theories and specific questions (Klijn & Koppenjan 2012, p.601).

One subject that can benefit from the specialised network study is PPP. Currently, there is limited scholarship analysing PPP with reference to the literature on network governance (Velotti et al. 2012; Greve & Hodge 2010; Hodge & Coghill 2007). PPP has exhibited certain network features that altered the rules of infrastructure service delivery and allocated new roles among the state, the market and civil society (Prasad 2006, p.672). This network features created by PPP are (1) resource interdependence between the private and public sector, (2) challenge of achieving goal congruence in a multi-stakeholder setting and (3) unclear management roles.

2.5.1 Resource interdependence between the public and private sectors

Most network researchers agree that interdependency is the core factor that initiates and sustains networks (Klijn & Koppenjan 2012, p.591). PPP created resource interdependence between the public and private sector. This policy reform was motivated by shortage or lack of resource on the part of the government, i.e., financial and technical capacity to deliver infrastructure services that the private sector possesses. The private sector, in turn, needs the cooperation of the government as implementing infrastructure services is regulated by the government. The delivery of public infrastructure services is no longer a function of a single or homogeneous organisation but a network of public and private organisations that have to work together because of resource interdependence. PPP created a contractual relationship between the government and the private sector provider but not in the tradition of principal-agent where one party is subordinate to another; instead, decision making authority is shared and negotiated.

Resource interdependence is a precursor to cooperation. Different organisations have jurisdiction over different resources necessary for public service delivery. An organisation will seek the cooperation of another organisation that controls the resource it needs to accomplish its own objectives (Johnson et al. 2003; Lundin 2006; Provan et al. 2007; Provan & Milward 1995). Actors find mutual grounds or joint solutions because they are forced by their mutual dependencies in the network (Van Gils & Klijn 2007, p.143). As actors depend on each other for resources, the network, not just the private sector, is altogether responsible in ensuring the delivery of the service to all customers. Each actor's resource is vital to public service delivery and each resource owner has a stake in decision making. Dependency, however, may not be mutual and when an actor finds itself in an

unreciprocated dependency, it may find itself in a weak position in the decision making process (Van Gils & Klijn 2007, p.143).

2.5.2 Challenge of achieving goal congruence in a multi-stakeholder setting

PPP created a common goal among the network of public and private actors, who have to ensure that each performs its obligations in the contract. However, the PPP network is comprised of public and private actors who have different goals, objectives and institutional culture. For diverse actors to be able to work effectively in the delivery of infrastructure services, they should cooperate. Cooperation entails understanding and defining problems together so they can jointly work towards the same goal. In order to work towards the same goal, actors have to agree on how resources will be allocated and what strategies to be taken to achieve the goal. Only when the actors in the network have a shared understanding of the problem can the network have goal consensus.

When there is general agreement on broad network-level goals, both regarding goal content and process, and in the absence of hierarchy, network participants are more likely to be involved and committed to the network and more likely to work together (Provan & Kenis 2007, p.240). Organisations join or form networks for a variety of reasons, including the need to gain legitimacy, serve clients more effectively, attract more resources and address complex problems. Notwithstanding organisational goals, all network organisations seek to fulfil some end that they cannot achieve independently. By setting out the objectives jointly, network actors can allocate the proper resources and identify the necessary coordinating activities (McGuire 2002, p.604). When all actors in the network agree on the purpose of the collaboration, the roles and responsibilities of each actor and the decision making authority, the network goal can be defined and agreed upon by the network members.

The absence of commitment among actors to a common purpose may be a reason for failure (Kickert et al. 1997, p.9). Alignment of goals is important in a network but achieving it is not so simple. Alignment of goals should mean congruence on outcomes but government networks are usually formed to deliver a type of service whose outcomes are sometimes unclear, are difficult to measure and may take years to realise. Further complication arises when organisational goals in the network simultaneously overlap and differ (Goldsmith & Eggers 2004, pp.40–41). As each network member has its own organisational goals and objectives, agreement on a common network vision and purpose can help clarify the stake or interest that an organisation has in resolving a problem and the level of interdependence needed to solve the problem (Bryson et al. 2006, p.46).

The network goal is usually defined in the contract. Relationships in privatised public infrastructure service is governed by a contract that span at 20 to 40 years, or longer, and involve highly specific investments that cover a continuum of operations, including financing, design and development, operation and ownership (Hodge & Greve 2007; Crocker & Masten 1996; Ring & Van de Ven 1992). Long term agreements are necessary to attract operators to infuse the large capital investments required to deliver the vital infrastructure service to the community (Crocker & Masten 1996, p.16). The governing contract is not just a legal document with obligational force supported by the legal system, judicial enforcement and dispute resolution procedures. It is also extra-legal in character due to the contractual relationship that emanates from within and outside the contract (Vincent-Jones 2000, p.320-322).

Due to the extent, coverage and duration of these contracts, it is difficult, even impossible, for the parties to fully specify, anticipate or control all undertakings that may arise during contract implementation (Ring & Van de Ven 1992; Hodge & Greve 2007). For example, the occurrence of unexpected natural calamities or advancement of technologies can prompt new legislation or policies that can be contrary or detrimental to the terms of the contract. Since the parties cannot possibly list all the potential risks in a long term contract, outcomes are uncertain (Hodge & Greve 2007, p.549). To counter potential risks, parties stipulate internal mechanisms in the contract in case conflicts arise to preserve the contractual relationship and ensure that contractual obligations are achieved (Ring & Van de Ven 1992, p.487). This contractual stipulation, which require the cooperation of others, can be a recurring source of risk in itself. The relationship itself creates obligations and the longer the relationship is, the more the relationship itself becomes a source of obligation (Vincent-Jones 2000, p.322).

2.5.3 Unclear management roles

PPP networks are brought together by resource interdependence to achieve a common goal but with autonomous organisations in the network, it is challenging to achieve goal congruence. It is important not only to create consensus between the representatives of organisations regarding a joint course of action but also to establish support for these ideas within the organisation. Creating network consensus greatly depends on the leadership qualities of the appointed network manager (Kickert et al. 1997, p.58). A network manager is necessary to bring organisations to work together but the proponents of PPP failed to consider the need for this feature in the policy design.

Managing interdependencies and monitoring relationships in the network can be difficult, costly and less desirable for the one in charge (Bel & Warner 2008, p.1343). The increase in the number of actors in the network has made it increasingly difficult to keep track of 'who is in charge' (McQuaid 2010, p.133). Accountability issues can arise because each actor may only take responsibility in fulfilling its own organisation's mandate and no single body assumes responsibility over the efficient and effective implementation of the overall policy (McQuaid 2010, p.135). The accountability challenge in a relational network is how to hold interorganisational systems and networks accountable for the delivery of public services (Osborne 2010a, p.422).

Some network theorists argue that the government is still the most logical choice to perform this role as it can ensure that the interests of unrepresented or underrepresented groups are safeguarded (E H Klijn & Koppenjan 2000; Kickert et al. 1997). As a network manager, the public manager must be able to 'initiate concerted action not only within their own organisations but among a set of stakeholders with different and competing interests' (O'Flynn 2007, p.362). The challenge for the government is how to effectively assume and reconcile its new multiple roles (Greve & Hodge 2010, p.154). The challenge of having the government as the network manager is that while it has been divested of its service provider role, it is still tasked to undertake multiple, different and sometimes conflicting roles. These roles include that of an advocate, planner, economic developer, steward of the public funds, elected representative for decision making, regulator over the contract life and commercial signatory to the contract (Hodge & Greve 2007, p.51).

One role that can conflict with its other public roles is contract management, which require a different skill set totally unlike that of a service provider. As contract managers, a public manager is tasked to negotiate the contract, oversee its implementation and evaluate the results. This role is not a principal-agent relationship where the government, as principals have control over managerial discretionary behaviour (Parker & Kirkpatrick 2005, p.528). From its previous role as a direct provider of public services where it failed, can we expect governments to fare better as contract manager? Coming from direct service provider role, the public manager is more often than not poorly prepared for contract management responsibilities (Kettl 2010, p.248). PPP only transfers the responsibility of delivering the public service but it does not remove government accountability over the results. For services that are of paramount public interest, the government maintains its regulatory function through standard-setting, performance monitoring and penalising poor or non-performance, when necessary (Barnekov & Raffel 1990, p.136).

2.5 Concluding remarks

Chapter 2 has reviewed the literature analysing PPP outcomes and there are two prevailing views from the literature that explain its effects, i.e., the economic and social effects, which are based on the objectives of government in the PPP policy. These objectives are supported by the theoretical foundations of PPP but these theories faced challenges when the needed competitive conditions for a free market were not met. These challenges are the tendency to form natural monopoly in the water and sewerage service sector, and the deficiency in competition and regulatory capability, institutional capacity and public sector governance capacity that usually plague governments in the developing world where most cases of privatised water and sewerage services took place.

More importantly, PPP introduced a new governance network structure in service delivery. In this chapter, I argued that the introduction of a new policy can alter the network landscape. PPP created a network effect wherein the outcomes is influenced by the network features created by PPP, which are resource interdependence between public and private actors, the challenge of achieving goal congruence in a multi-stakeholder setting and unclear management roles in the network. These network features were a result of the entry of the private sector in the domain of public infrastructure service delivery. This chapter reviewed the network governance literature to explain how PPP effected changes on the governance structure of infrastructure services and proposed for a network perspective in analysing this policy reform. The next chapter presents the analytical and methodological adopted to study the Metro Manila sewerage services network.

Chapter 3

Analysing the network effect of PPP

3.1 Introduction

This thesis argues that PPP failed to yield the expected outcomes in the Metro Manila sewerage services network because of the network features that can create negative network effects, which can hinder the network from fulfilling its intended outcomes. The network effect of PPP has been overlooked because the proponents of PPP assumed that, in transferring the service delivery functions to the private sector, this policy has completely divested the government of any responsibility over public infrastructure services. In reality, PPP is governed by relational networks comprised of public and private actors.

This chapter presents the analytical and methodological frameworks adopted to understand why PPP failed to fix the sewerage services in Metro Manila, Philippines. The second section discusses the decision making arenas as a starting point in analysing privatised infrastructure services. The third section explains how network features should be analysed and the fourth section describes how network features influence network effects. The fifth and sixth sections present the methods of data collection and data analysis, respectively, employed to study the case of the Metro Manila sewerage services network. The seventh section reflects on the ethical concerns and challenges encountered in pursuing this research.

3.2 Identifying decision making arenas in PPP networks

Existing studies on the performance of privatised water and sewerage services in the developing world focus on the organisation as the unit of analysis (cf. Parker & Kirkpatrick 2005; Kikeri & Kolo 2005; Cook & Uchida 2003; Megginson & Netter 2001; Shirley & Walsh 2000; Haarmeyer & Mody 1998; van de Walle 1989). These studies, which have explained the economic and social effects of PPP, provide a partial depiction and understanding of outcomes as these have not examined the network effects of PPP. Gone are the days when the government had monopoly on public service provision. No single organisation has a monopoly over all resources needed for a sewerage project as PPP is governed by a network comprised of public and private actors who are dependent on each other. Each actor has a stake in programme implementation and a role to play to its success or failure. An organisationally rooted analysis is not sufficient to understand PPP outcomes.

Mapping the PPP network starts with the identification of the arenas of decision making and the problems that arise in each arena. Networks are comprised of actors that come from different organisations that perform specialised roles, such as policy making, planning and intelligence, resource provision, intermediary and coordinating roles, service provision and evaluation (Hjern & Porter 1981, p.223). These roles are necessary to produce a public infrastructure service, and crucial decisions are made in these areas that impact on the service delivery outcomes. Identifying the decision making areas is based on the arena approach proffered by Klijn and Koppenjan (2004) and the domain-based, process-oriented approach by Gray (1985) in analysing interorganisational relations. The concept of arena is also similar to Hjern and Porter's (1981) implementation structures. Hjern and Porter (1981, p.211) suggest that an implementation structure is the appropriate unit of analysis when a policy or programme is implemented by a group of public and private organisations. The arena or domain is where mutually dependent actors define problems, formulate solutions and make crucial decisions that impact on network outcomes (Koppenjan & Klijn 2004; Provan & Milward 1991; Gray 1985). It is a multi-actor and multi-purpose setting where parties encounter strategic uncertainty due to the unpredictability and uncontrollability of the behaviour of other parties (Klijn & Koppenjan, 2000, p. 45). As relational transactions increasingly occur across sectors, borders, cultures and languages, there is a need to consider the specific contexts and the complex environmental conditions in which these transactions take place (Ring & Van de Ven 1992, p.496). These transactions take place in arenas or domains, and analysing relationships among actors within and among arenas in a network is crucial to identifying the gap between implementation and outcomes.

Network interactions are complex not only because of the numerous actors, resources and rules involved but also because network outcomes are often dependent on the interplay of numerous and, sometimes, simultaneous arenas (Figure 3.1) (Koppenjan & Klijn 2004, p.56). Coordination, cohesiveness and interrelatedness in different arenas vary according to the type of public service and the different stages of production in a specific public service. Network outcomes are a product of a series of decisions in various arenas over a period of time, as shown in Figure 3.2. Interorganisational relationships also vary both geographically and over time. Over different periods of time, there will be an assortment of triggering events and conflicting situations that necessitate a corresponding strategy or solution, which can either solve the problem or worsen it (Koppenjan & Klijn 2004, p.57).

Figure 3.1 Different sub-networks and arenas in networks

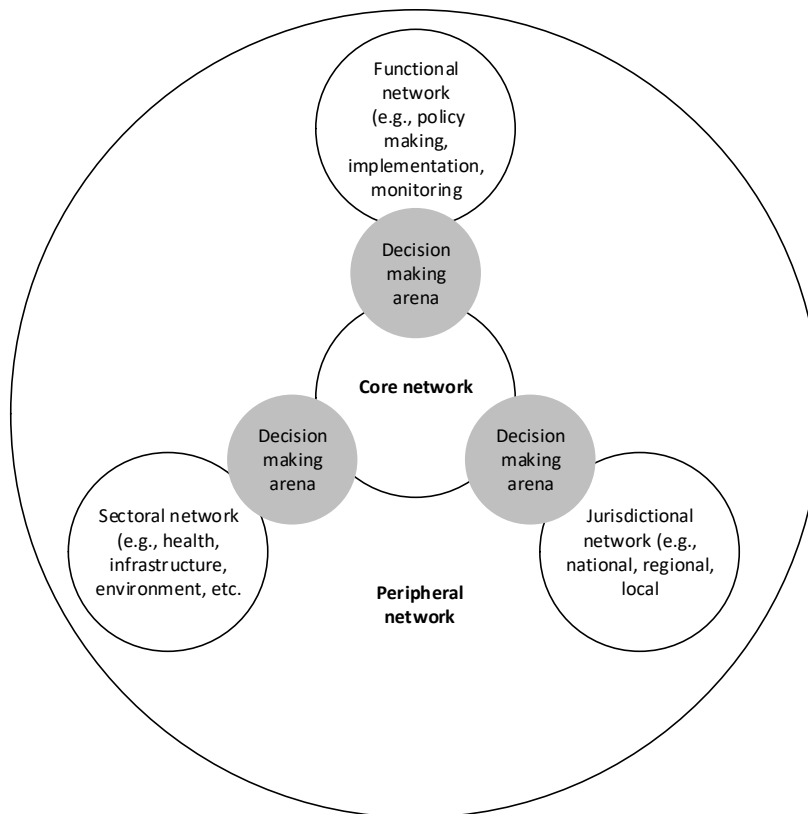
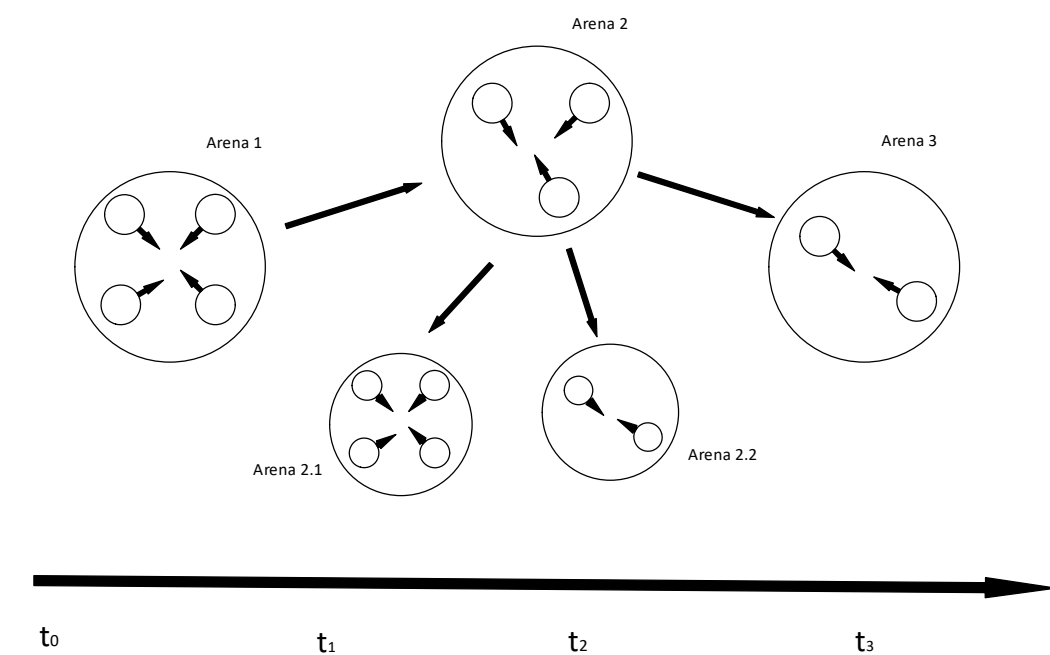


Figure 3.2 Series of decisions in over different periods in different arenas



Source: Koppenjan & Klijn 2004, p.57

The starting point for determining the arenas is to identify the vital arenas of decision making. In the Metro Manila sewerage services network, crucial decisions are made in three arenas: (1) the planning stage, which occurs during the tariff determination exercise, (2) the project implementation stage, which takes place in the STP construction arena and (3) the evaluation stage at the interagency monitoring arena. Each decision making arena will be examined in Chapters 5, 6 and 7, respectively.

After the areas of decision making are identified, the next step is to determine the complex issue that pervades the network. Given the number of actors and the different functions, roles and resources that each possess, there can be a number of relationship permutations in the network that can make network governance more complex (Goldsmith & Eggers 2004; Provan & Kenis 2007). These differences can give rise to problems. With numerous actors in the network representing their own organisational mandates, different actors will view the problem differently or define different problems altogether (E. H. Klijn & Koppenjan 2000, p.135). Koppenjan and Klijn (2004, pp.135-138) suggest two ways of identifying the network problem: (1) researcher takes the position of a stakeholder as the problem owner or initiator and gives it the status of initial problem identity or (2) researcher formulates its own idea of the problem on the basis of its own problem exploration.

Choosing one actor's perspective among a network of actors of diverging interests can create selection bias as it may seem to favour the interest of one actor over others. However, the selection bias can be neutralised by using the initial problem identification only as a working hypothesis to be validated by interviews with other actors in the network. The ex-post judgment of actors about the problem, process and the outcome will be assessed in combination with the evaluation criteria and external effects (E. H. Klijn & Koppenjan 2000, pp.149–150). This is an evaluation viewed in hindsight and the starting point of assessing policy process outcomes is based on the subjective judgments of individual actors.

I chose to formulate the research problem from the perspective of a stakeholder, i.e., the two private concessionaires of sewerage services in Metro Manila. It is important to identify the problem from the perspective of a specific actor because there are numerous actors in a network that may perceive problems differently thereby formulate different strategies to solve the problem. I adopted this perspective because the concessionaires, as the main implementers of sewerage projects in Metro Manila, have first-hand experience and comprehensive knowledge of the issues that plague the network. Among all actors in the network, the private concessionaires are the ones who are most immersed in all aspects of

sewerage activities: policy making, project implementation, monitoring and coordinating with all actors in the network. This perspective provides for a more accurate description and in-depth analysis compared to formulating the problem based on my own exploration. Moreover, the academic literature on the Metro Manila water concessions is curiously lacking analysis from the concessionaires' perspective.

3.3 Identify the network features in the arenas

After establishing the network problem, the next step is to identify the strategies undertaken by the parties concerned to address this issue as it relates to the three network features of PPP. The public and private sectors enter into a promise-centred contract that obliges parties to perform certain acts that are binding in nature (Macneil 1985, p.497). The contract creates resource interdependency and this interdependency is the basis of goal congruence among the actors (Koppenjan & Klijn 2004; Klijn et al. 2010; Hajer & Wagenaar 2003; Agranoff & McGuire 2003). This network is complex because it is comprised of a diverse set of autonomous actors that have to work together but may have conflicting perceptions on issues and solutions (Koppenjan & Klijn 2004; Klijn et al. 2010; Hajer & Wagenaar 2003). With numerous actors having to share resources towards a common goal, a network manager is needed to guide the network members to effectively work together.

3.3.1 Resource interdependence

The allocation of resources defines the quality of relationships among actors within the network (McGuire 2002, p.605). Resource interdependency within the network is measured by first identifying the resource needed and which actor controls this resource (Hjern & Porter 1981, p.222). Second is to measure the degree of dependency by determining the importance of the resource for the realisation of objectives and the substitutability of the resource, i.e., if the resource can be acquired from other actors (Koppenjan & Klijn 2004, p.47).

The different resources are financial resources, production resources, competency resources, knowledge resources and legitimacy resources (Koppenjan & Klijn 2004, p.144-145). Financial resources are deemed the most important resource to solve complex problems because they provide 'opportunities to realise solutions' as well as 'cover the (extra) organisational costs attached to complex decision making processes for complex problems' (Koppenjan & Klijn 2004, p.144). Production resources are the resources necessary for enabling policy initiatives, such as land for a public housing project or a new

technology to modernise a government procurement system, and the initiators can only acquire these resources through other actors (Koppenjan & Klijn 2004, p.144-145). Competency resources are the formal or juridical authority to make certain decisions that are usually vested with a public or semi-public organisation, such as the authority to issue permits for certain activities. Knowledge resources are necessary to develop solutions or investigate the nature of a problem and are usually embodied in documents. This can also be obtained from implicit or experiential knowledge, which is not easily transferable. The last type of resource is legitimacy, which is considered the vaguer resource but not the least important. This refers to the authority to give or withhold legitimacy to solve difficult problems, such as political bodies or elected officials whose support can ensure implementation of a policy or project, or the media or advocacy groups whose public pronouncements can influence public acceptability of a policy initiative (Koppenjan & Klijn 2004, p.144-145).

If the resource has low substitutability, the resource user is highly dependent on the resource owner, thereby increasing probability of cooperation among actors. On the other hand, if the resource has high substitutability, there is low dependence of the resource user on the resource owner, thereby reducing reasons to cooperate. The permutation also varies if there is one-way or mutual dependence. If there is mutual dependence, there is a higher degree of cooperation and if it is one-way, the resource owner can use this to wield power over the resource user. A power imbalance is created when organisations that do not have direct access to resources become dependent on and vulnerable to the actions of others in the network, thereby dictating the actors' positions in the network (Gray 1985, p.926). When actors find themselves in this situation, they will remedy the situation by taking actions based on the moral and social conventions and institutions surrounding them (Hjern & Porter 1981, p.221).

Resource dependence creates power interplay within the network, which can generate conflicting and uncertain situations in decision making. Some actors hold greater control over critical resources for solving problems than others (Gray 1985, p.926) but no single organisation can have control over all resources (Hjern & Porter 1981, p.214). The resource owner can use the resource either as a 'hindrance power' or 'realisation power' (Koppenjan & Klijn 2004, p.47). The resource is used as a realisation power when it is employed as a solution. Realisation power is rarely concentrated within one party but requires the cooperation of various parties to pool their resources towards joint problem solving. When the interests and perceptions of mutually dependent parties align, realising a solution is not that difficult. On the other hand, if the interests and perceptions of actors conflict with one

another, the resource can be used as a hindrance power. The resource owner can use the resource to leverage for a better position or to block actions that can threaten his own interests (Koppenjan & Klijn 2004, p.47).

3.3.2 Goal congruence

Conflicts arise in the network when network members have different aims and expectations and differing views on strategies and tactics on resolving this problem. With these differences, each actor makes decisions and takes actions that will protect its own interest (Bryson et al. 2006, p.48). To avoid conflict, it is important that actors, at the outset, agree on a common network vision and purpose that also incorporates the stake or interest of each member and the level of interdependence needed to solve the problem.

Even when the network goal is clearly defined in the contract, getting all network members to agree on the goal does not come automatically. Interorganisational collaboration requires the identification and mutual acknowledgment of the problem to allow the parties to negotiate issues of legitimacy and recognise the interdependencies that exist among themselves (Gray 1985, p.917). When network actors have a shared understanding of the problem that they need to address jointly, they can come to a consensus on the network goals. Formulating solutions is not difficult when the interests and perceptions of the parties are congruent. Breakthroughs occur when crucial decisions are made that serve to reformulate the problem, reconcile conflicting solutions or change the composition of the group involved. They can also pave way to a new round of interaction (Koppenjan & Klijn 2004, p.60).

In situations where problem solving requires cooperation, it is easy for a network actor to assume that other actors perceive the problem the same way it does (Koppenjan & Klijn 2004, p.31). However, organisations are primarily governed by their mandates, which can influence the way they interpret problems. Each actor in the network can have different frames of reference on the situation that needs to be resolved. Their ideas about facts, interests, norms and values are shaped by their previous experiences and perceptions. This may be a cause of misunderstanding and gaps and create a 'dialogue of the deaf' where parties talk past each other (Koppenjan & Klijn 2004, p.33). With numerous actors in the network, each representing their individual agency's mandate, numerous strategies may be formulated that may not be satisfactory for all parties and may result in an impasse. An impasse can either result in stagnation where actors are unwilling to participate further in

the process or a blockage where some parties veto the initiative altogether (Koppenjan & Klijn 2004, p.60).

Problem solving in the network is not just an intellectual design activity meant to address substantive uncertainties but, more importantly, it is altogether an exercise of cooperation to manage divergent perceptions (Koppenjan & Klijn 2004, p.50). This process is not hassle-free as parties can go through several rounds of impasses and breakthroughs in the course of the problem solving process. Problem solving occurs in arenas where mutually dependent actors jointly deliberate on problem definitions and solution (Figure 3.1). The complexity of decision making and the multiplicity of actors require investments in forming and maintaining relations (Agranoff & Mcguire 2003; Klijn et al. 2010). In maintaining relationships, parties establish social elements and relational norms and adopt process elements to safeguards a more durable, stable, long-term relationship (Zaheer & Venkatraman 1995, p.380; Ring & Van de Ven 1992; Klijn et al. 2010). These social elements and relational norms are network rules and trust, which can help regulate relationships among actors in the network.

Network rules can lend order to the complexity in the network. Rules provide the general procedure to guide the actions and regulate the behaviour of the actors in the network by prescribing the permitted actions, the activities to partake in and the quality of products or services produced in the network (Koppenjan & Klijn 2004, p.77). Network rules offer understanding into the institutional structure of the network and provide vital information on both the opportunities and limitations of actions in the network. Rules can be formal or informal. Formal rules are deliberately created like laws, jurisprudence and contracts, while informal rules are formulated during the course of interactions, such as verbal agreements or interviews (Koppenjan & Klijn 2004, p.75). In the course of implementing formal rules, actors interact and collaborate, which give rise to informal rules, such as personal relationships, psychological contracts, and informal understandings and commitments. Policies also develop when actors make their resources available to others (Koppenjan & Klijn 2004, p.143). However, for networks that are self-initiated and not created by law or contract, conformity to rules and procedures is purely voluntary, which gives network participants limited formal accountability to network-level goals (Provan & Kenis 2007, p.232). Organisational rules should be distinguished from network rules. Actors are primarily committed to their own organisational goals and are likely to adapt to the goals of the network if it will be beneficial to their own organisations (Bryson et al. 2006; Gray 1985; Hjern & Porter 1981; Kickert et al. 1997). A problem occurs when an organisation's own

mission and goals conflict with the overall network goals, and vice-versa (Goldsmith & Eggers 2004; Provan & Kenis 2007).

Trust among network actors enhances governance process outcomes (Zaheer & Venkatraman 1995; Klijn et al. 2010; Vincent-Jones 2000). The need for parties to work cooperatively over the contractual duration means that each must bank on the trustworthiness of other parties to observe the deal (Ring & Van de Ven 1992, p.488). Trust reduces risk because it creates stability and greater predictability in relational networks (Klijn et al. 2010; Koppenjan & Klijn 2004; Ring & Van de Ven 1992). When there is trust, parties negotiate and agree to address fairly the potential gaps that cannot be identified or predicted at the time of contract signing and comply to the contractual terms in the future (Ring & Van de Ven 1992; Zaheer & Venkatraman 1995). When there is trust, it is highly likely that actors will invest their resources, such as money, expertise, knowledge and so on, thereby creating a further basis for cooperation (Klijn et al. 2010, p.197). To achieve the desired outcomes, it is assumed that when the issue is more complex, trust is more important. The more strategies used and the more intensive these strategies are, the higher the level of trust (Klijn et al. 2010, p.199).

3.3.3 Network management

With multiple actors functioning under different interests, problem perceptions and strategies, it is challenging to get actors to agree on rules on resource allocation and a common network goal (Koppenjan & Klijn 2004, p.118). In this complex setting, a network leader is necessary to inspire goal congruence in the network, coordinate the strategies of actors and make hard decisions when needed. To solve complex problems, network leaders should be able to 'initiate concerted action not only within their own organisations but among a set of stakeholders with different and competing interests' (Broussine 20013 as cited in O'Flynn 2013, p.33).

Leaders need formal and informal authority, vision and long-term commitment to the collaboration, integrity, and relational and political skills to be effective. Formal leadership positions, such as committee chairperson or project director, attract a higher level of buy-in among the collaborating partners. Informal leadership positions need to be developed when the network does not have a centralised direction and network leadership is not clear-cut (Bryson et al. 2006, p.47). A network manager is faced with a big challenge when there is distrust among network partners caused by different cultures and values, which can reduce the efficacy of the network. Thus, a network manager must have a legitimate

authority to organise the network, be able to foster mutual exchange and be able to manage a multitude of different professional cultures to harness cooperation among network actors (Jackson & Stainsby 2000, p.15). It must also have a sense of timing, the ability to scan the environment and see the wisdom in appraising the consequences of future actions (Goldsmith & Eggers 2004, p.165).

There are two key leadership roles: sponsors and champions. Sponsors are not closely involved in the day-to-day collaborative work but have considerable prestige, authority and access to resources they can use to advance collaboration. Champions, on the other hand, are more focused on managing the collaboration and use process skills to achieve network goals (Bryson et al. 2006, p.47). The activities of each arena should be coordinated by relationship managers or boundary spanners whose specific task is to manage and build interorganisational relationships, not just to make sure collaboration requirements are being met (Thomson & Perry 2006; Williams 2002). The role of boundary spanners are: (1) build and sustain effective interpersonal relationships among partners, (2) play an 'honest broker role' in the event of contested power structures and (3) manage interdependency, which is a skill that is developed through 'accumulated 'on-the-job' interorganisational experience" (Thomson & Perry 2006, p.25).

3.4 Determine the network effects of PPP in each arena

The different network features shape the relationship and interactions in the network and the likely network effects are a result of the interplay of these features. Depending on the actions and interactions of and among actors in the network, network features can be supportive or critical of coordinated efforts to achieve a common policy objective (Kenis & Schneider 1991, p.30). In analysing the network effect of PPP, I propose that when network strategies recognise the network features, the network is more likely to produce a positive network effect. A positive network effect occurs when the objectives of the network are achieved. Conversely, when the network does not have clear rules on resource allocations, the actors do not agree on a common network goal and there is no legitimate network manager leading and coordinating the network strategies, the network is more likely to produce a negative network effect. There is a negative network effect when the goals of the network are not achieved within a timely and efficient manner or not achieved at all.

Table 3.1 provides a summary on evaluating network features.

The network produces a positive outcome if its objectives are achieved. The network is conducive to collaboration when actors agree on how the resources will be shared or

allocated. Control over resources is dispersed among several actors and resources are used to realise network goals, not just organisational objectives. The network is managed by a legally mandated network leader whose authority is recognised by the network members. The network leader's management style is consultative, participatory and able to facilitate goal consensus among network members. When issues arise, the network manager enables network members to formulate a common problem definition. When actors are collaborative, they contribute to the establishment and enhancement of governance process outcomes (Zaheer & Venkatraman 1995, p.380).

Table 3.1 Analysing network features

Network features	Nature of relations	
Resources interdependence		
• Do actors need the resource of another to perform its functions	Yes	No
• Is resource dependence mutual or one way?	Mutual	One way
• Do actors agree on how the resources shall be allocated or shared?	Yes	No
Goal congruence		
• Does the network have a clearly defined goal?	Yes	No
• Do all actors agree on the goal?		
• Do the individual mandates of each organisation align or conflict with the common goal?	Yes	No
• Do they actually perform towards the goal?	Yes	No
• Are there rules set on how to jointly achieve the goal?	Yes	No
• Are the rules:		
a. Formal or informal?	Formal: stable and predictable	Informal: flexible and negotiable
b. Specificity	Detailed	Broad
c. Time-bound	Yes	No
Network leadership/management		
• Authority		
a. Is there an authoritative decision maker?	Yes	No
b. Does the authority have legitimacy?	Yes	No
• Management style	Participatory/consultative	Top to bottom/hierarchical
Network effect	Positive outcomes: objectives achieved	Negative outcomes: objectives not achieved

The network produces negative outcomes when its objectives are not achieved.

Interorganisational collaboration cannot be achieved when the network is not conducive to cooperation, or interactions between actors stagnate, are blocked or have led to undesired or unforeseen consequences (E. H. Klijn & Koppenjan 2000, p.143). In which case, This network is more likely to yield negative outcomes because actors have conflicting and

contested relationships brought about by unsettled expectations and poor interaction patterns (Hjern & Porter 1981, p.223). There is poor interaction when the network features are not managed. Control over resources is concentrated in one or a few actors that are not willing to make these resources available to actors that need them. The network is governed by broad and informal rules that can be changed and negotiated over different time periods. The network does not have a formal network manager, and if there is one, the network manager is managing in an *ad hoc* capacity. The management style is usually hierarchical. Because the network leader does not have legitimate authority, its leadership is not recognised by most or all network members. It is difficult to motivate goal consensus in the network as actors prioritise the objectives of their own organisations. Each actor perceives problems differently. With different problem definitions, there will also be a proliferation of strategies. These create conflicting and contested relationships among actors and impede the development of trust among actors thereby hindering parties from establishing cooperative processes and fully achieving network outcomes.

3.5 Methods of data collection

Data collection for this research was conducted in Metro Manila, Philippines in two stages. The first stage was the scoping work for two weeks in July 2012. The second stage was the fieldwork conducted in 20 February to 15 May 2014 and 20 July to 27 October 2014. The scoping work was undertaken to gather background information on the sewerage sector in Metro Manila, particularly on the engineering and governance aspect of the service. The scoping activity was undertaken to gather sufficient information to formulate my research questions and draft my research proposal. During the scoping work, I interviewed engineers from the private concessionaires, local government units (LGUs), an international specialised agency working on local sanitation projects and the sanitary engineering association in the Philippines. The major takeaways from these conversations were that there were numerous organisations involved in the sewerage sector and that there is no clear coordinating mechanism in place. These became the foundations of my thesis proposal, but since I did not secure ethics approval for the scoping activity, no references or information from these conversations were used for this research.

The second stage of data collection was conducted during fieldwork in Metro Manila. Metro Manila is the only region in the Philippines where water and sewerage services were privatised. I am particularly interested in sewerage services and the interorganisational collaboration aspect in the services. Information for this research was collected from

various sources, as enumerated in Table 3.2, to ensure that a solid and comprehensive narrative is created (Yin 2009, p.101).

Table 3.2 Data collection matrix

Information/ Information Source	Documentation	Interviews	Direct observation
<i>Arena 1: Tariff setting</i>			
Private concessionaires	Yes	Yes	
Regulator	Yes	Yes	
Arbitration Panel	Yes		
Financing institution	Yes	Yes	
<i>Arena 2: STP construction</i>			
Private concessionaires	Yes	Yes	Yes
Local government units	Yes	Yes	Yes
National government agencies	Yes	Yes	Yes
Community/local residents		Yes	Yes
<i>Arena 3: Interagency monitoring</i>			
Private concessionaires	Yes	Yes	
Inter-agency committee	Yes	Yes	Yes
Activist/consumer groups	Yes	Yes	Yes
Sectoral experts	Yes	Yes	

3.5.1 Documentation

In evaluating partnerships or relationships success, Hodge and Greve (2007, p.548) suggest three possible information sources: policy rhetoric, the legal contract and historical outcomes experience. These were the main documentary information sources for this research.

PPP is an economic policy adopted by the Philippine government to improve the operations of water and sewerage services in Metro Manila. This policy was operationalised through a legal contract entered into between the government and the winning private concessionaires in 1997. The legal contract spelled out the duties and obligations of all parties to the contract. Historical outcomes experience as a source of information is relevant for this research because the Metro Manila concessions had been riddled by a number of issues and controversies since 1997. News articles, reports from government, non-government organisations (NGOs) and multilateral international agencies were secured through internet searches. One of the most relevant documents on the policy's historical outcomes is chronicled in *The Manila Water Concession: A Key Government Officials Diary of the World's Largest Water Privatization Official by the World Bank* (Dumol 2000).

The topic of privatised sewerage services in Metro Manila has not been a subject of academic research and much of the information found on this topic related to reports produced by multilateral aid agencies. Official government documents related to Metro

Manila sewerage were also referred to, which were obtained from government agencies such as the MWSS Regulatory Office (MWSS-RO), Department of Environment and Natural Resource (DENR), Department of Interior and Local Government (DILG) and the Department of Public Works and Highways (DPWH). Most importantly, since the problem perspective adopted by this research is from that of the private concessionaires, important documents were also secured from the two private concessionaires, Maynilad and Manila Water, specifically the *Business Plans for the Rate Rebasing* for the years 2008 and 2012.

These pieces of documentary information were corroborated with the data gathered from interviewees and other sources, and vice-versa. In identifying which agencies and organisations are involved in the sewerage sector, I pored over voluminous legal issuances, studies and evaluation of multilateral funding agencies that funded sanitation and sewerage projects in the Philippines, and news articles. The initial network map was validated through the interviews, i.e., confirmed with the respondents if the organisations that I initially identified are part of the sewerage sector. Prior to my interviews, I did my preparation mainly through internet searches about the respondent, organisation and/or the particular project/event/activity of the respondent. I also requested the interviewees for pertinent documents from their agencies, such as minutes of interagency meetings, feasibility studies and reports. News articles were a particularly valuable source of information because, at the time of the fieldwork, the concessionaires and the regulator were locked in arbitration. As legal documents were not made available to the public, I was advised to rely on the information released to the media.

3.5.2 Interviews

Interviews, considered to be as the most important data source for case studies (Yin 2009:106), are a key source of information for this thesis. Interviews are the best way to elicit information on the respondents' interorganisational relationships and dynamics and how such interactions impact on the service delivery outcomes as documentary information mainly provided information on the legal, political and performance aspects of the Metro Manila water and sewerage concessions.

I adopted the snowball or referral sampling process in selecting the interviewees by first identifying key informants who could introduce me to other potential interviewees and from then on the snowball became larger (Edwards & Holland 2013; Burnham et al. 2008). Since the research problem was formulated from the perspective of the concessionaires, I conducted the initial interviews with key personnel from the two companies who were

involved or had some involvement in the implementation of sewerage projects. The interviewees were asked to identify the organisations they worked with in order to fulfil their company's sewerage service obligations. I interviewed a total of ten persons from the two concessionaires whose designation ranged from project staff to the vice-president level.

In determining the number of interviewees, I was guided by the concept of saturation. This concept does not set a prescribed or ideal number of interviewees; instead, it guides the researcher to gauge the number of interviewees based on the range of meanings gathered from the interviews (Edwards & Holland 2013, p.66). The saturation point of interviews has been reached when the interviewees are not telling anything that has not been mentioned by other interviewees or when the interviews are not adding anything new to the stock of information (Edwards & Holland 2013; Burnham et al. 2008). I did not set a particular number of interviewees but aimed to interview at least one person from each of the organisations identified by the concessionaires. Most respondents were interviewed exclusively for one arena but a few acted as resource persons for at least two arenas. A total of 34 people coming from the public, private and non-government sectors were interviewed for this research, yielding around 40 hours of interview, as enumerated in Table 3.3. Of the 34 interviewees, 12 are from the private sector, ten hail from national government agencies, six work at the local government level in five different cities, two from the House of Representatives, while the rest are consumers or from non-government organisations. Some respondents acted as informants in more than one arena.

Table 3.3 Number and types of interviewees

Arena	Number of informants	Organisations/affiliations
Tariff setting	8	Private sector National government agency Financing institution
STP construction	21	Private sector National government agency Local government units Local resident
Interagency monitoring	11	National government agency Private sector
Sectoral experts	3	Former high ranking national and local government officials

The interviews were open-ended and guided conversations, which is characteristic of case study interviews (Yin 2009, p.106). I prepared an interview schedule based on the analytical framework that would elicit responses addressing the research questions. The questions were formulated based on four themes: (1) the interviewees' role and functions related to sewerage service, (2) their experiences in working with other

agencies/organisations in performing their functions, (3) the challenges they encountered when dealing with agencies/organisations and (4) the strategies or actions undertaken to overcome these challenges and the outcomes of these strategies. To ensure that the line of inquiry would prompt interviewees' to share their experiences, questions were framed in the form of 'hows' and 'whys'. For instance, a question I asked on the collaboration process was, 'How does working with actor A help your organisation fulfil its sewerage function?' or if they encountered difficulties in interorganisational collaboration, I asked, 'Why is it challenging or difficult working with actor A?.' My line of inquiry was organised based on the arena in the sewerage network that the interviewee belonged to (Table 3.4). The interviews also served as an opportunity to corroborate the data gathered from documentary sources and other interviewees. Table 3.4 shows the thematic framework for the interviews.

Table 3.4 Thematic framework for interviews

Interview themes	Interview questions	Analytical framework
The interviewee's and his/her organisations direct or indirect role in providing sewerage service	What is your role/participation in the implementation of this project?	Decision making arenas
The organisations they have to work with in order to perform their functions	- Did you have to work with other agencies in the course of this project? - Which agencies did you work with? What are the support/resources you require from these agencies? - How does working with these agencies help your organisation fulfil its sewerage function? - Are you satisfied/dissatisfied in with your working relationship with these agencies?	Network features (resource interdependence, goal congruence)
The challenges they encounter in the pursuit of their functions	- What were the challenges/obstacles you encountered when working with agencies? - Why do you think it is difficult to work with these agencies? Where/with whom do you think the problem lies? - Do you think working with these agencies is important to your project? Do you think they can be eliminated from the process? How and Why?	Network feature (resource interdependence), network effect
The strategies adopted or actions undertaken to overcome these challenges.	- What actions did you take to overcome these challenges? - How are problems resolved and decisions made to resolve these problems? - How do you think these difficulties/challenges can be eliminated? What would be the ideal situation?	Network feature (network management), network effect

I conducted in-depth and focused interviews. In-depth interviews are useful for case study interviews because respondents are asked not just about facts but also their opinions on and insights to certain events, which can be the basis of further inquiry (Bouma & Ling 2004; Yin 2009). The interviewees in in-depth interviews are considered to be informants because they can suggest other persons who can be interviewed or initiate access to corroboratory or contrary sources of evidence (Yin 2009, p.107). My key informants for this research were the interviewees from the two private concessionaires in view of their extensive involvement in all aspects of sewerage services and their constant interaction with other actors in the network. The rest of the interviews conducted were focused interviews wherein the respondents are interviewed at one time for a short period of time (Yin, 2009, p. 107). The focused interviews usually lasted from 30 to 45 minutes. It is similar to in-depth interviews in the way that these interviews are also open-ended and conversational in nature. In addition to eliciting information for my main line of inquiry, these interviews also served as an opportunity to corroborate data gathered from other interviewees or other sources such as news articles.

