

**AN EXAMINATION OF VIETNAM'S URBAN WASTE MANAGEMENT
CAPACITY**

by

Adam D. Watson

A research paper submitted in conformity with the requirements
for the degree of Master of Arts
Graduate Department of Geography & Institute for Environmental Studies
University of Toronto

© Copyright by Adam D. Watson (2004)

CONTENTS

Abstract	i
List of Tables and Figures	ii
List of Acronyms	iii
Chapter One: Introduction	1
Chapter Two: Capacity Building for the Provision of Public Services	4
Capacity of individuals to perform job tasks	5
Structure of the organization and task networks	5
Institutional context of the public sector and expansion of the task network	7
Decentralization as a means of increasing capacity	8
Research Questions	10
Chapter Three: Environmental Protection & Waste Management Capacity in the Vietnam Context	11
Present state of municipal solid waste management in major Vietnamese cities	11
Responsibilities for solid waste management in Vietnam	13
The development of environmental legislation in Vietnam	16
Capacity strengths and weaknesses in Vietnam's waste management sector	17
Capacity building through waste management policy	18
Inter-agency cooperation	21
Fiscal and administrative decentralization in Vietnam	22
Chapter Four: Methodology	25
Literature review	25
Key informant interviews	26
Written questionnaires	27
Limitations	31
Chapter Five: Results & Analysis	32
Human Resources Capacity	32
○ Job retention	33

○ Adequate training	34
○ Adequate technical assistance	35
Funding	36
Policy awareness & implementation	38
Inter-agency and intra-policy cooperation	43
○ Jurisdictional authority	47
Decentralization of waste management authority	48
○ Support for specific decentralized waste management initiatives	50
Chapter Six: Discussion & Recommendations	54
Implications for MONRE	56
Areas for Further Research	59
References	61
Appendix 1	65
Questionnaire for Waste-Econ training course participants	65
Strategy for Management of Solid Waste in Vietnamese Cities and Industrial Parks Till the Year 2020	71
Interview questions for government agency representatives	74

ABSTRACT

Capacity building has long been a central focus in the debate around the provision of public services in developing countries. My research examined previously unexplored capacity strengths and weaknesses in urban solid waste management in Vietnam. Through interviews and a questionnaire survey of representatives from various agencies at different levels of government, I identified several key institutional capacity issues. Consistent with the capacity-building literature, financial and human resources and inter-ministry cooperation were found to be important limiting factors in the effectiveness of the waste management sector. In addition, the majority of respondents supported decentralization of national government authority by increasing various forms of local level involvement in waste management. I conclude by discussing the implications of these findings in light of the recent reorganization of state environmental management in Vietnam.

List of Tables

Table 1: Comparison of Key Features of the MOC and MOSTE Strategies	20
Table 2: Survey Response Rate by Training Course	29
Table 3: Questionnaire Respondents by Institutional Affiliation	30
Table 4: Participation in Other Waste Management Courses (Regional Distribution)	35
Table 5: Specific Waste Management Interactions (Number of Interactions Indicated by Other Organizations)	45
Table 6: Our Organization has Established Strong Waste Management Networks with Other Government Organizations (By Institutional Affiliation)	47
Table 7: Support for Devolution of Waste Management Authority (Agency Distribution)	49
Table 8: Support For Specific Forms of Decentralized WM Initiatives	51

List of Figures

Figure 1: Organizational Structure & Responsibilities of Urban Waste Management Agencies	14
Figure 2: Respondents Job Title	32
Figure 3: Our Organization Has Difficulty Retaining Qualified Staff – Provincial/National Comparison	34
Figure 4: Awareness of MOC Strategy by Institutional Affiliation	39
Figure 5: New Waste Management Tasks Required Since the Passage of the MOC Strategy	40
Figure 6: MOC Strategy Tasks Which Have Been Difficult to Implement	40
Figure 7: Waste Management Powers That Should Be Transferred to Subnational Government Agencies	49
Figure 8: Which Waste Management Tasks Should Be Socialized?	51
Figure 9: Types of Support Needed for CBO's	52

List of Acronyms

CBO- Community Based Organization

CIDA – Canadian International Development Agency

DOC -Department of Construction

DOH - Department of Health

DONRE – Department of Natural Resources & Environment

DOPI – Department of Planning & Investment

DOST - Department of Science & Technology

DOSTE - Department of Science, Technology & Environment

DTPW - Department of Transportation & Public Works

HCMC - Ho Chi Minh City

MOC - Ministry of Construction

MOF - Ministry of Finance

MOH- Ministry of Health

MOI - Ministry of Industry

MONRE - Ministry of Natural Resources & Environment

MOSTE - Ministry of Science, Technology & Environment

MPI - Ministry of Planning & Investment

NISTPASS – National Institute for Science, Technology, Policy & Strategy Studies

NLEP- National Law on Environmental Protection (1993)

NSEP – National Strategy for Environmental Protection 2001-2010

ODA- Official Development Assistance

URENCO – Urban Environment Company

CHAPTER ONE: INTRODUCTION

The capacity for governments in lesser-developed countries to provide adequate environmental services in urban areas has been studied extensively in the development and public administration literature (Grindle, 1997; Friere & Stren, 2001). Capacity building has also become an important focus of international development conferences (UNDP, 1992) and multilateral development agencies such as the World Bank. The identification of the key capacity constraints faced by government, identification of the appropriate public sector groups to be targeted and the best methods of achieving improvements in capacity have been some of the important areas focused on by capacity building practitioners.

The adequate provision of urban environmental services, including waste management, has been one of the many focuses of capacity building initiatives (Grindle, 1997; Friere & Stren, 2001). Due to a rapid rate of economic development and urbanization, public sector agencies in developing nations, such as Vietnam, have faced increased strain on their ability to provide the necessary level of environmental services for its citizens. Over the past decade, Vietnam has seen the generation of municipal solid waste increase substantially, while the capacity to effectively collect these wastes has not kept pace.

Inadequate human resources, financial and administrative capacity have been recognized by numerous agencies within the Vietnamese government (Socialist Republic of Vietnam, 1993, 1997a, 2001), and policies and projects have been proposed to overcome these capacity weaknesses (Socialist Republic of Vietnam, 1997c, 1999 & 2001). Central to these initiatives has been the passage of national waste management strategies, which have identified key capacity weaknesses, proposed short and long-term waste management targets, and attempted to define the roles and guide in the collaboration of pertinent government agencies involved in the provision of waste management services.

Through the use of key informant interviews, written questionnaires and document analysis, this study investigates the present state of Vietnam's urban waste management capacity and evaluates stakeholders' opinions on the potential for alternative waste management approaches to overcome the existing capacity constraints. Using the capacity framework developed by Hildebrand & Grindle (1997), key issues were identified within each of the capacity areas studied. These include job retention, training and education and access to technical assistance as determinants of human resources capacity. With regards to financial capacity, the present system of budget allocation, waste management funding levels, and the current state of fee collection for waste management services in urban areas were investigated. Administrative capacity comprised the largest component of the study with a focus on the present state of Vietnam's national waste management policy and its implementation. The evaluation of policy implementation also focused on capacity constraints that have affected its intended outcomes. Specifically, the existing waste management policies and present state of inter-agency cooperation on waste management issues were evaluated.

In addition to evaluating the present state of waste management capacity, this study also explored the potential for decentralization of waste management authority to both subnational government agencies, as well as increasing the level of engagement of local non-state actors in Vietnam. Projects initiated by national or subnational government agencies, which seek to increase the involvement of provincial/city government, as well as promote the role of community-based organizations, the informal waste sector, and private waste collection companies, are a potential means of overcoming some of the capacity constraints identified within urban areas.

Findings from this study highlight several key capacity issues and potential means for addressing present capacity constraints. These findings are presented along with a discussion of the implications in light of the recent transition of state environmental management in Vietnam.

CHAPTER TWO:

CAPACITY BUILDING FOR THE PROVISION OF PUBLIC SERVICES

In recent years, development programs targeting improvements in the provision of public services in developing countries have increasingly focused on the capacity of state and non-governmental agencies to effectively carry out their responsibilities (Hildebrand & Grindle, 1997). Capacity building, defined as “improvements in the ability of public sector organizations, either singly or in cooperation with other organizations, to perform appropriate tasks” (Hilderbrand and Grindle, 1997; 34), has therefore become a prominent issue for both domestic governments and external aid agencies. The capacity framework of Hilderbrand & Grindle (1997) is used as a guide for this study, as it explicitly outlines capacity issues that are pertinent to Vietnam’s waste management sector.

Hilderbrand & Grindle’s framework outlines an ascending hierarchy of five factors that affect the capacity of an institution to deliver public services. These include; 1) the capacity of individuals to perform their job tasks; 2) considerations of the structure and culture characteristics of the organization and its leadership; 3) the task network of inter-organizational relations; 4) the institutional context of the public sector; and 5) the influence of the overall economic and political environment on a specific service sector. This study incorporated aspects of all five of these factors, but was adapted to focus closely on the first three factors in this hierarchy to increase the feasibility of the study.

The following sections outline key capacity issues pertinent to urban solid waste management in Vietnam and provides the rationale for including each of these themes in my research study. To assess the overall capacity of Vietnam’s waste management sector to provide adequate service in urban areas, both key institutional and human resources capacity issues are identified and evaluated.

The Capacity of Individuals to Perform Job Tasks

Environmental capacity building initiatives have not only stressed the importance of organizational and institutional strengths, but also the abilities of agents, the role of human capital, technical expertise and functional skills needed to carry out environmental protection measures (OECD, 1995, Janicke, 2002). Strengthening the efficacy of environmental protection through capacity building has therefore focused increasingly on improving the skills of individuals through various forms of training (Grindle, 1997). Babu (2000) highlights the importance of training programs to increase capacity for environmental policy analysis in developing nations. The importance of human resources capacity is also shared by Hirschman (1993) who claims that sustainable policy analysis capacity cannot be achieved without strengthening the ability of institutions *and* employees to carry out policy initiatives.

Structure of the Organization and Task Networks

The second factor in Hilderbrand and Grindle's capacity framework is to consider the structure and culture characteristics of the organization and its leadership. For the purpose of this study, it was more important to examine how the structure of the organization relates to its task networks on a broader scale, both of which are key elements of institutional capacity. Thus, the framework was adapted to combine these factors. In evaluating Vietnam's institutional capacity for waste management it was necessary to look at this through exploring four distinct, yet interrelated issues: the present level of cooperation between government agencies charged with waste management responsibilities; the present state of Vietnam's solid waste management policy; efforts undertaken for its implementation and the level of cooperation between its implementing agencies; and the level of municipal government financial and decision-making autonomy for determining appropriate waste management options for their area.

In evaluating the first two institutional capacity issues, the concept of intra-policy cooperation will be utilized. Defined as “the internal coordination of environmental policy at different levels and jurisdictions within the political system” (Janicke, 2002, p. 10), the importance of a cooperative policy environment is seen as a prerequisite for effective policy integration into existing environmental protection practices (Janicke, 2002). Furthermore, in relation to capacity building, initiatives to improve intra-policy cooperation need to be undertaken to develop and strengthen networks and clusters in a broader policy environment, rather than focusing on a specific organization (Jackson & Gariba, 2002). Doberstein (2001) further supports this idea in relation to capacity building in Vietnam’s environmental assessment sector, claiming that capacity building should not be restricted to individual ministries and institutions, but rather the full range of actors, if fundamental improvements are to be achieved.

In order to gauge the level of policy cooperation specifically, and the extent of inter-agency cooperation in Vietnam’s waste management sector more generally, it is important to determine some of the major impediments to cooperation and coordination within government ministries. Efforts to design and implement sound environmental policy can generally be impeded by a lack of adequate government capacity (Babu 2000). More specifically, Jackson & Gariba (2002) claim that different organizational cultures, rigid attitudes of bureaucrats, and a traditionally insular organizational approach are major factors that inhibit effective cooperation between national level bodies. Furthermore, Crosby (1996) states that an important obstacle to effective policy design and implementation is that it:

“...requires collaboration of several institutions, but coordination is difficult and not particularly attractive. Officials may be asked to give up some degree of control over scarce resources and their organization’s activities to achieve a goal for which the coordinator will receive credit.”(p. 1407)

However, regardless of difficulties of ensuring institutional cooperation, effective policy implementation depends on the complementary actions of all involved agencies as well as the

sharing of information and resources, which are commonly in short supply in developing nation governments (Crosby, 1996).

An important factor when assessing the level of policy cooperation is the issue of fragmentation. Fragmentation may result when individual ministries possess a degree of sovereignty within their operations, but where potentially conflicting operations and/or overlap with other related ministries exist (Sinkule & Ortolano, 1995). This may lead to a lack of coordination between related ministries responsible for implementing policy, resulting in ineffective implementation efforts (Sinkule & Ortolano, 1995). Also, fragmentation can result because central government decisions are followed to varying degrees in different regions of the country and are subject to local interpretation and modification (Sinkule & Ortolano, 1995).

Institutional Context of the Public Sector and Expansion of the Task Network

Sub-national government autonomy, including the ability to form partnerships with local non-state actors is seen for the purposes of this study as a combination of Hilderbrand & Grindle's third factor, the task network with the fourth factor, the institutional context of the public sector. Expanding the task network refers to the set of organizations involved in providing public services, as well as the level of cooperation between government and non-governmental organizations and the private sector. In addition, an important component of the capacity of the waste management sector is decentralization, one component of which is the level of autonomy that subnational government actors have in establishing their own task networks.

Jorgensen & Jakobsen's (1994) study of MSWM systems in four European and African countries documents important waste management policy inadequacies, and makes recommendations which are especially pertinent to Vietnam's recent policy initiatives. Specifically, they state that new legislation objectives and standards must be matched to the available financial and human resources of the municipalities, and be introduced with a realistic

time schedule, which is sensitive to the municipality's capacity for implementation. By neglecting these considerations, a culture of non-compliance with environmental directives can develop, as well as creating resentment and frustration at the local-level. Therefore, in the case of Vietnam it is important to assess the degree to which individual cities have discretion in choosing waste management options, which are sensitive to the diverse social and economic realities throughout urban areas of the country.

Decentralization as a Means of Increasing Capacity

There is an extensive body of literature surrounding the decentralization of public services in developing nations, which is informative in determining the potential advantages and shortcomings in increasing sub-national government autonomy in waste management. Decentralization of central government authority to lower levels of government has received widespread attention as a predominant means of achieving effective administrative reform in the development and capacity building literature (Cohen & Stevenson, 1999). The rationale for decentralization has been attributed to the disillusionment with the results of central planning, and the recognition that development is a complex process, which cannot be effectively managed at the central level (Rondinelli & Cheema, 1983). More specifically, Cohen & Peterson (1999) highlight the widely held view that the centralized state lacks adequate capacity to provide the necessary level of urban governance and public services needed in developing countries.

The relationship between institutional capacity and decentralization has been explored extensively in the literature, with often opposing viewpoints. The conflicting views surrounding the efficacy of decentralization efforts has commonly been centered around the proponents' theoretical rationale for decentralization, and opponents' extensive case study evidence documenting decentralization failures (Jackson & Gariba, 2002, Turner, 2002). The theoretical argument sees a multitude of potential benefits from increasing local government, civil society

and private sector involvement for providing public services in a more cost effective and responsive manner, while alleviating the administrative burden of the central government (Rondinelli & Cheema, 1983; Cohen & Stevenson, 1999). Furthermore, within the field of policy development and analysis, decentralized policy planning has been seen as an improved method of designing and implementing locality-specific environmental protection measures (Babu et al., 1996).

