Water Governance and Pollution Control in Peri-Urban Ho Chi Minh City, Vietnam: The Challenges Facing Farmers and Opportunities for Change

By

Darren Perrett

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Author's Declaration

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis including any required final revisions, as accepted by my examiners.

I understand that my thesis may be made electronically available to the public.

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Abstract

Encompassing both urban and rural processes, the peri-urban interface (PUI) provides a unique and challenging arena for environmental management. As the urban core expands, the PUI industrializes and urbanizes, undergoing rapid social, economic, and environmental changes. One of the results of this transformation is often an increase in pollutants and environmental degradation.

In the twenty years since the initiation of its reforms towards a more market-oriented economy, Vietnam has seen significant growth, much of this occurring within the industrial sector in and around urban hubs such as Ho Chi Minh City (HCMC). Rapid urbanization and industrialization has occurred with limited control, and a trend has emerged where industrial activity has moved out of the urban core and into the PUI. Despite ongoing efforts, the government of Vietnam, as in other Asian countries, is unable to fully regulate firms illegally releasing untreated and often highly polluted wastewater. The result is that farmers in HCMC's PUI must now contend with lower crop yields or even failures – and food safety concerns due to an influx of pollutants in irrigation waters. Combining a rights-based approach and a good governance approach, this research describes the constraints on both farmers and government officials that prevent a resolution of farmers' pollution problems. These constraints are argued to stem from systemic water governance issues in Ho Chi Minh City and Vietnam. They include poor communication between farmers and government officials, limited farmer participation in water management, a lack of integration between government agencies, little government accountability and transparency, and water management priorities that favour economic growth over environmental health. It is argued that strengthening farmers' water rights could address these issues. However using a rights based approach would first require addressing gender inequities in community affairs, institutional changes to ensure the recognition of farmers' rights in practice, compensating those harmed by pollution, and educating farmers on the legal system and the water rights it provides. In addition to addressing a general lack of literature on water governance in Vietnam, this research has implications for literature regarding peri-urban environmental management, good water governance, and the rights based approach. This research suggests that the challenges present in the PUI exacerbate and thus illuminate poor water governance

practices that extend beyond the local scale. It also suggests that water rights be used as a possible platform to achieve good water governance. Lastly, it explores the potential challenges of implementing a rights based approach.

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Dedication

To my family, whose lives and actions inspire my own.

Table of Contents

List of Tables

List of Maps

List of Figures

List of Abbreviations

CAD	Canadian Dollars
CMA	Catchment Management Authority
DARD	Department of Agriculture and Rural Development
DFID	Department of International Development (UK)
DONRE	Department of Natural Resources and Environment
DOSTE	Department of Science, Technology and Environment
DWRM	Department of Water Resources Management
ENGO	Environmental Non-Governmental Organization
ESC	Economic, Social, and Cultural Rights
GDD	Grassroots Democracy Decree
IMC	Irrigation Management Company
IUCN	International Union for Conservation of Nature
LEP	Law on Environment Protection
LWR	Law on Water Resources
PUI	Peri-urban Interface
HCMC	Ho Chi Minh City, Vietnam
MARD	Ministry of Agriculture and Rural Development
MONRE	Ministry of Natural Resources and Environment
MOSTE	Ministry of Science, Technology and Environment
NGO	Non-Governmental Organization
NEAP	National Environmental Action Plan
NRSP	Natural Resources Systems Programme
RBA	Rights-based Approach
SIDA	Swedish International Development Cooperation Agency
TPT	Tan Phu Trung
UN	United Nations
UNDP	United Nations Development Programme
UNICEF	United Nations Children's Fund
VND	Vietnam Dong
VWRSR	Vietnam Water Resources Sector Review
WUA	Water Use Association

Chapter 1 Introduction

1.1 Research Problem

The importance of water resources to society cannot be overstated. Water is an integral part of humans' lives, as well as to ecosystem functioning. Water's complex physical nature and numerous uses often make it difficult to manage, as one must govern an intricate web of different users (with often competing priorities), the timing and quantity of extractions, and pollution. It often becomes difficult to satisfy the needs of all users, resulting in water conflicts. This is particularly true for the fringes of urban areas, or the peri-urban interface (PUI), the area where the rural transitions into the urban. As the PUI itself develops, it incorporates a mix of urban and rural actors who compete for water resources, using them for consumption and as sinks for pollutants.

Pollution often flows out of the urban core and into the PUI, thus subjecting those living in the PUI, who are often poor, to inequitable pollution burdens (Sajor and Ongsakul, 2007; Stigliz, 2005). This can occur in a number of ways, such as when urban solid wastes are removed from the urban core and deposited in the PUI, or when undesirable polluting industries are relocated from the core to the outskirts of the city. This increased level of pollution negatively impacts the lives of those in the PUI, including the livelihoods of farmers. This is undesirable, as peri-urban agriculture makes a number of positive contributions to both peri-urban and urban areas. Among these, it provides an important food source, ensures the availability of fresh vegetables, creates employment opportunities, acts as a sink for urban wastes (e.g. organic composting), plays a role in gender advancement, and provides employment/income (Douglas, 2006). However, these benefits are threatened by the increased pollution levels in the PUI, including water pollutants which are released into irrigation water supplies.

Pollution control is therefore an important aspect of water management in the PUI. However, the literature regarding environmental management in the PUI suggests that effective control of water pollution remains an elusive goal in developing countries (e.g., Binns et al., 2003; Sajor and Ongsakul, 2007), prompting questions as to why this is so. Through a case study of water pollution in Ho Chi Minh City, Vietnam, this thesis aims to illustrate that because water

management in developing countries often suffers from poor governance, managers are unable to contend with the pollution challenges present in the PUI.

Between the late 1970s and the early 1990s, environmental policy in international development was dominated by a neoliberal vision, also known as the Washington Consensus. Simply put, the dissatisfaction of the state's role during this time led those involved in development to argue that state intervention in the market be reduced. Development efforts that were guided by the Washington Consensus are now largely viewed as unsuccessful (Gore, 2000; Öniş & Şenses, 2005; Stigliz, 2005). The Post-Washington Consensus, which emerged subsequently, argues for stronger state involvement in the development process, although still in a market-friendly environment (Stigliz, 2005). It is from the PWC that the approaches used in this thesis, the rights-based approach and good governance approach, have emerged. These approaches focus on the roles of the state in development, as well as the role for civil society.

This thesis uses two frameworks to examine the difficulties of peri-urban water pollution management in the PUI. The first is a rights-based approach (RBA), which has recently been popularized by international development institutions like the UNDP and UNICEF. Simply put, the RBA uses rights as a platform for development. In a RBA, the problem of water pollution is viewed as a violation of one or more rights. Thus, rights form the central position from which to analyze the impact of water pollution and identify possible solutions. A unified framework for the RBA does not currently exist, as it is a relatively new approach. An adapted RBA framework popularized by UNICEF was used for this thesis.

The second framework used for this study is the good governance approach. There is a lack of agreement on the definition of governance and what constitutes good governance. However, this has not prohibited the principles of good water governance from becoming an important part of the consensus of international water development (Franks, 2004), and therefore part of a number of water development strategies throughout the world (Hirsch, 2006). The principles of good governance provide a framework with which one can evaluate water governance and identify areas for improvement. Its use is appropriate for this study, as poor governance is argued as the root of environmental management issues in the PUI.

1.2 Water Governance in Asia and Vietnam

Vietnam's current water resource degradation and governance issues are similar to those in other Asian countries, and are typical for developing countries elsewhere. There is often limited financing and poor monitoring, lack of accountability and private and civil sector participation, and lack of political will and commitment to environmental protection (ADB, 2001). As is later seen in this thesis, Vietnam exhibits all of these symptoms.

Nearly all Asian countries are experiencing problems with water pollution (ADB, 2001; Biswas and Seetharam, 2008). Water pollution has become a particularly important issue in mega-cities in the region (Arriens, 2002). Vietnam, like other rapidly industrializing South East Asian countries, is facing difficulties managing the environmental degradation that is accompanying economic growth (Oosterveer et al., 2006). The major sources of water pollution in Vietnam are similar to those typical in Asia – sewage, industrial effluents, and urban and agricultural runoffs (ADB, 2001). Regarding industrial pollution, it is common in Asia for there to be poor compliance and weak enforcement of environmental regulations.

In terms of creating environmental agencies and legal frameworks, environmental governance in Vietnam lagged behind a number of other Asian countries. Pollution control in China, for example, began in the early 1970s, and China had an environmental protection law by 1979 (Mol and Carter, 2006; Sonnenfeld and Mol, 2006). Prior to the 1980s, Vietnam had no explicit legislation on the environment, or a government body whose mandate included environmental management (T. L. Bryant and Akers, 1999). This situation continued into the early 1990s. In the nearly twenty years that have followed, Vietnam has developed and enacted water-related legislation and incorporated water resource management agencies into its government apparatus. Comparatively, environmental governance in Vietnam is young and, as is later argued, underdeveloped. This has a direct impact on the management of industrial pollutants which have and continue to be released largely untreated. This happens for a number of reasons, perhaps most importantly is the political conflict between development and environmental concerns, which are particularly apparent in Vietnam (O'Rourke, 2002).

1.3 Research Context

Emerging from widespread economic stagnation in the early 1980s, Vietnam has undergone rapid economic growth since then, as a result of far-reaching economic reforms (Glewwe, 2004). Much of this growth is linked to increased industrial activity (O'Rourke, 2004). However, this has been accompanied by a rise in industrial pollutants released into the environment. The majority of the industrial growth has been situated around Vietnam's two largest urban centres, Ho Chi Minh City (HCMC) and Hanoi, thus increasing the toxicity of these cities and their surrounding areas (Hong et al., 2000; Phuong et al., 1998; van den Berg et al., 2003).

HCMC is undergoing rapid urbanization and industrialization, much of it occurring in an uncontrolled manner (Drakakis-Smith and Dixon, 1997; Ha and Wong, 1999). In the last ten years the official population has increased from roughly 4.5 to 6 million people, and the industrial output has increased 380% (General Statistics Office of Vietnam a, 2006; General Statistics Office of Vietnam c, 2006). Part of this urbanization process has involved the removal of polluting industries out of the urban core and into the PUI, where industries find places in industrial parks or are interspersed between agricultural lands.

In a number of cases, communities whose livelihoods have been threatened due to pollution have voiced their concerns to government and private sector actors through individual and community verbal and written protest. The media has also been instrumental in raising awareness about the issue. A number of authors have examined how this pressure affects the actions of state and private sector actors in Vietnam (e.g. O'Rourke, 2004; Phung and Mol, 2004). They found that pressure plays an important and often necessary role in instigating government action to regulate pollution, and private actors to utilize waste treatment systems.

1.4 Research Purpose

This thesis is predicated on two assumptions: farmers in the PUI have the right to grow crops safely in these areas, and that their doing so makes an important contribution to the urban food supply. Industrial water pollution in the PUI threatens farmers' livelihoods through yield declines or crop losses, and contaminates or lowers the availability of locally grown food in the urban core. As this was occurring in HCMC's PUI at the time the research was undertaken, the overall purpose of this thesis is to examine this problem and identify issues

that prohibit its solution. Because this problem and its dimensions are not entirely unique to HCMC, this research has implications for other cities in the developing world experiencing problems of water pollution in their PUIs.

1.5 Research Objectives

This thesis has three objectives:

1. To describe water governance in Vietnam and Ho Chi Minh City, including the organization of government water management entities and the legal framework that supports them, with a specific focus on industrial water pollution management.
2. To apply a rights-based approach to analyze the problem of polluted irrigation water facing farmers in HCMC's peri-urban interface, and the factors that constrain farmers' and the government's ability to solve the problem.
3. Evaluate HCMC and Vietnam's water governance using the good water governance approach, and to apply a rights-based approach to identify actions to address these issues.

1.6 Contributions of the Thesis

This thesis aims to address a number of questions that are raised by the literature reviewed in Chapter Two. Regarding the PUI, the thesis aims to contribute to closing the gap on the equity dimension of inequitable pollution burdens in the PUI (Sajor and Ongsakul, 2007). In addition, the characterization of HCMC's PUI aids in building consensus on the definition of the PUI and its common attributes.

Much of the literature regarding the RBA revolves around its effect on development at the international level – that is, between developed and developing countries, and between aid institutions and developing countries. Very little attention is devoted to examining how this approach affects the state-citizen relationship, and the complications that can arise when the state adopts a RBA (e.g., the work by Schreiner et al., 2004). This thesis examines how the RBA can be used to address farmers' pollution problem, by conceptualizing it in terms of a breakdown of the claim-duty relationship between citizens and the state. This thesis also identifies complications that arise should the state adopt a RBA.

Despite its widespread integration into international water development, there remain a number of unanswered questions about good water governance. This thesis aims to address three questions that have yet to be answered about good governance. First, there has been a lack of enquiry as to how good governance works out in practice and how desirable governance outcomes are achieved (Franks and Cleaver, 2007). This thesis uses an RBA to illustrate how increased water rights could potentially contribute to solving the problem of water pollution, which is argued to be stemming from poor governance. Second, although participation is lauded as an essential part of good governance, questions remain about what people should participate in and how much participation is appropriate. This thesis discusses this question with respect to civil society's involvement in water pollution regulation, linking it with literature regarding community-based regulation in Vietnam.

Perhaps the most important contribution of this thesis relates to its analysis of water governance in Vietnam. There has been relatively limited research on this topic to date. A sizable body of research exists about governance of the Mekong Basin, but this is primarily connected with international efforts and relations, and thus remains at that scale, often touching on Vietnam without being very specific about concrete water governance practices in the country. Little information specific to Vietnam exists concerning topics such as the organization of responsibilities and the supporting legal framework, and what has been written is out of date due to the pace of institutional change in the last two decades. Although there is little information about Vietnam's water governance, as was previously argued, it suffers from fairly common water governance issues. Therefore, the lessons learned through this research are applicable to other rapidly industrializing countries with fledgling water governance systems.

1.7 Organization of the Thesis

This thesis contains seven chapters. This first chapter has provided an introduction to this thesis. It began with outlining the issue of water pollution in the PUI in general, and then linked it to Vietnam. It then outlined the research objectives and contributions of this research. Chapter Two explores the literature relevant to the research question. It provides frameworks for understanding the peri-urban context in which the research was taking place as well as understanding water governance in the research area. Chapter Three develops a

contextual background of Vietnam and HCMC. It includes an overview of Vietnam's organizational and regulatory framework for industrial water pollution, a discussion of Vietnam's and HCMC's recent economic development, and a description of the study sites. Chapter Four discusses the methodology used to conduct the research for this thesis. Chapter Five, which is divided into two major sections, presents the findings of the research. The first part presents the findings of the RBA, and the second of the good governance approach. Chapter Six discusses the practical implications of this research and its implications for the literature reviewed in Chapter Two. The practical implications are discussed through suggestions of candidate actions to address the pollution problem. Chapter Seven presents a summary of the research findings, and makes some comments on the peri-urban context, the rights-based approach, the trade-offs related to my research decisions, and possible future avenues for research.

Chapter 2 Literature Review

This chapter introduces the literature relevant to this study on water pollution management in the PUI. It consists of two major parts. The first part develops a framework for understanding the physical context in which the research takes place. This involves an exploration of literature on the unique characteristics of the PUI that are important for environmental management.

The second part develops a framework for evaluating the situation in HCMC's PUI. The first section discusses the rights-based approach, which provides the normative basis on which the research was founded. The second section discusses water governance, which provides the criteria against which water governance in HCMC and Vietnam is evaluated.

2.1 Peri-Urban Interface

Considerable scholarly attention has been given to city growth and management in the developing world. Generally though, this literature has often overlooked the processes occurring at the urban fringe, what has come to be classified as the peri-urban interface (Simon et al., 2006). The term peri-urban is often defined in a case specific manner, and therefore provides little guidance as to what actually constitutes the PUI (Iaquinta and Drescher, 2000). Regarding the difficulty in rigidly defining the PUI, the OECD wrote:

> The term 'peri-urban area', cannot be easily defined or delimited through unambiguous criteria. It is a name given to the grey area which is neither entirely urban nor purely rural in the traditional sense; it is at most the partly urbanized rural area. Whatever definition may be given to it, it cannot eliminate some degree of arbitrariness." (OECD, 1979, p. 10)

Numerous criteria have been used to identify the PUI, including demographics (household structure, ethnicity, culture), physical landscapes, land tenure systems, and land uses. A spatial boundary of 30-50 km beyond the urban fringe is sometimes used (Simon et al., 2006). However, a spatial boundary, while simplistic and therefore convenient, is too arbitrary and maladaptive to real life conditions.

As the boundaries of the PUI are often not discrete, but actually uneven and identified by a combination of features and processes, a definition lacking a spatial boundary is appropriate.

The Natural Resources Systems Programme, part of the UK Department for International Development, defines the PUI as follows:

> The peri-urban interface is characterised by strong urban influences, easy access to markets, services and other inputs, ready supplies of labour, but relative shortages of land and risks from pollution and urban growth (Phillips et al., 1999, p. 5)

They also delineate between two separate zones within the PUI, the zone of direct impact, which "experiences the direct impacts of land demands from urban growth and pollution" and a "wider, market-related zone of influence" which is akin to the urban area's immediate ecological footprint (Phillips et al., 1999, pp. 5,6). While broad, and therefore inclusive of many types of conditions, this definition fails to incorporate the dynamic nature of the PUI – one of its most important characteristics.

Despite being difficult to define, peri-urban interfaces around the world do share common characteristics relevant for environmental management. Two important features are discussed here. First, because of the nature of its development and the activities conducted therein, the PUI experiences rapid environmental, economic, and social changes. Second, and not unrelated to the first attribute, the PUI is often an area where institutions and jurisdictions converge and overlap, creating conflicts.

2.1.1 Rapid Change

Rapid change, in environmental, economic, and social terms, is one of the most important aspects of the PUI (Allen, 2003). In terms of environmental changes, these include land use changes, increasing levels of pollution, and intensified resource extraction. Economically, a diversification of activities and livelihood strategies attracts a multitude of new actors to the area. The social structure of the area changes through migration. As seen later in this thesis, each of these issues is present in HCMC's PUI.

The peri-urban interface is a region of diverse land uses. One of the main processes in the PUI is the alteration of low intensity agricultural land for other uses, mainly intensive agricultural, industrial, and urban. Farmland becomes interspersed with factories, urban housing, and tourist and leisure land uses (Simon et al., 2006). The combination of urban and rural activities with lax regulations and enforcement often makes the PUI a very polluted and degraded environment. Industrial and urban wastes are deposited or flow through the area,

urban construction releases pollutants and demands resources, intensive agriculture releases toxic chemicals, and there are usually poor waste and sanitation services (e.g., see Binns et al., 2003; and Singh and Kumar, 2006). Resources are vigorously harvested in the PUI, in response to the high demand in the PUI and nearby urban areas. The result is further degradation of the environment. Consequently, environmental managers in the PUI face significant challenges in terms of regulating pollution and resource extraction.

The movement from agricultural to higher value industrialized and urban activities significantly alters livelihoods in the area, resulting in the emergence of new stakeholders. This creates new pressures on valuable resources, such as land, and leads to competition between users. Resources may be inequitably divided due to policy priorities which, for example, may prioritize industry higher than agriculture.

Allen describes the social changes in the PUI as a "process characterized by the fluctuating incorporation of new stakeholders" (Allen, 2003, p. 137). The social structure of the PUI is drastically altered as middle class urban dwellers move out of the city for a quieter suburban life, and, in response to the changing economic conditions, rural migrants come to the urban fringe for employment opportunities. With them, migrants bring their social institutions, which can be malleable or resistant to change in the new surroundings (Iaquinta and Drescher, 2000). Informal/traditional institutions are significant for environmental management – especially water management – as they may contradict and lead to resistance of government mandates (Bruns and Meinzen-Dick, 2005) . Because of the institutional diversity – not only within peri-urban settlements, but within the PUI itself – difficulties may arise when trying to conduct formal institutional reforms. In terms of conflict management, issues are likely to arise where groups with contrasting institutions occupy the same space.

2.1.2 Jurisdictional Conflict

Jurisdictional issues arise from two sources in the PUI. The first is integrating planning in the PUI with planning in the urban core. Despite the fact that the PUI is defined as separate from the urban core, it is important to think of it as an extension of the core, as the two become increasingly integrated over time. This can take place through processes like market integration, urban expansion into the PUI, or service integration. In terms of management and planning, the process of integration has proven to be a difficult process (Simon et al., 2006).

It is common for urban officials to be reluctant to engage and bear responsibility for the PUI, as a number of issues requiring attention in the PUI are caused by its interaction with the urban core, such as urban waste disposal, and degradation from resource extraction (Simon et al., 2006).

The second jurisdictional issue arises because of the large range of activities often found in the PUI. This necessitates the entrance of a number of government actors to manage these activities. Allen (2003) describes the region as one of converging and overlapping institutional arrangements. Because governmental management is often fragmented and ambiguous, especially in developing countries (R. Bryant and Bailey, 1997), the PUI is thus prone to jurisdictional conflicts (Sajor and Ongsakul, 2007). For example, in their study of Rangsit Field, part of peri-urban Bangkok, Sajor and Ongsakul (2007) identified 55 government agencies operating in the area. Part of their study involved examining the government agencies responsible for irrigation canals, of which they identified four. However, the responsibility for keeping the canal clean did not fall under the directive of any of the four. This research reveals that only the second jurisdictional issue is present in the case study site in HCMC's PUI.

2.1.3 Peri-urban Water Pollution Management

Water pollution is a key environmental issue in the PUI. Water pollution in the PUI originates from point sources, such as factories that discharge effluent without treatment, and non-point sources, such as urban or contaminated irrigation water run-off (Zhang et al., 2007). Zhang et al. (2007) have shown that industrial areas in peri-urban interfaces suffer high levels of heavy metals in surface waters, while high concentrations of nitrogen and phosphorus are an issue in agricultural peri-urban areas.

Within the literature on the PUI, there is a focus on examining the effect of water pollution and peri-urban agricultural production (Binns et al., 2003; Douglas, 2006; Huang et al., 2006; Midmore and Jansen, 2003) perhaps because in most cases, agriculture was the dominant land use before the area changed from rural to peri-urban. While this thesis includes a dimension of pollution's impact on agricultural production, it goes beyond this and addresses a lack of research on the "equity dimension of water pollution burden[s]" in peri-urban areas in South East Asia (Sajor and Ongsakul, 2007, p. 783). It also suggests that the conditions in the PUI

exacerbate and reveal poor water governance, and therefore one must look beyond the PUI to describe its water problems.

2.2 Research Frameworks

This research was conducted using a combination of a rights-based approach and good governance approach. However, because poor water pollution regulation in the PUI is a complex issue, it could be have been addressed through a number of theoretical lenses. Le and Nguyen (2004), for example, examine the issue from an economic standpoint and discuss why industries do not comply with pollution regulations. The issue could also be examined using a planning approach, focusing, perhaps, on the spatial distribution of agriculture and industrial activity and the environmental flows between the two. Upon returning from the field, I attempted to apply political ecology approach in addition to the approaches discussed below. Although political ecology could have proven to be an appropriate lens to examine the problem this thesis addresses, the scope of my data was insufficient to fully accommodate a political ecology approach.

2.2.1 Changing Approaches to Water Governance

From the late 1970s until the early 1990s, development efforts were dominated by neoliberal theory, which emphasized that the state should play a minimal role in development. Successful development was thought to only be possible if the market was liberated from controls and interventions of the public sector (Öniş and Şenses, 2005). Thus, international aid institutions like the World Bank and International Monetary Fund (IMF) created development strategies that sought macro-economic stability through control of inflation, reducing fiscal deficits through reduced public spending, trade liberalization, privatization and deregulation. This development strategy came to be called the Washington Consensus (Gore, 2000; Öniş and Şenses, 2005; Stigliz, 2005). For the water supply sector, this period saw a large increase in a number of forms of privatization of the state's water management activities (Bakker, 2003).

By the early 1990s, there was a growing consensus that the strategies of the Washington Consensus were failing (Öniş and Şenses, 2005). In addition, despite attempts to designate them as a success of neoliberal policy, a number of East Asian economies, including South Korean, Taiwan, China, and Vietnam, which did not adhere completely to the neoliberal

strategy, were developing more successfully than those that were (Öniş and Şenses, 2005). For example, in the case of China and Vietnam, infant industry protection and an active industrial policy were key components of their policy packages (Öniş and Şenses, 2005). As for water privatization, a number of high profile cases, such as Cochabamba, Bolivia (Nickson and Vargas, 2002) illustrated the tenuousness of using market principles in water management in the developing world.

The realization that pure neoliberal strategies were failing resulted in a noticeable shift towards a new synthesis of strategies (Öniş and Şenses, 2005). This new strategy has been dubbed the Post-Washington Consensus (Stigliz, 2005). The most noticeable difference between the Washington Consensus and Post-Washington Consensus is the emphasis that the state should play a larger role in controlling and fostering economic growth, and strong state institutions are required to do so (Öniş and Şenses, 2005). The result is that creating strong and effective state institutions becomes an integral part of successful development.

As will be illustrated through their description, the following approaches used for this research, the rights-based approach and the good governance approach, can be viewed as emerging from the Post-Washington Consensus, as they both call for strong state institutions and moving away from more strictly market driven development, albeit to different degrees. The RBA stands in direct opposition to the Washington Consensus, as it stresses that the state has an important role in protecting human rights, and must therefore be directly involved in the development process (Mander, 2005; Manzo, 2003). The good governance approach is less critical of the Washington Consensus, but still challenges it in a number of ways. Perhaps most important, is its recognition that development requires policy adaptation but also a strong institutional framework in which such policies are formulated (Santiso, 2001). These approaches both stress issues such as transparency, participation, equity, accountability, and strong state institutions. It is through these similarities that these approaches are combined.