The interviews were conducted either one-on-one, in couples or in groups. Most interviews were conducted one-on-one but there were a few interviews that I conducted in couples or groups. The couple or group interviewing technique is useful in yielding the best information when a respondent may be hesitant to provide information in one-on-one interview, the interviewees are cooperative with each other and/or when time to collect information is limited (Creswell 1998, p.124). A few organisations opted for the couple or group interviews for practicality and accuracy, i.e., to save time by setting the interview with the team in one interview appointment and to verify information with other team members right away. During these interviews, I had to ensure that all participants talk and no individual dominate the conversation. A total of eight couples or group interviews were conducted for this research: five with the two private concessionaires (three management teams and two project teams), one with the secretariat of the monitoring committee, one with a government department, and one with a legislator who invited the president of an activist group to join the interview.

The elite interviews conducted were one-on-one interviews. Elite respondents possessed 'high levels of knowledge of the subject matter under discussion,' favoured for their 'general intellectual and expressive abilities' and wielded more influence than others on the decision making process (Burnham et al. 2008, p.231). Because of their stature, these people are usually very busy and getting an appointment for an interview is the biggest challenge for the researcher, which is 'more art than science' (Goldstein, 2002 as cited in

Burnham et al. 2008,p.235). In the latter part of this chapter, I will discuss the challenges I encountered in getting elite interviews and how I managed them.

For the interview protocols, I initially sent letters to the targeted respondents, stating the purpose of the interview and the nature of my research, followed by a phone call to schedule the date and time for the interview. Most, if not all, interviews were conducted in the workplace of the respondents located around Metro Manila. Before every interview, respondents were given a copy of the research information sheet and verbally informed of the nature of the research project and their rights as interviewees. My research information sheet, consent forms and interview guide were in English. Interviews were mostly conducted in English and *Taglish*, which is a term for mixing English and Tagalog when speaking.¹ Most interviews were audio recorded with the consent of the respondents. For the few interviews that were not audio recorded, I took notes and informed the respondents that all data gathered during the session will be used for my research.

3.5.3 Direct observation

A case study should take place in the natural setting of the ‘case’ that creates the opportunity for direct observations to perceive reality from the viewpoint of someone ‘inside’ the case study and at the same time ‘critically examine research assumption and beliefs’ (DeWalt & DeWalt 2011, p.1; Yin 2009). This approach, however, has been criticised for potential biases and the tendency for the observer or researcher to become a supporter of the group (Yin 2009, p.112-113). These perils were countered by validating the data gathered from direct observation with other data sources and vice-versa. The criteria for site selection were: (1) the site allows for maximum comparability and access to a diverse range of data on activities, places and actors, and (2) the role that the researcher assumed in the setting and whether such a role allowed sufficient access to the subject matter of interest (DeWalt & DeWalt 2011; Yin 2009).

Construction of STP is the crux of the concessionaires’ service obligations so I chose a STP construction site as the setting for direct observation. Direct observation provided me firsthand and in-depth information on their operations that I would not have been able to extract from an interview alone. This was conducted from 12 to 16 May 2014 at the Talayan STP construction site. The STP construction site provided a number of opportunities to collect data. For one, project documents were stored on that site. Second,

¹ Tagalog is one of the major languages in the Philippines, mainly spoken in the NCR where Metro Manila is located. English is an official language of communication in the Philippines.

spending one week at the project site permitted me to observe the project team's normal workday: discussing day-to-day tasks, attending meetings and even joining them for lunch. After a day, I noticed that they were more comfortable with my presence and seemed more candid and natural by the time I conducted the interview on the third day. Third, I was able to physically inspect the project site and verify the physical obstructions that caused construction delays. The STP was constructed in a vacant lot adjacent to a creek in a residential area that is mainly comprised of low income households. The major reasons for the delay identified by the project team were road congestion at the project site and the lack of cooperation of the residents in the area, which I confirmed during my site visits. I also interviewed a resident and a *barangay*² official of the community. I decided against taking photographs as I might be mistaken by residents as a journalist, which might have jeopardised the relationship that the project team had built with the local residents.

Another opportunity for direct observation came by attending interagency committee meetings. I was meant to attend the meeting as a passive observer but was given the opportunity to raise questions. The participants were candid and unguarded around my presence and revealed invaluable information I would not have been able to elicit from one-on-one interviews. Being a former government employee, the participants did not see me as an outsider. From a passive observer, I became an active participant in the discussion – probing on the interagency committee meetings and decision making processes and the relationship between the committee and agencies. The statements made by the agency representatives corroborated information gathered from interviews and documents.

3.6 Methods of data analysis

I used the qualitative analysis of a single case study design to evaluate the network effects in the Metro Manila concessions to illustrate how relational networks impact on network outcomes. A case study allows for an in-depth study of the network effects of PPP on the Metro Manila sewerage services sector to reveal the complex interactions of multiple actors at different levels (Yin 2009; Creswell 1998). While multiple case studies are deemed more compelling and more robust (Yin 2009, p.53), a single case study is more appropriate for a revelatory case, i.e. the subject matter to be observed and analysed was 'previously inaccessible to social science inquiry' (Yin 2009, p.48). This thesis can be considered a revelatory case because the case of the Metro Manila concessions has not been studied from a network perspective. Existing studies have analysed the Metro Manila Water

² Filipino word for village and is the smallest administrative unit in the Philippines.

concessions from a principal-agent and organisation-set perspective and mainly examined the water aspect and not the sewerage services (cf. Fabella 2012; Malaluan & Wu 2008; Hale 2006; Cuaresma 2006; Argo & Lacquian 2004; Esguerra 2003).

The analytic strategy I employed for this research was to follow the theoretical propositions of the case study (Yin 2009, p.130). The analytical framework presented in the first part of this chapter was derived from network governance theories, which defined the general objectives and design of the case study. It is imperative to identify the theoretical proposition and formulate the research questions prior to data collection as it helps organise the entire case study and focus attention on the necessary data and ignore the unnecessary data (Yin 2009, p.130). However, the analysis of case study evidence is challenging because it is one of the least-developed qualitative research method and investigators usually commence their case studies without having an idea of how to analyse the data to be collected (Yin 2009, p.127).

I also adopted the program-level logic model as a data analytic technique for this thesis. This logic model traces the events surrounding the implementation of a public program intervention intended to produce a certain outcome or sequence of outcomes (Yin 2009, p.150). This model also looks into the immediate, intermediate and ultimate outcomes of a policy, as well as the rival chain of events and the value of spurious external events, if any. In this case study, PPP is the public program intervention that the Philippine government adopted. Through this model, I will purposely narrate in Chapter 4 the complex chain of events in the Metro Manila sewerage service over an extended period of time leading to the sector's current state. In section 4.2 of Chapter 4, the history of sewerage services in Metro Manila was narrated, highlighting the major legislations, policies and programs adopted and implemented by the Philippine government. The effect of these government decisions and actions are explained in Section 4.3 by mapping out the resulting institutional framework of the Metro Manila sewerage network. As a result, there is no single government agency in the Philippine government that has oversight on all aspects of sewerage service. These developments over time have shaped the sewerage sector's current institutional design. What was created over the years of were numerous agencies and interagency bodies that have no clear delineation on how these agencies collaborate in performing their sewerage-related functions towards a common goal, if there is one. As a result, the sewerage sector in the Philippines has no precise configuration.

Through the program-level logic model, this research explores the main and rival explanations as to why the intermediate outcomes were not achieved by organising the

Metro Manila sewerage sector in arenas of interaction. The arena is where mutually dependent actors define problems, formulate solutions and make crucial decisions that impact on network outcomes (Provan & Milward 1991; Koppenjan & Klijn 2004; Gray 1985). In each arena, the main and rival explanations are identified by establishing the main problems encountered by the actors in the arena, explaining how the network features of PPP contributed to these and discussing how the network features created negative network effects and its impact on the concessionaires' performance. The following section further explains how the program-level logic model was operationalised in analysing the data.

3.6.1 Organising the data

The first step is to convert all the recorded interviews into written text. Transcribing the interviews allowed me to become familiar not only with the contents but also on the tone or emotion of the respondents during the interview. Interview notes and summaries were also taken during the interviews. For all other sources of evidence, a brief description and summary were also written. Since this research guarantees the anonymity of interviewees, electronic and hard copies of the interviews will be coded using a three-part identification number: (1) type of actor; (2) year of fieldwork; and (3) interviewee number. There are six types of actors in the Metro Manila sewerage network: (1) government officials (GO), (2) private concessionaires (PC), (3) non-government officials (NG), (4) local government officials (LG), consumers (C) and elite respondents (E). The field notes gathered during the direct observation are labelled according to date and activity.

3.6.2 Converting texts to explanations

After the recordings were converted into texts, the next step is to convert these texts into explanations to answer the research questions (Gläser & Laudel 2013). The first step in converting texts to explanation is to link the raw data to the research question. This entails identifying, locating and structuring the relevant data gathered during the data collection process. Identifying and locating raw data includes two tasks. First is to select the texts that are relevant for answering the research question and second is subsume these texts under the appropriate category. The categories can be derived from theory and changed or supplemented according to empirical information in the text or vice-versa. I grouped the texts under the three different headings. I familiarised myself with the interviews by listening to them a number of times and re-reading the transcripts and field notes. This made it easier for me to locate the relevant texts in each file once I decided on the categories. The texts were uploaded into NVivo software and the relevant texts were tagged

according to the categories or nodes identified. I went through a number of categories before settling on the final categories below (Table 3.5):

Table 3.5 Categorising interview texts

Decision making areas/code	Actors	Issues/network effect	Network features
Tariff setting(TS)	• Private concessionaires • Regulator • International arbitration panel	• Contract implementation • Regulatory risk • Dispute resolution	• Resource interdependence • Goal congruence • Network management
STP construction (STP)	• Private concessionaires • Other private actors • National government agencies • Local government units • Local communities • Consumers	• Land acquisition • Informal settlers • Permits & licenses acquisition • Right of way • Competency and integrity of local officials • Buy-in of local governments on the project	
Interagency monitoring (IM)	• Private concessionaires • National government agencies • Non-government actors/activist groups • Interagency monitoring body	• Absence of data and system to generate that data • Unclear interagency coordination processes • Different interpretation of problems/rules	

After the relevant texts were tagged to the categories, the next step was to search for patterns in the data. The patterns in the data include (1) more-than-once-occurring sequences of events, (2) more-than-once-occurring combinations of conditions, processes and outcomes and (3) conflicting accounts of events or processes (Gläser & Laudel 2013). The NVivo software is able to populate the number of times a certain category has been tagged and the number of sources. Searching for patterns serves as a tool to triangulate data and test internal validity. For example, an actor cited ‘permits and licenses acquisition’ as a major cause of delay for STP construction. I used this as one of my categories and all texts or statements in the transcripts that mention this category are tagged. At least eight different respondents from the private, national government agencies and LGUs have mentioned ‘securing permits and licenses’ as a source of delay. This step also provides rival explanations as LGUs were interviewed on their processes in issuing permits and licenses.

Once patterns have been identified, the third step is to integrate them. Integrating patterns means determining if the patterns are different or can be merged into one or link those

data that do not fit into the pattern, i.e., how do those data that do not form a pattern fit into the overall story? In this research, integration was done by subsuming the actors, network features and network effects under the different decision making arenas. The issues raised by respondents are confirmed or disproved by validating with other sources of evidence. The empirical evidence is then juxtaposed against theory, assertions are presented and conclusions are made on how network relationships impact on the outcomes within an arena and the broader sewerage services network.

3.7 Ethical concerns and challenges of doing fieldwork

Prior to my fieldwork, I did not anticipate any major cultural and social sensitivity issues that may affect or hinder my interaction with the respondents. I am a Filipino citizen and, more importantly, I have lived and worked in Metro Manila where my study is situated. Moreover, I surmised that my previous experience of working with the Philippine government might be an advantage when interviewing respondents from the government. I assumed that interviewees would see me as someone relatable and not as an intruder out to find fault in what they do.

My main concern prior to my fieldwork was the difficulty in securing appointments for interviews given their busy schedule. As expected this was my single most challenging concern as it gravely affected my timeline, which led me to extend my fieldwork for another two months from my original target of five months. Because of their profile, conducting the interview with elite respondents is relatively easier compared to the process of getting the interview (Burnham et al. 2008; Edwards & Holland 2013). When potential interviewees were contacted by normal channels, most of them did not respond. Normal channels refer to writing a letter to their heads of agencies to ask permission to interview personnel from their organisations who are involved in sewerage projects or sewerage related activities. This was followed up by phone calls. For the most part, this strategy did not yield responses. I then resorted to using my personal network to get appointments for interviews. In one instance, I had to contact a fraternity brother occupying a senior government position through a social network site to request an interview with his brother who holds a senior position at DPWH. In a span of one week, I was able to schedule interviews in the department. In another case, I had to ask several persons to intercede and waited for three months before I finally got an interview with an elite respondent. Another expert initially declined my request but I persisted and he eventually obliged, acknowledging that that I am 'one persistent lady.' For another interviewee, I was told over the phone that my letter was misplaced and I was asked to re-submit another request. When I asked a friend who

worked in the same organisation to personally follow-up on my request, the letter was located and an interview was arranged within the same week.

In some cases, however, resorting to personal connections did not work. For one interviewee, the intercession of her son (after numerous emails) did not yield an interview. Eventually, I chanced upon her in one interagency committee meeting that I attended. I approached her after the meeting and informed her of my several requests for an interview. She acknowledged receiving all of them and was willing to be interviewed but her busy schedule did not permit her. Fortunately, she had the time at that very moment and I was able to get 48 minutes of interview while waiting for her driver to pick her up.

3.8 Concluding remarks

This chapter has described the analytical and methodological frameworks adopted for this research. The complex nature of the relationships in relational networks has guided the choice of network governance theories as the foundation for the analytical framework developed in this chapter. The adoption of multiple qualitative methods of data collection such as documentary analysis, in-depth interviews and direct observation are deemed most appropriate in capturing network complexity. The information gathered from different sources were analysed using the program-level logic model of data analysis. Finally, I reflected on the challenges I encountered while doing my fieldwork. The findings that these methods have yielded are presented in the next four chapters.

Chapter 4

History and the current state of the Metro Manila sewerage services network

4.1 Introduction

This research argues that PPP has created a relational network governance structure. This governance structure is confronted by wicked problems rooted to its networked environment and the traditional method of dealing with problems is not sufficient in addressing such complexity. Wicked problems are created by the involvement of many actors working from different organisations, administrative levels and networks (Koppenjan & Klijn 2004, p.7). Since actors are guided by the values and objectives of their own organisations, each actor can have a different frame of reference and thereby form different perceptions of problems and interpretations of information, and eventually develop different strategies (Koppenjan & Klijn 2004, p.3,6-7). Each network has its own history and, over periods of time, the network has been organised and reorganised where rules have been formed, revised or rescinded, all of which have an effect on the current state of the network (Klijn & Koppenjan 2006, p.144).

To understand how and why the Metro Manila sewerage services network is confronted by wicked problems, this chapter maps out and examines the institutional design of its network environment. The second section of this chapter presents a historical overview of sewerage services in Metro Manila — from its establishment during colonial era to the current concession arrangement — and how these have shaped the governing structure of the sewerage sector in Metro Manila. The third section maps out the existing institutional framework and governing structure as a result of historical development in the sector over the years. It also identifies the arenas of interaction where crucial decisions that impact most on service delivery outcomes are made.

4.2 History of sewerage services in Metro Manila

Located along the north western Pacific and sitting astride the Pacific Ring of Fire, the Philippines is a natural path for typhoons (averaging 20 a year) and is vulnerable to earthquake and volcanic eruptions (Bankoff 2003, p.225). The country's capital region, Metro Manila lies on a semi-alluvial plain bounded on the north by the Malabon-Tullahan river basin, the Pasig Marikina river basin in the east, and opens to the low lying coast of Manila Bay and the large lake of Laguna de Bay of the southeast (Bankoff 2003, p.227).

Due to its naturally flat topography and coastal location that lies below sea level, sewerage is particularly an indispensable and relevant urban infrastructure for Metro Manila. The metropolis is highly prone to flooding and the lack of sewerage services creates a gamut of other problems. Manila was the first city in Asia to establish a sewerage system in 1909 (Argo & Lacquian 2004, p.6) and, more than a century later, less than 10% of the 14 million inhabitants of the Philippine capital are connected to the sewerage network (Kearton et al. 2013, p.10).³ Untreated wastewater produced in the capital ends up in canals, rivers and the sea. Heavily polluted waterways, recurring typhoons and constant flooding, not to mention the looming peril of earthquake, have rendered Metro Manila a cauldron for disasters and a hotbed for disease. It has been reported that cholera, which is largely associated with poor access to sanitation, is still an endemic disease in the Philippines (Lopez et al. 2015, p.2).

4.2.1 Emergence of the early sewage system

The earliest public health and sanitary program in the Philippines was organised in 1863 under the Spanish colonial rule when provincial and municipal officials were directed to assist health officials in garbage collection and enforcement of sanitation laws in public places (Torres 2010, pp.106–107). In 1878, works for the Carriedo Waterworks commenced. The public utility was inaugurated in 1882 to serve the city of Manila covering a service area of 1,800 has. Funding came from the endowment fund left in 1743 by Spanish philanthropist and former member of the Manila *cabildo* (municipal board) Don Francisco de Carriedo for the construction of a potable water supply system. The construction of Carriedo Waterworks was deemed to be one of the greatest accomplishments of Spanish rule. Other than a scientific acknowledgment of disease transmission, the Spanish administration established the water system to avoid the recurrence of anti-Spanish occupation riots that occurred during the first cholera epidemic in 1820 (Doeppers 2009, p. 494). By the time the three centuries old Spanish colonial rule ended in 1898, the country had no sewer system, water supply service was only available in some parts of Manila and the rest of the country had no water system, reservoirs or artesian wells (Heiser 1918, p.61).

Barely a month and a half after the Americans occupied Manila, the Board of Health was created on 29 September 1898 to implement effective sanitation policies and programs to clean up Manila and elevate it into a sanitary and liveable city (Mactal 2009, p.19). The

³ 6% for Maynilad and 13% for Manila Water.

American occupants largely blamed the country's unsanitary state to the indifference of the Spaniards to the health and comfort of the Filipino populace (Mactal 2009, p.16). Only 1,800 homes were connected to the water system and the poorer classes had to source their water from shallow wells, ponds, esteros or other unsafe water sources (Doeppers 2009, p.494). Like the Spaniards, the Americans also blamed the poor Filipinos for their unsanitary habits and surroundings, lack of education and superstitious beliefs for epidemic outbreaks (Mactal 2009; Heiser 1912). For the first ten years of the American occupation, Manila was ravaged by the cholera epidemic and other waterborne diseases. In 1901, the Board was confronted by a severe outbreak of the bubonic plague and the following year, Asiatic cholera (Doeppers 2009, p.494). In 1902, with a population of 219,928, Manila had no sewer system and no system of solid waste collection. All forms of waste and human discharges were directly disposed of into the ground causing soil pollution or into the over 30 open canals all over the city, which stretched to a combined length of 31 miles (Mactal 2009; Heiser 1912).

American policy was largely credited for the sanitary regeneration of the Philippine islands (Heiser 1918, p.63). High on its priorities were augmenting the water system and installation of a sewer system. Unlike the British authorities in 19th century Bombay, the Americans made the commitment to make water services available not just to themselves but to the entire population (Doeppers 2009, p.494). Artesian wells were introduced by the Americans in 1906. In 1908, the urban water supply system was renamed to 'Manila Water Supply System'. The first dam, Wawa Dam, was constructed on the Marikina River located 25 miles east of the urban area, chlorine was added to piped water and a total of 38.4 miles of pipe network were installed (Torres 2010, p.82). By 1913, there was a noticeable decline in the death rate in the city and there was no case of cholera and typhoid reported in 1912-1913 (Doeppers 2009, p.494).

Among the sanitary reforms was the establishment of septic tank systems and flush water-closets for residential houses and buildings and, for the majority of the population, the Pail Conservancy System (Mactal 2009, p.44). The canals were cleaned, streets were swept daily and garbage was collected every night. In April 1905, planning commenced for the construction of a sewerage system in Manila, which was the first in the country. In 1909, the sewerage system was completed to serve 223,000 residents of Manila. The system was designed for a maximum population capacity of 440,000 and expected to last until 1959. The sewerage system was a combined system that diverts stormwater and discharges sewage and wastewater from residential and commercial establishments into

the bay near the mouth of the Pasig River by means of strong pumps located at the end of Azcarraga (Mactal 2009, p.46).

The next challenge was to compel the residents of Manila to connect to the sewerage system. An ordinance was passed for mandatory connection but by 1910, only 516 residents were connected to the sewerage system (Torres, 2010, p.84). Poor compliance was attributed to the lack of information dissemination and the indifference of the population to the American regime. Also, sewers did not reach slum areas that did not have streets or lanes. To address this issue, the Governor General directed the construction of sanitary *barrios* (neighbourhoods) on government lands where house lots faced a street or alley and only one house was allowed per lot to prevent congestion (Torres 2010, p.84).

In 1919, the water supply system was renamed 'Metropolitan Water District' and its service was expanded to cover the 14 adjoining cities and municipalities. Throughout the 1920s, the piped water system was struggling to cope with the growing demand, especially during the dry season. By 1930, a new dam was constructed in Novaliches, located north of Manila. In 1935, water quality improved with the construction of filters in Balara in Quezon City (Doeppers 2009, p.494). In 1938, another dam was built that would bring water to the city from the Angat River, located 40 kms north of Manila (Arnold 1968, p.393). By 1938, the system was serving around 900,000 people and the water production capacity increased to around 200 mld (Kearton et al. 2013, p.9). During World War II, the water system was severely damaged by bombing and shelling (Arnold 1968, p.393). In 1945, the system was serving 1,025,000 residents or around 60% of the Metro Manila population. After the Philippines was liberated from the Japanese occupation in 1946 and until 1955, the responsibility over the provision of water and sanitation services was transferred to local governments (Kearton et al. 2013, p.9).

4.2.2 Nationalisation of water and sewerage services

In 1955, the operation and management of the water supply and sanitation systems in the country, including Metro Manila, was centralised and consolidated under the management of the newly founded National Waterworks and Sewerage Authority (NAWASA) created by virtue of Republic Act No. 1383 (Ilustre 1975, p.294). The management of water and sewerage system was nationalised to provide qualified supervision and management that small communities did not possess

Like many cities in Southeast Asia, the population of Manila rapidly increased after the war (Arnold 1968, p.393). The water supply and sewerage system had not been upgraded to

meet the demands of the city's population, which had increased to three million. In 1960, NAWASA received a loan from the World Bank to finance the construction of infrastructure to increase water supply. The project was completed in 1968, which was two years behind schedule. Among the causes were delay in the opening of bids and awarding of contracts, the rebuilding of structures damaged by typhoon, and the contractors' limited experience and insufficient equipment for heavy construction (Arnold 1968, pp.393–394). The World Bank loan also financed the reorganisation of NAWASA. NAWASA was reorganised in 1964 to improve organisational efficiency and create a clear-cut chain of command. The organisation was divided into four principal areas: engineering, operations, administration and provinces, each headed by an area manager who reported to the general manager (Arnold 1968, p.394). In 1965, procedures and assignments were made in the divisions and sections, staffing patterns were rightsized and surplus personnel were trained and reassigned to new jobs (Arnold 1968, p.396).

While water supply improved, sewerage services did not. The majority of the wastewater generated in areas not connected to the sewerage system ended up in the canals, rivers and seas untreated. On 18 June 1964, the National Pollution Control Commission was created to control water pollution in Metro Manila, in coordination with NAWASA (World Bank 1980, p.12). At that time, the biochemical oxygen demand (BOD) concentration of Pasig River was measured at 2.5 to 10 mg/l. While it was within the 7mg/l BOD limit required to sustain aquatic life, the water was described as 'black and gaseous' (CTI Engineering International Co. 2009, p.4–1). In 1969, after 60 years of inactivity, the sewerage sector was finally given attention with the formulation of the Master Plan on Sewerage System for the Metropolitan Manila Area, which was funded by the United Nations Development Program and the World Health Organisation. The Master Plan recommended, among other things, the implementation of a diverse centralised sewerage system but this was never implemented due to high implementation costs (CTI Engineering International Co. 2009, p.4–2).

4.2.3 Corporatisation of water and sewerage services in Metro Manila

In the 1970s, the government adopted a policy of connecting every household to the water system. To operationalise this, NAWASA was dissolved and management of water supply and sewerage services were once again localised nationwide, except for Metro Manila where a government corporation was created to manage the water and sewerage services of the capital region. In 1971, the MWSS was created by the Republic Act No. 6234 to manage the water supply and sewerage system in the National Capital Region (NCR), the

entire province of Rizal, and part of the province of Cavite (Ilustre 1975, p.294). The service area forms eight drainage basins and covers 150,103 has, with about one-third of the area or 51,710 has classified as urban areas (World Bank 1980, p.2). In 1975, MWSS was serving 4.6 million or 82% of the 5.6 million inhabitants of the MWSS service area, with the remainder of the population depending on deep wells and other water sources (Caoili 1999, p.76).

Outside Metro Manila, local water districts were created under the Provincial Water Utilities Act in 1973. The Local Water Utilities Administration (LWUA) was established as a specialised lending institution to provide financing and technical assistance in the development of the local water districts (Elazegui 2004; Kearton et al. 2013). By 1980, the population of Metro Manila was estimated at 6.73 million. Sewage produced was about 760 mld. About 1.14 million of the population were served by public sanitary or combined sewer systems, some 2.28 million area were served by communal or single septic tanks of varying standards of efficiency and the remainder had pit privies or no service at all where sewage was directly discharged into street gutters, open canals or rivers (World Bank 1980, p.3).

The National Health Plan (1975-1985) identified poor sanitation as a major factor in the high incidence of communicable diseases in the Philippines, such as typhoid, cholera and gastroenteritis. In 1972, morbidity and mortality from these diseases were 1,800 and 80 respectively per population of 100,000 (World Bank 1980, p.1). These, along with the growing trend of environmentalism globally, prompted the Philippine government to enact numerous environmental legislations in the 1970s, which included the Environment Code, Water Code, Environmental Impact Assessment System and the Sanitation Code (CTI Engineering International Co. 2009, pp.6-4). These impelled the government to take more concrete steps in improving the sanitation and sewerage services in the metropolitan area.

In 1977, the capital's sewerage infrastructure received capital infusion for an upgrade and expansion through a World Bank loan, which was the Bank's first major involvement in a sewerage and sanitation project in the Philippines. The Master Plan was prepared by MWSS in 1979, which recommended the following: (1) rehabilitate existing sewerage facilities through the Metro Manila Sewerage and Sanitation program (METROSS), (2) use of combined sewers, (3) employ secondary treatment of sewage with four outfalls in the Manila Bay and (4) implement sanitation program comprising of minor drainage projects for the depressed areas (PROGRESS) and a septic tank desludging programme (STAMP). Parts of PROGRESS and STAMP were implemented under the METROSS-1 Project which was

funded from the World Bank loan and by the Asian Development Bank (ADB) to the amount of US\$73 million (CTI Engineering International Co. 2009; World Bank 1990; World Bank 1980).

The project was targeted for completion by 1985 but the loan was closed only on 31 December 1988, three years behind the project schedule. Around half of the loan was cancelled at the request of the Philippine government due to peso devaluation, and cancellation and partial implementation of some project components. The ADB component took four years longer to complete (World Bank 1990, p.4). The reasons identified for the delay are as follows:

- 1) Contractors' problems and shortcomings. Many of the contractors had limited experience with sanitary and combined sewer construction. Due to poor performance, one of the two major contracts for sanitary sewer construction had to be cancelled after three years of work. The remaining works (70%) were awarded to new contractors. The local contractors also had difficulty in obtaining commercial credit to meet cash flow requirements.
- 2) Government bureaucratic processes. The change in government and MWSS leadership held back the project for two to three years. MWSS underwent three changes in top management during project implementation. Outside MWSS, approvals from different agencies had to be secured as well. Contracts had to be reviewed by the Government Corporate Counsel, Commission on Audit and Board of Investments before contract award. Philippine flag vessels had to be used for imported materials and clearances from the Ministry of Finance and the Bureau of Customs had to be secured prior to delivery of goods. There were also delays in the issuance of letters of credit or making payments that were required before delivery of imported equipment.
- 3) Problems beyond the control of the contractor and MWSS. Environmental conditions, such as soil quality, high groundwater, numerous overhead and underground utilities, restricted working areas and heavy traffic caused substantial delays. Also, the worsening economic conditions in 1983-85 caused inflation and devaluated the peso from PhP7.40 to PhP21.50 to the US\$. This affected the government's ability to provide equity, which resulted in rescheduling of the project (World Bank 1990, p.4).

Prior to and after the 1979 Master Plan, a number of master plans to address the sewerage and sanitation requirements of Metro Manila had been prepared but were not

implemented due to financial, social and institutional constraints (Kearton et al. 2013, p.36). These included the Master Plan by Black & Veatch in 1969, the 1988-2000 Water Supply, Sewerage and Sanitation Master Plan, the 1996 Water Supply and Sewerage Master Plan and the West Zone Sewerage Master Plan in 2000 (CTI Engineering International Co. 2009, pp.4-1 to 4-3).

4.2.4 PPP of water and sewerage services in Metro Manila

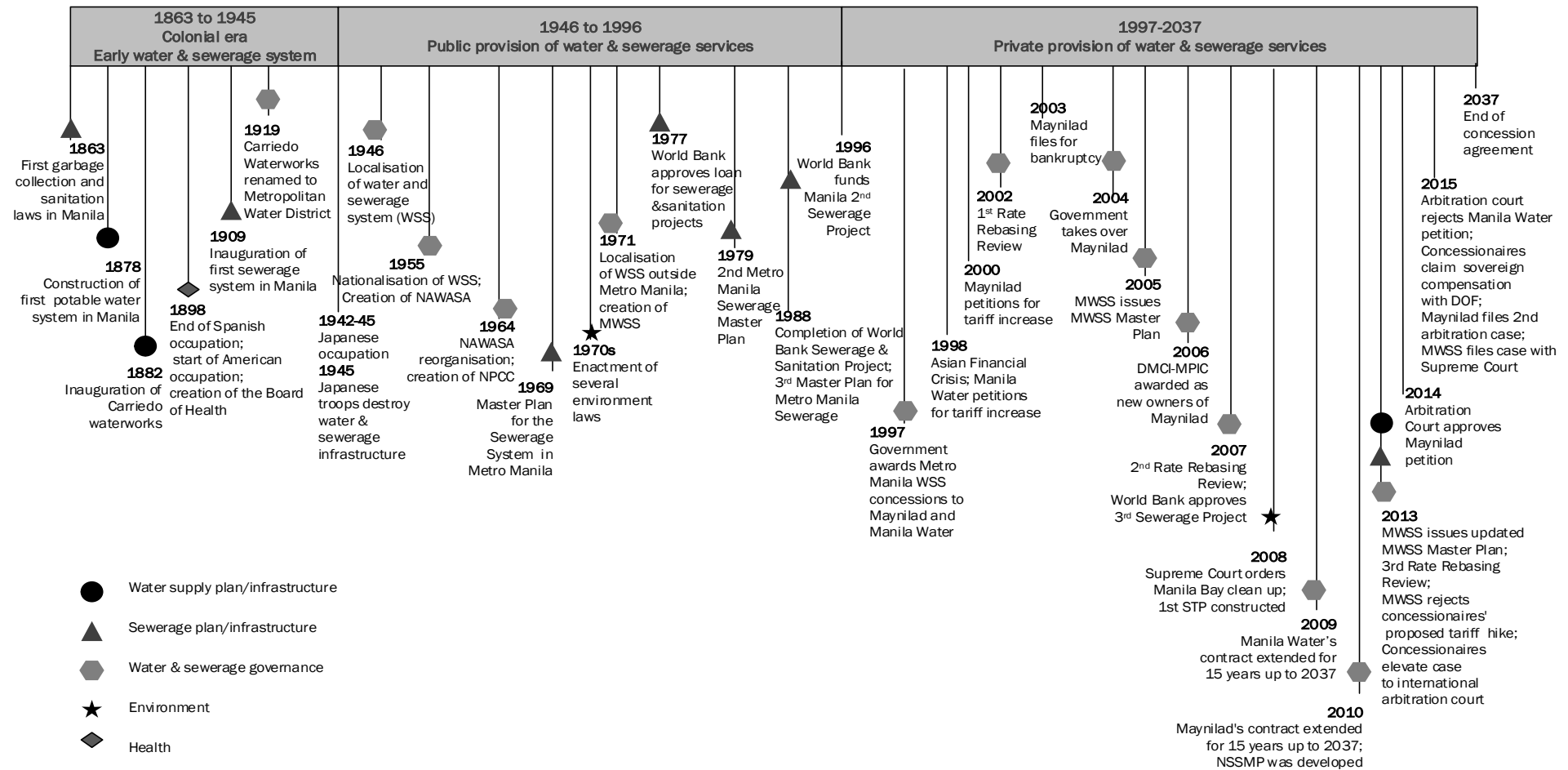
It took at least 60 years before the sewerage system in Metro Manila was upgraded after the first sewerage system was constructed in 1909. During those years, infrastructure upgrades were focused on expanding water supply in Metro Manila. By the early 1990s, Metro Manila's rivers are heavily polluted as majority of wastewater produced in the metropolis end up in waterways untreated. Deep in debt, the MWSS was in no position to upgrade the sewerage system. It was during this time that the PPP wave hit the developing world, the Philippines included. Figure 4.1 illustrates the timeline for sewerage development in Metro Manila.

4.2.4.1 Distressed state of the water and sewerage sector

In the early 1990s, only 7.3 million of the 11 million residents of the MWSS service area were connected to piped water, with water flowing from their taps at an average of 16 hours a day. Some 61% or 1,830 million litres of water pumped into the network was 'nonrevenue' due to pilferage, runoffs from old leaky pipes, illegal connections and defective water meters (Malaluan & Wu 2008; Buenaventura et al. 2004; Dumol 2000).

Sewerage service was practically non-existent as less than 5% of the population in the MWSS service area was connected to sewerage services (Hartman & Werhane 2009; Kearton et al. 2013). Around 85% of the population were served by over two million, ill-maintained septic tanks that overflow to the storm drains, toilets that are connected directly to the storm drains or by pit latrines (World Bank 2012, p.2). The rest had rudimentary toilet facilities or practised open defecation. There were only four STPs

Figure 4.1 Timeline for sewerage development in Metro Manila



servicing the entire MWSS service area and 38 communal septic tank systems. MWSS provided limited desludging services as it only had one septage management facility, which was decommissioned in September 1995. Residents had to hire private desludging companies to get their septic tanks cleaned. These companies were allowed to operate even if they did not have septage treatment facilities. These companies were reportedly disposing of the untreated sludge into the drainage system or open bodies of water (Kearton et al. 2013, pp.17–18). Thus, most of the wastewater produced in the capital end up in storm drains or open waterways into the Pasig River and Manila Bay (Kearton et al. 2013; Tetra Tech & Berkman 2013).

The Philippine government was not in a financial position to improve the service and physical infrastructure of MWSS. In 1997, the debt of MWSS amounted to US\$800 million, which was 1% of the Philippine government's national debt of US\$82.347 billion (Buenaventura et al. 2004; Dumol 2000). Compounding the MWSS's financial problems was its tarnished credibility with allegations of corruption and inefficiency (Llorito & Marcon 2003; Dumol 2000). Insiders attributed inefficiency of MWSS operations to rigid and complicated government procurement procedures, which slowed down the procurement process and delayed project implementation. Further exacerbating these problems was the bloated bureaucracy of the MWSS. With 8,000 employees or 13 employees for every 1,000 connections, MWSS's workforce was two to five times more than similar water utilities in the region (Dumol 2000; Malaluan & Wu 2008). Civil servants enjoyed the legal right to security of tenure, which made hiring and firing subject to rigid government procedures (Malaluan & Wu 2008, p.212). The inefficiency of MWSS was manifested by its high non-revenue water (NRW), which averaged at 61% daily, which is the water lost through leakage through holes in the pipes, illegal connections or measurement problems due to faulty meters (Xun and Malaluan, 2008, p.226). MWSS is unable to bill NRW which translates to its high inefficiency in billing consumers' water consumption. Table 4.1 summarises the pre-privatised conditions of MWSS.

Table 4.1 Pre-privatised MWSS operational highlights (1996-97)

Service area population	11 million
Population served	
1. water supply	7.3 million
2. sewerage	780,000
Official number of water service connection	779,380
Average daily water production	3,000 million liters
Average daily non-revenue water	61% (1,830 million liters)
No. of treatment plants	3
Total length of pipeline	12,000 kms.
Average daily water availability	16 hours
Water losses per capita daily	133 liters
Consumption billing efficiency	42.87%

Source: MWSS Regulatory Office

4.2.4.2 Design and award of PPP contract

When President Fidel Ramos (1992-98) assumed the presidency in 1992, he was immediately confronted with a power crisis. To resolve this issue, the government turned to the private sector for the construction power plants through build-operate-transfer⁴ (BOT) arrangements. This experience inspired the administration to enlist the private sector in addressing yet another crisis — the water crisis (Fabella 2011; Dumol 2000). In the face of a looming water crisis and riddled with debts, the national legislature, by virtue of Republic Act No. 8041 or the National Water Crisis Act of 1995, empowered then President Ramos to privatise the MWSS. The law gave the executive department two years from 1995 to complete the PPP process (David 2000; Dumol 2000). PPP of government enterprises was a condition under the 1995-1997 SAP agreement signed by the Philippine government with the IMF (Bello 2004, p.12).

With the legal mandate to privatise MWSS, the Ramos administration proceeded to set the wheels of PPP in motion. The first step was to divide the MWSS service area into two zones: the West zone and the East zone as shown in Figure 4.2 and Table 4.2., each of which would be operated by different concessionaires. The West zone was the larger zone, in terms of geographical size and population served, that covered 17 cities and municipalities in Metro Manila while the East zone served 22 cities and municipalities.⁵The government

⁴ Section 2(a) of Republic Act No. 7718, otherwise known as “The Philippine BOT Law” defines build-operate-transfer as a contractual arrangement whereby the project proponent undertakes the financing, construction and operation maintenance of an infrastructure facility over a fixed term. During this period, the operator is allowed to charge appropriate tolls, fees, rentals, and charges to facility users to recover its investment and operating and maintenance expenses.

⁵ Metropolitan Manila was created by virtue of Presidential Decree No. 824 on 7 November 1975 as an integrated unit, originally comprised of four cities and 13 municipalities, originally governed by the Metro Manila Commission. Over the years, new cities were created and added into the fold of Metro Manila. The Metro Manila Commission was later on abolished and replaced by the Metropolitan Manila Development Authority by virtue of Republic Act No. 7924 on 1 March 1995. The governing board and policy making body of the MMDA is the

referred to the Paris water system, which was divided in two zones: the left and right banks of the Seine River. The Parisian model appealed to the government as it was deemed to promote quasi-competition wherein consumers could compare service quality of the two concessionaires (Dumol 2000; Llorito & Marcon 2003).

For the bid structure, the Philippine government referred to the experience of the Buenos Aires water concession in Argentina due to similarity in size and coverage of service area and inefficiency of the public utility. The Buenos Aires water concession used a two-envelope bidding system. Bidders were required to submit both a technical and a financial proposal, the former to be evaluated on a pass-fail basis and only the financial proposals of those who passed this stage would be opened (Dumol 2000; Esguerra 2003). The financial bid comprised of the bidders' business model over the contract lifetime, the debt service, the tariff bid warranted by the capital and operations expenditure via the 'net present value equals zero (NPV= 0).' The MWSS's existing debts were apportioned at a ratio of 90:10 for the West zone and East zone, respectively. The government apportioned a bigger portion of the debt to the West zone because it covered a bigger geographical area and customer base (Dumol 2000; Llorito & Marcon 2003). The government aimed to attract the best multinational water companies to participate in the bidding process. However, the Philippine Constitution restricts majority ownership over all public utilities to Filipino-owned companies but at that time, there were no local firms with previous experience in managing water utilities. Thus, foreign firms were required to partner with a local firm, with 60% of the consortium to be owned by a Filipino company (Dumol 2000; Fabella 2011). In January 1997, the government received the financial bids and technical bids from the four prequalified bidders.⁶ The winning bids were based on the proposed water tariffs, which the government deemed should be lower than the existing tariffs to gain support from the public and politicians (Dumol 2000,p.42).⁷

Metro Manila Council, composed of the mayors of the cities and municipalities

⁶ The four bidders were the consortium of (1) Ayala Corporation, Bechtel, United Water and Mitsubishi (2) Benpres Holdings and Lyonnaise de Eaux (3) Aboitiz Equity Ventures and Compagnia Generale de Eaux and (4) Metro Pacific and Anglian Water International.

⁷ The Ayala group's bid for both zones (East: P2.32 per m³ and West: P2.51 per m³.) was the lowest but the rules only allow one group to operate one concession; otherwise the objective of competition is defeated. With the hub of its business operation located in the East zone,⁷ the Ayala group and its partners, incorporated as Manila Water Company,⁷ opted for the East zone. The West zone concession went to the Lopez-group-owned Benpres Holdings, incorporated as Maynilad Water Services Inc. with its second lowest bid of PhP4.97 per m³. (Dumol 2000, p.97).

Heralded by the World Bank as the largest water concession in the world in terms of geographical area and population served, MWSS was privatised in 1997 (Dumol 2000, p.1). Two separate 25-year concession contracts were awarded to Maynilad Water and Manila Water to undertake the rehabilitation and expansion of the waterworks and sewerage system. The West zone was awarded to Maynilad and the East zone to Manila Water. Championed by President Ramos himself, it was but fitting to hold the signing of the CA at the Presidential palace on 21 February 1997 (Fabella 2011, p.67).

The government chose the concession-type arrangement to privatise the MWSS (Dumol 2000, p.29). The World Bank recommends concession contracts water and sewerage services because 'head-to-head competition does not operate' in naturally monopolistic services (Kerf et al. 1998, p.12) (see Section 2.3.1 Natural monopoly characteristics of water and sewerage services on page 15). This arrangement is best employed where a substantial amount of investment is required to solve problems related to faulty distribution system or poor collections performance (Delmon 2001; World Bank 1997). Under a concession-type PPP, a public entity awards the right and the obligation to provide an infrastructure service to a private company (the concessionaire) under terms and conditions specified in a contract or license. The concessionaire assumes operational responsibility, the commercial risk of service provision and the responsibility to achieve the specified results (Kerf et al. 1998, p.12).

Under the CA, the Philippine government assigns the rights to use its existing assets to the two concessionaires. At the end of the contract, all assets shall revert to the government. In return for all these, the private companies have the right collect a fee from users to recover their costs, which is regulated by the MWSS-RO (Esguerra 2003, p.14). The winning bidders had to pay an initial fee of US\$5 million to cover for the consultancy fees of the International Finance Corporation. The Philippine government also required a minimum capital base of \$100 million and a performance bond of US\$200 million each (Esguerra 2003, p.15). On an annual basis after the contract award, each concessionaire shall pay concession fees of PhP50 million for the operating budget of MWSS-RO and another PhP100 million for the MWSS Residual office (Dumol 2000; Llorito & Marcon 2003).

The CA is designed to ensure full cost recovery, with water revenues partially subsidising sewerage infrastructure. In other countries, sewerage investments are typically financed by the government but in the case of Metro Manila, grant financing is not available so sewerage investments and operating costs have to be recovered through tariffs (NG-2014-022).

