Institutional Analysis of Waste Management System in Addis Ababa; Ethiopia

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Abstract

Waste is becoming a major public health and environmental concern in Addis Ababa. Its improper and inadequate management leads to substantial negative social and environmental impacts. The problem has been aggravated due to ineffective institutions and lack of responsible and incapacitated autonomous public bodies. This paper therefore, presents institutional analysis of waste managment system in Addis Ababa. It aims to review the rules in use, implementation capacitites of waste managment organs and to asses the existing organizational setups of waste management and environmental protection organs in the city.

The study employed qualitative research method, to review effectiveness of purposively selected waste management organizations (Solid Waste Administration Agency and Addis Ababa Water and Sewerage Authority). Furthermore, various policy documents reviewed and in order to supplement it checklists employed to assess the rules in use, inter-linkage and the capacity levels of organizations.

In the city, the core of the problems of waste management are absence of clear roles and responsibilities among competent organs, recurrent organizational restructuring and inadequate institutional, organizational and individual capacity. Among others, varied economic nature of solid and liquid waste management aggravates the problems. Furthermore, poorly functional interplay exists in the absence of accountability and responsibility of organs.

Therefore, for an effective and sustainable waste management there should be clear and strong accountability mechanisms and local government collaboration with other stakeholder. Involvement of social infrastructures such as "Idirs", for reaching the wider community, immediate capacity development measures and clarifying the overall coordination framework among the city's environmental protection and waste management organs required essentially.

Key Words: ***Waste Management, Institutions, Organs***

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Acronyms

AA	Addis Ababa
AAEPA	Addis Ababa Environmental Protection Authority
AAWSA	Addis Ababa Water and Sewerage Authority
AACA	Addis Ababa City Administration
AACG	Addis Ababa City Government
APO	Asian Productivity Organization
BPR	Business Process Reengineering
CBOs	Community Based Organizations
CD	Capacity Development
CSA	Central Statistics Authority
FEPA	Federal Environmental Protection Authority
IAD	Institutional Analysis and Development
ISWM	Integrated Solid Waste Management
NGOs	Non-Government Organizations
SBPDA	Sanitation, Beautification, Parks and Development Agency
SWAA	Solid Waste Administration Agency
SWM	Solid Waste Management
UNDP	United Nations Development Program
UNEP	United Nations Environment Program
WCCT	World Class Communications Technologies
WM	Waste Management

CHAPTER ONE

1. INTRODUCTION

1.1 Background of the Study

Waste Management (WM) refers to the functions of collection, transfer, treatment, recycling, resource recovery and disposal of municipal waste (Schübeler, 1996). Recent years, WM is one of the most crucial challenges for the governments to control the worst impacts in terms of public health, environmental resources and climate change. In the past, managing waste was simply transporting waste to distant places for dumping. Only a fraction of waste was properly collected and transported. Sometimes they were burnt to reduce the volume, minimize attraction of animals and to retrieve recyclable items. However, these practices are being challenged due to the rapid urbanization and population growth, rising income, increasing value of land, resource scarcity, the limited carrying capacity of the environment, ultimately posing a threat to human health (WCCT, 2011).

According to Klundert & Anschutz (2009), WM has important implication to city administrations because it is a visible and politically sensitive service. Inadequacies in the service can have severe implications for the credibility of public administrations. Whereas, proper management of waste is important for public health, environmental, economic and political reasons and therefore deserves increased attention from local authorities.

Like many other developing countries, Ethiopia's response to WM has been inadequate and inefficient for decades. Yet, an increased urbanization and population growth with an improved income of society make the problem worse in major cities. Particularly, given that Addis Ababa is the largest as well as the dominant political, economical, cultural and historical city of the country. The city generates large volume of waste from households, public institutions and industries. Among all waste, solid and liquid wastes are the major visible source of environmental pollution in the city, as Tadesse (2004) pointed out, a considerable amount of waste ends up in open dumps or drainage system, threatening both surface water and ground water quality and causing flooding, this provides a breeding ground for diseases - carrying pests. In addition, open air burning of solid waste and spontaneous combustion in landfills are causing air pollution. As a result, it is seriously affecting human health, the quality of life and ecosystem. Therefore, as Mulu's (2007) suggestion, putting in places an efficient waste management system to keep the beauty and environmental health of the city is mandatory. Therefore, this study is to review institutional setups and capacity of WM organs and to pinpoint improved waste management implementation options.

1.2 Statement of the problem

The rapid urbanization, expansion of industrialization, and an increase in economic activities have increased rural- urban migration and the quantity of waste generation in Addis Ababa. A major reason is that waste generation rates related with wealth as well as population (IPCC, 2007). Obviously, when there is an increase in the population size, there will be an increase in the total amount of waste generated.

Waste management in Addis Ababa has given alarming signals because of its improper and inadequate management as compared to the waste generated. For instance, based on the 2010/11 performance report of Addis Ababa Solid Waste Administration Agency, during the plan year 5612.7386-m3 waste generated, out of these only 3133.4 m^3 amount of solid waste was collected. However, to reduce the negative impact various measures undertaken in the past, but the problem has not been solved, rather it seems aggravated.

Additionally, the waste management system of Addis Ababa seems to be a history of institutional and organizational instability and frequent restructuring. For example, for the first time during the *Imperial* regime solid waste administered under City Council and Municipality, consequently the *Derege* regime transferred this responsibility to Addis Ababa Health Bureau-Sanitation Division, later again reestablished as Environmental Sanitation Department. Prior to the current newly established Solid Waste Administration Agency, Sanitation, Beautification and Parks Development Agency was also entitled to look after and manage the city's solid waste (SWAA, 2010). On the contrary, the Addis Ababa Water and Sewerage Authority established as

an autonomous body by the year 1971 G.C. Again, in 1995 G.C reestablished as an autonomous public authority under the city administration of Addis Ababa (AAWSA, 2001).

Currently, local government agencies involved in waste management activities partially, in the absence of clear rules and regulation and linkage among them. Furthermore, competent organs inadequate capacities became more visible to execute their objectives.

1.3 Research Objectives

The main objective of the study is to perform institutional analysis of waste management system in Addis Ababa. Hence, specific objectives are:

- to critically review the waste management system function in accordance with rules and responsibilities of agencies.
- to analyses implementation capacities of organs responsible for waste management activities within the city.
- to assess economic nature of waste management
- to suggest suitable organizational setup, that improve effectiveness of waste management in the city.

1.4 Research questions

1. How does a waste management system function in accordance with rules and responsibilities of agencies?

2. What is the competent organs institutional, organizational and individual level of capacity to undertake their responsibilities?
3. What are the main challenges, contributes as an incentive or disincentive for waste management to raise economic benefits of organizations?
4. What would be the appropriate linkage between stakeholder agencies to have efficient and effective waste management system?

1.5 Significance of the Research

The subject of waste management has remained neglected for the past several decades. At the result, the level of service is highly inadequate and inefficient. For improving the waste management services in Addis Ababa, it is essential to enhance institutional and organizational performance for better cooperation and coordination between various actors.

Thus, this study is essential for local stakeholder organs to improve their performance in waste management system. Because effective and sustainable waste management system cannot be achieved by focusing on the technical aspects alone. Instead, clearly formulated objectives and coordinated actions are required in the political, organizational, social, financial and economic sectors (Schübeler, 1996). These measures relate most directly to local government administrations, institutional setups for waste management as well as organizational procedures and capacity of responsible agencies. Moreover, the findings could also be an input for further studies.

1.6 Limitation/scope of the research

The scope of this research is limited only to local government institutional setup and capacity, while the conceptual framework of Integrated Sustainable Waste Management encompasses wide range of stakeholders concerned with municipal WM as service users and service providers. As a result, the outcome of the study specifically focused on competent government organs.

1.7 Organization of the study

This thesis organized in five chapters. The first chapter is an introductory part, constitutes discussion of waste management problems in Addis Ababa, problem statement, objectives, research questions, relevance and limitation of the research. Chapter two, presents various literatures to define conceptual framework of the study. The next chapter discuss about research methodology. Chapter four focuses on discussions and results of institutional setups, powers and responsibilities of environmental protection authorities and waste management organs, economic nature of WM, capacity, coordination of competent organs. Finally, recommendations forwarded to improve WM system in Addis Ababa.