2.3 Rights-based Approach

The rights-based approach (RBA), in simple terms, enshrines all forms of rights (often based on legal universal rights, but also including other forms such as informal or customary) at the centre of policy and programming. As described below, it has been utilized by both

development NGOs and governments in the developing world. For the purposes of this thesis, it provides the norms on which both the fieldwork and analysis rest – this being the primacy of rights. Thus, rights – specifically water rights – form the normative core of the thesis.

As mentioned earlier, the RBA emerged in response to the general consensus of the failure of neoliberal theory in development efforts (Gready and Ensor, 2005; Manzo, 2003). The approach has implications for development as well as obligations for actors ranging from the international to individual scale. Even though the RBA is still relatively new and variations exist in its content and application, commonalities are visible, permitting a clear overview of the approach. The key elements are: having concern with the process and outcomes of development, recognizing the existence of obligations between state and citizen, and basing the approach on universal human rights Covenants.

Much of the literature concerning the RBA is focused on its adoption and impact on international relations, as well as development NGOs. Less attention has been focused on the adoption of the rights-based approach by states, although research by Johnson and Forsyth (2002) is one example. The RBA's impact on NGOs and international development is not relevant to this research, so this discussion of the RBA will be confined to the impact on individuals versus state level obligations, leaving aside literature devoted to the obligations it creates at the international scale, as well as its implications for the operations of NGOs.

This discussion will be divided into three major sections. The first will introduce the short history of the RBA to provide an understanding of how its popularity grew. The second section will provide conceptual details of the RBA as well as outlining a framework within which development programming can be designed. The framework presented, utilized during the period of fieldwork, is used by UNICEF to evaluate problems and design development programming to address them. This thesis uses only the evaluative portion of the framework. Lastly, the challenges of the RBA will be reviewed and illustrated by two case studies; one of water management in South Africa, the other of community forest management in Thailand.

2.3.1 History

Two main factors influenced the timing of the increase in popularity of the RBA to development (Cornwall and Nyamu-Musembi, 2004). First, although the UN declared

development as a right in 1986 (Declaration on the Right to Development), it was not until the end of the Cold War that the rights-based approach gained momentum (Cornwall and Nyamu-Musembi, 2004; Filmer-Wilson, 2005; Johnson and Forsyth, 2002; Moser and Norton, 2001). Human rights were a source of tension during the Cold War as the U.S. and its allies and the Communist states counter-posed civil and political rights against economic, social, and cultural rights, respectively, resulting in two different treaties being signed: the Covenant for Civil and Political Rights, promoted by the U.S. and its allies, and the Covenant for Economic, Social, and Cultural Rights (ESC rights), promoted by the Communists (Filmer-Wilson, 2005; Moser and Norton, 2001). The end of the Cold War removed this ideological divide, and the debate was put to rest at the 1993 World Conference on Human Rights in Vienna, when it was agreed all human rights were universal, interdependent, and indivisible (Moser and Norton, 2001).

A second factor that influenced the rising popularity of the RBA has come from the NGO sector. In the 1990s, collaborative projects between human rights and development NGOs demonstrated their joint interests in political freedom, labour, environmental, women's activism, as well as a desire for greater information sharing and participation (Nelson and Dorsey, 2003; Uvin, 2002). Also, a number of NGOs have emphasized the use of universal rights to social and economic goods – including education, health care, water, food – to induce changes in the policies and practices of states, corporations, and international organizations. After the Vienna Conference, the UN instigated a normative shift, calling for the integration of human rights principles into all major UN activities and programmes, stating in 1997 that "Human rights are inherent to the promotion of peace, security, economic prosperity and social equity." (Filmer-Wilson, 2005). Other NGOs that have adopted a RBA include UNICEF, UNDP, CARE, and Oxfam. Major financial institutions, however, have been slow to adopt an explicit RBA. For example, The World Bank, once an outright rejecter of the RBA, has moved towards arguing that its work on poverty reduction contributes to the realization on ESC rights (Cornwall and Nyamu-Musembi, 2004).

Two other minor factors were a change in the way aid was granted and the reframing of participation. There has been a growing shift in the mode of disbursement of development assistance, moving from sector-specific or project-based interventions to budgetary support for governments. While this affords recipient governments more influence on how funds are

used, it presents a challenge for how donor governments can ensure aid is spent correctly. This is accomplished through two means that are an important part of the rights-based approach: reforming and strengthening public institutions and increasing the capacity of civil society to hold the public sector accountable. Participation has also undergone a reformation. During the 1990s, participation existed as merely a tool used in the implementation of projects and programmes, and as a political process involving advocacy and mobilization (Cornwall and Nyamu-Musembi, 2004). The RBA argues for a merging of the two, changing participation into an inclusive and democratic process in decision making, instead of an approach that was largely instrumentalist. It represented a change from assessing the needs of beneficiaries to allowing citizens to recognise and claim their rights and identify those with the responsibility to uphold those rights (Cornwall and Nyamu-Musembi, 2004).

2.3.2 Content

The content of the RBA must be prefaced with a definition of rights. Moser and Norton (2001, p. 10) define rights as "legitimate claims that give rise to correlative obligations or duties." Critical to this definition is that some structure of power or authority is required to confer the legitimacy of the claim – making the definition, interpretation, and implementation dynamic political processes (Moser and Norton, 2001). Legal systems can define entitlements and enforcement of rights, but it is the administration structures and service deliverers that determine whether entitlements are delivered or withheld. The RBA affirms that the state is the primary agency that must enforce citizen's rights and protect their well-being. This runs counter to neoliberal ideals which call for the state's retreat to a position that supports and/or serves the market (Mander, 2005).

The value of rights in development can be normative, pragmatic, and ethical (Cornwall and Nyamu-Musembi, 2004). Rights provide the normative framework to provide answers about "what ought to be" (Cornwall and Nyamu-Musembi, 2004, p. 1416), involving an ideological shift from securing additional resources for those in need to sharing/redistributing existing resources equitably. Pragmatically, rights provide a vehicle for increased accountability, increasing the likelihood that policies are put into practice.

What are the implications regarding the addition of rights to development? Concerning the obligations between donor and recipient countries, the RBA involves a shift from aid based on

needs/charity, to development based on moral obligations to fulfill the rights of citizens in developing countries (Cornwall and Nyamu-Musembi, 2004; Nelson and Dorsey, 2003). More relevant to this research is the impact the RBA has on citizens and governments in recipient countries. With regard to this scale, no single definition of the RBA to development exists, but a number of key features can be distinguished (Filmer-Wilson, 2005). First, there is a concern with the outcomes of development as well as with the process through which development is achieved (i.e. through means described in the third feature). Second, it realizes the existence of claims and corresponding obligations between citizens and states. Third, it relies on the internationally established universal human rights Covenants which are used as a normative foundation, providing key principles, including participation, non-discrimination, equality, accountability, and the interdependence and indivisibility of rights (Filmer-Wilson, 2005; Hamm, 2001; Johnson and Forsyth, 2002; Jonsson, 2005; Nelson and Dorsey, 2003). Hamm (2001) sums up number of aspects contained in the third feature by saying that the RBA calls for principles of good governance. Hamm considers good governance as essential to the realization of human rights in general, as well as the success of participation.

There are four overall ways in which the RBA benefits development identified in the literature: empowerment, accountability, participation, and providing an integrated approach. As noted above, by framing development in terms of rights, what were previously seen as 'needs' become 'claims'; 'charity' becomes 'justice', emboldening citizens to mobilize themselves and claim their entitlements (Filmer-Wilson, 2005). The RBA brings increased accountability by establishing not only claims but also obligations to meet the claims and identification of the duty-bearers – most often the state. Under human rights law, the state is obligated to respect, protect, and fulfill human rights. Respecting human rights means that laws, policies, programmes, and practices must reflect human rights law (e.g. equal access to services). Protecting human rights requires that the state prevents violation of rights by non-state actors (e.g. enforcing anti-pollution regulations against private companies) (Filmer-Wilson, 2005; Nelson and Dorsey, 2003). Fulfilling human rights requires that the state take appropriate legislative, administrative, budgetary, and judicial measures towards the full realization of such rights (Filmer-Wilson, 2005). The RBA insists for participation at all levels and stages of the development process. Rather than an instrument to increase the

acceptance of programs and projects, the RBA calls for control of the planning, process, outcome, and evaluation – a larger increase in bottom up forces than is typically found in development (Filmer-Wilson, 2005; Hamm, 2001). Approaching development from a human rights perspective allows for a better understanding of how laws, social practices, policies, and institutions positively or negatively contribute to the current situation, providing a more integrated understanding of the problem (Filmer-Wilson, 2005).

2.3.3 Framework

As stated above, there is no single definition of a rights-based approach to development. The result is a number of operational frameworks exist (Cornwall and Nyamu-Musembi, 2004; Moser and Norton, 2001). The overall goal is often to strengthen the ability of rights holders (citizens) to make claims and duty-bearers (state agencies) to uphold them, but there has not been a single way to adopt the RBA. In fact, the NGOs and states which have committed themselves to the RBA have been struggling with the difficulties presented through its implications on their operations (Nelson and Dorsey, 2003). A number of NGOs and international aid agencies have emerged as leading adopters of the RBA: UNDP, UNICEF, Sida, DFID, and CARE (Cornwall and Nyamu-Musembi, 2004; Nelson and Dorsey, 2003). UNDP has gained recognition for its work conceptualizing the RBA, while UNICEF has made progress constructing a framework to apply the RBA (Cornwall and Nyamu-Musembi, 2004). For these NGOs, the method of integration of human rights principles can differ as well as overlap. For example, DFID integrated human rights as a set of normative principles, while UNICEF integrated them into a set of instruments used to determine and evaluate development interventions, and as a component of development programming. Sida did both, however, and integrated human rights as normative principles in addition to a set of instruments (Cornwall and Nyamu-Musembi, 2004).

UNICEF's Five Step Approach

Jonsson (2005, p. 53) outlines a method for utilizing a RBA to development programming. This approach consists of five consecutive steps and has been popularized through its adoption by UNICEF. As discussed in Chapter Three, this framework formed the basis on which field work was conducted.

Step 1) Causality analysis The first step involves identifying the immediate underlying and basic causes of a problem. The problems identified are understood as rights violations. The result from this step is a list of rights that are or are in danger of being violated. Through careful analysis, this step also aids in assuring agreement on what the problem is.

Step 2) Pattern analysis This step involves identifying the claim-duty relationships in the particular context in which the problem is occurring. The interrelationship between claim holders and duty-bearers at a number of different spatial scales is mapped[1].

Step 3) Capacity gap analysis The goal of this step is to analyze why the right is not being realized. Underlying this step is an assumption that claim holders lack the capacity to claim the right, and duty-bearers lack the capacity to meet their duties. Within this approach, capacity is broadly defined as consisting of five elements.

- Responsibility: referring to an acceptance and internalization of a duty, meaning the individual recognizes that he/she *should* (author's emphasis) do something about the problem.
- Authority: refers to the legitimacy of an action or whether an individual knows that they *may* take action. This is determined by laws (formal and informal), norms and rules, and traditions and culture
- Access and control of resources: despite the fact that an individual believes they *should* do something and *may* do so, their capacity may be limited due to a lack of resources, whether they be economic, political, social, that determine whether they *can* act.
- Communication capability: the ability to make claims and meet duties hinges on the ability to communicate as well as access information. Communication is important in connecting key social actors into functional networks capable of addressing issues.
- Capability for rational decision making and learning: this is the ability to make rational decisions based on evidence and a logical analysis of the causes of the problem and learn from the impacts of the actions taken. This is highly dependent on the ability to communicate.

[1] For the remainder of this thesis, 'claim holders' refers to actors with rights, and 'duty-bearers' are actors with the responsibility of upholding rights.

Stage 4) Identification of candidate actions At this stage, possible actions that are likely to reduce or close the capacity gaps of the right holders and or duty-bearers are identified. Their goal is to increase responsibility, authority, resources, and the communication and decision making capabilities of both parties.

Stage 5) Programme design The final stage involves selecting key actions devised in *Stage 4*.

Although it contains fewer steps, UNICEF's approach is similar to Moser and Norton's (2001) approach in that it involves understanding the operation of rights and then devising actions that can help the poor to negotiate their rights and strengthen the state's ability to act.

2.3.4 Critique of Linking Human Rights to Development

Uvin (2002, 2007) has levelled deep criticism at the emergence of human rights in development discourse, saying that it is nothing more than rhetoric, aimed at placing development NGOs on a moral high ground, "draping oneself in the mantle of human rights to cover the fat belly of the development community while avoiding challenging the status quo too much" (2002, p. 10). He also notes that development practitioners simultaneously argue that they have always incorporated human rights in their work, as well the potential for human rights to revolutionize development practice – a blatant contradiction. On the importance of participation within the RBA to development he says, "This argument is breathlessly presented as a major breakthrough that we all ought to feel truly pleased about, as if development practitioners have not been proposing exactly the same thing for decades now, with very little to show for it." (2002, p. 4). Cornwall and Nyamu-Musembi (2004) welcome Uvin's criticisms. They note the introduction of the RBA to development is still relatively young and its "flirtations with rhetoric" (p. 1433) threaten to invalidate what could be a useful approach. If the discourse of human rights in development is to have any effect, such observations are necessary to make corrections.

2.3.5 Challenges of Implementing the Rights-based Approach

Although there is little empirical evidence with which to judge the impact of the RBA, three issues – both conceptual and practical – that arise when adopting a RBA are discussed: the indivisibility of rights versus progressive realization, working within a country's context, and the political nature of rights.

The principle of indivisibility (that all rights are considered to be equally important) generates a potential problem for the RBA. First and foremost, instances are likely to arise where some rights violations are clearly more important than others (e.g. right to life versus right to participation). Also, given the limited economic means in developing countries, when adopting a RBA, it likely will not be possible to fulfill all rights immediately. To be more practical, the RBA insists that priorities be established – something that contradicts the principle of indivisibility. van Boven (1995), however, argues that in practice, the principle of indivisibility is based more on theory than reality. Regardless, governments and NGOs have dealt with this by adopting a notion of progressive realization, whereby the state takes "deliberate, concrete, targeted, and appropriate steps" to fulfilling its obligations (Moser and Norton, 2001, p. 13). Cornwall and Nyamu-Musembi (2004) argue that prioritization of rights is inevitable and is not incompatible with the principle of indivisibility, assuming that it reflects a reasonable use of resources, and adheres to (p. 1435) "principles of non-discrimination, equality, and participation, principles which would disallow trade-offs that result in injustice and violation of basic rights".

Effective application of the RBA depends on the country context, which consists of a number of variables (Filmer-Wilson, 2005). Political and institutional factors, such as the competence of national and legal mechanisms, political will, and respect for human rights are important; as are cultural and social factors, such as the awareness of rights in society, the strength of local organizations, and citizen's past experiences in participatory decision making. The RBA's emphasis on rights presupposes a level of organization and voice that may not be present. For example, when implementing a RBA in the Peoples Democratic Republic of Laos, Sida found that political repression, and a low understanding of human rights among government officials and the general population made only a partial implementation of the RBA possible (Filmer-Wilson, 2005).

As stated above, defining, interpreting, and implementing rights are dynamic political processes. Uvin (2007, p. 603) notes that the backbone of the RBA – rights – rest on a "clear and fixed legal basis". Due to the political nature of rights, they are constantly shifting through struggles, shaping what is socially and legally feasible. Although rights attempt to act as a fixed framework for controlling power, power often "leaks out, and flows around

rights" in accordance with power relations (Wilson, 1997, p. 17). Therefore, it cannot be assumed that rights are a panacea for equitable development.

2.3.6 Case Studies

The following two case studies illustrate the challenges that arise when states attempt to implement a rights-based approach to managing both water and community forest resources. These case studies concern the relationship between citizens and the state. The South African case shows that conflicts may arise when adopting cost recovery in tandem with an RBA, as well as the difficulties in realizing a right to participation. The example from Thailand illustrates problems with realizing universality, rights being ignored because of unequal power relations, and disseminating information about rights.

South Africa

The following section will provide a brief outline of South Africa's water legislation and some of its resulting problems. South Africa is one of the few countries in the world that has a guaranteed right to water in its constitution (Stein and Niklaas, 2002). The inclusion of the right to water in the redrafted 1994 constitution was in response to the centuries of racial and gender discrimination under the apartheid system. The apartheid system created a highly skewed distribution of water resources in favour of white South Africans. A human rights approach was implemented to create a more equitable distribution of water supplies and greater participation in decision making (Schreiner et al., 2004). The subsequent drafting of the Water Services Act (1997) to dictate local water management and the National Water Act (1998) to dictate a national water agenda, were to create a more democratic water management process. For example, some of the principles of the National Water Act are: meeting basic needs for current and future generations, promoting equitable access, and redressing the results of past racial and gender discrimination. Also, the Act makes note that protecting aquatic and associated ecosystems and their biodiversity as well as preventing pollution and degradation of supply are important (Stein and Niklaas, 2002). While the legislation sounded promising, the results have been far from perfect. Some of the problems encountered thus far will be examined.

Shortly after amending its constitution, the South African government, heavily influenced by neoliberal ideology, tried to implement cost recovery in its water management plans (Pauw,

2003). This has taken the form of both privatization and cost recovery programs. The Municipal Services Project, a university-based research centre, estimated that between 1994 and 2002, 10 million South Africans have, at one point, had their water service shut off due to non-payment. When prices went up or services were discontinued, poor families were forced to use water from polluted streams and wells. This eventually led to a large cholera outbreak. Between August 2000 to early 2002 some 120,000-250,000 fell ill and 265-300 people died (the large range in the estimate for sickness is due to conflicting sources) (Pauw, 2003). It is clear that a constitutional human right to water had only marginal impact on the operations of private companies. Even if water services are privatized, the state retains the obligation to protect the water rights of its citizens. History has shown that developing states are not able to fully regulate companies. This has especially been the case with large water service companies.

Although equitable participation by all stakeholders in water management, previously denied during apartheid, was made a legal right, this did not automatically mean that equitable participation occurred. Moving from the apartheid system to a democratic system of water management meant that certain parties had to relinquish some of their power to others. This created conflicts and has slowed participatory management decisions. Equitable participation was also disrupted by access to technology and education – those with access were able to engage in negotiations far better than others who did not. In general, women have low status in South African society (Schreiner et al., 2004). This contributed to gender inequalities during decision making. Women were often present during decision making, but did not participate. In response to this problem, the government initiated capacity building programs to make participation more inclusive and gender equitable. Women's participation in these programs has been low. However, another program aimed at empowering key members of water forums was able help women strengthen their positions (Schreiner et al., 2004).

Thailand

Johnson and Forsyth (2002) conducted a case study of Thailand's experience using a RBA to address problems of forest degradation in rural areas. Legislation was introduced to strengthen the rights to forest access for communities living in Thailand's forest reserve areas. These communities were encouraged to assume the costs of managing and conserving forest

resources. They found that collective action to claim and negotiate rights was dependent on four factors: citizenship; a relatively long period of historical settlement; information about the Community Forestry Bill, the national constitution and other rights supporting community mobilization; and external aid from NGOs and urban middle-class activists.

Although it was meant to be universal, in practice, the rights were limited to those who had sufficient political influence and private capital. Migratory hill tribe groups in Northern Thailand were not able to claim their rights due to a lack of citizenship, while other more established groups with citizenship benefitted from increased rights.

Disseminating information regarding Community Forestry Bill and other rights was not complicated by literacy rates, given that Thailand's is relatively high. However, accessing the information was not always possible for marginalized communities. In this case, Thailand's NGOs played a large role in ensuring that some communities were aware of their rights. Domestic activists also played a large role in supporting claims.

The government was far from neutral in its handling of competing rights. In the South, shrimp farmers exercised their considerable influence over government officials from the Department of Fisheries and Land Department to undermine the forest rights of communities, despite the fact that the courts had ruled in favour of those communities. This was possible because of the significant ties between the industry and officials. The communities' claim for rights was also complicated by government officials who were wary of devolving power, and thus resisted movement away from their traditionally top-down approach.

2.4 Water Governance

The normative framework for this thesis is established through the rights-based approach. The principles of water governance, specifically what is thought to constitute 'good' water governance, are used to evaluate the findings from the RBA and identify areas for change. It is appropriate to use the concept of good water governance because it is currently a tenet of international water development (Franks, 2004).

2.4.1 Governance

Academic consensus on the definition and use of the term governance has yet to be achieved. Hirst (2000) describes five uses of the term, and Rhodes (1996) six. These uses include: as

corporate governance, as 'good governance', as a socio-cybernetic system, and a minimal state. This points to the fact that governance as a concept is still in a period of 'creative disorder' (Kooiman, 2003, p. 5). Turton et al. (2007, p. 7) provide a very broad definition which accommodates the many uses of governance:

> …governance describes the relationship between people, the ways that they interact with each other in the context of their environment and the systems of principles, rules and norms that are set up to guide these interactions

The authors use the term 'environment' in the broadest sense, referring simply to any number of surroundings, making the definition applicable for such uses as 'corporate governance'. Governance, then, provides a way of conceptualizing the networks of relationships within society between different sectors and interests in society (government, civil society, and private) (Franks and Cleaver, 2007) and understanding the foundations on which they are based.

2.4.2 Water Governance

Unlike the term governance, Franks and Cleaver (2007) note that there has been a lack of theoretical analysis and debate of what are the core concepts of water governance. There exists only a small body of literature devoted to water governance as a unified concept (Franks and Cleaver, 2007), such as the work of Rogers and Hall (2003). They suggest that this could be due to the fact that there has been a focus on using 'good governance' as the norms and principles of water governance, as well as because aspects of water governance, such as water rights, IWRM, participation, and partnerships are well researched concepts in themselves. One definition that is used fairly often is that of Rogers and Hall (2003, p. 7) that was part of their work for the Global Water Partnership. They defined water governance as:

> ...the range of political, social, economic and administrative systems that are in place to develop and manage water resources, and the delivery of water services, at different levels of society.

This definition builds on the general idea that governance involves a range of systems which includes government as well as other sectors of society (Franks and Cleaver, 2007). This is what is referred to as distributed governance (Rogers and Hall, 2003).

Rogers and Hall have identified a three-level hierarchy in which water governance systems function: operational, organizational, and constitutional (Rogers and Hall, 2003). The first

level, operational, concerns the use or control of water for specific purposes or to fulfil needs, such as domestic water, wastewater treatment, irrigation, environmental management, etc. At the organizational level, administrators in the public sector coordinate and reduce conflict between competing groups/enterprises using regulations and policies regarding water use and users. The constitutional level creates an enabling environment within which the other functions operate. It does this through creating policies, regulations, and legislation.

The move towards distributed governance represents a shift away from command and control as well as market-led governance. Command and control governance/regulation dominated the preferences of policy makers and managers during the 1970s, although it continues to do so in parts of the world (Gooch, 2007; Jordan et al., 2003). However, the recognition of the deficiencies of the state (often ineffective and costly, lacking leadership, exhibiting weak financial discipline, and detrimentally affected by politics (Rogers and Hall, 2003), led to market-led governance responses to these issues in the 1980s and 90s, driven by neoliberal ideology. These too were unsuccessful, as they proved to be too simplistic as well as insufficient, especially in addressing the problems of the poor and the environment (Rogers and Hall, 2003).

Like market-led governance, distributed governance also calls into question the state's role of steering society (Rogers and Hall, 2003). Distributed governance recognizes that resource management requires a broad understanding of the environment, and the knowledge required is spread across numerous sectors, so each one's participation is required (Jansky et al., 2005). But unlike the market-led governance, it calls for the state to be one of many groups involved. Local networks made up of civil society institutions, both formal and informal, the private sector, and global networks of international organizations and agreements and NGOs are to have roles in governing. The inclusion of civil society, a focal point for this thesis, is accomplished, following the principle of subsidiarity, by decentralizing decision making to the lowest possible level (Hassan, 2001). This is argued to increase participation, one of the main aspects of good governance, and also increase the ability of the state to respond to society's needs (Hassan, 2001).

Illustrating Water Governance

These cases illustrate water governance in practice, providing examples of how authority has been decentralized from a central authority to networks of actors. Reforms to increase participation are a key aspect in these cases, and range from instigating participation at the local to basin level. Kenya has instigated a number of reforms to its water institutions as part of poverty alleviation program. The government is committed to providing water and sanitation services, and has taken steps to increase involvement of communities and local authorities in water and sanitation management. Major reforms to its Water Act in 2002 created a decentralized institutional framework and clarified roles for different actors. Participation of stakeholders, including communities, NGOs, community-based organizations, and the private sector, is promoted (United Nations, 2006). Increased participation has also been instigated in Zambia and Malawi, for example. Both have created stakeholder forums at the national, catchment, and sub-catchment scale. In Malawi, the government held information sharing workshops for members of both print and electronic media so they could discuss water issues in their publications, thereby raising awareness about such issues and the important role of multi-stakeholder platforms. The media also acted to transmit information from the government to the public, and facilitate debate among stakeholders (Simalabwi, 2007). In another case, water management has been devolved in Kazakhstan into eight river basin organizations, each responsible for water governance and use, water plan preparation, and allocating water resources through issuance of permits. Ongoing water reforms in Kazakhstan seek to make provisions for further decentralization to enable local self governance (United Nations, 2006). Turning to a more local level, the province of Punjab, Pakistan used a community-based approach to address water poverty. Local stakeholders were included from planning through to the construction of drinking water and drainage facilities. Later, community organizations made up of men and women took responsibility for operation and maintenance of the facilities (Soussan, 2004). South Africa, which has undergone widespread institutional change, both within and beyond the water sector, has moved to accommodate existing traditional water governance institutions in its overall water governance strategy (Malzbender et al., 2005).