Figure 4.2 Map of MWSS Concession Area



Table 4.2 MWSS Service Area

Concession Area	Concessionaire	Land Area (sq.km.)	Population (as of 2010)	Cities/Municipalities
East	Manila Water	1,400	8.4 million	Cities in Metro Manila: Makati (part), Manila (part), Quezon City (part), Mandaluyong, Marikina, Pasig, San Juan and Taguig Cities outside MM: Antipolo City Municipalities in the province of Rizal: Angono, Baras, Binangonan, Cainta, Cardona, Jalajala, Morong, Piliia, Rodriguez, San Mateo, Tanay and Taytay
West	Maynilad	540	6.8 million	Cities in Metro Manila: Makati (part), Manila (part), Quezon City (part), Caloocan, Las Pinas, Malabon, Navotas, Muntinlupa, Paranaque and Pasay Cities outside MM: Cavite City Municipalities in the province of Cavite: Bacoor, Imus, Kawit, Noveleta, Rosario
	Total	2,730	15.2 million	

Source: Tetra Tech & Berkman 2013; Pham & Kuyama 2013

4.2.4.3 Regulating the concessionaires

The government recognised that water is not an ordinary commodity and tariff setting can be a highly political and sensitive issue, thus the need to regulate the concessionaires. Under Article 11 of the CA, the MWSS Board of Trustees 'shall establish an independent regulatory office to be funded from the concession fees received from the concessionaires' (Dumol 2000, pp.56–57). The MWSS-RO's main functions are to monitor and/or enforce the CA, audit the activities of the concessionaires and ensure that appropriate measures are undertaken in case of noncompliance, review water supply and sewerage rates, and implement extraordinary price adjustment (EPA) and rate rebasing provisions.⁸ Under a concession-type of PPP, the government became the regulator of the service it used to provide.

There are three grounds upon which tariff would be adjusted. The first is inflation. The regulator allows for annual automatic increases on standard rates based on changes in the consumer price index to allow concessionaires' revenues to keep pace with inflation. The second is EPA, which is brought about by unforeseen events that financially affects the

⁸ Exhibit A of the Concession Agreement. The corporate powers and functions of MWSS not transferred to the two concessionaires continues to be performed by the MWSS Board of Trustees (Board) and the residual Corporate Office (CO), such as administer and manage retained assets and existing loans, provide bulk water and development of new water sources and facilitate the exercise by the concessionaire of its functions under the CA.

concessionaire, such as force majeure, peso devaluation or unanticipated costs arising from future legislations, for instance, new health or environmental standards. The MWSS-RO determines whether an extraordinary event occurred based on a strict set of validation procedures. Inflation adjustments and EPAs may also be made on a quarterly basis (Esguerra 2003, p.14). The third ground for tariff adjustment is rate rebasing. Rate rebasing is conducted every five years to ensure that the concessionaires' do not exceed the 'fair returns' stipulated in the contract. Any disputes arising out of the CA that cannot be resolved through consultation and negotiation among the parties would be finally settled by a three-member arbitration panel. The members of the panel would be appointed by the concessionaire and the MWSS-RO and the chairperson by the President of the International Chamber of Commerce (ICC).⁹

4.2.3.4 The fall and rise of the Metro Manila concessions

There were two extraordinary events that prompted Maynilad and Manila Water to file their first petition for rate increases: (1) the Asian financial crisis of 1998 that resulted in peso devaluation and (2) the El Niño phenomenon from June 1997 to September 1998 that reduced the water supply in the capital region by 40% (Esguerra 2003, pp.19, 22). This unravelled a chain of events that undid the Metro Manila concessions.

In March 1998, Manila Water petitioned the MWSS-RO for an EPA citing the two unforeseen events as grounds for extraordinary adjustment, as well as network deterioration, cost overruns in ongoing projects and increase in employees' salaries.¹⁰ When its petition was not approved, Manila Water elevated the case before the ICC, which allowed for an adjustment at a lower rate of PhP0.18/m³ based on a discount rate of 9.3% (Esguerra 2003, pp.21–22). The MWSS-RO challenged the decision before the Philippines' Court of Appeals, despite the contract stipulation that parties would resolve all issues through the international arbitration panel. The Court of Appeals upheld the decision of the arbitration panel (Esguerra 2003, p.22). Due to the delay in implementation of the tariff increase, the tariff had to be adjusted higher than the approved rate, which was PhP0.26 /m³ (Esguerra 2003, p.43).

In December 2000, Maynilad petitioned the government for the imposition of currency exchange adjustment (Auto-CERA), which the company first filed during the Estrada

⁹ Article 12 of the Concession Agreement.

¹⁰ MWC petitioned for a tariff increase of PhP0.27 per m³ based on an appropriate discount rate of 18% but MWSS-RO approved an EPA of only PhP0.04 per m³ based on a discount rate of 5.2%.

administration.¹¹ The petition was re-filed under the Arroyo administration, which was rejected by the President in February 2001. The following month Maynilad stopped paying its concession fees to the MWSS (Esguerra 2003; Chiplunkar et al. 2008).

In October 2001, the first amendment to the CA was issued, which authorised Maynilad and Manila Water to impose charges for AEPA¹², FCDA¹³, and CERA¹⁴ (Padilla 2004). The amendment, issued via MWSS Board Resolutions 487-2001 and 512-2001, allowed Maynilad and Manila Water, respectively, to adjust their water tariffs to adequately compensate for the financial losses suffered from the Asian financial crisis. The amendment also scheduled the first rate rebasing period from the tenth year (2007) of the contract to the fifth year (2002) (Chiplunkar et al. 2008, p.3).

In March 2002, MWSS extended the deadline for the payment of Maynilad's concession fees from November 2002 to 30 June 2003. Notwithstanding the extension, Maynilad continued to suffer heavy financial losses. By the end of 2002, the company filed a notice of early termination of the concession. This signalled the start of a long, drawn-out legal battle between Maynilad and the government. The matter was elevated to the international arbitration panel. In November 2003, the panel ruled that neither the MWSS nor Maynilad had any grounds for the termination of the concession. The panel ordered Maynilad to pay the overdue concession fees and directed the parties to resolve the matter through extrajudicial means. A few days after the panel decision, Maynilad filed a petition in a local court seeking debt relief and corporate rehabilitation. The MWSS then attempted to withdraw on Maynilad's performance bond to satisfy its maturing loans. Eventually, MWSS elevated the case to the Supreme Court (Chiplunkar et al. 2008, pp.3–4). Three years later, the legal battle was still ongoing and the government noted that these lawsuits were detrimental to the consumers. In March 2004, the government took over the Maynilad concession through the issuance of Amendment No. 2 for the quasi-organisation and restructuring of Maynilad to restore its financial viability. In April 2005, MWSS and Maynilad

¹¹ Maynilad filed the petition at the height of former Philippine President Joseph Estrada's impeachment trial for corruption charges before the Philippine Senate in 2000. The administration was not able to rule on the petition. Estrada, who was elected into the Presidency in 1998, was forced to step down from office in January 2001 following days of street protests clamouring for his resignation.

¹² AEPA is a fixed rate (PhP4.21 per m³ for Maynilad and PhP1 per m³ for Manila Water) that the concessionaires could collect from 15 October 2001 to 31 December 2002 only

¹³ FCDA is equivalent to 49.598% of the basic charge, which is the actual water consumption of the consumer. The FCDA is a quarterly adjustment as a percentage of the basic charge to reflect the impact of the FOREX starting on Jan. 1, 2002.

¹⁴ CERA is PhP1 per m³ of water consumed.

finally agreed on a debt and capital restructuring agreement (DCRA). On June 2005, the Rehabilitation Court approved Maynilad's Rehabilitation Plan, which included the DCRA (Chiplunkar et al. 2008, p.4).

With the ailing Maynilad given temporary life support by the DCRA, MWSS set in motion a renewed effort to find a new operator for Maynilad. Learning from its past mistakes, a more stringent, comprehensive and relevant bidding process was laid down.¹⁵ The rebidding of Maynilad attracted more bidders than the first bidding process in 1997. A total of 11 investor groups expressed interest, of which only five firms submitted the complete requirements to qualify for the second phase, and eventually narrowed down to three.¹⁶ The contract was eventually awarded in December 2006 to a 100% Filipino-owned company, DMCI-MPIC, with its winning bid of \$503.9 million.¹⁷ The new owners signed the same CA entered into by the previous owners of Maynilad and would be measured under the same performance and service coverage targets.

After the new owners of Maynilad took over, the company aggressively implemented its two-stage recovery plan to increase revenues while reducing commercial losses. The first stage covers a system-wide water audit to enhance water supply and pressure management, upgrade reservoir and pump station efficiencies and improve software and information technology. This was followed by a widespread network rehabilitation, maintenance and connection expansion. The company also embarked on various human resource

¹⁵ Unlike the previous tender, a two-part minimum conditions for bidders were imposed: (1) the setting of the minimum bid at US\$56.7 million to cover the actual value of the 84% equity and the US\$31 million financial assistance provided by MWSS and (2) a financial supplement of US\$2.5 million in cash for the arbitration costs incurred and additional resources to finance capital expenditures and assumption of Maynilad's obligations under the DCRA (Chiplunkar et al. 2008, p.8). Steeper requirements were imposed to ensure that the bidders were financially healthy to run the concession, which were not imposed during the first-round bidding. These included (1) a standby letter of credit (SBLC) of US\$2.5 million in favour of MWSS as a bid guarantee to ensure that the bidder would assume all the obligations of MWSS and (2) a minimum capitalisation of US\$120 million, supported by an irrevocable SBLC issued by a bank with a high credit rating (Chiplunkar et al. 2008, pp.8–9).

¹⁶ These were Rubia Holdings-Noonday Asset Management Asia, Pte. and two fully Filipino-owned firms; the current operator of the East Zone, Manila Water and DMCI-MPIC, which is a consortium of a construction and real estate company, and a major player in telecommunications, shipping and real estate industries. DMCI has experience in the water sector, while MPIC Chairman Manuel Pangilinan is known for his ability to rehabilitate ailing public utilities. Of the three, Rubia Holdings-Noonday consortium was disqualified for failure to comply with the SBLC of US\$2.5 million, while the two other companies passed the technical requirements and advanced to the final stage, the financial bid.

¹⁷ This is not the first time that MPIC acquired a company previously owned by the Lopez family, having acquired majority shares of MERALCO in 2009. MERALCO is Metro Manila's sole electric power distributor and holds the power distribution franchise for some 22 cities and 89 municipalities, including the whole of Metro Manila and the Mega Manila region.

development programs to further its commercial and marketing abilities and image, as well as improve efficiency of its employees.

The DMCI-MPIC was given until 2013 to pay off Maynilad's creditors but it managed to settle these debts as early as September 2007 (Chiplunkar et al. 2008, pp.9–10). In its first two years of operation, the new Maynilad infused PhP13 billion for capital expenditures and set aside another US\$20 billion up to 2015 (Chiplunkar et al. 2008, p.11). As of December 2011, Maynilad reported in its 2012 Business Plan that water service coverage was at 92% of the service area's population of 8.4 million, customers with 24 hours continuous water supply reached 84% and NRW averaged at 48% (from 66 % in 2007) (World Bank 2012; Tetra Tech & Berkman 2013).

Manila Water, on the other hand, managed to fast track and upgrade service provision in its franchise after the turbulent early years of the Metro Manila concessions. As of 2009, the World Bank reported that Manila Water had reached 100% compliance for 24-hour water supply in its service area, from 26 % in 1997. The company also expanded water connections to 99% of its customers due to its aggressive civil works and upgrading of the pipe network, exceeding its regulatory target for the period by 8% for total water service connections. The NRW was brought down to 11.2% in 2011 from the pre-concessions level of 63% (World Bank 2012; Tetra Tech & Berkman 2013).

4.2.3.5 Status of sewerage services

Metro Manila generates 2,000 million m³ of wastewater every day. Without adequate sewerage facilities, only around 17% of this volume gets treated before being discharged into water channels in and around the metropolis (World Bank 2012, p.1). Sewerage and sanitation systems comprise of individual septic tanks, public toilets, communal septic tanks, sewage and septage treatment facilities, desludging and recycling of sludge and effluent.

Sanitation services offered by the concessionaires involve the cleaning up of septic tanks and the construction of septage treatment plants for the treatment of sludge (World Bank 2012, p.2). The two water utilities offer septic tank siphoning services to its customer, the cost of which is incorporated in the customer's monthly invoice and billed as environmental charge. This fee constitutes 20% of the customer's total bill (World Bank 2013, p.32). The water utilities usually coordinate with the local *barangay* on the schedule for desludging services. Should the resident miss this, emergency septic tank cleaning for a fee may be scheduled with the water utilities. Sewerage services, on the other hand, involve the

construction of separate sewer lines that bring wastewater to STPs for treatment before disposal in the nearest waterway or recycled for other use (Kearton et al. 2013; World Bank 2005).

The original performance targets of the concessionaires for sewerage and sanitation services required the implementation of a large, highly centralised sewerage treatment system with separate sewer lines systems in Metro Manila. It was envisioned that septic tanks would be phased out as individual households would be directly connected to the sewerage network. The original population targets for sanitation and sewerage services coverage in each service area are shown in Table 4.3. As sewerage coverage increased, the sanitation targets decreased because the original CA worked on the assumption that all households would eventually be connected to the sewer system (Tetra Tech & Berkman 2013; CTI Engineering International Co. 2009).

Table 4.3 Sewerage service coverage targets for East and West service areas

Concessionaire	2001	2006	2011	2016	2021
<i>MWSI</i>					
Sewerage	16%	20%	21%	31%	66%
Sanitation	43%	46%	43%	39%	27%
<i>MWCI</i>					
Sewerage	3%	16%	51%	52%	55%
Sanitation	38%	32%	27%	24%	19%

*% of water served population

Source: Preparatory Survey for Metro Manila Sewerage and Sanitation Improvement, 2009

After the concessions were awarded, it became apparent that it would be challenging to implement these targets. Metro Manila is one of the most densely populated metropolises in the world and there is a shortage of suitable land for the proposed centralised treatment plant. In 2001, Manila Water's actual coverage in 2006 for sewerage was at 1.3% and sanitation at 9%. Maynilad, on the other hand, met its sewerage target of 16% in 2006, mainly because two of the three existing STPs were located in the West zone and were upgraded and rehabilitated under the Manila Second Sewerage Project (MSSP). The MSSP was a World Bank funded project entered by the Philippine government in 1996. This dropped to 10% in 2007 as water service connections increased, which is the denominator for sewerage coverage. Also, the sewerage program was suspended during the period between 2003 and 2007 as the company went through debt restructuring, rebidding and eventually, was awarded to a new operator (Tetra Tech & Berkman 2013; CTI Engineering International Co. 2009).

During the first rate rebasing exercise in 2003, the government agreed to revise the 1997 performance targets for sewerage to ensure affordable tariffs and overcome implementation constraints. The concessionaires were allowed to implement a decentralised sewerage strategy, which involved the construction of small STPs of at least one per city. The existing drainage system would be converted into combined sewerage-drainage system. This was cheaper to implement compared to separate sewer lines because it would utilise the existing drainage system to catch the wastewater from the households and storm run-off going into the drainage (Kearton et al. 2013, p.18). Interceptor boxes on junctions of the drainage pipes would be installed, which would divert the untreated wastewater to interceptor lines leading to the STPs. Under this system, individual household connections to the sewer lines are no longer necessary. At a later stage, these systems could be gradually converted to separate systems (GO-2014-004) (Tetra Tech & Berkman 2013, pp.2–17). As combined sewer systems were new to the Philippines, the World Bank provided technical and financial assistance to ensure viability of such systems in the Philippine context (World Bank 2012; Tetra Tech & Berkman 2013). The first STP with the combined sewer systems was the Pineda STP in Pasig City completed in 2008 by Manila Water (Pham & Kuyama 2013; Olchondra 2011).

In 2009, with sewerage coverage at barely 10% of the service area and with the contract almost halfway through, the concessionaires anticipated that cost recovery would result to higher tariffs for consumers. It is estimated that the capital cost of sewerage infrastructure in Metro Manila, would be at least US\$250 *per capita*, which would be a substantial amount to entirely recover through tariffs (World Bank 2013, p.2). In 2009 and 2010, Manila Water and Maynilad's contracts were respectively extended for another 15 years to allow the concessionaires to accelerate and double the investment for sewerage and sanitation and to support the development of new water sources. The extension also gave the concessionaires a longer investment recovery period, thus trimming future tariff increases for its customers (Go 2009; Go 2010). As a result of the contract extension, the concessionaires committed to double their capital investments in sewerage and sanitation and increase coverage target to 100% by 2037, from 55% for Manila Water and 66% for Maynilad under the original CA expiry in 2022 (Tetra Tech & Berkman 2013; CTI Engineering International Co. 2009). Table 4.4 shows the sewerage and sanitation services targets under the original CA, the 2008 business plans and the CA extension.

Table 4.4 Original and revised sewerage service coverage targets

Year	Manila Water			Maynilad		
	1997 CA %	2008 Rate Rebasing % of households*	CA Extension %	1997 CA %	2008 Rate Rebasing %	CA Extension %
2001	3%			16%		
2006	16%			20%		
2011	51%	144,300 hh (16%)		21%	13%	11%
2016	52%	154,775 hh (14%)		31%	29%	31%
2018			63%			
2021	55%	278,175 hh (22%)		66%	39%	66%
2025			100%			
2026						76%
2031						88%
2036						100%

Note: Sewerage coverage given as percentage of water-served population

Source: 2013 MWSS Master Plan, update of 2005 Master Plan, 2008 MWCI Business Plan, 2008 MWSI Business Plan

*The 2013 Master Plan did not provide a comparable breakdown for Manila Water's 2008 sewerage targets.

As of December 2011, it was reported that Manila Water's service coverage was at 13% of the population with a treatment capacity of 128 mld while Maynilad Water was at 6% of service area population with a treatment capacity of 468 mld (Kearnton et al. 2013, p.37).

4.3 The resulting institutional framework

Sanitation and sewerage concerns have always been relegated as a subset of water governance (Black & Fawcett 2008, p.67). In the Philippines, the water governance sector has been judged to be ineffective due to the weakness of individual agencies to perform their mandates as well as the setbacks to interagency linkages at the national and local levels (Hall et al. 2015; Elazegui 2004; Malayang 2004). There are at least 30 agencies involved in the management of Philippine water resources (Paragas 2012 as cited in Hall et al. 2015, p.946), and sewerage services are also a function of some of these agencies. As poor as the management of the water sector is in the country, sewerage is in a worse state. Sewerage was low in the government's priorities as evidenced by the fact that only 4% of the entire country's population were connected to a sewer network (World Bank 2005, p.3).

While sewerage infrastructure system was introduced in Metro Manila as early as 1909, it took more than half a century before the next wave of government reforms and activities to update the sewerage system took place. In an attempt to catch up, numerous laws, agencies and master plans were created to address the burgeoning sewerage and

sanitation issues in the capital. The Metro Manila concessions signalled that sewerage service has finally been given equal attention along with water supply after decades of neglect. These efforts have seen the assignment and reassignment of authority over water and sewerage activities to different agencies at the local, national, regional level and currently, to the hands of the private sector (Figure 4.1).

The entry of the private sector in the provision of water and sewerage services transformed its governance structure into a relational network where public and private actors had to collaborate and negotiate over public service delivery. The provision of sewerage services occurs in different stages and there are different actors involved in each stage whose actions and interactions have a direct impact on the service delivery outcomes. Sewerage projects impact on other policy sectors such as health, environment, public works, urban planning, economic development and utilities regulation. Sewerage concerns also encompass vertical and horizontal jurisdictions, i.e., the national, regional and local governments, and the private sector. The Philippine government at the national level is organised by sectoral concerns, i.e., public works, environment, health, among other things. Different aspects of sewerage service such as policy setting, project planning and implementation, tariff setting and regulation are distributed across different departments. Figure 4.3 and Table 4.5 encompass the sewerage sector for the entire Philippines but this thesis only examines the Metro Manila sewerage sector.

There is no single government agency that has overall responsibility for all aspects of sewerage services and there is no clear delineation on how these agencies work with each other on sewerage-related functions. As a result, the sewerage sector in the Philippines has no precise configuration. These developments over time have shaped the sewerage sector's current institutional design, as shown in Figure 4.3. The following subsections attempt to organise the sewerage sector by first identifying the sub-networks and arenas of interaction within the overall sewerage network. At the core is the service delivery sub-network. At the periphery are the jurisdictional, sectoral and functional networks whose roles, while not directly connected with service delivery, are related or adjunct to the private sector's sewerage service delivery functions. The arenas of decision making are tariff setting, STP construction and interagency monitoring. Figure 4.4 illustrates the numerous sub-networks and arenas of interaction co-existing within the Metro Manila sewerage network

Figure 4.3 Philippine sewerage governance network

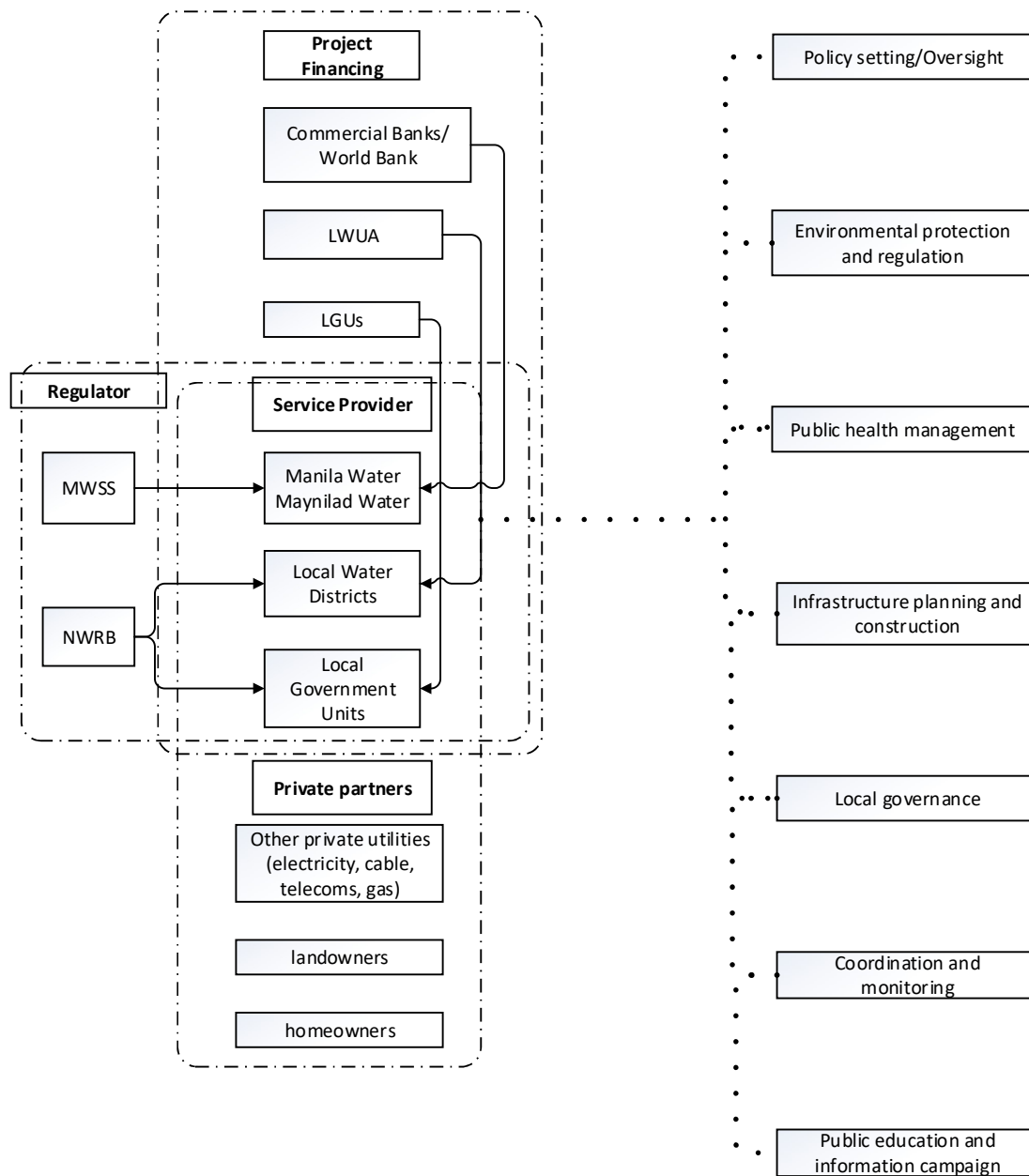


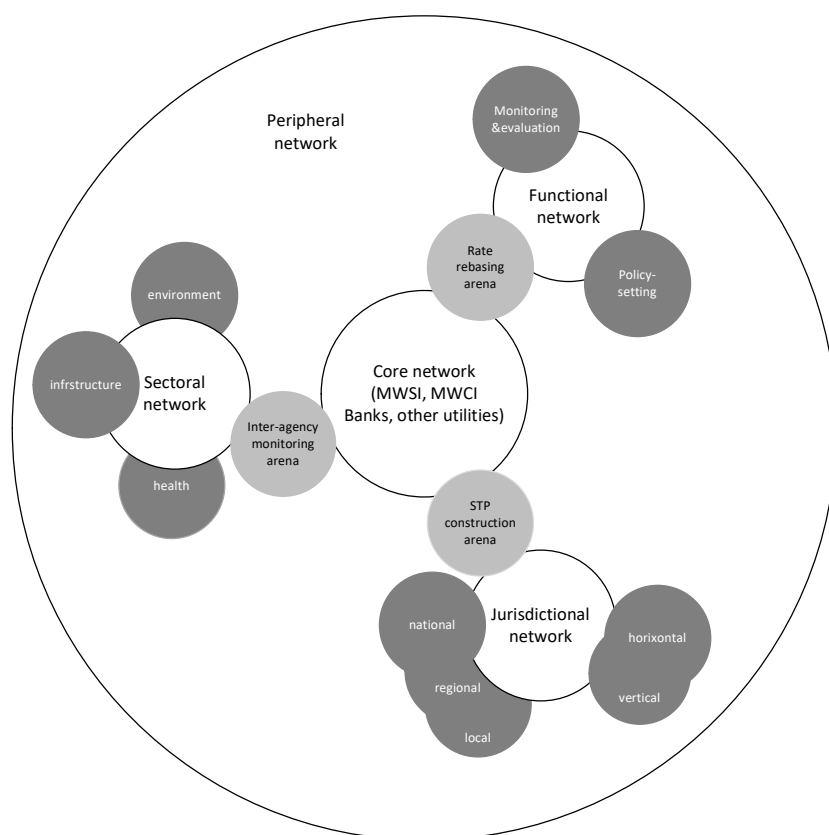
Table 4.5 Functional areas in Philippine sewerage network

Functional areas	Departments/agencies	Functions
Policy setting/oversight	National Economic Development Authority Department of Public Works and Highways NSSMP Office* Department of Agriculture	Evaluate and approve sewerage and sanitation projects for inclusion in national infrastructure programming Tasked to prepare a national sewerage and septage management plan (NSSMP) under the Philippine Clean Water Act Manage and oversee the implementation of the NSSMP Formulate guidelines for the re-use of wastewater for irrigation and other agricultural purposes, and for the prevention, control and abatement of pollution from agricultural and aquaculture activities
Environmental protection and regulation	Department of Environment and Natural Resources Environmental Management Bureau Laguna Lake Development Authority (LLDA)* Pasig River Rehabilitation Commission * Water Quality Management Authority * National Solid Waste Management Commission* Manila Bay Coordination Office * Philippine Coast Guard	Primary government agency responsible for the implementation and enforcement of the Philippine Clean Water Act of 2004; review and set affluent standards, review and enforce water quality guidelines Monitor water quality and discharge/effluent monitoring and enforcement for areas outside LLDA jurisdiction; issue Environmental Compliance Certificate (ECC) be secured for environmentally critical projects Monitor water quality and discharge/effluent monitoring and enforcement for the Laguna de Bay Region; issue discharge permit if wastewater is discharged in Laguna de Bay Rehabilitate the Pasig River and its tributaries, including preparation of master plans, coordinating with other implementing agencies, relocation of informal settlers and abate wastewater discharge to the Pasig River; monitor water quality for the Pasig River Formulate strategies to coordinate policies necessary for the effective implementation of the Philippine Clean Water Act and monitor the compliance with the action plan; establish and affect water quality surveillance and monitoring network including sampling schedules and other similar activities; issue discharge permit Prescribe policies to effectively achieve the objectives of RA 9003 or the Ecological Solid Waste Management Act; oversee the implementation of appropriate solid waste management plans by end-users and local governments Facilitate the efficient and effective implementation of the Operational Plan for the Manila Bay Coastal Strategy (OPMBCS), including the rationalisation of the OPMBCS priority actions and reporting systems Enforce water quality standards in marine waters, specifically from offshore sources
Public health management	Department of Health	Create and enforce standards for drinking water, septage and sludge disposal; review and issue Environmental Compliance Certificates for both stationary (treatment) and mobile (collection and transportation) septage services
Infrastructure planning and construction	Department of Public Works and Highways Metro Manila Development Authority	Plan, design, construct and maintain road drainage and flood control projects; issue excavation permits and right-of-way for national roads Responsible for integrated planning, monitoring, coordination over the delivery of metro-wide

Functional areas	Departments/agencies	Functions
		services such as transport and traffic management, solid waste disposal and management, flood control and sewerage management; issue traffic permit and excavation permits for road diggings in Metro Manila
Local governance	Local government units <i>Barangays</i>	Appropriate the necessary land, including the required rights-of-way/road access to the land for the construction of sewage and/or septage treatment facilities; sit on Water Quality Management Areas governing boards, which will set policy for septage management and perform water quality surveillance and monitoring Issue <i>barangay</i> clearance as prerequisite for permits/clearance issued by city hall
Coordination and monitoring	Manila Bay Advisory Committee*	Committee created by the Supreme Court to oversee the implementation of the SC decision on the Manila Bay Clean-up: ordered DENR, through MBCO to implement OPMBCS
Public education and information campaign	Department of Education Philippine Information Agency Commission on Higher Education Department of Interior and Local Government NSSMP Office	

*interagency committees

Figure 4.4 Different arenas under the Metro Manila sewerage network



4.3.1 The core and peripheral networks

At the core of the Metro Manila sewerage network is the service delivery network. The central actors in the network are the two private concessionaires, Maynilad and Manila Water, which are contractually obliged to implement sewerage projects towards providing 100% sewerage coverage for the service area by the end of the CA in 2037.

Also, part of the core network is the financial institutions, such as commercial banks and the World Bank. Financing was the main constraint that prompted the Philippine government to privatise the MWSS and private capital was the air that resuscitated the then-ailing MWSS. Today, financing is no longer a big issue. There is no shortage of financing sources for the two concessionaires as both concessionaires are part of the biggest conglomerates in the Philippines and possess good credit standing. Many of the water supply projects are financed through commercial bank loans. Sewerage infrastructure, on the other hand, is more expensive to construct and maintain but willingness to pay by consumers is low. Since interests from loans cannot be recovered from the tariff and interests from commercial banks are usually higher, financing by multilateral development banks is usually the route taken to finance sewerage projects. Concessionaires prefer multilateral development banks due to low interest rates and a longer repayment period (PC-2014-004).

The core network also includes partners and suppliers of the concessionaires, such as landowners, contractors and other utility providers. The concessionaires need land for the construction of STPs. Republic Act No. 9275 otherwise known as the Clean Water Act specifically directed LGUs to appropriate land in their jurisdiction for this purpose¹⁸ but in the event that the LGUs cannot provide lands, the concessionaires would have to purchase from private landowners (PC-2014-004) (Baffrey & Adis 2012; Tetra Tech & Berkman 2013). The concessionaires also have to coordinate directly with other utility companies to ensure that the sewage pipe network will not damage other existing underground installations. Above ground, the concessionaires also need electricity lines to power the STP (PC-2014-003).

The peripheral network of the Metro Manila sewerage networks can be categorised into sectoral, jurisdictional and functional networks. Sewerage and sanitation has always been appended to the broader water governance sector. These are mostly the same agencies

¹⁸ Section 7 of Republic Act No. 9275 entitled 'An Act Providing for a Comprehensive Water Quality Management and for Other Purposes enacted on 22 March 2004.

that comprise the peripheral network of the sewerage sector in Metro Manila. The private sector as the service provider has to work with all these organisations across sectors, jurisdictions and functions as each one has a stake in water and sewerage management.

Sewerage service is a vital public service that impacts on other sectoral policy concerns, particularly on the environment, health, and infrastructure planning and development. The first sectoral network is the environment network. Sanitation and wastewater, if not managed safely and properly, can have disastrous effects not only on the environment but on human health. The organisations in this network formulate policies to protect the environment, particularly water bodies, and set and enforce the standards for treatment and disposal of wastewater and sludge to prevent, control and abate pollution. The health network is where policies, technical standards and guidelines on sanitation and wastewater management are formulated to ensure that these facilities will prevent the outbreak and spread of diseases among the population. Construction of sewerage infrastructure is regulated by legal standards on building and maintaining safe and sustainable structures in the urban setting. These legal standards are formulated and enforced by the infrastructure planning and development network.

There are three jurisdictional levels of governance that are involved in the Metro Manila sewerage network: the national, regional and local governments. At the vertical level, the national government through its departments and their attached agencies sets policies and formulates and enforces regulatory standards. The local government, on the other hand, implements these policies and sometimes issues additional local ordinances, as well as regulates the construction of STPs in their jurisdiction through the issuance of permits and clearances. Across the horizontal level, national government agencies have to work with each other to ensure that the different sectoral concerns of sewerage services are consistent with each other. LGUs also work with each other particularly when a sewage project traverses multiple localities. At the regional level, the MMDA ensures the integration and coordination of metro-wide services such as sewage treatment.

The national government is traditionally organised by sectoral concerns. The different functional areas of sewerage and sewerage-related activities are spread across different agencies, such as policy formulation, project planning and implementation, service delivery, project monitoring and evaluation. Project planning and implementation, and service delivery are functions of the core network. Under the functional sub-network are the policy-setting and the monitoring and evaluation functions. Policy setting on matters relating to sewerage infrastructure is the function of the National Economic Development Authority

(NEDA) and DPWH. The NEDA is the lead national agency responsible in ensuring that the socio-economic policies, plans, programs and projects of different government agencies, such as infrastructure development, are consistent with established national priorities at both the national and regional levels prior to their adoption. The Clean Water Act of 2004 decreed the formulation of a national strategy to revive and rehabilitate the country's surface water by sanctioning all highly urbanised cities in the country to provide sewerage and septage services. The formulation of this national strategy was vested in NEDA.

The function of monitoring and evaluation of sewerage projects is implemented in three different modes: customer satisfaction administered by the concessionaires, regulatory monitoring by MWSS-RO and sectoral interagency monitoring undertaken by the Manila Bay Advisory Committee (MBAC). The first two are undertaken in the core network. Under the peripheral network, the MBAC, a separate monitoring body was created to monitor all activities for the rehabilitation, restoration and conservation of Manila Bay. The concessionaires are part of this network because all treated wastewater is disposed of into Metro Manila's estuaries, canals and rivers, which eventually empty into Manila Bay.

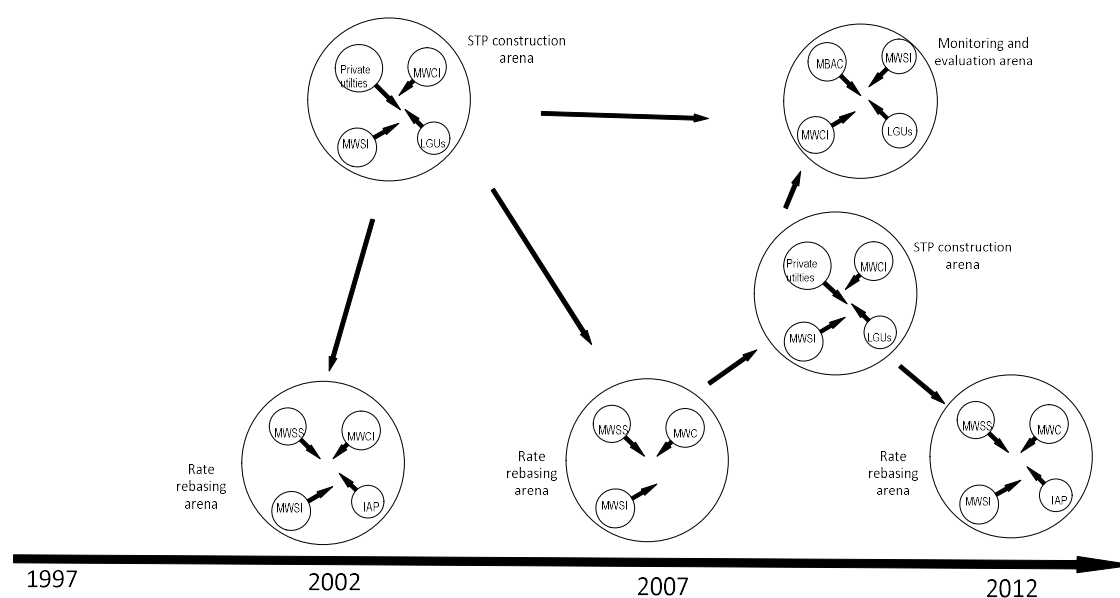
4.3.2 Arenas of interaction

With the existence of numerous sub-networks and actors, there can be an abundance of explanations and permutations that can explain why sewerage obligations were not achieved. Simply identifying the actors in the sewerage network by sector, function or jurisdiction does not sufficiently explain the outcomes in the sewerage sector. Vital decisions occur in arenas and, as such, I will analyse the network behaviour in the arenas that impact on sewerage outcomes the most. To determine the factors that influenced performance of the concessionaires, it is important to identify the arenas or domains of interaction in the sewerage network. The decision making arenas are determined based on the problem definition by the concessionaires, Maynilad Water and Maynilad. I take the position of the concessionaires in defining the research problem because they are the actors that are most actively involved in implementing sewerage projects in Metro Manila.

The arenas identified by the concessionaires are the tariff setting arena, the STP construction arena and the interagency monitoring arena. The decisions and interactions in each arena impact on the outcomes in that arena, other arenas and the broader sewerage network. Sewerage outcomes are a product of the series of decisions in these three arenas over a series of time, as shown in Figure 4.5. The Metro Manila concessions have been researched extensively but none of it has evaluated this subject in this manner (cf. Chng

2008; Cuaresma 2006; Fabella 2011; Fabella 2012; Malaluan & Wu 2008). The following subsections offer background information about each arena. The complexity of these three arenas will be examined in great detail in the next three chapters.

Figure 4.5 Time and decision series in arenas of interactions in Metro Manila sewerage services network



4.3.2.1 Tariff setting arena

In the tariff setting arena, Manila Water and Maynilad are mainly dependent on the MWSS. In simple terms, both utilities have to secure authority from MWSS-RO to increase tariff and implement their sewerage projects. Tariff is determined during the rate rebasing review that both concessionaires have to submit themselves to every five years and administered by the MWSS-RO. In this review, the past cash receipts and future expenditures of the two concessionaires are examined by the regulator to determine whether or not these expenses were prudently and efficiently incurred. These receipts and expenditures will be the basis for the revision of the tariff to be imposed by the concessionaires. Maynilad and Manila Water relies on the legitimacy that the MWSS-RO grants through the rate rebasing review to be able to implement their sewerage projects. Without this legitimacy, they are constrained from pursuing their projects. When their projects are not approved, they fail to comply with their contractual obligations.

Should any disputes arise out of the contract which cannot be resolved through consultation and negotiation among the parties, another actor is brought into the arena.

The parties can escalate the matter for resolution before the international arbitration panel to circumvent the clogged dockets of the Philippine judiciary system.

4.3.2.2 STP construction arena

In the STP construction arena, there is resource interdependence between the private concessionaires and the LGUs. On one hand, the LGUs need the concessionaires to build STPs in their locality because, other than for health and environment benefits, these facilities are potential political capital for locally elected executives who can showcase the project as one of their accomplishments. On the other hand, the concessionaires need land for the construction of STPs and LGUs can help identify and appropriate lands in their locality. The construction of STPs is governed by numerous legal standards, national policies and local ordinances. The concessionaires depend on national government agencies and LGUs to grant them the licence and permits necessary to construct sewerage infrastructure, such as construction permits, health and environment clearances and traffic clearance.

The two concessionaires are also dependent on other private utilities as the construction of STPs includes the installation of kilometres of pipelines to divert wastewater into the STP and electricity lines to power the STP. There is no government agency that maintains an integrated mapping of existing utilities, thus the Maynilad and Manila Water take it upon themselves to coordinate with other utility providers, such as gas, water lines, phone, electricity and cable companies, to ensure that their underground works will not damage any existing underground installation.

4.3.2.3 Interagency monitoring arena

Of the three modes of monitoring and evaluation of sewerage projects, this research will examine the sectoral interagency monitoring. The sectoral interagency monitoring is a peripheral yet crucial activity that affects sewerage activities. A separate monitoring body was created to monitor all activities for the rehabilitation, restoration and conservation of the Manila Bay, which is the MBAC. The concessionaires are part of this network because all treated wastewater is disposed of into Metro Manila's estuaries, canals and rivers that eventually empty into the Manila Bay. Under the interagency monitoring arena, the dependency of the private utilities on the MBAC was created by the writ of *mandamus* issued by the Supreme Court directing government agencies to keep the Manila Bay clean

and safe by performing their ministerial duties¹⁹ and non-compliance shall result to sanctions from the Court. The Court ruling specifically directed all concerned agencies to coordinate among each other in order to achieve the goal of cleaning up Manila Bay.

The government agencies named in the *mandamus* are those that are responsible for some aspect of waste management, water quality, budget allocation or law enforcement directly bearing on the problems of Manila Bay. The MWSS was a named respondent in the case. The concessionaires were not named as respondents but as contractors of MWSS, they were considered to be de facto *mandamus* agencies of the MBAC. The Court ordered the MWSS and its concessionaires to submit their plans and projects for the construction of wastewater treatment facilities in Metro Manila, Rizal and Cavite and the completion period for said facilities, which will not go beyond 2037. This task is already a major obligation of the concessionaires under the CA.

4.4 Concluding remarks

This chapter has provided a broad survey of how the sewerage sector in Metro Manila has grown into a complex multi-layered system comprised of multiple actors with diverse interests. The long history of the sewerage sector in the Philippines created a broad network comprised of several sub-networks with no clear lines of coordination. This chapter organised the sewerage sector by categorising the organisations by the sub-networks that they interact in. However, grouping the actors in the sewerage network by sector, function or jurisdiction is not enough to explain the outcomes in the sewerage sector. This chapter went further to identify the three most crucial arenas in the Metro Manila sewerage services network where vital decisions and negotiations on sewerage services take place: (1) tariff setting (2) STP construction and (3) interagency monitoring.

In the next three chapters, each arena will be examined in detail by identifying the pressing issues confronting the arena and strategies taken by actors to address such issues, examining the issues created by the network features of PPP and analysing the network effects in each arena.

¹⁹ A ministerial duty is one that a 'simple, definite duty arising under conditions admitted or proved to exist and imposed by law that requires neither the exercise of official discretion nor judgment' (Supreme Court of the Philippines 2008).

Chapter 5

The network effects in the arena of tariff setting

5.1 Introduction

This chapter examines the tariff setting arena where crucial decisions on the planning of sewerage infrastructure and pricing of sewerage services are made. This chapter explains how the network features of PPP created network effects in the tariff setting arena. PPP has reshaped the governance structure of public infrastructure services, such as water and sewerage, by bringing in new actors, changing the role of old actors and establishing contractual relationships among these actors.