Most criticisms of decentralization cite the difficulty in transferring this theoretically sound idea to practice. Unsuccessful implementation principally stems from ill-designed reform initiatives which did not ensure adequate technical capacity, funding and accountability of lower level governments, all seen as necessary preconditions for transferring power from the center to the periphery (Rondinelli & Cheema, 1983; Larson, 2002; Jackson & Gariba, 2002).

In the area of fiscal decentralization Rao (2003) argues that in order for decentralization to be effective, it must be extended to the lowest possible government level. However, in order to ensure the potential benefits of increasing subnational financial powers, it is important to develop appropriate institutions at these levels, as well as build the appropriate level of capacity within these institutions.

Research Questions

In light of the current research on the human resources, financial and administrative capacity issues, and utilizing Hildebrand and Grindle's capacity framework (1997), four major research questions are addressed in this study:

- What is the present state of capacity within Vietnam's waste management sector, and what efforts have been employed to increase this capacity?
- What are the main institutional and human resources capacity constraints in the waste management sector, and what can be done to overcome these limitations?
- What is the present level of institutional, and specifically policy, cooperation within the various state agencies responsible for waste management in urban areas and what are the key limitations to improving the level of cooperation?
- What financial and administrative alternatives have been, or could be, pursued by Vietnam to increase its waste management capacity in urban areas?

CHAPTER THREE:

ENVIRONMENTAL PROTECTION & WASTE MANAGEMENT CAPACITY IN THE VIETNAM CONTEXT

The following section outlines key capacity issues specific to environmental management in Vietnam. In order to conduct an examination of Vietnam's urban waste management capacity, it is important to first outline the present state of waste generation and collection within the country. Understanding how institutions within Vietnam delineate responsibilities for waste management provides the background for this study, including the recent reform of state environmental management. This section also outlines the development of environmental and waste management legislation and policy over the past decade. This review provides a context for examining current waste management capacity strengths and weaknesses identified in the literature.

The Present State of Municipal Solid Waste Management in Major Vietnamese Cities

Since the introduction of elements of a market-based economy under *doi moi* (renovation), Vietnam has undergone increased urban population growth and waste generation rates (Hai, 2000; Thu, 2000). With a high annual urban growth rate of 2.94%, it is estimated that Vietnam's urban population will reach 35% by 2005 (Can, 2002). This increased urban migration is largely due to the increasing disparity between rural and urban incomes, and the potential for greater economic opportunities in Vietnam's rapidly developing cities. Urbanization has been identified as a major contributor to unsustainable development, through increased demand for resources and the production of increased levels of wastes (White & Whitney, 1992). Furthermore, uncontrolled urban growth without adequate provisions for urban infrastructure and services can result in increased pollution and congestion leading to impeded economic growth (Drakakis-Smith & Dixon, 1997).

The urban waste issue in Vietnam is further compounded by a per capita waste generation rate that is 50% higher in the major cities than in the rest of the nation (Thu, 2000). Additionally, there is an inadequate level of urban infrastructure and operational and technical capacity to provide services, such as waste collection, within Vietnam (Drakakis-Smith & Dixon, 1997). The collection efficiency in Vietnam's six major cities is presented in Table 1 below.

Table 1: Population & Solid Waste Collection Levels in Major Vietnamese Cities

City	City Population	Urban Area Population	Collection Efficiency (%)
HCMC	3378500	5728900	70-75
Hanoi	1372800	2503000	65
Hai Phong	572100	1792400	64
Danang	446000	446000	66
Bien Hoa	365500	365500	30
Hue	266800	266800	60

(Mongabay, 2003; The Gazetteer, 2003; Chi, 2003)

Currently, Hai (2000) estimates that only 60-70% of wastes are collected and properly treated in urban areas of Vietnam. In addition, Hanoi and Ho Chi Minh City (HCMC) are experiencing an 8% annual increase in domestic solid waste generation (URENCO, 2002; HCMC People's Committee, 2002). However, the level of collection can vary considerably across sections of these cities, with significantly lower collection rates in the rapidly developing suburban areas, and a higher service levels in core urban areas.

Waste collection fees in the major cities differ based on the type of dwelling. Households are charged on a per person basis, hotels are charged by the number of rooms, and fees for markets are determined by the number of kiosks (Lien, 2000). HCMC presently has both private and public sector fee collection services, while the Hanoi urban environment company (URENCO) is solely responsible for its fee collection (HCMC People's Committee, 2002). Waste fees are 500 VND (\$0.03 US) per person per month for households, and are approximately 2000-3000 VND (\$0.15 US) for businesses. While the fees collected for waste management cover the majority of waste management operating costs, there has yet to be full

cost recovery achieved by the URENCO's in the major cities of Hanoi, HCMC and Danang, which each report an average annual operating deficit of 200 million dong (\$13,000 US) (Lien, 2000). In addition, capital costs such as equipment purchases and upgrades cannot be met through these fees. The provincial People's Committee's, which receives their funding from central government transfers, provide the additional waste management funds required to maintain present service levels (HCMC People's Committee, 2002; Rao, 2003).

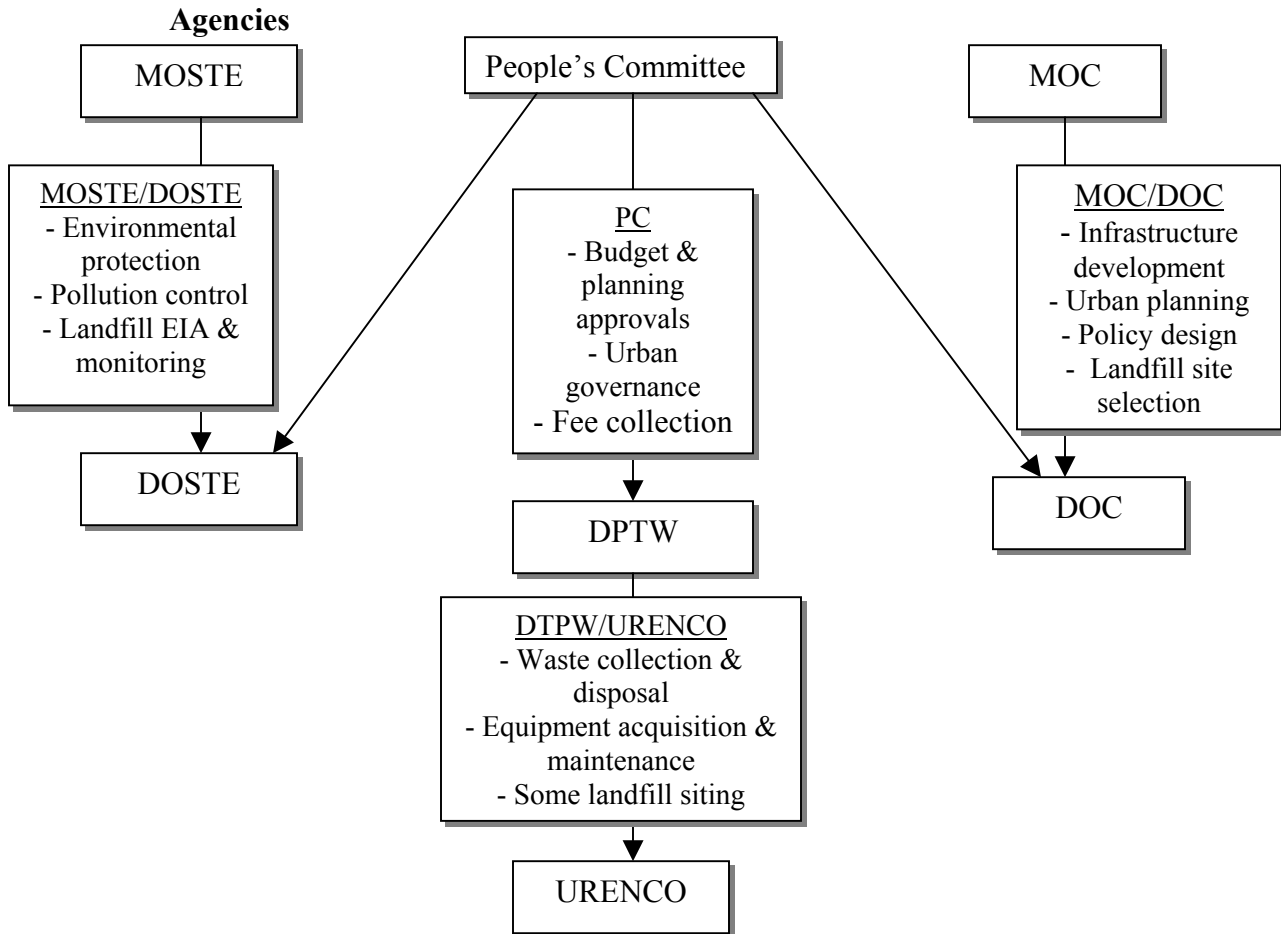
Major cities often rely on foreign ODA to finance waste management equipment and infrastructure upgrades. Vietnam has consistently relied on importing waste management equipment from international sources, most notably Japan. As of 1994 only 5% of collection equipment was manufactured domestically (GKW Consulting, 1994). The reliance on imports has continued and in July 2003, the Hanoi URENCO announced the acquisition of 70 new waste collection vehicles from Japan, each with a capacity of 5-10 tonnes. The use of imported collection and treatment equipment has the potential to increase the efficiency of waste management operations; however, the financial burden of acquiring as well as maintaining high cost technologies places considerable stress on state budgets for waste management in urban areas.

Responsibilities for Solid Waste Management in Vietnam

Vietnam's solid waste management sector involves a range of responsible agencies at the national, provincial and municipal levels. The provincial People's Committees (PC) oversee all environmental management in their provinces; however major urban areas (such as Hanoi & HCMC) have their own city/provincial People's Committees due to their size and administrative requirements. Within each urban area, a public urban environment company (URENCO) is responsible for waste management activities and is under the direct control of the Department of Transport and Public Works (DTPW), which itself is controlled by the People's Committee. The

provincial/city Department's of Science, Technology and Environment (DOSTE's) are the implementing agencies for environmental protection initiatives, which are under the control of the People's Committees and receive supervision from the national Ministry of Science, Technology and the Environment (MOSTE). A similar institutional arrangement exists for the Ministry and Departments of Construction, as depicted in Figure 1, below.

Figure 1: Organizational Structure & Responsibilities of Urban Waste Management Agencies



As of November 2002, the environment components of MOSTE have been reformed into the Ministry of Natural Resources and Environment (MONRE). MONRE is comprised of the former National Environment Agency (previously the environmental branch of MOSTE), the General Department of Land Administration and the General Department of Meteorology & Hydrology (Socialist Republic of Vietnam, 2002). With the creation of MONRE, the present task is the separation of the provincial DOSTE's to natural resources and environment

(DONRE), and science and technology (DOST) units. The future waste management objectives and responsibilities of MONRE and DONRE, and its potential affect on the overall state environmental management capacity in Vietnam will be discussed in later chapters.

The Ministry of Construction (MOC) is the agency responsible for urban infrastructure, including construction of landfills and other waste management facilities in Vietnam. Government Decree 15/CP (1994) charges MOC with management responsibilities for construction and public works as well as planning and development in urban areas (Socialist Republic of Vietnam, 1997a). It is also stated that MOC has the highest authority in urban environment sectors, including solid waste management. As well, at the national level, the MOC designs policy, legislation and provides overall management of urban sanitation (Socialist Republic of Vietnam, 1997a).

The units of MOC undertaking waste management tasks were also reformed in 2003, from the Department of Architectural Planning & Management (DAPM) into the Urban Infrastructure Department and the Department of Architecture and Planning. The DAPM was the original author of the *1999 Strategy for Management of Solid Waste in Vietnamese Cities and Industrial Parks Till the Year 2020*, which will now be overseen by both these new departments. The Departments of Construction (DOC) are the implementing agencies of MOC at the provincial and city level, and report directly to the provincial People's Committees. Lastly, the MOC has its own research bodies, the National Institute for Urban and Rural Planning and the Center for Research and Planning on the Urban and Rural Environment. The bodies are responsible for research on solid waste management related issues, such as urbanization, urban and environmental planning, and the development of urban development strategies (Socialist Republic of Vietnam, 1997a).

In addition, other government ministries, such as the Ministry of Planning & Investment (MPI), the Ministry of Industry (MOI), the Ministry of Health (MOH) and their respective provincial departments also have jurisdiction over certain environmental and waste management affairs, which are overseen by their own environment units.

The Development of Environmental Legislation in Vietnam

Problems with urban waste have arisen concurrently with a variety of environmental problems resulting from Vietnam's industrial development. The need to address these issues, and the recognition of a lack of environmental laws and regulations led in part to the drafting of the National Law on Environmental Protection (NLEP) in 1993 (Litvack & Rondinelli, 1999). The NLEP presently serves as the main legislative framework for addressing environmental concerns, and outlines the specific responsibilities of the various government agencies involved in environmental protection.

The Vietnamese government has recognized the importance of achieving adequate levels of institutional capacity in order to carry out the NLEP, as well as the other decrees and policies aimed at specific environmental sectors (Socialist Republic of Vietnam, 1993, Socialist Republic of Vietnam, 2000). Annex 10 of the NLEP makes numerous calls for capacity strengthening efforts to address the ineffectiveness of national and lower level government bodies to provide adequate environmental protection services (Socialist Republic of Vietnam, 1993). Furthermore, the NLEP and its associated implementation guidelines specify that the provincial People's Committees are to oversee environmental protection within their jurisdictions. The DOSTE, as well as the URENCO (in the case of waste management) carry out the implementation of urban environmental protection initiatives.

Although the DOSTE's are the predominant agency for implementing environmental protection initiatives in Vietnam, their existing capacity does not currently match their

responsibilities and duties (Hoe, 2002). Specifically, the DOSTE's suffer from a shortage of employees, averaging only five employees in each of the 61 provincial offices (Can, 2002). There is also a recognized shortage of adequately trained staff, as the majority of employees have professional backgrounds other than environmental management (Can, 2002).

Capacity Strengths and Limitations in Vietnam's Waste Management Sector

Can (2002) states that the main restrictions in developing Vietnam's capacity to address environmental protection measures are limited financial resources, lack of professionally trained manpower, the weak role of legal instruments and the inadequate integration of environmental considerations into the Vietnam's development process.

Through the creation of Vietnamese institutions for environmental protection, environmental management capacity has been strengthened, but is still deemed inadequate to meet required levels of urban waste collection (Can, 2002). For example, the creation of Vietnam's URENCO's has been a significant step in increasing institutional capacity in Vietnam's waste management sector, however, they face difficulties in carrying out their waste management functions due to a lack of financial, technical and human resource capacity (Can, 2002). Can (2002) indicates further financial capacity limitations within the Ministry of Science, Technology and Environment (MOSTE), which has yet to receive the stipulated 2% of the annual budget, placing a substantial limitation on environmental protection initiatives.

A report from Vietnam's Capacity 21 Project stated that authorities responsible for supervision and monitoring of urban waste management are seen as weak, and institutions responsible for research and assessment have limited professional expertise, research facilities, lack the necessary funding and technical skills to apply urban waste management technologies (Socialist Republic of Vietnam, 1997a). These capacity weaknesses were also recognized by MOSTE, which has attempted to implement capacity strengthening programs for environmental

management, and stipulated that 14% of its environmental budget will be allocated to capacity building initiatives (Socialist Republic of Vietnam, 2001).

In addition to the recognized capacity weaknesses at the national, provincial and city scale, Hoe (2002) states that there has been a lack of capacity building initiatives targeting local/grass roots organizations such as the Women's, Farmer's and Youth Unions, who traditionally have played an important role in local governance in Vietnam, and have the potential to contribute significantly in the implementation of environmental protection projects.