CHAPTER TWO

2. LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

This section presents literature review to clarify concepts in relation with waste management, institutions and organizations and capacity development approach.

2.1 Definition of Concepts

2.1.1 Waste Management

Waste is a dynamic concept, which can be defined in different ways. In most cases, the definition of waste depends on the type or category of waste under consideration. Some of the dominant types of waste include; municipal waste, solid waste, semisolid, hazardous waste and, medical waste. Generally, according to Klundert & Anschutz (2001) the category of waste divided into solid and liquid waste.

Solid waste defined to include refuse from households, non-hazardous solid waste from industrial, commercial and organizational establishments (including hospitals), market waste, yard waste and street sweepings. On the other hand, liquid waste sometimes referred to as domestic sewerage including human waste or excreta and liquid waste from industrial processes. According to the AAWSA Reestablishment Proclamation No.10/1995, waste water/sewage referred to mean after treated water used for domestic, commercial, industrial, municipal or

social use and contaminated or polluted to any degree (Region 14 Administration, 1995). Therefore, this study will also look both wastes as the framework of municipal WM applies for solid and liquid waste as well.

The term Management is a cyclical process of setting objectives, establishing long-term plans, programming, budgeting, implementation, operation and maintenance, monitoring and evaluation, cost control, revision of objectives and plans, and so forth. Management of urban infrastructure services, therefore, is a basic responsibility of the municipal government. It is usually advantageous to execute service provision tasks in partnership with private enterprises and/or with the users of services, but the final responsibility remains that of the government (Schübeler, 1996).

2.1.2 Integrated Sustainable Waste Management (ISWM)

ISWM refers to a WM system that best suits the society, economy and environment in a given location, a city in most cases. The concept considers not only technical or financial-economic sustainability as in conventionally done, but it also includes socio-cultural, environmental, institutional and political aspects that influence overall sustainability of WM.

It has developed to reflect the reality that, some WM problems are have to do with the attitude and behavior of societies, WM staffs, private enterprises and waste pickers. Furthermore, problems are caused or made more serious by factors that are not technical or financial, but relate

to managerial (in)capacities, the institutional framework, the environment, or the social or cultural context (Klundert & Anschutz, 2001).

2.1.3 Understanding Institutions

As there is nc common definition, institutions can be defined in the context in which they are being studied As Roxas (2009) points out, institutionalism has deep theoretical foundations in the fields o economics, sociology and political science. A number of theorists across these scientific disciplines offered diverse explanation on how institutional forces shape human activities a s well as how these institutional arrangements come into being.

According to the well-known institutional economist Douglass C. North, institutions are the rules of the ,ame in a society or more formally, are the humanly devised constraints that structure political, economic and social interaction. They consist of both informal constraints (sanctions, taboos, customs, traditions, and codes of conduct), and formal rules (constitutions, laws, property rights) (North, 1990). He also asserted that, throughout history, human beings to create order and reduce uncertainty in exchange have devised institutions.

Young (2005) also understands institutions, as systems of rules, decision-making procedures, and programs that give rise to social practices, assign roles to the participants in these practices, and guide interactions among the occupants of the relevant roles. Furthermore, he indicated, institutions occur in all areas of human effort to deal clearly with matters involving human relations.

An institutional development practitioner McGill (1996) states institutions as fundamental to sustainable and beneficial economic growth. They create the policies, mobilize and management the resources, and deliver the services which stimulate and sustain development. Therefore, growth and prosperity are unlikely to be maintained, if the institutions that guide them are dysfunctional.

2.1.4 Understanding Organizations

On the other side, Etzioni (1964) as cited in Hall (1982) defined organizations as social units (or human grouping) purposely constructed and reconstructed to seek specific goals. Organizations are characterized by divisions of labor, power and communication responsibilities, divisions which are not randomly or traditionally patterned, by deliberately planned to enhance the realization of specific goals.

The difference between institution and organization categorically distinguishes: as institutions are rules of the game, yet, organizations are players: groups of individuals bound by a common purpose to achieve objectives. Therefore, North (1990) comments the purpose of the rule is to define the way the game is played. Nevertheless, the objective of the team within that set of rules is to win the game-by a combination of skills, strategy, and coordination; by fair means and sometimes by foul means.

2.1.5 Organizational Linkage/Co-ordination

United Nation Environment Program [UNEP], (2006) as cited in Dessalegne (2007) implied that, the mutual benefit of the linkage between agencies, as when two or more agencies or processes are geared towards a common goal, it is to their mutual advantage to join forces. This is because each partner brings complementary skill, resource and experience. Therefore, the term "linkage" viewed as being relatively purposive and stable rather than random and unstable. It has also supported by both of the systems that are connected (Aveni, 1978).

In this regard, Young (2002) as cited in Mekdes (2005) stresses that, most organizations linked with other similar arrangements both horizontally and vertically. Horizontal interactions occur at the same level of social organization. Vertical relationship is a result of cross-scale interactions or links involving organizations located at different levels of social organization. Relationship between or among organization may take the form of functional interdependencies or arise because of politics of institutional design and management.

However, as cited in McGill (1996), Cheema (1987) pointed out the challenge of linkage/co-ordination in the urban management process is a central question. He identified, two types of co-ordination problems are discernable; horizontal among the central, regional and municipal level agencies, respectively in the city and secondly vertical, among related activities of several levels of government and administration concerned with urban development.

2.2 Definition of Institutions for this study

Based on the discussion in the foregoing and subsequent section explaining capacity development approach, divorcing rules and their implementation seem impossible that will bring a great implication on effectiveness and sustainability of an action. Thus, by considering the core meaning of the term "institutions", emphasizes on the rules aspect by North and the emphasis in relationship of rules with other elements such as capacity, economic nature of WM and inter-linkage, which are vital to influence WM organs action that is creating, applying or disobeying institutions by Ostrom are particularly selected for this study.

2.3 Capacity Development (CD)

Institutions and organizations are fundamental to the development process; indeed, they frequently cited as impediments to progress (McGill, 1996). Even though, institutions are not actors in their own right, they influence the behavior of those subject to their rules, decision-making procedures, and programs in order to become effective. However, nothing in this formulation should lead to assume that organizations are always operate according to the expectations of their designers or serve to solve the problems that lead actors to establish them in the first place. They frequently produce unintended consequences and become vehicles for a variety of actors to promote their own interests (Young, 2005). As a result, CD is seen as making the best use of an institutions, organizations and human resources capacity.

According to Agenda 21, capacity is "the ability of a country to follow sustainable development paths", which is determined largely by the capacity of the people and its institutions as well as by its ecological and geographical conditions (UNEP, 1992). Likewise, the UNDP defines CD as 'the process through which individuals, organizations and institutions/enabling environment, strengthen and maintain the capabilities to set and achieve their own development objectives over time'. Among various components, CD consists skills, systems, structures, process, values, resources and powers that together, confer a range of political, managerial and technical capabilities. Therefore, CD can occur at the different levels of capacity, which are the level of the individual, the organization and the institutions/enabling environment, that refers to the policy, legal, regulatory, economic and social systems within which organizations and individuals operate (UNDP, 2008).

2.3.1 Levels of Capacity Development

a) The Institutions/Enabling Environment

UNDP used the term "enabling environment/ institutions" used to describe the broader system within which individuals and organizations function and one that facilitates or hampers their existence and performance. This level of capacity is not easy to grasp tangibly, but it is central to the understanding of capacity issues. They determine the 'rules of the game' for interaction between and among organizations. Capacities at this level include policies, legislation, power relations and social norms, all of which govern the mandates, priorities, modes of operation and public participation across different parts of society (UNDP, 2008).

b) Organizational level

At this level, capacity comprises the internal policies, arrangements, procedures and frameworks that allow an organization to operate and deliver on its mandate, and that enable the coming together of individual capacities to work together and achieve goals. If these exist are well resourced and well aligned, the capability of an organization to perform will be greater than that of the sum of its parts (UNDP, 2008).

c) Individual level

Capacity refers to the skills, experience and knowledge that vested in people at this level. Each person endowed with a mix of capacities that allows them to perform at work or in society. Some of these acquired through formal training and education, others through learning by doing and experience (UNDP, 2008).