The public and private actors brought together by PPP enter into a legal and binding contract that specifies the rights and duties of the contracting parties and failure to comply is subject to legal sanctions (Vincent-Jones 2000, p.320). For contracts to be successful and effective, they require mutual trust, commitment, altruism and cooperation of all parties (Ferris and Graddy 1991:40 – 1 as cited in Davis 2007: 386). The nature of the relationship of the contractual parties in a long term public infrastructure contract is dynamic. Throughout the contract duration, the conditions under which the parties interact are in a constant state of flux. Changes that can affect the relational contract can be political (e.g., elections, cabinet change, enactment of new laws, change in policies, change in actors, etc.), economic (e.g., currency fluctuation, financial crisis, etc.), environmental (e.g., natural disasters) or technological (e.g., obsolescence of and availability of new technologies) (Koppenjan & Klijn 2004, p.61). Thus, the terms and conditions of the contract do not guarantee certainty in interorganisational transactions in the network.

In this chapter, it is argued that negative network effects in privatised infrastructure services are created when any one or all of the network features are not taken into consideration in policy implementation. In the tariff setting arena, the negative network effect was a result of an unclear network management role. The Metro Manila water concessions have divested the government of its direct service provider role but it has created multiple roles for the government that can potentially conflict with each other and affect network outcomes. The second section identifies the pressing problems confronting the concessionaires in the tariff setting arena. The third section explains how the network features of PPP contributed to the problems confronted by actors in this decision making arena. The fourth section discusses how the network features created negative network effects and its impact on the accomplishment of the concessionaires' sewerage obligations.

5.2 Tariff setting arena problems

Prior to PPP, the then state-owned MWSS was solely responsible for the management, operation, repair, construction and decommission of water and sewerage facilities and the right to set the tariff, bill and collect payment from customers for water and sewerage services in Metro Manila. In 1997, these functions were transferred to two private companies, Maynilad and Manila Water, under a 25-year concession agreement (and extended for another 15 years in 2009 and 2010, respectively). The life cycle of sewerage projects starts from tariff setting otherwise known as the rate rebasing exercise. Proposed water and sewerage projects of the private utilities are reviewed and approved under this exercise by the government regulator, MWSS-RO, before any water and sewerage infrastructure can be constructed. The tariff is set every five years using a financial formula that allows the concessionaires to recover their operating, maintenance and investment expenditures efficiently and prudently incurred over the life of the contract.²⁰ The concessionaires propose tariff revisions based on their past and future cash receipts and expenditures for water and sewerage projects.

No later than 31 March of the rate rebasing year, the concessionaires are required to furnish the MWSS-RO all information on their expenditures, receipts, cash flows, opening cash position and future cash flows to aid the rate rebasing review. The regulator reviews the viability, prudence and effectiveness of the proposed tariff based on the expenditures incurred for water supply and sewerage services in the preceding five years and the proposed expenditures in the next five years. Based on this review, the MWSS-RO recommends a new tariff, which is subject to approval by the MWSS Board of Trustees. Simply put, it is during the rate rebasing review where the parties decide and negotiate on how much money will be spent on which projects and how much the concessionaires can charge to recover their investments.

In 2013, the concessionaires and the MWSS were scheduled to go through the third rate rebasing review since the water and sewerage services were privatised in 1997. For the third rate rebasing, MWSS-RO adopted a process that was different from the two previous

²⁰ Article 9.3.4 of the Concession Agreement states that 'the rates for water and sewerage services provided by the Concessionaire shall be set at level that will permit the Concessionaire to recover over the 25-year term of the Concession (net of any grants from third parties and any possible Expiration Payment) operating, capital maintenance and investment expenditures efficiently and prudently incurred, Philippine business taxes and payments corresponding to debt service on the MWSS Loans and Concessionaire Loans incurred to finance such expenditures, and to earn a rate of return (referred to herein as the "Appropriate Discount Rate") on these expenditures for the remaining term of the Concession in line with the rates of return being allowed from time to time to operators of long-term infrastructure concession arrangements in other countries having a credit standing similar to that of the Philippines.'

tariff determination exercises. The third rate rebasing was more meticulous and detailed compared to the previous reviews as the auditors reviewed transactions amounting to tens of thousands of vouchers, receipts, records and documents (Landingin 2013). According to former MWSS Acting Chief Regulator Emmanuel Caparas,²¹ the past two rate rebasing reviews were ‘table audits’ that simply entailed checking if an expense was allowable or not based on the description of the item. As a result of the detailed audit, numerous expenditures, such as corporate donations and corporate income tax (CIT) incurred by the concessionaires, were not approved by the MWSS-RO. These expenditures were allowed under the previous reviews. Thus, the proposed tariffs by the concessionaires were rejected and the regulator directed Manila Water to cut its basic water charge by 29.47% and Maynilad by 4.8% (Bernal 2014). In an interview with MWSS Technical Regulator Gerry Sullano, it was revealed that it was merely correcting the mistake of previous administrations in allowing the concessionaires to pass on the CIT because the past reviews did not carefully scrutinise the receipts of the concessionaires.²²

The two concessionaires filed separate cases before the international arbitration panel to contest the decision of MWSS-RO in the rate rebasing review of 2013. Almost two years after the third rate rebasing commenced, the two arbitration panels finally ruled on the cases. While the issues presented by the two concessionaires were substantially the same, i.e., to dispute the expenditures disallowed by the MWSS-RO, the panels issued contradicting rulings on these cases. On 29 December 2014, the arbitration panel that heard Maynilad’s case ruled favourably on the petition and upheld the proposed tariff increase by the company. Maynilad was also allowed to recover its CIT, which is equivalent to Php2 of the average increase in basic water charge. On the other hand, the arbitration panel for Manila Water’s petition denied Manila Water’s petition in April 2015. The panel

²¹ Caparas resigned on 30 June 2014 over a potential conflict of interest. He was the acting Chief Regulator during the 2013 rate rebasing review. According to an audit observation memorandum by the Commission on Audit, Caparas violated a provision in the regulating body’s agreement with its concessionaires for holding the post of chief regulator and sitting as MWSS trustee at the same time. It provides that a regulator cannot have a prior or existing affiliation with parties to the agreement, including MWSS (Bernal 2014).

²² The MWSS-RO referred to a previous Supreme Court ruling that public utilities are not allowed to charge CIT to the consumer. The question of whether or not the two water companies can pass on income taxes to their customers goes back to 2004, two years after the Supreme Court issued a landmark ruling disallowing the Manila Electric Co. (Meralco) as a public utility from including its income taxes in electricity rates. The high court’s ruling forced Meralco not only to cut rates, but also to refund up to Php28 billion to customers. In March 2004, the MWSS-RO tried to apply the Meralco ruling, believing that the two concessionaires are public utilities like Meralco and moved to cut Manila Water’s rates (Maynilad was losing money at that time and did not pay income taxes). The MWSS Board of Trustees, however, did not support the position of its regulatory unit. Instead, it formed a technical working group (TWG) composed of MWSS officials and water company representatives to study the matter. The TWG took the view that the concessionaires are not public utilities but are mere agents of MWSS. In July 2004, the MWSS-RO adopted the TWG report and rescinded its previous resolution. The MWSS Board also issued a resolution adopting the TWG report (Landingin 2013).

adjudged Manila Water as a public utility and therefore not entitled to recover CIT as a corporate expense and ordered Manila Water to roll back its tariff to a rate lower than what was approved in the MWSS's original ruling (Rappler.com 2015a). Analysts cannot seem to explain the variance in the rulings despite the fact that the two concessionaires presented similar set of problems (Gagni 2015).

The regulator delayed the implementation of the first panel's decision, which was final and enforceable, until the decision on the petition filed by Manila Water was issued to ensure consistency in the exercise of its regulatory mandate. After the second ruling was issued, the MWSS-RO only chose to implement the ruling for Manila Water and disregarded the panel's favourable judgment on Maynilad's petition. The regulator is contractually and legally bound to implement the two decisions but in denying Maynilad's tariff increase, the MWSS-RO argued that it was merely performing its duty to set just and equitable rates for all water consumers in Metro Manila. According to MWSS-RO Chief Regulator Joel Yu, the regulator is within its duty to reduce the rate in the panel ruling as the implementation of the panel's decision is subject to the approval of MWSS-RO (Rappler.com 2015b).

The refusal of the MWSS-RO to implement the panel ruling on Maynilad spurred another round of legal cases. In February 2015, Maynilad sought sovereign compensation from the DOF based on the existing sovereign undertaking between the Philippine government and the concessionaire. The undertaking is a form of government warranty that guarantees government agencies involved in a project will fulfil their obligations. Maynilad alleged that the MWSS-RO's refusal to implement the panel decision is in violation of this undertaking and has caused the company revenue losses amounting to PhP3.44 billion (US\$77.56 million) from 1 January 2013 to 28 February 2015 (Rappler.com 2015c). Maynilad expects the amount to increase until MWSS implements the rate hike. The concessionaire also filed a new arbitration case before the ICC to protest the regulator's disregard of the panel ruling and seek payment for foregone revenues as result thereof. In April 2015, Manila Water also filed a claim for sovereign compensation before the DOF for the company's projected losses due to the arbitration ruling that prohibits it recovering CIT. The company claims that it stands to lose about PhP79 billion (US\$1.79 billion) from 2015 to 2037 as a result of the decision of the arbitration panel. In December 2015, Manila Water also filed another notice of arbitration against the Philippine government before the Permanent Court of Arbitration in Singapore for the DOF's failure to honour the performance undertaking issued in connection with the CA.

On 20 February 2015, then DOF Secretary Cesar Purisima issued a memorandum to then President Benigno Aquino III expressing the Department's position that the MWSS-RO should have granted the petition for tariff increases by the concessionaires. Secretary Purisima surmised that the call on the undertaking letter by the private utilities may negatively affect the country's credit rating. The MWSS-RO's refusal to implement a valid arbitral award may be perceived by foreign investors as a breach of contractual commitment (De Vera, 2015). Notwithstanding the DOF's position, the regulator filed a petition before the Philippine Supreme Court in April 2015 to seek its opinion on whether or not the two concessionaires are public utilities and thereby entitled to recover CIT from the public.

The rate rebasing exercise is intended to be a routine review that the parties submit to every five years and is supposed to conclude within one year from its commencement. In July 2017, four years after the rate rebasing commenced, the international tribunal ordered the Philippine government 'to pay Maynilad Water Services Inc. PhP3.424 billion in revenue losses from unimplemented rate adjustments' (Cordero, 2017). There is no ruling yet on the case filed by Manila Water. The MWSS has not released a statement on the decision. In the meantime, both concessionaires are complying with the tariff rates approved by the MWSS and implementing water and sewerage projects in their respective service areas. Regardless of who will be pronounced the winner in these cases, the final bill on the arbitration costs will eventually be charged to the consumers.²³ Past arbitrations cost over PhP140 million (Table 5.1) (Sabillo, 2013). The arbitration cost for the third rate rebasing is yet to be disclosed (Padilla, 2013).

Table 5.1 Cost of past arbitration proceedings

Summary of Issues	Concessionaires involved	Cost of arbitration (PhP million)
On the determination of the MWSS-RO of extraordinary price adjustment (EPA) using an ADR of 5.2% (1999)	Manila Water	23.14
Notice of early termination (2003)	Maynilad	109.66
On the issue of the accelerated EPA and FCDA	Maynilad	7.23
TOTAL		140.03

Source: MWSS Regulatory Office; Sabillo, 2013

²³ Article 12.6 of the Concession Agreement states that the 'Costs incurred by the Appeals Panel in connection with any proceeding (including the fees and expenses of panel members and legal, economic or technical consultants retained by the Appeals Panel), shall be apportioned between the parties as the Appeals Panel shall direct and the Concessionaire's share of such costs shall be treated as an Expenditure.'

5.3 Network features in the tariff setting arena

Since networks are inherently complex and plural, service delivery outcomes rely on how interorganisational relationships and processes are managed. The past and current issues that the concessionaires have encountered (see Section 4.2.3.4 The fall and rise of the Metro Manila concessions on page 80) and continues to encounter is symptomatic of the network features that emerged as a result of PPP. This section discusses how the network features influenced the occurrence of these problems.

5.3.1 Arena actors and their resource interdependencies

One of the claimed advantages of PPP is that it has improved accountability arrangements compared to the traditional procurement method (Greve & Hodge 2010, p.156). PPP has broadened accountability arrangements, which is deemed superior to traditional procurement: interlinked financial incentives across a network of actors, risk-sharing through contractual legal relationships and more flexible decision making processes between government and service provider (Greve & Hodge 2010, p.156). Resource interdependence has improved transparency and checks and balances in the management and distribution of resources. Accountability under a hierarchical network emanated from government supervision and checks and balances over allocation of resources was concentrated in government hands. PPP is deemed to have improved accountability and transparency of government transactions by expanding this role to multiple actors and institutions (Hodge & Coghill 2007, p.693).

Resource dependency is determined by the importance of a resource owned by one actor to others and its substitutability or whether the resource can be acquired from other actors. The nature of interorganisational relationships is largely shaped by the distribution of resources among network members (McGuire 2002, p.605). The degree of resource dependency defines the position of the actor in the network. An actor who is dependent on a resource owned by another to achieve its objectives but the latter is not dependent on the former is in a weak position (Koppenjan & Klijn 2004, p.145). With more actors in the network, there will be more configurations of dependencies. Resource allocation mechanisms, therefore, have to be negotiated at the interorganisational and interpersonal levels to make the network work (Osborne 2010b, p.9).

The MWSS-RO and the two concessionaires are the indispensable actors in the tariff setting arena. There are secondary actors in the tariff setting arena whose resources, while not central, are still relevant to the performance of the functions of the two main actors. Table

5.2 below summarises the level of dependency among the actors in the rate rebasing arena.

Table 5.2 Resource dependencies in the tariff setting arena

Actors	Very important resources	Degree of substitutability	Dependency: Low, medium, high	Critical actor: yes/no?
MWSS	Competency	Low	High	Yes
	Legitimacy	Low	High	
Maynilad	Knowledge	Medium	High	Yes
Manila Water	Financial resources	Medium	High	
Lending institutions	Financial resources	Medium	Medium to high	Yes
International arbitration Panel	Legitimacy	Low	Medium to high	No
Rate rebasing consultant	Knowledge	Medium	Medium to high	Yes
Department of Finance (DOF)	Legitimacy	Low	Medium	No
	Competency	Low	Medium	
Consumers	Legitimacy	Low	High	Yes
Activist groups	Legitimacy	High	Low	No

Maynilad and Manila Water were expected to pour in the much-needed substantial capital investment and provide the technical expertise to upgrade and rehabilitate Metro Manila's decaying water and sewerage infrastructure, maintain and operate these facilities, bill and collect water and sewerage charges and pay the old debts incurred by MWSS. By the end of the CA, both concessionaires are expected to have achieved 100% potable water supply connection for the entire population and 100% treatment of the sewage produced.

The two private utilities either fund the projects themselves or borrow from lending institutions, either commercial banks or multilateral development banks (MDBs). Many of the water supply projects are financed through commercial bank loans because this is the profitable aspect of the service. Sewerage infrastructure, on the other hand, entails higher capital and operating cost but willingness to pay by the consumers is very low. Financing by MDBs, through a local financial conduit such as the Land Bank of the Philippines, is usually the route that the concessionaires take for sewerage projects. According to the executives of Maynilad's Wastewater Planning and Project Development, it is more favourable for the company's cash flow to secure a MDB loan as the interest rate is lower and repayment period is longer, i.e., 1.5% interest and 30 years. The World Bank also offers a grace period of five years, which means the borrower does not have to commence repayment while the project is still being constructed. Commercial banks, on the other hand, impose an interest rate of 7% with a maximum repayment period of ten years. Interest on loans is not a recoverable expense under the CA.

Once the financial dependency between the government and the private sector was sealed through the CAs, other resource interdependencies were created. The framers of the Metro Manila concessions acknowledged the need to regulate the concessionaires because water is not an ordinary commodity and tariff setting can be a highly political and sensitive issue. The MWSS-RO was created to ensure effective regulation of the concessionaires and guarantee equitable tariff rates (see Section 4.2.4.3 Regulating the concessionaires on page 79). As regulator, it possesses intangible resources that the concessionaires need for continued public acceptability of their status as service providers, i.e., legitimacy and competency. MWSS-RO grants Maynilad and Manila Water the legitimacy to implement sewerage projects through the rate rebasing review. The allocation of financial resources has to pass the scrutiny of the MWSS-RO before any water or sewerage projects can commence. Legitimacy is not a one time, continuing resource that the concessionaires secure but is renewed every five years through the rate rebasing review. Without this legitimacy, they are constrained from implementing projects and when their projects are not approved then they fail to comply with their contractual obligations.

The power to grant legitimacy, in turn, is dependent on another resource that the regulator possesses, which is the competency to conduct a fair, objective and adept evaluation and decision on the business proposals of the concessionaires. As regulator, the MWSS-RO is expected to have the competency to evaluate and monitor the financial and technical and/or engineering aspects of the concessionaires' operations. Prior to the Metro Manila concessions, the government had no experience in regulating water and sewerage services. Recognising this shortcoming, the framers of the CA provided an option for the regulator to hire consultants during the rate rebasing process when it is deemed necessary. In the three rate rebasing exercises thus far, the MWSS-RO had enlisted the services of consultants to assist in the technical and financial analyses of the concessionaires' business plans. The regulator depends on an important resource, i.e., knowledge, to proceed with the rate rebasing review, which is held by the concessionaires.

The MWSS-RO and the two concessionaires are highly dependent on the resources that the other possesses because each of these resources has a low degree of substitutability. The main motivations of the Philippine government to work with the private sector in the provision of the water and sewerage services in Metro Manila are to overcome the lack of financial resources and technical expertise (Dumol, 2000 pp.16-20). These resources can neither be substituted with another resource nor can these be secured from another actor. In turn, the concessionaires are highly dependent on the resources that the MWSS possess, i.e., the competency to conduct the rate rebasing review and the legitimacy

granted to the concessionaires by virtue of the review, as these resources cannot be substituted from any other agency because the MWSS is the sole regulator of the Metro Manila concessions. As both regulator and concessionaires have monopoly over such resources, the mutual co-dependency requires the parties to work together and resolve their issues, if any, because the consuming public has no alternative providers for the resources they possess.

The dependency of the concessionaires on lending institutions is at the medium range because the substitutability of the financial resource is medium to high in view of the different options available to the concessionaires to finance their projects. Both companies have a large capital base and good credit rating and can also opt to fund the projects themselves or choose from different types of banking institutions for financing.

Both the international arbitration panel and the DOF possess the competency to rule on legal issues that may arise between the regulator and the concessionaires and the resolution of these issues provide the legitimacy that either party expect from the arbitration. These resources have low substitutability as these agencies are the only ones empowered to rule on the issues between the regulator and the concessionaires.

Dependency is medium to high because these resources are critical only when they are activated, i.e., when they are called on to decide on issues that cannot be resolved by the concessionaires and the regulator themselves. During the first and third rate rebasing, the international arbitration panel was activated to rule on the proposed tariff increases, among other things. The DOF was activated in 2015 when the two concessionaires called on the sovereign undertaking and sought for compensation for failure of the MWSS-RO to implement the arbitral ruling.

The regulator also refers to the satisfaction rating by consumers in evaluating the performance of the concessionaires as it is a key performance indicator (KPI) in the CA. This legitimacy resource is neither substitutable nor can be secured from other actors, as the consumers are the recipients of the water and sewerage services delivered by the concessionaires. Both concessionaires consistently garnered good ratings in the Public Assessment on Sewerage and Sanitation Service.

The activist groups, while not a central actor in the tariff setting arena, possess legitimacy resource that can be helpful to the concessionaires. The court cases filed by these groups against the concessionaires can delay or halt water and sewerage projects should the court rule favourably in any of these cases. In an interview with Rodolfo Javellana, president and

spokesperson of Water for All Refund Movement (WARM), he revealed that his group has filed a total of five cases before the local courts assailing the different aspects of the Metro Manila concessions. A positive endorsement from the activist groups could be an added legitimacy for the concessionaires but, according to one project executive working for one of the concessionaires, they do not factor these cases into their decisions as their obligations are mainly guided by the CA. Moreover, according to the project executive, their company does not view these cases as a threat as a number of earlier cases filed by individuals and NGOs had been dismissed by the courts (PS-2014-007).

5.3.2 Goal congruence

As networks are comprised of numerous and diverse actors, achieving goal congruence has been deemed crucial to effectively work across interorganisational networks (Goldsmith & Eggers 2004; O'Flynn, Blackman, et al. 2013; Provan & Kenis 2007). Achieving goal congruence is challenging when each actor is governed by its organisational mandates. For the private sector, 'Money is the end...while money is a means in the public sector to achieve social outcome' (Moore, 2000 as cited in Greve & Hodge 2010, p.158). Actors can have different interest, perception and strategies that can diverge and conflict (Koppenjan & Klijn 2004, p.51). To agree on a common goal, it is important that actors first define the problem that they jointly need to address. A common problem definition can clarify each organisation's stake or interest in resolving a problem and the level of interdependence needed to solve the problem (Bryson et al. 2006, p.46).

In the case of the Metro Manila concessions, the CA defines the rules that the concessionaires and the MWSS have to observe. The two concessionaires are contractually obliged to operate, maintain, renew, appropriate and decommission water and sewerage system facilities in their respective service areas. In terms of water services, the concessionaires are required to increase water connections to meet service coverage targets, provide uninterrupted 24 hours of water supply, facilitate connections to the water main and ensure that drinking water supply are within the health and safety standards. The service obligations of the two concessionaires in the CA are basically the same, differing only on the targets, which are based on the concessionaires' financial models. The sewerage obligations of the concessionaires, as provided under Article 5.2 of the CA, are as follows:

- 1) Offer sewerage connection to consumers in services areas where the sewer lines are available and comply with the sewerage coverage targets per city and municipality,

- 2) Comply with all national and local laws and standards on wastewater treatment and
- 3) Provide septic and sanitation cleaning services to consumers every five to seven years.²⁴

The long term nature of concession contracts exposes the parties to changing conditions that can undermine or challenge the contract and the relationships among parties. The Metro Manila concessions span 40 years and the long term nature of the contract creates uncertainties. The proponents of the Metro Manila concessions instituted multiple and overlapping checks to safeguard the contract over the contract duration: (1) creation of MWSS-RO as regulator and contract manager, (2) institution of procedural controls, such as the rate rebasing review and other reporting requirements, (3) option to hire consultants to assist in the technical and financial review of the concessionaires' business plans and (4) opportunity to resort to international arbitration in case of conflict.

The CA created the MWSS-RO to evaluate and monitor the performance of the concessionaires. The MWSS-RO evaluates the performance of each company based on the KPIs and business efficiency measures (BEM), taking into consideration the expenditures and investments to achieve such targets. The KPI and BEM are assessed alongside the concessionaires' business plans, which lay the framework for new service obligations and anticipated future investments. These targets are measured based on population coverage and service quality defined in their five year business plans. The CAs allow for renegotiation of performance targets and tariffs during the rate rebasing review. The review commences on the 31st of March of the rebasing year and should be concluded within one year. In case conflict arises between the concessionaires and MWSS-RO from the implementation of the CA and the parties cannot resolve the issues among themselves, the parties can resort to international arbitration. The decision of the international arbitration panel is final, binding and executory.

The CA laid down the rules that are supposed to mitigate uncertainty by defining the roles, duties and obligations of the actors in the network and providing sanctions in case of non-compliance. These rules are formal, specific and time-bound. However, these were not enough to guarantee smooth and controversy-free Metro Manila concessions. As we now know, the first ten years of the Metro Manila concessions was turbulent at best, characterised by a battery of legal cases, bankruptcy and rebidding of contract (see Section 4.2.3.4 The fall and rise of the Metro Manila concessions on page 80). However, the early

²⁴ The Sanitation Code, however, requires periodic desludging of septic tanks every three to five years.

disputes can be considered the inevitable teething problems when new policies are implemented. The turbulence in the early days can be attributed to the fact that the parties were still learning the ropes of PPP. These served as a learning experience that 'tested the robustness of the arrangement, forged trust between the parties and helped shape future expectations' (Kumar & Brock 2012, pp.6–7).

The third rate rebasing is still in a legal quagmire. The turn up of events in the third rate rebasing exercise has proven that the only thing constant in a relational network is uncertainty. Uncertainty is brought about by the different perceptions among the network actors, which have created a 'dialogue of the deaf' (Koppenjan & Klijn 2004, p.115). While the CA has clearly laid down the goals, each actor has a different opinion on the nature of the problem and solutions. When actors are discussing different things, it is difficult to find a solution.

Not only are the regulator and the private utilities at odds but the government itself is divided over the tariff issue. The regulator believed that by conducting a more detailed audit and disallowing certain expenses of the concessionaires, it is correcting the mistakes of past administrations. The regulator corrected these mistakes by construing the contract terms in favour of the consumers. The change in the interpretation of the CA prompted the two concessionaires to resort to international arbitration. After the arbitration panel ruled on the cases, the regulator refused to comply with the decisions of the arbitral court. The regulator views the decisions of the arbitral court as prescriptive and it is still within its right to implement its own decision. The DOF, on the other hand, viewed the act of MWSS-RO as a breach of the arbitral award, which was final and binding and the latter had no basis for delaying the execution of the rate increase (De Vera 2015). The argument of NGOs is beyond the interpretation of the contract terms but on the validity of the CA itself. Each actor's arguments are backed by their own research that has resulted in a 'war of reports' that served to escalate the conflict and uncertainty (Koppenjan & Klijn 2004, p.115).

The contract is the main instrument of service provision and mode of regulation (Freeman 2000, p.668) but these were not enough to get actors to cooperate towards the network goal. The CA included provisions for check and balance, such as the option to hire consultants to provide technical and financial expertise during the rate rebasing exercise, the leeway to negotiate between the parties in case of disagreement and if issues cannot be resolved, the availability of international arbitration. These safeguards, however, may also be the reason for the long, drawn out legal dispute that has started in 2013 and continues to this day. These accountability measures were intended to put the private actor

in check but in the tariff setting arena, it is the government regulator who refuses to implement a valid court decision. The expansion of accountability in the Metro Manila concessions served as a constraint because accountability is now negotiated at the interorganisational and interpersonal levels in a relational network (Osborne 2010a, p.9).

5.3.2 Network management

Amidst the uncertainties that are inherent in network, network leadership is deemed as key to the successful functioning of interorganisational networks (Koppenjan & Klijn 2004; Goldsmith & Eggers 2004; Bryson et al. 2006; Jackson & Stainsby 2000). The network manager must master the challenges of governing by network: aligning goals, providing oversight, averting communications meltdown, coordinating multiple partners, managing the tension between competition and collaboration and overcoming data deficits and capacity shortages (Goldsmith & Eggers 2004, p.40). A network manager is expected to navigate and lead the network out of a dialogue of the deaf.

Some network theorists suggest that the government is in the best position to assume the role of network manager (E H Klijn & Koppenjan 2000; Kickert et al. 1997). With PPP, the government has relinquished its role as service provider but its governance responsibilities do not end as it usually retains a regulatory role to ensure the quality and safety of vital public services (Kettl 2010, p.239). The government retains its regulatory role to ensure that the availability, accessibility and affordability of this vital public service, especially to the poor, are guaranteed. In addition to its regulatory role, the government is also the contract manager. Managing a contract requires a fundamentally different skill set from the government – negotiating a contract, overseeing its execution and assessing its results – compared to its previous role of managing direct service provision (Kettl 2010, p.246). These roles can potentially conflict because as regulator, the government has to ensure that consumer welfare is protected and as contract manager, the government's role is to ensure that the contract is implemented. There may be actions arising from the contract that may be deemed detrimental to consumers, the most common of which is tariff increase.

The concessionaires and other national agencies engaged in sewerage-related activities expect the MWSS-RO, as the government regulator, to take on the role as network manager. With the numerous agencies involved, each representing its own functions and interests (see Section 4.3 The resulting institutional framework on page 86), other stakeholders in the sewerage network believes that the MWSS-RO can act as arbiter and

lead the network towards mutual understanding of problems and convergence of ideas for solutions. Achieving goal congruence is challenging when the two lead actors in this arena have opposing goals i.e. whereas the private sector engaged in public service delivery to earn money, the public sector views the money from the private sector to achieve social outcome. Negotiations for PPP contracts have been criticised for lacking transparency as the process is often kept among the consultants and the parties to the contracts. Since these contracts are often highly technical in nature and can be difficult for laypeople to understand, the public is often not included in the negotiation process (Greve & Hodge 2010, p.153). The public interest is supposed to be safeguarded by the government as regulator.

For regulatory regimes that lack capacity, it would be difficult to strike a balance between the interests of the consumers and the operators. To avoid conflicts, the potentially conflicting functions should be independent from each other: (1) the contract manager, (2) the regulating body and (3) the policymaker. This does not exist in the Metro Manila concessions as the MWSS-RO was created by the MWSS Board of Trustees, which is mandated to set the policy directions of MWSS. Mark Dumol, a crucial actor in making the Metro Manila concessions happen, explained in his book *The Manila Water Concession: A Key Government Official's Diary of the World's Largest PPP* that an independent regulatory office created by legislation was initially envisioned but was not pursued. The executive department was given by the legislative branch two years from 1995 to privatise MWSS. Getting Congress to create an independent regulatory body could be a lengthy process and may delay the PPP (Dumol 2000,p.56).²⁵ Due to the tight timeline to effect the Metro Manila concessions, the CA included a provision creating a semi-autonomous regulatory office to be created by the MWSS Board instead of taking the legislative route. In an interview, Mark Dumol maintained that a regulatory body created by legislation would not have been much different from the current set-up as a legislated regulatory office does not guarantee against political interference. According to Dumol, this has been the experience of other legislated regulatory bodies in the Philippines where the decisions of the Board have usually been subject to political influence.

With no previous experience of managing and monitoring contracts, how does government monitor expenditures, outputs and outcomes? When regulatory enforcement is weak, the

²⁵ After privatisation, several bills have been filed in Congress to establish an independent economic regulator for the water and sewerage sector, none of which has been enacted as of the writing of this thesis. The most recent proposed legislation calling for the creation of a Water Regulatory Commission, filed in November 2013, is still pending before the current 16th Congress. The 16th Congress ends in 2016 and if this bill is not enacted then it has to be refiled before the 17th Congress and once again go through the legislative process.

government relies on the private sector on aspects where it is lacking to address information issues. When the government does not have the resources necessary to research, inspect and pursue all regulated entities that violate regulations, it relies considerably on self-monitoring, recordkeeping and reporting by regulated entities (Freeman 2000, p.660). The establishment of performance monitoring tools is meant to mitigate the information asymmetry issue. Following the controversy that riddled the first rate rebasing exercise, the MWSS-RO in 2003 exhibited network leadership when it established two measures to improve its capability to monitor and assess the performance of the two operators: the KPIs and BEMs. Both the KPIs and BEMs address the information issue as these measures were intended to establish baselines as reference for future rate rebasing exercises, as well as allow the regulator to monitor concessionaires' performance continuously. This was the practice of the MWSS-RO in the past two rate rebasing exercises by relying on the expenditure reports submitted by the concessionaires. The human capital issue is addressed by the fact that as the contract progresses and with more rate rebasing review experience, the MWSS-RO managers are expected to have learned more in managing the concession contract over time, along with working with its consultants.

The long term nature of the contract requires the contractual parties to work cooperatively with each other to effectively implement the terms of the contract. Over time, the constant interaction develops into a relationship and trust is built. Trust, however, is not automatic; it takes time to develop and trust is sustained because it is confirmed and not violated with regular interactions (Koppenjan & Klijn 2004, p.86). Trust is a stable perception on the intentions of others. There is trust when an actor expects the other actor will not behave opportunistically when an occasion for it arises (Koppenjan & Klijn 2004, p.72). However, the perceptions, objectives and strategic positions of the actors in the network may change significantly under the influence of societal, economic or political changes in the environment (Koppenjan & Klijn 2004, p.61). Over different periods of time, there will be numerous triggering events and conflictual situations that require a specific strategy or solution. Uncertainty in long term relational contracts is high and the higher the uncertainty, a higher degree of trust is necessary to reduce the transaction cost brought about by uncertainty (Koppenjan & Klijn 2004, p.86).

Trust is challenging to build and maintain in the tariff setting arena when actors are constantly changing over the contract duration. The concessionaires have to deal with different leadership in MWSS-RO every rate rebasing review. The President of the Philippines, who is elected every six years, appoints the MWSS Board of Trustees. The Board, in turn, appoints the executive officers of the MWSS-RO. The first and second rate

rebasings exercises, in the years 2002 and 2007 respectively, occurred under the presidency of Gloria Macapagal Arroyo. Following the issue-ridden first rate rebasing, the second rate rebasing was free of arbitration. It can be assumed that the parties have learned to work together that prevented another legal impasse in the second rate rebasing.

While trust can help create stability and greater predictability in the relationships of network actors, distrust of the private operators by the government is supported by the public interest theories of administrative law, which is generally suspicious of private participation in public governance (Freeman 2000, p.649). The private role in governance is viewed as diverse, pervasive and not uniformly dangerous and to protect national interest or general welfare, it is within its right to implement laws or policies that shall safeguard public interest from self-interested third parties (Freeman 2000, p.558). Distrust seems to have guided the MWSS-RO during the third rate rebasing review when it gave precedence over its role as a regulator in safeguarding the interest of the consumer over its responsibility to implement the CA with the concessionaires. The MWSS-RO maintains that its decision to adapt a more detailed audit in the 2013 rate rebasing exercise, which is a departure from the interpretation of the contract by its predecessors, without judicial fiat or a valid contract amendment is within its duty to ensure just and equitable tariff. Former Chief Regulator Emmanuel Caparas maintains that the essence of a regulatory audit is a detailed review of expenses used in setting rates and correcting the mistakes of the previous administrations is in the best interest of the public (Landingin 2013).

5.4 Network effects in the tariff setting arena

The network features of PPP created a negative network effect in the tariff setting arena. The arena produced negative outcomes because its objectives were not achieved. The ideal outcome in the tariff setting arena is that the contractual parties agree on the revised tariff based on past receipts and future expenditures for proposed projects within one year from the commencement of the rate rebasing exercise. Four years after the rate rebasing in 2013, parties are still locked in legal battle. Eventually, the cost of the long and protracted legal battle will be paid for by the Metro Manila consumers as the cost of international arbitration is treated as expenditure under the contract. The fourth rate rebasing review is scheduled in 2018 and it is unknown if the issues of the 2013 rate rebasing will be resolved by then and how these will affect the conduct of the next rate rebasing review.

The network features of PPP in the tariff setting arena hindered the concessionaires from delivering the expected benefits of the Metro Manila concessions. PPP was expected to

improve public service delivery by improving accountability arrangements by spreading resource management to different actors. The resource interdependence between the concessionaires and the MWSS-RO in the tariff-setting arena was not sufficient to get the actors to work towards the same goal. The main actors in this arena, i.e., the MWSS-RO and the concessionaires are mutually dependent on each other's resources, which according to the network governance literature, would have encouraged a higher degree of cooperation between and among the actors in this arena. However, interorganisational cooperation issues arise when an actor does not recognise the mutual dependency and a power imbalance is created. Even when the CA spelt out the duties and obligations of the contractual parties and included measures for checks and balances, resource interdependence can serve as a hindrance power when any one of the actors is unclear about their accountability role in the network. Such is the case in the tariff setting arena. The regulator withheld from the concessionaire an important resource that the latter needs, which is legitimacy. The MWSS-RO did not see itself as the network manager than can lead the actors in this arena towards a goal consensus. Even when the CA has specified the roles and obligations of the contractual parties, it does not guarantee goal congruence. When actors interpret the rules differently, it can make the behaviour of actor unpredictable and the network outcomes uncertain. There is power imbalance in this arena because the concessionaires are dependent and vulnerable to the actions and decisions of the regulator during the rate rebasing exercise.

A major obstacle to achieving goal congruence under a long term concession contract is that the conditions surrounding the rate rebasing exercise change continuously. Since the concession is a 40-year contract, the concessionaires have to work with different administrations in the MWSS-RO. The change in the political environment brought forth change in leadership at the MWSS-RO that prompted a shift in policy and new interpretation of the CA. Mark Dumol, the chief architect of the Manila Water concessions, explained that the change in government leadership dictated the directional change in the 2013 tariff determination exercise and this is regulatory risk that the private utilities have to endure. The change in government leadership brought a change in interpretation of the CA that is different from previous administrations. According to analysts, the change in policy stems from the representation made by the government in 1996 to the then bidders that MWSS-RO would remain a public utility while the concessionaires would be treated as agents or contractors. What is 'woefully wrong' with the policy change, analysts said, is that the change of status of the concessionaires to being a public utility from contractor means

they cannot recover income tax payments as expenditure. This results in huge losses that often translate to operational inefficiencies (Gagni 2015).

The contract extension was meant to give the concessionaires a longer investment recovery period to cushion the cost of sewerage infrastructure in the tariff. In other countries, government financing has been provided for wastewater management infrastructure (Kearton et al. 2013, p.5). In my interview with the Senior Sanitary Engineer of the World Bank in the Philippines, Christopher Ancheta, such a scheme is being considered in the Philippines through the NSSMP where the government plans to provide 40% subsidy for capital costs. This scheme, however, is not available in Metro Manila. For operating costs, a study conducted by the World Bank and Australian Aid found that it is difficult for service providers to meet full costs through water tariffs in developing countries in Southeast Asia and South Asia (World Bank 2013, p.5). In Metro Manila, the wastewater operation is subsidised through water tariffs. The World Bank recommends that policy should support the recovery of operational costs through tariffs to improve the sustainability of the services, taking into consideration the concerns of the poor (Kearton et al. 2013, p.5).

The MWSS-RO, however, does not seem to support the recovery of operational costs through tariffs in the third rate rebasing review. The change in contract interpretation can be attributed to a lack of trust. When former President Benigno Aquino (2010-2016) was elected in 2010, his first order of business was to review all the contracts entered into by his predecessor, President Gloria Macapagal- Arroyo (2001-2010) and fire all her appointees, including those at the MWSS-RO. A career service official from MWSS confirmed that this policy direction of the Aquino administration resulted in a number of changes in the conduct of the rate rebasing review (GO-2014-026). These modifications included (1) the concessionaires are no longer viewed as contractors but as public utilities, (2) the concessionaire cannot recover CIT through the tariff as public utilities, (3) the conduct of a more detailed audit that went to the level of inspecting all the receipts accrued by the concessionaires (that was not done in the two previous rate rebasing exercises and (4) the concessionaires were not given the opportunity to negotiate the rate rebasing decision with the regulator. The last action prompted the concessionaires to resort to international arbitration.

The conditions that enhance accountability of contracts depend on 'the context in which they are struck, the historical relationship of the parties, the incentives they confront, the openness of the process to independent third parties, the potential for adapting the contracts in light of changed conditions and a host of other considerations' (Freeman

2000, p.671). To ensure and protect accountability, administrative law demands for greater contractual specificity (Freeman 2000, p.668). In drafting the CA, Dumol explained that some points in the CA were:

Hand-mapped and spelt out in black and white but some were deliberately drafted to give a broader interpretation. That concession agreement had a certain style. It was compact. Now, maybe that has some faults of its own. Another style would be spelling everything out in black and white. When you do that you have such a thick contract and you'll have more mistakes. The thicker the contract, the more mistakes — inconsistencies, for example, more words, more misinterpretations. So I don't know why it's a legal issue, as far as I am concerned. And it's hard because you are talking of a long term concession. It's not possible to foresee everything that is going to happen during the term of that concession. That's why with concessions, the concession agreement has certain flexibility. It was deliberately done that way.

However, as Dumol pointed out, no contract can exhaustively anticipate and specify all situations that parties may encounter in the implementation of long term contracts, transcend different leaderships and endure differing interpretations. If they attempted to, it will result in a voluminous and rigid CA, which may not be attuned to the changing times and may pose problems to future regulators. It is for this reason that the CA, according to Dumol, provided an arbitration clause so that in the extreme event that a left-leaning, socialist President is elected and decides to renege on the contract, the private utilities have a legal recourse.

The act of the MWSS-RO of disregarding the arbitration ruling and disallowing tariff increase showed that it favoured its role as an advocate and regulator rather than a network manager. While trust between contractual parties can help stabilise the relationship, the government is eventually accountable to the public and therefore has to maintain and manage public trust. As international experience has shown, public backlash over tariff increases after PPP has caused the rescission or renegotiation of a number of water concession contracts in the developing world. The MWSS-RO Chief Technical Regulator Gerald Sullano admitted that the water tariff in Metro Manila is high because the capital expenditure for wastewater facilities is fully recovered from the tariff. In other countries, the cost of sewerage infrastructure is subsidised by the government because it is a public service. In Metro Manila, the government cannot afford to subsidise the cost so it is fully funded by the private sector.

Even when the decision of MWSS-RO is made in the interests of consumers, activist groups still perceive that the government favours the concessionaires. WARM president Javellana

alleges that decisions of the government to cater to the interests of the private operators are deeply entrenched in an elaborate personal network that controls the water and sewerage sector. Javellana points out that personal network had played a major role since the very beginning of the Metro Manila water concessions, starting from the drafting of the CA, which water activists alleged had been skewed to favour the private utilities. With all the palpable connections that link the water and sewerage sector's movers and shakers, Javellana is not surprised as to why the decisions of the government always favour to the private utilities, adding that gaining an understanding of how the personal network works will also bring insight to how the government decides.

In the absence of network leadership and the existence of unstable political conditions, the private sector relies on alternative mechanisms. Where weak governance prevails, existing market exchanges tend to be supported by private ordering (Williamson, 1983; 1985; 2002) or second party enforcement (North, 1990). These alternative mechanisms usually raise the cost of contracts to the parties (Fabella 2012). In an interview with Manila Water Vice President and author of the book, *Tap Secrets*, Virgilio Rivera pointed out that the private sector has to be resilient and innovative enough to hurdle the obstacles in its way if it is determined to fulfil its contractual obligations while running a profitable business. Regulatory risk is an accepted risk that businesses have to live with and the private sector must work around these risks. Notwithstanding the obstacles that they encounter, Rivera claims that the business is still profitable and as long as it remains that way, the company will continue operating. Mitigating the effects of regulatory risk, however, is not without cost to the private utilities, whether it is in the form of delays, transactional costs or corruption costs. These all add up to the expenditures of the private sector, which in the end would have to be shouldered by the consumers. As Rivera quipped, 'money does not grow on trees.' As businesses, they have to recover their business costs, including overruns and delays, somewhere and from someone. As a capital intensive service, it cannot and will not operate at a loss. When the government cannot afford to subsidise the capital costs of public infrastructure, it is the consumers who pay.

5.5 Concluding remarks

This chapter has examined the network effect of PPP in the tariff setting arena. The tariff setting arena is one of three crucial arenas in the Metro Manila sewerage network and is where major decisions on allocation of financial resources are made. PPP altered the landscape of governance of public infrastructure services, which was previously characterised by hierarchies and markets. PPP created a contractual relationship between

the government and the private sector provider. This contractual relationship created resource interdependence between public and private actors that dispersed decision making authority across a number of actors. The structure of organisational dependency in the network is shaped by the allocation of resources among network members (McGuire 2002, p.605). Interactions among network actors revolve around the use and allocation of these resources and these decisions are often situated in arenas within networks.

The tariff setting arena is in state of impasse. Due to the complexity of relational networks, it is difficult to identify a single reason that influenced the outcomes in this arena. An examination of the tariff setting arena revealed multi-causal explanations: (1) resource interdependence served as hindrance power, (2) there is no goal congruence between contractual parties due to different problem perception that resulted in a lack of unifying strategy to resolve the impasse and (3) the MWSS-RO does not see itself as a network manager as it prioritised its role as regulator and advocate of general welfare.