Although the main capacity limitations have been documented within Vietnam's environment sector in general (Can, 2002), the field of environmental impact assessment (Doberstein, 2001), and several Vietnamese government laws and publications (Socialist Republic of Vietnam, 1994, 1997a & 2001), there has been insufficient research into what efforts have been undertaken to overcome these limitations and increase Vietnam's institutional, human resources and policy implementation capacity for municipal solid waste management.

Capacity Building through Waste Management Policy

Since the passage of the NLEP in 1993, various government agencies have drafted legislation in order to establish general waste management priorities and practices and to clarify the jurisdictional authority over solid waste management in urban areas. In April 1997, the Prime Minister released Instruction 119/TTg titled "*Urgent methods in the work of solid waste management in urban areas and industrial zones*". This was Vietnam's first legislation specific to waste management and provided a general overview of current waste management inadequacies, deemed to have resulted largely from Vietnam's increased economic growth (Socialist Republic of Vietnam, 1997c).

The national *Strategy for Management of Solid Waste in Vietnamese Cities and Industrial Parks Till the Year 2020* was Vietnam's first waste management strategy. Drafted by the

Ministry of Construction and ratified in July, 1999, the purpose of the MOC Strategy is to “form a synchronous system for management of solid waste in cities and industrial parks in order to check the environmental pollution and protect the environment...in the period of national industrialization and modernization.” (Socialist Republic of Vietnam, 1999; 1). The Strategy calls for increased action on the part of national ministries, provincial departments, municipal governments and People’s Committees to undertake comprehensive planning on solid waste management, based on legal documents and concrete technical instructions (Socialist Republic of Vietnam, 1999; Environmental Resources Management, 1999).

The organizational structure of the National Strategy places the Ministry of Construction as the primary coordinator of policy implementation and identifies MOSTE as the primary collaborator in the implementation process (Socialist Republic of Vietnam, 1999, Environmental Resources Management, 1999). A copy of the National Strategy can be found in Appendix 1.

In 2001, MOSTE released a general environmental strategy, the *National Strategy for Environmental Protection 2001-2010* (NSEP). The NSEP outlines MOSTE’s objectives for overall environmental protection in the country, and contains many solid waste management objectives. Table 1 provides a comparison of the waste management components of both MOC and MOSTE strategies.

Table 1: Comparison of Key Features of the MOC and MOSTE Strategies

Waste Management Components	1999 MOC Strategy	2001 MOSTE NSEP
Legislative Status	- Ratified	- Not Ratified
Primary focus	- Infrastructure Development	- Environmental Management - Capacity Building
Geographic Focus	- Urban Areas & Industrial Zones	- Cities & Densely Populated Areas
Priority Planning Areas	- Hygienic Landfills - Closure of Unhygienic Landfills	- Environmental Management - Law and Policy Formulation
Solid Waste Collection Targets	- 75-90% by 2005 - 80-95% by 2020	- 90% by 2010

Financing	- Reform fee collection system - Achieve full cost recovery - ODA	- National gov't budget allocations - ODA
Involvement of Non-state Actors	- Not mentioned	- Enhance the role of communities, businesses and private sector
Engaging Informal Waste Sector	- Not mentioned	- Not mentioned
Promotion of Privatization	- "Study the establishment of companies following the operation model of public-utility State enterprises"	- "A policy on environmental service privatization shall be developed by the State"
Technological Objectives	- "Apply advanced technologies suitable to Vietnam's conditions" - Import, then proceed to domestic production of waste collection equipment	- not mentioned
Focus of Future Capacity Building	- Improve the legal framework for SWM - Improve enforcement capacity - Raise community awareness through env. education - Enhance WM training capability of schools and institutions	- Human resources - Research on Env. Law and Policy - Pollution and waste controls - Target national <i>and</i> local government agencies
Proposal for Oversight Body to coordinate different ministry initiatives	- Not mentioned	- Intersectoral Management Mechanism to be established to coordinate implementation
Primary Collaborators	- MOSTE	- MPI, Ministry of Finance

In comparing the two strategies, the most apparent differences are the MOC Strategy's higher priority on acquiring advanced technologies to increase waste collection and treatment capacity, the differing collection targets, and MOSTE's more explicit statements regarding the promotion of non-state actors and privatization of waste management services. In addition, MOSTE proposes that an inter-sectoral coordinating body be created to oversee environmental initiatives throughout the country, which is not proposed by MOC. Also, although MOSTE is included as the primary collaborator in the MOC Strategy, MOC is not explicitly included as a collaborator in MOSTE's NSEP.

Another key difference in the two strategies is their legislative status. While the Prime Minister has ratified the MOC Strategy, MOSTE's NSEP remains unratified more than two years

after its release. The formal endorsement given to the MOC Strategy should give it a higher priority for implementation by all of its coordinating agencies. However, the Ho Chi Minh City Environmental Strategy developed by the HCMC People's Committee in 2002, explicitly states its environmental protection (and specifically, waste management) objectives were based on the key aspects and programs of MOSTE's NSEP, and outlines six main components of the NSEP, which have been utilized in the formulation of the HCMC Strategy. It should also be noted that there is no mention of the MOC Strategy in the waste management components of this HCMC Environmental Strategy (HCMC People's Committee, 2002).

Inter-Agency Cooperation

Both the MOC Strategy and the NSEP call for the cooperation of several national ministries and their respective provincial departments for their planning and implementation, particularly between MOC and MOSTE. Inadequate coordination between agencies, sectors and provinces has been identified in the NSEP as an important cause of the Vietnamese government's inability to provide the required level of environmental protection (Socialist Republic of Vietnam, 2000). The existence of overlapping but highly autonomous bureaucratic empires within the Vietnamese government has been documented by Painter (2003), who states that these ministries are sources of prestige, income and power for both bureaucrats and party officials. This bureaucratic autonomy results in resistance to cooperate with other ministries on crosscutting issues (Painter, 2003). This is a pertinent issue for environmental protection and specifically waste management, which by their interdisciplinary nature, often fall under the jurisdiction of a variety of government ministries.

Additionally, the potential for inadequate cooperation in environmental protection at the provincial level is affected due to inequity between departments (Hoe, 2002). For example, the DOSTE's are generally perceived as less important than other more powerful departments,

which is illustrated by the fact that few Director General's of the DOSTE's are members of the Provincial Party's committees (Hoe, 2002). This has led to a lack of DOSTE input during the budget allocation process, resulting in an inequitable share of funding given for their environmental protection initiatives (Hoe, 2002).

Fiscal and Administrative Decentralization in Vietnam

The level of fiscal decentralization in Vietnam can best be defined as deconcentration (Rao, 2003). The central government controls the majority of Vietnam's financial resources, and uses provincial and local level government bodies to implement expenditures (Rao, 2003). Provincial government budgets in Vietnam are allocated through a process of negotiated transfers, where the bargaining powers of provincial officials are the major determinant of the budget allocation, rather than the objective of providing an equitable distribution of funding across provinces (Rao, 2003). Provincial and city governments do have some powers over their budgets through negotiation of their programs and priorities with the central government, but they do not have much autonomy in determining their own expenditures, due to their lack of independent revenue sources (Rao, 2003). In order for financial resources to be available for project proposals which are not approved by the central government, local governments must rely on budget surpluses from other existing projects or voluntary contributions of local citizens (Rao, 2003).

However, municipal governments in Vietnam have an increasingly large role in implementing expenditures of the central government, with 43% of all government expenditures undertaken by local governments in 1998, up from 33% in 1993 (Rao, 2003). It is important to note that solid waste collection and the collection of fees for waste management services are presently within the jurisdiction of provincial and municipal governments, and performed by the urban environment companies.

While it is difficult to ascertain the extent of administrative decentralization currently existing in the Vietnamese environment sector, some government documents and academic literature indicate that an increased level of local involvement in environmental management is being promoted by the national government. Section 62 of the NLEP recognizes the important role to be played by local governments in dealing with urban and industrial problems (Socialist Republic of Vietnam, 1993). The NSEP states the need to encourage communities and the private sector to participate in the implementation of environmental protection initiatives. Additionally, the NSEP and the 1997 PM Instruction make specific mention of the need to develop a policy on environmental service privatization, as well as the need for investment in community-based environmental projects and programs (Socialist Republic of Vietnam, 1997c; Socialist Republic of Vietnam, 2001).

The Public Administrative Reform Program undertaken in Vietnam in the mid-1990's attempted to define new responsibilities and rights for city, district and commune government, recommending that these bodies be given a greater level of decision-making autonomy on issues of social and technical infrastructure development (Socialist Republic of Vietnam, 1997b). While cases of administratively decentralized projects have been limited, Sinh (2002) documents the existence of decentralized decision-making powers in the case of the community water management at the Thai Long Dam Project in Northern Vietnam. This emergence of a decentralization trend in both government documents and project design marks a significant change from the Vietnam's tradition of highly centralized government authority (Can, 2002).

As this chapter has outlined, environmental protection, and specifically waste management, capacity in Vietnam is currently insufficient to provide the required level of service in urban areas. While the overall capacity weaknesses have been identified in several government and academic documents, and waste management strategies have been drafted by

both MOC and MOSTE, it remains unclear what specific human resources and institutional capacity weaknesses are the main constraints to effective waste management operations and what institutional issues enable or prevent existing waste management policy from achieving its intended improvements. Through identifying some key waste management capacity constraints, this paper will generate recommendations, which may assist policy makers and state environmental workers in identifying alternatives to overcome these present limitations.

CHAPTER FOUR: METHODOLOGY

This study was undertaken as part of an internship with the CIDA funded Waste-Econ project, a joint project between the University of Toronto and academic/government partner organizations in Vietnam, Laos and Cambodia. The goal of the project is to improve the current capacity for integrated waste management in these three countries through training courses and pilot/demonstration projects. The Vietnamese training courses were offered in 2000 (Hanoi, 6-week course, 32 participants) and in 2001 in HCMC (2-week course, 29 participants), Danang (2-week course, 28 participants) and Thai Nguyen (2-week course, 33 participants). Participants for these training courses were selected based on their involvement in a variety of waste management areas, including solid, industrial, medical and hazardous waste management, as well as the waste management job tasks they perform, including environmental management, research, and community/social work.

The fieldwork component of this study was carried out in Hanoi, Vietnam from June to August 2003. The research methodology utilized consisted of:

- 1) Collection and review of pertinent government and academic documents
- 2) Semi-structured, key informant interviews with senior national and local government officials
- 3) Questionnaires administered to government bureaucrats, academics and researchers in Vietnam

Literature Review

Prior to departure, academic literature was collected which focused on national environmental policy design and implementation, the provision of waste management and other public services in developing countries, the present state of capacity building and public administration in developing countries, as well as any available documents pertaining to the present state of Vietnam's environment, economy and political system.

In Hanoi, additional literature was collected and analyzed related to the structure of environmental protection and specifically waste management institutions in Vietnam, reports of specific waste management projects initiated by the Vietnamese government and international donor agencies, research documents outlining the current state of waste management, both nationally and within specific cities, as well as Vietnamese government laws and regulations related to the environment and waste management.

Through analysis of the literature prior to arriving in Vietnam, key issues were identified, which provided the basis for the interview and survey questions selected. Survey and interview questions were designed to cover the same general issues, however the interview questions were focused more on acquiring senior officials' input on larger-scale waste management issues in the country, as well as each officials' views on the future direction of Vietnam's capacity building initiatives for waste management. In contrast, the written surveys were more structured in design, included more specific questions on each individuals work environment and their views on a variety of different waste management approaches. By asking more general questions to a larger and more diverse sample, the amalgamation of this data allowed for a more comprehensive assessment of waste management's current institutional and human resources capacity in the country.

Key Informant Interviews

Key informant interviews were arranged with assistance from my Vietnamese supervisors at the National Institute for Science, Technology, Policy and Strategy Studies (NISTPASS), a research institute of the Ministry of Science, Technology and Environment (MOSTE), in Hanoi. A semi-structured interview technique was employed and interviews were held with representatives from various Vietnamese government organizations charged with waste management responsibilities. The majority of interviews were conducted with national

government representatives, including employees from: MOSTE/NISTPASS (2 interviews), Ministry of Natural Resources and Environment (2), Ministry of Construction (1), Ministry of Health (1), and Ministry of Planning and Investment (1). In addition, Hanoi government officials were interviewed to gain insight on specific waste management issues at the municipal level. These interviews included: Hanoi DOSTE (2 interviews), the Hanoi URENCO (1).

The majority of interviews were conducted at the office of the interview subject and were approximately one hour in duration. Of the nine interviews completed, seven were in English while the remaining two were conducted in Vietnamese with the assistance of a Vietnamese translator. Accuracy of respondents' statements was assured through the recording of each interview and through consultation with the Vietnamese translator after the interview was completed. Anonymity was assured to all participants both verbally and in writing at the outset of each interview. In addition, interview tapes and notes were kept secure and only accessible to others under my supervision. Through the use of a signed consent form, participants were provided with information on how the interview data would be used and the means by which their statements would be kept confidential. A list of questions used during the interviews can be found in Appendix 1.

After the interview, subjects were asked to provide any relevant documents pertaining to their organizations waste management operations, including reports on current and past projects. These documents proved very effective in providing valuable data and elaboration on many of the responses of the interview subjects.

Written Questionnaires

Based on the key issues outlined in the academic literature review and through consultation with Canadian and Vietnamese academics and researchers, a questionnaire was developed to gain input from individuals working on waste management from a variety of

regional and organizational backgrounds. Surveys were sent to all past participants in Waste-Econ’s training courses in 2000 (Hanoi) and 2001 (HCMC, Danang, Thai Nguyen). The 6-page survey contained 45 questions, the majority being structured, with a small number of semi-structured questions requiring short written responses.

The questionnaire specifically aimed to assess the contribution of Waste-Econ training courses to institutional and individual capacity building. In addition, questionnaire responses allowed for a more general exploration of several key areas of Vietnam’s institutional and individual waste management capacity by documenting participants’ experiences and opinions related to several key capacity issues identified in the literature. These included each respondent’s present level of waste management training, their organization’s level of cooperation with other groups on waste management issues, identification of limitations to their organization’s waste management operations, and the individuals’ awareness and views on waste management policy, privatization, decentralization, community-based waste management and informal waste sector initiatives. A copy of the Waste-Econ participant questionnaire can be found in the Appendix 1.

The overall survey response rate was high (71.3%) with a large variance in completed surveys between participants of the four courses (Table 1). The high level of non-response from participants of the Ho Chi Minh City training course can possibly be explained by the fact that the questionnaire was administered as part of the preparation for a Waste-Econ workshop, which was to be held several months later. This lag between questionnaire and workshop may have lead to participants placing a lower priority on completing it in a timely manner.

Table 2: Survey Response Rate by Training Course

Training Course	Administered	Completed & Returned	Response Rate (%)
Hanoi (2000)	32	24	75

Ho Chi Minh City (2001)	29	11	38
Danang (2001)	28	26	93
Thai Nguyen (2001)	33	26	79
Total	122	87	71.3

Table 2 displays the distribution of survey respondents by their institutional affiliation, with the majority of respondents being provincial DOSTE employees. The distribution of completed questionnaires gave a distribution of national government representatives (7), university and research center employees (21), representatives from provincial/local level government and non-government organizations (51) and respondents who did not indicate any institutional affiliation (8). In cases where national/subnational comparisons were made, university/research center respondents were grouped with national government representatives. The rationale for this grouping is that these institutions are nationally administered bodies, which are not affiliated with any specific subnational agencies.