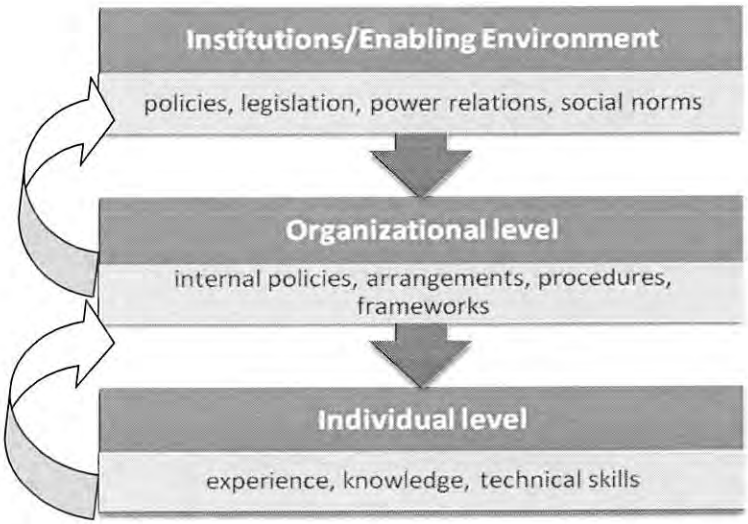


Figure 1 Levels of Capacities- A systematic Approach

Source: (UNDP, 2008)

The above figure depicts, those three levels of capacity are mutually interactive and each level influences the other through complex co-dependency relationships. This inter-relatedness implies that any effort to assess or develop capacity necessarily needs to take into account capacity at each level, otherwise it becomes ineffective (UNDP, 2008).

Usually, WM resources referred as in terms of human, financial and material, which are essential to its successful implementation and hence all are included under the large umbrella of the term "capacity". However, as to the above systematic approach, capacity is not only about those frequent used terms, rather consists issues such as policies, legislation, power relations, social norms, arrangements, procedures and frameworks. Thus, developing capacity at various levels, which are inter-related are the most important action that have influence on the relevance, efficiency, effectiveness and sustainability of the WM service.

2.4 Economic Nature of Waste Management

There are various factors used to help develop predictions about organization's behavior and outcomes from changes in the exogenous and endogenous variables. Of these according to Ostrom (2011), the resource attribute in terms of physical and material conditions often influence WM organs and constrain institutional setups in important ways.

Referring the physical and material conditions means the physical and human resources and capabilities related to providing and producing goods and services. These conditions include production inputs like capital, labor, and technology, as well as sources of finance, storage, and distribution channels. Consumption of goods and services is more or less subtractable or excludable depending upon the physical characteristics of a good or service (Polski & Ostrom, 1999). Thus, the economic nature of a good or service can be determined by two attributes that are mostly used to distinguish the four different types of goods and services which include toll

good, private good, public good and common-pool-resources. This study focuses on a particular class of public goods that share two important attributes.

The primary attribute *excludability* is the extent to which access to consumption can be controlled (Polski & Ostrom, 1999). It occurs when potential users denied goods or services unless they meet the terms and conditions of the supplier. Otherwise, exclusion is infeasible; anyone can derive benefits from the good so long as nature or the efforts of others supply it. High excludability implies that consumers will have difficulty consuming the good or service without contributing to its cost; low excludability implies that consumers may be able to "free-ride," consuming the good or service without contributing to the cost of provision or production (V.Ostrom & Ostrom, 1971).

The second attribute called *subtractability* refers that the extent to which one person's consumption reduces the supply available to others (Polski & Ostrom, 1999). As a result, high subtractability implies individual consumption; low subtractability implies that more than one person will consume the good or service at the same time (Olson, 1965) as cited in (Polski & Ostrom, 1999).

Attributes	**High Excludability**	**Low Excludability**
High Subtractability	*Private*	*Common Pool*
Low Subtractability	*Toll*	***Public Good***

Figure 2 Determining the Economic Nature of a Good or Service
Source: (Polski & Ostrom, 1999).

2.5 Conceptual Framework of the Study

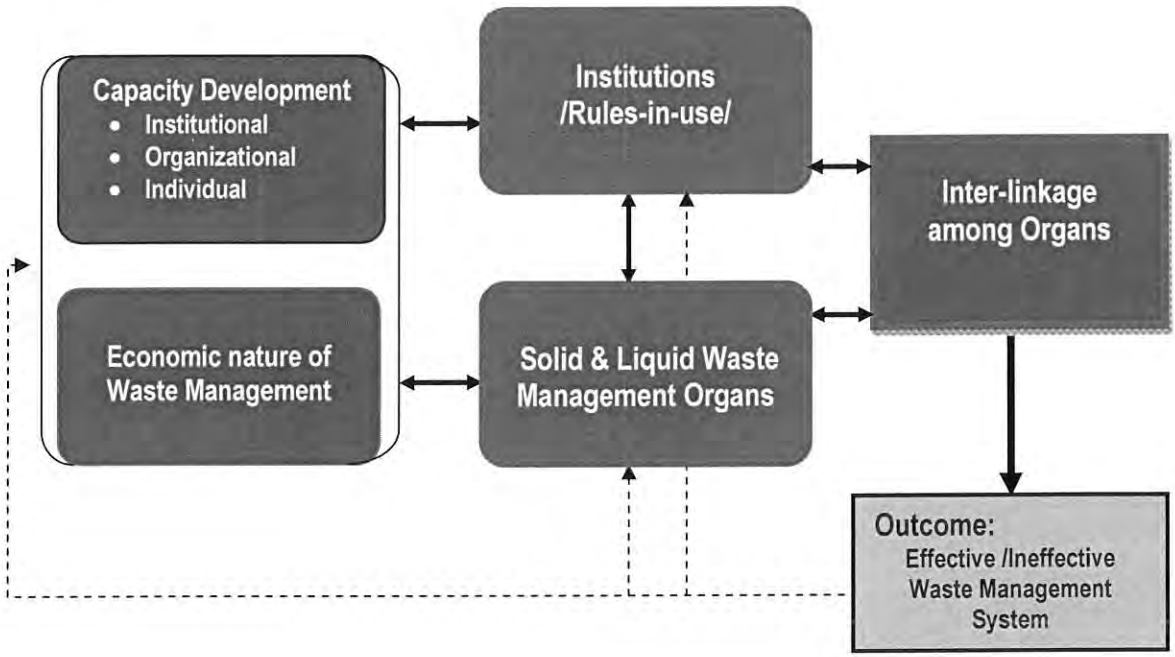


Figure 3 Concept framing an effective / ineffective Waste Management System
Source: Adopted from Ostrom (2011)

The above conceptual framework for this study identifies various factors that influence waste management organs in significant ways. Factors such as, the rules-in-use, which are concentrated on the operating rules that are commonly used by agencies day-to-day action, capacity at various levels and economic nature of waste. All these have an influence on competent organs coordination that has an influence on action in terms of information flows and economic participation. This finally led to a certain outcome, which may or may not be desirable. The outcome in turn affects those agencies, the rules in use and their capacity. Rules in the context of this study focused on environmental and particularly waste management proclamations and regulations that govern the behavior of the local organs.

2.6 WM Problems in Developing Countries

By almost any form of evaluation, WM is a growing environmental and financial problem in developing countries. Despite significant efforts in the last decades, the majority of municipalities in the developing countries cannot manage the growing volume of waste produced in their cities (Klundert, 1995). As a result, public health, environmental and management problems are caused by various factors, which constrain the development of effective WM systems. They can be categorized into technical, financial, institutional, economic, and social constraints.

According to Solomon, specifically the WM system in developing countries is seldom integrated, and there is often no clear assignment of responsibilities for tasks and schedules among the organizations involved. Furthermore, there are no umbrella organization to coordinate overlapping responsibilities for WM that involve more than one organization (Solomon, 2006).