In contrast, a case study of water governance in Harare, Zimbabwe by Manzungu and Mabiza (Manzungu and Mabiza, 2004) illustrates the challenges of governing through networks of

stakeholders. Like the previous cases, Zimbabwe has been divided into seven catchment councils, each containing sub-catchment councils. Member of the councils are democratically elected from various stakeholder groups. However, the authors found that although there was some decree of participation, it was uncoordinated, involved few stakeholders, and tended to occur outside formal channels.

Governance and the Role of the State

There is currently debate as to the levels of authority the state should possess in a distributed governance system (Tropp, 2007). Tropp (2007) notes that there is a range of ideas, from the state being one of a group of entities in the system that governs, to arguing that the state should have little role and that the governance agenda involves the state relieving itself of many of its responsibilities. Jordan et al. (2005) note that governance and government (or the state) are often discussed as two poles of a continuum of governing types. At one end, is the strong state, or "big government". The other end of the continuum represents little or no state involvement. The work of Rosenau (2002) and Rhodes (1996) is often cited as representing the latter, advocating "governance without government". Rhodes (1996, p. 660) argues that "governance refers to self-organizing, interorganizational networks". From this perspective, the government acts only to direct the networks of actors. Rhodes (1996) also argues that because the networks are self-organizing, they resist guidance from the state. Jordan et al. (2005) argue that a continuum is likely too simple to describe the relationship between the state and governance networks, suggesting four possible relationships: co-existence, fusion, competition, and replacement.

In response to arguments that good governance involves a large-scale rolling back of the state, Tropp (2007) argues that however responsibilities are allocated in a distributed governance system, state agencies will be critical partners to private and civil society actors. Jänicke (2006) argues that while the distributed governance agenda is changing the state's role, it is not diminishing it. He argues that administrative aspects of a distributed governance system necessitate a strong state, arguing with regards to environmental problems (p. 92), "If everybody is responsible [for governing], nobody will be responsible. In this regard, there is no functional equivalent to national government." Weiss (2000), on the other hand, suggests that the current debate about good governance is less about whether to remove state functions

as it is about democratic reforms and exploring new and more inclusive roles for non-state actors. Boivard (2005) suggests that few argue that successful governance can occur without the agency of government.

This thesis takes the position that the state has a crucial role in creating and administering a distributed governance system. Looking at Rogers and Hall's hierarchy of water governance, it is clear that the state is responsible for both the organizational and constitutional levels, and would have direct or supervisory roles in the operational level. Its role would be to create a system with clear rules of accountability, initiate and facilitate decentralized management and stakeholder participation, and administer the network of stakeholders within the system. Within these responsibilities lies establishing, implementing and upholding a system of water rights.

2.4.3 'Good' Water Governance

The notion of good governance first appeared in a World Bank report on sub-Saharan Africa in 1989 (Santiso, 2001). What eventually became the good governance approach grew from the awareness that the quality of a country's governance was an important factor in its ability to pursue economic and social development (Santiso, 2001). Therefore, the good governance approach argues that state institutions must be strengthened, and that reduction in a state's power and capacity may have adverse effects, such as a reduction in public service delivery and loss of state authority (Santiso, 2001).

Good governance will be used as the foundation for this discussion of water governance because this is common practice in the literature on water governance, as noted above, and because it is congruent with the norms outlined in the previous section on the rights-based approach. Good water governance, as a development platform, has become a significant driver of change throughout the world, as it has served as the foundation for a number of common reforms to water institutions (Hirsch, 2006). The current popularity and institutionalization of good governance has been attributed to the activities of civil society, because of their criticisms of deficient state policies and work to create parallel channels of development (Batterbury and Fernando, 2006).

Batterbury and Fernando (2006, p. 1853) define good governance as an "umbrella term for any package of public sector reforms designed to create lasting and positive change in

accordance with six principles...” of good governance. As is argued later in this thesis, creating lasting and positive change has implications for all water stakeholders. The principles of good governance appear to be fairly consistent in the literature. Batterbury and Fernando (2006) and Ashton (2007) borrow from the European Union’s five principles of good governance: openness, participation, accountability, effectiveness, and coherence (although Batterbury and Fernando add ‘civic peace’ to their list). Although they share many common elements, for reasons described in Chapter Three, this thesis uses Rogers and Hall’s (2003, p. 27) set of principles (featured below). For the purposes of this research, these principles provide the basis on which the water governance system in HCMC and Vietnam will be evaluated.

- Open and transparent: Institutions should work in an open manner. They should use language that is accessible and understandable for the general public to increase confidence in complex institutions. In addition to being open, good governance requires that all policy decisions are transparent so that both insiders and outsiders can easily follow the steps taken in the policy formulation. This is particularly important with regard to financial transactions.
- Inclusive and communicative: The quality, relevance and effectiveness of government policies depend on ensuring wide participation throughout the policy chain – from conception to implementation. Improved participation is likely to create more confidence in the end result and in the institutions that deliver policies. Participation crucially depends on all levels of government following an inclusive approach when developing and implementing policies. Broad participation is built on social mobilization and freedom of association and speech, as well as capacities to participate constructively. Transparency and accountability are built on the free flow of information. Governance institutions and systems need to communicate among the actors and stakeholders in very direct ways. Correctly done, this will lead civil society to be socialised into governance over a wide range of issues.
- Coherent and integrative: Policies and action must be coherent. The need for harmony and coherence in governance is increasing as the range of tasks has grown and become more diverse. Challenges such as climate and demographic change cross the boundaries of the sectoral policies on which the government has been built. Coherence requires

political leadership and a strong responsibility on the part of the institutions at different levels to ensure a consistent approach within a complex system. The institutions will have to consider all uses and users within the traditional water sector and also their interconnections with and impacts upon all other potential users and sectors.

- Equitable and ethical: All men and women should have opportunities to improve or maintain their well-being. Equity between and among the various interest groups, stakeholders, and consumer-voters needs to carefully monitored throughout the process of policy development and implementation. It is essential that the penalties for malfeasance are, and are seen to be, equitably applied. Above all, water governance has to be strongly based upon the ethical principles of the society in which it functions and based on the rule of law. This manifests itself most strongly in the issue of justice, property rights for use, access, and ownership of water. Legal and regulatory frameworks should be fair and enforced impartially.
- Accountable: Roles in the legislative and executive processes need to be clear. Each institution must explain and take responsibility for what it does. But there is also a need for greater clarity and responsibility from all those involved in developing and implementing policy at any level. The "rules of the game" need to be clearly spelled out, as should the consequences for violation of the rules, and have built-in arbitration enforcing mechanisms to ensure that satisfactory solutions can still be reached when seemingly irreconcilable conflicts arise among the stakeholders. Decision-makers in government, the private sector and civil society organizations are accountable to the public, as well as to institutional stakeholders. This accountability differs depending on the organization and whether the decision is internal or external to an organization.
- Efficient: Classical economic theory demands efficiency in terms of economic efficiency, but there are also concepts of political, social, and environmental efficiency which need to be balanced against simple economic efficiency. It is also essential that governance systems do not impede action. For example, minimising transaction costs will go a long way toward political and economic efficiency.
- Responsive and sustainable: Policies must deliver what is needed on the basis of demand, clear objectives, an evaluation of future impact and, where available, of past experience. Responsiveness also requires policies to be implemented in a proportionate manner and

decisions to be taken at the most appropriate level. Most importantly, the policies should be incentive-based. This will ensure that there is a clear social or economic gain to be achieved by following the policy. The institutions should also be built with an eye toward long-term sustainability. Water governance must serve future as well as present users of water services.

2.4.4 Water Rights

Rogers and Hall emphasize the importance of the state's role in defining property and use rights and responsibilities for water governance systems (Rogers and Hall, 2003). When resources are plentiful, there is little need to define or enforce rights. As economies and populations grow and resources become scarce or degraded, rights are needed to specify uses and confirm expectations for resource allocations (Bruns and Meinzen-Dick, 2005). . However, rights are only effective if they are reinforced by a strong institutional framework. In most cases the primary institution supporting rights is the state, but there is an increasing recognition that local institutions must play a key role as well (Bruns and Meinzen-Dick, 2005). This is especially true in developing countries where governments lack the institutional capacity.

In essence, water rights are a form of property right. But instead of being conceptualized as ownership over a specific object, property rights can more accurately be conceptualized as a collection of entitlements over a resource. These entitlements create a framework that specifies relationships between individual right holders rather than the relationship between an individual and an object or value. Thus, water rights are not wholly concerned with individual ownership, but how that ownership of water fits into a system of water users and how those users interact with each other (Bruns and Meinzen-Dick, 2005). Thus, because of their role in defining relationships, they play an integral role in water governance systems.

2.4.5 Critiques of the Good Governance Approach

The good governance approach has and continues to be a source of discussion in development literature. Much of this literature examines the integration of the approach into development programming, sometimes being critical of international aid agencies like the World Bank and International Monetary Fund (e.g., Doornbos, 2001; Mkandawire, 2007; Nanda, 2006). While

there is awareness in this thesis that the adoption of the good governance approach in development programming has been controversial, it is used here because it provides guidance as to how water governance should function. Therefore, this thesis is more concerned with the conceptual foundations of the approach, rather than the manner in which it has been utilized.

Three main conceptual issues within the good governance approach will be discussed. First, Grindle (2004) argues that the good governance approach is unrealistic, as it calls for major changes to nearly all aspects of the public sector. The approach also provides little guidance about what changes are essential, the order in which they should be addressed, and whether they should be addressed in the short or long term. Given this, Grindle (p. 56) argues that if these factors were to be taken into account, the approach would likely shift to 'good enough governance', which she considers "a condition of minimally acceptable government performance and civil society engagement that does not significantly hinder economic and political development and that permits poverty reduction initiatives to go forward." Second, although there is consensus on the need for good governance, there is a lack of consensus on the criteria involved and the different interpretations of principles such as sustainability, efficiency, and equity (Hirsch, 2006). In addition, potential conflict exists between some of the principles, such as efficiency and equity, as the most efficient situation may not always be the most equitable (Hirsch, 2006). Third, there is tension between the principles of good governance, which are generic, and the wide array of power relations, collective decision-making styles, and ideas about the common good found in different countries and local contexts (Hirsch, 2006).

2.4.6 Good Governance Research Avenues

Despite the widespread adoption of the governance concept, several questions have yet to be answered. First, although there is general agreement on the definition and desirability of good governance, Franks and Cleaver (2007, p. 292) argue that this 'masks' a lack of enquiry and understanding of how good governance '...works out in practice and how [desirable] outcomes are achieved.' Researching this avenue is likely complicated by the fact that good governance has proven difficult to achieve (Perret, 2006). As an example of how to achieve good water governance, Perret (2006) argues for IWRM policies at the basin level, irrigation

management transfer, emergence of decentralized institutions (CMA and WUA), and the development of alternative environmental, social, economic, and policy frameworks and tools (e.g. water-rights markets, incentives and subsidization, 'free-basic water' principles, cost recovery and charging principles). However, the appropriateness of this list is undoubtedly contextual, and this necessitates a thorough review of the current governance system. Ashton (2007) notes that this context will be related to social values and imperatives, and by the constraints and opportunities presented by the natural resource system.

Second, governance is often conceptualized and operationalized outside of the political sphere. This is detrimental because governance is a political process since politics is an essential part of negotiating control over resources (Franks, 2004). Third, Franks (2004) also argues that although participation has become an integral part of the governance agenda, the question of what people should be participating in remains salient.

This thesis seeks to address the above mentioned questions. First, through the evaluation of HCMC's current water governance, this thesis aids in the construction of Vietnam's general water governance context, putting forth an argument of what are relevant contextual attributes, and identifying avenues for further research to be conducted regarding the practice of reorienting its governance in a direction that is considered 'good'. It also stresses water rights as integral for the production of good governance outcomes. This thesis also furthers Franks' (2004) assertion that governance must be viewed as a political process, as well as makes suggestions about what are appropriate levels of participation when it comes to water pollution management. These questions are also relevant to the RBA. Rights were previously argued to be a political process. Therefore, using a RBA in conjunction with a good governance approach, it is necessary to examine water governance with a political perspective. Although participation is an integral part of the RBA, the approach says very little about what levels of participation would be important, so suggesting participation levels serves both approaches.

2.5 Summary

The first part of this chapter established a physical and practical understanding of the PUI. A number of issues, mostly due to the jurisdictional challenges and the rapid pace of change in the PUI, create a unique and challenging context for environmental management. Despite

this, relative to the amount of research devoted to urban environments, little research has been devoted to examining environments in the PUI. Emanating from a number of sources, water pollution regulation is one of the main challenges in managing the environment in the PUI. Therefore, such avenues of research are needed, as the poor in the PUI are often disproportionately impacted by the increased pollution in these areas.

The second part, in two sections, provided the normative and evaluative frameworks for this research. The first section established a normative core on which the research is based. Currently, the RBA is an immature approach. There is a lack of consensus within the development community and empirical evidence to suggest that the RBA has either a positive, negative, or neutral impact on development. In addition, within the movement there is a lack of a standard set of principles on which the RBA rests, although commonalities between development academics and NGOs exist (e.g. empowerment, accountability, participation). In the face of the optimism surrounding the RBA to development, serious challenges surrounding implementation have arisen. Therefore, at this point in the evolution of the RBA, perhaps its best value resides in the way it integrates many important issues which development often seeks to address, such as access (to resources, or information), equity, accountability, participation, and increasing levels of capacity and empowerment.

Lastly, the second section provided the framework for which the water management system in question is evaluated. The concept of water governance has been established as one of the principles of the international water development. Still, water governance is still a very much debated subject. There exists only a small body of literature concerning water governance as a unified concept, and a number of questions still surround the now generally accepted concepts of water governance and good water governance, the principles of which form the evaluative framework for this research. This research aims to simultaneously address these questions while utilizing the water governance concept as a means of evaluating water resources management.

Table 2.1 Research Frameworks

Rights-based Approach

1) Causality analysis – the cause of the problem

2) Pattern analysis – characterization of the claim-duty relationship

3) Capacity gap analysis – constraints on the claim-duty relationship

- Responsibility
- Authority
- Access and control of resources
- Communication capability
- Capability for decision making and learning

4) Identification of candidate actions – possible actions to address the problem

Good Governance

- Open and Transparent
- Inclusive and Communicative
- Coherent and Integrative
- Equitable and Ethical
- Accountable
- Efficient
- Responsive and Sustainable

Chapter 3 Research Methods

3.1 Introduction

This chapter discusses the methodology used for this research. It describes the framework and design of the research and the methods of data collection. This chapter also discusses reflexivity of the researcher and the limitations to the research.

3.2 Research Framework

Despite having a wide array of options, the research and analytical framework I used for this research was derived from a combination of water governance and rights-based approach literature. The field research was undertaken using UNICEF's rights-based Five Step Framework. The good governance approach was used, post field work, as a comprehensive benchmark of an ideally functioning water governance system. It provided guidance for Step Four of UNICEF's framework, identifying candidate actions to address the problem. The justification for the selection of these two frameworks is discussed below.

UNICEF's RBA framework emphasizes rights as its foundation, and functions with the assumption that the water pollution problem constitutes a rights violation. The framework is used to design development programming to address a specific rights-related problem. The rights-based approach was selected for four reasons. First, as was stated in Chapter One, the marginalization of farmers was an important starting point for my research. I considered their marginalization to have a moral aspect, and thought that the RBA incorporated this. Second, its focus on rights claimants and duty bearers was congruent with the binary relationship between the two main actors in my research: farmers and government officials. Third, I believed such a discussion of the harmful impacts of pollution and its mismanagement should draw upon notions of rights, equity, entitlements, and livelihoods, each of which were included in the RBA . Fourth, it is a fairly straightforward approach, and the process of examination (describing the problem, examining the claim-duty relationship, examining why the claim-duty relationship is not functioning, and identifying actions to address the issue) seemed to me to facilitate a direct and logical approach.

It is my position that Vietnam's insufficient pollution regulation is the result of poor governance. Thus, a good governance framework is used to provide principles to illustrate

how Vietnam's water governance should function. The good governance agenda had very rapidly become part of the development discourse, especially, as noted earlier, for the water development sector. Thus, I felt it prudent to use the good governance approach, in order to make my research congruent with current development discourse. Despite the fact that the RBA and good governance approach share somewhat similar principles (e.g., equity and participation), I felt it was necessary to combine the two approaches for two reasons. First, I thought that the principles were more explicitly defined and better packaged in the good governance approach. Second, I felt the good governance approach provides, through the concept of distributed governance, a clearer conceptualization of how to include civil society in water management. Although the criteria for good governance vary within the literature, the good governance framework that I adopted, consisting of seven principles, was that which was put forth in Rogers and Hall's (2003) influential work, *Effective Water Governance*. Although their set of principles are very similar to others previously mentioned, Rogers and Hall's list was selected because it explicitly included, in its seventh principle, the notion that governance should promote sustainability. I considered this to be an important inclusion, because, in my opinion, pollution management is an integral part of long-term environmental sustainability.

3.3 Research Design

The research framework required rich detail of the phenomena and a thorough analysis of the context in which it was occurring. In order to answer these questions, this study used a qualitative case study method. While using a qualitative approach, the researcher is able to refine or focus ideas, an important factor when conducting exploratory and descriptive research (Neuman, 2000). The case study method is an essential form of social science research, and is an appropriate method when contextual conditions – not just the phenomenon – require consideration (Yin, 1993). Case studies are usually detailed and extensive, and often involve qualitative data (Neuman, 2000). They seek to understand a phenomenon from multiple perspectives, and focus on a number of aspects of one or more cases (Neuman, 2000). The research framework required the building of a detailed context, as well as an understanding of the complex interactions among farmers and between farmers and government agencies.

3.4 Official Institutional Support

Official institutional support was absolutely essential for conducting this research. My supporting institution, Nong Lam University, was responsible for obtaining official permission for me to conduct research in TPT and Binh My Communes, as well as interview government officials in Cu Chi District and HCMC. My contact, Dr. Phan Thi Giac Tam, aided me in a number of ways. It was through her that the interviews with provincial officials were organized. Having already worked with farmers in Cu Chi, Dr. Tam provided important guidance, and suggested possible avenues that my research could take. Dr. Tam also arranged another faculty member, Ms. Le Nhat Hanh, to be my research assistant. Even though Ms. Hanh had done little work with water resources, she was hard working and showed an interest in my research. Lastly, Dr. Tam arranged accommodation at the university, and found a group of students who offered help and guidance upon my arrival.

In addition to the support in Vietnam, I received basic Vietnamese lessons from a fellow graduate student at the University of Waterloo, Van Ngoc Truc Phuong. These lessons proved very useful for day to day interactions.

3.5 Data Collection

Data were collected using two methods. The main method was through semi-structured interviews with farmers, governmental and non-governmental informants between May and August of 2007. The other method was the utilization of secondary sources, such as NGO and government reports.

3.5.1 Criteria for Case Selection

The choice to work in Cu Chi had been made prior to arriving in Vietnam, as it was located in HCMC's PUI and I was told that water pollution was an issue there. With the district selected, TPT and Binh My were suggested by Dr. Tam upon my arrival, as they provided good examples of peri-urban areas were farmers were being affected by water pollution. I conducted preliminary interviews in each commune with two farmers, as well as the Vice Chairman of the Binh My's People's Committee. A broad range of topics were discussed in these interviews, and the information gathered during this stage helped to refine the questions for subsequent interviews.

3.5.2 Semi-structured Interviews

Qualitative interviews are generally unstructured or semi-structured. Valentine (2005, p. 111) notes that these take a "conversational, fluid form", and that the direction of each interview flows "according to the interests, experiences and views of the interviewee". The lack of rigid structure, which is contrary to what one might find in a formal questionnaire survey, has many advantages. The flexibility makes it possible for interviewees to raise issues that the researcher may not have anticipated (Valentine, 2005). It also allows interviewees to construct their own accounts by letting them organize their answers in their own words (Neuman, 2000; Valentine, 2005). Thus, these produce a deeper and richer picture than would be obtained through a questionnaire survey.

Table 3.1 List of Key Informants

Occupations	Number of People Interviewed
Farmers	Tan Phu Trung – Farmers 1-24 (21 men, 3 women Binh My - Farmers 25-38 (9 men, 5 women)
Hamlet Officials, Group Leaders	3
Commune Officials	2
District Officials	2
Provincial Officials	2
Non-Governmental Organizations	3
Total Key Informant Interviews	50

With the preliminary field research complete, I set about conducting interviews with farmers and government officials. The research framework was very much geared towards understanding how farmers were impacted by and dealt with polluted irrigation water. Therefore, although farmers who did not experience water pollution, or did not perceive it as being polluted, were generally excluded, some interviews with those farmers were conducted to understand their point of view and to provide some idea of the spatial extent of the pollution.

In total, twenty-four farmers were interviewed in TPT, and fourteen were interviewed in Binh My (Table 3.1). The interviews in TPT contained a mix of farmers connected to the lined and

unlined canal systems, despite the fact that the farmers connected to the lined system had relatively clean water. They were not included in this research to illustrate a problem with pollution, but rather to illustrate the level of farmer participation in irrigation water management.

There are two reasons that more interviews occurred in TPT. First, my research assistant and I were able to find a cafe where a number of farmers had congregated, thus allowing us to conduct a large number of interviews in a fairly short time. Second, for whatever reason, the interviews in Binh My yielded more detailed information, and after fourteen interviews I considered the level of detail to be on par with that gathered in TPT.

Farmers were asked questions on a number of themes: changes in water use over the last decade, their opinions on water quality, the sources of pollution and how it affects their crops, whether and how they communicate their concerns to government officials, their participation in water management, and their water rights. Challenges arose when translating and discussing the concept of water rights with farmers during preliminary interviews, perhaps because the concept of water rights is abstract. During data collection, another direction was taken, and farmers were asked, "Do you complain to the government when your water is not clean or when it is scarce, and do you have the right to do so?" This was to assess the farmer's feelings of entitlement to water quality and quantity.

Government officials were interviewed from the two departments most involved in water management, DARD and DONRE. One representative was interviewed in each of these departments at the provincial and an interview was conducted with the Cu Chi District DONRE. The interviewees at the provincial level were selected because of their high level positions and because they had a personal relationship with Dr. Tam, thus making them very accessible. My research assistant was also able to arrange interviews with district, commune, and hamlet officials. These interviews tended to be longer than the farmer interviews, and covered a broader range of themes. These included the ideologies underlying their management frameworks and decisions, legal structure, organization of responsibilities, current water quality issues, jurisdictional conflicts, budgets, and water rights.

Lastly, NGO informants were chosen following a search of a database provided by the NGO Resource Centre in Hanoi, which compiles a comprehensive list of the names and operations

of NGOs working in Vietnam. Despite using this list, my field supervisor and I were unable to identify more than a few NGO contacts working in the water management sector. Through snowball sampling (Valentine, 2005), the initial interviews with NGO informants helped to identify additional contacts.

3.5.3 Secondary Data

Once in Vietnam, I was able to access a number of government reports on water quality. In addition, the libraries maintained by the NGOs ENDA (Environmental Development Action in the Third World) in HCMC and the NGO Resource Centre in Hanoi also contained a number of useful reports and documents.

3.6 Data Analysis

The primary and secondary data collected were analyzed through a multi-step process of coding. The process of identifying concepts and themes was an ongoing process before and during the initial weeks in the field. Initially, codes had been established based on a literature review, but many of these required revision after the preliminary interviews. Upon returning from the field in Sept. 2007, I reread the data to identify general concepts and themes, such as participation and water rights. During the second pass, axial coding, I further refined the codes. I looked for clusters of codes (Neuman, 2000), and thus explored the possibilities of subdividing more general codes (Crang, 2005). For example, the water rights code was subdivided into formal rights, informal rights, assumed rights, and derivation of rights. Lastly, during the third pass, selective coding, I organized the major concepts and themes that would be part of the research project, and identified how the data supported them (Neuman, 2000).

3.7 Triangulation

In this research, two sources were used to verify the claims of farmers and government officials. While the first objective of the interviews with NGOs was to elaborate on the data collected from farmer and governmental informants, the second, and perhaps more important purpose, was to verify the validity of farmers and government official's statements. NGO informants provided a somewhat removed, third-party perspective. Secondary data were also used to verify the claims of farmers and government officials. For instance, water quality data confirmed claims that irrigation waters were polluted.

3.8 Positionality of the Researcher

Reflexivity is particularly important when conducting research in developing countries, as power relations between researcher and subject are often exacerbated by context. Researchers are often in a privileged position due to a number of factors, including wealth and education (Valentine, 2005). Katz (1992, p. 496; as cited in Valentine, 2005) argues that power influences the research relationship because it is often 'unequally initiated, situationally lop-sided, spatially dislocated, temporarily isolated, [and] extrinsic in purpose'. These inequities can lead to situations where informants feel obligated to cooperate with researchers, as well as create expectations on the part of informants, leading them to tell the researcher what they believe they want to hear (Valentine, 2005).

I had limited practical knowledge of developing countries prior to travelling to Vietnam, so my expectations of local conditions there were often inaccurate. This required changes to my research in some cases. For example, my understanding about the general level of farmers' affluence was challenged and reformed, while other ideas, such as unequal gender participation, were not. One assumption which proved to be false and necessitated a large shift in my research strategy was that of the existence of an easily identifiable system of informal water rights, which turned out to be elusive and vague, causing me to initially question whether it even existed.