The change in government leadership resulted in a change of policy direction. The new leadership in MWSS-RO interpreted the CA differently from its predecessors, which is the root cause of the impasse in the tariff setting arena. This arena also revealed the difficulties encountered by the private sector in engaging in a long term contract with the government that is susceptible to numerous uncertainties. Even if the contract stipulated safeguards to mitigate risks, it cannot be specific enough to cover all potential issues that may arise over a 40-year period, in which case, the private sector has to be creative and resilient enough to survive the turbulences that economic and political changes may bring. Further theoretical implications of the findings in this arena in relation to the entire sewerage network will be discussed in the Conclusion.

Chapter 6

The network effects in the arena of sewage treatment plant construction

6.1 Introduction

When a new policy or programme is implemented, it is usually assigned to a single organisation that is expected to implement the programme by itself (Hjern & Porter 1981, p.217). However, the reality of PPP is that it has expanded accountability to numerous actors who have to coordinate and negotiate over decisions on public service implementation (Hodge & Coghill 2007; Freeman 2000; Osborne 2010a). A new network governance structure is formed as a result and generates network effects that may change the outcomes. In this context, no policy or programme can be fully implemented by a single organisation (Hjern & Porter 1981, p.216).

This chapter examines the complex processes of building STPs and the challenges involved when actors do not recognise being part of an implementation structure working towards a common goal. While the responsibility of providing sewerage services in Metro Manila has been transferred to the private sector, the concessionaires are still dependent on a number of actors in implementing sewerage projects. The concessionaires have to work with a different set of actors to pursue different activities involved in STP construction. These activities include the purchase of land for STP site, conduct of tender for contractors to construct the STP, organise public consultations with local communities where the STP will be built and secure the necessary permits and licences from the local, subnational and national government agencies, among other things.

The sewerage problem of Metro Manila is not one that purely necessitates technological or financial solutions. Building STPs is not a simple task as it is a public infrastructure that impacts on wider policy sectors such as health, environment, public works, economic development and utilities regulation, which are handled by different government departments. STP construction also crosses vertical and horizontal jurisdictions with the involvement of a gamut of national, sub-national, private and non-government entities. It also traverses temporal dimensions as the concession contract runs for 40 years. With the numerous entities that the concessionaires have to coordinate with, a number of relationships are created. In addition, several policies that directly and indirectly govern the sector have to be complied with, which translates to copious procedures to be observed. These numerous relationships and complex processes can create issues in the

implementation of STP projects. Most of the obstacles that the concessionaires encounter in STP construction are a result of these relationships and processes, which is not something that the private sector alone can resolve.

This chapter examines the network effect of PPP in the STP construction arena and explains how the network features of PPP have served as barriers for the concessionaires to meet their service targets. The second section presents the problems that the concessionaires encounter in implementing STP projects. The third section examines the issues created by the network features of PPP in the STP construction arena. The fourth section analyses the network effect on STP construction and explains how the uncertainties of interorganisational dynamics shaped the outcomes in this arena.

6.2 STP construction arena problems

In urban centres in the developed world, domestic and commercial wastewaters are directly discharged into the sewerage system through a network of underground pipes connected to STPs that will treat wastewater prior to disposal into open bodies of water. In developing countries such as the Philippines, a large amount of untreated wastewater ends up in canals and rivers. Metro Manila, the country's centre of economic activity, accounts for 30% of the country's gross domestic product (Gilbuena et al. 2013, p.38), and generates 440 tons of domestic wastewater on a daily basis (Bagayaua 2009). Barely 10% of the population are connected to the sewer network and some 62,590 families are living along waterways that have no sanitary facilities (Kearton et al. 2013; Manila Bay Coordinating Office 2011). As of 2003, the DENR declared Metro Manila's major rivers as biologically dead (Gorme et al. 2010, p.173). Despite the proliferation of laws, policies, rules and regulations, and multiple agencies tasked to enforce the proper management and disposal of wastewater and solid waste, Metro Manila still lacks sufficient STPs.

The two water concessionaires adopted a three-pronged strategy to provide sewerage connection and sanitation services in the metropolis: (1) regular siphoning of septic tanks via desludging trucks to haul out septage to be treated in septage treatment plants, (2) conversion of communal septic tanks into package STPs and (3) use of combined drainage systems and construction of STPs (Baffrey & Adis 2012).

Under the first strategy, the concessionaires conduct periodic desludging activities for their customers by using vacuum tankers to siphon septage from septic tanks. The hauled

septage is brought to septage treatment plants for treatment. The treated wastewater is recycled for use in the wastewater facility or discharged safely into the drainage, while the biosolids or organic sludge from the septage are given to composting companies for use as soil conditioners. The second strategy involves the conversion of communal septic tanks into STPs. The treatment capacity of these converted communal septic tanks is smaller than STPs. Nevertheless, the concessionaires deem it economical and practical to convert these tanks into small STPs compared to decommissioning these tanks and installing a sewer network to transport sewage from these tanks to a bigger treatment plant (Baffrey & Adis 2012). The first two strategies, however, are not sufficient to provide treatment for the sheer amount of wastewater produced in the metropolis. Most homeowners are not diligent in getting their septic tanks desludged. When septic tanks are full or improperly constructed, the wastewater spills into the public sewers and ends up in the river system untreated. Also, wastewater generated in informal settlements adds to the volume of untreated sewage that ends up in the river system.

The third strategy, which is the construction of combined sewer systems and STPs, is envisioned to augment the shortcomings of the first two strategies. Under this strategy, the existing drainage system is converted into a combined sewer and drainage system, interceptor lines are installed along the creek and/or river outfalls and interceptor boxes are placed on junctions of the drainage line. These interceptor lines and boxes divert the wastewater from the households and storm run-off into the STPs for treatment. The treated effluent will then be discharged into river system (Baffrey & Adis 2012). Figure 6.1 illustrates how a combined sewer and drainage system works.

As of 2015, Manila Water had installed 368.24 kms of sewer lines that convey wastewater from 172,370 households to 41 STPs, which can treat 317 million litres of wastewater per day. Maynilad Water, on the other hand, had built 20 STPs and installed over 500 kms of sewer lines (Tetra Tech & Berkman 2013). Figure 6.2 shows the location of STPs in Metro Manila. The map shows that there are still large portions of the concession area that do not have STPs. In the Maynilad service area, 9% of the population receive sewerage services and the Manila Water service area at 12%. Both concessionaires are behind the target set by the CA for 2013 to 2016, which is 30% and 14%, respectively (Tetra Tech & Berkman 2013). Sewerage connection and investment targets over the contract period are enumerated in Table 6.1.

Figure 6.1 Combined sewer and drainage system



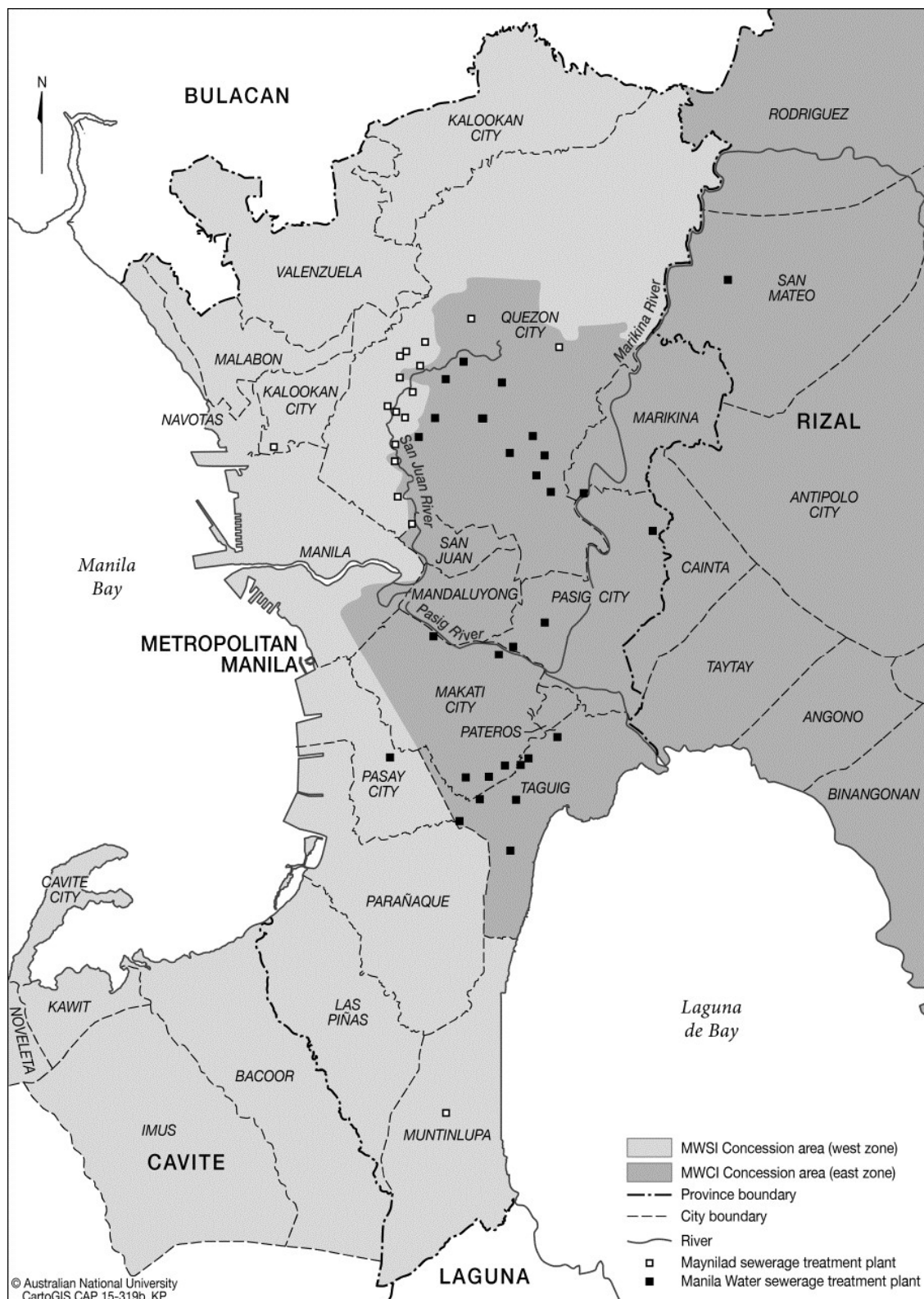
Source: Manila Water file photo

Table 6.1 Sewerage connection and investment in Metro Manila

Year	Maynilad		Manila Water	
	Connection (% of population)	Investment	Connection (% of population)	Investment
2008-2012	30%	US\$113M	14%	US\$295M
2013-2016	45%	US\$411M	30%	US\$680M
2017-2021	63%	US\$604M	66%	US\$164M
2022-2037	100%	US\$622M	100%	US\$481M
Total		US\$1.7B		US\$1.62B

Source: TetraTech and Berkman 2013

Figure 6.2 Location of STPs in Metro Manila concession area



As discussed in Chapter 4, the implementation of sewerage projects encountered setbacks in the early years of the Metro Manila concessions. The two concessionaires prioritised the expansion of the water distribution network due to the dilapidated state of the water network that the concessionaires inherited from MWSS. The concessionaires were also locked in a number of legal disputes in the early years that delayed the implementation of sewerage projects. Because of these setbacks, the concessionaires and the regulator renegotiated the sewerage targets during the first rating rebasing in 2003. The first STP under the Metro Manila concessions was built in 2008 (Tetra Tech & Berkman 2013).

Barring any major delays, the average turnaround for STPs, from planning to plant commissioning, is two to three years. The level of cooperation among the actors in this arena impacts on the efficiency of implementing sewerage projects. Efficiency is affected by duration and cost. Duration pertains to the time required to implement sewerage infrastructure, whereas cost refers to both operational expenditures as well as capital investments (Baffrey & Adis 2012, p.3). Any delay lengthens project duration and increases cost and an increase in project cost means an increase in tariff.

There are two main activities in implementing STP projects: construction of the treatment plant and installation of sewage pipelines. Implementation of these activities involves a lengthy process that requires compliance with numerous laws and regulation, and negotiations with numerous stakeholders. Based on interviews with personnel from the two private utilities, the bottlenecks are encountered in three areas where they have to work with other actors: (1) acquisition of land for STPs, (2) securing numerous permits and licences for STPs and (3) solid waste management.

6.2.1 Different stakeholders in land acquisition

Finding land that meets the requirements of a treatment plant significantly impacts the duration and cost of the project. Available large tracts of land are a scarce commodity in Metro Manila. The capital occupies a land area of 1,940 kms² and is home to some 14 million inhabitants. The region is ranked as one of the ten most densely populated metropolitan areas in the world with around 19,000 people per km² (Yujuico 2015, p.48). The selected site for a STP has to meet certain criteria, i.e., (1) a sizable amount of land with low elevation, (2) in close proximity to bodies of water and (3) far from residential and commercial areas.

Land options are limited for private utilities. Pieces of land near waterways are the ideal site for STPs and are cheaper as the government owns easement rights over these lands. However, these lands are usually occupied by informal settlers. Large tract of lands in the metropolis are usually reserved for the more lucrative commercial or residential ventures (Choi 2016, p.578-579). Where land is available, it is sold at a more expensive market price. In the event that the concessionaires acquire a suitable piece of land, the concessionaires are required to get the consent of the residents of the community because citizen complaints can bring the project to a halt, temporarily or permanently, depending on the outcome of the arbitration. Thus, it is imperative for concessionaires to undertake social impact assessment in the communities where the STP will be constructed prior to project commencement.

6.2.2 Multi-level jurisdictions in permit and licence application

The concessionaires have to comply with a number of regulations and standards in the construction of sewerage infrastructure. The necessary permits and licences required have to be secured separately by the concessionaires from the host *barangay* and LGU, from other cities in case multiple jurisdictions are affected and national government agencies.

The concessionaires have to comply with the requirements of the host *barangay* and the city hall. Application for permits and licences starts at the *barangay* where the land is located. After the *barangay*, the concessionaires can proceed to apply for permits and licences from the city hall, such as locational clearance, building permit, excavation permit for local roads, electrical permit, mechanical permit, sanitary/plumbing permit, wiring permit, fencing permit, traffic permit and mayor's permit. These permits and licences are separately processed and issued by different offices in the city hall.

Pipe-laying work for sewer network is complicated because it can traverse multiple cities and private properties. In which case, right of way (ROW) or easement rights for installation, periodic repairs and maintenance of pipelines have to be obtained from different numerous parties, i.e., DPWH, LGUs, private owners and local associations. Excavation works for pipeline installation can also exacerbate the already congested roads of Metro Manila. As such, concessionaires are required to secure additional excavation and traffic permits from both the local and national governments.

The concessionaires also have to coordinate with other private utilities and services that may be affected by the construction, such as telecommunications, gas, road improvement, flood control and water projects. There is no government agency that has an integrated

subterranean mapping of existing utilities so the concessionaires have to coordinate with other utility providers to ensure that excavation works will not damage any existing underground installations. Table 6.2 lists the permits, licences and certificates that the concessionaires have to secure at every stage of STP project implementation. The list is not exhaustive as requirements may differ in every city or on the nature and scope of the project. In the *Doing Business Project* report of the World Bank, it was estimated that dealing with construction permits in the Philippines entails 24 procedures for compliance that can be completed in 98 days (World Bank 2016). Raul Bernal of JFE Engineering Corporation (JFE Corp.) attests, however, that in their experience as STP contractor of the two concessionaires, the company usually deals with more than 24 procedures and more than 98 days when applying for the necessary permits and licences. The processing time is not consistent because every national and local government offices have different requirements.

Table 6.2 Requirements for STP construction

Stage	Permit/licences/certifications	Issuing authority
Planning	1.Environmental Impact Assessment 2.Environmental Compliance Certificate	DENR
Pre-Construction	1. Locational Clearance 2. LLDA clearance 3. DOLE CSP 4.Environmental Sanitation Clearance 5.Fire Safety Evacuation Clearance 6. Permit to cut/earth ball trees 7. Clearance for national roads 8. Clearance for local roads 9 <i>Barangay</i> clearance 10. Neighbour's consent 11. Homeowner's association 12. Right of way 13. Community Tax Certificate 14. Contractors Tax 15. Building Permit. The following permits are required before the building permit can be issued: 15.1. Ancillary permits required for issuance of Building permit: a. Architectural Permit b. Structural Permit c. Civil/Structural Permit, Form No. A-02 d. Electrical Permit, Form No. A-03 e. Mechanical Permit, Form No. A-04 f. Sanitary Permit, Form No. A-05 g. Plumbing Permit, Form No. A-06 h. Electronic Permit, Form No. A-07 2. Accessory Permits required for issuance of Building permit: a. Fencing Permit b. Sidewalk Construction Permit	LGU (City Planning and Development Office) LLDA DOLE DOH DILG (Bureau of Fire Protection) DENR DPWH LGU LGU (Office of the <i>Barangay</i>) Property owners Property owners Property owners LGU (City Treasurer's Office) LGU (Office of the Building Official)

Stage	Permit/licences/certifications	Issuing authority
	c. Sidewalk enclosure Permit d. Scaffolding Permit e. Excavation Permit 16. Business or Mayor's Permit 17. Certified true copy of the land title 18. Lot plan with site map	LGU (Office of the Mayor) DOJ (Register of Deeds) Geodetic engineer
Construction Phase	1. Fire safety inspection certificate (FSIC) 2. Building inspection	DILG (Bureau of Fire Protection) LGU (Office of the Building Official)
Post-Construction	1. Certificate of final electrical inspection 2. Certificate of Occupancy. The following are required before this certificate can be issued: a. FSIC b. Health certificate c. Duly notarized certificate of completion d. Construction logbook e. As-built plans and specifications f. Building inspection sheet g. Final inspection by OBO 3. Tax declaration of improvement	LGU (Office of the Building Official) LGU (Office of the Building Official) LGU (City Assessor's Office)
Operations Phase	1. Discharge permit 2. Transport permit and TSD (treatment, storage and disposal) permit 3. Self-monitoring reports 4. Vehicle road worthiness 5. Processed sludge	DENR(LLDA/ WQMA) DENR DENR (EMB) Department of Transportation (Land Transportation Office) DENR (Bureau of Soil and Water Management)

Source: JFE Engineering (PS-2014-010); World Bank Doing Business Project 2016 (<http://www.doingbusiness.org/data/exploreeconomies/philippines#dealing-with-construction-permits>)

6.2.3 Interagency management of wastewater and solid waste

Solid waste management is the responsibility of LGUs but the concessionaires have inadvertently taken the task of clearing solid waste. Tons of improperly disposed of and uncollected solid wastes pollute the waterways of Metro Manila and clog the sewer networks and interceptor lines. The concessionaires encounter coordination issues with LGUs on the removal and disposal of solid waste that obstruct their sewerage facilities as host LGUs are often reluctant to bear the cost for these. They argue that the solid waste that accumulated in their jurisdiction could have come from other cities and municipalities. The concessionaires have no recourse but to assume the cost and responsibility because requesting the different cities and municipalities to share the cost and responsibility entail a lengthy coordination process.

6.3 Network features in the STP construction arena

Prior to the Metro Manila concessions, the then state-owned MWSS operated under a hierarchical structure. The MWSS provided water and sewerage infrastructure within the cities in municipalities in the MWSS service area and complied with health and environmental regulations administered by national government agencies. The traditional intraorganisational system operates under a 'top-down' approach with 'a single central authority, a hierarchical ordering' (Kickert et al. 1997; Hudson 2004). Under this system, all network members are from the government that sets the public goal and all public actors in the network are legally mandated to fulfil this goal.

With PPP, the governance structure has been altered with the introduction of a new actor, i.e., the private concessionaire that is tasked to build and operate water and sewerage infrastructure. Under a relational network, actors are task-focused as they exist to complete a project, product or service. There is no formal structure governing the actors, instead, the task that brought them together is expected to generate positive benefits among these actors. The focus should be on 'coordinating the strategies of actors with different goals and preferences with regard to a certain problem or policy measure within an existing network of interorganisational relations' (Hudson 2004, p.81). This section discusses the challenges encountered by the concessionaires as a result of the network features of PPP based on four STP projects implemented in different cities in Metro Manila. Table 6.3 summarises the description and network features of the four STP projects.

Table 6.3 Network features on STP projects

Description	Olandes STP (Manila Water)	Talayan STP (Maynilad)	Iligin STP (Manila Water)	Central Manila STP (Maynilad)
Nature of ownership	Public	Private	Private	Still looking
Location	Marikina and some parts of Quezon City	Quezon City	Pasig	Manila
Land size	660 m ²	1,840 m ²	5,000 m ²	4,900 m ²
Capacity	10 mld for 40,000 residents	16 mld for 27,000 households	100 mld for 650,000 residents	437 mld for 1.4 million residents
Cause of delay	Revision of technical design	Non-cooperation of community	Miscommunication with host LGU	Lack and/or shortage of suitable land (landowner does not want to sell)
Network features				
Resource interdependence	High, LGU cooperation is indispensable	High, LGU cooperation is indispensable	High, LGU cooperation is indispensable	High, LGU cooperation is indispensable
Goal congruence	Other actors, i.e., LGU and MMDA were supportive of STP: -LGU assisted in scouting for land and negotiating for its purchase, -MMDA advised on project design -LGU assisted in securing permits, -LGU allowed MWCI to commence construction pending issuance of permits	LGU was supportive of STP but left Maynilad to deal with the <i>barangay</i> and community on its own	Miscommunication with LGU on original plans for STP Delay in issuance of construction permit due to revision of LGU's land use plans Confusion on NGA processes (design)	LGU cooperative but did not yield any result in land acquisition MBAC expressed support but no follow-up action was made
Network management	LGU acted as network manager. LGU took ownership and leadership of the project LGU used its powers to help Manila Water	No network manager. City hall cooperative up to certain extent was involved in community issues even if it's under their jurisdiction.	No network manager. Manila Water left on their own to settle issues	No network manager. MWSS not keen on exercising expropriation powers to acquire land

6.3.1 Resource interdependencies

There is a number of resources exchanged under the STP construction arena, i.e., production, competency and legitimacy resources. There is a high degree of dependency among actors in this arena because the resources held and controlled by each actor have a low degree of substitutability, i.e., the resources cannot be substituted with another resource or acquired from another actor by the resource user (Table 6.4).

Table 6.4 Resource dependency in the STP construction arena

Actors	Very important resources	Degree of replaceability	Dependency: Low, medium, high	Critical actor: yes/no?
Maynilad Manila Water	STP	Low	High	Yes
LGUs	Land	Low	High	Yes
	Permits/license	Low	High	Yes
NGAs	Permits/license	Low	High	Yes
Local Community	Consent	Low	High	Yes

There are more actors in the STP construction arena compared to the rate rebasing arena. In this arena, the two private concessionaires collaborate with 37 LGUs in Metro Manila and the adjacent provinces of Cavite and Rizal. Each LGU exercises local autonomy and operate independently from one another. The concessionaires also have to work with a number of national government agencies, other utility providers, host communities and private landowners.

The concessionaires are highly dependent on the LGUs and private property owners for a production resource that cannot be substituted, i.e., land on which the STPs will be constructed. Land has a low degree of substitutability because available land that can accommodate STPs in Metro Manila are scarce and expensive. The Philippine Clean Water Act directed LGUs to appropriate lands in their jurisdiction for this purpose. In the event that the LGUs cannot provide the land, the concessionaires have to purchase private real estate. The concessionaires also depend on a competency resource of LGUs, i.e., the authority to issue the permits and licences required in constructing STPs in their jurisdiction. The LGUs, on the other hand, rely on the concessionaires to provide sewerage services in their locality.

Once an appropriate piece of land is secured, the concessionaires have to acquire ROW from property owners, which can be private or public entities or individuals. The

concessionaires are highly dependent on the community for a legitimacy resources, which is consent from the community. This resource has a low degree of substitutability because this resource can only be secured from the host community and if the latter refuses to host the the STP in their community then the project cannot push through.

The two concessionaires are also highly dependent on other utility providers for information. The construction of STPs includes the underground installation of kilometres of underground sewage pipelines to divert wastewater into the STP. This resource has a low degree of substitutability because the concessionaires are not able to secure this information from other actors. There is no agency that keeps a record of the underground mapping of utility infrastructure so the concessionaires take it upon themselves to coordinate with other utility providers, such as gas, water lines, phone and cable companies, to ensure that their underground works will not damage any existing installations. Above ground, the concessionaires also need electricity lines to power the STP and apply for electricity connection to the power provider.

The concessionaires depend on a competency resource from the national government agencies that enforce building, health and environmental regulations. This resource also has a low degree substitutability because the issuance of permits and licenses are under the exclusive jurisdiction of certain agencies and cannot be sourced from other actors. The executive branch of the Philippine government is comprised of departments that are organised according to sectoral concerns.²⁶ These departments are categorised herein by functional networks as certain regulatory functions are concurrently performed by several departments. These are the infrastructure planning and development network, environment network and health network.

The infrastructure planning and development network is where policies and legal standards on maintaining safe and sustainable urban environment are set, including the minimum standards for buildings and structures. Actors in this network are the LGUs, DPWH and MMDA. The bulk of the permits and licences are issued by the different offices under the LGU, such as the planning office, building office, mayor's office and the *barangay* office where the STP shall be constructed. If the pipelines traverse multiple LGUs, the concessionaires also have to secure permits and licences from the affected LGUs. In addition, the concessionaires have to secure permits and licences from MMDA as implementation of sewerage projects cross city boundaries. The MMDA is responsible for

²⁶ Book 4, Chapter 1 of Executive Order No. 292 entitles, "The Administrative Code of the Philippines".

the integrated planning, monitoring and coordination over the delivery of metro-wide services, such as transport and traffic management, solid waste disposal and management, flood control and sewerage management. The concessionaires also have to get the engineering design of the STPs approved by the DPWH and secure excavation permit for national roads from the Department. The DPWH is the national department that is mandated to undertake the planning of public infrastructure work.

The construction of sewerage infrastructure, the collection, transfer and treatment of raw sewage and septage, and the disposal of treated sewage are subject to environmental regulations. The environmental network formulates and enforces these environmental regulations. Actors in this network are the DENR and its attached agencies, such as the EMB, LLDA and WQMAs. Among the regulations in this network are environmental impact assessments (EIA) for sewerage and sanitation infrastructure, transport permit and treatment, storage and disposal for septage and self-monitoring reports for effluent discharge in rivers and drainage.

Untreated wastewater poses environmental threats and hazardous to human health. The health network formulates and implements policies and legal standards for the construction and maintenance of toilets, septic tanks and STPs, and treatment methods and disposal of sludge and wastewater. The lead actor in this network is the Department of Health (DOH) and its health officers at the city and municipal level. The concessionaires need to secure the necessary health permits from these agencies before and during the operations of the STP. Under the Sanitation Code of the Philippines, the approval of the DOH is required for the plans, design, data and specifications of a new or existing sewerage system or STP, the method of sludge disposal from septic tanks and the discharge of untreated effluent from STPs.

6.3.2 Goal congruence

A network is comprised of different organisations that provide different types of services to a common set of clients. When actors agree on the purpose of the collaboration, they can jointly define each one's roles and responsibilities and level of interdependence, contribute towards resolving network issues and agree on the decision making process in the network (Bryson et al. 2006, p.46). It is assumed that the professional norms and views of institutional-level planners and policymakers will be generally consistent with the views of professionals who actually implement services (Provan & Milward 1991, p.399). When

actors have similar perceptions, it is easier to gain cooperation and resolve issues in the network (Koppenjan & Klijn 2004, p.72). Perceptions can be about understanding of the content (e.g., nature of the problem or desired solutions, etc.) and the other actors (e.g., power and competence of actors) (Koppenjan & Klijn 2004, p.71).

Actors in the network make decisions based on their perceptions. However, the perceptions of actors in the network are mainly shaped by their organisational purpose. As each organisation is different, it is challenging for organisations to share a common perception on a network problem. Conflict may arise from differing perception of the problem, strategies and tactics to resolve the problem or dispersed attempts to control network outcomes (Bryson et al. 2006, p.48). These differences make it difficult to achieve a common purpose. The lack of commitment among actors to a common purpose may be a reason for failure (Kickert et al. 1997, p.9).

Unlike the tariff setting arena where the goals, objectives and rules governing the relationship of the concessionaires and the regulator are defined in the CA, the STP construction arena does not have a formally defined goal. It is challenging to achieve a common purpose in the STP construction arena because there is no clear, formal and established structure. The STP construction arena is not purposely established by law or contract. There is no law or contract that directs the actors in this arena to cooperate with the concessionaires in implementing sewerage projects. It is only the concessionaires who are contractually obliged to deliver sewerage services. Other actors participate in this arena because they are required by some law to enforce sewerage-related laws or regulate sewerage-related activities.

The implementation of sewerage projects requires the cooperation of a number of public and private organisations that are governed by their own organisational mandates. Other than the legal fiat under the Clean Water Act directing LGUs to allocate lands for STPs, the relationship of the LGUs with the concessionaires emanates from the Republic Act No. 7160 or the Local Government Code of 1990, which empowers LGUs to regulate all activities relative to the use of land, buildings and structures within its jurisdiction. The concessionaires also have to comply with regulatory requirements imposed by national government agencies. Complying with the different regulatory standards at different levels of the government can cause delays in the implementation of STP projects. This is illustrated in the experience of Manila Water in its North and South Pasig sewerage system project in Pasig City. The North and South Pasig sewerage system project STP is the biggest STP project of Manila Water and the project timeline was reasonable expected to be longer

than Manila Water's other STP projects. However, due to delays encountered by Manila Water at the local and national level, the project took much longer than planned. The design and build contract was awarded on the third quarter of 2012. The contractor was expected to complete the design by the first quarter of 2013, construction works to commence soon after and completed by the second quarter of 2015. However, construction only started in December 2014 and expected project completion was moved to December 2016 (PS-2014-0076) but as of May 2017, the STP has not been completed. The delay was caused by a number of coordination issues at every stage of the project, from securing the environmental impact assessment, relocating the informal settlers that occupied the land, getting the engineering design approved, down to securing numerous permits and licences from the local government (See Appendix 2.1 for North and South Pasig STP project details).

In addition to hurdling bureaucratic processes, getting goal consensus in the STP construction arena is challenging for the concessionaires because of the prevalence of 'not-in-my-backyard' (NIMBY) attitude among communities. NIMBY is defined as 'a socially desirable land use that broadly distributes benefits yet it is difficult or impossible to implement because of local opposition' (Richman & Boerner 2006, p.37). The NIMBY problem has been a perennial challenge for policymakers, local land use planners and developers from implementing socially beneficial facilities and infrastructure (Richman & Boerner 2006, p.32). The objection of the local community and the process of negotiating to convince the residents of these communities lengthen the duration of project implementation. Concessionaires are required to conduct public consultations to explain the benefits of the projects and get the consensus of communities. Due to scarcity of land in Metro Manila, the concessionaires are compelled to consider residential and commercial properties as STP sites if the property has low elevation and is located close to bodies of water as discharge points for treated wastewater. Some communities refuse to have STPs in their locality because they are concerned that the sewage stench will permeate and cause health hazards. Concessionaires face an even stronger resistance in affluent communities who wield influence to impede the STP from being built in their locality (PS-2014-003, PS-2014-001).

This was the experience of Maynilad with Talayan STP where the concessionaire had to forgo the original location chosen as the community opposed the project (See Appendix 2.2 for Talayan STP project details). On the other hand, Manila Water did not face any difficulty

in getting the buy-in from the community for the Olandes STP because the project was championed by the Marikina city government (See Appendix 2.3 for Olandes STP project details). Manila Water also incorporated community features in the STP, such as park, basketball courts and parking lots, to disprove the perception that a STP project is dirty and stinky (Figure 6.3).

6.3.3 Network management

The STP construction arena is not a formally organised structure so the actors do not come together to deliberately define problems, formulate solutions and coordinate their activities. As such, it does not have a formally designated leader who has the authority to steer the arena towards a network goal. In Metro Manila, however, the MMDA's legal mandate fits the role of a network manager not only for sewerage services but for any public services in the entire metropolis. Under Republic Act No. 7924, which is the law that created the MMDA, the agency is responsible for the planning and provision of metro-wide services. According to former MMDA Chairman Bayani Fernando (2002-2009), he struggled to implement this duty during his tenure as there were mayors in the 37 cities and municipalities in Metro Manila who view the MMDA's authority as an encroachment on local autonomy. The refusal of some mayor to recognise his authority made it difficult for MMDA to implement cross-boundary projects. The concessionaires have experienced this in dealing with some LGUs, describing mayors as 'ruling their own kingdoms' with each kingdom having different rules so the concessionaires have to grapple with the different processes and regulations in each LGU (PS-2014-004).

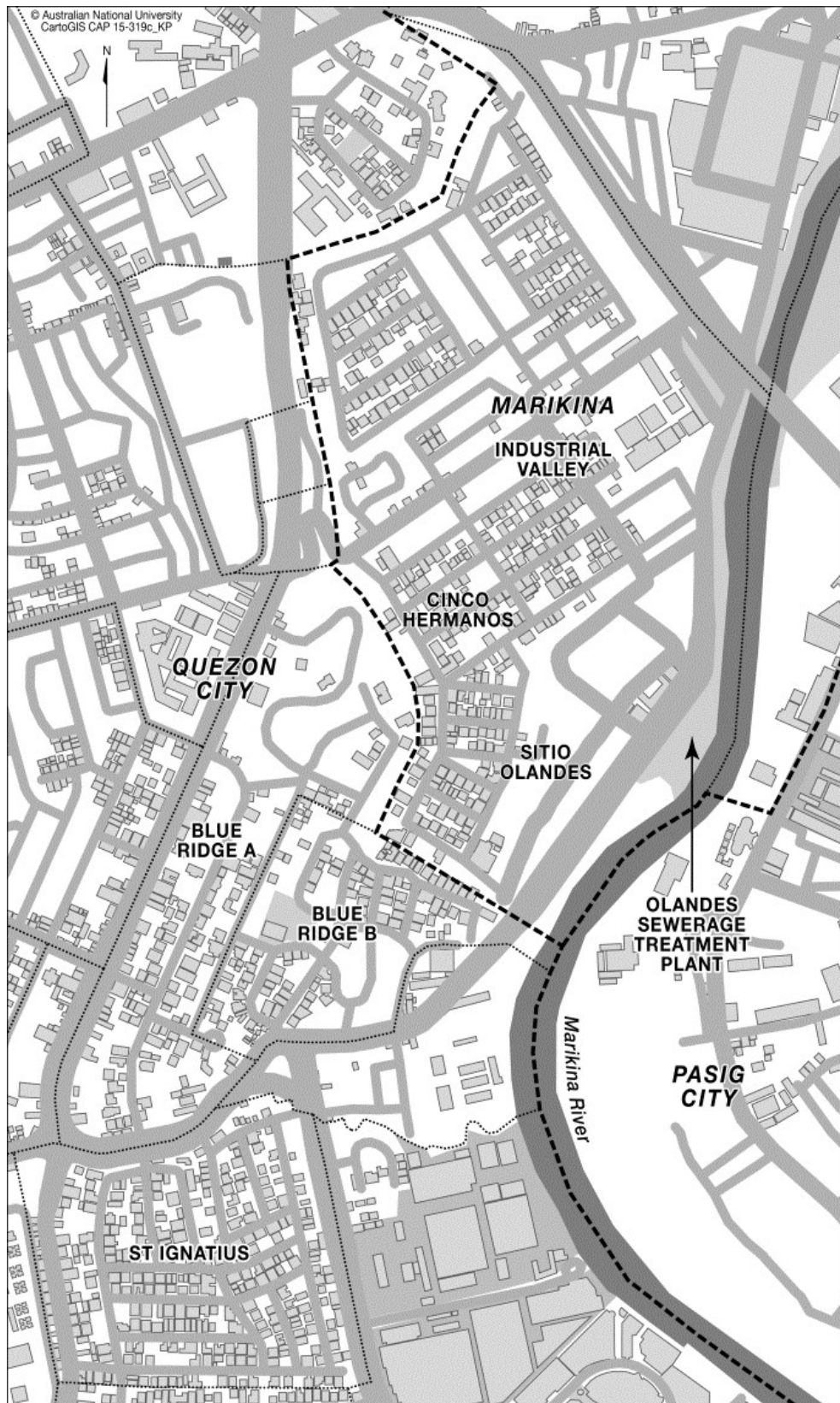
In the absence of a formal leader, informal leaders can step forward to facilitate the implementation of STP projects. In two STP projects, leadership spelled the difference in the outcomes. Land acquisition is one of the major sources of delay and biggest cost items for STP projects. The Olandes STP was implemented within the targeted project duration because the mayor of Marikina, Marides Fernando²⁷ (2001-2010) stepped up, took ownership of the project and assisted Manila Water throughout the process (PS-2014-008) (See Appendix 2.3 for Olandes STP project details). In the case of the proposed Manila Central Sewerage Plant, the project is still pending because neither the MWSS nor the city government of Manila had taken the leadership in assisting Maynilad in acquiring a suitable land for the STP (PS-2014-006) (See Appendix 2.4 for Manila Central STP project details).

²⁷ Marides Fernando is the wife of former MMDA Chairman Bayani Fernando. She succeeded her husband as mayor of Marikina who served from the years 1992 to 2001 (https://en.wikipedia.org/wiki/Bayani_Fernando).

Figure 6.3 Public park in Olandes STP



Figure 6.4 Map of Olandes STP



6.4 Network effects in the STP construction arena

The network features of PPP created negative network effects in the STP construction arena. The arena produced negative outcomes because its objectives were not achieved. The ideal outcomes in the STP construction arena are: (1) that the concessionaires meet the year-on-year percentage coverage targets for sewerage services and (2) that STPs are constructed within the targeted budget and timeline. Both concessionaires are behind their sewerage service coverage targets. In 2011, Manila Water's sewerage service coverage was only 13% out of the 21% target set for this period, while Maynilad's was at 6% out of the 13% target (Kearton et al. 2013, p.37).

The success or failure of the concessionaires' target of providing 100% sewerage service is largely dependent on the cooperation of the actors in this arena. The typical project duration for STP is three years, from planning to operation but actual implementation usually takes longer in view of the numerous obstacles encountered by the concessionaires in land acquisition and dealing with bureaucratic processes. In the four STP projects examined in this chapter, only one STP was completed within the targeted budget and schedule. The other three projects were completed behind schedule and beyond budget or have not commenced due to coordination issues they encountered at the local, regional and national level. An examination of the STP construction arena revealed that poor network leadership and lack of goal congruence are the main culprits for the poor inter-organisational relations in this arena: (1) actors in this arena maintain an organisation set perspective and are more focused in performing their functions than the common good that a STP will bring; (2) the collaboration in the STP construction arena is not mandated by law or contract so actors do not feel compelled to work together; (3) constant change in the political environment, such as election and policy shifts in leadership, makes it challenging for concessionaires to create stable relationship with other actors in this arena and (4) there is power imbalance as LGUs impose bureaucratic rules and procedures for securing permits and licences that make it difficult for concessionaires to obtain these vital resources. Table 6.5 summarises the network effects of the network features of PPP on the four STP projects examined in this chapter.

Table 6.5 Network effects of PPP on STP projects

STP Projects	Network Effects
Olandes STP (Manila Water)	Positive effect. Completed within project timeframe due to network leadership demonstrated by the city government of Marikina and MMDA.
Talayan STP (Maynilad)	Negative effect. Completed beyond project timeframe. There was no goal congruence with the communities and residents. The local <i>barangay</i> and the local government of Quezon City did not exhibit network leadership in helping the concessionaire get goal consensus from the community.
Ilugin STP (Manila Water)	Negative effect. The project commencement was delayed. Construction ongoing and targeted completion date has been missed. There was no goal congruence with the local government of Pasig. The local government did not exhibit network leadership as it was the source of delay itself.
Central Manila STP (Maynilad)	Negative effect. The project is behind schedule and has not even started yet due to lack of suitable land. No goal congruence with property owners. The local government of Manila did not exhibit network leadership in assisting Maynilad in lot acquisition. The MBAC verbally declared to help Maynilad in negotiating with the property owner but no action from the MBAC took place.

The network features of PPP in the STP construction arena hindered the concessionaires from delivering the expected benefits of the Metro Manila concessions of improving the quality of sewerage service and expanding the service coverage at a lower cost for the consumers. The network features of PPP created interorganisational coordination issues in the STP construction arena. The mutual dependency on the resources held by the concessionaires and the LGUs was not enough to guarantee a higher degree of cooperation between and among the parties because the LGUs used their resources as a hindrance power, which made it challenging for the concessionaires to implement STP projects even when the beneficiaries are the LGUs themselves.

When interorganisational relationships are not formally and legally defined, organisations will only commit to the programme goal if this is consistent with or contribute to their organisation's objectives (Hjern & Porter 1981, p.215). Problems arise when actors are not committed to the programme goal. Many of the coordination issues confronted by the concessionaires in this arena were caused by lack of goal congruence and the absence of a network manager that can lead the network towards a goal consensus. The STP construction arena is not a formally organised administrative structure and in the absence of a formal set of rules governing this arena, actors are more inclined to prioritise organisational goals than the programme goal. The goal of providing sewerage service in Metro Manila is not just an organisational goal of the concessionaires but a programme goal of the Philippine government's PPP policy.

The effect of the actors' lack of adherence to a common goal resulted to the concessionaires having to navigate the labyrinth that is the Philippine government bureaucracy. The LGUs did not see themselves as collaborators in the construction of STPs. Each local government has its own institutional structure and culture and the cohesiveness of these structures is different for each LGU. With each local government exercising local autonomy, the concessionaires have to deal with different bureaucratic requirements and procedures. Application for permits and licences for sewerage infrastructure, which is a vital public service, is subjected to different requirements at the national and local level, some of which are superfluous, which cause delay on project implementation. All of these coordination issues create delay on project implementation, which increases the concessionaires' cost of production. When asked about the actual monetary value of delay, a Maynilad official shared during the interview that the company had not calculated the actual amount that they lose for every day, month or year a project runs behind schedule. However, the company puts a certain percentage buffer on STP projects in the business plan that they submit to MWSS-RO because they are not allowed to submit cost variations once a project has commenced (PS-2014-005).

The resource interdependence of actors in this arena had the potential of lowering the cost of the concessionaires. When other agencies perform their roles, the concessionaires will be able to build STPs within budget and schedule. If LGUs complied with the Clean Water Act by allocating public lands for STPs or if MWSS-RO exercised its expropriation rights, the concessionaires do not have to purchase the more expensive private lands. If the LGUs facilitated the processing of permits and licences required for STP construction, such as the assistance extended by the city government of Marikina for Olandes STP, the concessionaires will be able to complete their STP projects on time and within budget. If the LGUs performed their solid waste management responsibility, the concessionaires did not have to incur extra cost in hauling solid waste along waterways that clog the sewer networks, interceptor lines and pumping station or spend for repairs when these structures get damaged. All of these drives up the cost of STP construction and since capital and operational costs are pass-through costs, consumers have to pay a higher tariff. More importantly, when all actors in the STP construction collaborate with the concessionaires, concessionaires will be able to provide sewerage services to all residents of Metro Manila. The network effect of PPP will be positive to the consumers as they will not be exposed to the health and environmental hazards of untreated sewage.

Minda, an informal settler from the city of Manila, is among the four million urban slum dwellers in the metropolis with no water and sewerage connection. With a combined average household income of US\$20 a day, Minda works as a vendor selling cooked food while her husband works as a jeepney driver. Minda, her husband and their three children reside in a 20 m² shanty located in one of the residential *barangays* in the district of Sampaloc in the city of Manila. Their home is one of the five makeshift shacks illegally erected on a 100 m² lot owned by a local businessman. Minda has resided on this lot since she was four years old with her parents and three other siblings. Minda's two siblings have moved to other places but she, her parents, her brother and his family have stayed on. Minda's mother rents out the two other shanties for US\$38 a month as her main source of income. Minda's shanty, like the four others in the property, are all one-room affairs where the 15 m² home acts as the living, dining and sleeping space for Minda's family of five. The walls are made of second-hand lumber, overhead is recycled rusty, old zinc metal sheets and the floor is concrete with cheap linoleum. Outside is a makeshift kitchen leading to what appears to be a small courtyard, with a couple of wooden stools around a small tree where everyone congregates on a cool evening. The occupants enjoy some privacy as they have enclosed the opening of the compound with recycled zinc metal sheets. There had been talks for decades that the owner will reclaim the property but has not materialised. For now, Minda and the other illegal occupants are secure in the property.