A similar argument that states, better coordination for effective implementation of a WM collaborative project is also required by the various institutions involved in WM in the country. However, many WM projects in developing countries suffer from the lack of coordination among the relevant organizations, which often results from the lack of clear roles defined for these organizations in WM. Thus, to ensure effective institutional support for a collaborative project for WM, the roles and responsibilities of the various organizations involved should be defined clearly and a coordination mechanism be established.

In addition, lack of effective legislation for WM, which is a norm in most developing countries, is partially responsible for the roles/functions of the relevant national institutions not clearly defined and the lack of coordination among them. Different institutions enforce the rules and regulations. It should also note that legislation is only effective if it is enforced. Therefore, comprehensive legislation, which avoids the duplication of responsibilities, fills in the gaps of important regulatory functions, and is enforceable, is required for sustainable development of WM systems (Ogawa, 1996).

Further, Ogawa (1996) highlighted, because of a low priority given to the WM sector, the capacity of local government organizations involved in WM is generally weak, particularly in small cities and towns. These weak local government organizations are not provided with clear mandates and sufficient resources to fulfill their mandates.

2.7 Overview of Waste Management System in Asian Countries

Like many other developing countries in the world, concerns in the Asian region are growing in both the governmental and public sectors for an efficient and effective management of waste. Reasons such as lack of awareness, technical knowledge, legislation and policies, are major issues for waste management in Asian developing countries.

To start from Dhaka, which is the capital city of Bangladesh faces a huge waste management problem especially in solid waste. As similar with Addis Ababa, the city is facing the impact of urbanization, as a growing population houses itself in congestion, leading to a severe pressure on

infrastructure facilities at all levels. This has resulted a decline in sanitation, which in turn causes adverse health impacts. The legal framework not supported by timely enforcement actions and there is a general lack of capacity to develop common facilities for efficient waste management. The initiative on the legal front of environmental issues, however, has been far from adequate. This has been compounded by the lack of awareness and technical knowledge that is the major factor causing the deterioration of the environment (Asian Productivity Organization[APO], 2007).

However, a WM division has formed very recently in the Dhaka City to look after the management of municipal solid waste along with other activities. However, there are no specific legislation, regulations, and policies for solid waste management at the national level. Besides, the existing infrastructure is inadequate for solid-waste management and is at the elementary stage of development (ibid).

Similarly, the growing waste volumes have resulted in a very undesirable environmental nuisance to the people in the Republic of China. During the decades of rapid economic expansion, the Republic of China paid limited attention to environmental issues. When problems arose due to rapid industrialization, the government drafted relevant laws and regulations to cope with them. Thus, the early days characterized by disorder and lack of a purposeful legal framework.

The collection, transportation and disposal of SW have been operated by Local Environmental Sanitary Departments, which means that administration, supervision and operation of SW were

carried out by the same organization. Starting from the year 2006 however, WM particularly SWM system is undergoing reform by which professional companies involved (Huang, Wang, Dong, Xi & Zhou, 2005).

In India, SWM is the responsibility of the municipalities under the provision of their respective acts. Like many developing countries the country are far from satisfactory, and the associated problems are due to a lack of technical expertise, financial constraints, and legal provisions.

Generally, state and municipal governments consider solid waste a low priority, and consequently give less budgetary support to this field. Although India has formulated legislation relating to municipal solid waste, the compliance and awareness of rules among communities and municipalities are lagging behind (APO, 2007).

2.8 Waste Management in Addis Ababa

Addis Ababa city started its WM some three decades back, the service could not meet changing demands (SBPDA, 2003). The waste collection service is unsatisfactory, and scenes of scattered waste are common in most part of the city (UNDP, 2004). In addition, with respect to the organization of operations and management structure, collection and disposal are parts that are poorly organized (SBPDA, 2003). The present SWM system in Addis Ababa relies entirely on the local government bodies, which is expected to provide the full range of WM functions. However, as to Kuma (2004), this is proving to be an impossible task, and except for privileged areas, the services offered are found to be largely inadequate.

However, with all recurrent organizational changes undertaken by the government, cross cutting issues lags behind the whole WM process such as, low financing capacity, institutional weaknesses and low community participation. Followings are some of the major key areas in relation with institutional and organizational weaknesses pointed out by the report of SBPDA:

- lack of active and lead authority at the federal level in formulating policies, laws and strategies with regard to WM,
- lack of coordination in enforcing sanitation rules and in controlling illegal dumping
- lack of networking, information sharing and cooperation with a number of stakeholders and collaborators
- lack of financial autonomy at central and sub-city level to discharge its SWM responsibility,
- no well organized organizational set up at grass root level /Kebele/ either in the form of government entity and Sanitation council and
- Inadequate involvement of private investors on SWM

Though, to solve all the above-identified problems, Kuma (2007) suggested, an integrated approach to WM seems to be the best option and could well hold the key to effective and sustainable waste management system in developing cities such as Addis Ababa.

CHAPTER THREE

3. RESEARCH METHODOLOGY

This chapter concerns with the research methods that used to collect the desired data to review the existing institutional arrangement, capacity of organizations economic nature and linkage between organs involved in Addis Ababa city WM system.

3.1 Data sources and Sampling Procedure

This research planned to collect data by using non-probability sampling techniques. Therefore, purposively two organizations selected based on the mandate given by the A.A City Government Executive and Municipal Services Organs Re-establishment Proclamation No.15/2001, to undertake various functions of WM and environmental protection actions. These are, the A.A Solid Waste Administration Agency and A.A Water and Sewerage Authority. In addition, to gain a broad overview about institutional trends of environmental protection and WM rules formulation and implementation, regulatory bodies (the FEPA and the AAEPA) authorized by FDRE, Proclamation no. 295/2002 and AACA, Proclamation no.15/2001 deliberately chosen.

The study uses two data sources. Primary data obtained from SWAA and AAWSA WM job process owners and experts by means of structured and unstructured interviews. Structured interviews employed to assess institutional, organizational and individual level of capacities within both WM organs (see Annex 2). Unstructured interview on the other hand, was preferred

because it allows the respondent officials to talk freely around various WM topics. Thus, checklists focused on institutional setup, economic nature of the WM, inter linkage among organs and effectiveness of waste management organs were employed (Annex 1). This contributes to the study to identify the practical and deeper understanding of the procedures followed and the problems encountered related with institutional and capacity aspect of WM. Besides, secondary data gathered by reviewing government policy documents such as the constitution, proclamations, regulations, published and unpublished documents, reference books, organization's publications and reports. Furthermore, purposively four key informant discussion held with each organs WM job process owners and interview conducted with six individual experts from various disciplines i.e. (2 law expertise, 2 communication officers and 2 waste management experts).

Data analyzed by using discourse and network analysis method. The former preferred because of its qualitative method of reading conversations that leads to explore key points on different issues raised by experts. The latter, selected to analysis patterns of relationship between environmental and WM organizations.

CHAPTER FOUR

4. DISCUSSIONS AND RESULTS

This chapter primarily presents the general institutional setup of environmental protection and WM organs roles and responsibilities. Afterward, capacity assessment results and economic nature of the WM will discuss. Finally, the discussion attempted to review the linkage between competent WM organs.

4.1 Institutional Setups for Environmental Protection in Ethiopia

4.1.1 The Constitution

The Ethiopian Constitution clearly stipulated, "the rights to clean and healthy environment are provided as fundamental rights of citizens" (Article 43 and 44). Moreover, Article 92 (1) of the constitution stipulates that, the government should endeavor to ensure that all Ethiopians live in a clean and healthy environment therefore both the government and citizens shall have the duty to protect their environment (FDRE, 1995).

Thus, competent organs for WM in Addis Ababa, AAWSA and SWAA are a part of this endeavor. AAWSA's main objective is to create clean and healthy environment in particular to sewerage disposal service. Similarly SWAA has the responsibilities to introduce and cause implemented a work procedure of the city solid waste handling and collection work which is fast,

effective and customer focused and that enable perform in a way not affecting public health and not causing environmental pollution.