My rudimentary knowledge of Vietnamese vocabulary allowed me to understand that my research assistant always identified herself as a professor from my host institution, Nong Lam University, and that I was a student from Canada. I do not fully understand whether and how my identity impacted the responses of the interviewees. However, because some farmers raised questions concerning my identity, I was able to confirm how it was being perceived. My identity as a student was verbally questioned on two occasions, once where I was presumed to be a land speculator surveying the area, another time as a member of the United States Central Intelligence Agency. It is possible, at least in the case where I was thought to be interested in buying land, that this may have influenced responses concerning pollution levels. Some farmers commented that I was very young to be conducting research, and this may have lowered farmers' view of the credibility and importance of my study, affecting the level of time they were willing to grant me and thus the detail of their answers. Ms. Hanh's

affiliation with Nong Lam University likely increased my credibility, as most farmers were familiar with it.

An important factor that is often overlooked is the positionality of interpreters (Scott et al., 2006). Acknowledging this is paramount because the interpreter acts as a gatekeeper through which translated data is transferred from the informant to the researcher, and thus selectively filters data to varying degrees. There were times when farmers' answers to questions were clearly very long and detailed but I received only truncated versions, requiring me to ask for elaboration. However, truncated answers were not always clearly identifiable. My research assistant indicated on the first day we met that she would not be entirely comfortable conducting interviews with men, because she was a young female. However, I was unable to detect her discomfort nor whether it was a discernable factor in interview dynamics. On the other hand, she proved to be an asset when interviewing women, with whom she was able to quickly establish a rapport.

3.9 Limitations

3.9.1 Constraints in Conducting Fieldwork

Constraints on this research originated from internal and external factors. The internal constraints originated because of the method for identifying potential informants. The external constraints were a result of the context in which the research took place.

Locating potential farmer informants was a considerable constraint. First, as previously noted, those that did not perceive or experience water pollution were less desirable as interviewees. Second, the logistics of locating farmers also placed constraints on available participants. This occurred in TPT because many farmers had retired. This meant they did not use the canal system (officially), had no dealings with the Irrigation Management Company (IMC), and therefore many no longer cared if the irrigation water was polluted. In Binh My, it was somewhat easier to find participants, but in many cases farmers' homes were not beside their fields, so it was difficult to find interviewees. Also, as in TPT, many had stopped farming and had rented out their land to migrants who had little to no input in the affairs of the community, including water management. The last constraint was due to a lack of transportation. We were typically accompanied by a representative from the commune People's Committee until lunch time. During the periods when we were accompanied, the

representative and an aid would guide us to farmers' houses on motorbike. However, after they left, we were on our own, and faced difficulties locating candidates to interview. We were not able to find an affordable car driver who would accompany us for the whole day until halfway through the fieldwork. Thus, since we were on foot, this lowered the distance we were able to cover. During these periods, the method used to locate farmer informants is probably best described as unstructured and opportunistic, and considerable time was lost.

The external constraints were the result of Vietnam's institutional and cultural contexts. These were problems typical of conducting research in Vietnam (Scott et al., 2006), which is very much dependent on the approval of the government, referred to as the 'red stamp of approval' by Scott et al. (2006). It was necessary to show an introductory letter with the stamp to every government agency visited. Each trip to TPT and Binh My was prefaced with a visit to the commune PC where a photocopy of the letter was handed in, and an official was selected to accompany us, which proved to be a time consuming process. My red-stamped introductory letter was apparently insufficient to grant me an official interview with an official at the Cu Chi IMC. The only acting local irrigation manager we were able to identify twice refused to talk with us without direct permission from the IMC. Because the Division of Irrigation Management and Flood and Storm Prevention (DIMFSP) and the IMC are administered separately within DARD, our high level contact in the DIMFSP was unable to introduce us to an IMC Official in Cu Chi District. Eventually though, a meeting at the Cu Chi District IMC was set up by a colleague's research assistant, who was personally acquainted with an official there. However, when my research assistant called to confirm the meeting and made it known that I was a foreigner, the meeting was promptly cancelled. Fortunately, as is discussed later, I was eventually able to interview him.

Cultural constraints also generated challenges. As discussed, translating the concept of water rights turned out to be a major issue. At times, gender issues complicated efforts to interview women, something that is not atypical in Vietnam (Scott et al., 2006). In situations where both the husband and wife were simultaneously interviewed, the conversation was usually dominated by the man. This was particularly disappointing when husbands returned home halfway through an interview with their wives and took over the discussion. During an interview with three male farmers which was being observed by a mother and child, directing a question to her caused the males to laugh and walk away.

3.9.2 Data Limitations

The limitations of this research stem from two broad categories: limited scope, and limited data. In terms of scope, the focus on industrial wastes provides only a partial understanding of water pollution in HCMC. Domestic sewage is the primary pollutant, and has been so for the last decade. The decision to focus only on semi-structured interviews limited my understanding of the dynamics of hamlet and commune meetings, and I regret that I was not able to attend a hamlet or commune meeting to observe how water quality issues were discussed and addressed.

Major limitations to this research have resulted from a lack of data. Limited access to data has resulted in numerous gaps in the research. A number of key documents that may have been useful were not available in English, and most were too long to make translation affordable, such as commune reports as well as water quality tests (although the quantitative data are comprehendible).

3.9.3 A Relaxing of Past Constraints?

Despite these constraints, many aspects of my research experience were contrary to the descriptions of Scott et al. (2006). Their experiences included time and topic constraints, and limited access. Although my introductory letter had confined me to two communes, I was allowed the freedom to go when and wherever I wanted (which allowed me to conduct interviews outside of my approved communes, albeit accidentally), and my specific interview content was never reviewed by any government body. As occurred with one author in the above article, the presence of representatives from the commune PC at my interviews did not seem to have any impact on farmers' answers. Indeed, the representatives often interjected to agree and elaborate on farmers' criticism of the government's handling of water pollution. In terms of access to data, we were given a large number of original documents by the Cu Chi DONRE without charge, and were allowed to leave the premises with them to make copies. Members of the Binh My People's Committee went to considerable effort to procure digital map information for me. In terms of the difficulties of accessing government officials, shortly after the Cu Chi District IMC official cancelled our meeting, upon the persistence of my research assistant, the same official agreed to meet informally. Lastly, while in Hanoi I was without my official introductory letter, but was allowed entry into the MARD complex by

simply saying the name of the person I was meeting and answering a question about my country of origin.

3.10 Summary

This chapter discussed the research framework and methods used for this research. The framework is based on UNICEF's rights-based approach. It also discussed elements of the research design and methods of data collection and analysis. The final portion of this chapter discussed both my role as a researcher and its potential effects on the research and analysis process, and the internal and external limitations to the research process. The next chapter provides information on Vietnam, its water governance, and the study sites.

Chapter 4 The Vietnamese Context

4.1 Introduction

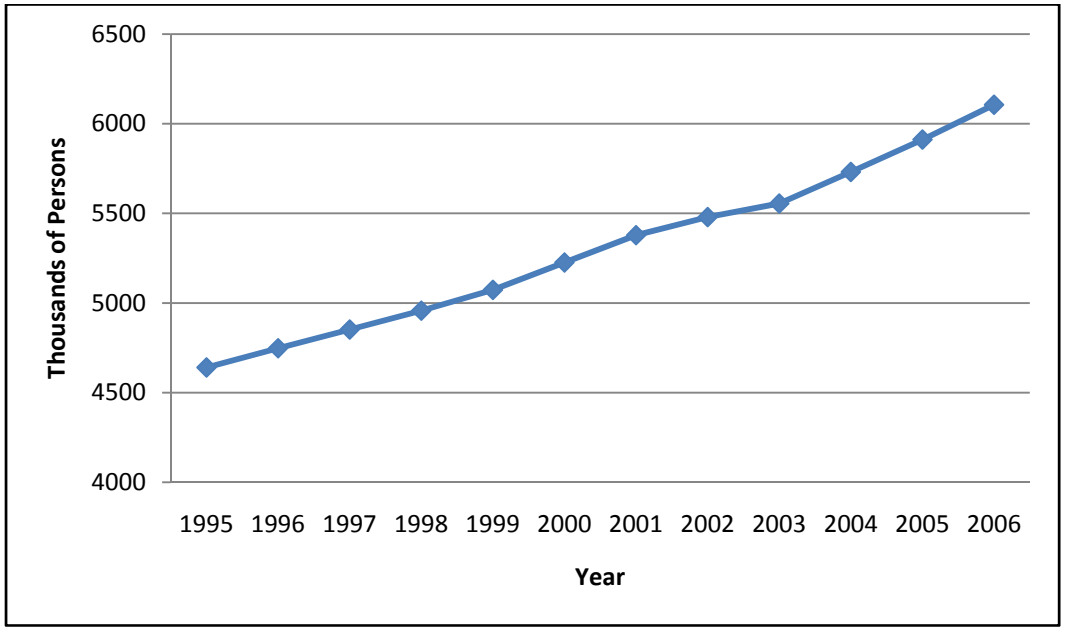
This chapter reviews the context in which the research took place. In order to do so, it draws on a number of relevant topics. It begins by describing economic growth in Vietnam since the 1980s as well as urbanization and industrialization in HCMC. In accordance with Objective 1, it then moves into a detailed description of water management in Vietnam and HCMC, with an emphasis on the aspects relevant to water quality management, including the organization of responsibilities and the legislative framework for governing water quality. This is followed by a short review of literature regarding community-based regulation in Vietnam. Lastly, a detailed description of the study sites is given.

4.2 Rapid Economic Growth in Vietnam and Ho Chi Minh City

At the beginning of the 1980s, Vietnam was one of the poorest countries in the world (Glewwe, 2004). In response to a growing economic crisis, in 1986 the Vietnamese government instigated what were called the *doi moi* economic reforms, replacing the centrally planned economy with a regulated market economy. Between 1987 and 1989, most price controls and trade restrictions were removed, agricultural cooperatives were dismantled, a range of state-owned enterprises were sold or dissolved, and foreign direct investment was encouraged. As a result of the new policies, the economy experienced rapid growth and much of the country benefited from increased wealth (O'Rourke, 2004). Much of the economic growth can be attributed to a substantial increase in industrial activity, which the Vietnamese government views as the key to accelerated growth (Le and Nguyen, 2004). The by-product of this increased growth has been increasing levels of pollutants, which the government has been slow to tackle (O'Rourke, 2004). O'Rourke (2002, p. 222) describes it as "…the worst of both Soviet-bloc environmental callousness with East Asian development-at-all-costs."

HCMC has experienced substantial population growth since 1975. After 1975, millions of people from northern Vietnam migrated to following its fall to the Northern Army (Ha and Wong, 1999). From 1995 to 2006, the official population increased from 4.6 million to 6.1 million people (Figure 4.1). Throughout that time period, the urban population of the province has averaged roughly 80% (General Statistics Office of Vietnam d, 2006).

Figure 4.1 HCMC Population 1994-2006



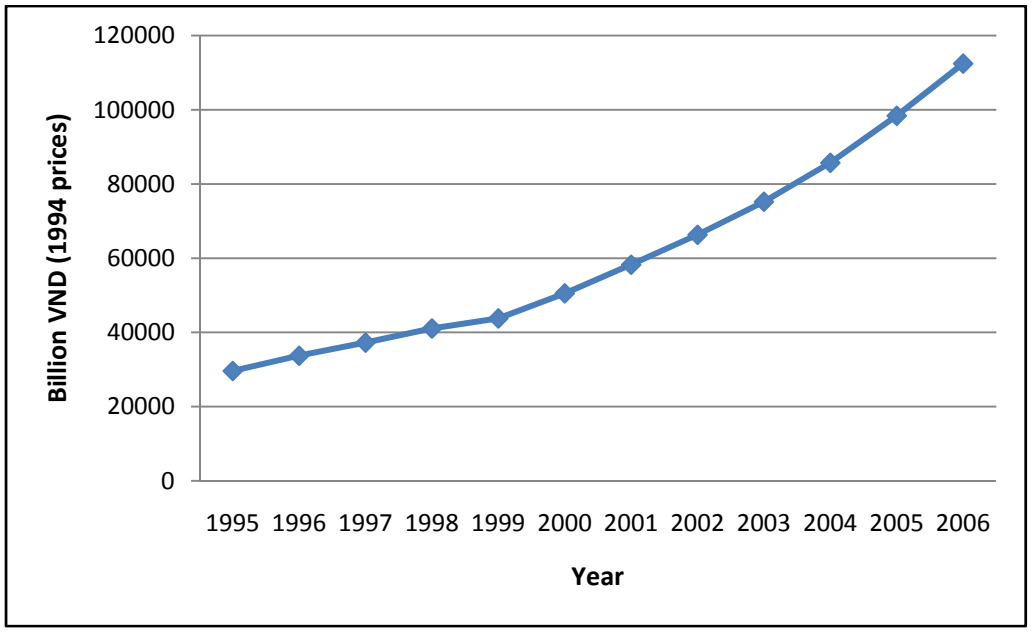
(General Statistics Office of Vietnam c, 2006)

Water withdrawals reflect the increase in population. In 1960, roughly 160,000m^3/day were extracted from ground water resources. By 1999, this figure had risen to 524,000m^3/day. Surface water usage in 1999 was estimated to be roughly 750,000 m^3/day, bringing HCMC's total withdrawals to 1,274,000m^3/day. In 2003 it was 1,500,000m^3/day. Estimates for 2010 and 2020 are 2,400,000m^3/day and 3,200,000m^3/day respectively (Informant 1, 2007). These estimates were for industrial and domestic water usage, and do not include informal/unmeasured withdrawals, such as irrigation waters taken from natural canals, which are not controlled.

Economic development and urbanization in HCMC have been described as rapid and uncontrolled. Much of the economic growth that Vietnam has experienced has been concentrated in its metropolitan hubs, Hanoi and HCMC (Douglass, 2002; Drakakis-Smith and Dixon, 1997; Quang and Kammeier, 2002). Statistics show that since 1995, HCMC has generated more than 20% of Vietnam's total industrial output (General Statistics Office of Vietnam b, 2006). This has resulted in the rapid construction of a number of export processing and other industrial zones (Van Than, 2007), funded by public, private, and foreign investors (Ha and Wong, 1999). Figure 4.2 shows that the industrial output of HCMC has nearly increased by a factor of four between 1995 and 2006.

Much of the construction in HCMC has required the conversion of farmland in the city's peri-urban zones into urban uses. Although there has been an overall shift in Vietnam to decentralized planning, Quang and Kammeier (2002) observe that the urban planning culture still very much exhibits characteristics of state control. Despite this, urban expansion has occurred in a relatively uncontrolled manner (Drakakis-Smith and Dixon, 1997; Ha and Wong, 1999). As a consequence, industries have developed or have been relocated in close proximity to residential and agricultural areas, increasing their exposure to a range of pollutants (Pham et al., 1995).

Figure 4.2 HCMC Industrial Output 1995-2006



(General Statistics Office of Vietnam a, 2006)

4.3 Water Governance in Vietnam

4.3.1 Organization

The apex water management agency in Vietnam is the Ministry of Natural Resources and Environment (MONRE). Included in MONRE's mandate, dictated by Decree No. 91/2002/ND-CP (Government of Vietnam, 2002), are surveying and licensing for basic water resource allocation, creating and maintaining a database of water resources, and implementing measures to protect water resources. Within the Ministry is the Department of Water Resources Management (DWRM), whose duties, specified by Decision No. 600/2003/QD-

BTNMT (Government of Vietnam, 2003), include developing legal documents, policies, strategies, and objectives for water protection, exploitation, utilization and development, and to monitoring their results. This includes measures for controlling and preventing degradation and pollution in all types of water resources. In addition, the Department is also in charge of raising public awareness and publicizing legal documents, as well as liaising with other governmental and non-governmental organizations.

The entrance of MONRE into Vietnam's water management organization occurred in 2002. Prior to this, the majority of water management was controlled by the Ministry of Agriculture and Rural Development (MARD), as dictated by Decree No. 179/1999/ND-CP (Government of Vietnam, 1999). After the transfer, MARD retained control of responsibility for irrigation, drainage, flood control and rural water supply, and integrated river basin management – although MONRE is in control of the quality of these waters. MARD's responsibilities were further clarified recently in Decree No. 01/2008/ND-CP (Government of Vietnam, 2008). There are no changes from the responsibilities noted above. Further clarification of MARD's water responsibilities can be found in Decision 25/2008/QD-BNN which specifies the functions, tasks and organization of MARD's Water Resources Department, but a translated version could not be acquired. Figure 4.3 shows the division of water management responsibilities between different ministries in Vietnam.

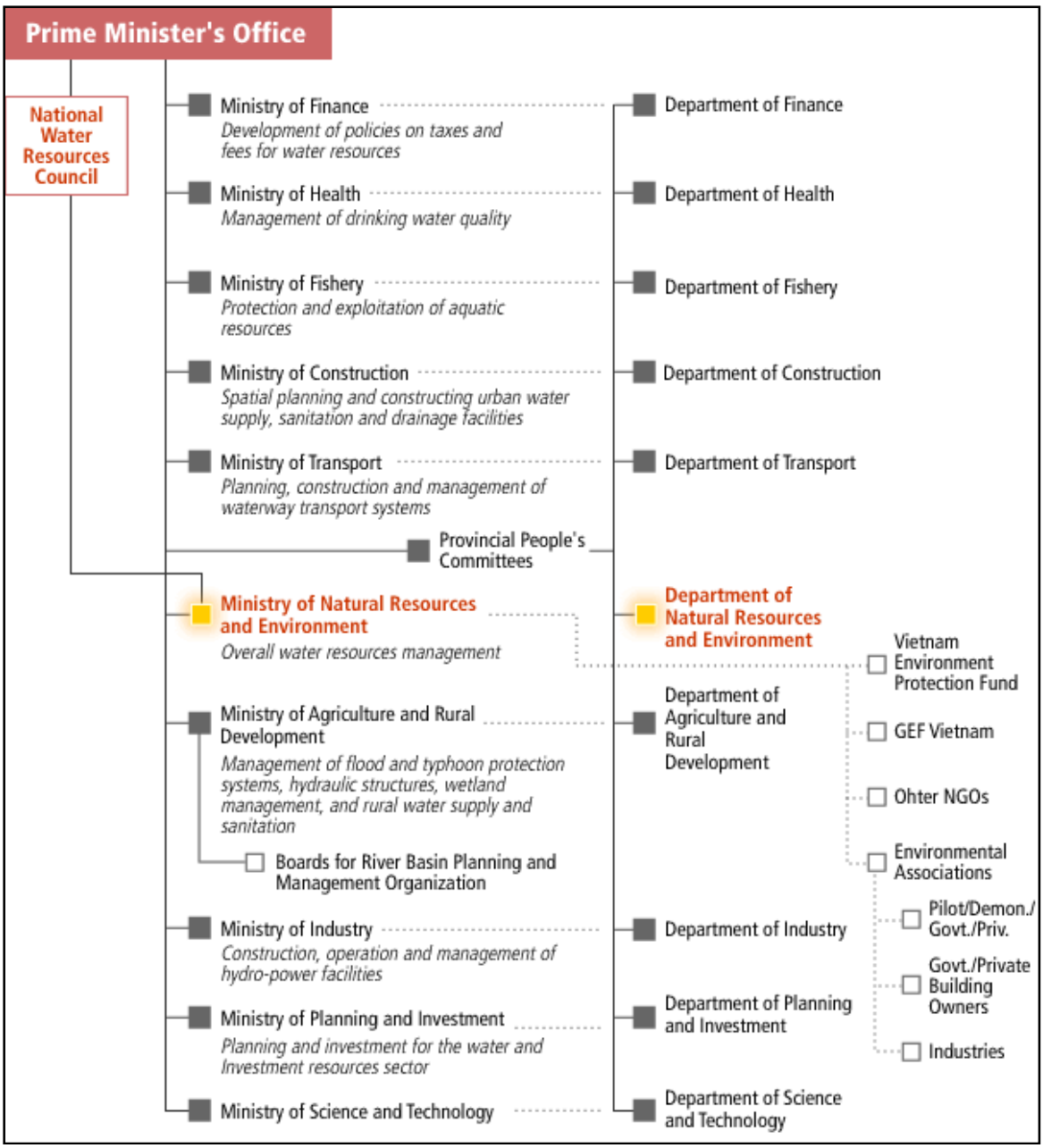


Figure 4.3 Assignments of Water Management Responsibilities

(Source: WEPA, 2003)
Note: Ministry of Fisheries has since been absorbed by MARD

Each ministry has a hierarchy that extends down to the commune level. The provincial counterparts are the Departments of Natural Resources and Environment (DONRE) and the Department of Agriculture and Rural Development (DARD). Within DONRE, the Division of Water and Mineral Resource Management handles water management. Among its duties are overseeing numerous types of surface, ground, and sewage water as well as the planning and construction of infrastructure, issuing licences to extract water as well as discharge waste

water, and enforcing water quality standards (Informant 1, 2007). Specific to irrigation waters, it is in charge of where irrigation water is extracted (in terms of issuing the Irrigation Management Company a permit to extract water), and the quality of irrigation water.

Within DARD, the Division of Irrigation Management and Flood and Storm Prevention manages large rivers and canals such as the Dong Canal System, as management of the smaller rivers and canals has been devolved to the district level. Irrigation Management Companies (IMC), administered by DARD, are responsible for managing and controlling the lined irrigation infrastructure (Informant 2).

4.3.2 Evolution of Water Related Legislation

Before 1980, there were no formal environmental policies or controls in Vietnam, nor was there a governmental body responsible for the environment (T. L. Bryant and Akers, 1999). From the 1980s onward, the environment, and development of environmental legislation were given more attention. For example, in 1981, the government set up the National Resources and Environmental Research Programme to identify major environmental problems and means of overcoming them. It found that there was a need for environmental protection legislation, and recommended that a framework for future legislation be established (T. L. Bryant and Akers, 1999)

In the late 1980s, the Vietnamese government called on the country's scientists to prepare, with the assistance of UNDP, SIDA, and IUCN, a National Environmental Action Plan (NEAP). The end result was the National Plan for Environment and Sustainable Development 1991-2000: Framework for Action (National Plan) which was published in 1990. This framework included plans for integrated watershed management, and pollution control and waste management (T. L. Bryant and Akers, 1999). The Plan was implemented in two five-year stages. Stage one, 1990-1995, involved developing environmental policies, regulations, and standards. It was during this time that the Law on Environmental Protection was enacted, and many of Vietnam's environmental standards were established. Among these standards were the ambient water quality TCVN 5942-1995 (MOSTE, 1995a), and industrial waste discharge standards TCVN 5945-1995 (MOSTE, 1995b).

Law on Environmental Protection

The Law on Environmental Protection (LEP) was the first major environmental law in Vietnam. It laid the legal framework for environmental protection, and its legacy can be seen in the Law on Water Resources, which contains many similar articles on issues such as responsibilities regarding notifying the government of environmental incidents, and rights to complain about and receive compensation for breaches of environmental law.

The LEP was revised in 2005 (Government of Vietnam, 2005b). Little analysis has been publicised about the revised version. The 2005 LEP greatly elaborates on the 1994 version. For example, it provides specific environmental protection regulations for a range of activities, such as hospitals, craft villages, construction activities, transportation and traffic, and production establishments (i.e. factories). One of the principles of environmental protection (Article 4.1) is that of harmonization of protection with economic development. Compensation for environmental degradation (Articles 130-134) receives more attention than in the 1994 version and in the Law on Water Resources (discussed below). It contains elaborated provisions for identifying the scope of damage, identifying the costs, settlement between aggrieving and aggrieved parties, and issuing of compensation.

Law on Water Resources

Despite the TCVN standards enacted in 1995, in the early 1990s, laws concerning water resources were almost nonexistent, save for one simple ordinance. At that time, the government was technically in charge of managing water, but in the absence of laws, individuals and companies exploited water as they saw fit (Informant 1, 2007). The government began work on drafts a new water law in the early 1990s (*Vietnam: Water Resources Sector Review*, 1996). Stage two of the NEAP (1996-2000) included development and implementation of watershed management (T. L. Bryant and Akers, 1999), and in 1998 the Law on Water Resources (LWR) was approved and came into effect in 1999, becoming the first major legislation governing water resources (Government of Vietnam, 1998). In comparison, China's first Water Law was enacted in 1988 and revised in 2002 (World Bank, 2006)

The overarching LWR was conceived as an enabler of legislation that would lead to the development of further regulations (Turral and Malano, 2002), such as integrated

management, river basin approaches, stakeholder involvement, and interprovincial cooperation (Trang, 2005). However, further regulations have been slow to materialize. The LWR was described as "good" but that there is still a lack of practical instructions and protocols dictating how the LWR should be put into practice (Informant 1, 2007). In 1996, two years before the LWR was passed, NGOs forewarned that problems such as the ones this thesis addresses could arise if this supporting legislation was not enacted (*Vietnam: Water Resources Sector Review*, 1996).

Water Quality Standards

Vietnam has established a number of standards pertaining to different types of water. Related to this discussion, TCVN 5942-1995 (MOSTE, 1995a) remains the standard for ambient surface water quality. Although it sets levels for 31 criteria (mostly metals, but also including pH, chemical oxygen demand (COD), biological oxygen demand (BOD_5 20^oC), coliform, and DDT), it is often only financially possible for the Cu Chi DONRE to regularly test for the pH, COD, BOD_5, suspended solids (SS), and coliform (Informant 3, 2007). More comprehensive, yearly reports which test for total suspended solids, total nitrogen, total phosphorus, COD, BOD, dissolved oxygen, and coliform also exist (such as DONRE, 2006).