Manila is one of the cities in the West zone of the greater Metro Manila area served by Maynilad Water but Minda, a Manila resident, is not a Maynilad customer. Prior to the Metro Manila concessions in 1997, Minda's parents applied for a water supply connection but were rejected as they do not have legal rights over the property where they are residing. Water is sourced from an artesian well in the private lot, which was sponsored by the local *barangay* council in the 1990s. The Philippine government has issued a ban on groundwater extraction in Metro Manila in 2004 as it has been causing the metropolis to sink at an alarming rate and the dangers to human health due to groundwater pollution. Groundwater in Metro Manila had been tested to contain critical levels of chemicals such as lead, fluoride, mercury, aluminium, cyanide, arsenic, boron and manganese. Minda, however, is not mindful of the potential hazards that the extracted groundwater poses to her and her family. She attests that they have not contracted any waterborne diseases from drinking water from the artesian well. When they can afford it, Minda buys purified drinking water from a local water store that costs around US\$0.70 per gallon, which lasts the family of five for two days. For most days, she boils the water from the well for drinking.

Minda's family is among those families who made the municipal drainage as their septic tank. Five households share the 2 x 1 m² toilet and bathroom that Minda's husband and father built a few years ago. It has pour-flush sitting toilet bowl where wastes empty into a cemented vault underneath the shanty. Maynilad offers free septic tank cleaning for its customers but since they are not a customer of Maynilad, they cannot avail of this service. When the vault is full, they can enlist the services of a private septic tank siphoning company. This, however, costs money so Minda's husband would clean the tank himself and dispose the waste directly in the public sewers.

Without a contract or law that formally binds the relationship of the actors in this arena, the concessionaires rely on their own efforts to build working relationships with the local governments to facilitate implementation of STP projects. On numerous occasions, the concessionaires' and their project contractors were asked by LGUs to donate or sponsor projects, such as the construction of basketball courts or community halls, to expedite the issuance of permits and licences (PS-2014-001, PS-2014-002, PS-2014-003, PS-2014-008). These 'donations' were included as expenses in the last rate rebasing review but were not approved by MWSS as an allowable expense.

The implementation of sewerage infrastructure requires the cooperation of numerous actors from different government levels and sectors. It is challenging to achieve goal congruence when actors maintain an agency-centric mindset. National government departments and LGUs see their roles as policy enforcers and regulators and not as collaborators. This organisation-set perspective of operating among government agencies has burdened the concessionaires with bureaucratic red tape. These unnecessary transactions inflate project costs.

6.5 Concluding remarks

Chapter 6 has examined the effect of the network features PPP on STP construction by showing that the actors in this arena do not see themselves as part of an implementation structure that has to work together towards a common goal. STP construction requires resource interdependence, goal congruence and network manager to be able to work well. When water and sewerage services were provided by the state, the MWSS enjoyed the benefit of hierarchy and legal mandate to get the cooperation of other government agencies. However, when water and sewerage services were awarded to the private

concessionaires, the tasks of the former MWSS have been distributed to multiple organisations. Problems emerged as a result of such split.

PPP created resource dependency between public and private actors. It has also created problems that cut across the traditional jurisdiction of organisations and traverses the customary boundaries of the public and private sector. These problems are beyond the capability of any single organisation to resolve (Gray 1985, p.913). The resolution of problems requires a network approach solution where problem solving and policy processes are geared towards addressing mutual dependencies to achieve the network's common goal (Koppenjan & Klijn 2004; Gray 1985; Kickert et al. 1997; McGuire & Agranoff 2007).

There is a high degree of resource dependency among actors in this arena but resource dependency is not sufficient to facilitate implementation of sewerage projects. For PPP to work, actors must agree on a common goal. There is no goal congruence in this arena because the actors, specifically the LGUs, maintain an agency-centric perspective, i.e., actors are more focused in performing their functions than the common good that a STP will bring. Since collaboration in the STP construction arena is not mandated by law or contract, actors do not feel compelled to work together. A network manager would have helped the arena actors to work towards a common goal but neither the LGUs, save for few STP projects, nor the MWSS stepped up to fulfil this role. The theoretical implications of the findings in this arena as it relates to network outcomes will be discussed further in the final chapter.

Chapter 7

The network effects in the arena of interagency monitoring

7.1 Introduction

Even when the network goal has been defined, getting the consensus of all actors is difficult to achieve. Each actor is governed by its own organisational mandate that take precedence over network goal. Under this complex setting, a network leader is necessary to facilitate consensus on a joint course of action, coordinate the strategies of actors and elicit support for these ideas within the organisation. However, this chapter suggests that it is not enough to have an established network goal and a formal network leader to ensure effective network cooperation. Network leadership can be a barrier for effective interorganisational collaborations if it does not possess the necessary skills and qualities required in managing a network. Network management requires certain skills and should be distinguished from usual strategies of managing policies in public organisations (Kickert et al. 1997, p.43). An effective network manager must be able 'to promote the mutual adjustment of the behaviour of actors with diverse objectives and ambitions with regard to tackling problems within a given framework of interorganisational relationships' (Kickert et al. 1997, p.44). Networks should be studied not just as a means of governance but equally important is the management of networks itself.

This chapter examines the network features of interagency monitoring and its impact on the sewerage service outcomes. Unlike the two previous decision making arenas of the Metro Manila sewerage network, this arena was deliberately created with a legally defined goal and an appointed network manager. The Supreme Court created an interagency monitoring body, the MBAC, to address the problem of a lack of integrating mechanism and structure to guide concerned agencies towards a coordinated effort in cleaning up the Manila Bay. The MBAC is supposed to facilitate and improve interagency coordination by establishing processes for interagency collaboration. The two concessionaires are part of this arena because the construction of wastewater treatment facilities is one of the many strategies identified to rehabilitate Manila Bay.

The second section of this chapter presents the main problems that the concessionaires encounter as participants of the interagency monitoring arena. The third section examines the network features in this arena, discusses the incentives for actors to cooperate in interagency monitoring and explains why a defined network goal and appointed network

manager were not sufficient to gain the cooperation of the network actors. The fourth section discusses the network effect on interagency monitoring and how the network features influenced the outcomes in this arena. The last section reviews the findings and concludes that the network features of PPP created negative outcomes in this arena.

7.2 Interagency monitoring problems

The MBAC was born out of the 36–page landmark decision by the Supreme Court in the case *MMDA v. Concerned Residents of Manila Bay*²⁸, through a writ of continuing *mandamus*²⁹ that ordered 13 agencies ‘to clean up, rehabilitate and preserve the Manila Bay and restore and maintain its waters to SB level³⁰ to make it fit for swimming, skin diving, and other forms of contact recreation.’ This decision stemmed from a petition filed in 1999 by 14 private individuals against the Philippine government for neglecting to perform its duties to abate the pollution of Manila Bay, in violation of the respondents’ constitutional right to life, health and balanced ecology and a number of environmental protection laws. In the decision, the Court acknowledged that one of the major causes of the current polluted state of Manila Bay was the failure of the executive branch of government to enforce environmental laws and regulations. The task to protect and preserve the country’s internal waters, rivers, shores and seas from pollution caused by human activities are distributed to a number of government agencies and their officers by nature of their respective offices or by direct statutory command. The Supreme Court attributes the pollution menace in the country, judging from the polluted state of Manila Bay, to the ‘cavalier attitude towards solving, if not mitigating, the environmental pollution problem’ of these agencies, which ‘is a sad commentary on bureaucratic efficiency and commitment’ (Supreme Court of the Philippines 2008). To ensure that the executive department performs its legal duties, the Supreme Court created the MBAC to oversee the

²⁸ Supreme Court General Register (GR) Nos. 171947–48 issued on 18 December 2008.

²⁹ A *mandamus* is a judicial remedy from a court ordering public authorities to carry out specific functions that are required by law. Section 7, Rule 8 of A.M. No. 09-6-8-SC Rules of Procedure for Environmental Cases (effective 19 April 2010) states that ‘the Court shall grant the privilege of the writ of continuing mandamus requiring respondent to perform an act or series of acts until the judgment is fully satisfied and to grant such other reliefs as may be warranted resulting from the wrongful or illegal acts of the respondent. The court shall require the respondent to submit periodic reports detailing the progress and execution of the judgment, and the court may, by itself or through a commissioner or the appropriate government agency, evaluate and monitor compliance. The petitioner may submit its comments or observations on the execution of the judgment.’

³⁰ Based on Water Classification Tables under DENR Administrative Order No.34, 1990.

performance of government agencies and compel them to organise a concerted, specific and actionable plan to revive Manila Bay.

Among the respondents in the case was the MWSS, which was ordered to ‘provide, install, operate and maintain the necessary adequate wastewater treatment facilities in Metro Manila, Rizal and Cavite where needed at the earliest possible time’ (Supreme Court of the Philippines 2008). Since this function has been transferred to the two concessionaires by virtue of the Metro Manila concessions, the concessionaires are treated as *de facto mandamus* agencies of the MBAC. The concessionaires welcomed the decision as it increased public awareness on the importance of urban sewerage treatment. Moreover, the concessionaires were optimistic that the judicial order could help alleviate the challenges they encounter in STP construction and improve their working relationship with national and local government agencies.

Before the Supreme Court decision was issued, there already existed a comprehensive plan to rehabilitate Manila Bay, which was the Operational Plan for the Manila Bay Coastal Strategy (OPMBCS). Completed in December 2005, the OPMBCS was spearheaded by the DENR in coordination with several government agencies and private stakeholders. Both the OPMBCS and the Supreme Court identified the absence of an integrated management framework as the main reason for the current state of Manila Bay, particularly the fragmented and weak institutional arrangements and lack of coordination among concerned agencies and between the national and local governments. The creation of the MBAC by the Supreme Court was supposed to address this issue. The MBAC appointed the Manila Bay Coordinating Office (MBCO) under the DENR as technical secretariat to assist the former in monitoring the implementation of the KPIs by the *mandamus* agencies.

However, more than eight years after the Supreme Court ruling, the MBCO admitted that the water quality of Manila Bay remained problematic as the dumping of solid and liquid wastes remain unabated. Some 86% of wastewater produced in the metropolis is disposed untreated into public sewers and eventually ends up in Manila Bay (Pazzibugan 2014). According to MBCO executive director Noel Gaerlan, there are not enough wastewater treatment facilities being built to treat the wastewater produced by more than 14 million residents of the capital region. As discussed in Chapter 6, the concessionaires encounter interagency collaboration issues that hamper the timely implementation of STP projects.

A perusal of the minutes of MBAC meetings³¹ revealed that coordination issues in interagency implementation of projects continues to be a challenge. The *mandamus* agencies are still unclear as to the direction and expectation of the MBAC. In a subcommittee meeting called by the MBO in October 2014 that I attended, I observed that the agencies were still arguing over the KPIs assigned to them when the meeting was called for the agencies to report on their accomplishments. Some member agencies were emphatic about their disagreement with the KPIs imposed on them by the Court. They found the KPIs unrealistic and difficult to achieve, especially since the accomplishment of some of the KPIs was not within their control and require the action and cooperation of LGUs. While the MBAC was formed to facilitate coordination among the *mandamus* agencies, the KPIs and action plans are agency specific, cross-sectional and lack systems orientation (Table 7.1).

7.3 Network features in the interagency monitoring arena

The two arenas discussed in Chapters 5 and 6 are the two major activities that directly concern the implementation of sewerage targets. The interagency monitoring arena is not involved in the implementation of sewerage projects; nonetheless, it is a significant decision making arena that bears impact on sewerage targets. The government agencies named in the *mandamus* are those that are responsible for some aspects of waste management, water quality, budget allocation or law enforcement that directly or indirectly impact on the problems of Manila Bay. Actors in this arena are legally mandated by the Supreme Court to be part this arena. The legal directive of the Supreme Court for agencies to work together was expected to address the coordination problems that have long plagued the implementation of projects to clean up Manila Bay.

7.3.1 Arena actors and their resource interdependencies

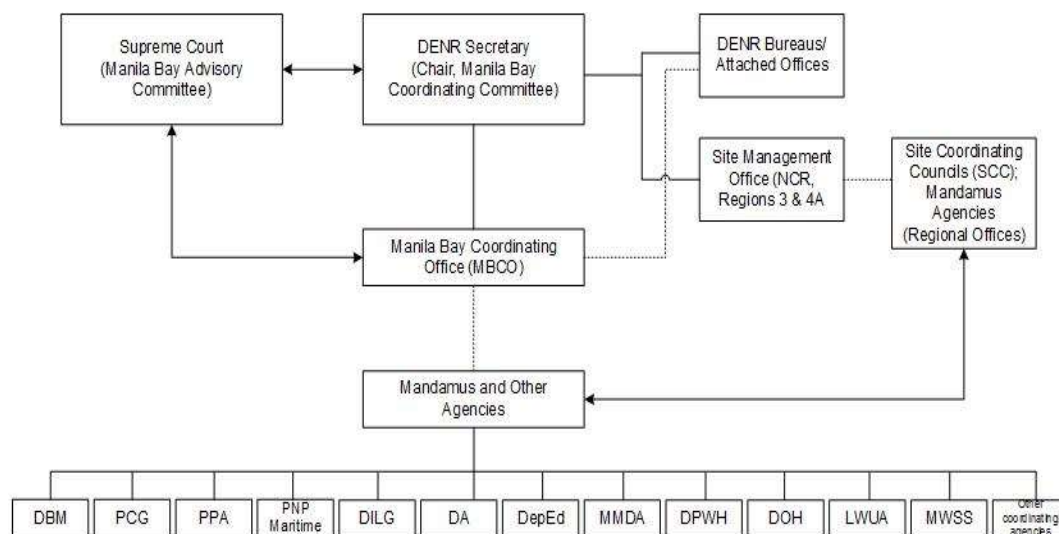
The MBAC was chaired by Supreme Court Justice Presbitero Velasco, Jr., who penned the decision, with three environment experts appointed by the chairman as members. The members of the committee were former Environment Secretary Elisea Gozun, former Environment Undersecretary and Dean of the Ateneo School of Government Antonio G.M. La Vina and former director of the UP Marine Science Institute Dr. Gil Jacinto. The MBAC

³¹ I was only furnished by the MBAC secretary the minutes of five MBAC meetings on the following dates: 16 February 2011, 2 December 2011, 29 November 2012, 6 September 2012 and 19 July 2013. I attended one MBAC meeting on 15 Aug 2014 as an observer upon invitation of Maynilad.

meets every quarter where the *mandamus* agencies report on the status and progress of their agency activities related to the clean up of Manila Bay.

The Court designated the DENR as the lead agency responsible for the implementation of the OPMBCS. To effectively perform its obligations under the *mandamus*, the DENR instituted organisational reform within the department. The MBCO³² was strengthened and placed under the direct supervision of the environment secretary. The MBCO exercises coordinative functions among all offices and agencies involved in the Bay's rehabilitation, restoration and conservation. The Court also directed the heads of the concerned agencies to submit a quarterly progress report of the activities taken to implement the decision. These reports are submitted to the MBCO, which prepares the consolidated reports for review by MBAC. Unlike the two arenas discussed in Chapters 5 and 6, the interagency monitoring arena has a defined institutional structure. Figure 7.1 illustrates the organisational structure to implement the OPMBCS (Manila Bay Coordinating Office 2011).

Figure 7.1 OPMBCS implementation structure



Source: Operational Plan for the Manila Bay Coastal Strategy 2011-2015

³² The organisational reform took effect by virtue of DENR Administrative Order No. 2011-01 entitled 'Strengthening the Manila Bay Coordinating Office.' Prior to the issuance of this order, the MBCO was part of the DENR's River Basin Control Office which was tasked to oversee the integrated planning, management, rehabilitation and development of all the country's river basins.

Membership in this arena is not voluntary. By order of *mandamus*, the member agencies are legally obliged to perform the order of the Supreme Court arising from the case. The Manila Bay Coordinating Committee (MBCC) is composed of the following agencies:

- Metropolitan Manila Development Authority
- Department of Education
- Department of Health
- Department of Agriculture
- Department of Budget and Management
- Philippine Coast Guard
- Philippine National Police - Maritime Group
- Department of Interior and Local Government
- Philippine Ports Authority
- Local Water Utilities Administration)
- Metropolitan Waterworks and Sewerage System
- DENR as the chair of the Committee.

The following are additional department and agencies that were not named in the *mandamus* and invited to join the MBCC:

- Department of Tourism
- Department of Energy)
- Department of National Defence
- Department of Science and Technology
- Department of Trade and Industry
- Department of Finance
- Department of Social Welfare and Development
- National Anti-Poverty Commission
- Pasig River Rehabilitation Commission
- National Economic Development Authority
- President of the League of Municipalities and Cities in Regions III, IV A and NCR.

The MBCC was created in 2006 to coordinate with national and local bodies to ensure that the activities of these agencies are consistent and complementary to the OPMBCS. The MBCC also provides policy guidance and direction in the implementation of the OPMBCS, promotes participation, monitors the implementation and progress made, recommends legislation and institutional mechanisms and secures budget for the realisation of the OPMBCS. The MBCO serves as the secretariat of the MBCC and MBAC. The MBCO, headed by a Program Director, coordinates the implementation of the OPMBCS and monitors the reporting of accomplishments of the *mandamus* agencies to the Supreme Court.

The Site Coordinating Councils (SCC) is the regional counterpart of the MBCC, which is composed of LGUs in the Manila Bay area, regional directors of the *mandamus* agencies represented, the private sector and various stakeholder representatives. The SCC is chaired by the Regional Executive Director who is also the concurrent Manila Bay Regional Coordinator of the SCC. The SCC has coordinative functions and is involved in the overall planning of the local- and area-based approach of the OPMBCS implementation. Moreover, a Site Management Office was established in Regions III, IV A and NCR to monitor and coordinate the progress of the implemented activities.

What links all the actors in this network is that they depend upon one another to get a goal done, i.e. clean up the Manila Bay. It is important that the actors recognise their dependency among each other so that they can jointly define and understand what the problem is, develop the appropriate strategies that can influence each other to work together and pool their resources to get the work done. The MBAC is dependent on the competency and knowledge resources of the *mandamus* agencies to implement activities towards the rehabilitation of Manila Bay in performing its oversight functions. These resources have a low degree of substitutability because the MBAC can only get these resources from the *mandamus* agencies. The *mandamus* agencies, in turn, are dependent on the Supreme Court's legitimacy resource, i.e., its legal authority to compel the agencies to perform their ministerial duties. The *mandamus* agencies are also dependent on each other as the implementation of their KPIs requires the resources and cooperation of other agencies. The MBCO, as secretariat of the MBAC, also possesses legitimacy resources as they collate and report to the latter on the accomplishments of the *mandamus* agencies. However, the *mandamus* agencies cannot be considered as highly dependent on the MBAC and MBCO as the former are mandated by law and are able to perform their functions without the latter. Nonetheless, the threat of administrative sanction by virtue of *mandamus* in case of non-compliance is viewed by the concessionaires as an opportunity to facilitate cooperation and create ease in their transactions with national and local government bodies. Table 7.1 summarises the resource interdependencies in this arena.

Table 7.1 Resource dependency in the interagency monitoring arena

Actors	Very important resources	Degree of substitutability	Dependency: Low, medium, high	Critical actor: yes/no?
MBAC	<i>Mandamus</i> (Legitimacy)	High	Medium	Yes
MBCO	Agent of MBAC to monitor <i>mandamus</i> agencies (Legitimacy)	High	Medium	No
<i>Mandamus</i> agencies	Budget and resources to implement projects to cleanup Manila Bay (Competency)	Low	High	Yes
	Accomplishment reports (Knowledge)	Low	High	Yes

7.3.2 Goal congruence

Network rules lay down the institutional structure of the network and lends insight into the opportunities and limitations on the actions that can be taken by the actors (Koppenjan & Klijn 2004, p.82). The interorganisational relationships of the actors in this arena are mandated by the Supreme Court and the rule that governs the actions of the *mandamus* agencies is the OPMBCS. In the first couple of years of reporting by the *mandamus* agencies, the MBAC observed that the quarterly reports submitted by the *mandamus* agencies were inconsistent, inadequate and behind schedule. The data and results presented by agencies varied for each reporting period and there was no established target and deadline to accomplish their KPIs. There was no standard reporting format, which made it challenging for the MBAC to review and verify the accomplishments objectively. More importantly, the regular reports did not show whether there were improvements in the water quality of Manila Bay (GO-2014-023, GO-2014-023). To correct these issues, the MBAC ordered the DENR, through the MBCO to oversee the review and update the OPMBCS in 2011.

The updated Plan consists of the KPIs for each *mandamus* agency designated by the Supreme Court and the OPMBCS strategy framework. *Mandamus* agencies are required to submit accomplishment reports on their KPIs to the MBAC on a quarterly basis. To address these priorities, the Plan's revised strategy framework provides for a two-fold action plan: (1) an issue-based action plan that specifies activities for water and solid waste pollution reduction, removal of informal settlers along waterways, and habitat protection and restoration and (2) the area-based or major river systems action plan with specific activities to improve the water quality of the different river systems that empty into the Manila Bay.

There are separate action plans for each river system.³³ The issue-based action plan includes partnership and governance action plans to address the institutional barriers that hinder the implementation of projects. Each action plan includes management targets and the corresponding management outcomes on a yearly basis and five-year intervals until 2025, starting 2011 to 2015. The management targets address the KPIs of the *mandamus* agencies. The Plan also calls for the establishment of a database for baseline data and information, which was lacking in the previous version. Table 7.2 enumerates the KPIs of the *mandamus* agencies.

Table 7.2 KPIs of *mandamus* agencies.

AGENCY	KEY PERFORMANCE INDICATORS (KPIs)
1. DENR	1. Percentage of total number of planned activities completed in the revised OPMBCS (MBCO) 2. Percentage of estimated total pollution loading from industrial and commercial sources in the Manila Bay Region that is treated in accordance with DENR-EMB standards (EMB, LLDA) 3. Percentage of industrial/commercial firms operating within Manila Bay region that is in compliance with required effluent discharge permits and meeting effluent standards (EMB, LLDA) 4. Percentage of measures enacted and enforce to manage/ban the dumping of toxic and hazardous dredge spoils or waste into the Manila Bay system (EMB) 5. Percentage of geo-referenced and integrated water quality monitoring site results that comply with the DENR standards for Class C (Pasig River and Laguna Lake) or Class SB (Manila Bay) (EMB, PRCC, LLDA) 6. Percentage of budget increase for Manila bay rehabilitation activities 7. Number of IEC activities
2. DILG	1. Percentage of commercial establishments and homes along riverbanks and shorelines of Manila Bay watershed area that are inspected for adequate treatment facilities/septic tanks 2. Percentage of total non-compliant establishments and homes that construct wastewater treatment facilities/septic tanks following inspection 3. Percentage of LGUs in Manila bay watershed areas outside Metro Manila that are certified as compliant with regulations governing: a) 10 year Solid Waste Management Plan, b) Segregation at source, c) segregated collection, d) composted, recycled and reused, e) disposed residual waste in approved disposal site, f) solid waste management (RA 9003), g) informal settlers and illegal encroachments (permanently cleared) 4. Percentage of LGUs implementing their Water Quality Plan in compliance with RA 9275 5. Number of IEC activities
3. MWSS	1. Percentage of water-served population and area covered by sewerage and sanitation treatment facilities 2. Percentage of domestic pollution loading that is treated in accordance with current regulations and standards 3. Percentage of estimated total septage desludged that are treated in accordance with current regulations and standards 4. Amount collected for sewerage and sanitation services 5. Amount invested for sewerage and sanitation facilities (capital expenditure) 6. Number of IEC activities

³³ The rivers in Metro Manila that empty into Manila Bay are the rivers of Paranaque, Las Pinas, Zapote, Navota-Malabon-Tullahan-Tenejeros, Pasig-Marikina-San Juan and Pasig. The rivers outside Metro Manila that end up in Manila Bay are the rivers of Pampanga, Imus, Maragondon and Talisay, Laguna Lake and Angat Watershed.

AGENCY	KEY PERFORMANCE INDICATORS (KPIs)
4. LWUA	1. Percentage of residential, institutional, commercial, and industrial establishments connected and served by wastewater treatment facilities 2. Percentage of total domestic pollution loading that is treated in accordance with current regulations and standards 3. Percentage of estimated total septage desludged that are treated in accordance with current regulations and standards 4. Percentage of water-served population and area covered by sewerage and sanitation facilities 5. Amount of funds collected by water districts for sanitation and sewerage services 6. Amount invested for sewerage and sanitation facilities (capital expenditures) 7. Number of IEC activities
5.DA-BSWM	1. Percentage reduction of estimated total pollution loading from agricultural and livestock sources in the Manila Bay River Basin region 2. Number of IEC activities
6. PCG	1. Percentage of patrols/operations conducted in the Manila Bay system to ensure enforcement of PD 979, RA 8550 and RA 9993 and other laws designed to prevent marine pollution 2. Percentage of apprehended violators of PD 979, RA 8550, RA 9993 and other laws designed to prevent marine pollution that are prosecuted and penalized 3. Number of other projects and activities related to environmental protection and improvement of water quality of Manila Bay 4. Percentage of IEC activities
7. PNP-MG	1. Percentage of patrols/operations conducted in the Manila Bay system to ensure enforcement of RA 8550 and other laws and ordinances designed to prevent marine pollution 2. Percentage of apprehended violators of RA 8550 and other laws and ordinances designed to prevent marine pollution that is prosecuted and penalized 3. Number of other projects and activities related to environmental protection and improvement of water quality of Manila Bay 4. Number of IEC activities
8. PPA	1. Percentage of estimated total pollution loading from bilge water and solid and liquid waste that is collected and treated in accordance with current regulations and standards 2. Percentage of ports and terminals with adequate solid and liquid waste reception facilities, treatment procedures and funding requirements for treatment and/or disposal of ship-generated waste 3. Number of IEC activities
9. MMDA	1. Percentage of estimated total area and number of illegal encroachments/informal settlers along Metro Manila water bodies that are permanently cleared in accordance with current laws and relocation provisions 2. Percentage of estimated total volume of generated solid waste in Metro Manila that is collected in accordance with current regulations and standards. a) composted, b) recycled and reused, c) residual materials processed, d) disposal, e) over all diversion rate 3. Percentage available storage capacity of sanitary landfills serving Metro Manila that is established in accordance with current regulations and standards 4. Percentage of spoils and solid waste dredged from waterways that are disposed of in accordance with current rules and regulations 5. Percentage of apprehended violators of RA 9003, RA 9275 and other existing laws on pollution who are prosecuted
10. DPWH	1. Percentage of estimated total area of illegal encroachments and informal settlers along water bodies of Bulacan, Pampanga, Cavite and Laguna that are permanently cleared in accordance with current laws and relocation provisions 2. Number of IEC activities
11. DOH	1. Percentage of septic and sludge handling and treatment companies that are inspected and certified as being compliant with current regulations and standards 2. Percentage of septic and sludge handling and treatment companies that have valid Environmental Sanitary Clearances (ESC) issued by DOH 3. Number of IEC activities

AGENCY	KEY PERFORMANCE INDICATORS (KPIs)
12. DepEd	1. Number of Environmental Education, Information and Education (EEIC) program materials and lessons prepared regarding the Manila Bay clean up 2. Number of students who completed a DepEd EEIC regarding the Manila Bay clean up 3. Number of students who have participated in clean up activities within the Manila Bay system area 4. Number of IEC activities

Source: Operational Plan for the Manila Bay Coastal Strategy 2011-2015

The *mandamus* agencies are organised according to the three priority issues that need to be acted upon to clean up Manila Bay: (1) water quality improvement, (2) solid waste management and (3) relocation of informal settlers. The first cluster is chaired by the EMB-DENR and the second and third clusters are chaired by DILG (Manila Bay Coordinating Office 2011). Figure 7.2 illustrates the strategy framework of the OPMBCS. The clusters are further grouped into three geographical areas in Metro Manila. The geographical clusters are comprised of cities and municipalities grouped in accordance to their territorial proximity to the major river systems: (1) MANATUTI,³⁴ (2) MUNTIPARLASPIZAP³⁵ and the (3) PAMMARIQSAN.³⁶ Figure 7.3 illustrates the expanded OPMBCS implementation structure. Each cluster and sub-cluster is comprised of the concerned national government agencies named in the court order and each agency is assigned to carry out activities in service of the number of KPIs prescribed for each agency (GO-2014-013, GO-2014-014).

The MBAC meets on a quarterly basis to receive and evaluate the quarterly progress reports on *mandamus* agency compliance with the OPMBCS. The *mandamus* agencies are grouped according the priority issue cluster during these meetings but each *mandamus* agency reports on the progress of its agency activities based on its KPIs. Each *mandamus* agency created monitoring teams to monitor the implementation of KPIs in their respective agencies and prepare the progress reports to be submitted to the MBCO and MBAC. The head of the *mandamus* agency or the designated deputy attends the MBAC meetings to present the progress report (GO-2014-024). Outside the MBAC meetings, the MBCO and the clusters also hold meetings to discuss their areas of concern. The MBCO holds cluster meetings to monitor the performance agencies and guide them on their compliance. The MBCO also consolidates the report of the *mandamus* agencies and reports on the overall implementation and compliance.

³⁴ Cities of Caloocan, Malabon, Navotas, Valenzuela, and Quezon City.

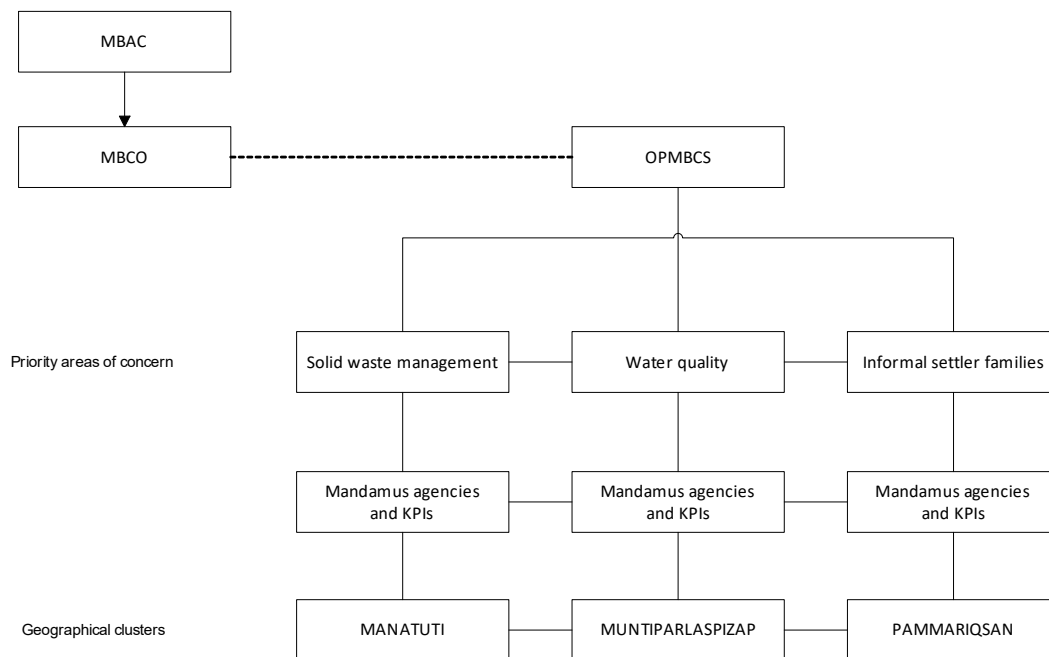
³⁵ Cities of Pasay, Las Pinas, Muntinlupa, Manila and Paranaque.

³⁶ Cities of Pasig, Marikina, San Juan, Makati, Taguig, Mandaluyong, Pateros and Quezon City.

Figure 7.2 OPMBCS Strategy Framework



Figure 7.3 Metro Manila issue-based action plan framework



Source: Interview with DILG officials

It is not enough that the network goal is formally defined, it is equally important that actors agree on the network goal. To agree on the goal, actors must have a clear and common understanding of the rules to be effective as different interpretations can be a source of conflict (Koppenjan & Klijn 2004). The KPIs, while specific and relevant to *mandamus* agencies, require the cooperation of a number of agencies to be effectively implemented. Officials from DILG, in particular, encounter difficulty in coordinating their strategies with other agencies. One of their KPIs is to inspect commercial establishments and homes along Manila Bay for adequate treatment facilities and septic tanks, which overlaps with the DENR's KPI to check compliance with effluent standards by industrial and commercial firms (Table 7.1). The clusters had not been an effective venue for agencies to discuss issues regarding the implementation of KPIs:

What makes it difficult to collaborate is that every national government agency has its own strategies some of which we think are not applicable to us but are applicable to them. Like we want to collaborate with DENR, but now they are already fixed with their own strategies which they cannot change anymore, so that means we have to adjust to them. So what happens, we have to do our (activities on our) own (DILG)... We interpret some procedures one way, and the LGUs would interpret it another way so how do we meet halfway? But if the MBAC is there (during the forum), they will say which interpretation is correct, nothing else, and we would focus on that. So now we are scattered (GO-2014-014).

Actors do not just collaborate to deliver a certain outcome: they also need to collaborate in solving problems that may arise in the course of implementing projects. When network actors jointly define the problems, they can jointly formulate more appropriate and targeted solutions. To iron out the confusion on the KPIs, the DILG proposed that the MBAC host a forum for all *mandamus* agencies for discussing the KPIs with the goal of arriving at a common understanding and a common strategy and direction in implementing projects. As the oversight body, the DILG expects the MBAC to mediate the discussion and rule, when necessary, on the most appropriate actions from among the different strategies by the agencies. However, the proposal of DILG was not welcomed and instead, the MBAC advised DILG to hold a separate meeting with DENR.

Formulating solutions is not difficult when the interests and perceptions of the parties are congruent. The DILG officials surmise that the MBAC's refusal to hold the forum stems from the fact they have no real feel, awareness and appreciation of the implementation problems that the agencies encounter 'because they have not witnessed what is happening on the ground.... they just gather the reports... they see figures... but the details are not included in the reports' and as such, they may not be able to respond to questions relating

to implementation should the forum be held (GO-2014-015). It is unclear to them as to what the MBAC intends to achieve during the quarterly meetings as the Committee just ‘seems to be gathering information but no additional follow-through is happening’ (GO-2014-015). Respondents from the DILG find that the collegial nature of the clusters makes it challenging to resolve interagency issues as there is no one in authority who can make the final decision.

Networks in service delivery and implementation emphasise the importance of solving complex policy problems through horizontal coordination between interdependent and network actors. Network performance results from interactions between a variety of actors rather than just the actions and policy of one actor alone (Klijn & Koppenjan 2012, p.589). A review of the minutes of MBAC meetings³⁷ reveals that the Committee does not seem to have a formal, consistent and effective way of addressing interagency collaboration issues. After coordination issues are raised, there is no follow-up in subsequent meetings as to how these issues have been addressed or if an interagency collaboration structure was set in place. Even when most issues raised require interagency collaboration, *mandamus* agencies report on their individual KPIs.

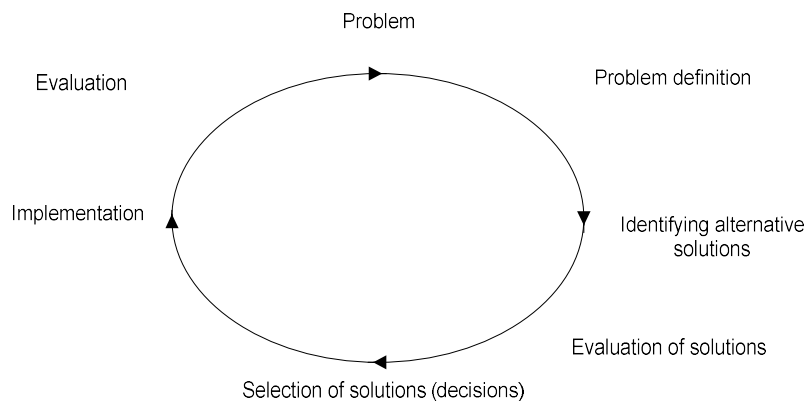
The format of MBAC meetings starts with agency presentations followed by questions, comments or suggestions by the MBAC members. Thereafter, the agency responds – usually to explain the cause of delay or bottlenecks in the implementations of their projects. Should the action require the cooperation of another agency, the Committee asks the representative of the concerned agency, if present, to respond on the matter. Otherwise, the Committee directs the reporting agency to undertake the necessary coordinative actions. In at least three MBAC meetings, the matter of inspection of treatment facilities of industrial and commercial establishments and residential septic tanks had been reported. The DILG presented a consolidated report based on the reports submitted by the different LGUs and the EMB reported on the commercial and industrial establishments. The MBAC members inquired as to the low compliance. Reporting agencies explained issues at the local government level, such as insufficient numbers of sanitary inspectors at the local government level, poor enforcement by LGUs of sanitation regulations, poor coordination between national agencies and the LGUs and refusal of residents to get their septic tanks

³⁷ See footnote 4.

desludged. In all instances, the MBAC members' response was to order the *mandamus* agencies to coordinate and work with the LGUs.

The concessionaires have also brought up in several MBAC meetings the challenges they encounter in implementing STP projects, i.e., land acquisition and securing permits from different national government agencies and LGUs. In particular, Maynilad pointed out that all the lands for their STPs were purchased from private owners, which are more expensive than public lands thereby affecting a higher tariff. Public lands would be cheaper but they have not received any assistance from the LGUs in acquiring lands, as required by the Clean Water Act. The concessionaires find that despite numerous meetings with MBAC and MBCO, these venues have neither helped resolve nor alleviate the interorganisational collaboration issues they encounter. In two separate MBAC meetings, one MBAC member advised that the government should exercise its power of eminent domain to acquire lands for STPs. This has not materialised as the MWSS refused to use its expropriation powers to assist the concessionaires. In another meeting, another MBAC member pronounced that the Committee will join the concessionaire in its meeting with a private landowner to help convince the latter to sell the land for the Central Manila STP. In my interview with the project manager, she said that she was not aware of that pronouncement nor was there any formal offer from the MBAC to help (PS-2014-006).

Based on the strategies employed by the MBAC, it appears that the problem solving process of the MBAC is similar to the rational phase model (Figure 7.4), which regards problem solving as an intellectual design process governed by an individual decision maker and its decisions at the centre (E H Klijn & Koppenjan 2000, p.43). This process starts with specifying the nature of the problem, its consequences and causes. Solutions are then formulated, implemented and evaluated. Success is measured by the degree to which the objectives are accomplished.

Figure 7.4 Rational phase model as MBAC problem-solving cycle

Source: Koppenjan and Klijn, 2004

The problem solving model adopted by the MBAC does not address the complex societal problems in the multi-actor and multi-purpose setting of the Manila Bay problem. This problem solving process focuses on a central actor taking main responsibility of problem identification who may have insufficient information about the nature of the problem situation and the effects of solutions. This incomplete knowledge can lead the central actor to select options and make assessments in a non-transparent way. In the case of Manila Bay, the problem was defined in the Supreme Court decision and the solution was the creation of the MBAC. The DENR, through the MBCO, was tasked to take the lead in updating the OPMBCS, which serves as the roadmap for the *mandamus* agencies to rehabilitate Manila Bay. The MBCO conducted several workshops with the *mandamus* agencies to gather inputs and feedback and, in 2011, the OPMBCS was revised. Notwithstanding these meetings, it seems as though the *mandamus* agencies do not agree with the revised plan. In a cluster meeting called by the MBCO in October 2014, agencies present expressed their disagreement with the KPIs, when the meeting was in fact called for the agencies to report on the progress of KPI implementation. They informed during the meeting that the Supreme Court formulated the KPIs without consulting the *mandamus* agencies.

The Supreme Court's approach to conceptualising problems from an organisation-set perspective is inherent to the Philippine government. When agencies are ineffective in their jobs, the solution is to create new agencies to coordinate and supervise these erring agencies. There is no proper diagnosis of the situation and no clear defining integrative mechanism for bringing all these actors together under the new set-up. This has resulted to

the indiscriminate creation of agencies that has expanded the water and sewerage sector (see Section 4.3 The resulting institutional framework on page 86). In addition to the MBAC and the MBCO, there is also the NSSMP Committee whose functions are akin to the water quality cluster of the MBAC. The NSSMP Committee is not part of the MBAC but the agencies under the NSSMMP Committee are the same agencies under the water quality cluster of the MBAC. It is not clear whether the NSSMP was considered in the formulation of the KPIs and the revision of the OPMBCS.

There is no goal congruence between the MBAC and the *mandamus* agencies even with a legally defined goal and network structure. MBCO Director Gaerlan attests that the *mandamus* agencies were consulted but the agencies did not express their comments because they believed that the KPIs were already final. The Supreme Court drafted the KPIs for each *mandamus* agencies which also served as a reference in the revision of the OPMBCS. There was no misunderstanding during this process but the agencies felt obliged to defer to the Supreme Court-formulated KPIs even when they had reservations. According to Director Gaerlan, this is typical of the work culture in the Philippine government where people will 'Say yes in your face and behind your back, they will complain but will still do it.' Director Gaerlan admitted though that the OPMBCS was updated without proper diagnosis of the situation. The action plans were formulated without baseline information for setting targets on the interventions and strategies undertaken and the corresponding improvement expected. The programs and action plans formulated were broad, not activity-specific and site-specific and had no timeline. Director Gaerlan, who is a civil engineer by training from the private sector when he was appointed MBCO director in 2010, emphasised the importance of knowledge management in formulating an effective plan. When he joined the DENR, he noted that the department had no database of all types of pollutants and pollution sources of Manila Bay. He noted that government decisions lack a scientific basis and, instead, are usually backed by opinions, convictions and personal inclinations of decision makers.

When he assumed the position, Director Gaerlan's first order of business was to examine the science of Manila Bay before addressing the governance aspect. The MBCO is currently undertaking efforts to update and upgrade the scientific database to back-up the rehabilitation and clean up strategies. He forged a partnership with the Philippine Nuclear Research Institute and Bureau of Soils to do isotopic analysis for Manila Bay. At the time the interview was conducted in October 2014, the MBCO was in the midst of setting up a spatial mapping and modelling system that could provide online information on all major pollutants, location and water quality in Manila Bay in real time. The system took at least

two years to set-up as his office had to hurdle the bureaucratic processes of budgeting, procurement and approval. The MBCO is also collaborating with private science institutes to ensure sustainability of the project if government funding runs out. Science, however, has a different function from governance. Each polluter and pollutant is governed by different laws and different agencies. The challenge is to reconcile science with governance and, looking at the strategies of the MBAC and MBCO, the pathway towards an effective collaboration structure is unclear.

7.3.3 Network management

Even when network goal has been formally and legally defined, goal consensus among actors does not come automatically. A precondition to agreement is that actors have a mutual acknowledgment of the issue that the network goal seeks to address to allow the parties to negotiate issues of legitimacy and appreciate the interdependence that exists among themselves (Gray 1985, p.917). However, goal congruence can be challenging in a network where multiple actors function under different interests, problem perception and strategies. The role of management is critical for effective network governance, especially in handling conflicts that can arise from such differences (Provan & Kenis 2007, p.233).