4.1.2 Environment Policy of Ethiopia

The policy aim is "to promote and enhance the health and quality of life of all Ethiopians as well as the promotion of sustainable social and economic development through the sound management and use of natural, human made and cultural resources" (FDRE, 1997).

4.1.3 Environmental Protection Organs Establishment Proclamation No. 295/2002

The Federal Democratic Republic of Ethiopia (FDRE) issued proclamation no. 295/2002 for the establishment of "Environmental Protection Organs". This proclamation required to assign responsibilities to separate organizations for environmental development and management activities. On the one hand, environmental protection regulations and monitoring is instrumental for the sustainable use of environmental resource, thereby to avoid possible conflicts of interests and duplication of efforts. Moreover, establishing a system that fosters coordinated but differentiated responsibilities among environmental protection agencies at federal and regional levels has become necessary (FDRE, 2002a).

Accordingly, this proclamation enabled the establishment of the EPA at the federal level with broader mandates and strategic standing, being accountable to the Prime Minister's office. The

proclamation demands the establishment of regional states environmental agencies came into existence as well as sectoral environmental units.

4.1.4 Environmental Impact Assessment Proclamation No. 299/2002

This proclamation intended to assist the implementation of the environmental rights and the prediction and management of likely adverse environmental impacts, and the maximization of their socioeconomic benefits would foster objectives enshrined in the Constitution. In this regard, the proclamation guides the socio-economic development projects, programmes and plans to execute sustainability (FDRE, 2002b).

4.1.5 Environmental Pollution Control Proclamation No. 300/2002

The pollution control proclamation specifically designed to prevent pollution as undesirable social and economic consequence of social and economic activities. Thus, protection of environment, in general, and the safeguarding of human health and wellbeing, as well as the maintaining of the biota and the aesthetic value of nature, in particular, is the duty and responsibility of all citizens. For this matter, to control pollution the Authority or the relevant regional environmental agency may take an administrative or legal measure against a person who, in violation of law, releases any pollutant to the environment (FDRE, 2002c).

4.1.6 Solid Waste Management Proclamation No. 517/2007

The House of Peoples Representatives in 2007 G.C. passed solid Waste Management Proclamation. It has an objective to enhance at all levels capacities to prevent the possible advert impacts while creating economically and socially beneficial assets out of solid waste (FDRE, 2007).

4.2 Roles and Responsibilities of Competent Organs in Addis Ababa WM System

This section first discusses the role of environmental protection authorities in waste management and then deals with waste management organs powers and functions in waste management activities. Finally, present their interactions to manage and conserve the city's environment from undesired impact of waste.

4.2.1 The Federal Environmental Protection Authority (FEPA)

The FEPA re-established as an autonomous public institution of the Federal Government in 2002, by which the authority directly accountable to the Prime Minister (FDRE, 2002a). The proclamation mandated FEPA to formulate polices, strategies, laws and standards, which foster social and economic development in a manner that enhance the welfare of humans and the safety of the environment sustainably, and to spearhead in ensuring the effectiveness of the process of their implementation.

The basis is the mandate of the authority, to address national environmental problems and to contribute or initiate and coordinate the implementation of global conventions or treaties in which Ethiopia is a party. The Environmental Council reviews proposed environmental policies, strategies, and laws, and issue recommendations to the government, based on report submitted to it by the Authority, evaluate and provide appropriate advice on the implementation of the

environmental policy of Ethiopia and review and approve directives, guidelines and environmental standards prepared by the Authority.

4.2.2 Addis Ababa Environmental Protection Authority (AAEPA)

By being accountable to the City Mayor and executive organ to the City Administration, the AAEPA has given powers and responsibilities to implement concerning the national Environmental Policy, Proclamation and Regulations. The Authority designated to prepare the city's environmental protection standards in accordance with the national standards, design strategies to protect the environment from pollutions, to follow up and control that the disposition of industrial residue, by-products and wastes are in accordance with the law, in addition in consultation with the concerned bodies prepare and submit strategies of environmental protection.

The Authority has also key responsibility to coordinate stakeholders about environmental protection (AACA, 2009).). However, AAEPA is operating in contrast to Proclamation no. 295/2002, which prescribes the need to establish environmental protection organs that assign responsibilities to separate organizations is to avoid possible conflicts of interests and duplication of efforts (FDRE, 2002a).

Despite the fact, the Authority's establishment proclamation no. 15/2009 encountering powers and responsibility overlaps with the SWAA. For instance, Article no. 3 of the proclamation stated, the authority has given the mandate to follow up and control that the disposition of waste

in accordance with the law. On the other hand, the same proclamation authorized SWAA to direct, control and coordinate integrated solid waste management works based on study and research (Article. 1/2009) and to follow up and control various policies and laws issued and approved at the city level to implement integrated waste management works.

4.2.3 Solid Waste Administration Agency

Starting from the Imperial regime in 1908 G.C, the Addis Ababa City Municipality established to provide services related to sanitation. The city's solid waste service was set up before 55 years ago, until 1994; the service rendered by the City Municipality (SWAA, 2010).

In 1994 solid waste service structured under the Health Bureau in Environmental Health Protection Department, functioned at team level named as Sanitation Service Division. From 2001 to 2003, the task of sanitation shifted to Departmental level within the Bureau. During these periods, the Environmental Sanitation Service Department was engaged in routine activities at six zones with the support of sanitation coordinators. Such organizational instability continues until restructuring the Addis Ababa City Administration in 2003.

Previously, Solid Waste Service and Parks Service have been functioning under the Health Bureau and City municipality respectively. Again, the city's new charter restructured the two services under the newly established organization named Sanitation, Beautification and Parks Development Agency up to 2009 that dealt with cross cutting issues, regulatory function and facilitation.

Finally, starting from 2009 those services operating within the responsibility of the Agency divided into three organizations. As a result, SWAA entitled to be an autonomous public body to render SWM services within the City.

4.2.3.1 Legislative History of Solid Waste Administration Agency

At the city level, the Addis Ababa City Administration has issued Proclamation no. 2/2003 concerning the establishment of organs of Executives and Municipal Services. By which Article 47 mentioned powers and responsibilities of Sanitation, Beautification and Parks Development Agency including its mandates on SWM. The Agency acted as a regulatory body, engaged in policy making and legislation formulation including setting up standards and procedures, create coordination among sub-cities and deal with cross cutting issues, delivering appropriate technical support, capacity building, administration of landfill and undertaking public awareness programme, advocacy and research.

In the time following the Agency's establishment, the AACA has issued Waste Management Collection and Disposal Regulation no. 13/2004, by considering appropriate management of waste generated from the city in a manner that does not pollute the environment and harm health of the dwellers. It was also required to amend the existed Hygiene and Environmental Health Regulation no. 1/1994 to harmonizing with the changing situation so as to make the city clean and its natural resources balance is maintained (AACA, 2004). The regulation entitled the Agency powers and responsibilities with regard to toilet and waste management services.

Particularly, article 7(2), specify Agency's responsibility to coordinate, direct and perform waste disposal services in collaboration with governmental and non-governmental organizations (ibid).

Initiatives continue to harmonize with the dynamic situation of the city and the AACG issued Regulation no. 24/2009 to determine and collect the sanitary service tariff. The regulation found the necessity to build financial capacity that enables to render standardized, speedy and efficient sanitation service based on the interest of the society in accordance with the Business Processing Reengineering (BPR) of SWM of the city government. Further, it aimed to perform sanitary service of the city with full participation of the society and city government by covering the total expenses of sanitation (AACG, 2009).