TCVN 5945-1995 (MOSTE, 1995b) established three levels of waste discharge standards of increasing toxicity. If the waste water has parameters equal to or lower than those specified in Level A, then it may be discharged into water bodies used for domestic supply. If it falls between Level A and Level B, then it is only permitted to be released into water bodies used for navigation, irrigation purposes, bathing, or aquaculture. Wastewater that is greater than Level B but equal or less than Level C requires permission by government agencies. Lastly, any wastewater higher than Level C is not permitted to be released.

TCVN 5945-1995 was updated in 2005, making TCVN 5945-2005 the new standard (MOSTE, 2005). Although a translated version could not be found, it is clear that the number of criteria has increased to 37. However, the Level A value for BOD_5 has raised from 20mg/l to 30mg/l, thereby easing the requirements. In contrast, the Level B value of COD has decreased from 100mg/l to 80 mg/l.

Pollution Fines

The establishment of the 1994 LEP made it possible to establish a schedule of fines for violations. This was contained in Decree No. 26/1996/CP (Government of Vietnam, 1996). However, this schedule contained only one Article pertaining to violations regarding the illegal release of wastes, 9.5, which stated that a fine from 500,000 to 2,000,000 VND ($33 to $133 CAD) would be applied if "…lubricants, grease, toxic chemicals or radioactive substances beyond the permissible level, [resulting in] dead animals, plants, harmful bacteria or viruses likely to cause epidemics."

In 2005, Decree No. 34/2005/ND-CP (Government of Vietnam, 2005a) created a more comprehensive schedule of fines relating to water resource protection violations. Examples of violations include discharging waste water without a licence, which results in a fine of 18,000,000-20,000,000 VND ($1200 to $1333 CAD) if 1,000$m^3$/day to less than 2,000$m^3$/day is released. The fine is raised to 25,000,000-30,000,000 VND ($1666 to $2000 CAD) for those releasing greater than 5,000m^3/day. The fines are roughly the same for those exceeding the limits for discharge dictated by their licences (for example, 20,000,000-25,000,000 ($1333 to $1666 CAD) for an excess amount of 5,000m^3/day or more). The maximum allowable fine, 70,000,000-100,000,000 VND ($4666 to $6666 CAD) is reserved for those polluting aquifers, and those extracting ground water in restricted areas. The size of the fine is dependent on the level of the issuing government agency, with commune People's Committee being the lowest (500,000 VND), and the provincial DONREs and MONRE (both 100,000,000 VND) being the highest.

4.3.3 Removal of Irrigation Fees and Devolution of Irrigation Management

It was recently (exact date unknown) announced prior to my arrival in Vietnam that the government plans to remove irrigation fees and completely transfer management of the interior canals to farmers throughout the country (Informant 2, 2007). Because the exact details of the plan had not been released while I was conducting fieldwork, it is unclear what it will entail, and conflicting accounts were given by governmental and NGO interviewees. The plan has since been made law by Decree No. 154/2007/ND-CP, which was promulgated October 15, 2007 (Center for Participatory Irrigation Management). No English translated version of the Decree could be found at this time.

The provinces of Da Nang and Vinh Phuc have already waived the fees (Informant 3, 2007), although the effectiveness was not ascertained during the time in the field. Conflicting dates for the commencement of the plan in HCMC were given – sometime in 2008 (Informant 3, 2007) and August 2007 (Informant 4, 2007). Although the farmers interviewed in this study argued that irrigation fees were not very high, the purpose of the removal of the fee is to lower the costs of production for poorer farmers (Informant 4, 2007).

In exchange for the removal of fees, it was rumoured that farmers would be given increased responsibility over interior canals. Water use groups of approximately twenty to forty households would be created, and the government would provide a legislative and institutional framework in which they will operate (Informant 2, 2007). The group would be responsible for constructing, managing, dredging, and maintaining the canals. The water use group would make an agreement on how to collect fees, and how to spend the money. The motivation for devolving management is twofold. First, the IMC is unable to regularly examine, repair, and maintain all parts of the system (Informant 2, 2007). Second, it is hoped that doing so will give farmers the motivation to care about and protect the irrigation system (Informant 2, 2007).

Conflicting reports were received on whether water use groups would be collecting fees (Informant 2, 2007) or whether the government would fully subsidize farmers (Informant 4, 2007). However, it seems that in areas not facing water scarcity, the government will be fully absorbing the costs of maintaining the system (Vietnam News b). It was reported that with irrigation fees waived, farmers in Da Nang Province would collectively save an estimated 3 billion VND (~$187,500 CAD) per year (Vietnam News a). The interviewee from the Cu Chi IMC expressed worry that the removal of the fees would increase farmers' dependency on the government, and that precautions should be taken to ensure that farmers retain some responsibilities. Failing to do so would foster a disregard for the value of water and lead to wasteful practices. It could also change farmers' rights, since they were no longer paying for a service, and may be less entitled to make demands of the government (Informant 5, 2007).

4.3.4 Wastewater Treatment

Even though the law requires it, there are still many industrial zones without wastewater treatment systems. Although all industrial zones in HCMC had committed to building

wastewater treatment systems by 2003, Le and Nguyen (2004) found that only 50% had done so by 2002. They identified three main reasons why infrastructural companies (who operate industrial zones) postponed construction of wastewater treatment systems. First, compared to other infrastructural systems, the treatment system has a very high cost, around 25-30% of the investment capital. Second, the decision to invest is affected by the number of firms operating in the zone. Since many zones operate at less than full capacity, it is inefficient to invest in treatment systems that would increase rental fees and discourage movement into the zone. Third, in the absence of financial support from the government and with little incentive to comply with environmental regulations, infrastructural companies adopt an investment strategy that is based purely on profit, and thus they delay the construction of treatment plants.

The allowable concentration of pollutants discharged by industrial firms is set by TCVN 5945-2005. Firms within an industrial zone connected to a communal treatment system must pre-treat their water to Level B before sending it to the system for further treatment. If a firm is operating outside of an industrial zone, or is in one that does not yet have waste treatment, they must treat the water to Level A (a greater level of treatment), which is often difficult and costly. Because they face many barriers to implementing adequate environmental measures, Oosterveer et al. (2006) note that it is important that financial support and technical expertise be given to firms so they are able to adopt cleaner and more efficient technologies and treatment systems.

4.4 Grassroots Democracy and Community-based Regulation in Vietnam

4.4.1 Grassroots Democracy Decree

In response to riots in Thai Binh Province, located in Northern Vietnam, over local level government corruption, the central government issued Decree 29/1998/ND-CP (later superseded by Decree 79/2003/ND-CP), known as the Grassroots Democracy Decree (GDD) (UNDP, 2006). The goal of the GDD was to increase transparency, participation, and accountability at the local level (Conway, 2004). A number of rights are confirmed by the GDD, including the right to be informed about policies, laws, socioeconomic development plans, land use plans, and participation in discussions, decisions, and assessments of local government activities (Phung, 2007). In some cases, the implementation of the GDD has led to increased knowledge of rights and duties among citizens, participation in village activities

and meetings, information about government policies, and closer relationships with commune officials. However, these impacts were uncommon. In general, the implementation of the democracy regulations has been poor (Adhikari et al., 2004). In this case, it is apparent that water management in Cu Chi has yet to be significantly impacted by the GDD.

4.4.2 Community-based Regulation

Vietnam's socialist legacy has provided the opportunity for community and civil society participation in pollution regulation (O'Rourke, 2002). In general, Vietnam has a strong history of popular participation. The 2001 World Values Survey (Dalton and Ong) found that the average respondent in Vietnam was part of 2.33 groups, a value higher than China and Japan. Organizations such as the Peasant Union, Trade Union, Youth Union, and Women's Union have all exerted pressure on the government to implement policy changes. For example, roughly 90% of the recommendations that the Vietnam Women's Union, which formed in 1930, have been made into laws (Eccleston and Potter, 1996). Unfortunately, these organizations have only limited involvement with environmental issues (Phung, 2007). Similar to China (Mol and Carter, 2006), Environmental Non-Governmental Organizations (ENGOs) are scarce in Vietnam (Phung and Mol, 2004). Local Women's Unions, in conjunction with local governments, have organized environmental campaigns and cleanup operations (Phung, 2007). Because many of these associations are state-run, Dalton and Ong (Dalton and Ong) are critical of their ability to move away from the state and towards more democratic norms. However, they note that since the *doi moi* reforms many have exhibited increasing independence.

A cluster of literature concerning regulation in Vietnam has found that communities have a significant impact on pollution regulation (Frijns et al., 2000; O'Rourke, 2002, 2004; Phung, 2007; Phung and Mol, 2004). As is often the case in developing countries, formal regulators in Vietnam face difficulties with lack of staff and monitoring equipment, and budgetary constraints (Phung and Mol, 2004). As a result, inspections of polluting facilities are driven by, and dependent on, community complaints (O'Rourke, 2002; Informant 6, 2007). These above studies have explained how communities in Vietnam have impacted and subsequently supported formal regulations. Because formal regulators are primarily reactionary, the strictness of their regulation depends on actions from communities. Since the passing of

environmental protection laws, and because of increasing knowledge of environmental impacts, local communities are increasingly engaging in protests (Phung and Mol, 2004).

Despite the success of some communities, several factors limit their ability to participate. Even though the laws require them to report releases of pollution, communities often do not know which agency is responsible for handling their complaint, and often have little information on policies, laws, regulations, and development strategies of the Party (Phung and Mol, 2004). In general, dissemination of environmental information to the public is lacking (Phung, 2007). Guidelines and tools for allowing communities to participate in management are also lacking (Phung, 2007). Lastly, because regulation is dependent on the voice of the community, weaker communities, such as those unable to sufficiently mobilize, may suffer more than those able to successfully mobilize and urge regulators into action.

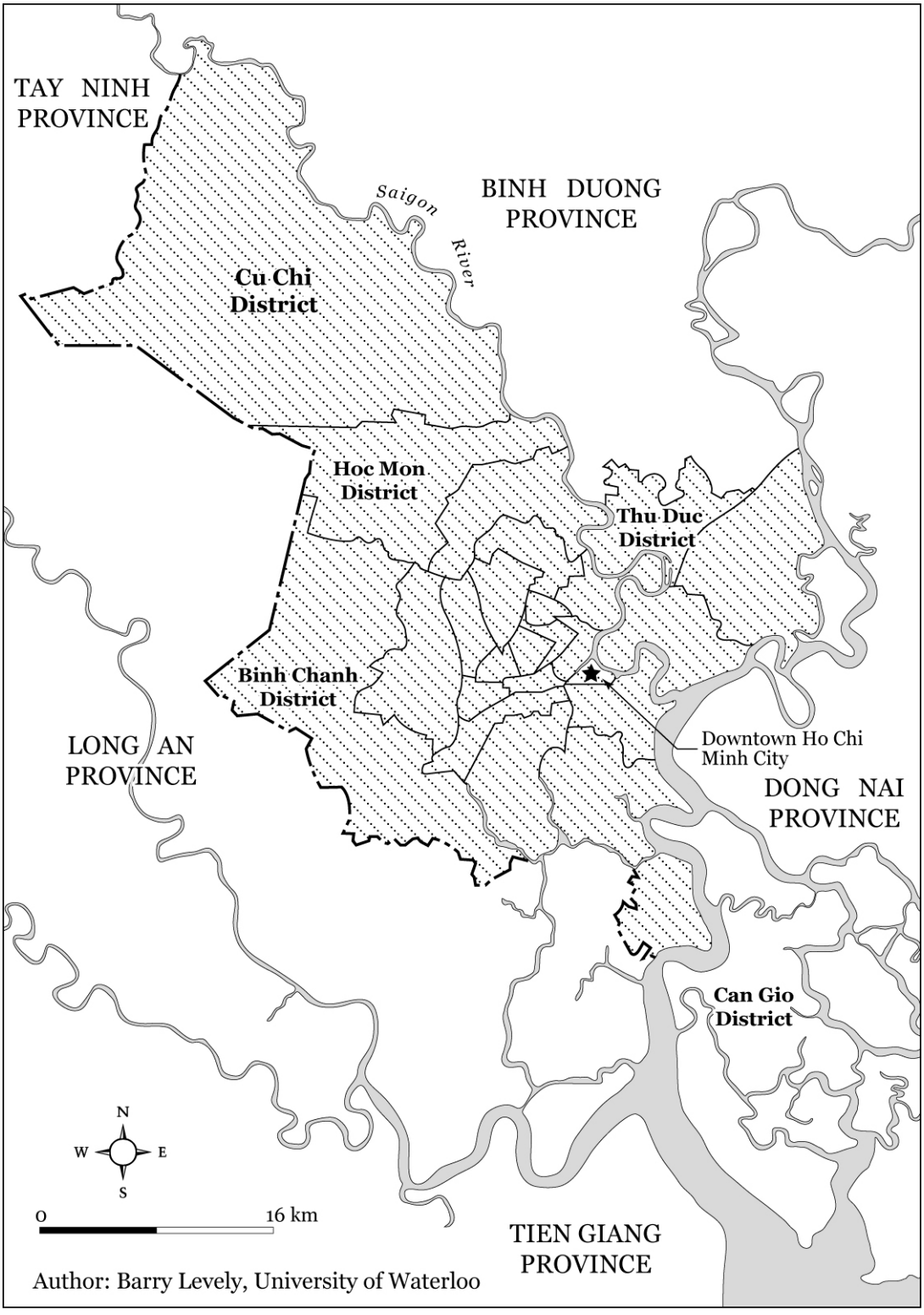
4.5 Study Sites

4.5.1 Cu Chi District

Cu Chi District is located northwest of HCMC's urban core (Map 4.1). It is a rural district, and contains an estimated 165 km^2 of irrigated land out of a total of 434.50 km^2, 130 km^2 of which is devoted to rice and other farm produce, and the remainder to fruit trees. The Saigon River runs along Cu Chi for approximately 54 km, providing irrigation water for those in the lowland areas such as the Binh My Commune, as well as parts of Tan Phu Trung Commune[2], the two case study sites. Along the district's southern border, runs the large Thay Cai canal, which is called the Rach Tra canal by the time it reaches Binh My (Map 4.1) spanning 27 km in length. Portions of Cu Chi's irrigation system have been upgraded with lined canals. The system receives water from the Dau Tieng Reservoir in adjacent Tay Ninh Province.

[2] Administrative boundaries in Vietnam breakdown as follows: provinces are divided into communes, communes are divided into hamlets, hamlets are divided into groups

Map 4.1 Ho Chi Minh City Province, Vietnam



No data regarding the extent of urbanization and plans for Cu Chi could be located. However, Figure 4.5, which depicts a promotional billboard in TPT, illustrates the government's plans for mixed land use.

Figure 4.4 Industrialization Promotion in TPT

Literally translated: "All population stand together to increase living standard at their habitation" (left side) "Cu Chi farmers are determined to deserve the tradition "hard-working, economic, dynamic, solidarity, creative, and overcoming difficulties for riches" (right side) (Photograph by author, translation by Van Ngoc Truc Phuong)

Two types of irrigation infrastructure exist in the case study sites, Tan Phu Trung and Binh My Communes. The first is lined irrigation infrastructure, which the IMC runs, and collects fees for its services. The second is the unlined irrigation infrastructure. The latter are small rivers and dug canals, often fairly old, and offering limited control of water. For both, the canals that transport water from larger tributaries directly to farmers' fields are called interior canals. It is in the maintenance of the unlined irrigation infrastructure that farmers find their largest role in water management. Their maintenance has been decentralized to the commune level, and farmers are charged with maintaining them. They typically organize the labour themselves. If large-scale or expensive management is required (e.g. machinery must be hired), then farmers will be coordinated by the commune People's Committee.

4.5.2 Cu Chi Irrigation Management Company

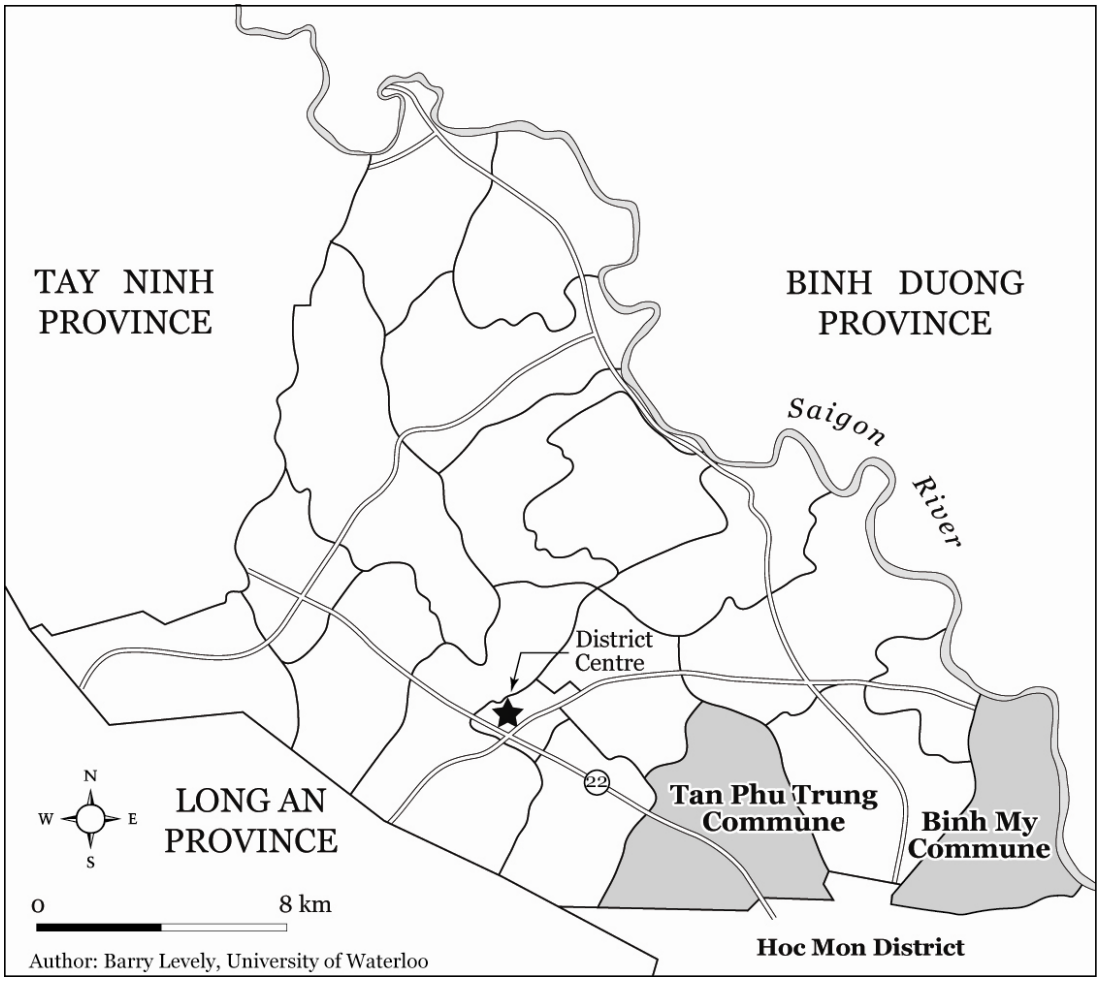
The Cu Chi Irrigation Management Company (IMC) operates the irrigation system (lined canals). Although it conducts water quality tests in the canals, it lacks administrative power and has no control over the water quality in the canals, and must report to other agencies on matters of environmental protection (Informant 4, 2007).

The IMCs throughout the country rely heavily on government funding, and collect very few fees from users. At no time between 1996 and 2002 did the revenues from user fees meet the operation, maintenance, and management (OMM) costs of the Cu Chi IMC. In 2002, for example, the gap between the fees collected and the OMM costs was US $62.71/ha (Davidson et al., 2005) . This is often cited as a problem, and as a reason for their poor functioning, an argument rejected by Davidson et al. (2005) who argue the IMCs do not function as private companies, but are public works companies (Informant 4, 2007).

4.5.3 Tan Phu Trung and Binh My Commune

The communes in Cu Chi selected for this research were Tan Phu Trung and Binh My. They are located in the southeast of Cu Chi District (Map 4.2). HCMC planners have designated TPT as an area in transition, meaning that it is in a period of economic transition, changing from primarily agricultural to industrial/urban (Figure 4.5). The result has been the planning of housing developments, an international recreational park, and the introduction of industry. In the mid 1990s, factories began to be built – many moving from the urban core to the fringes (Informant 4, 2007) to an industrial area situated along the Thay Cai canal on the commune's southern border (Map 4.1). This was accompanied by the removal of farmers through government expropriation of their land. Roughly 90% of farmers in TPT have had their land purchased by the government (Informant 4, 2007). Farmers reported that they were paid below market prices, but accepted the agreement because the government wanted their land. Some farmers expressed disappointment that they would no longer be farming, while others who were older and whose children were not farmers were not as upset, since farming in the area had become difficult for numerous reasons, including water scarcity.

Map 4.2 Cu Chi District, HCMC, Vietnam

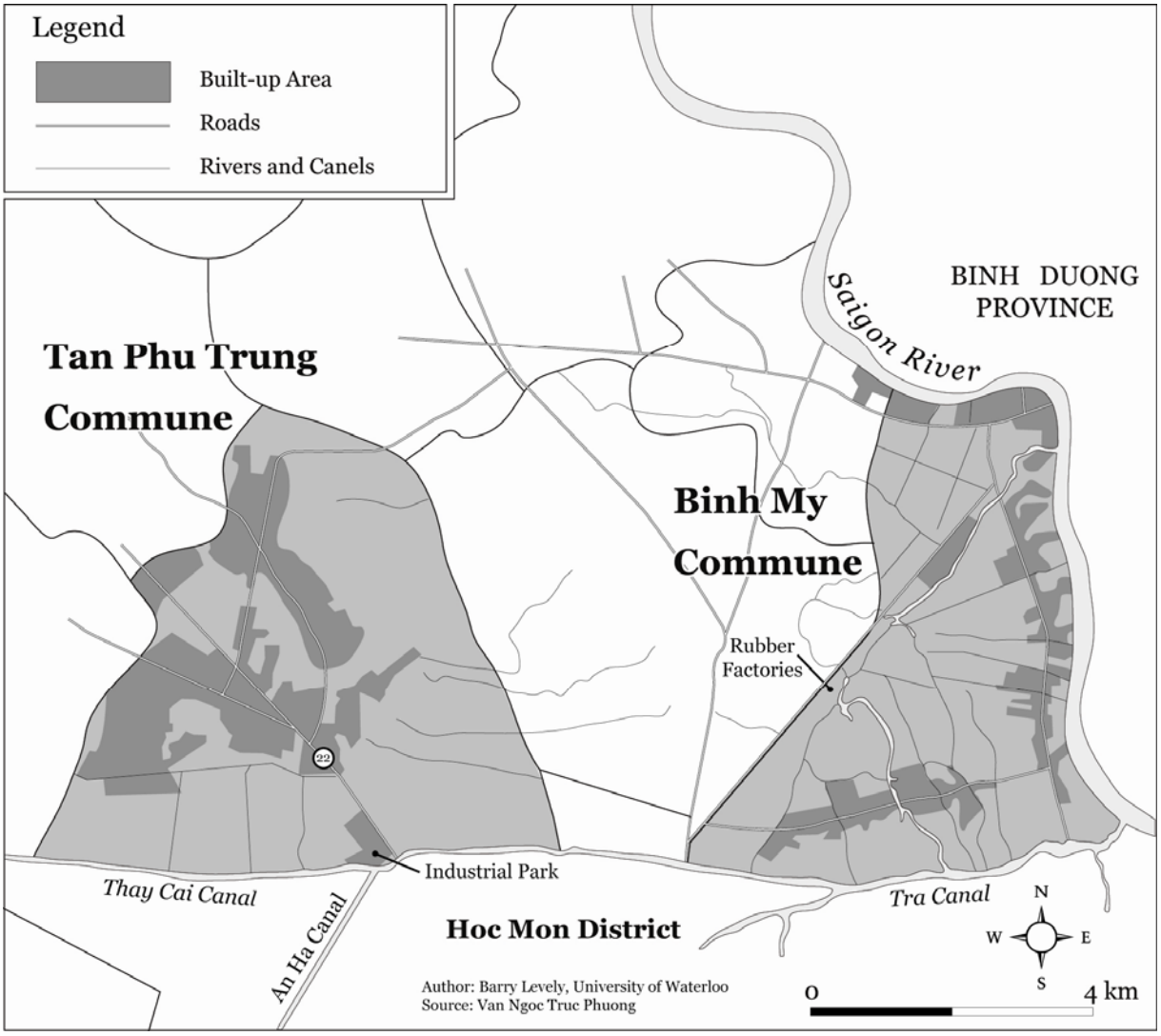


Farmers stated most of the canals in TPT were lined between 2000-2002 (conflicting dates were given for when this was completed, perhaps indicative of the length of time it took to complete). The older canal system, which was dug in 1983, was uncontrolled. The largest change in the last ten years has been the upgrading of the canal system. Lining the canal had a significant impact on the water table, lowering it by several meters, thus forcing farmers to dig new, deeper wells. After the canal was lined, the government encouraged farmers to grow an additional crop of rice in the dry season since they would be able to receive adequate water supplies. Farmers reported doing so for the first or second year after the canal was built, but since then have stopped because the water supply has become too unpredictable, as irrigation schedules put forth by the government are often broken. In 2005, a number of farmers lost

their rice crop in the dry season due to water scheduling issues as the water was not available when it was supposed to be. Since then, many farmers have ceased using the lined canals.