Cross sector collaborations are more likely to succeed when they have committed sponsors and effective champions who can impart leadership (Bryson et al. 2006, p.47). The interagency monitoring arena has a legitimate leadership, with the MBAC acting as sponsor and the MBCO as a champion. The sewerage network has found a sponsor with Supreme Court Justice Velasco and the MBAC members, who are credible, respected and accomplished figures in the environmental sector. With its power to impose administrative sanctions to non-complying entities, the MBAC is a powerful stakeholder and its legitimacy is recognised by all members. The ruling recognised that coordination among agencies is necessary to achieve the goal of cleaning up Manila Bay. The MBCO, as secretariat to the MBAC and MBCC, is an ideal champion as it possesses the technical knowledge and skills to mobilise agencies to work together and identify the problems by domain or arena. Under the leadership of the MBAC and the technical knowledge of the MBCO, the problem of interorganisational collaboration that plagued the implementation of Manila Bay projects as well as the sewerage sector was supposed to be addressed.

The interagency monitoring arena has a legitimate leader with the MBAC but it has not resolved the issue of Manila Bay that the executive branch failed to do. The creation of the

MBAC, the MBCO and its clusters has ended up adding another layer of complexity to the already complex and fragmented sewerage network. The interagency monitoring arena created as a result of the Supreme Court decision was intended to get the different *mandamus* agencies to collaborate to achieve the common goal of cleaning up Manila Bay. However, MBAC focused on identifying strategies and plans to clean up of Manila Bay and monitoring their implementation.

As network manager, the MBAC should have facilitated the setting up of a sustainable institutional structure that fosters interorganisational cooperation among the *mandamus* agencies to effectively implement Manila Bay clean up projects and activities. Managing and building interorganisational collaboration among the *mandamus* agencies has not been given attention by the MBAC and MBCO. Notwithstanding the shortcomings of the MBAC, it still holds a large potential for improving interorganisational collaboration the Metro Manila sewerage network. Unlike the STP construction arena where actors have limited formal accountability to the arena goal, the actors in this arena are under *mandamus* to conform to the rules and procedures. The Supreme Court decision and the creation of the MBAC signified that the Manila Bay clean up was not just another ordinary government project as the writ of continuing *mandamus* makes this project indispensable and of the highest priority (Manila Bay Coordinating Office 2011). With an established leadership and defined set of rules to guide the actions of the *mandamus* agencies, accountability and coordination in this arena should be relatively easier to navigate. The role of a network manager should be differentiated from the usual public manager whose role is to manage the implementation of strategies. A network manager is expected to 'manage cooperative strategies, monitor the quality of the dialogue and intervene with questions designed to enhance understanding' (Kickert et al. 1997, p.49). This gap may be addressed by bringing in relationship managers and boundary spanners whose tasks would be identify the collaboration gaps and bottlenecks, act as the 'honest broker' in case of conflicts and ensure that interdependencies among actors are sustained (Thomson & Perry 2006, p.26).

7.4 Network effects of PPP in the interagency monitoring arena

The network features of PPP did not yield an optimal outcome in the interagency monitoring arena. The arena did not produce optimal outcomes because its objectives were not achieved. The ideal outcome in the interagency monitoring is the establishment of a sustainable interagency network structure and processes that enable the *mandamus* agencies to effectively work together in implementing projects to clean up Manila Bay.

Resource interdependence, the existence of formal network goal and a legitimate network manager did not guarantee collaborative success.

The network features of PPP in the interagency monitoring arena failed to deliver the expected benefits of PPP to improve quality of public service while lowering its costs. The resource interdependence of actors in the interagency monitoring arena has the potential of lowering the cost of the concessionaires. When other agencies perform their roles, the concessionaires will be able to build STPs within budget and schedule. If LGUs effectively performed their solid waste management function (see Section 6.2.3 Interagency management of wastewater and solid waste on page 127) then the concessionaires would not have to incur additional cost in removing solid wastes that get trapped in their STPs. If riverbanks and waterways are cleared of informal settlers, the concessionaires will not incur further cost in redirecting sewage pipelines (see Appendix 2.1 on Box 6.1 North and South Pasig sewerage system project on page 185). When other network actors refuse to cooperate, this increases the transaction cost of the concessionaires.

It is important that the actors recognise their dependency on each other because from thereon they will be able to jointly define and understand what the problem is, develop the appropriate strategies that can influence each other to work together and pool their resources to get the work done (Koppenjan & Klijn 2004, p.46). There is mutual resource interdependence among the *mandamus* agencies as they recognise that they need the cooperation of other agencies to perform their specific environmental protection functions. There is an established network goal in the interagency monitoring arena but the *mandamus* agencies do not agree on the strategies imposed on them to achieve the network goal. They do not agree on resource allocation because the rules are not clear to them.

Collaboration among network members can be improved through incentives, process and conflict management and reduction of risks linked to cooperation (E. H. Klijn & Koppenjan 2000, p.142). An incentive to work in a network is resource interdependence, i.e., to access resources owned by other actors that they need in performing their own functions. The creation of the MBAC was initially welcomed by the *mandamus* agencies as it promised to organise the interorganisational efforts towards the clean up of Manila Bay. Moreover, it has the power to impose administrative sanctions to non-complying entities.

The mutual dependency on the resources held by the MBAC, MBCO and the *mandamus* agencies was not enough to guarantee a higher degree of cooperation. The resources held by MBAC and MBCO could have been used by the resource owners as realisation power to help the *mandamus* agencies perform their functions. The concessionaires, in particular, expected the MBAC to provide them the venue to raise and resolve the interagency collaboration challenges they encounter in implementing sewerage projects. Most, if not all, of the agencies they work with are named in the *mandamus*. Mutual dependency is supposed to encourage a higher degree of cooperation among the parties but the *mandamus* agencies, however, perceived that the MBAC has not improved interorganisational collaboration and has just created another layer of reporting. The two concessionaires, while not named respondents in the decision, also attended the MBAC and MBCO meetings upon request of the MWSS so they can present their respective activities and accomplishments. They reported on their KPIs, which are the same with their KPIs under the CA with MWSS. The concessionaires also attend meetings for the issue-based action plans organised by the MBCO, as well as meetings conducted by the DILG which takes the lead on the area-based action plans in Metro Manila. Since both concessionaires service the entire capital, they attend the separate meetings called by the three geographical clusters. They find that these meetings did not add value to their work as these did not resolve the issues they encountered with the national and local government agencies. The DILG and private utility officials do not find the MBAC helpful in resolving interagency issues.

For a network goal to be effective, network members should have a similar understanding of the issues that the goal aims to address so that they can jointly formulate strategies that are consistent and complementary. The process of problem- and solution- shaping can be a hectic, fragmented and dynamic process so this to be managed. When there is disagreement and confusion about the goals, problems and solutions, the network manager can help facilitate understanding among actors. The MBCO has provided the venue for collaboration with the clustering of *mandamus* agencies by priority issues (Figure 7.3) but it failed to establish a systematic approach to handle the process of collaboration. In its decision, the Supreme Court defined the problem as the polluted state of Manila Bay. The solution was the creation of MBAC, which was supposed to oversee the performance of the *mandamus* agencies. However, this is just a symptom of the real problem. The wretched state of Manila Bay was a result of the many years of neglect by the executive branch of the Philippine government, which was tasked with different functions to protect the environment. It is this neglect of ministerial duties that compelled the Supreme Court to

order the concerned agencies by *mandamus* to 'jointly and solidarily clean up Manila Bay... to make it fit for swimming, skin-diving and other forms of contact recreation' (Supreme Court of the Philippines 2008). The main issue is how to structure an effective and functioning coordination setup among these actors.

7.5 Concluding remarks

Among the three areas of decision making areas examined in this thesis, the interagency monitoring arena is the only one that has been legally created with an established network goal, formal leadership, institutional structure and clearly-defined rules. However, these have not been enough to bring effective collaboration to rehabilitate Manila Bay among the *mandamus* agencies. This chapter suggests that a formal network goal and network manager do not guarantee collaborative success. The deliberate creation of a network as a means of governance is as important as the management of the network itself. The undoing of this arena is attributed to the lack of recognition that the process of defining a problem is as much a collaborative process as implementing solutions. While there is formal leadership in this arena, it has failed to inspire and lead the members towards a collaborative approach and unwittingly encouraged an organisation approach by defining agency-specific KPIs. Additional findings on the theoretical implications of this arena vis-à-vis the network outcomes will be considered further in the last chapter.

Chapter 8

Conclusion

This chapter answers the main research question, deliberates on the relevance and policy implications of its theoretical and empirical findings and suggests prospects for future research. The aim of this research has been to explain why PPP failed to deliver the expected outcomes in privatised infrastructure services. This research endeavoured to answer the central question by examining the case of privatised sewerage service in Metro Manila, Philippines. Ultimately, this research contributes to the literature on network governance, PPP and policy implementation by explaining how PPP transformed the governance structure of public infrastructure services and how these changes can potentially hinder the accomplishment of the intended outcomes. To answer the main question, the following sub-questions were raised: (1) What are the network features created by PPP? and (2) What are the effects of these network features on PPP outcomes?

8.1 Main research findings

To answer the central question, this research aimed to establish the relationship between network governance theory and PPP. At the outset, this research argued that the concessionaires failed to deliver their targets on time because of the network effect of PPP. The network effect of PPP refers to outcomes that are caused by the emergence of network features created by PPP. The literature on network governance offers numerous sets of network features to explain a network's success or failure, or to understand the relationships and dynamics in the network (see Section 2.4.2 Network features of governance structures on page 22). This research, however, does not aim to resolve network complexity nor adjudge networks as success or failure. Every network has its own characteristics that are unique to the service or sector and the broader environment in which it exists. It is also difficult to gauge the success or failure of a network because numerous decisions are made in different arenas over different periods of time, which can yield varying levels of success or failure. This makes it challenging and even inaccurate to select the most appropriate set of criteria to analyse the network.

Networks are inherently complex in that they cannot be captured by a single theory (Klijn & Koppenjan 2012, p.600). Instead of making these generic features fit different networks, the complexity and uniqueness of the network should be considered in identifying the appropriate network governance perspective. Klijn and Koppenjan (2012) advocate for a more specialised and differentiated application of the governance network theory that will

capture the diversity of networks. One subject matter that pleads for a specialised network study is PPP. This has not been explored in the current PPP literature, which focused either on the performance of the private sector in delivering the public infrastructure service or on the implementation by the government of the PPP policy. PPP has been viewed as transfer of services from 'public to private' rather than as a 'public and private' responsibility. The limitation of this perspective is that it obfuscates the interdependence among public and private roles in governance and the extent of accountability problems created as a result thereof (Freeman 2000; Goldsmith & Eggers 2004).

Taking into consideration the complexity and uniqueness of networks in privatised public infrastructure services, this research has developed an analytical framework to analyse the network effects brought about by the network features of PPP. The analytical framework was used to understand why the concessionaires are behind their sewerage targets in Metro Manila. Referring to the Metro Manila concessions as a case study, this research has revealed three main findings:

- 1) The decisions that impact on the outcomes in privatised infrastructure services are made by public and private actors in different arenas,
- 2) PPP has resulted in the emergence of new network features that altered the governance structure of public infrastructure services and
- 3) The new network features created negative network effects that hindered the accomplishment of intended outcomes.

8.1.1 Decisions are made in arenas of multiple actors, not just by a single actor

The entry of the private sector in public service delivery through PPP has created a new governance structure that is relational in nature where decision making is no longer monopolised by the government but is negotiated among a number of public and private actors. These decisions take place in different arenas. In determining the network effects of PPP, I identified the vital decision making arenas or in the Metro Manila sewerage sector. The arena is where decisions over a policy or programme implementation are made by a cluster of actors on the basis of their perceptions of problems and solutions and the outcomes are a result of the mix of strategies brought by the actors in the arena (Koppenjan & Klijn 2004, p.50).

The arenas under a relational network are different from hierarchical or market-like networks. In a hierarchical network, all actors are public in nature where decisions are usually made at the top of the hierarchy and implemented by those at the bottom rung of the hierarchy. Arenas in market-like networks are comprised of public and private actors and their relationship is within a principal-agent context. The state contracts out the delivery of a public infrastructure service to the private sector and the performance of the private sector is monitored by the public sector on the basis of the performance indicators specified in the contract. Networks in PPP are relational in nature where actors are autonomous and their relationships are interdependent and non-hierarchical. Decision making is made in more than one arena as different aspects of the service are spread over a number of public and private actors. Each arena is unique as each one is comprised of a number of actors with different functions and perceptions who have to cooperate to produce the public service, which makes governance more complex. The working relationships among actors in different arenas vary according to the type of public infrastructure service and the different stages of production in a specific service.

Prior to the Metro Manila concessions, the Philippine government had sole responsibility for all aspects of sewerage services such as determining the tariff, construction of sewerage infrastructure, monitoring service delivery, collecting payments from consumers and dealing with consumer concerns. In carrying out its function of delivering sewerage services, the concessionaires have to collaborate with a number of national and local government entities. We learned in the last three chapters that decisions over the delivery of sewerage service in Metro Manila, Philippines are made in different arenas. There are a number of arenas in the Metro Manila sewerage sector but this thesis only examined the three most crucial decision making arenas: (1) the rate rebasing arena, (2) the STP construction arena and (3) the interagency monitoring arena.

Network outcomes are a result of the different perceptions, decisions and strategies of different actors in the different arenas. Policy implementation is complex not only because there are many actors who can make unpredictable and sometimes conflicting decisions. Further complexity is created when actors are simultaneously involved in more than one arena when problems have different dimensions that require the application of different policies and involvement of different actors for resolution (Van Gils & Klijn 2007, p.14). This is the predicament encountered by the two private concessionaires, Maynilad and Manila Water, as participants in the three arenas. The ability of the concessionaires to fulfil their contractual obligations does not rely solely on their financial resource and technical competency but is largely dependent on various policies implemented by different actors at

various government levels in the different decision making. As a result, the policy implementation becomes highly fragmented in character as decisions are made in different arenas at different levels and times (Van Gils & Klijn 2007, p.14).

8.1.2 PPP created network features that changed the governance structure of public services

The entry of the private sector in public infrastructure service delivery altered the governance structure of public infrastructure services, i.e., a horizontal, relational and self-organising structure where private and public actors resolve and negotiate problems and decisions jointly. This new structure exhibited new network features that changed and impacted on the way public infrastructure services are delivered. The network features created by PPP are (1) resource interdependence between the private and public sector, (2) the challenge of achieving goal congruence in a multi-stakeholder setting and (3) unclear network management roles. These features were not present when public infrastructure services were provided by the government. The government performed all aspects of the services, such as planning and implementing the projects, allocating resources, providing the service to the consumers and collecting payment for the service provided.

PPP has created a contractual relationship between the public and private sector, which establishes resource interdependency and this interdependency is the basis of goal congruence among the actors (Koppenjan & Klijn 2004; Klijn et al. 2010; Agranoff & Mcguire 2003). However, achieving goal congruence in the network is challenging because it is comprised of a diverse set of autonomous actors who may have conflicting perceptions on issues and solutions (Koppenjan & Klijn 2004; Klijn et al. 2010; Hajer & Wagenaar 2003). With numerous actors having to share resources towards a common goal, a network manager is needed to guide the network members to effectively work together but, since the relationship of actors is not hierarchical, it is unclear who assumes this leadership role.

8.1.2.1 Resource interdependence does not guarantee collaboration

PPP created resource interdependency between the public and private sector. The government enlisted the private sector because it has the financial resources and technical competency needed to improve public infrastructure service. Resource interdependence requires coordination and the inherent complexity in contracting and outsourcing intensifies coordination challenges (Brown & Potoski 2003, p.276). Uncertainty in relationships is created by the complexity of the environment and the risk that the other party might adopt opportunistic behaviour (Rossignoli & Ricciardi 2015, p.9). The higher the uncertainty risks, the more actors are required to work together to mitigate the risks and 'the more numerous

and more complex the transactions, the higher the costs' (Rossignoli & Ricciardi 2015, p.9). As demonstrated in the last three chapters, the concessionaires have to work with a different set of actors in each arena. As the functions of each arena and the decisions made therein differ, the number and nature of complexity of the transactions involved in coordinating and maintaining the relationship of the concessionaires with the actors in each arena vary as well.

Resource interdependence in the tariff setting arena is supposed to improve transparency as checks and balance mechanisms in the management and distribution of resources have been put in place after PPP. The contract that specifies obligations of both parties, the creation of a regulator and monitoring systems and the options for arbitration are the mechanisms to improve transparency. However, these mechanisms require constant coordination between parties to work effectively. Coordination entails transaction costs. In the tariff setting arena, the transaction cost of the concessionaires increases during the rate rebasing exercise, particularly when the parties resort to arbitration to settle their disputes. While resource interdependence may have improved transparency, the complex transactions and coordination required in the tariff setting arena have created additional costs on sewerage service in Metro Manila.

In the STP construction arena, the relationship of the concessionaires and the LGUs is interdependent because the former need a number of resources, i.e., land, permit and licenses, from the latter to be able to implement STP projects in the latter's jurisdictions. The LGUs, on the other hand, need the concessionaires to provide sewerage services to their constituents. Resource interdependence has been a source of delay in the implementation of STP projects, which adds to the extraneous costs of the concessionaires that are not within their control. Delay 'is a function of the number of decision points, the number of participants at each point and the intensity of their preference' and the more decision points and participants, the higher the coordination costs (O'Toole & Montjoy 1984, p.499). As revealed in Chapter 6, the concessionaires incur additional costs and delay coordinating with actors in the STP construction arenas on the aspects of land acquisition, permit and licenses acquisition for STP construction and solid waste management.

Mandated coordination is the resource interdependence in the interagency monitoring arena and it was expected to facilitate coordination among *mandamus* agencies towards cleaning and rehabilitating Manila Bay. This decision was welcomed by the *mandamus* agencies as they recognised that they need the cooperation of other agencies to perform

their specific environmental protection functions. The concessionaires welcomed their de facto membership in this arena as it provided them a venue to discuss and resolve the coordination issues that they encounter with the national and local governments. However, the MBAC failed to resolve the interagency coordination issue and instead, only added another layer of reporting for the concessionaires.

8.1.2.2 The challenge of achieving goal consensus in a multi-stakeholder setting

Goal congruence is not easily achieved because networks are comprised of different agencies that are guided by their organisational mandates. It is easy to blame the veto power of actors for hindering goal attainment but it could be that the goal itself or the lack thereof or the way it is pursued that is the cause of the failure (Kickert et al. 1997, pp.174–175). Even when the network has a clearly defined goal, it is important that all actors in the network agree on the goal. Actors do not just collaborate to deliver a certain outcome; they also need to collaborate in solving problems that may arise in the course of implementing projects. To achieve goal congruence, it is crucial that the actors have a common understanding of the problem that the goal seeks to resolve. When actors agree on a common problem definition, they can jointly formulate resource allocation rules and complementary strategies. Conversely, when actors perceive and define problems differently, they may formulate divergent strategies. Most of the problems in the three arenas are rooted to a lack of goal consensus among actors.

In the tariff setting arena, the goals were defined in the CA. The CA is the main instrument of service provision and mode of regulation but these were not enough to get the actors in this arena to cooperate towards the network goal. The long term nature of the contract exposes the parties to changing conditions that can undermine or challenge the terms of the contract. When government leadership changes, there is a risk that government policies change as well. The contract instituted dispute resolution mechanisms in case of conflict but in the recent and still pending legal impasse, these mechanisms have been used to challenge the other party rather than resolve the issues.

The STP construction arena does not have a formally defined goal. It is challenging to achieve a common purpose in the STP construction arena because there is no clear, formal and established structure. There is no law or contract that directs the actors in this arena to cooperate with the concessionaires to help them implement their sewerage projects in the service area. The national government agencies LGUs do not see themselves as collaborators in STP construction of STPs but as regulators. The concessionaires have to navigate the government bureaucracy in applying for permits and licenses for sewerage

infrastructure. The concessionaires rely on their own efforts to build working relationships with different LGUs to facilitate implementation of STP projects.

The interagency monitoring arena has a formal, legal and defined goal. The interorganisational relationship of the actors in this arena is mandated by the Supreme Court and the rule that governs the actions of the *mandamus* agencies is the OPMBCS. This arena had the potential of resolving the interorganisational collaboration issues encountered by the executive department in cleaning up Manila Bay, including those faced by the concessionaires. However, even a defined goal requires consensus among the network actors. The MBAC took main responsibility of problem identification when it is the *mandamus* agencies that possess sufficient information about the nature of the problem situation and the effects of solutions. The MBAC behaved more like public manager whose role is to manage the implementation of strategies, rather than a network manager who 'manages cooperative strategies, monitors the quality of the dialogue and intervenes with questions designed to enhance understanding' (Kickert et al. 1997, p.49).

8.1.2.3 Unclear network management roles

The public and private sectors are motivated by different goals and respond to different incentives. The private sector is not subject to the legislative, executive, and judicial oversight that public agencies submit to (Freeman 2000, p.574). An effective network manager is needed to get the actors to collaborate in resource allocation and achieving goal consensus in the network. In the Metro Manila sewerage network, there was no designated network manager. The three arenas would have benefited from the leadership of an effective network manager that could have guided the network in resource allocation and goal consensus.

In the rate rebasing arena, there was no designated network manager but the concessionaires' view that the MWSS-RO as regulator, commercial signatory to the contract and contract manager should have taken the role of a network manager. Complexity arose when the government prioritised one role over the others. As commercial signatory to the contract and contract manager, it is the government's responsibility to ensure that the concessionaires perform the terms of the contract. On the other hand, the government also takes on a regulatory role to ensure that the right of the public to water and sewerage service is protected. Tension inevitably develops when any or all of these roles conflict. The regulator prioritised its role as regulator and advocate of general welfare when it interpreted the contract differently from its predecessors, which triggered the problems that the parties are still embroiled in.

The STP construction arena is not a formally organised structure so the actors do not come together to deliberately define problems, formulate solutions and coordinate their activities. It does not have a formally designated leader who has the authority to steer the arena towards a network goal. The interdependence between the concessionaires and the LGUs is a consequence of the concessionaires' contract but their relationship with the LGUs is neither mandated by contract nor by law. In the absence of a network manager, the concessionaires had to rely on their own efforts to maintain good working relationships with the different LGUs.

In the interagency monitoring arena, the MBAC is the formally designated network manager. With its legal authority and its network members mostly comprised of public organisations, the MBAC would have been an effective network manager had it focused on managing and building interorganisational collaboration among the *mandamus* agencies. A problem arose when the MBAC exercised hierarchy by formulating and imposing the KPIs on the *mandamus* agencies. According to the agencies, they were not consulted in the KPI formulation and they were under the impression that they are duty bound to comply even if they are unclear and disagree on the KPIs.

8.1.3 Network features of PPP can create negative network effects

The Metro Manila concessions were expected to resolve Metro Manila's water and sewerage woes. The ideal outcome for the Metro Manila sewerage network is that the concessionaires provide sewerage infrastructure and services to the consumers within the concession timeframe at an affordable tariff. The network effect of the network features of PPP in the Metro Manila sewerage network, based on the outcomes in the three arenas, is that the concessionaires did not deliver the expected benefits in sewerage service in Metro Manila. The network did not produce optimal outcomes because the concessionaires are behind schedule in fulfilling their sewerage targets under the CA. Table 8.1 summarises the network features and network effects in the three arenas.

Table 8.1 Summary of network features and network effects on the Metro Manila sewerage services network arenas

Network features	Tariff setting arena	STP construction arena	Interagency monitoring arena
Resources interdependence			
• Do actors need the resource of another to perform its functions	Yes	Yes	Yes
• Is resource dependence mutual or one way?	Mutual	One way	One way
• Do actors agree on how the resources shall be allocated or shared?	No	No	No
Goal congruence			
• Does the network have a clearly defined goal?	Yes	No	Yes
• Do all actors agree on the goal?			No
• Do the individual mandates of each organisation align or conflict with the common goal?	Yes	No	No
• Do they actually perform towards the goal?	Yes	No	No
• Are there rules set on how to jointly achieve the goal?	Yes	No	No
• Are the rules:			
a. Formal or informal?	Formal: stable and predictable	Informal: flexible and negotiable	Formal: stable and predictable
b. Specificity	Detailed	Broad	Detailed
c. Time-bound	Yes	No	Yes
Network leadership/management			
• Authority			
a. Is there an authoritative decision maker?	No	No	Yes
b. Does the authority have legitimacy?	No	No	Yes
• Management style	No network manager	No network manager	Top to bottom/hierarchical
Network effects	Negative outcomes: objectives not achieved	Mixed: outcomes differ per project	Negative outcomes: objectives not achieved

The Metro Manila sewerage network is complex as it involves numerous stakeholders competing for limited and common resources that cross multiple boundaries and scales. The network is riddled with barriers that make it difficult for the concessionaires to fulfil their obligations and targets. There are too many actors involved, interacting at different levels, time and jurisdictions and operating under various legal and administrative instruments and social and political processes. With the existence of different networks, arenas, rules, and perceptions and dynamics, a network that is unstructured, governed by rules that are subject to different interpretations or disregarded creates an unwieldy environment for the concessionaires. Notwithstanding the complexity of the Metro Manila

sewerage network, the concessionaires still managed to perform their contractual obligations but usually beyond budget and scheduled target. Poor coordination results in delays and higher costs. In the three arenas, the concessionaires were challenged to meet their contractual obligations because the three network features were not considered in the implementation design of the PPP policy.

PPP was expected to address the shortage in financial and competency resource that the government suffered as former operator and provider of MWSS. The Metro Manila concessions was expected to improve the quality of public service and expand the service coverage while lowering its costs and lead to lower tariff for consumer. Lower costs were to come from private sector efficiency and economies of scale (Evans 2005; Hefetz & Warner 2004; Brubaker 2003; Kerf et al. 1998). The resource interdependence of actors in each arena had the potential of lowering the cost of the concessionaires. When other agencies perform their roles, the concessionaires will be able to build STPs within budget and schedule. While private sector can lower production cost, the need to coordinate with numerous actors have increased the coordination costs for the private sector. The concessionaires have to collaborate and negotiate with numerous actors over decision making over a common goal. However, the proponents of the Metro Manila concessions expected the private sector to assumed sole responsibility over all aspects of sewerage services. The need for a network manager, or who would take on this role, was not considered during the policy design.

Another claimed advantage of PPP is that it has improved accountability arrangements compared to the traditional procurement method (Greve & Hodge 2010, p.156). With the entry of non-public actors in public service governance, as the responsibility over service delivery outcomes is no longer monopolised by the government. However, accountability systems can also act as a major impediment to crossing boundaries in public management and policy, in part because the focus is on 'individual contributions not joint outcomes' (Statskontoret 2007: 37 as cited in O'Flynn 2013, p.36). Thus, the accountability system in PPP is only effective when actors are clear on their roles and responsibilities. It was revealed in the three arenas that the government at different levels is unclear on its roles in the Metro Manila sewerage services network.

8.2 Research contribution and policy implications

Water and sewerage concessions, in general, have been analysed based on their effects on the government's economic and social objectives. These studies have focused on the organisation-level, either the performance of the private sector in delivering the service or the government in implementing the PPP policy. While these perspectives provided insight into the performance of PPP, these only provided a partial and a fragmented understanding as these studies assumed that implementing the PPP policy is a function of one organisation alone. Policy implementation, however, involves a series of decisions and actions from more than one actor in order to achieve the desired outcome or effect, which requires an interorganisational or network perspective to understand its performance (O'Toole 2000; Lester & Goggin 1998). This research endeavoured to analyse the performance of privatised public infrastructure services through the lens of the network governance theory. In doing so, this research contributes to the literature on network governance, PPP and policy implementation in the following ways:

First, the network perspective to analysing PPP performance augments the current literature on understanding PPP outcomes by filling out the administrative analysis gap that has not been explored in the literature. This research does not discount the importance of analysing social and economic effects. Milward and Provan (1998) have advocated network analysis to correct the seeming imbalance on the 'overdeveloped capacity for policy analysis and an underdeveloped capacity for administrative analysis' (Milward & Provan 1998, p.388). The Metro Manila concessions had been extensively studied and variably adjudged a success or a failure, anti-poor and innovative to name a few, on the basis of its social and economic effects (cf. Chng 2008; Cuaresma 2006; Fabella 2011; Fabella 2012; Malaluan & Wu 2008). The network effect of PPP in the analysis of the Metro Manila concessions has not been explored.

Second, this research offers a new perspective on evaluating and understanding PPP outcomes. An analytical framework was developed to analyse the performance of privatised sewerage service in Metro Manila that examined the sewerage services network in terms of the decision making arenas, network features and network effects. These three aspects of relational networks capture the multi-actor nature of policy implementation and may be worth considering when designing, implementing and evaluating policies. In particular, the use of decision making arenas as a unit of analysis ably captures the complexity of decisions and the links and contexts among the different decisions made in the network (Van Gils & Klijn 2007). Decision making arenas represent the knowledge base that can

help policymakers and public managers appreciate the vertical and horizontal matrix of intergovernmental network management (Agranoff & McGuire 2003, p.1402). Also, this research augments the understudied area of sewerage and sanitation that has been traditionally subsumed under the topic of water and sanitation but rarely examined in detail.

Third, this research seeks to promote the understanding that policies are implemented by multiple institutional actors and policy implementation can be a complex process. As government increasingly works with non-public organisations and actors, there is a need to rethink the design of policy implementation structures to ensure that these are responsive to the purpose (O'Flynn 2013, p.36). An acceptance of the perspective that policy implementation is interorganisational in nature contributes to effective and responsive policy design. Lester and Goggin (1998, p.5) have long advocated the rejection of a 'dichotomous conceptualisation of policy implementation as simply a success or failure.' Networks are complex not only because there are many players but because these players can make unpredictable strategic choices and create problems in different arenas. When network complexity is understood then targeted solutions can be offered as to how networks should be organised to make it effective. This understanding can guide governments in considering the potential network features that may arise when adopting a new policy, such as PPP, that can hinder the achievement of the desired goals or effects. PPP has been implemented with the faulty assumption that the private sector can unilaterally deliver high quality service at low cost (Kettl 2010, p.248).

Fourth, with a perspective that policy implementation is a multi-actor activity, this research aims to inform policymakers to consider the vital role that a network manager, boundary spanners and/or relationship managers play when designing policies. Implementation of policy involves some kind of strategic alliance, joint working arrangements, networks and partnerships and collaboration across sectoral and organisational boundaries but current discourse is usually focused at the institutional and organisational level (Williams 2002). Policy implementation designs are usually focused on managing the policy itself but not on the management of interorganisational relationships that will be created as a result thereof.

Fifth, this research intends to contribute to the growth of a more specialised and differentiated study in the field of network governance theory. Networks are diverse and are confronted by different issues and may create misunderstanding and imprecision if the outcomes of a network are made to fit a specific set of network features or network

typology. Klijn and Koppenjan (2012) foresee that the diverse and generic concepts and assumptions of governance network theory will be applied with other theories and specific questions (Klijn & Koppenjan 2012, p.600).

Finally, this research also recognised the limitations of the network governance theory. It should be kept in mind that network governance theory does not endeavour to resolve network complexity neither does it aim to measure the success nor failure of a network. It should be seen as an insightful tool and an alternative approach in analysing policy implementation outcomes and to understand how multi-actor interdependence impact on the fulfilment of policy objectives.

8.3 Methodological and research observations

While this thesis was able to provide the answers to the research questions posed at the onset, the research process was not without its challenges.

First, the literature on network governance theory offered multiple levels of analysis and multiple yet distinct theoretical approaches to explain complexity in interorganisational networks (Zaheer et al. 2010, p.62). I chose to use decision making arena as the unit of network analysis because it is effective in depicting the complexity of decision making and interactions in networks. Public service delivery involves many actors, each performing different functions, observing different types of policies and encountering these different dimensions brings the actors together in numerous arenas. This research explored only three arenas in the Metro Manila sewerage services network but due to the nature and magnitude of the sector, there could be more arenas that would have been worth examining as well. Due to financial and time constraints, I decided to limit the research to the three arenas selected that are deemed representative of the complexity of the network.

Second, I chose to define the research problem from the perspective of the concessionaires over other network actors, which can create the risk of selection bias. In the initial identification of research problem, I adopted the concessionaires' perspective because, compared to other network actors, the concessionaires as the main implementers of sewerage projects in Metro Manila are the ones who are most immersed in all aspects of sewerage activities: policy making, project implementation, monitoring and coordinating with all actors in the network. To neutralise this risk, the initial problem identified was validated by interviews with other actors in the network. Once the problem definition was validated, the research problem was evaluated using an analytical framework.

Third, it was challenging to secure accurate, consistent and timely statistical data on the sewerage sector. The fieldwork was conducted in 2014 but the latest water and sewerage data available dates back to 2011. This could be attributed to the fact that the concessionaires and the MWSS-RO were still under litigation for the third rate rebasing and were not allowed to release any information related to the cases. Another reason is that there is a dearth of studies on the sewerage sector in the Philippines because availability of sewerage service in the Philippine is still low, with only seven cities in the archipelago having sewerage systems that covers only around one to 15% of the population (Pham & Kuyama 2013, p.3). I was able to secure official reports from the regulators and the concessionaires but some data provided had different units of measurements or reckoning dates that make it challenging to make a comparison. An example of this is the sewerage coverage target where the target for Maynilad was specified in number of households while Manila Water was in percentage of the population (see Table 4.4 Original and revised sewerage service coverage targets on page 86). I attempted to verify the information with the regulator and concessionaires via email but did not get a reply. In similar cases to this, I relied on the best obtainable information available.

8.4 Future research needed

Notwithstanding the above challenges, the research provides new insights and presents new research opportunities. Some areas for potential research are as follows:

8.4.1 Test the robustness of the analytical framework developed in this research

This research developed an analytical framework to analyse the network effects of PPP in the Metro Manila concessions. Future research on other privatised public infrastructure services in the Philippines and other developing countries could employ this analytical framework to test its robustness. The MWSS is only one of the many enterprises privatised by the Philippine government as part of the country's PPP program. During my fieldwork, I interviewed a few respondents working in services and/or industries that had been privatised and they revealed that their companies encounter similar challenges that the concessionaires face in implementing their projects. Another privatised utility that may benefit from the analytical framework developed in this research is the power sector. The electricity prices in the Philippines have consistently been rated among the highest in the world and the most expensive in Southeast Asia. Like water and sewerage, the electricity sector also failed to meet the expectations of PPP (Roxas & Santiago 2010) and it would be worth looking into if and how much has the network effect of PPP contributed to this outcome.

8.4.2 Undertake comparative study in different PPP cases using network governance theory

The literature revealed that, while the topic of PPP in public infrastructure services had been well researched, the existing literature had focused mainly on its social and economic effects. There is a scarcity of research in PPP that explores its network effects. Network governance theory can add a new perspective in understanding PPP outcomes.

In addition to the need to augment research on network analysis on PPP, more research is also needed on networks in policy implementation in the context of the developing world. Much of the network governance literature has focused on western experiences in the Americas, Europe and Australia where there is rule of law and institutions are developed. Among the reasons identified on as to why PPP failed in developing countries was that it was also expected to resolve macroeconomic issues, which was broader than the efficiency and resource allocation objectives of the developed economies (Cook & Uchida 2003, p.122). In considering the developing world context, this could address what Klijn and Koppenjan (2012) envisioned as specialisation in network governance theory by applying its diverse and generic concepts and assumptions alongside other theories and specific questions. The Metro Manila concessions is just one case but, moving forward, the research on PPP could benefit more from empirical research from the network perspective. Comparative studies can be conducted on different privatised industries in different developing countries.

8.4.3 Compare performance of networks with and without network managers

The literature on network governance has emphasised the importance of effective network managers and/or boundary spanners in managing interdependencies and monitoring relationships towards leading the network to goal congruence. One of the major causes for the negative network effect in the Metro Manila sewerage services network was the lack of an effective network manager who will manage and build interorganisational relationships, not just to make sure that goals are met. This finding may be further validated if future research examines networks with network managers and/or boundary spanners and compare their performance against networks with no network managers and/or boundary spanners.

8.4.4 Examine the correlation between poor policy design and use of personal connections in networks

This research has shown that policy implementation, when network features are not considered in the policy design, can result in failure to achieve the intended outcomes. It can also yield unintended negative consequences, such as the creation of personal networks in the tariff setting arena. As discussed in Chapter 5, activist groups accused the concessionaires of taking advantage of their personal connections and networks to gain favours for their business. Due to time and financial constraints, this research was unable to explore this aspect in detail. Also, the topic of personal networks is beyond the scope of this research. This research did not seek out to explore whether or not awarding PPP contracts to powerful families has an impact on the quality of service delivery. This subject has been adequately explored in the literature of 'rent seeking' and 'crony capitalism' culture in the Philippines, which had been identified as among the causes for the weakening of the Philippine state and failure of its policies (McCoy 2009; Hutchcroft 2000). Bad institutions persist in the Philippines persist because they are usually aligned with the dominant group's effort to protect and perpetuate wealth and power (Fabella 2006, p.105). According to McCoy (2009, p.10), the participation of the private sector in the 'management of public resources strengthens a few fortunate families while weakening the state's resources and its bureaucratic apparatus.'

As discussed in the three preceding chapters, the main constraint of the concessionaires in implementing their contractual obligations come from the government itself, from bureaucratic red tape and inconsistent government policies to ineffective management. They resort to other avenues to circumvent the political and bureaucratic constraints in order to ensure that they meet their obligations, such as giving donations to LGUs to facilitate cooperation. These activities, however, are not necessarily unlawful. According to Freeman (2000, p. 548), connections are also resorted to gain access to legitimate 'public pursuits'. While rent seeking and crony capitalism has been known to be prevalent in Philippine politics, it may be worth examining how poor policy planning and implementation unwittingly encourage rent seeking.

Appendix 1

List of interviewees

	Code	Respondent	Interview date	Designation	Organisation
1	PS-2014-001	Jason Latoja	12 May 2014	Project Inspector	Maynilad Water
2	PS-2014-002	Ulysses Tatel	12 May 2014	Project Management Officer	Maynilad Water
3	PS-2014-003	Emmanuel Bravo	12 May 2014	Acting Head, Sewage Treatment Plant Projects	Maynilad Water
4	PS-2014-004	Jerry Palma	15 May 2014	Head, Wastewater Planning and Project Development	Maynilad Water
5	PS-2014-005	Ryan Orillo	15 May 2014	Head, Planning, Information and Management, Wastewater Division	Maynilad Water
6	PS-2014-006	Ann Margaret L. Marigondon	9 October 2014	Wastewater Planning Officer Wastewater Planning and Project Development, Wastewater Management Division	Maynilad Water
7	PS-2014-007	PJ Patricio	22 July 2014	Program Manager, Ilugin STP	Manila Water
8	PS-2014-008	Gillian Berba	30 July 2014	Program Manager, Olandes STP	Manila Water
9	PS-2014-009	Virgilio Rivera	5 Sept 2014	Group Director, Corporate Strategy and Development	Manila Water
10	PS-2014-010	Raul Bernal	14 May 2014 13 August 2014	Assistant General Manager	JFE Engineering Talayan STP
11	PS-2014-011	Engr. Gilbert Valle	Sept 2014	Manager	Meralco
12	GO-2014-012	Erwin Gamino	08 August 2014	Local Government Operations Officer VI	DILG
13	GO-2014-013	Kathleen Sibal	08 August 2014	Local Government Operations Officer V,	DILG
14	GO-2014-014	Rolex Reyes	08 August 2014	Program Officer	DILG
15	GO-2014-015	Jess Marie Acoba	08 August 2014	ISF program for informal settler	DILG
16	GO-2014-016	Engr. Rogelio Hernandez	18 August 2014	Chief, Drainage and Slope Protection Section	DPWH-BOD
17	GO-2014-017	Engr. Rey Rosario	3 Sept 2014	Chief, Maintenance Division	DPWH-NCR
18	GO-2014-018	Robert Beltran	24 July 2014	City Engineer	Quezon City Government
19	GO-2014-019	Winifredo Molina	24 July 2014	Engineer III, Maintenance Management Division	Quezon City Government
20	GO-2014-020	Jose Reyes	20 August 2014	City Engineer	Pasig City Government

	Code	Respondent	Interview date	Designation	Organisation
21	GO-2014-021	Engr. Kennedy Sueno	10 Sept 2014	City Engineer	Marikina City Government
22	GO-2014-022	Engineer Comandao	14 October 2014	City Engineer	Mandaluyong City Hall
23	GO-2014-023	Noel Gaerlan	1 Sept 2014 9 Oct 2014	Executive Director	DENR- MBCO
24	GO-2014-024	Annrou Ramos	9 Oct 2014	Environmental Management Specialist	DENR- MBCO
25	GO-2014-025	Gerald Sullano	16 Sept 2014	Technical Deputy Regulator	MWSS-RO
26	GO-2014-026	Evelyn Agustin	16 Sept 2014	Acting Manager, Water Quality Control Department	MWSS-RO
27	GO-2014-027	Jonathan Dela Cruz	9 Sept 2014 2:01:50	Congressman, Abakada Party List	House of Representatives
28	NGO-2014-028	Kagawad Tony	16 Sept 2014	<i>Barangay</i> Secretary	<i>Barangay</i> Sto. Domingo
29	NGO-2014-029	Christopher Ancheta	11 Sept 2014	Senior Sanitary Engineer	World Bank
30	NGO-2014-030	Rodolfo Javellana, Jr.	9 Sept 2014	President	Water for All Refund Movement (NGO)
31	C-2014-031	Name withheld	23 July 2014	Junk Shop Owner	Resident, <i>Barangay</i> Sto. Domingo
32	E-2014-032	Mark Dumol	1 August 2014	Author, Manila Water Concession	President, Private Infrastructure Development Corporation
33	E-2014-033	Bayani Fernando	Sept 2014	Former Mayor, Marikina City and former MMDA Chairman Elected congressman in 2016	House of Representatives
34	E-2014-034	Elisea Gozun	15 August 2014	MBAC Member	MBAC

Appendix 2

2.1 North and South Pasig sewerage system project

The North and South Pasig sewerage system project STP is the biggest STP project of Manila Water with a treatment capacity of 165 million litres of wastewater per day to serve 650,000 residents. The project, which is estimated to cost US\$193.4 million, includes the installation of 64 kms of combined sewer drainage lines or conveyance system, 56 interceptor boxes and 11 pumping stations that will divert wastewater to the STP for treatment. The timeline for this project was expected to be longer compared to Manila Water's other STPs as it is the company's biggest STP to date. Planning for this project commenced in 2010. The design and build contract was awarded on the third quarter of 2012 and the contractor was expected to complete the design by the first quarter of 2013. Construction works was supposed to commence on the first quarter of 2013 and completed by the second quarter of 2015. However, construction only started in December 2014, which was almost two years behind schedule. Project completion was moved to December 2016 (PS-2014-0076) but as of May 2017, the STP has not been completed. The delay was caused by a number of coordination issues:

The EIA took two years to complete in view of the numerous coordination activities involved. Preparatory activities for the EIA took place in 2010, which included meetings with the LGUs and key informant interviews with national government agencies (such as DOH, DENR, MMDA and DPWH), commercial, industrial, education, church and NGO sectors, and project presentation/public consultation with the project beneficiaries. The EIA was completed on January 2012.

The relocation of the informal settlers that occupied the land Manila Water also took time to carry out. The land was privately-owned but was occupied by 29 families at the time of purchase. The just and humane relocation of informal settlers is guaranteed by the Philippine Constitution and a condition for World Bank-funded projects.

The initial engineering design for the sewer network was disapproved by DPWH and Manila Water had to revise the design to meet the Department's requirements. Some parts of the sewer networks will cut through an entire segment of Eulogio Rodriguez Avenue (C-5), which will require road closure for an extended period. The DPWH cannot allow the closure of C-5 as it is a major beltway that traverses several cities in Metro Manila (GO-2014-016).

According to Manila Water, it is challenging to design underground sewer network in Metro Manila. For decades, there were no organised urban plans on underground utilities. Power, flood control, and water supply are given priority over sewerage. Thus, sewerage networks have to literally work around and under the existing underground utilities.