Table 3: Questionnaire Respondents by Institutional Affiliation

Institution	Administered	Completed & Returned	Percent Of Total Respondents
MOSTE	8	6	6.8
DOSTE	32	24	27.6
URENCO	6	5	5.7
University/Research Center	44	21	24.1

Dept. of Industry	3	2	2.3
Dept. of Health/ Hospital	6	3	3.5
Dept. of Planning & Investment	4	4	4.6
People's Committee	2	1	1.2
Ministry of Construction	1	1	1.2
Women or Youth Union	5	3	3.5
Other Government Departments & Agencies	9	9	10.3
No Institution Specified	0	8	9.2
Dept. of Construction	2	0	0
Total	122	87	100.0

The completed survey was translated into Vietnamese and was pre-tested on a number of research subjects to ensure an accurate translation. Four pre-tests were conducted with representatives from each of the four cities surveyed, including one former participant of the Waste-Econ training course and the three Directors of the partner organizations in HCMC, Danang and Thai Nguyen. As a result of the pre-test, some survey questions were revised to improve the clarity of wording, and reduce the number of written answer questions. In addition, an option of a “not relevant” response was added to several questions, as pre-test participants indicated that some training course participants might not undertake waste management tasks related to all topics covered in the questionnaire. Surveys were then delivered to Waste-Econ partner organizations in each of the four cities. These organizations were responsible for distributing the survey to each of the participants, as well as collecting and returning the completed surveys back to Hanoi.

By including individuals from all areas of Vietnam, comparisons between individual cities was permitted, and allowed for a more comprehensive evaluation of waste management issues in the country.

Limitations

An important consideration in the evaluation of the surveys was the lack of participation of representatives from some national and provincial government organizations focused on in this study. Primarily, the Ministry and Department's of Construction were only administered a small number of surveys because only a few people from these agencies were invited to the Waste-Econ training courses. This led to limitations in determining overall trends in Vietnam's waste management sector, however MOC input was gained through an in-depth interview with one high-ranking MOC official and one completed questionnaire.

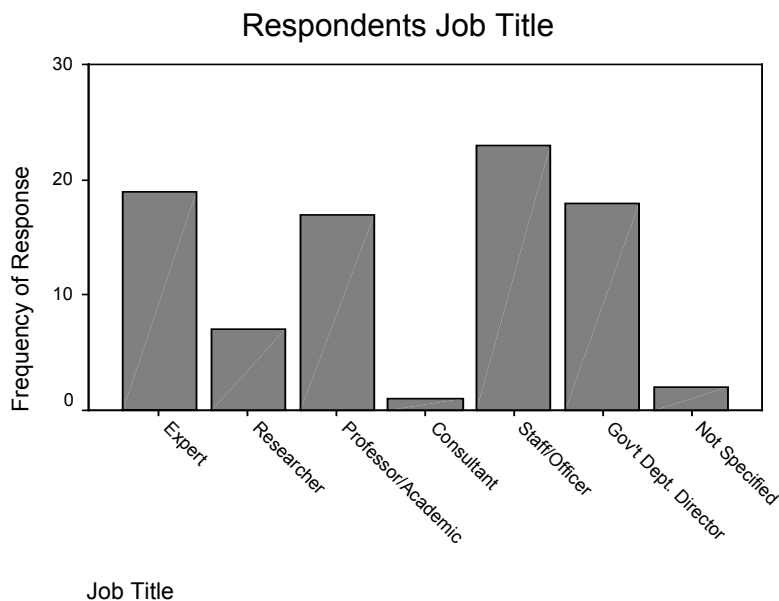
CHAPTER FIVE: RESULTS & ANALYSIS

Human Resources Capacity

This section describes the results of this evaluation of human resources capacity issues. Specifically, issues of job retention, adequacy of waste management training for government workers, and the level of technical assistance received by agencies working on waste management will be explored.

The distribution of questionnaire respondents' employment positions is provided in Figure 1, below. The majority of respondents were from government agencies, with a basically equal representation of senior staff (Department Directors) and lower level employees (Staff/Officer). Many respondents listed their job title as "Expert". To gain a better understanding of the nature of this designation, respondents were cross-tabulated with institutional affiliation and job tasks. The majority of respondents who referred to themselves as "Experts" were employed by the DOSTE's and other provincial government departments (68%), and most frequently perform technical tasks related to waste collection, treatment and disposal as well as landfill siting and operation (64%).

Figure 2:

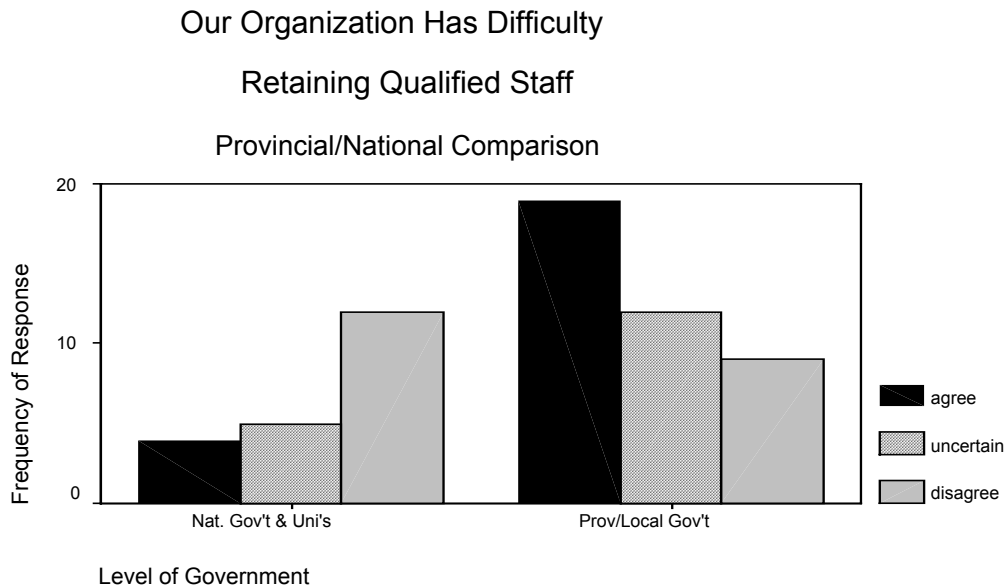


Job Retention

Of the 87 respondents, eleven (12.5%) indicated they had changed jobs since taking the Waste-Econ courses offered in 2000 and 2001. Four of the eleven respondents who had changed position were MOSTE or DOSTE workers (which does not include job changes due to the recent transition from MOSTE to MONRE), with the remaining coming from URENCO, universities and other government ministries and departments. There was a statistically significant difference (p -value = .024, $X^2 = 5.116$) in the rate of job change between participants of the 2000 training course in Hanoi (26%, $n=23$), than those who took the 2001 courses (8%, $n=63$). This difference may be explained by the greater length of time that had passed since the Hanoi course was offered. However, this difference may also be due to the greater amount of knowledge gained by the participants in the longer Hanoi course, which increased their qualifications and consequently their employment options. In addition, 37% of those who responded to this question ($n=67$) indicated that their organization had difficulty retaining qualified staff.

By grouping respondents into provincial/local government and national government/university on the statement “Our organization has difficulty in retaining qualified staff”, Figure 2 indicates a statistically significant difference of agreement by provincial/local government respondents ($n=40$, p -value = .019, $X^2 = 7.946$). This may indicate that provincial/local government agencies are facing a more severe job retention problem, which has a significant influence on the human resources capacity for waste management at the subnational level.

Figure 3:



Adequate Training

Forty percent of survey respondents indicated that they had participated in other waste management training courses besides the Waste-Econ course. In comparing the institutional distribution of waste management training, 75% of DOSTE and 80% of URENCO employees indicated they had participated in additional waste management courses. These above average results might be expected since these organizations hold numerous waste management responsibilities. However, when these two groups are excluded, only 22% of the 58 remaining respondents indicated they had attended other courses.

When comparing waste management training by region (Table 4), respondents from Hanoi, Danang and HCMC surprisingly reported the lowest ratio of additional training, while the majority of respondents from less populated towns and cities indicated a higher level of participation in courses than respondents from larger urban areas.

Table 4: Participation in Other Waste Management Courses (Regional Distribution)

Region		Other Waste Courses Attended		Total
		yes	no	
Hanoi	Count % within Region	1 7.1%	13 92.9%	14 100.0%
Northern Vietnam	Count % within Region	6 60.0%	4 40.0%	10 100.0%
Thai Nguyen	Count % within Region	11 52.4%	10 47.6%	21 100.0%
Danang	Count % within Region	8 38.1%	13 61.9%	21 100.0%
Central Vietnam	Count % within Region	3 42.9%	4 57.1%	7 100.0%
HCMC	Count % within Region	0 .0%	4 100.0%	4 100.0%
Southern Vietnam	Count % within Region	6 60.0%	4 40.0%	10 100.0%
Total	Count % within Region	35 40.2%	52 59.8%	87 100.0%

Another training-related capacity issue, mentioned by one government official, was the lack of waste management training available at the post-secondary level. Of the ten Vietnamese universities offering environmental management and science training, none offer a course specifically on solid waste management, and solid waste management issues are only included as a topic in some program courses.

Adequate Technical Assistance

Many questionnaire respondents indicated that inadequate technical assistance for waste management projects was a constraint on their operational capacity. Fifty percent of respondents whose jobs involved technical matters indicated they did not receive adequate technical assistance for their tasks, 28% were uncertain and 22% felt they received an adequate level of assistance. Within DOSTE, 57 % of workers indicated that they did not receive adequate

technical assistance for waste management, while only 19% felt the level of assistance was adequate.

Overall, the limited focus on waste management training in the larger urban areas, and, in general, the limited access to technical assistance may have direct implications on the human resources capacity for urban governments to address their increasing solid waste management burden.

Funding

The majority of officials interviewed indicated that inadequate funding is a major constraint on improving the state of waste management in urban areas. When asked what needed to be done to overcome this problem, many officials stated that the fees charged to urban residents and businesses must be increased, as they were far too low to cover the costs of existing waste management services. One official highlights the seriousness of this issue, stating:

“The most difficult thing in Vietnam in general and Hanoi in particular, is the collection of fees. People don’t have to pay the total fee; local government has to pay for it. In 2002, local government in Hanoi had to spend 200 million VND from its budget.”

Another national government official highlighted the impact of financial constraints on the collection capacity of the URENCO, which is exacerbated by Vietnam’s increasing urbanization, stating:

“At this moment, the local government of Hanoi has no choice, they must subsidize the URENCO for collection. And at this moment, ... the expansion of Hanoi is very, very fast with many new urban districts coming. So now I don’t think that URENCO’s capacity can keep pace with the expansion of the urban area.”

In order to overcome the funding problem, one official stated that existing fee levels should be at least doubled in order to meet present operating costs and allow for adequate funding for future waste service improvements. While recognizing that current fees were too low, not all officials felt that fee increases were a feasible option, stating that most households couldn’t afford to pay a higher rate. Two officials expressed concern that this would result in

residents resorting to illegal dumping of their wastes in order to avoid paying collection fees. One official also felt that the present state of waste management enforcement capabilities and the inadequate level of fines for illegal activities were too low to deter any illegal dumping that might result from fee increases.

In the questionnaire survey, the lack of adequate waste management funding was cited as a key limitation in organizations' operations. Sixty-five percent of respondents indicated that funding for waste management was insufficient in their organization, while only 7% indicated funding was sufficient. DOSTE (100%) and URENCO (80%) – two of the key waste management agencies – indicated that funding was insufficient, while university employees were the only group of respondents in which a majority reported adequate funding levels for their waste management tasks. This adequacy in funding may be due to the types of waste management activities undertaken by university workers - such as teaching and research - which require a lower level of financial resources. In contrast, other agencies undertake more capital intensive tasks such as landfill operation, waste collection and environmental management, and thus may experience greater financial constraints.

Despite recognizing inadequate financial resources as a key constraint on their operations, a URENCO official stated that they had no plans for increasing their fees. They also indicated that full cost recovery for their operations was not likely to occur in the near future.

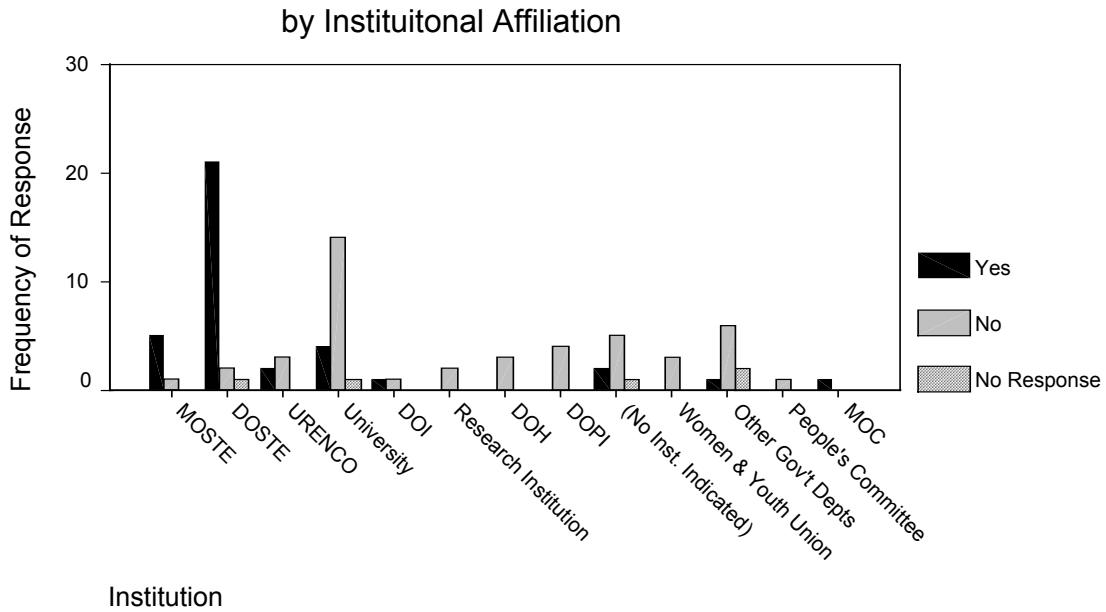
Policy Awareness & Implementation

All survey and interview participants were asked about their awareness of the MOC Strategy and, if aware, to provide details how this strategy had impacted their waste management responsibilities. Four years after the MOC Strategy took effect, 37 (42 %) questionnaire respondents indicated they were aware of its existence, 45 (52%) claimed they were unaware, and 5 (6%) did not respond to the question. Of the respondents who indicated they were aware of the MOC Strategy, 84% (31) indicated they already performed some job tasks related to its components, while 52% (19) of those aware indicated this strategy required them to take on new waste management tasks in their job.

Referring to Figure 3, the level of strategy awareness was highest in MOSTE (83%) & DOSTE (82%), however, excluding these two organizations, the awareness level of the remaining institutions was only 19% (n=57), with little variation in the level of awareness amongst all remaining institutions. The high level of strategy awareness reported by MOSTE and DOSTE respondents may be due to efforts made by MOC to notify its primary collaborator (MOSTE) of the MOC Strategy, but may also be due to respondents mistaking the MOC Strategy for the MOSTE NSEP (see page 43 for further explanation). By comparing Strategy awareness by region the highest levels were found in Hanoi (64%) and Southern Vietnam (60%) with the lowest levels in Thai Nguyen (38%) and Danang (19%).

Figure 4:

Awareness of MOC Strategy



Questionnaire respondents were also asked to indicate participation in any training courses specifically related to the MOC Strategy. Five (13.5%) of the 37 respondents who indicated awareness of the MOC Strategy said they had attended such a course. All five of the respondents who indicated participation were from DOSTE, and these participants were located in geographically diverse regions of the country: Thai Nguyen (2), Northern Vietnam (1) and Southern Vietnam (2). When asked to specify the content of these courses and what organization offered the training, the responses indicated that these courses were not actually offered as a part of MOC Strategy implementation, but rather they were courses offered by both Vietnamese and foreign agencies, which contained topics related to MOC Strategy components.