Two farmer interviews were conducted in Tan Thong Hoi, the commune west of TPT. These took place in Bau Sim Hamlet, which is adjacent to Dinh Hamlet. Farmers 4 and 10 in Bau Sim, and Farmer 8 in Dinh, described the water availability as often being just enough to grow two rice crops per year, although Farmer 10 said pumping water from another farm was required. Since Dinh Hamlet borders Bau Sim, and the water in the canals flows from west to east, release of water into TPT was purposefully being restricted. When asked why there was insufficient water during the dry season, the Deputy Manager of the Cu Chi IMC explained that there were not enough farmers left in TPT to justify diverting water into its part of the canal system (Informant 4, 2007). Farmers have coped with this problem by switching to crops that require less water, such as peanuts, vegetables, and fodder for livestock.

Map 4.3 Tan Phu Trung and Binh My



4.5.4 Binh My Commune

Binh My is located on the south eastern tip of Cu Chi. Binh My relies on unlined canals which are fed by the Saigon River and Rach Tra canal. Unlike TPT, it has only a few factories and the current plans are for Binh My to remain an agricultural area. Some farmers who now have jobs outside of the agricultural sector or are retired have chosen to put their land up for rent. Migrant workers, many of whom are from northern Vietnam, have moved into the area. The migrants live in small temporary houses usually situated on the edges of the fields they rent.

According to farmers in Binh My, water use has not changed in the last ten years, or for as long as they can remember. The canal that fed Farmer 28's farm was the same one that was

there when her grandfather was farming the land. Farmers typically generalized water use with the phrase "the water comes in, the water goes out" (referring to the tides).

4.6 Summary

This chapter reviewed Vietnam's rapid industrialization and how this affected development in HCMC, which also experienced rapid urbanization. The primary focus of this chapter was on describing how water management in Vietnam has evolved in the last ten years, with an emphasis on the organizational structure and legislation regarding water quality management. Lastly, the research sites were described. The next chapter presents the data gathered during fieldwork.

Chapter 5 Water Pollution and Water Governance in HCMC and Vietnam

In accordance with Objective 2, this section presents the data gathered through the field research. It is organized in two parts. The first presents the findings gathered through UNICEF's RBA framework, as outlined in Chapter Two. Based on this data, the second presents an evaluation of Vietnam's and HCMC's water governance.

5.1 UNICEF's Rights-based Approach

5.1.1 Causality Analysis – Water Pollution

This first section analyses the cause of the research problem.

Water Pollution in HCMC and Cu Chi District

The waters running into as well as out of Ho Chi Minh City act as a sink for pollutants from a number of sources. Domestic wastewater was identified as the leading cause of water pollution in the VWRSR as well as by interviewees (*Vietnam: Water Resources Sector Review*, 1996). However, there exists greater concern for industrial wastewater because it is perceived as being more toxic (Informant 7, 2007).

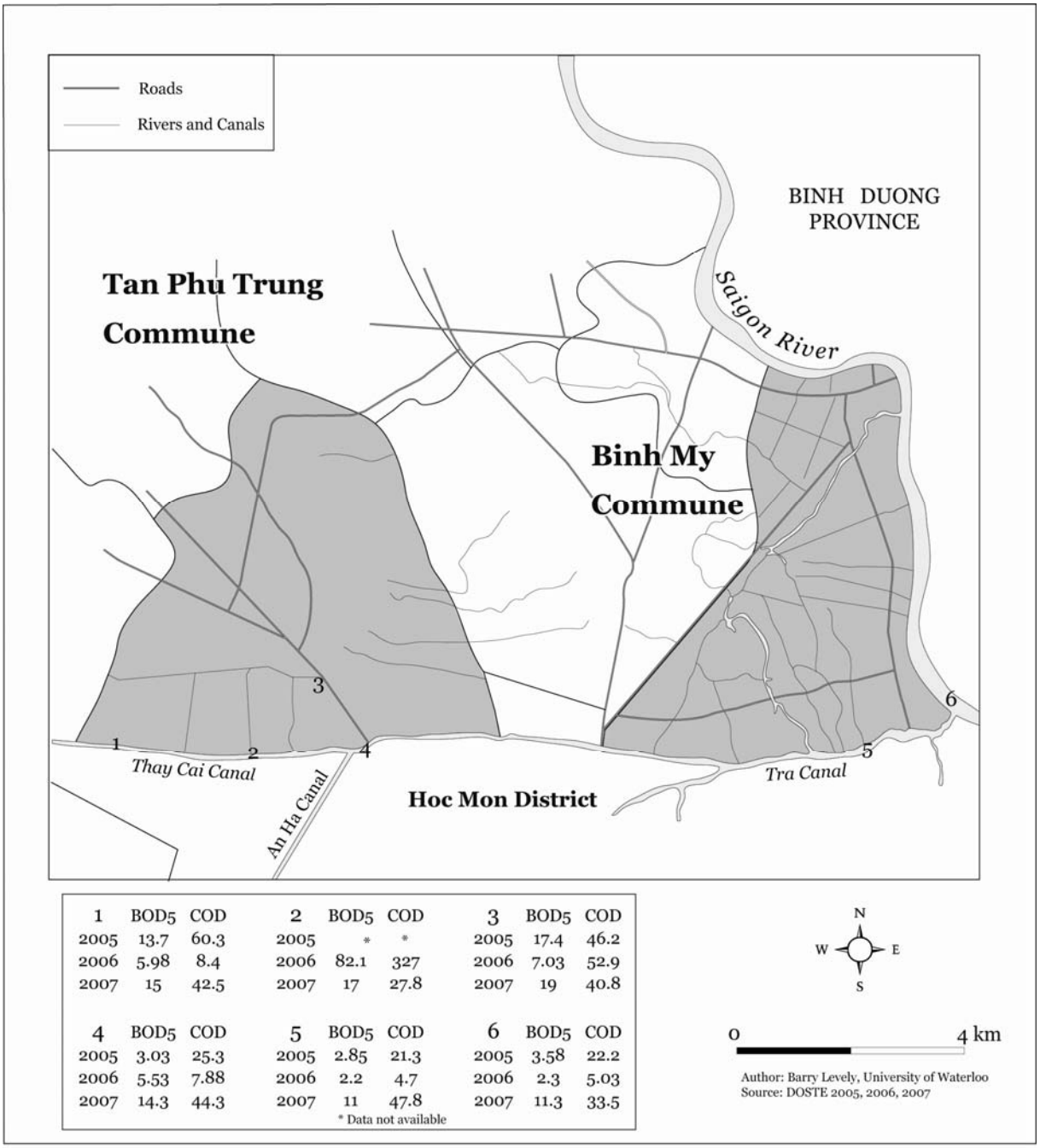
Sediment samples taken from various urban canals in HCMC as well as in the Saigon and Dong Nai Rivers show varying levels of pollutants (Hong et al., 2000) and toxicity (Hong et al., 2000; Phuong et al., 1998). Both found that levels of pollutants/toxicity were higher in the city core than in surrounding rural/suburban areas, and both pointed to untreated industrial and sewage effluents being the major sources. Besides industrial effluents, agrochemical use and urban wastes have also emerged as significant water pollutants (van den Berg et al., 2003). Midmore and Jansen (2003) note that increasing environmental standards may make peri-urban agriculture in HCMC unsustainable because of its susceptibility to contamination from surrounding industrial and urban pollutants. O'Rourke (2004) has documented numerous instances of water conflicts while investigating community environmental action in Vietnam (O'Rourke, 2004). Phung and Mol (2004) present similar findings in case studies in HCMC, and in surrounding Binh Duong and Dong Nai Provinces. O'Rourke (2004) notes that the majority of factories in and around both Hanoi and HCMC do not have wastewater treatment and that in some instances industrial pollutants in irrigation water are causing severe

crop and soil damage. Reported impacts from the water pollution have included foul odours, loss of aquatic life, polluted groundwater, and an overall decreased utility because it can no longer be used for drinking, agriculture, and aquaculture (Phung and Mol, 2004).

Water Pollution in Cu Chi

Interviewees admitted that many areas in Cu Chi suffered from water pollution, including Binh My and parts of TPT. Waste water is often released into canals that are also used for irrigation (Informant 6, 2007). Industries that release waste into the natural canal (treated or untreated) aim to time it with the tides so that the water will flush through the system more quickly. However, they are not always able to do so (Farmer 14). Those releasing waste into the lined canal system coordinate with the IMC to minimize the amount of pollution going into farmers' fields by using the canal's sluice system to divert it out of the system (Informant 4, 2007). The water quality in the lined canals is good, due to the successful management of the Dau Tieng reservoir (Informant 4, 2007). In contrast, the water in the unlined canals and the Saigon River is polluted. Map 5.1, illustrates water quality using BOD_5 and COD (the maximums allowed by TCVN 5942-1995 for water not for domestic use are: BOD_5 <25 mg/l, COD <35 mg/l) in the major canals in and around TPT and Binh My (DONRE, 2006, 2007).

Map 5.1 Water Quality in TPT and Binh My



1	BOD5	COD	2	BOD5	COD	3	BOD5	COD
2005	13.7	60.3	2005	*	*	2005	17.4	46.2
2006	5.98	8.4	2006	82.1	327	2006	7.03	52.9
2007	15	42.5	2007	17	27.8	2007	19	40.8

4	BOD5	COD	5	BOD5	COD	6	BOD5	COD
2005	3.03	25.3	2005	2.85	21.3	2005	3.58	22.2
2006	5.53	7.88	2006	2.2	4.7	2006	2.3	5.03
2007	14.3	44.3	2007	11	47.8	2007	11.3	33.5

* Data not available

Farmers' Perspectives, Water Quality: Tan Phu Trung

Farmers in TPT reported variable water quality depending on where their farm was situated because upland areas in the commune are irrigated by the relatively clean lined canal system,

while lowland areas are irrigated by the more polluted unlined canal system. For those connected to the lined canals, six thought that the water quality was getting worse, one thought there was a normal amount of pollution, and one thought it was not polluted. Farmers often said that they knew the water was polluted because it smelled badly, and they identified domestic waste thrown into the canal as the main source of pollutants. Garbage collection was only available to farmers with houses on the main road, so the alternative was to burn their waste or, if they felt 'lazy' (Farmer 1) they would throw it into the lined canals. As for the effect of the water pollution, farmers either reported that there were no noticeable effects and or that there was no way for them to know.

Figure 5.1 Solid waste in the concrete lined canal, TPT

Note: waste was gathering here because this was one of the few valves that was still used

For those using unlined canals, a noticeable change in water quality has occurred since factories had begun operating in the commune. All but two of the farmers interviewed whose fields are irrigated directly by the Thay Cai canal have been negatively impacted by water pollution. Those two farmers acknowledged that there were pollution problems, but said that they were far enough upstream along the interior canals that run into the commune that the pollutants released into the Thay Cai would not reach their fields. Farmers reported seeing industrial waste flushing through the canals that had turned the water red and black. If the red

water entered the field it would turn the leaves of the rice a shade of red and the rice would fail to produce a crop. However, other farmers who thought the water was polluted but had not experienced coloured water entering their fields did not think that their productivity had been affected.

Farmers' Perspectives, Water Quality: Binh My

There was a general consensus among farmers that much of the water in Binh My's rivers and canals contains a high level of pollutants and that they have had a negative impact on productivity. Four farmers did not consider the water polluted. Two of these were migrants (Farmer 26 and 32) and had been farming in the commune for one year, one resident (Farmer 30) who believed that his farm was safe from pollution because it was situated far enough from sources, and another resident (Farmer 35) who stated that the appearance of water had not changed. Farmers 28 was uncertain about whether the water is polluted even though she said that a visual inspection showed little change, and that some people still bathed in the canals near her farm. Contrary to this, Farmer 1 said that his family no longer bathes or washes their clothes there because of the decline in water quality. Farmer 27 stated that ten years ago they were able to drink water from the canal with a filter. She also stated that three years ago her tea plants would produce a crop for seven to eight years, but now had to be replaced every year, a decline in productivity she attributed to lower water quality. Farmer 35 had just recently heard the idea that waste water released from factories could harm her crops after the issue was raised by another farmer at a community meeting.

Three responses were typically given regarding the sources of pollution in and outside of the commune: the rubber factories in the Northern portion of the commune, the Dong Thanh Ga landfill (across the Rach Tra canal in Hoc Mon District), and domestic waste in the canals. Farmers stated that the rubber factories released black waste water into the canals and that this water would kill lotus crops and lower the productivity of rice. Figure 5.3 illustrates this wastewater. It was estimated by a group leader (the organization below a hamlet) that this waste affected roughly one quarter of the farms in the commune (Informant 7, 2007). In addition to flowing into the commune's canals, the waste also flowed eastward into the Saigon, thus allowing it to enter farms further downstream in the commune, albeit in diluted

levels. Concern about waste water releasing and runoff from the Dong Thanh landfill was often reported.

Figure 5.2 Wastewater released into fields, Binh My

(Photograph by Author)

Migrants

Like TPT, solid waste in Binh My's canals is also a significant concern for farmers. Much of the blame for the solid waste in Binh My's canals appeared to be directed at migrant farmers. Residents claim that because the migrants live there only temporarily, they care little about keeping the environment clean. Farmer 34 noted that while many residents hold this perception, migrants may only appear to be 'messy' because they are confined to such small living spaces (compared to residents). Most of the migrant's homes are thatch and lack plumbing, thus their sewage receptacles are often located directly over the canals within their fields causing raw sewage to enter the canals. However, while some of the migrants said that they considered their situation temporary, Farmer 28 had recently built a permanent house.

It was not surprising that the migrants interviewed denied both throwing their garbage into the canals as well as not caring about the environment. One migrant (without garbage collection

service), Farmer 31, stated that when he first moved into the area he left his garbage on the bank of the canal expecting it to stay there, but the water level rose and the garbage floated away. Although he expressed remorse that he had polluted, he continues to put his waste there. Farmer 27, a resident who confronted a migrant after he threw his waste into the canal, reported that the migrant questioned why she was upset as the water was not used for household uses. Farmer 28, who lacked waste pickup at her house, took her waste to the nearby market and left it there for pickup.

5.1.2 Causality Analysis Summary

The first part of the RBA documented the problem of water pollution in HCMC and Cu Chi. Interviews with farmers and government officials revealed concerns regarding industrial water pollutants and solid waste in canals in TPT and Binh My. Nearby industrial areas were identified as a source, and the migrant farmer population in Binh My was frequently identified as the group responsible for leaving solid waste in its canals.

5.1.3 Pattern Analysis - Claim-Duty Relationship

As noted previously, the two main laws governing water pollution regulation are the Law on Environmental Protection (LEP) and the Law on Water Resources (LWR). Articles within these laws stipulate the claim-duty relationship between citizens and the government. Because many of the relevant articles for water pollution regulation that appear in the LEP are also present in similar articles in the LWR, this analysis will focus primarily on the LWR.

One aspect that appears in the 1994 LEP (Article 44) and 2005 LEP (Article 93) not present in the LWR, states that if there are several organizations or individuals operating in an area when a breach of environmental law occurs (such as the release of illegal wastes), the responsible parties will be determined by state management agencies. However, it became clear during the period of fieldwork that the existence of a number of pollution sources became an important prohibitive factor in the resolution of farmers' complaints, suggesting that these Articles were not put into practice.

The LWR includes many important articles relevant to this analysis of the claim-duty relationship. First, it provides a framework of water rights. Article 1 states that "the water resource comes under the ownership of the entire people and under the unified management of the State". This been seen as the basis for which individual water rights in Vietnam are

based (Anderson, 2003; Trang, 2005). Article 22.1 describes a range of uses for which organization and individuals have the right to use water: basic needs, agriculture, forestry, industrial production, and tourism, to name a few. Those wishing to exploit water for small-scale enterprises, such as family agriculture, aquaculture, small industry and handicraft production, are not required to apply for a licence (Article 24.2.b). Lastly, Article 69.2 affords individuals the right to complain to government agencies concerning those that violate the LWR.

Second, it provides information about responsibilities. Article 10.1 states that "government agencies, economic, political, and social organization, People's Armed Forces units and all individuals have the responsibility to protect the water resource". Any person who observes an act that could harm water resources has the "duty to prevent, overcome or to inform immediately the local administration or the nearest agency" (Article 10.4).

Pertaining to the release of wastes, Article 9 states that "It is strictly forbidden to undertake acts which cause deterioration… and obstruct[s] the right of all organization and individuals to exploit and use water resource[s] lawfully". Article 13.3 states that it is prohibited to release any unprocessed waste water or waste water that exceeds the permissible standards. Article 15.2 clarifies that this includes industrial establishments. Those found in violation are subject to fines (Article 71.1) and to pay compensation for the damages they cause (Article 19.2.a). Article 70 makes provisions for rewarding organizations and individuals for good practices regarding exploitation and protection of water resources.

5.1.4 Capacity Gap Analysis

This section, presented in two parts, describes the constraints that act on the claim-duty relationship between farmers and government officials and prevent the relationship from functioning satisfactorily.

Farmers

Responsibility

This section analyzes whether the actor recognizes that they should do something about the problem. The body of literature on community regulation in Vietnam provides ample evidence that communities are able to mobilize to force either the government or factories

into action. In this case, however, as is discussed later, farmers have little knowledge of the LWR and its requirement for them to stop and or report illegal polluting activities. Thus, their sense of duty is not rooted in the law, but in their need to protect their surrounding environment and livelihoods.

The hamlet and communal meetings provide farmers with a platform to air their grievances about water pollution. Most farmers claimed to have raised complaints with the hamlet leader or at communal meetings. In addition, almost all farmers, including those who did not complain, believed they had the right to criticize government actions (or inactions) on numerous topics besides water management. Some had taken it further and had sent written complaints to the district and provincial levels. However, only Farmer 34 expressed satisfaction with the way her complaint was handled. Others had had the government respond but in an unsatisfactory manner. Breaking promises about increasing enforcement or failing to respond to complaints at all seemed to be the most common form of government action. Farmers described situations where the government came to take water samples but not did provide information about results. Others reported the government attempting to take action against illegal polluters, but this only being effective for a short time as the factory would resume polluting. In Binh My, Farmer 38 described confusion among the communal leaders as to who was responsible for handling complaints about water quality. Overall, while some farmers continue to complain, most do not bother anymore. Farmer 29 portrayed the government's handling of complaints as: "…the officials write them down but do nothing – this applies to many things, like flood control. They often promise that 'next year' things will change, but they do not."

In sum, the majority of farmers recognize the problem that water pollution poses. However, most do not complain, primarily because they believe it to be futile. This is important, as farmers must recognize the existence of a problem in order for them to take action and claim their rights.

Authority

This section analyzes whether the actor has the authority to act in response to the problem. The LEP and LWR provide citizens with the right to "denounce to the competent State agency

the violations of [the] law on water resource" (LWR, Article 69.2). Therefore, they are within their rights to voice their concerns to the government.

Access and control of resources

This section analyzes whether the ability of the actor to act is constrained by a lack of resources. Discussed are farmers' participation in water management, and their water rights.

Participation in Water Management

Irrigation Management Company (Tan Phu Trung)

Farmers' opinions of the Irrigation Management Company were clearly directly related to whether they felt their needs were being met. Of the farmers interviewed who were serviced by the IMC, only two (both in the Tan Hong Hoi District) expressed satisfaction with the way irrigation waters were managed. In addition, one other farmer said she did not care about the way water was managed anymore because she no longer used the canals. The reasons for dissatisfaction were the decline in water quality and the unreliability and inappropriateness of the irrigation timetables put forth by the IMC.

Farmers have little direct input into the affairs of the IMC, and felt totally removed from management, saying that if the water is there they take it, if not then they suffer. The large number of farming households does not permit the company to facilitate high levels of participation for all (Informant 4 and 5, 2007). Instead, the farmers' link to the IMC is through a locally elected canal manager whose task is to represent them at meetings in addition to overseeing a section of the canal, collecting requests for water from farmers to create a timetable, and keeping the canal clear by removing domestic wastes. However, there is no formal process in which the local manager collects opinions, holds meetings, or reports back to farmers on the issues discussed at the IMC meetings, so farmers do not feel as if they are being adequately represented. Farmer 1 said that the local manager may ask him if he has enough water, but that is the only information that is exchanged. A clear indicator that important information was not being exchanged between the IMC and farmers was that none of them were aware that their irrigation fees would be soon be waived. Dissatisfaction was also expressed with one manager's performance of keeping the canal free of domestic wastes. The manager's excuse was reported to be that his section of the canal was very large and he was not paid enough to devote the time required to clean it. When asked about this problem,

the interviewee from the IMC said it was to be expected that some managers would perform better than others, but placed blame on farmers because the managers were elected by them.

Unlined Canals in Tan Phu Trung and Binh My

Because there is no control of water in unlined canals, farmers' perceptions of water management were focused on the way in which farmers manage the canal infrastructure. This view was reiterated by the Vice Chairman of the commune who said that there was essentially no water management in the area except for the occasional canal maintenance project that was large enough to require him to organize. Thus, farmers commonly named themselves as the water managers or said that there was no water management, inadvertently illustrating the little connection to and participation in water management beyond maintaining the canals.

This level of segregation from government activities was not uniformly reported by all farmers. Farmer 34 responded differently, as she had had a positive interaction with water managers in the past. When confronted with crop failure after industrial pollutants from a newly built factory entered her field, Farmer 34 and a group of other farmers wrote a letter to the commune leaders demanding that the factory cease releasing waste because it was affecting their livelihoods. Farmer 34's petition to regulate the factory was successful, and she therefore felt that she had an adequate level of participation in water management.

Many of the inhabitants in Binh My were, in one way or another, part of the resistance against the United States during the Vietnam War. They had, therefore, a fair amount of political clout. Farmer 4 had been a member of the Communist Party for sixty years. They seemed to derive from this a sense of entitlement to participate in political affairs. Group Leader 10 noted that people in the commune participated a lot in political affairs and contributed many ideas.

Migrant Farmer Participation

Migrant farmers are not invited to official hamlet and communal meetings, and therefore offer little input into the affairs of the commune. One migrant (Farmer 32) remarked that he felt it was unfair to be left out of proceedings, and that every household should be invited, regardless of whether they own land, due to the fact that they are all citizens. Besides informal contact with the hamlet leaders and landlords, migrants have the opportunity to raise issues at meetings at the Plant Protection Office, where they receive education on farming

techniques and integrated pest management. When asked if he brought up the concerns of his migrant tenant at community meetings, Farmer 37 said he did not because within the contractual agreement with the tenant was a stipulation concerning productivity, that, if breached, allowed the tenant to leave. The lack of an institution for migrant farmers to fully represent themselves may, at present, be a minor issue.

Women's Participation

Women's participation in hamlet and communal meetings largely depends on whether their husband is attending. Women whose husbands were unable to attend (e.g. because of health reasons or too busy with job) or were the heads of households always attended the meetings and felt comfortable doing so. Others said that attendance was evenly split, but some women never attended. Farmer 34 said that she enjoyed attending because she wanted to receive the information being presented. In her hamlet, most of the men were too busy to attend the meetings, so they were attended mostly by women. As men and women's thoughts were, in her opinion, no different, this shift in the gender makeup did not have any effect on the dynamics of the meeting or the topics discussed.

Natural Environment

One minor theme that arose with farmers in both communes was of the large natural canals and Saigon River as belonging to the "natural environment". While farmers would clearly complain if the lined canals are polluted (as they are clearly the responsibility of the IMC), several farmers stated that no one managed these larger waterways and, more interestingly, no one was capable since they were part of the natural environment. This would obviously lower their expected level of participation.

Understanding Their Water Rights

Formal Legal Rights

When asked, thirteen out of fifteen farmers in Binh My were not aware of the Law of Water Resources, and were thus unaware of their legal rights and responsibilities. The two who were aware of the LWR had only recognized its name and were not familiar with its contents. The poor dissemination of information regarding the LWR is due to the government's lack of effort to educate the general public about the LWR, and because of this farmers are not aware of their legal rights (Informant 1, 2007). This shows that although the Grassroots Democracy

Decree gives farmers the right to know about laws and rights, this does not necessarily guarantee that they receive the information.

A number of farmers reported that others had received compensation for lost crops or declining productivity due to release of wastes. For example, the factories in Binh My had compensated nearby farmers who had lost crops due to their pollution. None of the farmers in this study who had lost crops had been compensated. In most cases, there was more than one factory to blame, and farmers suggested that this complicated ascertaining who would pay for compensation.

Informal Rights

As stated above, only a partial understanding of farmers' informal water rights framework was unveiled during the course of this study. Judging from their complaints about pollution introduced into the canals by other farmers, most farmers hold an expectation that other farmers will not pollute irrigation waters with banned agrochemicals and solid waste. Because water is often so plentiful, provisions for water sharing are not necessary except during times of scarcity. If water is scarce then farmers can pump water at their expense from another farmer's field. The scale of the water rights was demonstrated by Farmer 3 who was serviced by the IMC. For rights at the community scale, when asked if one farmer received water he suffered from scarcity, he said that such a situation was unlikely – if he did not have any water then no one would. At a larger scale, he stated that, "When water is scarce, as a downstream user he not entitled to say anything to upstream users, they are entitled to it first, then he gets his".

Assumed Legal Rights

While there was a diversity of answers for whether farmers complained about their water problems, all but two farmers felt they had the right to complain. This suggested that farmers felt entitled to adequate amounts of clean water. Yet, they are generally unaware of any formal rights that are infringed upon when their water is scarce or polluted. This was illustrated by Farmer 34's comments regarding her struggle with a polluting factory. She stated that she relied on the legislative system to stop the factory from polluting the water. However, when asked if she knew that the factory was breaking the law by polluting, she and the other farmers did not know but assumed that the factory's actions were not correct. She

assumed that since she had been farming that field for many years before the factory had been built she therefore deserved to have the water quality remain the same. Thus, Farmer 34's sense of entitlement came not from the law, but rather from the sense of rights accorded by a prior appropriation of the land and water. However, Farmer 34's conceptualization of water rights was not communicated by any other farmers.