Currently, under the re-establishment of Executive and Municipal Services Organs Proclamation no. 15/2009 by AACA, the Agency has the powers and responsibilities on a broad waste management activity. These include the following important provisions that can categorize into three pillars: awareness creation, regulation and monitoring activities:

1. directing, controlling and coordinating integrated solid waste management works based on study and research,
2. perform educational and awareness creation works so as to bring attitudinal change within the society
3. introduce and cause implemented a work procedure of the city solid waste handling and collection work based on effectiveness, customer and time oriented

4. prepare, improve, follow up and control different working directives, manuals standards and levels that enables implementation of integrated solid waste management
5. cause implemented, follow up and control various policies and laws issued and approved at the city level to implement integrated waste management works.
6. conduct study on and cause implemented alternatives by which small scale cleanness organizations would participate and play dominant role in the cleaning works of the city.
7. introduce a system by which sold waste would be minimized
8. offer initiating award and recognition to bodies that score considerable result in solid waste handling, collection and re-use works
9. devise and cause implemented techniques by which private investors participate
10. conduct and submit tariff and payment system by which the cost for the service would be covered by the customers.
11. conduct study and implement different service delivery alternatives that rendering fast and effective service to the customer.
12. evaluate project proposal submitted by private investors/hygiene organizations who intend to involve in the sector(AACA, 2009).

4.2.4 Addis Ababa Water and Sewerage Authority

By way of a passing remark in the historical background, it has been indicated that after victory over the Fascist invaders, the Ministry of Works was entrusted with the demanding task of supplying water to the urban dwellers of Addis Ababa. Later on, the responsibility designated to an office established and incorporated within the management structure of the municipality of

Addis Ababa. As time went on, demands for water and sanitary service grew rapidly, the need to establish an autonomous public authority felt strongly, and when the realities allowed, it putted into effect (AAWSA, 2001).

Initially, AAWSA established as an autonomous public body by order No. 68/1971 issued on 26 February 1971(AAWSA, 1996). The main objectives of the authority have crystallized to be the supply of safe and adequate water, protection of ground water from pollution and improper utilization and the provision of wastewater and sludge disposal service (AAWSA, 2001). The authority's powers and responsibilities originated from its establishment rule. Within these, establishing water and sewerage services, administering and protecting, managing the finance/fund to meet Authority's objectives were the basics and major powers.

Despite the rules putted into effect, it was learned that the powers authorized from the establishment were inadequate throughout the implementation. Therefore, to realize the goals, the authority has granted additional powers by proclamation no. 295/1964, which consisted powers in relation to sewerage and enforcing customers to connect to the sewerage network (AAWSA, 1996).

In 1995 after 24 years, the authority re-established by proclamation no. 10/1995, issued by the Region 14 Council because of the rapid population growth of Addis Ababa and its national and international importance and prominence is also growing from time to time. Therefore, the Authority's duties and responsibilities have further become extended and complicated, and this

has necessitated the conferring of further powers and rights on the Authority, in order to enable it to effectively and efficiently carry out its objectives (AAWSA, 1996).

The re-establishment proclamation has two major objectives these are: provision of safe adequate water and provision of wastewater and sludge disposal service. This re-establishment has resulted basic changes in structure and function within the authority. Therefore, as to Article no. 16(2) the authority has special powers and duties related to the collection, transportation and discharge of sludge by vacuum trucks and invite, encourage, license, and supervise private investors who participate in the collection, transportation and discharge of sludge by vacuum trucks.

During the time, Authority's objectives became clear and precise than the former establishment order no. 68/1971. The latter proclamation no. 10/1995 excludes objective stated "protection of ground water from pollution and improper utilization". However, the re-establishment proclamation article 14(8) clearly specifies the Authority's power and duty. That is, to ensure any water sources are not polluted or contaminated, but are protected and conserved.

Based on the above proclamation, regulation no. 5/1995 issued to regulate the authority and service users' relationship. This regulation confers legislative measures that require the authority to follow in the provision of sewerage service and specified issues that need decisions by directives. Moreover, explicit and general provisions regarding sewerage disposal services by using trucks identified.

By the year 2001, though, new regulation issued to repeal and replace the previous one. The objectives was to render efficient and reliable water supply and sewerage disposal services, to strengthen the financial position and service giving capacity of the authority and to amend the existed tariff to cover both operation and maintenance costs (AACG, 2002).

Later on, because of Addis Ababa City Administration restructure, the Authority authorized as Municipality Service provider organ under Addis Ababa City Administration's Charter Proclamation no. 361/1995 (AACA, 1995). Currently, after all the above historical occurrences, the authority operates under Proclamation no. 10/1995 and Regulation no. 31/2002.

4.3 Capacity of Waste Management Authority and Agency

According to Polski & Ostrom (1999) suggestion, it is very important to carefully analyze the decision-making capabilities of actors by considering the resources available. Because actors' decision choices are often influenced by access to stocks of capital, labor, knowledge, technology, time and social influence. These resources provide actors with the capacity to act unilaterally, bilaterally, or multilaterally, over different time horizons. Further, this capacity fundamentally determines the relative strength of one actor or group of actors.

However, the conventional way of improving resources, which depends only on physical and financial to enhance the WM system, became insufficient. Thus, it is essential to improve implementation capacity of rules and the ability of organizations to enforce those rules, regulate, facilitate and monitor performance and individual's competency. As a result, the subsequent capacity assessment tables revealed waste management organs capacity at institutional, organization and individual level.

4.3.1 Capacity's for WM at SWAA

4.3.1.1 Institutional Capacity

No	Desired Institutional Capacity	Level of Capacity (High, Medium, Low)	Identified Reasons and Gaps
1	WM awareness and education campaigns directed at key target groups	Low	• Performance reports disseminate to the public than educational programmes
2	Accountability and reporting mechanism e.g., annual reports, websites	Medium	• City administration published annual performance reports • There is no website
3	Mechanisms available for public access to environmental information e.g., freedom of information, websites, information centers	Low	• Usually information disseminated on request • There is no library facility or website to share information with public
4	New or revised policies accompanying to support the use of economic and voluntary instruments for WM to complement regulatory tools	Medium	• SWM Proclamation issued by the Federal EPA used to support and act as regulatory tool, • Regulation has also issued by the AAEPA
5	Relative mandates, roles, responsibilities and relationships are clarified among environmental and WM organs	Low	• Mandates and relationships are not well clarified, some overlaps with AAEPA
6	Decentralization of powers and strengthening of local offices capacity for WM	Medium	• Weak government commitment to capacitate offices in terms of budget allocation and human resource
7	Inter-agency coordination and collaboration frameworks	Low	• There are no obligatory rules • Designation of unqualified high level officials by the city administration • Officials instability in their position
8	Stakeholder engagement in WM policies, procedures and mechanisms for three levels of engagement: awareness-raising, consultation and involvement	Medium	• Stakeholders such as government, privates, CBOs and NGOs engaged at various levels
9	Level of stable budget allocations for WM	Low	• Budget allocations highly depends on the city administration • Insufficient to carry out WM functions
10	Shared information systems and databases	Low	• Not available

Table 1 Institutional Capacity Assessment at SWAA
Source: Researcher's interview result, 2012

To sum up the above table, ineffectiveness identified in institutional capacity to support WM functions at SWAA. For instance, various programs that disseminate knowledge and skills to improve attitudes regarding WM found at lower level of capacity. Results indicate their focus depends on sharing performance reports than educating the public to change positively. Concerning accountability to the public, the agency submits work performance reports to the city administration in every quarter and annually. However, public access to information scored medium capacity level due to weak information sharing mechanisms.

On the other hand, regulation 24/2009 issued to accompany solid waste tariffs by the city administration (AACG, 2009). However, for all economic instruments to undertake there should be a clear mandate and relationship between organizations. At present, the agency encountering unnecessary rule overlaps with AAEPA. Adding to this, decentralization arrangement placed at various levels in the absence of actual power division to enhance local offices capacity. Coordination for WM functions does not exist between organs, while stakeholders engaged at various levels of WM policy formulation.

The assessment further revealed insufficient budget allocated to the agency to undertake WM functions and to support WM goals set by the Agency. Lastly, unavailability of shared information and databases in relation to WM or natural resource management between competent organs also create undesired circumstances for sustainable development programmes.