Figure 4 displays the distribution of new waste management tasks indicated by survey respondents as resulting from the MOC Strategy. Following this, Figure 5 displays respondents' opinions regarding which of these new required tasks have been difficult to implement. New waste management responsibilities most commonly required in relation to the MOC Strategy, focused on increasing community awareness of proper waste management practices and landfill

siting tasks. Overall, of the 62 indicated new tasks required by the MOC Strategy, 32% were stated to have experienced difficulties in implementing. Most notably, 7 of the 8 respondents who indicated new landfill siting tasks also indicated they had difficulty in their implementation.

Figure 5:

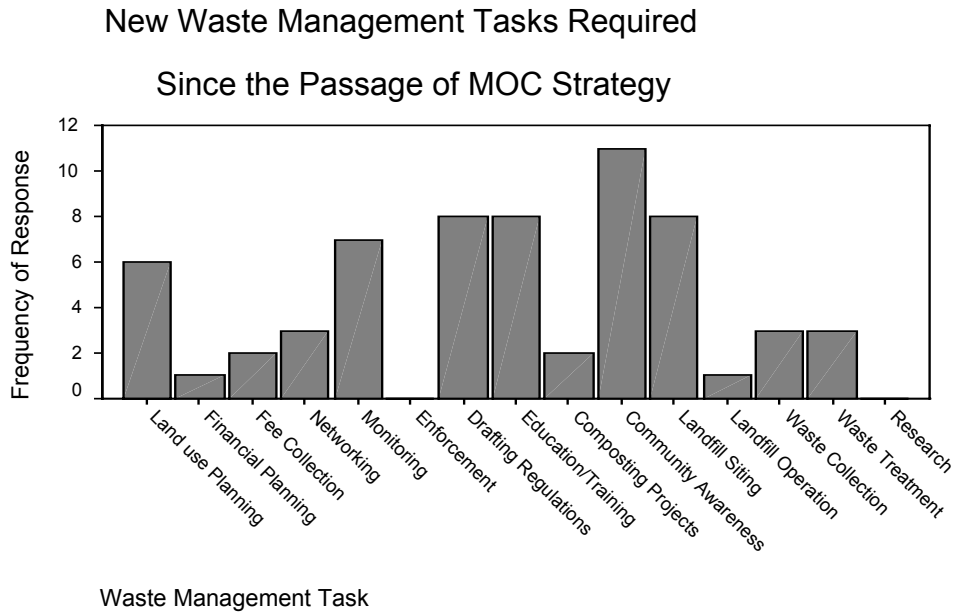
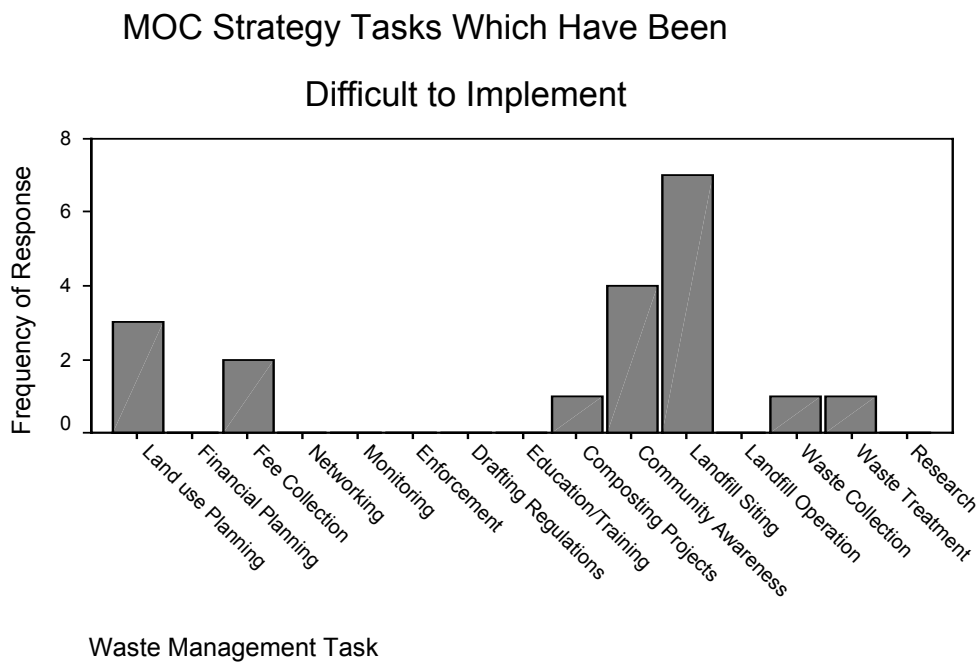


Figure 6:



In addition, respondents were asked if they had increased interaction with other government organizations since the passage of the MOC Strategy in 1999. Of those who

indicated awareness of the Strategy (n=37), 38% indicated their level of interaction increased “a little” and 19% indicated their interaction had increased “very much”, 16% indicated no increase in interaction and 8% were uncertain.

When asked about their awareness and implementation of this Strategy, the responses of interview participants differed from the survey responses. While all officials interviewed indicated they were aware of the Strategy, most downplayed the impact of the Strategy on their organization’s waste management operations. As well, none of the officials interviewed could provide examples of projects undertaken that were explicitly linked to the MOC Strategy’s implementation. A URENCO official stated that they had no direct involvement with the MOC Strategy, and when asked about the implementation of specific projects aimed at achieving the Strategy’s objectives, a URENCO official stated it was carrying out these types of waste management projects before the Strategy was passed. This point was reiterated by one DOSTE official, who stated that: “All of our activities aim at implementing the Strategy”, and referred to the fact that their regular operations were unaffected by its passage.

When asked why the MOC Strategy had little impact on their agency’s operations, many officials stated that the existing level of financial and human resources capacity within their organization was inadequate to implement the Strategy’s components. Specifically, one DOSTE official stated:

“When they build this document, they base(d) (it) on their hope(s), they did not pay much attention to the real situation, such as: (the) human resources factor, (the) finance factor, technological skills, etc.”

This official pointed out that while this Strategy was designed for all cities and urban areas of Vietnam, large cities with “high development potential”, such as Hanoi and HCMC, would face less financial difficulties in implementing its objectives because these cities receive a large amount of money from the national budget. However, this official also mentioned that in smaller

cities (such as Danang), the city budget is roughly equal to a single district of Hanoi, imposing significant financial constraints on implementing components of the Strategy in smaller urban areas.

When asked about the current state of MOC Strategy implementation, an MOC official could not provide any specific examples of implementation efforts, but stated that an assessment of the Strategy would be carried out in 2004, at which time the level of implementation would be evaluated. It was also mentioned that in light of this assessment, the Strategy might be amended to incorporate new waste management issues and targets not currently present in the Strategy document.

Although the majority of interviewed officials did not feel that the MOC Strategy had been effective in improving urban solid waste management, one official from the Ministry of Planning & Investment (MPI) indicated that this Strategy provided “a basic and good legal framework used by them to make yearly plans”, and stated that MPI used this Strategy to design waste management projects in order to secure funding from the government or donor agencies. When asked to provide specific examples of where the MPI had used the Strategy as a basis for waste management project design, the respondent noted, generally, that these projects were focused on waste management in industrial zones and in the large urban areas.

Many questionnaire respondents indicated that the implementation of the MOC Strategy had required employees to undertake additional tasks, particularly at the DOSTE's. Input gained through the interviews was not consistent with these responses, and instead provided a more critical assessment of Strategy implementation to date. It became apparent throughout the interviews that waste management activities have not been affected to any great extent by the Strategy, but rather that the Strategy outlined objectives for solid waste management that were already recognized or being carried out by the responsible agencies.

There are two possible explanations for the different views on the Strategy's impact, voiced by some questionnaire respondents and the interviewed officials. It is possible that some respondents confused the 1999 MOC Strategy with the waste management components of the 2001 MOSTE "National Strategy for Environmental Protection 2001-2010". This may explain why questionnaire respondents from MOSTE and DOSTE reported substantially higher levels of awareness and implementation. Secondly, questionnaire respondents may also have felt that they should have known about a Strategy which seemingly relates directly to their job tasks. This may lead certain respondents to indicate a higher level of awareness of the Strategy than was actually the case.

Inter-Agency & Intra-Policy Cooperation

Questionnaire respondents were asked to rank the level of interaction they had with other organizations when working on waste management issues. Inter-agency cooperation is a key component for the MOC Strategy's implementation and is informative for the overall level of inter-agency cooperation in the waste management sector. Of the 84 responses, 76% indicated that their organization cooperated with at least one other organization. More specifically, 29 respondents (35%) indicated they "often" interacted with other organizations, 33 (39%) indicated they "sometimes" interacted with other organizations, and 22 (26%) did not respond. While these high levels of interaction gave a positive sign of collaboration on waste management, it did not provide enough detail on what specific agencies were most often interacted with.

In order to gain further insight on the level of institutional interactions, respondents were asked to list all organizations they interacted with on waste management issues and to specify the different forms of interaction that took place.

To provide a more specific representation of the level of organizational interaction, a "Total Interaction" value was calculated by multiplying the number of times each organization

was named, by the number of different forms of interaction identified for each organization (research, training, land-use planning, management cooperation, advisory, monitoring, other). As some respondents indicated they interacted with others in their own organization, both the number of interactions and the total interaction value were corrected for intra-agency interactions, to provide a more accurate depiction of inter-agency cooperation on waste management. The results of this can be found below in Table 5.

Correcting for instances of intra-agency interactions shows that other organizations were most likely to interact with URENCO. The level of interaction with DOSTE was also high and was three times greater than the indicated level of interaction with the DOC's. The considerable number of waste management interactions with the People's Committees can be expected due its administrative and financial authority. Respondents also indicated greater interaction with research centers and universities than with MOSTE, although all three types of agencies provide technical assistance for waste management. This trend was also shown by DOSTE respondents, who would be expected to have a greater level of interaction with MOSTE due to MOSTE being their national-level authority.

An analysis of which agencies indicated interactions with the top three agencies in Table 5 showed that DOSTE and university respondents interacted most with URENCO (14 and 7, respectively), university and URENCO interacted most with DOSTE (8 and 4, respectively) and DOSTE (9) and URENCO (3) respondents interacted most with the People's Committees. Due to the higher levels of participation of DOSTE and Universities in this study, these results give a skewed indication of who interacts most with each agency. However, this analysis shows a clustering of interactions between three waste management agencies (DOSTE, URENCO and Universities), which may be indicative of a lower level of interaction with other relevant

organizations working on waste management, such as the Ministry and Departments of Construction.

**Table 5: Specific Waste Management Interactions
(Number of Interactions Indicated by Other Organizations) (n=87)**

Organization	Number of Interactions Indicated	Total Interaction Level (respondents * number of tasks interacted)	Number of Interactions (Corrected for Intra-Agency Interactions)	Total Interaction Level (Corrected for Intra-Agency Interactions)
URENCO	32	55	31	54
DOSTE	25	57	22	48
People's Committees	15	27	15	27
Universities	12	24	9	20
Research Centers	9	21	9	21
MOSTE	9	19	7	16
Dept. of Construction	9	17	9	17
Hospitals	7	12	7	12
General Dept of Land Administration	5	6	5	6
Dept. of Industry	4	9	4	9
Department of Health	4	4	4	4
Private Companies	3	7	3	7
Dept. of Planning & Investment	3	4	3	4
Consulting Companies	2	4	2	4
Dept. of Agriculture	2	2	2	2
Farmers Associations	2	2	2	2
Department of Tourism	1	2	1	2
Dept of Transportation	1	1	1	1
Ministry of Construction	0	0	0	0

Evaluating the level of interaction displayed in Table 5 shows that 25% of DOSTE respondents interacted with the Department of Construction, with the main forums of interaction being land-use planning, management cooperation and interactions where one of the agencies played an advisory role. Only one of the five URENCO respondents indicated any interaction with the Department of Construction, for land-use planning, cooperation on project management

and monitoring. Respondents, particularly those from DOSTE, MOSTE and URENCO, indicated a low level of interaction with DOC and MOC.

In interviews, officials often mentioned the issue of insufficient cooperation between the relevant waste management agencies. For example, one DOSTE official stated, “Collaboration between and amongst departments and districts is not strong enough”. When asked if the MOC cooperated with MOSTE on waste management projects, an MOC official indicated that sometimes, in the case of landfill siting, the two ministries would interact, but that often projects were undertaken independently. However, it was expected that officials from MOSTE or MOC would provide more numerous examples of cooperation, as the MOC Strategy indicates MOSTE and MOC as the lead agencies and assigns them to coordinate on its implementation.

Questionnaire respondents indicated a high level of agreement when asked whether their organization had established strong waste management networks with other government organizations (Table 6). This question was useful to illustrate that waste management networks exist; however, it is important to note that these networks may also be clusters of a limited number of organizations, similar to the trend presented in analysis of Table 5, above.

Table 6: Our Organization has Established Strong Waste Management Networks with Other Government Organizations (By Institutional Affiliation)

Institution	Agree	Uncertain	Disagree	Not relevant	No response	Total
MOSTE	4 66.7%	0 .0%	0 .0%	2 33.3%	0 .0%	6 100%
DOSTE	18 75.0%	4 16.7%	1 4.2%	0 .0%	1 4.2%	24 100%
URENCO	4 80.0%	1 20.0%	0 .0%	0 .0%	0 .0%	5 100%
University	10 52.6%	2 10.5%	2 10.5%	5 26.3%	0 .0%	19 100%
DOI	0 .0%	1 50.0%	0 .0%	0 .0%	1 50.0%	2 100%
Research Institution	0 .0%	0 .0%	1 50.0%	1 50.0%	0 .0%	2 100%
DOH	2 66.7%	0 .0%	1 33.3%	0 .0%	0 .0%	3 100%
DOPI	2 50.0%	0 .0%	1 25.0%	0 .0%	1 25.0%	4 100%
(No Inst. Indicated)	3 37.5%	1 12.5%	2 25.0%	0 .0%	2 25.0%	8 100%
Women & Youth Union	0 .0%	1 33.3%	0 .0%	2 66.7%	0 .0%	3 100%
Other Gov't Dept's	3 33.3%	2 22.2%	1 11.1%	3 33.3%	0 .0%	9 100%
People's Committee	1 100.0%	0 .0%	0 .0%	0 .0%	0 .0%	1 100%
MOC	1 100.0%	0 .0%	0 .0%	0 .0%	0 .0%	1 100%
Total	48 55.2%	12 13.8%	9 10.3%	13 14.9%	5 5.7%	87 100%

Jurisdictional Authority

Several officials interviewed gave conflicting comments on which agencies had authority over waste management in urban areas. Most frequently, discrepancies were noted over which national and local government bodies controlled the operations of the URENCO's. One Ministry of Construction official stated that the Ministry of Construction and the People's Committee

controlled the Department of Transportation and Public Works (DTPW), which in turn controls the URENCO. In contrast, one DOSTE official stated,

“We do not cooperate with URENCO, but we are responsible for controlling URENCO.”

However, a Hanoi URENCO official indicated that DOSTE and MOC only engaged them in an advisory role, and that the URENCO was solely controlled by the DTPW, which was overseen by the Hanoi People’s Committee. One MOSTE official described a similar institutional arrangement, stating that agencies such as DOSTE, MOSTE and MOC may at times provide technical assistance or cooperate on certain waste management projects, but they held no authority over the URENCO. The apparent absence of government agency consensus over jurisdictional issues involving waste management results in the potential for overlap and redundancy, and may be a significant impediment to efficient operations.