Given that Farmer 34 was the only farmer to offer a conceptualization of her perceived water rights, making a broad generalization of how farmers derive their water rights must be done with caution. In Farmer 34's opinion, she had obtained the right to clean water because of her history of extracting it, and because it was intimately tied to her livelihood. In her conceptualization, water was directly linked to her livelihood. Based on the fact that there was a strong correlation between farmers who no longer farmed, and those who no longer complained about water quality, one could make the generalization that farmers' water rights were derived in the same way as Farmer 34's. However, in concluding this, one also assumes that farmers' concern for the environment is based purely on its utility – something that is unlikely. As Farmer 31 said, "wherever I live I will want it to be clean". In addition, because many farmers expressed frustration with the government's handling of their complaints when they were farming, many may have felt that it was an infraction on their water rights but past experience had taught them that complaining was useless. Thus, it is clear that with the data collected it is difficult to understand how farmers' water rights are derived. Further study with additional techniques for understanding farmers' conceptualization of water rights is required. The overall point, however, is that while farmers do not understand their legal rights, they nonetheless have a strong sense of entitlements, a prerequisite for claiming rights.

Communication Ability

Farmers' communicative abilities were limited due to the fact that they are more or less unaware of a government agency that manages water quality and, as discussed earlier, the laws that provide them their rights. This puts constraints on who the farmers complain to, and how their complaint is presented. Apart from the IMC, which farmers said was in charge of removing solid waste, with the exceptions of Farmers 20, 21, 23, 24, 27, 33, 34, farmers typically did not mention any government body that had a mandate over water quality, and no one specifically mentioned DARD and DONRE. This illustrates that government bodies,

such as DONRE and DARD, have little presence at the commune level when it comes to water management. This view was reiterated by the Vice Chairman of Binh My commune who said that there was basically no water management in the area except for the occasional canal maintenance project that was large enough to require him to organize it (Informant 9, 2007). Therefore, farmers' ability to communicate their rights claims is limited by their lack of knowledge concerning the relevant government agencies to which they should direct their claims.

Capability for Rational Decision making and Learning

As with their ability to communicate, farmers' capability for rational decision making is linked to their limited awareness of the government structure and legal system. This renders a situation where farmers are often unaware of their rights and the government's official duties, which impacts their decisions and strategies on mitigating their problems. The impact is unevenly distributed. At one end of the spectrum, where there is little impact, are farmers who complain to every government body they can contact, including hamlet leaders, irrigation managers, and commune, district, and HCMC People's Committee. The other end is evidenced by farmers who are suffering but do not complain because they do not think the government has any ability to solve the problem.

Farmers' abilities to learn from the impact of their actions are dependent on their communication with government officials. Currently, it appears that the dialogue on water pollution between farmers and government officials is fairly one sided, with farmers complaining to the government but receiving little information on its actions (or simply no actions). This is evidenced by farmers who note that government officials receive their complaints but never seem to do anything about them. Thus, they have little information on how their complaints are received, and how successful they are at inducing change, if any.

Summary: Constraints on Farmers' Claims

This section examined the capacity gap that limits farmers' capability to claim their rights. Four main factors were found to constrain farmers. Farmer participation is low, and issues arose concerning gender equity and inequitable treatment of migrants due to their lack of land title. Farmers are unaware of their formal legal rights, and the informal system was only partially revealed. Despite lacking knowledge of their formal legal rights, farmers do

complain about water quality, suggesting that they assume they have rights. One source of derivation of these rights discussed was water's link to farmers' livelihoods. Communication between farmers and the government is limited, and DONRE and DARD have little presence in the commune regarding water quality management. Lastly, farmers' capability for rational decision making and learning is compromised by a lack of participation in water management, knowledge about legal rights and government operations, and communication with government agencies.

Government

Responsibility

The DONRE officials interviewed acknowledged that they had a duty to protect water resources, although they explained that their efforts were compromised by a number of factors. Even though it was not part of their mandate, the DARD and IMC officials also acknowledged that greater protection was needed.

Authority

The government's development goals conflict with environmental concerns. The lack of regulation of industrial waste water must be viewed in the broader context of a national political economy geared towards rapid growth. Although obviously not an official position, some interviewees (Informant 2 and 6, 2007) stated that industrial growth was being given priority over environmental health. Environmental problems are far from being ignored or unacknowledged, but solving them is not a top priority.

The example of the sequence through which industrial parks and factories and their waste treatment systems are built provides a good example of this prioritization. By law, the waste treatment systems should be approved by DONRE and built before the factory/industrial park is opened. The reality is that the park is typically finished first, factories are invited to move in, and the government then attempts to force the zone to implement a wastewater treatment system (Informant 4). The general lack of compliance with Vietnam's wastewater regulations illustrates that these attempts are not often successful.

Access and control of resources

Supporting Legislation

As previously noted, the water management law system in its current form is not completely developed. The LEP and LWR set the general principles upon which water resources management is based, but many decrees are still needed to clarify and operationalize these laws. Although the law stipulates that water resources should be protected, clarification is still needed on how this should be done, and who is responsible (Informant 1, 2007).

However, while these aspects of Vietnam's water laws may still be unclear, Decree No. 34 2005 ND-CP provides detailed guidelines and specific fine ranges for a number of situations relating to water exploitation and waste discharges, such as exceeding limits of extraction or discharge dictated by obtained licences, and operating without a license. The comprehensiveness of the schedule allows for clear applications of the law (Informant 6, 2007). As noted earlier, however, the fines for violating wastewater release regulations are very low, and in many cases do not provide enough incentive for firms to invest in or operate waste water treatment systems. For example, from January to May 2007, the Cu Chi DONRE reported that they had collected eleven fines worth approximately 42,000,000 VND ($2800 CAD, an average of $255 CAD each) (Informant 6, 2007). Because this amount is so low, the incentive that they give for industries to comply with regulations is questionable.

National Fragmentation: MONRE vs. MARD

Over the last two decades, Vietnam's water management structure has been reorganized three times. The Ministry of Water Resources (for which little information could be located) was eliminated in 1992, and all its responsibilities were transferred to MARD (*Vietnam: Water Resources Sector Review*, 1996). Another shift occurred in 2003 with much of MARD's water management responsibilities being transferred to MONRE. Despite these shifts, the conflict described below suggests that Vietnam has yet to achieve a balance of water-related responsibilities that is uncontested by its ministries.

Despite MONRE's overall role in protecting water sources, Article 2.27 of Decree No. 01/2008/ND-CP states that MARD has the right to "examine, inspect and settle complaints and denunciations, fight against corrupt and negative acts and handle illegal acts in agriculture…and water resources". This suggests that they have some authority over water

quality issues, especially those that relate to agriculture. It could also be related to rural water supply, one of MARD's responsibilities. Again, without access to the clarifications of their duties in Decision No. 25/2008/QD-BNN, this is only speculative.

There has been a continual conflict between MARD and MONRE ever since MONRE's formation (Informant 5, 2007). Olszak (2006) and Trang (2005) both state that tensions over jurisdiction exist between MARD and MONRE, but are unspecific on its overall impact. One interviewee claimed that the tension manifests itself by slowing decision making and complicating cooperative efforts, because MONRE usually tries to force itself into a leadership position. The main impact is resentment and resistance by other ministries, and these conflicts have complicated efforts at integrated water resource management (Informant 7, 2007). Therefore, the results of MONRE's role as a coordinator have been unsatisfactory (Trang, 2005). Rumours that "MARD had finally lost the battle" and that its water management responsibilities would be transferred to MONRE had been circulating (Informant 5, 2007). However, with the recent promulgation of Decree No. 01/2008/ND-CP, this seems unlikely to happen in the near future.

Provincial and District Management Fragmentation

This conflict that exists between MONRE and MARD was far less evident at the provincial and district levels. HCMC's DONRE representative did not acknowledge any such conflict with the provincial DARD, and, despite jurisdictional conflicts, he felt that his department was able to cooperate with other departments. At the district level, investigations of water pollution will involve both the DONRE and DARD/IMC officials, and DONRE stated that it was able to cooperate to solve the problem. Inter-district water pollution problems between DONREs, such as between Cu Chi and Hoc Mon Districts, were said to be unproblematic.

HCMC's upper level water managers complained that the organization of responsibilities was fragmented and that there was poor interdepartmental coordination. When asked if the organization of management responsibilities created conflicts, all but one upper level manager (city and district level) agreed that there were many conflicts (Informant 6, 2007). This has been a persistent problem for at least the last decade, and was recognized as a problem within the LWR when it was still being drafted (*Vietnam: Water Resources Sector Review*, 1996). An inadvertent admission of the conflict occurred when DONRE and DARD officials were

asked how they were responding to farmers' concerns about water pollution, and both independently indicated that the other was responsible. The current organization of responsibilities requires that DARD and the IMC rely on DONRE to keep water resources clean – a task DONRE is not completing to DARD or the IMC's satisfaction. In addition to DARD's wish for more control over water quality, the IMC also expressed a desire for more authority to fine/punish those found illegally polluting in the canal system. Fragmentation within DARD exists as well, given that although irrigation waters are the responsibility of DARD's Division of Irrigation Management and Flood and Storm Prevention, they do not directly manage but merely advise the upper levels of DARD as to how the IMC, the actual operators of the irrigation system, should be managed.

Government Funding

The provincial DONRE representative was satisfied with his particular division's budget, saying it was adequate, but the Cu Chi DONRE department's budget does not allow it to adequately monitor water quality levels (in both the amount of sampling done and the criteria tested for) (Informant 3 and 6, 2007). However, the provincial DONRE representative was responsible for formulating the division's budget, and therefore was perhaps somewhat biased in his belief in its success. When asked for further details on how the budget was spent, the provincial DONRE representative was reluctant to provide them, and gave only one example, that the monitoring portion of the budget was around 300 million VND ($20,000 CAD). Although an important variable in capacity, O'Rourke (2002) notes that lack of funding does not fully explain Vietnam's current difficulties with environmental protection.

Communication Capability

Vietnam's environmental monitoring was described as having "Rich data, but poor information", meaning the government spends a great deal of money and effort collecting environmental data, but because it lacks a comprehensive program for monitoring, the data is not translated into information for decision makers (Informant 7, 2007). In general, communication levels are not sufficient to adequately share information, and departments sometimes do not bother, or may even refrain from, sharing data they have collected. This is despite the fact that in theory any information gathered by any one particular governmental department then becomes the property of the government in its entirety, and should therefore

be available to all ministries and departments (Informant 7, 2007). The lack of coordination for the dissemination of information and lack of cooperative sharing has been an issue for at least a decade (*Vietnam: Water Resources Sector Review*, 1996).

Contrary to this, the HCMC DONRE representative painted a fairly different outlook on information sharing. He said reports emanating from the Division of Water and Mineral Resource Management were sent to other departments and divisions, as well as the provincial PC which normally synthesized findings and sent out summaries to other departments (Informant 1, 2007).

Capability for Rational Decision making and Learning

Sufficient data to fully describe the government's capability for rational decision making and learning were not collected, so only a partial assessment is possible. Given the government's fully acknowledged lack of ability to control industrial wastewater releases, it seems fair to say that situating factories among farms, such as in Binh My, reflects a lack of understanding of the impacts of planning decisions. This is no doubt compounded by the lack of communication and monitoring, an important factor in the ability to make rational decisions and learn from their outcomes. However, this may have changed and it is unclear whether this is still common practice or whether it is now more common for industries to be opened in or moved to industrial zones. For example, a group leader from Binh My reported that there had been attempts to move some of the polluting factories out of the commune, but it was not ascertained where they would be moved. As was noted earlier, it would be incorrect, however, to portray government officials as oblivious to the degradation of water resources, because all who were interviewed were very much aware of it.

Summary: The Government's Role and Constraints on their Actions

This section examined the capacity gap that limits the government's capability to fulfill its duty to protect farmers from water pollution. It identified five issues that are constraining the government. Currently, the national priority for continued economic growth precedes environmental concerns. The result is pressure on water quality regulators to not impose costs on an expanding industrial sector. Jurisdictional conflicts and fragmentation at both the national and provincial level complicate and slow management efforts. Lack of funding and lack of interagency communication have a similar impact. Only a partial assessment of the

government's capability for rational decision making and learning was possible. While it may be increasing, judging from their past planning of industrial areas it seems low.

5.2 Water Governance in HCMC and Vietnam

5.2.1 Good Governance

This section will evaluate water governance in HCMC and Vietnam in accordance with the seven principles of good water governance previously discussed. It reveals issues in all three of the governance hierarchies: operational, organizational, constitutional.

Open and Transparent

In general, Vietnam's water governance is not open or transparent. Levels of communication, discussed in the subsequent section, are poor. The result is that farmers were more or less unaware of the existence and therefore operations of the government's water management institutions. Two observations illustrate this. First, concerning the operations of the Cu Chi IMC, farmers receive little if any information from their local irrigation managers about what is discussed at IMC meetings, lowering the level of openness of the IMC's operations. One illustrative example of this was the fact that farmers in TPT were not aware of the reason for limited water availability in the dry season. They had not been informed that water was purposefully withheld from TPT's lined canals. Second, since the lined irrigation canals served little purpose, the hamlet leader of Xom Don, TPT expressed wonder as to why they were built. Indeed, it seems strange to spend a great deal of money upgrading a canal system only to use it for a few years and then rezone much of the commune for uses other than agriculture. It could suggest that there was never any intention for the canals to be used for irrigation. In the future, they may be used to transport wastewater, as is already practiced in other areas.

Inclusive and Communicative

The discussion of inclusiveness must separate farmers serviced by the IMC from those connected to the unlined irrigation system, as their interactions with government agencies are fairly different. Decentralization of management of the unlined canal system has given considerable control of canal maintenance to farmers. For the lined system, however, most of the farmers interviewed in this study considered themselves more or less removed from the management process. The structure of the system could allow for more participation if there

were a formal mechanism where farmers met with the local irrigation manager, voiced their concerns, the local manager took them to the IMC, and then reported back to the farmers on the proceedings. As it stands now, farmers voice their concerns, but they do not know how they are received, or even whether they are passed on. The devolution of interior canal management may be accompanied by a restructuring of the current management framework. If farmers are given more responsibilities, there may be a need for more frequent and detailed dialogues between the IMC and irrigation groups.

Despite their level of inclusion related to maintenance, farmers connected to both types of system have little formal input. Their only vehicle for formal participation in quality management is through complaining. For the most part, it seems as though their complaints are directed at officials within the commune, such as hamlet and commune leaders. In a system where the government takes a reactive rather than proactive approach to water quality management, these complaints are essential. Since migrants are excluded from community meetings, they find themselves further removed from the process of management.

Communication between farmers and government officials is unidirectional. For all their complaining, farmers receive little information back from the government concerning water pollution management. This appears to hold true for information about their actions and operations as well as information about the current legal framework governing water resources.

Coherent and Integrative

There are many overlaps, uncertainties, and conflicts in Vietnam's water governance system, thus lowering its coherence. As noted, this requires political leadership and strong responsibility from the water institutions. At the ministerial level, MONRE and MARD are in a political battle for control of water management, and MONRE's assertive position towards other ministries, and the resentment it garners, is reported to complicate and stall attempts at integrated water resources management (although, as is argued in Chapter Seven, this conflict requires further examination). This process is further complicated by the ambiguities in each ministry's responsibilities. Also, general communication and information sharing between government agencies requires improvements. However, at least at the district level, it appears

as if DARD and DONRE are able to cooperate in regulating the pollution issues they attempt to address.

When asked whether MARD should relinquish its water management responsibilities to MONRE, the DARD official noted that water management would become too centralized and that MONRE lacked specialized knowledge of agriculture (Informant 2, 2007). Also, that amount of integration was likely not needed for MONRE to just "do their job" (Informant 5, 2007). At the provincial level, DARD finds itself removed from the process of regulation. As it is in charge of river basin management, one could argue that it has a large stake in water quality, large enough, perhaps, to warrant an authoritative position.

Rogers and Hall (2003) note that in order to be truly integrative, water institutions will have to consider all uses within the water sector. While the government's planning process is not part of this research, the existence of polluting rubber factories interspersed between farms in Binh My is evidence that, in the past, farmers' water use and the impacts that an unregulated factory may have on it were, at the very least, not prioritized.

Equitable and Ethical

The pollution burden that originates from industrial activities in TPT and Binh My disproportionately impacts farmers in these communes. Thus, at least in this case, the current water governance system has rendered an inequitable situation. In addition to this, the little participation that farmers have is not gender equitable. While nothing officially bars women from participating in hamlet and communal affairs, cultural norms dictate that men typically are the ones who attend hamlet and commune meetings. Since both men and women often engage in agriculture, it is important both participate. It was not clear from this research whether there was a substantial difference between the opinions expressed by female and male farmers. Further research is required to see whether such a divide exists, and whether important viewpoints and opinions are being lost through women's exclusion.

Rogers and Hall (2003) note that water governance should be founded on the ethical principles of the society. Among these were notions of justice and property rights. In this case, farmers clearly view their situation and the fact that they have not received compensation for their crop losses as unjust. Farmers also feel they have entitlements to clean water, and to participate in water management. A review of the legal foundations of

Vietnam's water governance suggests that these ethics been integrated into the law. However, with regard to the system's actual functioning, it would appear that this is not the case. With regard to water pollution regulation, it appears as though the governance system deviates from its legal and ethical foundations due to a number of issues. The most inequitable of these, perhaps, is the prioritization of the interests of industries over those of farmers.

Accountable

There is a general lack of accountability in Vietnam's water governance system. Beginning with the relationships with the government apparatus at the provincial level, DARD is not satisfied with DONRE's performance in regulating water pollutants which are having negative effects on the agricultural sector, and DARD seems to have little power to ameliorate the situation. There are many examples of a lack of accountability between farmers and the government. Farmers in TPT facing manufactured scarcity in the dry season have their complaints for better reliability go unanswered. Farmers' complaints appear to generate some government action, but it is not enough to cause DONRE to fully assume its responsibilities.

There is also little accountability between industries and DONRE. As already noted, factories often only turn on their waste treatment system prior to being inspected, that is if they actually have one, which many do not. Rogers and Hall (2003) mention the importance of establishing the 'rules of the game' and establishing consequences. In Vietnam's case the rules and consequences are clear, but they are unevenly enforced. In addition, the fines for pollution are too low to provide factories the incentive to build and/or operate a wastewater treatment system. Were the fines raised they could not only serve to provide incentives but could also act as a source of income for DONRE, which could in turn enable better monitoring.

Efficient

Rogers and Hall (2003) argue that economic efficiency must be balanced against political, social, and environmental efficiency. It is important to note that without further and more detailed data, including quantitative data on the industrial and agricultural sector, this discussion of efficiency is limited to being mostly speculative. In the current system of governance, it is more economically efficient for firms to not comply with regulation, as the cost of non-compliance is cheaper. One can speculate that the loss of crops and lowering of yields in TPT and Binh My could be offset by the gains made in the surrounding industrial

sector. On the other hand, peri-urban agriculture makes a number of positive social contributions, including providing an important food supply, ensuring the availability of fresh vegetables, creating employment opportunities, acting as a sink for urban wastes (e.g. through organic composting), and providing employment/income strategies (Douglas, 2006). In terms of political efficiency, one would have to compare the current unrest from farmers against that which the industrial sector would produce should the government attempt to regulate it more strictly. To comment on the social efficiency, one would have to quantify the social benefit of not treating wastewater versus treating wastewater. One could argue that saving money by not treating waste encourages industrial growth, which leads to more jobs. On the other hand, it also damages people's livelihoods as well as their health. For environmental efficiency, there are clearly gains to be made from any investment in both treating wastes and monitoring of wastewater treatment systems.

Responsive and Sustainable

The previous evaluative sections have already illustrated that farmers' demands for greater protection from water pollution are not being met. Due to the rate at which the PUI changes, Allen (2003) argues that successful environmental management requires the incorporation of current and possible future changes into its management framework in order to remain responsive. Rogers and Hall (2003) note that policies should encourage change through incentive-based mechanisms. At this point, Vietnam does not provide sufficient incentives to encourage compliance with regulations.

The LWR was written with a long-term vision of a future water governance system. Thus, it increases its level of sustainability by allowing for further elaboration with supportive regulations to be added. However, at the same time, the current system is incomplete, and is not sustainable.

5.3 Summary

Employing a research framework based on UNICEF's rights-based approach and a good governance approach, this chapter presented the data gathered from the field. The causality analysis revealed that industrial water pollution is often found in irrigation waters in both TPT and Binh My. The pattern analysis showed that the law does provide a clear claim-duty relationship between farmers and government. The third part of the framework, the capacity

gap analysis, showed that constraints on this relationship exist for both the government and farmers. Water governance in Vietnam is affected by political priorities for economic growth, political conflicts between government bodies, fragmented responsibilities, poor communication, and inadequate funding. Most of the issues that farmers have stem from having minimal participation and a lack of information about water management and the legal apparatus that supports it.

The good governance approach has revealed issues in each of the seven principles of good governance. Many of these issues are inconsistent with the guarantees of the Grassroots Democracy Decree, those being increased transparency, participation, and accountability. This is despite the fact that implementation of the GDD has been most successful in HCMC (Adhikari et al., 2004). From farmers' comments, it is clear that the government is not entirely open and transparent about water quality management. Levels of inclusiveness and communication are generally low when it comes to water management. An incomplete legal system, jurisdictional fragmentation and ambiguous responsibilities contribute to low levels of coherence and integration. Equity is not ensured due to gender and class differences, and the continuation of the pollution problem is unethical. There is a lack of government accountability to farmers. The prioritization of industrial growth over farmers' livelihoods and environmental health was argued to be inefficient. Lastly, the current water governance system is not responding adequately to the farmers' problems, and although sustainability is encouraged by the format of the LWR, its incompleteness leads to unsustainable management. Table 5.1 and Table 5.2 present a summary of the data presented in this chapter. The next chapter discusses the practical and theoretical implications of this research.

Table 5.1 Summary of Results: Rights-based Approach

1) Causality analysis	-problem is untreated industrial waste being released into water later used for irrigation, farmers experience declines in yields
2) Pattern analysis	-claims and duties specified by LEP, LWR, and supporting legislation -government has clear role to regulate pollution -every person has duty to protect environment -those harmed by illegal pollution are to be compensated
3) Capacity gap analysis	**Farmers**
Responsibility	-do not know their duty to protect, but farmers complain to government that water is polluted because it affects their livelihoods
Authority	-have the right to complain about polluting industries
Access and control of resources	-participation in water management is limited -little understanding of formal legal system and water rights -complaints show they still feel entitled to clean water
Communication	-limited ability to communicate with government -unaware of government agencies responsible for management, farmers do not know to whom they should complain
Capability for decision making and learning	-limited information and communication limits ability
	Government
Responsibility	-knowledge of their duties, somewhat complicated by ambiguous departmental mandates
Authority	-pressure not to impact economic growth by imposing costs of wastewater treatment and pollution fines

Access and control of resources	-legal framework incomplete, cannot fully operationalize regulations -fragmentation and conflicts at national and provincial levels -lack of funding
Communication	-limited inter-ministry/interdepartmental communication, limited data sharing
Capability for decision making and learning	-planning and regulation suggest limited ability to make rational decisions

Table 5.2 Summary of Results: Good Governance Approach

Principles	Local situation
Open and Transparent	-farmers lack information about water management, operations and decisions
Inclusive and Communicative	-farmers have little formal input in water management -communication is unidirectional, farmers → government
Equitable and Ethical	-pollution burden farmers face is inequitable -what little farmer participation exists is not gender equitable, also dependent on holding land use rights - management is not ethical
Accountable	-lack of government accountability -lack of industry accountability
Efficient	-not economically, politically, socially, or environmentally efficient
Responsive and Sustainable	-not responding to farmers' needs -levels of pollution being released are not environmentally sustainable

Chapter 6 Practical Implications and Contributions to Literature

6.1 Introduction

This chapter is divided into two parts, detailing both the practical and theoretical implications of this research. The first part explores the relationship between the governance issues identified and farmers' water rights, making preliminary suggestions, and thus completing *Step 4 Identification of Candidate Actions* of UNICEF's framework. The second part examines the implications that this research has on the literature reviewed in Chapter Two.

6.2 UNICEF Framework: Step 4 Identification of Candidate Actions

The first portion of this chapter will hypothesize whether strengthening farmers' water rights would address the issues identified in the previous section, and promote good water governance in HCMC and Vietnam. Although all are not discussed here, a shift towards good governance would have implications for government, civil society, and private sector actors. Achieving good governance is seen as a way of addressing the pollution problem previously described, as it would empower farmers and increase the capacity of the government to respond to farmers' needs, thereby offering them more protection from polluting industries. However, a number of issues, discussed below, would require attention in order for water rights to render change towards achieving good governance. Water rights, in this case, refer to more than just dimensions of access. They can be viewed as a package of rights, including the right to information and to participate in water management. In sum, what would be strengthened, or clarified, would be farmers' rights to certain quantities of water of a certain quality that allows for healthy crop growth, and rights to information and participation in water management. Participation, a relative term (Arnstein, 1969), is quantified later in this section.