4.3.1.2 Organizational Capacity

No	Desired organizational Capacity	Level of Capacity (High, Medium, Low)	Identified Reasons/Gaps
1	Organizational restructuring to reorganize structures and functions	High	• Several organizational restructure performed due to government policy
2	Internal communication and collaboration mechanisms	Low	• Frequent and unconstructive individual assessment demoralized employees
3	Technical and field support for WM functions	Low	• Lack of budget/finance
4	Capacity for budgeting and resource mobilization	Medium	• Budget allocated by the City Administration
5	Diversification of funding sources for WM	Low	• Officials are unconcerned to approve project proposals made by experts
6	Training needs assessments (individual and organizational), and training plans, programmes and evaluation	Low	• Training needs assessments does not undertake at individual or organizational levels
7	Use of material resources, e.g., vehicles, labs, equipment to support to WM	Low	• Inadequate physical capacity which is incompatible with the demand required
8	Use of scientific and technical information to support evidence-based waste management decision-making	Low	• Officials disapproval and lack of commitment to give acknowledgement for study and researches
9	Guidelines and programmes to develop and transfer environmentally appropriate WM technology	Low	• Officials disapproval and lack of commitment to recognize researches

Table 2 Organizational Capacity Assessment at SWAA

Source: Researcher's interview result, 2012

At SWAA, organizational level capacity achieved higher level of capacity in terms of changes in restructuring to reorganize structures and functions because of government reform policy. This reform however, does not facilitate internal communication systems rather, allows undesirable individual assessment techniques.

On the other side, insufficient physical resources lead to inadequate technical and field support for WM functions. However, the assessment disclosed agency's low-level capacity for diversification of funding sources for waste management functions due to lack of commitment from higher officials to support study and researches.

Regarding to human resources engaged in WM activities, there are no particular attentions paid to develop. Therefore, individual and organizational training needs assessments found at lower level of capacity. Adding to this, because of higher officials disapproval for scientific and technical information to support evidence-based WM within the agency found at lower level of capacity. Likewise, guidelines and programmes to develop and transfer environmentally appropriate WM technology found in undesirable level of capacity.

4.3.1.3 Individual Capacity

No	Desired individual Capacity	Level of Capacity (High, Medium, Low)	Identified Reasons/Gaps
1	Changed attitudes, beliefs, values, motivation and commitment in relation with waste management	Low	• Employee's attitude positively increased but poor motivation and commitment due to absence of recognition and award for their performance exhibited.
2	Specialized scientific and technical skills; interdisciplinary skills, and communication and collaboration skills	Low	• Lack of trainings and development programmes

Table 3 Individual Capacity Assessment of SWAA

Source: Researcher's interview result, 2012

Currently employee's attitude has changed positively. Nevertheless, lack of willingness to support and recognize the effort of employees to enhance their motivation found at lower level. Moreover, employees are weak in their capacity to undertake some scientific study to improve the WM functions in Addis Ababa.

4.3.2 Capacity for WM at AAWSA

4.3.2.1 Institutional Capacity

No	Desired Institutional Capacity	Level of Capacity (High, Medium, Low)	Identified Reasons / Gaps
1	Waste management awareness and education campaigns directed at key target groups	Low	• There are no measures in use to educate the society
2	Accountability and reporting mechanism e.g., annual reports, websites	Medium	• Quarter and annual reports sent to city administration • FM radio program transmission is available • Unavailable website and media briefings
3	Mechanisms available for public access to environmental information e.g., freedom of information, websites, information centers	Medium	• Library provide service to users, but electronic information are not available
4	New or revised policies accompanying to support the use of economic and voluntary instruments for WM to complement regulatory tools	Medium	• Sewerage and sanitation fee revised
5	Relative mandates, roles, responsibilities and relationships are clarified among environmental and WM organs	Medium	• Since no other local government are involved in sewerage/sludge collection the responsibilities are clearly stated
6	Decentralization of powers and strengthening of local offices capacity for WM	Medium	• Inadequate power division lead incapacitated offices to perform under expectation
7	Inter-agency coordination and collaboration frameworks	Medium	• No linkage in terms of waste management
8	Stakeholder engagement in WM policies, procedures and mechanisms for three levels of engagement: awareness-raising, consultation and involvement	Low	• Inadequate performance to engage stakeholders
9	Level of stable budget allocations for WM	Low	• Insufficient budget allocation for sewerage service as a result of less attention to waste management
10	Shared information systems and databases	Low	• not available

Table 4 Institutional Capacity Assessment at AAWSA

Source: Researcher's interview result, 2012

In summary, the authority's accountability to the public and mechanisms established for public access to information found in a better performance. Availability of public library and an air transmission on FM 96.3 radio programme can be an excellent attempt to develop and focused more on WM in the future. As similar with SWAA, the authority submits work performance report to the city administration in every quarter and annually. Decentralization arrangement without actual power division manifested. Besides, coordination for WM functions with other organs does not exist.

As to the above interview result, authority's budget allocated from its own income and financial sources but minimum attention has given to WM functions. Like SWAA, absence of shared information and databases in relation to WM between competent organs also create undesired circumstances for sustainable development programmes.

4.3.2.2 Organizational Capacity

No	Desired Organizational Capacity	Level of Capacity (High, Medium, Low)	Identified Reasons
1	Institutional restructuring to reorganize structures and functions	High	• Changes takes place due to government policy
2	Internal communication and collaboration mechanisms: committees, working groups, information-sharing and networking	Low	• Not available
3	Technical and field support for waste management functions	Low	• Not available
4	Capacity for budgeting and resource mobilization	Medium	• Budget assigned from the project office of the authority
5	Diversification of funding sources for waste management	Low	• Funding sources usually focused on water supply
6	Training needs assessments (individual and organizational), and training plans, programmes and evaluation	Low	• Training needs assessments undertake as to fulfill routine planning activity, not fill the gap
7	Use of material resources, e.g., vehicles, labs, equipment, to support to waste mgt	Low	• Inadequate capacity in physical resources
8	Use of scientific and technical information to support evidence-based waste management decision-making, e.g., research, technical standards and guidelines	Medium	• Study and researches are carried out to design sustainable sewerage system
9	Guidelines and programmes to develop and transfer environmentally appropriate waste management technology	Medium	• The 5 years master plan study designed sustainable sewerage system

Table 5 Organizational Capacity Assessment at AAWSA

Source: Researcher's interview result, 2012

Organizational capacity assessment showed that, due to government reform policy AAWSA achieved higher level of capacity in terms of restructuring to reorganize structures and functions.

However, lack of internal communication systems for WM and insufficient physical resources leads to poor technical and field support for WM functions.

Unlike SWAA, budgeting and resource mobilization capacity at AAWSA rated medium level. On the other side, undesired capacity for diversification of funding sources to WM functions existed due to uncommitted higher officials to support study and researches. Moreover, lower attention paid to develop human resources engaged in WM activities. Consequently, individual and organizational training needs assessments found at lower level of capacity. This problem further negatively influences capacity of individuals to develop and transfer environmentally appropriate WM technology guidelines and programmes, which are found at medium level of capacity. On the other side, AAWSA has taken some measures to enhance the existing WM system in to environmentally appropriate and sustainable for the development of the city.

4.3.2.3 Individual Capacity

No	Desired individual Capacity	Level of Capacity (High, Medium, Low)	Identified Reasons/Gaps
1	Changed attitudes, beliefs, values, motivation and commitment in relation with waste management	Low	• Less attitudinal change in relation to waste management
2	Specialized scientific and technical skills; interdisciplinary skills, and communication and collaboration skills	Medium	• Employees are not encouraged to develop themselves through trainings and development programs

Table 6 Individual Capacity Assessment at AAWSA

Source: Researcher's interview result, 2012

As to table 9 showed, individuals capacity in terms of unchanged attitude, lack of motivation scored low and skills such as technical and soft for communication and collaboration found at medium level of capacity.

4.4 Economic Nature of Waste Management in Addis Ababa

The economic nature of waste management system especially solid waste management creates incentives for users to free-ride on the efforts of some households, CBOs, NGOs and local governments to sustain the environment clean and healthy, which can lead to endanger human health and degrade the ecosystem.