Decentralization of Waste Management Authority

This study also focused on evaluating the opinions of respondents on the potential for decentralized waste management initiatives to increase the effectiveness of waste management services in urban areas. Questions relating to the participants’ views on transferring authority over waste management to subnational agencies, as well as the viability of engaging a variety of non-state actors in waste management projects were included in both the questionnaires and interviews. The rationale for including these issues in an assessment of waste management capacity relates to the third factor in the capacity framework of Hildebrand & Grindle (1997). This factor identifies improvements to the task network of inter-organizational relations as an important target for capacity building, including increasing the number and diversity of actors working towards the provision of a particular public service. In this case the focus of this analysis is on increasing the number of “local” actors, as waste management operations are administered at the municipal level.

Questionnaire analysis showed that 96% (n=78) of respondents indicated that it would be beneficial to strengthen provincial/local authority in waste management, with the remaining three respondents being uncertain of its efficacy. Figure 7 depicts respondents' views on what waste management powers should be transferred to subnational government agencies. Table 7 provides a breakdown of these responses based on national/subnational/university groupings of respondents.

Figure 7:

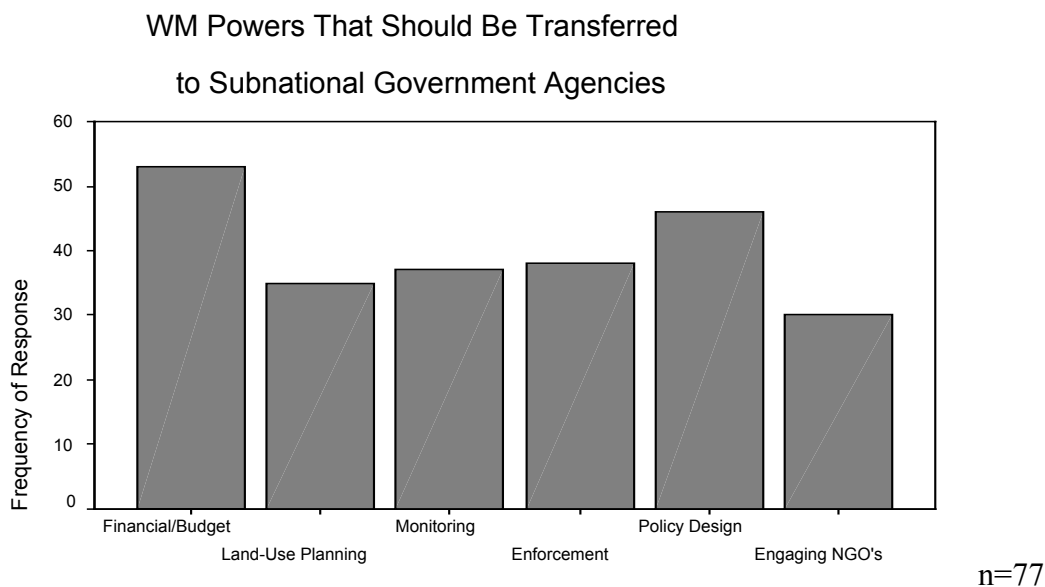


Table 7: Support for Devolution of Waste Management Authority (Agency Distribution)

Transfer of WM Authority	National Gov't (n=7)	Provincial/Local Gov't (n=45)	p-value (Nat vs. Prov.)	University/Research Centers (n=20)	p-value (Nat/Prov/Uni)
Increase Subnational Authority	100%	96% (n=48)	.582	100%	.561
Financial/Budget	57%	71%	.456	65%	.718
Land-Use Planning	57%	43%	.460	50%	.692
Monitoring	71%	46%	.223	40%	.355
Enforcement	71%	42%	.149	65%	.127
Policy Design	43%	62%	.331	60%	.623
Engaging Non-State Actors	71%	33%	.054	45%	.141

Increasing subnational authority over financial/budget planning and policy design/formulation were most frequently indicated as beneficial for waste management. Although there was no statistically significant difference between agencies, Table 7 indicates a

varying level of support between national, subnational and university respondents, most notably in reference to devolving authority regarding monitoring, enforcement and engaging non-state actors. The majority of national government survey respondents felt that subnational government powers should be increased in all areas except policy design. Transferring labour and capital intensive tasks (i.e. monitoring, enforcement, land-use planning) to subnational government would decrease the burden on the national government, while still retaining their administrative authority through policy design. However, provincial/local respondents indicated a lower level of support for taking on these three types of waste management responsibilities. This may be due to concerns over inadequate levels of subnational capacity to handle these new tasks. These diverging views over devolving waste management authority are an important consideration for any future decentralization initiatives.

These questionnaire responses, which suggest a desire to increase subnational authority over waste management, were echoed in comments made by one DOSTE official. This respondent stated that recently, several provinces and districts throughout Vietnam have begun to develop their own plans, based on their own regional preferences for waste management, irrespective of the requirements of existing national waste management strategies.

Support for Specific Decentralized Waste Management Initiatives

In order to assess the potential for new waste management initiatives to improve the provision of waste services, survey respondents were asked to indicate their support for potential initiatives that engage a variety of local non-state actors. The results presented in Table 7 show a high level of support for involvement of all three types of potential local non-state actors, with the highest level of support for socialization initiatives.

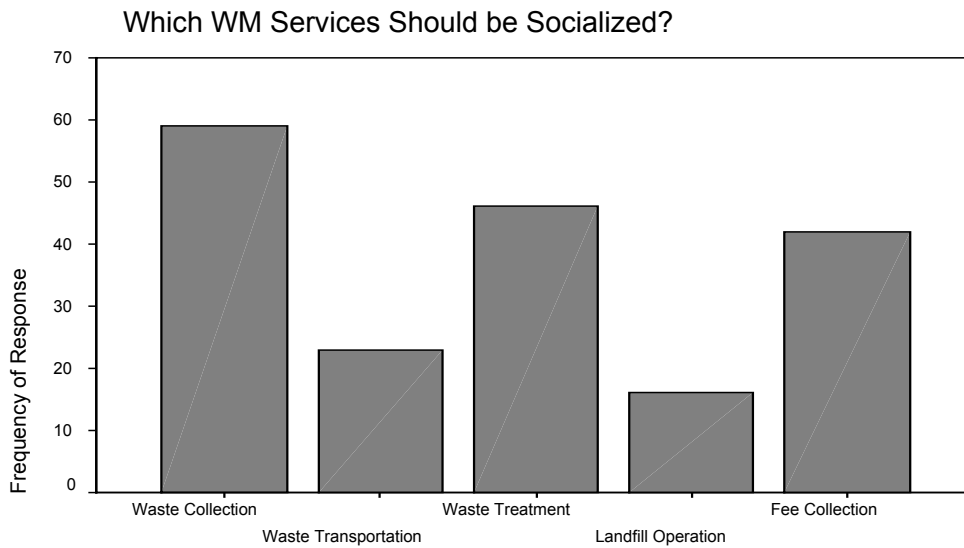
Table 8: Support For Specific Forms of Decentralized WM Initiatives (n=87)

Type of WM Partnership/Initiative	Support (%)	Oppose (%)	Uncertain (%)	No Response (%)
Community-Based	85	0	0	15

Organizations				
Informal Sector	71	7	17	5
Socialization	97	0	0	3

Socialization of waste management, in the Vietnamese context, is often understood to mean increasing the involvement of individuals or groups of citizens (such as community-based organizations) in service delivery, but can also refer to the transfer of waste management service delivery to private, profit-oriented companies. Figure 7 displays respondents preferences for what specific types of waste management services should be socialized, with waste collection (68%), treatment (53%) and fee collection (48%) being most preferred.

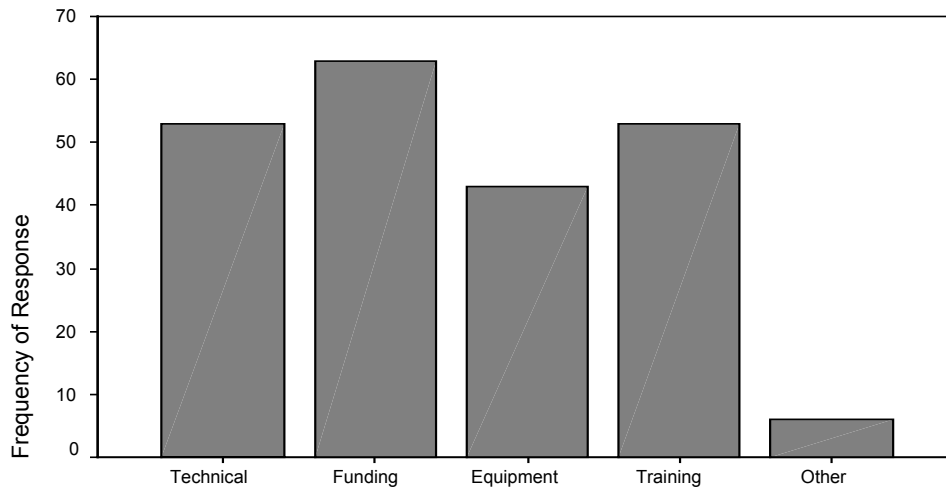
Figure 8:



In relation to community-based waste management projects, 85% of respondents felt that these initiatives should receive state or ODA support, in order to increase their viability.

Figure 9:

Type of Support Needed
for CBO's



When asked for reasons why the informal sector should be engaged in waste management projects, the main reasons given were that the informal sector provided important services such as recycling and reuse of wastes (56%), they diverted a significant amount of waste from landfills (56%), and they lessened the collection burden of the formal waste management sector (50%).

The majority of interviewed officials also indicated a high level of support for these forms of decentralized waste management. However, when asked if their organization had plans to engage these non-state actors, many officials were reluctant to offer any concrete plans. A URENCO official said it was willing to offer training to CBO's to improve waste management activities, but stated they would not provide them with any equipment or funding, due to the URENCO's budget and operating constraints.

Generally, most officials expressed the view that the informal sector was an asset to waste management, but stated they were reluctant to provide support to improve its operations. Although specific reasons for not engaging the informal sector weren't provided by most officials, one DOSTE official did comment that the informal sector inhibited the establishment of

formal recycling projects because they collected most of the valuable recyclables needed for these projects to be profitable.

When asked specifically about the potential for private waste management companies to improve urban waste collection, officials were supportive of the idea, but most stated that Vietnam was not yet ready for the introduction of private waste companies. One official mentioned the current situation in HCMC, where two districts currently have private companies operating. It was felt that residents with lower incomes in these districts may not be able to afford the company's higher collection fees, leading to some households' waste going uncollected. A MOSTE official also voiced concern over the possibility that some citizens would be unable to afford private waste services.

As a more feasible option, most officials, including those from URENCO, felt that government subsidies for URENCO should be gradually reduced over several years until they achieve full cost recovery. A URENCO official thought that this would not occur for a long time; however other officials thought full cost recovery could be achieved in about 10 years. No officials were aware of a plan to sell URENCO to a private firm once full cost recovery is realized.

CHAPTER SIX: DISCUSSION & RECOMMENDATIONS

Results from this study indicate that there currently exist key capacity constraints for solid waste management in Vietnamese cities, and these constraints may continue to prevent Vietnamese authorities from meeting their present and future collection requirements. Specifically, the lack of adequate waste management training and problems of job retention at the provincial/local level may have a significant effect on the ability of the Vietnamese government to provide for waste management that meets the needs of its rapidly growing urban areas.

Adequate funding for urban waste management was also a key capacity constraint identified in this study. The majority of questionnaire respondents indicated improvements in the current state of waste management were greatly impeded by inadequate finances. The majority of interviewed officials shared this view, however the option of increasing waste collection fees was not thought to be feasible by most officials. Under the present system of budget allocation in Vietnam, provincial budgets are negotiated with the national government, and provinces themselves do not possess their own taxation powers. Therefore, with waste management responsibilities held by government agencies which do not control their own budgets, and who feel unable to increase waste management charges for their residents, these subnational agencies must continue to allocate a considerable amount from their general budgets to subsidize waste management. This situation poses a considerable financial constraint on improving service delivery, as present service levels already impose a sizeable operating deficit.

The national government has made efforts to develop waste management policy which provides overall direction and specific targets for solid waste management; this can be viewed as a promising contribution to Vietnam's waste management capacity. However, the level of policy awareness provided by questionnaire respondents did not indicate that the MOC Strategy had a

high level of impact on their normal waste management operations. In addition, the majority of interviewed officials did not provide examples of successful implementation of MOC Strategy components. The key reasons for the lack of effective policy implementation stem largely from the currently inadequate level of human resources and financial capacity within agencies responsible for its implementation. Furthermore, the current level of interaction between agencies involved in waste management may not be sufficient to allow for the effective implementation of this Strategy, which explicitly calls for the collaboration of a number of government agencies to achieve a diverse range of waste management objectives.

Key to the issue of inter-agency cooperation is the current disagreement over jurisdictional authority in the waste management sector. Senior officials from both Vietnam's environment and construction sectors - which are the key agencies involved in solid waste management in Vietnam - claim authority over waste management. These differing views may explain why both agencies have drafted their own national waste management strategies, and can be seen to result from differing views on the nature of waste management. Whereas the MOC appears to view waste management as an urban infrastructure issue, MOSTE appears to believe that waste management is more a pollution control issue, of which the construction of suitable infrastructure is only one component. In reality, waste management is both an infrastructure and a pollution control issue, requiring the cooperation of experts from both of these fields in order for service levels to be improved and sustained throughout all urban areas of the country.

The issue of cooperation is of key importance to waste management in Vietnam, which as this study has shown, is experiencing substantial financial and administrative capacity constraints. With large annual budget deficits occurring in all major cities and a shortage of well-trained workers, the need to collaborate and avoid duplication of waste management tasks is paramount to service improvements. The presence of two national waste management strategies

developed by MOC and MOSTE is redundant and a drain on already scarce resources. Furthermore, although several similarities can be observed between the two strategies, there are also significant differences. Most significantly, these Strategies contain differing statements regarding urban waste collection targets and the feasibility of promoting potential waste management alternatives, which involve local non-state actors. These discrepancies may lead to uncertainty within national, provincial and city government agencies over what strategy should be followed and what components of these strategies should be given priority.

Another important component of the MOC Strategy, with direct implications for financial capacity, is the focus on the acquisition of advanced technologies to meet urban collection requirements. This focus does not appear to acknowledge the considerable financial constraints on waste management in urban areas, indicated by questionnaire and interview participants. Hanoi's recent acquisition of 70 waste collection vehicles from Japan will likely increase their collection capacity, but capital intensive solutions may not be feasible for other cities, which do not receive the same levels of ODA presently allocated to Hanoi. Objectives within the MOC Strategy, which call for the domestic production of waste collection vehicles, will need to be given priority if this high-tech, capital intensive waste management approach is to be a feasible option for all urban areas.

Implications for MONRE

The results of this study may provide a useful guide to the waste management initiatives undertaken by the newly formed Ministry of Natural Resources and Environment (MONRE). With the creation of MONRE, state environmental protection in Vietnam will now be contained within a larger and more environmentally focused ministry. MONRE officials expressed optimistic views that environmental protection in Vietnam would be improved with this new

institutional configuration, and stated that an increased level of subnational autonomy for its provincial, city and district offices would be focus of its operations.

The findings of this study show that subnational government representatives reported the highest levels of human resources capacity constraints. This should be noted by MONRE, as it proceeds with plans to promote the role of its subnational departments more in the future. Specifically, if the process of devolving responsibilities is to lead to the improvement of environmental protection and waste management services, there will need to be greater attention paid to training and ensuring that trained staff are retained by these agencies. This training should not only be offered to MONRE workers, but to the various government departments that interact with MONRE on waste management tasks.

Also, there is a need for MONRE to collaborate with all pertinent agencies, especially the MOC, on waste management initiatives as well as to resolve key differences in the two national waste management strategies studied. These strategies need to provide clear and attainable objectives to all of its national and subnational implementing agencies. Any new waste management policy will have to provide realistic targets, which are sensitive to the diverse financial situations of Vietnamese cities, rather than stating goals that may only be attainable in urban areas which receive higher budget allocations from the central government.