The issuance of permits and clearances at the local level were delayed. The local government of Pasig was concerned about the traffic disruption that the construction will cause as the excavation of the proposed sewer network and other facilities will affect five major roads traversing the city. Manila Water revised its construction schedule and offered to undertake 24/7 construction to fast track the project. After revising the schedule, the processing of permits was caught up in another delay, which was the revision of Pasig City government's land use plan. Pending the land use plan's completion and approval, no new construction permits can be issued (GO-2014-020).

Quezon City is the most populous city in Metro Manila with a population of three million (as of 2014) and a population density of 19,151 per km². The city's land area is 161.126 km², which is a quarter of size of entire Metro Manila. Since land is scarce in Quezon City, Maynilad opted to build smaller STPs in the city. Talayan STP was built on a 1,840 m² lot located in P. Florentino St. in *Barangay* Santo Domingo, Quezon City. The STP can treat wastewater up to 16 mld produced by 27,000 households. The project cost was PhP249 million. The construction was initially scheduled to commence in 2012 and targeted for completion by the end of 2014. However, the project was awarded to JFE Engineering only in March 2013 and the STP was inaugurated in February 2015.

2.2 Gaining goal consensus of local community in Talayan STP

Project implementation was delayed due to issues encountered in lot acquisition. Maynilad shortlisted three lots for potential sites for Talayan STPs. The first site is located in a commercial area and the second was located in a medium to high-end residential gated community. Public consultations were conducted but both communities opposed the STP construction. The third property was privately-owned but occupied by informal settlers. The land used to be a private garment factory, which was gutted by fire decades ago. After the fire, the owner decided not to rebuild the plant and allowed some of his former workers to reside on the property for free, and in turn, act as de facto caretakers of the property. The occupants used the property as storage for their scrap trading business of buying and reselling recyclable scraps of metal, plastic and bottles. The operators reside in the same street.

The local community in the third property consented to the STP construction after public consultations. The residents were mainly low income households, a number of whom used to be informal settlers occupying government lands but were eventually awarded ownership by the Philippine government in 1984, including the owner of the scrap trading business. While Maynilad was able to secure the support of the community, it was not problem-free. When the land was sold to Maynilad, the occupants were asked to vacate the property and were given cash compensation by the former owner. The occupants removed their materials from the premises and moved them outside the parameter fence of the property outside the property. These materials obstructed the operations of the contractor, JFE Engineering, whenever they need to bring in or take out heavy equipment and materials in the construction site. In February 2014, Maynilad asked the junk shop owner again to remove the scrap materials as the road had to be cleared for the installation of the sewer pipelines that will be connected to the STP. The local government of Quezon City requires that the excavation area should be cleared of debris before it can issue the excavation permit to the contractor. Excavation permit is needed to install the wastewater conveyance system that will connect the pipelines to the STP.

At the time the interview with the project team was conducted in June 2014, the junk shop owner still has not removed the materials. Maynilad has sought the assistance of the *barangay* council to talk to the owner. The Local Government Code empowers the *barangay* chairman to settle local disputes. Instead of directing the junk shop owner to vacate the premise, the council directed the parties to settle the matter among them. The Maynilad project team suspects that the *barangay* chairman played safe so as not to antagonise junk shop owner, who is also his constituent and potential voter in the next election. The owner requested Maynilad for a modest financial assistance to finance the transportation of the materials to another storage site. The project team deems that dealing with the cash pay-off requests of low income communities is more manageable than dealing with the lawsuits that affluent communities will file against the concessionaire. Even when Maynilad knows that it is within their legal right to evict the junk shop owner, the Maynilad project team and the project contractor opted to maintain cordial relations with the community. They want to avoid aggressive confrontations with the community as they will be neighbours for the entire lifetime of the STP.

2.3 Local government leadership as key driver for success in the Olandes STP

The Olandes STP in Marikina City cost PhP262 million funded by Manila Water from a World Bank loan. The design and construction contract was awarded to JFE Engineering Corporation in July 2008. Construction was completed in August 2009 and operations commenced in April 2010. The plant can treat wastewater amounting to 10 mld produced by the 40,000 residents of Sitio Olandes and *Barangay* Industrial Valley in Marikina and *Barangays* Libis and Blue Ridge in Quezon City (PS-2014-008). Olandes STP's site is in a flood prone area along the Marikina River easement. The 11-km long Marikina River used to be a dumping ground for domestic and industrial wastes but is now a flowing waterway lined on both banks with parks and playgrounds as a result of the efforts of the city government of Marikina to clean up the river.

The Olandes STP was designed to minimise the adverse impact of flooding. Since the easement area is small and perennially flooded, the STP is submersible. Then MMDA Chairman Bayani Fernando, who is also a civil engineer, suggested this design to adapt to the conditions of the site. The main processing plants are located underground while its support facility, which houses sensitive equipment such as blowers and control panels, is built on stilts.

The Olandes STP was constructed within budget and schedule. Manila Water credits the efficiency of implementation to the leadership demonstrated by the city government of Marikina (PS-2014-008). When Manila Water proposed the project to then incumbent mayor Marides Fernando (2001-2010), the mayor was very receptive to the project and extended assistance to Manila Water every step of the way. The local government identified the location and sold the land to Manila Water at a reasonable price on the condition that a public park and a jogging lane connected to other facilities along the riverbank will be constructed above the submersible STP (Figure 6.3).

Manila Water did not have to navigate the city hall to secure the different permits and licences required. Manila Water was given a one-stop shop service, which was only made available to commercial construction projects in other cities in Metro Manila. The mayor allowed Manila Water to commence with the construction while the city hall assisted them in securing the required permits and licences. The city hall coordinated with other national government agencies and other LGUs as Olandes STP also served parts of Quezon City and Pasig (Figure 6.5). The local government tried to make the process as easy as possible for Manila Water as the project is aimed to benefit the city and its residents at no cost to the

city government. In Marikina, there is continuity of policies and programs. Approval of projects and issuance of permits are insulated from politics, i.e., regardless of who the incumbent mayor is, projects will proceed on the basis of their merit and projected benefits for the population (GO-2014-021).

2.4 Manila Central Sewerage Plant

The Manila Central Sewerage Plant, when implemented, will be the biggest STP in Metro Manila as it is expected to treat wastewater up to 437 mld and serve 1.4 million residents in Manila. Unlike other cities in Metro Manila where the concessionaires build smaller STPs to adapt to the land availability, the existing sewage network in Manila prevents Maynilad from adopting this option. Manila is the oldest city in the metropolis and its sewerage network was the first one constructed in the country during the American colonial period. Since 1908, the network had not been upgraded nor expanded. Due to dense population and road congestion in the city, Maynilad has to follow the existing system as it will be technically challenging to redesign the drainage system (PS-2014-006).

A STP of this size and capacity requires a sizeable plot of land, which is a minimum of 5,000 m². In a city that is densely populated and saturated for new development, Maynilad managed to find three vacant lots that can accommodate the infrastructure and meet the criteria for STP. They have ruled out the first site as it was occupied by informal settlers. The land was also partially reclaimed and used to be a garbage dumpsite. When Maynilad surveyed the land, they found that the land was not properly reclaimed and there were issues on soil stability. The rubbish was not removed completely and the land is not compact and solid enough to accommodate a big treatment plant. The second site was privately owned and leased out to a tenant. Maynilad proposed to build an underground STP so the owner can still use the ground level for other purposes. The owner was not receptive to the proposal as they may have other plans for the property later on. The third site is owned by a government bank, the Philippine National Bank (PNB), which was also not keen on selling because the bank is liquid and has no need for cash. At the time this interview was conducted in October 2014, the Maynilad project team was still negotiating with PNB and was hopeful that the owner would eventually agree to sell the property. In Maynilad's experience, private property owners are not usually receptive to the idea of selling land for STP-use. They prefer to sell or utilise the property for commercial use as it will yield a more lucrative price.

In the two latter properties, the government can exercise its power of eminent domain as the intended use for the property is for public use. It is also stipulated in the CA that MWSS-RO can exercise this power for the purpose of assisting the concessionaries in meeting their contract obligation. Maynilad has raised this possibility with MWSS-RO a few times but the latter was not keen on exercising its expropriation power. MWSS Deputy Regulator Gerardo Sullano laments that such power is 'difficult to exercise against the LGUs because as government, the MWSS and LGU should be on the same side. The government should have a united front if the expropriation power is exercised because that is for the benefit of the people.'

Bibliography

Adam, S. & Kriesi, H., 2007. The network approach. *Theories of the policy process*, 2, pp.189-220.

Agranoff, R. & McGuire, M., 2003. Inside the Matrix : Integrating the Paradigms of Intergovernmental and Network Management. *International Journal of Public Administration*, 26(12), pp.1401–1422.

Agranoff, R. & McGuire, M., 2001. Big Questions in Public Network Management Research. *Journal of Public Administration Research and Theory*, 11(3), pp.295–326.

Araral, E., 2008. Public Provision for Urban Water: Getting Prices and Governance Right. *Governance*, 21(4), pp.527–549.

Araral, E., 2009. The failure of water utilities privatization: Synthesis of evidence, analysis and implications. *Policy and Society*, 27(3), pp.221–228.

Argo, T. and Laquian, A., 2004, June. Privatization of water utilities and its effects on the urban poor in Jakarta Raya and Metro Manila. In *Forum on Urban Infrastructure and Public Service Delivery for the Urban Poor. Regional Focus: Asia* (Vol. 24, p. 25).

Arnold, G.E., 1968. Water Works Improvements at Manila, Philippines. American Water Works Association, 60(4), pp.393–398.

Baffrey, R. & Adis, A., 2012. Manila water's experience in the provision of sewerage service in the east zone of Metro Manila. *Water Practice and Technology*, 7(4).

Bagayaua, G., 2009. Media to play crucial role in Pasig clean up. *ABS-CBN News*.

Bakker, K.J., 2003. From public to private to ... mutual? Restructuring water supply governance in England and Wales. *Geoforum*, 34, pp.359–374.

Bankoff, G., 2003. Constructing Vulnerability: The Historical, Natural and Social Generation of Flooding in Metropolitan Manila. *Disasters*, 27(3), pp.224–238.

Bardach, E., 1994, September. Can network theory illuminate interagency collaboration? In *Workshop on network analysis and innovations in public programs*, LaFollette Institute of Public Affairs, University of Wisconsin-Madison. adison, p. 24.

Barnekov, T.K. & Raffel, J.A., 1990. Public Management of Privatization. *Public Productivity & Management Review*, 14(2), pp.135–152.

Baum, R., Luh, J. & Bartram, J., 2013. Sanitation: A Global Estimate of Sewerage Connections without Treatment and the Resulting Impact on MDG Progress. *Environmental Science and Technology*, 47(4), pp.1994–2000.

Bel, G. & Warner, M., 2008. Does privatization of solid waste and water services reduce costs? A review of empirical studies. *Resources, Conservation and Recycling*, 52(12), pp.1337–1348.

Bello, W.F., De Guzman, M., Malig, M.L. and Docena, H., 2005. *The anti-development state: The political economy of permanent crisis in the Philippines*. Zed Books.

Benson, J.K., 1975. The Interorganizational Network as a Political Economy. *Administrative Science Quarterly*, 20(2), p.229.

Bernal, B., 2014. MWSS acting chief regulator resigns. *Rappler*. Available at: <http://www.rappler.com/nation/60344-mwss-acting-chief-regulator-resignation>

Berry, F.S. et al., 2004. Three Traditions of Network Research: What the Public Management Research Agenda Can Learn from Other Research Communities. *Public Administration Review*, 64(5), pp.539–552.

Black, M. and Fawcett, B., 2010. *The last taboo: opening the door on the global sanitation crisis*. Routledge.

Bortolotti, B. & Millella, V., 2008. Privatization in Western Europe: Stylized Facts. Outcomes and Open Issues. In G. Roland, ed. *Privatization : successes and failures*. New York: Columbia University Press, pp. 32–75.

Bouma, G.D. and Ling, R., 2004. *The research process*. Oxford University Press, USA.

Bronstein, L., 2003. A Model for Interdisciplinary Collaboration. *Social Work*, 48(3).

Brown, T.L. & Potoski, M., 2003. Managing contract performance: A transaction costs approach. *Journal of Policy Analysis and Management*, 22(2), pp.275–297.

Brubaker, E., 2003, October. Revisiting Water and Wastewater Utility Privatization. In *Government of Ontario Panel on the Role of Government and presented at “Public Goals, Private Means” Research Colloquium Faculty of Law, University of Toronto*.

Brubaker, E., 2001. The promise of privatization. *Toronto: Energy Probe Research Foundation*.

Bryson, J.M., Crosby, B.C. & Stone, M.M., 2006. The Design and Implementation of Cross-Sector Collaborations: Propositions from the Literature. *Public Administration Review*, (Special Issue), pp.44–55.

Buenaventura, M., Palattao, B. and Nacpil, L., 2004. Debt, trade and the privatization of water services: the Philippine experience. *Jubilee South Asia-Pacific*.

Van Bueren, E.M., Klijn, E.-H. & Koppenjan, J.F.M., 2003. Dealing with Wicked Problems in Networks: Analyzing an Environmental Debate from a Network Perspective. *Journal of Public Administration Research and Theory*, 13(2), pp.193–212.

Burgess, T. and Plumb, L. eds., 2014. *Tackling the silent killer: The case for sanitation*.

Burnham, P., Lutz, K.G., Grant, W. and Layton-Henry, Z., 2008. *Research methods in politics*. Palgrave Macmillan.

Caoili, M.A., 1999. *The Origins of Metro Manila: A Political and Social Analysis*, Quezon City: University of the Philippines Press.

-
- Cavaliere, A. & Scabrosetti, S., 2006. Privatization and Efficiency: From Principals and Agents to Political Economy. *Journal of Economic Surveys*, 22(4), pp.685–710.
- Chiplunkar, A., Dueñas, M.C. and Flor, M., 2008. *Maynilad on the Mend Rebidding Process Infuses New Life to a Struggling Concessionaire*.
- Chng, N.R., 2008. Privatization and Citizenship: Local politics of water in the Philippines. *Development*, 51(1), pp.42–48.
- Choi, N., 2016. Metro Manila through the gentrification lens: Disparities in urban planning and displacement risks. *Urban Studies*, 53(3), pp.577–592.
- Cook, P. & Kirkpatrick, C., 1995. Privatisation policy and performance. In P. Cook & C. Kirkpatrick, eds. *Privatisation Policy and Performance: International Perspectives*. New York and London: Prentice Hall and Harvester Wheatsheaf, pp. 3–27.
- Cook, P. & Kirkpatrick, C. eds., 1995. *Privatisation policy and performance: International perspectives*, New York and London: Prentice Hall and Harvester Wheatsheaf.
- Cook, P. & Uchida, Y., 2003. Privatisation and economic growth in developing countries. *Journal of Development Studies*, 39(6), pp.121–154.
- Cordero, T., 2013. Int'l tribunal orders PHL to pay Maynilad P3.424B in rate adjustment losses. *GMA New Online*. Available at <http://www.gmanetwork.com/news/money/companies/619359/int-l-tribunal-orders-phl-to-pay-maynilad-p3-424b-in-rate-adjustment-losses/story/>
- Creswell, J., 1998. *Qualitative Inquiry and Research Design: Choosing Among Five Traditions*, Thousand Oaks: Sage Publications, Inc.
- Cross, J.E., Newman-Gonchar, R. & Fagan, J.M., 2009. Using Mixed Method Design and Network Analysis to Measure Development of Interagency Collaboration. *American Journal of Evaluation*, 30, pp.310–329.
- CTI Engineering International Co., L., 2009. *Preparatory Survey for Metro Manila Sewerage and Sanitation Improvement*. Quezon City.
- Cuaresma, J., 2006. Is there Water after Privatization? The Case of the Metropolitan Water and Sewerage System. In *Regulation, Privatization and Public Sector Reform*. Manila, pp. 141–164.
- Curtin, P.D., 1989. *Death by migration : Europe's encounter with the tropical world in the nineteenth century*, New York: Cambridge University Press.
- Curtin, P.D., 1998. *Disease and empire : the health of European troops in the conquest of Africa*, New York: Cambridge University Press.
- David, C.C., 2000. *MWSS privatization: implications on the price of water, the poor and the environment* (No. 2000-14). PIDS Discussion Paper Series.

- Davis, P., 2007. The effectiveness of relational contracting in a temporary public organization: Intensive collaboration between an English local authority and private contractors. *Public Administration*, 85(2), pp.383–404.
- Delmon, J., 2001. *Water Projects: A Commercial and Contractual Guide*, The Hague: Kluwer Law International.
- Denhardt, R.B. & Denhardt, J.V., 2000. The New Public Service: Serving Rather than Steering. *Public Administration Review*, 60(6), pp.549–559.
- Desai, V. & Imrie, R., 1998. The new managerialism in local governance: North-South dimensions. *Third World Quarterly - Journal of Emerging Areas*, 19(4), pp.635–650.
- DeWalt, K.M. & DeWalt, B.R., 2011. *Participant Observation: A Guide for Fieldworkers*, Plymouth: AltaMira Press.
- Doeppers, D.F., 2009. Manila's Imperial Makeover: Security, Health and Symbolism. In A. W. McCoy & F. A. Scarano, eds. *Colonial Crucible: Empire in the Making of the Modern American State*. Madison: The University of Wisconsin Press, pp. 489–498.
- Donahue, J.D. & Zeckhauser, R.J., 2011. *Collaborative governance: Private roles for public goals in turbulent times*, Princeton, New Jersey: Princeton University Press.
- Dumol, M., 2000. *The Manila Water Concession: A Key Government Officials Diary of the World's Largest Water Privatization*, Washington D.C.: The World Bank.
- Edwards, R. & Holland, J., 2013. *What is Qualitative Interviewing?*, London and New York: Bloomsbury Academic.
- Elazegui, D.D., 2004. Water Resource Governance: Realities and Challenges in the Philippines. In A. Rola, H. A. Francisco, & J. P. T. Laguton, eds. *Winning the Water War: Watersheds, Water Policies and Water Institutions*. Makati: Philippine Institute of Development Studies, and Philippine Council of Agriculture, Forestry and Natural Resources Research Development, pp. 85–104.
- Esguerra, J., 2003. The corporate muddle of Manila's water concessions. *A report for WaterAid and Tear Fund*. London: WaterAid. Available online at www.wateraid.org.uk/other/startdownload.asp.
- Evans, B., 2005. *Securing Sanitation: The Compelling Case to Address the Crisis*, Stockholm.
- Fabella, R.V., 2012. *Signaling and contract cost under weak governance: Water service privatization in Metro-Manila, Philippines* (No. 2012-13). Discussion Paper, School of Economics, University of the Philippines.
- Fabella, R. V., 2011. The Privatization of the Metropolitan Waterworks and Sewerage System: How and Why It Was Won. In The Asia Foundation, ed. *Built on Dreams, Grounded in Reality: Economic Policy Reform in the Philippines*. Makati, pp. 65–98.

-
- Fabella, R.V., 2006. What happens when institutions do not work: Jueteng, crises of presidential legitimacy, and electoral failures in the Philippines. *Asian Economic Papers*, 5(3), pp.104-125.
- Freeman, J., 2000. *The Private Role in Public Governance*. New York University Law Review, 75(3), pp.543–675.
- Gagni, L., 2015. Phl faces “pariah” stigma. *The Market Monitor*. Available at: <http://marketmonitor.com.ph/phl-faces-pariah-stigma/> [Accessed April 6, 2017].
- Gajda, R., 2004. Utilizing Collaboration Theory to Evaluate Strategic Alliances. *American Journal of Collaboration*, 25(1), pp.65–77.].
- Gambrill, M., 2016. Addressing the urban sanitation crisis: Time for a radical shift. *The Water Blog*. Available at: <http://blogs.worldbank.org/water/addressing-urban-sanitation-crisis-time-radical-shift>.
- Gilbuena, R. et al., 2013. Environmental impact assessment of structural flood mitigation measures by a rapid impact assessment matrix (RIAM) technique: A case study in Metro Manila, Philippines. *Science of The Total Environment*, 456, pp.137–147.
- Van Gils, M. & Klijn, E.-H., 2007. Complexity in Decision Making: The Case of the Rotterdam Harbour Expansion. *Connecting Decisions, Arenas and Actors in Spatial Decision Making. Planning Theory & Practice*, 8(2), pp.139–159.
- Gläser, J. and Laudel, G., 2013, March. Life with and without coding: two methods for early-stage data analysis in qualitative research aiming at causal explanations. In *Forum Qualitative Sozialforschung/Forum: Qualitative Social Research* (Vol. 14, No. 2).
- Gleick, P.H. & Cain, N.L., 2004. *The World's Water 2002-2003: The Biennial Report On Freshwater Resource*, Washington D.C.: Island Press.
- Go, M., 2009. Government extends Manila Water concession. *Philippine Star*. Available at: <http://www.philstar.com/business/516217/government-extends-manila-water-concession>.
- Go, M., 2010. MWSS extends Maynilad contract by 15 years. *Philippine Star*. Available at: <http://www.philstar.com/business/568790/mwss-extends-maynilad-contract-15-years>.
- Goldsmith, S. & Eggers, W.D., 2004. *Governing by Network: The New Shape of the Public Sector*, Washington D.C.: Brookings Institution Press.
- Gómez-Ibáñez, J.A., Lorrain, D. and Osius, M., 2004. The future of private infrastructure. *Harvard April*.
- Gorme, J.B. et al., 2010. The Water Quality of the Pasig River in the City of Manila, Philippines: Current Status, Management and Future Recovery. *Environmental Engineering Research*, 15(3), pp.173–179.
- Gray, B., 1985. Conditions Facilitating Interorganizational Collaboration. *Human Relations*, 38(10), pp.911–936.

- Greve, C. & Hodge, G., 2010. Public-private partnership and public governance challenges. In *The new public governance? Emerging perspectives on the theory and practice of public governance*. Londond and New York: Routledge, pp. 149–162.
- Guislain, P. and Kerf, M., 1995. Concessions: The way to privatize infrastructure sector monopolies. *Public Policy for the Private Sector*.
- Gupta, N., 2008. Privatization in South Asia. In G. Roland, ed. *Privatization: Successes and Failures*. New York: Columbia University Press, pp. 170–198.
- Haarmeyer, D. & Mody, A., 1998. Tapping the Private Sector Approaches to Managing Risk in Water and Sanitation. *Journal of Structured Finance*, 4(2), pp.7–23.
- Hajer, M.A. and Wagenaar, H., 2003. *Deliberative policy analysis: understanding governance in the network society*. Cambridge University Press.
- Hale, S.I., 2006. Water Privatization in the Philippines: The Need to Implement the Human Right to Water. *Pacific Rim Law & Policy Journal*, 15.
- Hall, D., Lobina, E. & Motte, R. de la, 2005. Public resistance to privatisation in water and energy. *Development in Practice*, 15(3–4), pp.286–301
- Hall, R. et al., 2015. To the last drop: the political economy of Philippine Water policy. *Water Policy*, 17(5), pp.946–962.
- Harris, C. et al., 2003. Infrastructure Projects: A Review of Canceled Private Projects. *Public Policy for the Private Sector*, p.6.
- Hartman, L.P. & Werhane, P.H. eds., 2009. *The global corporation : sustainable, effective and ethical practices : a case book*, New York: Routledge.
- Hefetz, A. & Warner, M., 2004. Privatization and Its Reverse: Explaining the Dynamics of the Government Contracting Process. *Journal of Public Administration Research and Theory*, 14(2), pp.171–190.
- Van der Heijden, J., 2011. Friends, Enemies, or Strangers? On Relationships between Public and Private Sector Service Providers in Hybrid Forms of Governance. *Law & Policy*, 33(3), pp.367–390.
- Heiser, V.G., 1918. American Sanitation in the Philippines and Its Influence on the Orient. *Proceedings of the American Philosophical Society*, 57(1), pp.60–68.
- Heiser, V.G., 1912. Sanitation in the Philippines: with Special Reference to Its Effect upon Other Tropical Countries. *The Journal of Race Development*, 3(2), pp.121–134.
- Herranz, J., 2006. The Multisectoral Trilemma of Network Management. *Journal of Public Administration Research and Theory*, 18(1), pp.1–31.
- Hjern, B. & Porter, D.O., 1981. Implementation Structures: A New Unit of Administrative Analysis. *Organization Studies*, 2(3), pp.211–227.

-
- Hodge, G.A. & Coghill, K., 2007. Accountability in the Privatized State. *Governance*, 20(4), pp.675–702.
- Hodge, G. & Greve, C., 2007. Public-Private Partnerships: An International Performance Review. *Public Administration Review*, 67(3), pp.545–558.
- Hudson, B., 2004. Analysing network partnerships. *Public Management Review*, 6(1), pp.75–94.
- Hutchcroft, P., 2000. Obstructive corruption: the politics of privilege in the Philippines. *Rents, rent-seeking and economic development*, pp.207-247.
- Hutton, G. et al., 2008. *Economic Impacts of Sanitation in Southeast Asia*, Jakarta.
- Ilustre, O.I., 1975. Development of Water Supply in Metropolitan Manila. *American Water Works Association*, 67(6), pp.293–295.
- Jackson, P.M. & Stainsby, L., 2000. The Public Manager in 2010: Managing Public Sector Networked Organizations. *Public Money and Management*, 20(1), pp.11–16.
- Johnson, L.J., Zorn, D., Tam, B.K.Y., Lamontagne, M. and Johnson, S.A., 2003. Stakeholders' views of factors that impact successful interagency collaboration. *Exceptional Children*, 69(2), pp.195-209.
- Jomo, K.S., 2008. A Critical Review of the Evolving Privatization Debate. In G. Roland, ed. *Privatization: Successes and Failures*. New York: Columbia University Press, pp. 199–212.
- Kapucu, N., Hu, Q. & Khosa, S., 2014. The State of Network Research in Public Administration. *Administration & Society*, pp.1–34.
- Kay, J. a. & Thompson, D.J., 1986. Privatisation: A Policy in Search of a Rationale. *The Economic Journal*, 96(381), pp.18–32.
- Kearton, R., Alvarez, V.V., Setiono, I.M., Soraya, G., Fook, C.E., Pollard, R. and Ignacio, D.M., 2013. East Asia pacific region urban sanitation review. *Indonesia Country Study, Jakarta, Indonesia*, p.52.
- Kenis, P. & Provan, K.G., 2009. Towards an Exogenous Theory of Public Network Performance. *Public Administration*, 87(3), pp.440–456.
- Kenis, P. & Schneider, V., 1991. Policy networks and policy analysis: Scrutinizing a new analytical toolbox. In B. Marin & R. Mayntz, eds. *Policy networks: Empirical evidence and theoretical considerations*. Boulder: Westview Press, pp. 25–59.
- Kerf, M. et al., 1998. *Concessions for Infrastructure: A Guide to their Design and Award*, Washington, D.C.: The International Bank for Reconstruction and Development.
- Kettl, D.F., 2010. Governance, Contract Management and Public Management. In S. P. Osborne, ed. *The New Public Governance*. London, New York: Routledge, pp. 239–254.
- Khan, M.H., 2012, June. Urban health in megacities of developing countries. In *Public Health Forum* (Vol. 20, No. 2, pp. 29-e1).

- Kickert, W.J.M., Klijn, E.-H. & Joop F.M. Koppenjan, 1997. *Managing complex networks : strategies for the public sector*, London: Sage Publications.
- Kikeri, S. & Kolo, A.F., 2005. *Privatization: trends and recent developments*, Washington D.C.
- Klijn, E.-H., Edelenbos, J. & Steijn, B., 2010. Trust in Governance Networks: Its Impacts on Outcomes. *Administration & Society*, 42(2), pp.193–221.
- Klijn, E.-H. & Koppenjan, J., 2012. Governance network theory: past, present and future. *Policy & Politics*, 40(4), pp.587–606.
- Klijn, E.-H. & Koppenjan, J.F.M., 2006. Institutional design: changing institutional features of networks. *Public Management Review*, 8(1), pp.141–160.
- Klijn, E.H. & Koppenjan, J.F.M., 2000. Public Management and Policy Networks. *Public Management: An International Journal of Research and Theory*, 2(2), pp.135–158.
- Klijn, E.H. & Koppenjan, J.F.M., 2000. Public Management and Policy Networks: Foundations of a network approach to governance. *Public Management: An International Journal of Research and Theory*, 2(2), pp.135–158.
- Koppenjan, J. & Klijn, E.-H., 2004. *Managing Uncertainties in Networks: Public Private Controversies*, London: Routledge.
- Kumar, M. and Brock, G., 2012. Developing Credibility in Public-Private Partnerships: The Case of Manila Water Supply.
- Kwak, Y.H., Chih, Y. & Ibbs, C.W., 2009. Towards a Comprehensive Understanding of Public Private Partnerships for Infrastructure Development. *California Management Review*, 51(2), pp.51–78.
- Landingin, 2013. What is rate rebasing? *Philippine Center for Investigative Journalism*. Available at: <http://pcij.org/stories/what-is-rate-rebasing/>
- Lester, J. P. & Goggin, M.L., 1998. Back to the Future: The Rediscovery of Implementation Studies. *Policy Currents*, 8(3), pp.1–11.
- Li, B. et al., 2017. *Social organisations and old age services in urban communities in China: Stabilising networks (forthcoming)*.
- Llorito, D.L. & Marcon, M.M.S., 2003. Bad financing policies add to Maynilad woes. *Manila Times*.
- Lobina, E. & Hall, D., 2008. The comparative advantage of the public sector in the development of urban water supply. *Progress in Development Studies*, 8(1), pp.85–101.
- Lopez, A.L. et al., 2015. Epidemiology of cholera in the Philippines. *PLoS neglected tropical diseases*, 9(1), p.e3440.

-
- Lundin, M., 2006. Explaining Cooperation: How Resource Interdependence, Goal Congruence, and Trust Affect Joint Actions in Policy Implementation. *Journal of Public Administration Research and Theory*, 17(4), pp.651–672.
- Lupton, C., North, N. & Khan, P., 2001. *Working Together or Pulling Apart? The National Health Service and Child Protection Networks*, Bristol: The Policy Press.
- Macneil, I.R., 1985. Relational Contract: What We Do and Do Not Know. *Wisconsin Law Review*, 15, pp.483–526.
- Mactal, R.B., 2009. *Kalusugang Pampubliko sa Kolonyal na Maynila (1898-1918): Heograpiya, Medisina, Kasaysayan (Public Health in Colonial Manila, 1898-1918: Geography, Medicine and History)*, Quezon City: The University of the Philippines Press.
- Malaluan, N.A. & Wu, X., 2008. A Tale of Two Concessionaires: A Natural Experiment of Water Privatisation in Metro Manila. *Urban Studies*, 45(1), pp.207–229.
- Malayang, B.S.I., 2004. A model of water governance in the Philippines. In A. Rola, H. A. Francisco, & J. P. T. Laguton, eds. *Winning the Water War: Watersheds, Water Policies and Water Institutions*. Makati, pp. 59–79.
- Manila Bay Coordinating Office, 2011. *Operational Plan for the Manila Bay Coastal Strategy 2011-2015*, Quezon City.
- Mara, D. et al., 2010. Sanitation and Health. *PLoS Medicine*, 7(11).
- McCoy, A. ed., 2009. *An Anarchy of Families: State and Family in the Philippines*, Madison: The University of Wisconsin Press.
- McGranahan, G. and Satterthwaite, D., 2006. *Governance and getting the private sector to provide better water and sanitation services to the urban poor*. London, England: International Institute for Environment and Development.
- McGuire, M., 2002. Managing networks: Propositions on what managers do and why they do it. *Public Administration Review*, pp.599–609.
- McGuire, M. and Agranoff, R., 2007, October. Answering the big questions, asking the bigger questions: Expanding the public network management empirical research agenda. In *Public Management Research Association Conference, Tucson, AZ*.
- McQuaid, R.W., 2010. Theory of Organizational Partnership: Partnership advantages, disadvantages and success factors. In S. P. Osborne, ed. *The new public governance? Emerging perspectives on the theory and practice of public governance*. New York: Routledge, pp. 127–148.
- Meggison, W.L. and Netter, J.M., 2001. From state to market: A survey of empirical studies on privatization. *Journal of economic literature*, 39(2), pp.321-389.
- Milward, H.B. & Provan, K.G., 1998. Measuring Network Structure. *Public Administration*, 76(2), pp.387–407

- Napitupulu, L. and Hutton, G., 2008. *Economic Impacts of Sanitation in Indonesia: A Five-Country Study Conducted in Cambodia, Indonesia, Lao PDR, the Philippines, and Vietnam Under the Economic of Sanitation Initiative (ESI)*. Jakarta, Indonesia: Water and Sanitation Program. East Asia and the Pacific, World Bank Office Jakarta.
- O'Flynn, J., 2013. Crossing boundaries: the fundamental questions in public management and policy. In J. O'Flynn, D. Blackman, & J. Halligan, eds. *Crossing Boundaries in Public Management and Policy: The International Experience*. London: Routledge, pp. 11–44.
- O'Flynn, J., 2007. From New Public Management to Public Value: Paradigmatic Change and Managerial Implications. *Australian Journal of Public Administration*, 66(3), pp.353–366.
- O'Flynn, J., Blackman, D.A. & Halligan, J. eds., 2013. *Crossing Boundaries in Public Management and Policy: The International Experience*, London: Routledge.
- O'Flynn, J., Halligan, J. & Blackman, D., 2013. Crossing boundaries in public management and policy: Conclusion and future issues. In J. O'Flynn, D. A. Blackman, & J. Halligan, eds. *Crossing Boundaries in Public Management and Policy: The International Experience*. London: Routledge, pp. 297–305.
- O'Toole, L.J., 2000. Research on Policy Implementation: Assessment and Prospects. *Journal of Public Administration Research and Theory*, 10(2), pp.263–288.
- O'Toole, L.J. & Montjoy, R.S., 1984. Interorganizational Policy Implementation : A Theoretical Perspective. *Public Administration Review*, 44(6), pp.491–503.
- O'Toole, L.J.J., 1997. Treating Networks Seriously: Practical and Research-Based Agendas in Public Administration. *Public Administration Review*, 57(1), pp.45–52.
- Olchondra, R.T., 2011. Manila Water intensifies sewer-drainage upgrade, expansion. *Philippine Daily Inquirer*. Available at: <https://business.inquirer.net/2437/manila-water-intensifies-sewer-drainage-upgrade-expansion>.
- Osborne, S.P., 2010a. Public governance and public service delivery: a research agenda for the future. In S. P. Osborne, ed. *The new public governance? Emerging perspectives on the theory and practice of public governance*. New York: Routledge, pp. 413–428.
- Osborne, S.P. ed., 2010b. *The New Public Governance? Emerging perspectives on the theory and practice of public governance*, New York and London: Routledge.
- Padilla, A.J., 2004. A Closer Look at Our Water Bills. *IBON Features*.
- Padilla, A.J., 2013. Water arbitration: issues and implications. *IBON Features*.
- Parker, D. & Kirkpatrick, C., 2005. Privatisation in Developing Countries: A Review of the Evidence and the Policy Lessons. *Journal of Development Studies*, 41(4), pp.513–541.
- Parker, D. and Kirkpatrick, C., 2005. Privatisation in developing countries: A review of the evidence and the policy lessons. *Journal of Development Studies*, 41(4), pp.513–541.

-
- Pazzibugan, D., 2014. What happened to SC order to save Manila Bay? *Philippine Daily Inquirer*. Available at: <http://newsinfo.inquirer.net/625641/what-happened-to-sc-order-to-save-manila-bay>.
- Peng, M.W. & Zhou, J.Q., 2005. How Network Strategies and Institutional Transitions Evolve in Asia. *Asia Pacific Journal of Management*, 22(4), pp.321–336.
- Pérard, E., 2009. Water supply: Public or private? *Policy and Society*, 27(3), pp.193–219.
- Pham, N.B. & Kuyama, T., 2013. *Privatisation of Sanitation and Sewerage Services - Lessons Learnt from the Philippines*.
- Prasad, N., 2006. Privatisation Results: Private Sector Participation in Water Services After 15 Years. *Development Policy Review*, 24(6), pp.669–692.
- Price, B.E., 2007. The Threat of Privatization : The Impetus behind Government Performance. *International Journal of Public Public Administration*, 30, pp.1141–1155.
- Provan, K. & Milward, H., 1995. A preliminary theory of interorganizational network effectiveness: A comparative study of four community mental health systems. *Administrative science quarterly*, 40(1), pp.1–33.
- Provan, K.G. and Milward, H.B., 1991. Institutional-level norms and organizational involvement in a service-implementation network. *Journal of Public Administration Research and Theory*, 1(4), pp.391-418.
- Provan, K.G., Fish, a. & Sydow, J., 2007. Interorganizational Networks at the Network Level: A Review of the Empirical Literature on Whole Networks. *Journal of Management*, 33(3), pp.479–516.
- Provan, K.G. & Kenis, P., 2007. Modes of Network Governance: Structure, Management, and Effectiveness. *Journal of Public Administration Research and Theory*, 18(2), pp.229–252.
- Provan, K.G. & Milward, H.B., 2001. Do Networks Really Work? A Framework for Evaluating Public-Sector Organizational Networks. *Public Administration Review*, 61(4), pp.414–423.
- Ramamurti, R., 1992. Why Are Developing Countries Privatizing? *Journal of International Business Studies*, 23(2), pp.225–249.
- Rappler.com, 2015a. MWSS approves new Metro Manila water rates. *Rappler.com*. Available at: <http://www.rappler.com/business/industries/93397-mwss-metro-manila-water-rates> [Accessed April 11, 2017].
- Rappler.com, 2015b. MWSS suspends Maynilad tariff adjustment. *Rappler.com*. Available at: <http://www.rappler.com/business/industries/86081-mwss-suspends-maynilad-tariff> [Accessed April 11, 2017].
- Rappler.com, 2015c. Pay us P3.44B, Maynilad asks gov't. *Rappler.com*. Available at: <http://www.rappler.com/business/industries/86464-maynilad-claims-sovereign-compensation> [Accessed April 12, 2017].

- Rees, J., 1998. Regulation and private participation in the water and sanitation sector. *Natural Resources Forum*, 22(2), pp.95–105.
- Rhodes, R.A.W., 2007. Understanding Governance: Ten Years On. *Organization Studies*, 28(8), pp.1243–1264.
- Richman, B.D. and Boerner, C., 2011. A transaction cost economizing approach to regulation: Understanding the NIMBY problem and improving regulatory responses. *Yale Journal on Regulation*, 23.
- Ring, P.S. & Van de Ven, A.H., 1992. Structuring cooperative relationships between organizations. *Strategic Management Journal*, 13(7), pp.483–498.
- Rodriguez, U., Jamora, N. & Hutton, G., 2008. Economic Impacts of Sanitation in the Philippines, *East Asia and the Pacific, World Bank Office Jakarta*.
- Rola, A., Liguton, J. and Francisco, H., 2016. *Winning the Water Wars: watersheds, water policies and water institutions*. Makati City, Philippines: Philippine Institute for Development Studies.
- Roland, G., 2008. Private and Public Ownership in Economic Theory. In G. Roland, ed. *Privatization: Successes and Failures*. New York: Columbia University Press, pp. 2–31.
- Rossignoli, C. and Ricciardi, F., 2014. *Inter-organizational relationships: towards a dynamic model for understanding business network performance*. Springer.
- Roxas, F. & Santiago, A., 2010. Broken dreams: Unmet expectations of investors in the Philippine electricity restructuring and privatization. *Energy Policy*, 38(11), pp.7269–7277
- Saier, M.H., 2008. Are Megacities Sustainable? *Water, Air, and Soil Pollution*, 191(1–4), pp.1–3.
- Sabillo, 2013. Pressure politics may be behind delay in new water rates – group. *Philippine Daily Inquirer*. Available at: <http://newsinfo.inquirer.net/483463/pressure-politics-may-be-behind-delay-in-new-water-rates-group#ixzz4wDPxtPpt>
- Shirley, M.M. and Walsh, P.P., 2000. *Public vs. private ownership: the current state of the debate*. World Bank, Development Research Group, Regulation and Competition Policy.
- Sorensen, E. & Torfing, J., 2005. The Democratic Anchorage of Governance Networks. *Scandinavian Political Studies*, 28(3), pp.195–218.
- Stiglitz, J.E., 2002. *Globalization and its Discontents* (Vol. 500). Norton: New York.
- Supreme Court of the Philippines, 2008. *MMDA et.al. vs. Concerned residents of Manila Bay Resolution*, Available at <http://sc.judiciary.gov.ph/jurisprudence/2008/december2008/171947-48.htm>.
- Tan, J., 2011. Infrastructure Privatisation: Oversold, Misunderstood and Inappropriate. *Development Policy Review*, 29(1), pp.47–74.

-
- Tetra Tech & Berkman, 2013. *Manila Third Sewerage Report: Updating of MWSS 2005 Master Plan*, Manila.
- Thomson, A.M. & Perry, J.L., 2006. Collaboration Processes: Inside the Black Box. *Public Administration Review*, 66 (Special Issue), pp.20–32.
- Torres, C.E., 2010. *The Americanization of Manila*. Quezon City: The University of the Philippines Press.
- UNICEF and World Health Organization, 2015. *Progress on Sanitation and Drinking Water: 2015 Update and MDG Assessment*, Geneva.
- Velotti, L., Botti, A. & Vesci, M., 2012. Public-Private Partnerships and Network Governance. *Public Performance & Management Review*, 36(2), pp.340–365.
- De Vera, B., 2015. MWSS inaction on rate hikes deemed “credit negative.” *Philippine Daily Inquirer*. Available at: <http://business.inquirer.net/196880/mwss-inaction-on-rate-hikes-deemed-credit-negative>.
- Vincent-Jones, P., 2000. Contractual Governance: Institutional and Organizational Analysis. *Oxford Journal of Legal Studies*, 20(3), pp.317–351.
- Van Waarden, F., 1992. Dimensions and Types of Policy Networks. *European Journal of Political Research*, 21, pp.29–52.
- van de Walle, N., 1989. Privatization in developing countries: a review of the issues. *World Development*, 17(5), pp.601–615.
- Williams, P., 2002. The Competent Boundary Spanner. *Public Administration*, 80(1), pp.103–124.
- Williamson, O.E., 1999. Public and Private Bureaucracies: A Transaction Cost Economics Perspective. *Journal of Law, Economics, and Organization*, 15(1), pp.306–342.
- World Bank, 2016. Doing Business in Philippines. *Doing Business: Measuring Business Regulations*. Available at: <http://www.doingbusiness.org/data/exploreeconomies/philippines#dealing-with-construction-permits>.
- World Bank, 2013. *East Asia and the Pacific region urban sanitation review : a call for action*. Washington D.C.
- World Bank, 2005. *Philippines: Meeting Infrastructure Challenges*. Washington D.C.
- World Bank, 1980. *Philippines - Manila Sewerage and Sanitation Project*. Washington D.C.
- World Bank, 2012. *Project Appraisal Document: Metro Manila Wastewater Project*. Makati.
- World Bank, 1990. *Project Completion Report: Philippines - Manila Sewerage and Sanitation Project*. Washington, D.C.

World Bank, 1997. *What a private sector participation arrangement should cover*, Washington, DC: World Bank.

Yin, R.K., 2009. *Case study research design and methods* (Fourth). Thousand Oaks: Sage Inc.

Yujuico, E., 2015. Considerations in the diffusion of a public traffic app for Metro Manila. *Journal of Transport Geography*, 42, pp.48–56.

Zaheer, A., Gözübüyük, R. & Milanov, H., 2010. It's the Connections: The Network Perspective in Interorganizational Research. *The Academy of Management Perspectives*, 24(1), pp.62–77.

Zaheer, A. & Venkatraman, N., 1995. Relational governance as an interorganizational strategy: An empirical test of the role of trust in economic exchange. *Strategic Management Journal*, 16(5), pp.373–392.

Zhou, J.Q. & Peng, M.W., 2010. Relational exchanges versus arm's-length transactions during institutional transitions. *Asia Pacific Journal of Management*, 27(355–370).