Stronger rights to information and participation could render positive change for farmers concerning the issues of openness and transparency, inclusiveness and communication, levels of equity, accountability, and responsiveness and sustainability. Ideally, strengthened rights would allow farmers to be more informed of the government's plans and decisions regarding water management, and allow them to have increased and meaningful participation in the

water management process. In terms of coherence and levels of integrative management, the contribution of stronger rights is questionable. In the process of refining farmers' water rights, the responsibilities of each agency may also be refined to make them clearer. However, stronger rights may not help solve the political conflict between MARD and MONRE. Levels of accountability may be increased, which would create an opportunity for farmers to force the government to change their situation to one that is more equitable. It would also give the government a stronger platform to regulate industries. Regarding efficiency, it was argued that the current practice of not regulating industries was inefficient. Therefore, greater protection for farmers, and the indirect and direct political, economic, environmental, and social benefits that result, would render a more efficient situation. Lastly, stronger rights would make the government more responsive to farmers needs and would indirectly lead to cleaner water, thus increasing sustainability.

Drawing on the recognized challenges and the previous experiences of the cases of South Africa and Thailand outlined in Chapter Two, a number of barriers would need to be addressed in order for water rights to have the impact described above.

Establishing and recognizing rights is a political process, and thus subject to power relations. Therefore, the ability for farmers to benefit from the protection their rights would afford them depends on their power. Because the government has placed its priorities in industrial growth, farmers have limited power when it comes to forcing the government to regulate industries. This situation is not unprecedented in Vietnam. Recent cases have seen the Vietnamese government ignore the principle of indivisibility and inequitably prioritize the rights of certain groups over others (Volkmann, 2005). There would therefore have to be a shift in the government's priorities if farmers' water rights were going to be fully recognized. As regulators, the government's recognition and enforcement of farmers' water rights is intimately linked to the private sector's recognition of water rights. In other words, the private sector may not recognize farmers' rights without government intervention, as evidenced by water service disconnections in South Africa.

The legal framework allows compensating those whose livelihoods are harmed by illegal pollution. However, instances of compensation appear to be rare. Compensating those

harmed by illegal polluting could be an important motivation for pollution control for firms currently not treating their wastewater.

Information regarding water rights would have to be disseminated to farmers. As was the case in Thailand, without detailed information about their rights – what they are entitled to and how they can claim them – farmers will not be able to take advantage of them. Finally, similar to South Africa, intervention would be required to ensure that women were able to exercise their water rights, particularly regarding information and participation.

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Despite these barriers, three important opportunities exist. First, in order for water rights to make a difference, farmers must be proactive in claiming their rights. One of the issues with the RBA is that it presupposes a level of organization and voice. In Vietnam's case, the literature on community-based regulation demonstrates that there exists a capacity for both. Therefore, it could be argued that farmers would have little trouble filling their role as claimants in their claim-duty relationship with the government. Also, in terms of organizing farmers' participation in water management, it is important to note that farmers regularly meet at the hamlet and commune levels to discuss issues, thereby affording the opportunity to discuss issues and feed information up the organizational hierarchy. Third, it is important to recognize that the good governance approach argues to grant farmers substantially more inclusion in water management, and that this represents a challenge to current power relations. However, is noteworthy that such principles are compatible with the principles outlined in Vietnam's Grassroots Democracy Decree, which sets an important precedent required for the reforms described above.

6.2.1 Land Use Management Reforms

In order to protect peri-urban farmers from urban expansion as well as buffering them from pollution flows, it may also be necessary to implement land use reforms. Similar to Vietnam, rapid development and the spread of industrial activity into rural areas in China has led to a trend of agricultural land loss and degradation(Skiner et al., 2001). China has attempted to address this trend by requiring governments at or above the county level to create a protected agricultural zone in every village or township (Lichtenberg and Ding, 2008). Another policy requires that any removal of agricultural land must be followed with the reclamation of land

of equal quantity and quality (Skiner et al., 2001). Lichtenberg and Ding (2008) also argue that, in general, secure land tenure is important for ensuring efficient land use, including maintaining investment levels and thus land productivity. They also argue that incentives should discourage abandonment of agricultural land, as this frees it for development. This is especially important, they argue, near urban areas where the process of abandonment is accelerated by nearby urban employment opportunities. Other reforms could protect farmers through increased segregation of industrial and agricultural activities or the establishment of agricultural land reserves. This could take the form of zoning green belts around agricultural zones. However, while this may offer some protection from pollution flows, given the spatial fluidity of water, it may be difficult to segregate farmers from upstream – and even downstream sources, given HCMC's tidal effects – from pollution sources.

6.2.2 Distributed Governance and Farmers

The argument for increased farmer participation in water management begs the questions: what will they participate in, and to what degree? In general, it appears as though farmers' input has little impact on government operations, so participation levels in water management are low – contradictory to the Grassroots Democracy Decree. Any increase in the planning and operational stages of management, such as consulting farmers on their positions, would be beneficial.

With regard to participation in water quality management, the technical knowledge and equipment needed to conduct water quality tests necessitate that monitoring remain primarily a government responsibility. However, as the current regulatory system is largely reactive, farmers already have a role, albeit informally, in monitoring. In a system where budgetary constraints hamper official monitoring activities, these actors thus form an important network of monitors. Therefore, there may be an opportunity for them to take on a formal role that complements government monitoring responsibilities.

Like monitoring, farmers have also demonstrated that they could have a role in regulating water quality, although this too should remain primarily a government responsibility. At the small scale, farmers have the potential to formally monitor and punish community members who throw solid waste into irrigation canals. There is likely less potential for them to take a formal role in regulating industries. However, they, along with other civil society actors such

as the media, have an important role to play in informal regulation through exerting pressures on both the government and industries.

6.3 Implications for Literature Reviewed

In addressing the farmers' water pollution problem in HCMC, this thesis sought to address a number of questions posed by the literature discussed in Chapter Two.

6.3.1 The Peri-urban context

Following Philips et al.'s (1999) definition, TPT and Binh My would be considered in HCMC's zone of direct impact, as they are directly influenced by HCMC's urbanization process. From the description below it is clear that in many ways Cu Chi conforms to the attributes of the PUI described in Chapter Two.

In terms of changes, both communes have seen rapid environmental, economic, and social changes in the last ten years. TPT and Binh My exhibited a greater number of peri-urban similarities than differences. However, in some cases these processes operated and produced different outcomes. Both contained farmers that had recently begun suffering from the effects of water pollution, although this was more widespread in Binh My because of its water sources. Water is polluted from a large number of sources. However, of primary concern were pollutants from unregulated industrial wastewater and untreated domestic sewage, the latter being unaddressed by this research. To this list, farmers also added domestic wastes deposited in canals, a result of poor waste removal services, as a factor. Similar to the findings of Sajor and Ongsakul (2007), this research found that pollution burdens are born unevenly in peri-urban areas. In both cases, farmers bore the brunt of the pollution burdens and lacked the power to cause significant changes in their situations, and those releasing pollutants faced little consequences for the externalities they produced. In both cases, a number of factors were instrumental in causing the inequitable distribution.

As a result of development plans, land use changes away from agriculture were very prevalent in TPT but not in Binh My. Much of the agricultural land in TPT is no longer used and is slated for conversion to urban uses, while Binh My's land use continues to be dominated by agriculture. These land use changes have produced significant livelihood changes. First and foremost, these changes have lowered the benefit and efficiency of releasing water into TPT's lined canals to the point where it no longer occurs, thus depriving farmers of a reliable source

of water in the dry season. Second, many of the farmers in TPT who have been bought out consider themselves too old to find employment in the industrial sector. Some were considering the service sector, while others were uncertain of their futures. Third, another group of farmers are old and have or are nearing retirement, but their children have acquired jobs in the industrial and service sector. They have or will soon rent out their land, as was the case in Binh My, or will leave it unused, which was more often the case in TPT.

Lastly, the communes have undergone social changes. Both have seen the influx of new residents. In Binh My, these have been migrant farmers. Residents argue that the migrants have a different view of the environment, and readily pollute it. However, factors such as availability of services are likely more important. TPT has seen an increase in non-agrarian population through the removal of practicing farmers. This trend is likely to continue and intensify with the development of housing areas and further diversification of its economy.

Although HCMC's water management has inadequately adapted to the challenges that have arisen due to rapid changes in the PUI, the jurisdictional issues commonly found in the PUI, are partially addressed, although perhaps inadvertently. The multi-scale linking of peri-urban, to urban, to provincial agencies is made possible by HCMC's institutional organization, as the city is its own province. Cu Chi does not occupy an ambiguous administrative area; it is clearly planned as a periphery of the urban core. However, the ambiguity of responsibilities and relationships does create problems for agencies operating in the PUI.

From the results presented in the previous chapter, it is clear that in searching for the answers regarding the persistence of farmers' pollution problem in Cu Chi, one must look beyond the PUI for the complete picture. In other words, the merging of urban activities and agriculture irrigated in HCMC's PUI clearly causes the problem, but PUI theory does not fully explain its occurrence. The problem is that Vietnam suffers from poor water governance, and thus lacks the capacity to successfully manage the environment in a challenging context like the PUI.

6.3.2 Good Governance

Franks and Cleaver (2007) argue that there has been a lack of enquiry how good governance works in practice and how good governance outcomes are achieved. An understanding of relevant contextual factors is argued to be important in working towards good governance (Ashton, 2007). Contributing to a greater understanding of the Vietnamese context has been a

key element of this thesis. I also argued that strengthening farmers' water rights would be an important step in reforming Vietnam's governance system to produce 'good' outcomes. It was argued that strengthening water rights, and the auxiliary impacts this would have, could contribute to achieving good water governance. However, it must be reiterated that strengthening rights alone is not a complete solution.

A second argument of Franks (2004) was that governance was conceptualized and operationalized without politics in mind, which he views as incorrect. Therefore, this thesis included politics in its examination, and found that a number of Vietnam's water governance issues must be viewed within the political sphere. The conflict between MONRE and MARD is the result of a political power struggle. The emphasis on economic growth over environmental health and the reluctance of government officials to strictly regulate industries that is the result is dominated by politics. The decision to turn TPT into a zone in transition was also likely impacted by politics. Therefore, following Frank's (2004) assertion, governance must be viewed, at least partially, in the political sphere.

Lastly, Franks (2004) has also argued that although participation is an important part of the good governance agenda, questions remain about what are appropriate areas and levels of participation. For a number of reasons, this thesis argued that water quality management should remain primarily a government activity. However, given Vietnam's history of community-based regulation, this thesis also argued the possibility of a role for civil society that compliments the government's role.

6.4 Summary

This chapter described the practical and theoretical implications of this thesis. The first part of the chapter completed the final step of UNICEF's Five Step Approach, identifying candidate actions to address the problem. Strengthening farmers' water rights could contribute to solving their water pollution problems. However, a number of issues would require attention if strengthened rights were to make a difference. The second part of the chapter discussed the implications that the findings of this thesis have on the literature reviewed in Chapter Two. The next chapter summarizes the findings of this thesis.

Chapter 7 Conclusion

7.1 Introduction

This chapter concludes this thesis by providing a summary of its findings, and some final comments. It begins with a review of each research objective, providing a short summary of what was learned. It then provides some comments on the peri-urban context, and the use of the rights-based approach to development. Lastly, it discusses possible avenues for future research.

7.2 Addressing the Research Objectives

7.2.1 Objective 1: Describing the context

The first objective of this thesis was:

- To describe water governance in Vietnam and Ho Chi Minh City, including the organization of government water management entities and the legal framework that supports them, as well as other relevant contextual factors.

Formal water governance in Vietnam emerged only in the mid 1990s and has undergone rapid institutional reform since then. This review was a necessary first step in order to assess how the government regulates industrial water pollution.

A number of other contextual factors were significant to the water pollution problem studied in Cu Chi. First, Vietnam has and continues to experience rapid economic growth over the last twenty years. Second the pattern of urbanization and industrialization in HCMC was relatively uncontrolled, which could account for why a number of factories have been built outside of industrial parks and are operating perhaps inappropriately close to agricultural activities. Third, firms and industrial parks face a number of barriers to building and or operating waste treatment systems. Fourth, many of the factors involved in farmers' problems with pollution are contradictory to Vietnam's Grassroots Democracy Decree. Lastly, civil society action pressuring polluting industries as well as the government for failing to regulate pollution, in such forms as protests and media reports, is an important factor when considering possible solutions.

7.2.2 Objective 2: Constraints on the claim-duty relationship

Objective 2 aimed to understand both the nature of the problem itself and the reason that the claim-duty relationship between farmers and government officials was not fully functioning. Specifically, Objective 2 was:

- To apply a rights-based approach to analyze the problem of polluted irrigation water facing farmers in HCMC's peri-urban interface, and the factors that constrain farmers' and the government's ability to solve the problem.

This research found that farmers whose farms were irrigated by the lined canal system had relatively clean water compared to those irrigated by the unlined system, but suffered from scarcity during the dry season. Although the cleanliness of their water excluded those farmers from the pollution problem, they were nonetheless part of the analysis as their low level inclusion in irrigation water management provided an indication of farmers' overall participation in the water governance system. Those farmers connected to the unlined irrigation system in both communes reported suffering lower crop yields and at times crop losses. The problem, in their opinion, was the high level of industrial pollutants in their irrigation water.

The second part of the rights-based approach was to identify the current claim-duty relationship between farmers and the government. A review of Vietnam's environment and water-related legislation revealed that the government has a clearly designated role as protector of the environment, and that farmers have the rights to use water and complain about those illegally polluting water resources.

A number of factors constrain farmers' ability to successfully claim their rights. First and foremost, although they make formal and informal complaints to government officials, they are unaware that these are legitimate legal claims, due to a lack of dissemination about Vietnam's environmental laws. This includes laws such as the LEP and LWR that state the government is responsible for protecting the environment, that they are entitled to compensation for crop losses, and that it is their right to complain about others causing environmental harm. In addition, their participation in water quality management is low. This limits their complaints to the government as just that, rather than what would otherwise be providing legitimate feedback in a more participatory system. What little participation

does take place favours the opinions of males who hold land use rights, as women usually only actively participate when the man of the household is unable to do so. Moreover, migrant farmers renting land are excluded from the main community meetings. Lastly, a lack of information about government agencies as well as their activities means that many farmers are largely unaware of how the government manages water quality, so they do not know to whom they should direct their complaints. Each of these factors is in contradiction to guarantees of Vietnam's Grassroots Democracy Decree.

Turning to the government agencies at national, provincial, and district scales, a number of factors were also found to constrain them, leading to their inability to adequately regulate industrial wastewater. These were found to be primarily institutional problems. A formal legal framework for environmental protection has only existed for little over a decade, and it continues to be revised. The current framework of water resource protection was found to be incomplete. Other issues, such as fragmentation and overlapping responsibilities between agencies, lack of funding for proper monitoring, and lack of communication and information sharing were found to be important. Lastly, it was argued that the entire problem must be viewed within the context of a national political economy striving for continued strong economic growth. This creates notable pressure and constraints on those attempting to regulate industries, as doing so would impose costs upon the industrial sector and potentially slow growth.

7.2.3 Objective 3: Vietnam's water governance and identifying candidate actions

The third research objective examined water governance in Vietnam and identified actions that could address the problems identified. The specific objective was:

- Based on the findings gathered through Objective Two, identify issues in HCMC and Vietnam's water governance using the good water governance approach, and to apply a rights-based approach to identify actions to address these issues.

To accomplish this, the findings from Objective 2 were evaluated against the principles of good water governance, as found in Rogers and Hall (2003). Following Franks (2004) argument, this evaluation of governance was not completed outside the political sphere. Indeed, political issues were argued to be important factors in the governance system. The

evaluation identified deficiencies in each of the seven aspects of good governance. These deficiencies are common throughout Asia.

The second part of this objective involved making suggestions for actions, revolving around rights, which may enable farmers and government officials to address the problem. The conclusion related to this research objective was that strengthening farmers' water rights could potentially address the research problem, as increased information, participation, and accountability would ensue. This could address governance issues from the farmers' perspective by making it more open and transparent, inclusive and communicative, equitable, accountable, responsive to their needs, and offer greater protection to the environment, thus increasing sustainability. This suggestion was very much congruent with the Grassroots Democracy Decree. Reforms to land use management could also contribute to protecting the livelihoods of farmers from urban expansion and water pollution.

While it is easy to suggest that increasing farmers' rights would solve this problem, it may do little to address the political conflict between MONRE and MARD, as well as address the ambiguities and overlap between government agencies. Regarding the positive impact that rights are purported to have, judging from past experiences in other countries, this is highly dependent on a shift in government priorities, in this case requiring increased consideration for the negative environmental and social impacts of the pollution burden that accompanies economic growth. As Vietnam's legal water resources framework is relatively young, revisions and additions are required, which would take time drafting. Lastly, it is dependent on farmers' ability to claim their rights, which requires education and a receptive audience. However, it is important to keep in mind that Vietnam has a relatively high participation in social groups, and a history of strong voice against polluters. Also, farmers are already regularly meeting to discuss community issues, and have experience organizing maintenance on irrigation infrastructure.

Lastly, following the argument that distributed governance is desirable, this thesis suggested that monitoring and regulation remain primarily a government activity due to the technical skills required and because of a higher likelihood of compliance. However, it also suggested the possibility of farmers, as well as other civil society actors such as social groups and the

media, in addition to pressuring both the government and industries to regulate industrial water pollution, assume a formal role that complements the government's.

7.3 The Importance of the Peri-Urban Context

The rapid pace of urbanization and industrialization has rendered a physical environment that is clearly unfavourable for farmers, as they are now marginalized by industrial pollution. Thus, the peri-urban context, where industrial and agricultural actors operate in close proximity, plays an important role in instigating the problem farmers face with polluted irrigation waters. However, examining the pollution problem requires consideration of factors within and beyond the PUI. This thesis argued that the factors beyond the PUI were related to poor water governance. Thus, the PUI is viewed in this thesis as the instigator of the problem, but also as an illuminator of poor governance.

7.3.1 Contributing to Development Geography

This thesis has sought to contribute to the field of development geography in a number of ways. It builds on the recent approaches to development that seek to examine grassroots movements, issues of justice, local environment relationships, and empowerment of the poor (Hodder, 2000). It has done so whilst incorporating three out of four concepts which Bebbington (2003) identifies as the core concepts of development geography: place, livelihoods, scale, and networks. The significance of place is reflected in this thesis' emphasis of how the Vietnamese and peri-urban context influence the pollution problem in question. The concept of livelihoods is embodied in the issues of water pollution and its effects on agricultural production, farmers' actions in contestation of the government's inaction, and the general dichotomy of environment and economic growth interests present in Vietnam. Lastly, relating to scale, this thesis built on the idea of the shifting role of the state, private sector, and civil society, as responsibilities are shifted from the state to a number of scales: upward, downward, and outward, creating geographies of governance (Bulkeley, 2005). Examining how roles are reshaped through this redistribution is one of the key areas, identified by Lawson (2007), for future research in development geography.

7.4 Reflection on the Rights-based Approach

My experience using a RBA to explore and analyze the research problem has been mostly positive. I believe that UNICEF's framework is simple and straightforward, yet provides

fairly comprehensive results. The framework required that I take a holistic view of the problem, and look for answers in Vietnam's governmental, legal, and societal institutions. Centering the analysis around rights also allowed the infusion of equity concerns into what could have otherwise been an analysis based largely on cost-benefit analysis and law. To me, the marginalization of farmers in HCMC's PUI was the starting point for this thesis, thus making a rights infraction a logical starting point.

Despite these praises, I have to agree with Uvin's (2002) argument that the RBA brings nothing terribly groundbreaking to development. The RBA calls for good governance – its explicit foundation on rights makes it innovative. Rights are a political process – especially their creation and recognition. Therefore, using rights as the sole foundation for a development strategy is arguably questionable, as development obviously involves more than rights. In this case, I have argued that using rights to solve farmers' problem would face significant political barriers, because imposing waste treatment costs on industry could compromise economic growth – a current political priority. In addition, it is important to recognize that the RBA views rights as the solution to a given problem. This assumption predetermines the development of strategies to address a problem before the problem is analyzed (Bruce Mitchell, pers. Comm.). Given this, I believe that the RBA should continue to be used, albeit with caution.

7.5 Reflection on Tradeoffs due to Research Choices

As with any research project, the process of conducting research requires making choices that have trade-offs. First, my research methods proved, perhaps, to be too time consuming. Upon reflection, the number of farmer interviews I conducted was likely unnecessary. Because I was worried about accurately characterizing the opinions of farmers in TPT and Binh My, I conducted perhaps too many interviews that served no other purpose than building consensus. Although I believe I was successful in characterizing their opinions, dedicating so much time to building consensus was, perhaps, not an efficient use of my time, as time constraints did not allow me to interview other relevant stakeholders. My choice to use semi-structured interviews to conduct exploratory research, while obviously allowing me to uncover issues previously unknown to me, also served to lengthen the duration of my interviews and led me into topics which did not necessarily figure in the final thesis.

Second, and related to the issue of time described above, I did not conduct interviews with all relevant stakeholders. This includes stakeholders from the government (for example, the DARD official of Cu Chi District), industry, and NGOs. Also, I believe that female farmers are underrepresented in this research. The lack of consultation of all relevant stakeholders is problematic given my emphasis on distributed governance.

Third, the focuses of the RBA and good governance frameworks did not provide a complete understanding of the problem, in my opinion. What are missing, I believe, are important economic and political factors, which would likely have been covered by another approach, such as political ecology. Some of these, such as the government's prioritization have been mentioned in this thesis, but have not been thoroughly examined to my satisfaction.

7.6 Future Research

The primary goal of this thesis was to describe the phenomenon of water pollution in the HCMC's PUI and identify the dimensions causing the problem, while little was said about solutions. This thesis suggested the possibility of civil society contributing to pollution monitoring and regulation in some manner, but further research is needed to qualify the feasibility of this and its possible effectiveness.

Turning to the Vietnamese context, of the four actors involved in the problem – farmers, government officials, NGOs, and industries – only three are represented in this thesis. Actors in the industrial sector are the source of the pollution; it would be important to include them in any future research. Some other dimensions that also require further research are the impact of the political conflict between MONRE and MARD. Another important area of future research, especially if rights are to be used as the foundation of a solution, should attempt to understand how farmers derive their water rights, as well as what informal systems are present in HCMC's PUI. I gathered only preliminary insights on these important topics.

7.6.1 Advice to Future Researchers

My personal experiences in Vietnam afforded me some insights that may be helpful for future novice researchers in Vietnam. First and foremost, it is imperative to connect with a host organization, as they will be able to secure permission to conduct research. Second, when faced with institutional constraints, it is important to remain persistent, as illustrated by my experience with the Cu Chi IMC official. Third, visiting the libraries of NGOs like the NGO

Resource Centre in Hanoi (as is accessing their NGO Directory, available online) and ENDA in HCMC was very important in identifying relevant reports. Fourth, and this applies to anyone conducting research in a foreign country, it is important to recognize that one's research will likely progress slower than anticipated, to budget for this, and to remain patient.

7.7 Summary

The PUI presents challenges for environmental management due to its complexity and rapid change. These challenges exacerbate, and thus illuminate, deficiencies in environmental governance. This thesis examined the experience of one such group being marginalized through increased industrial water pollution: farmers in HCMC's Cu Chi District. This situation is not unique to Vietnam, but found in peri-urban zones throughout the developing world. This thesis has shown that poor water governance in the PUI is allowing for the continuation of the release of untreated industrial wastewater and its adverse impact on farmers. The rights-based approach to development argues that putting water rights first can make a positive impact towards a solution, although it was argued here that its potential to fully solve the problem is questionable. Whatever approach is used, agriculture is an important land use in the PUI for a number of reasons, and therefore warrants protecting. However, in Vietnam's case, this will require substantial and time consuming revisions to their current water governance system.

Appendices

Appendix A: List Informants

Informant 1
Interview with Nguyen Van Nga, Chairman of HCMC Division for Water and Mineral Resource Management (DONRE), 12 June 2007

Informant 2
Interview with Officer, HCMC Division of Irrigation Management and Flood and Storm Prevention (DARD), 12 June 2007

Informant 3
Interview with Tran Van My, Nong Lam University, HCMC, 30 July 2007

Informant 4
Interview with Nguyen Van Dam, Deputy Manager, Irrigation Service Company of Cu Chi, 15 Aug 2007

Informant 5
Interview with Colin Steely, Project Management Expert, Second Red River Basic Sector Project, 19 July 2007

Informant 6
Interview with Officer, Cu Chi DONRE, 31 May 2007

Informant 7
Interview with Pham Hong Nga, Water Resources University of Vietnam, Hanoi, 20 July 200

Informant 8
Interview with the leader of Group 10

Informant 9
Interview with Vice Chairman of People's Committee of Binh My, Cu Chi District, HCMC, Vietnam, 31 May 2007

Appendix B: Interview Themes

Farmers

Name/Location:
Number of years farming in the area:

1) History and Current Affairs
   - Changes in water use in the last ten years
   - Changes in water quality
   - Complaining to the government about water quality
   - Local sources of water pollution
   - Impact of water pollution on crops
2) Participation
   - Perceptions of water management
   - Levels of farmers' participation in water management
   - Top priorities for water management
   - Attendance and involvement in community meetings
3) Irrigation Management Company (if applicable)
   - Knowledge about planned devolution and removal of irrigation fees
   - Cost of irrigation fees
   - Increasing farmers' participation in water management
4) Water Rights
   - Do you have the right to complain if the water is not clean
   - Do you have the right to complain if water is scarce
   - Do you have the right to complain about policies in general
5) Other
   - Changing their employment to reflect industrialization and urbanization in area
   - Perceptions of migrant farmers

Government and NGOs

1) General Context
   - General changes in the last twenty years
   - Responsibilities
   - Decentralization
   - Water rights
   - Decision making process
   - Current innovations in water sector
   - Regulating pollution
   - Irrigation management
   - Levels of participation
2) Current Issues
   - Water related legislation
   - Jurisdictional conflicts

- Budgetary limitations
- Pollution and general water quality trends
- Challenges posed by industrialization and urbanization

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