In addition, any future waste management strategies will have to recognize the increasing presence of regional or city-based waste management planning that was noted by interviewed officials. These strategies should contain flexibility in the types of waste management projects to be developed, including provisions for government agencies to engage local non-state actors such as community-based organizations, the informal sector and potentially, private waste companies. These actors have the potential to alleviate some of the existing solid waste

collection burden, as well as provide for an expansion of service delivery to the rapidly growing suburban areas, which are not presently serviced by the URENCO's.

Study participants indicated a substantial level of support for these types of alternative waste management, although there was no indication that any government agencies were presently planning to initiate such projects. In this regard, more progressive waste management policy could play an important role, by including alternative waste management projects as important strategy components.

Finally, the NSEP proposal that an intersectoral management mechanism be established should be considered as a means of harmonizing waste management operations throughout Vietnam in order to overcome any inter-agency conflicts and jurisdictional authority issues.

In conclusion, this study has highlighted some of the current capacity issues in Vietnam's urban waste management sector, as voiced by officials in several institutions throughout the country. This overview provides a depiction of the key human resources, financial and administrative capacity issues faced by these agencies. This study offers recommendations for overcoming some of the identified constraints, which may be particularly relevant to the recent reform of state environmental management in the country. This work may also provide useful input for future capacity building initiatives, such as the Waste-Econ project. Although this study included officials from a wide diversity of agencies throughout the country, the responses pointed to a need to gain further input from officials at the MOC in order to incorporate their important views on the current waste management capacity.

Areas for Further Research

In carrying out this study, several areas for further research were identified which would provide for a more detailed examination of Vietnam's urban waste management capacity. First,

there is a need to acquire more extensive input from representatives from key waste management agencies including URENCO, MOC and People's Committees. This study did gain questionnaire and interview data from some representatives of these institutions, however the level of participation was much lower than that of other agencies, such as DOSTE. Greater involvement of these agencies could provide for a more comprehensive assessment of the current state of urban waste management, particularly regarding the political and financial issues explored in this study.

Also, there is the need for further research into the waste management capacity of all major cities in Vietnam, particularly Ho Chi Minh City. HCMC appears to be actively pursuing environmental protection and waste management goals, as evidenced by its 2002 Environmental Management Strategy. Further research in HCMC could provide an interesting comparison to the waste management initiatives of the national government and Hanoi, which were the major focuses of this study.

In addition, as this study aimed to assess the implementation of only the 1999 MOC Strategy, there is the potential for a similar assessment of the 2001 MOSTE NSEP to be undertaken. Evaluating the implementation of the NSEP would allow for a more extensive comparison between the MOSTE and MOC Strategies, highlighted in this study.

The role that donor agencies have played in increasing Vietnam's waste urban management capacity should also be researched to determine what waste management areas have been the targets of ODA and the impact this has had on domestic waste management operations.

Finally, a more extensive study on the feasibility of decentralizing waste management is warranted, in light of the interest shown by questionnaire and interview participants for pursuing this approach as a means of increasing urban waste management capacity.

REFERENCES

- Babu, S.C., Mthindi, G.B. & Ng'ong'ola, D. 1996. Developing Decentralized Capacity for Development Policy Analysis – Lessons from Food Security and Nutrition Monitoring in Malawi. *African Development Review*. 8: 127-145.
- Babu, S.C. 2000. Capacity Strengthening in Environmental and Natural Resource Policy Analysis: Meeting the Changing Needs. *Journal of Environmental Management*. 59: 71-86.
- Can, L.T. 1999. Environmental Capacity Building in Vietnam. 393-407. In *Capacity Building in National Environmental Policy*. Eds. H. Weidner & M. Janicke. Springer: Berlin. 2002.
- Chen, M.A. 1997. Building Research Capacity in the Nongovernmental Organization Sector, in *Getting Good Government: Capacity Building in the Public Sectors of Developing Countries*. Ed. M.S. Grindle. Harvard University Press, Cambridge, Massachusetts. 1997.
- Chi, D.K. 2003. Women's Role in Waste Management in Vietnam in *Gender and the Waste Economy: Vietnamese and International Experiences*. Waste-Econ Project Publication. National Political Publisher, Hanoi, Vietnam, 2003.
- Cohen, J.M. & S.B. Peterson. 1999. Administrative Decentralization: Strategies for Developing Countries. Kumarian Press. West Hartford, Connecticut.
- Crosby, B.L. 1996. *Policy Implementation: The Organizational Challenge*. World Development (24) 9, 1403-1415.
- Doberstein, B.A. 2001. Capacity Building for Environmental Impact Assessment: The Role of Development Aid in *Building Environmental Planning Capacity in Vietnam*. PhD Thesis, University of British Columbia.
- Drakakis-Smith, D. & Dixon, C. 1997. *Sustainable Urbanization in Vietnam*. Geoforum. 28(1): 21-38.
- Friere, M. & R. Stren (eds.). *The Challenge of Urban Government: Policies & Practices*. World Bank Institute, Washington D.C., 2001.
- Environmental Resources Management. 1999. *Rapid Assessment of Waste Management, Haiphong, Vietnam*. World Bank Report. London, UK.
- GKW Consulting. *Business Opportunities in Vietnam in the Water Supply and Sanitation Sector - Final Report*. Mannheim, Germany, January 1994.

- Grindle, M.S. The Good Government Imperative: Human Resources, Organizations and Institutions, in *Getting Good Government: Capacity Building in the Public Sectors of Developing Countries*. Ed. M.S. Grindle. Harvard University Press, Cambridge, Massachusetts. 1997.
- Hai, L.D. 2000. *Urban Waste in Vietnam*. Conference Paper Presented at Workshop on Waste Economy and Sustainable Development, Hanoi, Vietnam. August 29, 2000.
- Harpham, T. & K.A. Boateng. 1997. *Urban Governance in Relation to the Operation of Urban Services in Developing Countries*. Habitat International. 21(1): 65-77.
- Hilderbrand, M.E. & M.S. Grindle. Building Sustainable Capacity in the Public Sector, in *Getting Good Government: Capacity Building in the Public Sectors of Developing Countries*. Ed. M.S. Grindle. Harvard University Press, Cambridge, Massachusetts. 1997.
- Hirschman, D. 1993. *Institutional Development in the Era of Economic Policy Reform: Concerns, Contradictions and Illustrations from Malawi*. Public Administration and Development. 13: 113-128.
- Ho Chi Minh City (HCMC) People's Committee. *Environmental Management Strategy for Ho Chi Minh City to 2010*. August 2002.
- Hoe, N.D. Strengthening Local Capacity in Sustainable Development Strategy, in *Achieving Sustainable Development in Vietnam, Workshop Proceedings March 6-8, 2002, Hanoi, Vietnam*. Ministry of Planning and Investment, 2002.
- Jackson, E.T. & Gariba, S. 2002. *Complexity in Local Stakeholder Coordination: Decentralization and Community Water Management in Northern Ghana*. Public Administration and Development. 22:135-140.
- Janicke, M. 2002. The Political System's Capacity for Environmental Policy: The Framework for Comparison, in *Capacity Building in National Environmental Policy*. Eds. H. Weidner & M. Janicke. Springer: Berlin. 2002.
- Jorgensen, C.H. & J.B. Jakobsen. 1994. *Municipal Solid Waste Management: Institutional and Socio-Economic Constraints – Experience for the Mediterranean Region*. Waste Management & Research, (12) 233-242.
- Larson, A.M. 2001. *Natural Resources and Decentralization in Nicaragua: Are Local Governments Up to the Job?* World Development. 30, 17-31.
- Lien, N.T. 2000. *Socializing Solid Wastes Collection in Cities by the View of Policies and Law*. Danang Urban Environment Department, Danang, Vietnam.
- Litvack, J.I. & Rondinelli, D.A. (1999). *Market Reform in Vietnam: Building*

- Institutions for Development*. Westport, Connecticut: Quorum Books.
- Mongabay. 2003. Largest Cities in Vietnam.
<http://www.mongabay.com/igapo/Vietnam.htm>. Accessed: January, 19th, 2004.
- OECD. 1995. *Developing Environmental Capacity. A Framework for Donor Involvement*. Paris: OCED.
- Painter, M. 2003. *Public Administration Reform in Vietnam: Problems and Prospects*. *Public Administration & Development*, (23) 259-271.
- Rao, M.G. Challenges of Fiscal Decentralization in Developing and Transitional Economies: an Asian Perspective, in *Public Finance in Developing and Transitional Countries* (eds. J. Marquez-Vasquez & J. Alm). Edward Elgar, Cheltenham, UK, 2003.
- Rondinelli, D.A. & Cheema, G.S. 1983. Implementing Decentralization Policies: An Introduction. In *Decentralization and Development*, eds. G.S. Cheema & D.A. Rondinelli. Sage Publications, Beverly Hills.
- Sinh, B.T. 2002. *Government and NGO Partnership in Managing Community-Based Water Resources in Vietnam: A Case Study of the Thai Long Dam Project*. *Business Strategy and the Environment*. 11:119-129.
- Sinkule, B.J. & L. Ortolano. *Implementing Environmental Policy in China*. Praeger Westport, Connecticut. 1995.
- Smith, D.W. & J.L. Scarpaci. 2000. *Urbanization in Transitional Societies: An Overview of Vietnam and Hanoi*. *Urban Geography*. 21(8): 745-757.
- Socialist Republic of Vietnam. 1993. *National Law on Environmental Protection*.
- Socialist Republic of Vietnam. 1997a. An Analysis of National Environmental Plans. In *Vietnam report at Vietnam Capacity 21Project*. Ministry of Planning & Investment, Hanoi, June 1997.
- Socialist Republic of Vietnam. 1997b. *Incorporating Environmental Considerations into Urban Planning*. Vietnam Capacity 21 Project Publication.
- Socialist Republic of Vietnam. 1997c. Instruction 119/TTg: “Urgent methods in the work of solid waste management in urban areas and industrial zones”.
- Socialist Republic of Vietnam. 1999. *Strategy for Management of Solid Waste in Vietnamese Cities and Industrial Parks Till the Year 2020*. Decision No. 152/1999/QD-TTg of July 10, 1999.
- Socialist Republic of Vietnam. 2000. *Report of Vietnam’s Government at Partnerships Conference on Environment*. Hanoi, March 2000.

Socialist Republic of Vietnam. 2001. *National Strategy for Environmental Protection 2001-2010*. Ministry of Science, Technology & Environment, Hanoi, Vietnam.

Socialist Republic of Vietnam. 2002. *Decree No. 91/2002/ND-CP prescribing the functions, tasks, powers and organizational structure of the Ministry of Natural Resources and Environment*. November 11, 2002. Hanoi, Vietnam.

The World Gazetteer. 2003. Vietnam-Largest Cities.
http://www.world-gazetteer.com/fr/fr_vn.htm. Accessed: January 19th, 2004.

Thu, N.T. 2000. *Municipal Domestic Waste in Vietnam*. Working Paper: National Institute for Science & Technology Policy and Strategy Studies (NISTPASS). Hanoi, Vietnam.

Turner, M. 2002. *Whatever Happened to Deconcentration? Recent Initiatives in Cambodia*. *Public Administration and Development*. 22: 353-364.

Weidner & Janicke. Summary: Environmental Capacity Building in a Converging World, in *Capacity Building in National Environmental Policy*. Eds. H. Weidner & M. Janicke. Springer: Berlin. 2002.

White, R. & J. Whitney. 1992. Cities and the Environment: an Overview in *Sustainable Cities: Urbanization and the Environment: an International Perspective*. Westview Press, Boulder.

Appendix 1:

Questionnaire of Waste-Econ Course Participants

1. Job Title: _____

Institution: _____ City/Province: _____

Job Responsibilities: _____

2. What type of work do you do? (check all that apply)

- Education/Training Technical Assistance Financial
Research Land-Use Planning Public Health
Managerial Other (please describe) _____

3. If your work is related to waste management, in what areas are you involved?

- Waste Collection Waste Treatment Waste Disposal
Landfill Operation Landfill Siting Other _____

4. Which Waste-Econ Course did you participate in?

- Six-week course in Hanoi, July-August 2000
Two-week course in Ho Chi Minh City, September 2001
Two-week course in Da Nang, October 2001
Two-week course in Thai Nguyen, November 2001

5. Have you changed organization, been promoted, or changed job title since you took the Waste-Econ Training course? YES NO

6. If you have changed organization, been promoted or changed job title, could you give your former job title(s) and organization(s)?

7. Since the training course, have you used any of the knowledge learned at the course in your work? YES NO

8. If YES, could you please give examples of where it has been useful?

9. If NO, could you explain why you have been unable to use this knowledge?

10. Have you shared your knowledge form the Waste-Econ training course with any other people?
 Yes, a lot Yes, a little Uncertain No

11. Which people and/or organizations should be targeted for training on the Waste-Economy?

12. Not including the Waste-Econ course, have you participated in other training courses related to waste management?

YES NO

13. IF YES, could you please give more details in the below table (If you can remember).

Organization Offering the Training	Length of Training and Date	Training Topics

14. Are you knowledgeable of the 1999 Strategy for Management of Solid Waste in Vietnamese Cities and Industrial Parks Till the Year 2020?

YES NO

If no, go to Question 24.

15. If yes, are any of your job tasks related to components of this Strategy?

YES NO

16. Do you now have additional responsibilities since the passage of this Strategy?

YES NO

17. IF YES, please indicate which new tasks you are required to perform (check all that apply):

- Land-Use Planning Financial Planning Fee Collection Networking
 Monitoring Enforcement Drafting Regulations Education/Training

Composting Projects Increasing Community Awareness Landfill Siting Landfill
 Operation Solid Waste Collection Solid Waste Treatment Research
 (topic) _____ Other _____

18. Of these new tasks you indicated above, which have been difficult to perform?

Land-Use Planning Financial Planning Fee Collection Networking
 Monitoring Enforcement Drafting Regulations Education/Training
 Composting Projects Increasing Community Awareness Landfill Siting Landfill
 Operation Solid Waste Collection Solid Waste Treatment
 Research Other _____

19. If you checked any tasks in Question 21, please explain why they have been difficult to perform.

20. Have you increased your interaction with other government organizations since the passage of this Strategy? Yes, very much Yes, a little No Not Sure

21. Have you participated in training courses specifically related to the Strategy for Management of Solid Waste in Vietnamese Cities and Industrial Parks Till the Year 2020?
 YES NO

22. If yes, please circle the course(s) in the table completed for Question 13.

23. Do you feel participation in the course(s) has improved your ability to carry out your new tasks, related to this Strategy?
 Yes, very much Yes, a little NO Not Sure

The following questions relate to the operations of your organization in the waste management sector.

24. Please indicate whether you agree or disagree with each of the statements below by checking one of the boxes on the 5 point scale provided. For any of the following statements which are not relevant to your organization, check "not relevant".

Waste management is an important focus of my organization.

Strongly Agree **Agree** **Uncertain** **Disagree** **Strongly Disagree** **Not Relevant**

Funding for solid waste management in my organization is not sufficient.

Strongly Agree **Agree** **Uncertain** **Disagree** **Strongly Disagree** **Not Relevant**

My organization has received adequate technical assistance to achieve its goals in the area of waste management.

Strongly Agree **Agree** **Uncertain** **Disagree** **Strongly Disagree** **Not Relevant**

Lack of public awareness of appropriate waste management behaviour is a significant problem for our organization.

Strongly Agree **Agree** **Uncertain** **Disagree** **Strongly Disagree** **Not Relevant**

Our organization has sufficient autonomy from other levels of government in its every-day decision making.

Strongly Agree **Agree** **Uncertain** **Disagree** **Strongly Disagree** **Not Relevant**

All employees in my organization have adequate training in waste management.

Strongly Agree **Agree** **Uncertain** **Disagree** **Strongly Disagree** **Not Relevant**

Finding appropriate sites for landfills is a challenge for our organization.

Strongly Agree **Agree** **Uncertain** **Disagree** **Strongly Disagree** **Not Relevant**

Our organization has established strong networks with other government organizations working on waste management.

Strongly Agree **Agree** **Uncertain** **Disagree** **Strongly Disagree** **Not Relevant**

Our organization has difficulty in retaining qualified staff.

Strongly Agree **Agree** **Uncertain** **Disagree** **Strongly Disagree** **Not Relevant**

25. Does your organization work with other government agencies in its waste management operations? YES NO

26. If yes, how much interaction does your organization have with these other agencies?

Rarely Sometimes Often

27. Please list the organization and check all activities involving other organizations:

	Form of Interaction (please check all that apply)
--	--

Government Organization	Form of Interaction (please check all that apply)						
	Research	Training	Land-use Planning	Management Cooperation	Advisory	Monitoring	Other _____

28. Has your organization received any assistance from foreign donor agencies on waste management projects?

YES NO

29. IF YES, which agencies?

30. If YES, what type of assistance was provided?

Financial Technical Assistance Training/Education Equipment

Other (please describe) _____

31. Are you aware of any government initiatives to transfer more waste management responsibilities/duties to your organization?

YES NO NOT SURE

IF NO, skip to Question 35.

32. What types of responsibilities will be transferred?

Financial Planning Landfill Siting Land-Use Planning Drafting Regulations

Policy/Strategy Design Other _____

33. Do you feel your organization has the capacity to handle these new responsibilities?

YES NO NOT SURE

34. IF NO, what type of assistance do you require?

Funding Training Equipment Technical Staff

Other _____

35. Do you feel it could be beneficial to strengthen provincial/local government authority in the waste management sector? YES NO NOT SURE

36. IF YES, in what areas should they be given more power?

Financial/Budget Planning Networking with non-state actors Land Use Planning

Monitoring Enforcement Policy/Strategy Design

Other _____

37. IF NO, why shouldn't provincial/local government involvement be increased?

Lack of Trained Staff Lack of Technical Expertise Lack of Adequate Funding

Lack of Knowledge on Waste Management Other

38. Do you think that socialization of waste management could provide improved waste management services within Vietnamese cities? YES NO NOT SURE

39. If YES, which waste services are best carried out?

Waste Collection Waste Transportation Waste Treatment Landfill Operation

Collection of Environmental Sanitation Fees Other _____

40. If NO, why shouldn't socialized waste management services be promoted?

Less Efficient Provides inferior service Less accountable to residents

Only motivated by profit Other _____

41. Do you feel that waste management projects organized by community organizations are a viable option for Vietnamese cities? YES NO

42. If YES, should they be provided with support from government and/or foreign agencies ?
YES NO

43. If YES, what type of support should they be given?

Technical Assistance Financial Equipment Training

Other _____

44. Do you feel that projects which engage the informal waste sector could improve waste management operations in Vietnamese cities? YES NO

45. If YES, the reasons are (check all that apply):

Informal sector provides important services such as recycling and reuse of wastes

They divert a significant amount of waste from landfills

It lessens the collection and treatment burden of the formal waste management sector

The informal sector is better at mobilizing project resources than the formal sector

The informal sector operates more effectively than the formal waste management sector

Other _____

If NO, why shouldn't the informal sector be engaged? (check all that apply)

Informal sector workers are inefficient

- The informal sector is difficult to work with
- Informal sector operations conflict with those of formal waste management operations
- The informal waste sector gives cities a dirty, unhealthy image and should not be supported
- Other _____

If you have any additional comments, suggestions, or would like to elaborate on any of your previous answers, please include it here, or attach a separate sheet.

Thank you for your participation

DECISION No. 152/1999/QĐ-TTg OF JULY 10, 1999 RATIFYING THE STRATEGY FOR MANAGEMENT OF SOLID WASTE/IN VIETNAMESE CITIES AND INDUSTRIAL PARKS TILL THE YEAR 2020

THE PRIME MINISTER

Pursuant to the Law on Organization of the Government of September 30, 1992:

Pursuant to the Law on Environmental Protection, passed on December 27, 1993 by the IXth National Assembly and made public under the State President's Order No. 29-L-CTN of January 10, 1994:

At the proposal of the Minister of Construction in Report No. 08-TTr-BXD of February 23, 1999.

DECIDES:

Article 1.- To ratify the Strategy for management of solid waste in Vietnamese cities and industrial parks till the year 2020 with the following principal contents:

I. OBJECTIVES

To step by step form a synchronous system for management of solid waste in cities and industrial parks in order to check the environmental pollution and protect the environment, thus ensuring the achievement of target of sustainable development in the period of national industrialization and modernization.

1. Immediate-future objectives (till the year 2005):

- By that time, all the provinces and centrally-run cities shall complete the planning for management and treatment of solid waste in cities and industrial parks, with priority being given to the planning of hygienic solid waste burial sites; close solid waste burial sites which are not hygienic; and build a number of establishments for processing solid waste into fertilizer when conditions permit.

- To sort out hazardous waste right from their sources; to initially sort out solid waste from daily life in cities.

- To collect, transport and treat 75-90% of the total volume of discharged solid waste, depending on each type of cities and industrial parks:

- To thoroughly treat hazardous medical solid waste in big cities with advanced incineration technology(ies); to treat hazardous industrial solid waste by appropriate method(s).

2. Long-term objectives (till the year 2020):

- To collect, transport and treat 80-95% of the total volume of solid waste discharged in cities and industrial parks;

- To collect and thoroughly treat hazardous medical solid waste in cities with advanced technology(ies);

- To apply the measures to reclaim and recycle solid waste; to give priority to the investment in construction of two centers for treatment of hazardous industrial solid waste in two key economic regions in the North and the South;

- To improve the management of solid waste in cities and industrial parks on the principle of harmonizing the legislation, development investment, technical assistance, as well as inspection and supervision.

II. MAJOR SOLUTIONS

1. Improvement of the legal framework:

- To revise and synchronously promulgate documents guiding the legislation on solid waste management, and to raise the enforcement effect of the Law on Environmental Protection;

- To promulgate the "Regulation on solid waste management" and the "Regulation on hazardous waste management", which concretize the implementation of provisions on solid waste management in the Law on Environmental Protection;

- To draw up the planning of national network of establishments for treatment of medical solid waste and hazardous solid waste discharged from industrial parks, which shall serve as basis for the formulation and ratification of investment projects with a view to avoiding investment overlapping, coincidence and waste in investment;

- To promulgate the designing standards of hygienic solid waste burial sites; incorporate the quotas of land to be used for solid waste treatment into the urban planning norms.

2. Raising of the communal awareness and training capability:

- To conduct widespread and regular propaganda on the mass media, guide the public opinion in promoting and encouraging the environmental protection activities; to carry out the propaganda and education through the regular operations of the mass organizations at grassroots levels, thus creating emulation movement for building new way of life at residential quarters in cities and industrial parks; to publish and disseminate documents propagating and instructing the environmental protection in general and solid waste management in particular, suitable

to each target subject and each locality:

- To include the environmental education curriculum into education programs of the pre-school, general and tertiary education and other training and professional foster courses of the political and social organizations and occupational societies;

- To enhance the capability of schools and institutions for training out specialists in the domain of solid waste management.

3. Renewal of the financial policy and creation of capital sources:

- The Ministry of Construction shall assume the prime responsibility and coordinate with the concerned ministries and branches in studying and promulgating the bracket of environmental sanitation fees and price bracket applicable to contracts for collection, transportation and treatment of solid waste in each type of cities and industrial parks on the following principle: For the immediate future, to ensure enough expenses for operation of solid waste collection, transportation and treatment apparatus, then proceed to collect more to partially refund the State's investment capital; the localities shall base themselves on these brackets to set out specific fee levels suitable to their respective cities.

- Local administrations of all levels shall seek measures for correct and full collection of budget revenues including taxes and environmental sanitation fee within the scope of competence assigned to them. Organizations and individuals shall have to pay the fee for collection and treatment of solid waste;

- To adopt tax, credit and land use mechanisms and preferential policies in order to mobilize potential resources from the population and all economic sectors for investment in the field of environmental protection in general and solid waste management in particular;

- To attract external resources;

- To adopt preferential policies and plans for rational distribution of budget capital, ODA capital and long-term loans with preferential interest rates for investment in procurement of facilities and equipment and construction of solid waste treatment centers; to render loan supports for investment in solid waste management projects;

- To encourage all economic sectors to participate in the solid waste management and apply clean and low-waste production technologies through preferential policies provided for by the Law on Domestic Investment Promotion (amended);

- The State encourages the establishments producing goods (especially consumer goods in cities) to conduct research aimed to minimize solid waste after such goods are consumed, such as: rational use of input materials, proper alterations in products

formulas, reduction of packing materials, change in consuming habit, etc.

4. Improvement of the model for solid waste management organization:

- To consolidate and promote the State enterprises that are effectively operating in the collection, transportation and/or treatment of solid waste;

- To encourage all economic sectors to invest in the field of solid waste management; to equitize State enterprises with ineffective operations in this field; to study the establishment of companies following the operation model of public-utility State enterprises.

5. Modernization of technologies and manufacture of equipment and materials:

- To apply advanced technologies suitable to Vietnam's conditions in processes of recycle, reuse or treatment of solid waste;

- To import, then proceed to manufacture at home equipment for collection, transportation and treatment of solid waste;

- To study and apply norms and standards in the following processes: selection of technologies for, designing, construction and operation of hygienic waste burial sites; and at the same time to invest in the construction of projects for treatment of hazardous solid waste in compatibility with advanced standards and technologies;

- To apply technologies for incineration of medical solid waste and hazardous industrial solid waste.

6. Promotion of international cooperation and relations:

To take advantage of all sources of aids from foreign governments and non-governmental organizations and other sources of international assistance in training, experience learning, technology transfer, technical and financial supports in the field of solid waste management.

Article 2.- To assign the Ministry of Construction and the Ministry of Science, Technology and Environment to coordinate with the Ministry of Planning and Investment, the Ministry of Finance, the Ministry of Industry, the Ministry of Health and the concerned ministries and branches in concretizing the contents of the Strategy for management of solid waste in cities and industrial parks till the year 2020; organizing the realization of the Strategy; drawing up the planning as well as short-term and long-term plans for the effective implementation thereof.

Article 3.- This Decision takes effect 15 days after its signing. The ministers, the heads of the ministerial-level agencies, the heads of the agencies attached to the Government and the presidents of the People's

Appendix 3

Primary Question	Secondary Questions	Notes
1. Please state your name, position and organization.	How long have you held this position?	
2. What responsibilities does your Ministry have for waste management?		
3. How many employees undertake work related to waste management in your Ministry?	A. Is there a specific department for waste management in your organization?	
4. Can you describe all the waste management projects your Ministry has undertaken over the past 5 years?	A. Of these projects which ones have specifically targeted solid waste management in Vietnamese cities? B. Which areas were targeted? C. Where were they located?	B. Waste Disposal? Waste Collection? Hazardous Wastes? Industrial Wastes? Landfill Siting?
5. Have employees in your Ministry participated in any of the training courses?	A. How many employees participated in these courses? B. How long were these training sessions? C. What type of further training would be beneficial for employees of your Department? Why? Please Explain.	
8. Have you worked with donor agencies on any waste management projects over the past five years?	A. Which donor assisted projects has your Department been involved in over the past five years? B. Which agencies did you work with? C. What form did they take? D. What type of assistance was provided?	
9. Do you work in cooperation with other government Ministries, Departments or other organizations in your waste management activities?	A. Which organizations? B. Please describe the form this cooperation has taken?	Please provide examples.
10. Could you briefly describe how waste management tasks are shared and delegated between your Ministry and your provincial departments?		
Now I would like to proceed to questions related to the 1999 Strategy for Waste Management in Urban Areas Till the Year 2020		
10. Are you familiar with the 1999 Strategy for Waste Management in Urban Areas Till the Year 2020?	If YES, A. What specific responsibilities does your Ministry have related to this Strategy? B. What actions has your Ministry undertaken to implement the Strategy? C. Can you provide me with an example?	Main Features of the Strategy -Waste Management Plans for Class 1 & 2 cities -Collection, treatment and disposal targets for specific years - Landfill siting & operation requirements for each province - Fee collection/cost recovery - Industrial/medical waste disposal

		standards - Calls for coordination between several ministries
12. Has your Ministry increased its level of interaction with other government organizations since the passage of the Strategy?	If Yes, Can you give me an example of this new interaction? If No, Are there areas where additional interaction may be required?	
14. In relation to the Immediate Future Objectives (till the Year 2005) what progress has been made by your Ministry, to reach these goals? Can you provide me with an example?	A. Which objectives are likely to be reached? B. Which objectives may not be reached by 2005? C. What further types of assistance do you feel are necessary to achieve these objectives?	2005 Objectives - Source Separation of hazardous waste from solid waste. - Collect transport and treat 75-90% of the total solid waste volume, depending on type of city or IZ. - All provinces and centrally-run cities complete planning for management and treatment of solid waste. Priority on planning for new landfills, close non-sanitary landfills, and build composting or bio-solids fertilizer facilities. - hazardous and industrial waste treatment (incineration for medical wastes).
15. Since the passage of the Strategy in 1999, have there been any changes to your Ministry's regular operations related to waste management?	If YES, what types of changes have occurred? Can you give examples of these changes?	New or increased focus on any specific issues? Focus on any specific cities or provinces?
Has your Ministry initiated any specific projects to implement this Strategy?	A. Are there plans for further projects to implement this Strategy? B. Which components of the Strategy will these projects target?	
16. Has your Ministry received any assistance from donor agencies to aid you in implementing the Strategy? Please describe this assistance	What form has this assistance taken? Who provided this assistance? When did it take place? Are there plans to develop any further donor projects to help implement the Strategy?	
Now I would like to continue on to questions related to informal waste collection, community-based waste management organizations and the socialization of waste management services.		
What is your Ministry's view on the informal sector as a valuable waste management service in Vietnam? Please explain.	Positive/Negative? Do feel they provide useful waste management services?	

<p>20. In the past five years, has your Ministry been involved in any waste management projects, which have engaged the informal waste sector?</p>	<p>If YES A. Could you describe these projects? B. Where are they located? C. Which Vietnamese organizations have been involved? D. Have any foreign agencies have been involved with these projects? E. How you assess the effectiveness of projects of this type? F. In the future, will your Department promote more projects of this type? G. Are there other types of projects which may more effectively engage the informal sector?</p> <p>IF NO, A. Are there specific reasons why these projects have not been undertaken? B. What would need to change to make these tyoes of projects viable C. In the future do you think projects which involve the informal waste sector will be initiated in Vietnam?</p>	<p>Are these projects targeting health issues, or are they initiated to improve waste management services? i.e. source separation, improved collection, etc.</p> <p>Such as partnerships with NGO's or community groups? Or attempting to officially recognize their activities as a legitimate profession?</p>
<p>21. Has your Ministry been involved with projects which have engaged community-based waste management organizations?</p>	<p>IF YES, A. Where have these projects been located? B. Which Vietnamese organizations have been involved? C. Which foreign agencies were involved? D. What type of assistance has been provided in these projects? E. In the future, will your agency promote further assistance to these types of projects?</p> <p>IF NO, Do you feel that community-based W.M. are a potential option for increasing the level of W.M. in Hanoi? What would have to be changed for these projects to become more appealing for your Dept?</p>	