As to the discussion earlier, WM services provided solely by the city's municipal office without any payment for the service rendered. This has created negative attitude over the society to consider that the service is free of charge. At present, SWAA's BPR document condemns society's assumption that expects the government to provide services like SWM due to its public good nature. In practice, however, the management of SW became beyond the government's responsibility and capacity.

In Addis Ababa, sanitation fee collection set out decade ago, yet until identifying the best fee collection method requires a lot to study. During the previous days sanitation fees has been collected from various taxes and trade licenses at least to cover some amount of costs incurred in waste management. For instance, beginning from July 2004, 5% sanitation and beauty tariff was collected by AAWSA by means of attaching with water consumption bill from households. Likewise, in 2007/08 the Addis Ababa City Administration Finance and Economic Development Bureau, Customs Agency charged 25,438,456.77 amounts of birr from tax payers and has been also collecting sanitation fee from *chat* tax (SWAA, 2010).

Among other activities undertaken by the city administration to finance WM, recently BPR study document at SWAA, mentioned out various arguments that favor the existing arrangement with AAWSA is more suitable method for sanitation fee collection. The main reason is the Authority's practical experience in monthly fee collection system and the Authority's service coverage within the city. In Addis Ababa, the total households are estimated around 655,115 (CSA, 2007), of these 308,281 (AAWSA, 2001) households are registered as water service customers. For this reason by using AAWSA's monthly billing method, at least half of the households in the city can covered. However, the other half of households and organizations those are not water service customers excluded from this payment, although they are generating solid waste.

On the topic of liquid waste management, Addis Ababa's sewerage disposal performance showed, by using truck collection 1400 M^3 and by sewerage line (from Kaliti 10000 M^3, Mickyliland and Gerji Condominium 3000 M^3) totally 14400 M^3 liquid waste collected and treated per day(AAWSA, 2011). Additionally, sewerage line provides service for 24 hours to its customers, while truck collection services rendered on customers request.

As to the interview with the Head of Sewerage Disposal Process Owner at AAWSA revealed that, modern sewerage line coverage within the city is inadequate, thus large amount of waste collected by using trucks. The authority provides services by using 67 waste collection trucks to collect 1000 M^3 per a day. However in the long run the Authority planned to expand the sewerage line service and to leave truck collection to private investors.

Decades after the initiatives began to clean the city; the theory of Integrated Waste Management led various stakeholders to involve in WM. However, private investors engaged in collection and transportation of waste, primarily interested in earning a return on their investment by providing waste management services. Due to their profit orientation approach, private investors provide services more effectively with higher service charge than public sectors. Nevertheless, the society's ability to pay for this type of service is weak and consequently resulted lack of demand for the service became a challenge that private investors are coming across. At present, there are about 19 private and government organizations engaged in sewerage collection (AAWSA, 2011).

Regarding the system designed to charge service users at AAWSA varied from SWAA. As stated by sewerage disposal experts at AAWSA, 73% of the Addis Ababa dwellers benefited from clean water coverage but regardless of their connection with sewerage line, water line customers have been used to pay 0.30 cents that included in monthly bill for sewerage service. This trend has created disincentive on customers, whose are employing truck disposal service, because they were paying equal amount with sewerage line users. On the other hand, the system seem feasible to exclude free riders, but, customers those have not been enjoyed the sewerage network imposed to pay unused service based on their water consumption level was unfair.

However, the Authority' expert argued that truck disposal service users are benefited from this system, since they are unable to pay additional money for the service provided. Besides the tariff for truck disposal service i.e 69 birr, became insufficient to cover at least some amount of operational cost.

Despite the above facts, starting from January 2011 payment for sewerage line service excluded from water bill. As a result, customers connected to the sewerage line are freely enjoying the service. This situation as well allowed sewerage line users to free ride on public resources. On the other side, the authority delivers the service without any return from the service users.

Thus, to reduce costs and expenses incurred from truck disposal services, the AAWSA's five years Road Map Plan designed various incentives for private investors to enhance and participate in the truck collection service. Of these, incentives such as facilitating the service to maximize profit by transferring trucks those are out of service to private organizations, to let tax free truck importation and accessories and let free them from yearly income taxation (AAWSA, 2011).

4.5 Inter-Linkages among Competent Authorities and Agency (FEPA, AAEPA, AAWSA, SWAA)

In Ethiopia, two types of linkages exist at various levels of organizational setup i.e federal, regional, sub-city, woreda and kebele levels. Usually this kind of linkages (horizontal and vertical) can be seen as of decentralizing various functions of the government to various levels of authorities to lessen the burden at central.

In Addis Ababa, the city administration functions divided within the executive and municipality services. These comprise twenty executive bodies such as Health office, Finance and Economic Development, Trade and Industry Bureau, Justice and Legislative issues and Environmental Protection Authority and seven municipal service providers that includes Water and Sewerage Authority and Solid Waste Management Agency. Each executive organs and municipal service providers have their own establishment rule, employees, budget, property, management and internal rule. As per figure 6, depicts below their relationship is horizontal.

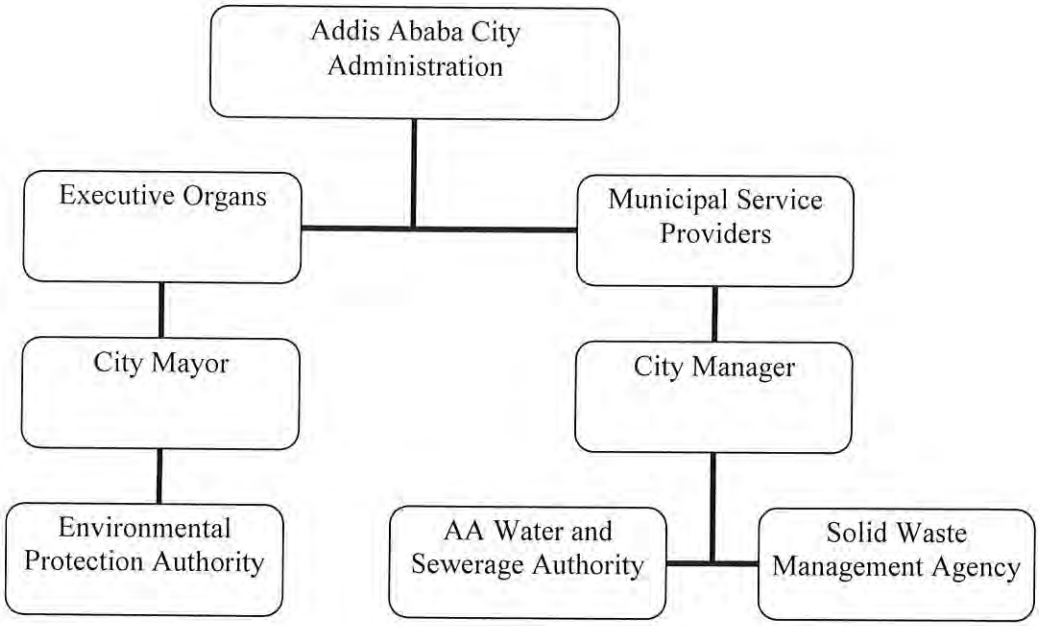


Figure 4 Partial structure of Addis Ababa City Administration

Source: AACA, 2012

At state level, city's WM system defined as an absence of strong functional accountability and formal responsibility to competent federal and regional authority (FEPA and AAEPA). Both authorities provide formal rules, regulations and standards in particular environmental issues, yet they have no vertical linkage with the SWAA and AAWSA for the enforcement of the rules issued. Moreover, SWAA and AAWSA are not supposed to send any reports to neither FEPA nor AAEPA, since they are directly accountable to the City Administration.

On the other side, horizontally the two public bodies, SWAA and AAWSA are directly engaged in WM functions, solid and liquid respectively. Yet, both organizations have no technical/functional linkage with each other for WM except for financial matter.

From AAWSA's side, regulation no. 31/2002 by which the authority has no legal background so as to make compulsory to engage in activities that require linkage with other relevant authorities/agencies. The only provision, which may enforce AAWSA to have linkage with SWAA is issued by the AACG regulation no. 24/2009, to determine and collect the sanitary service tariff. According to this regulation, AAWSA has various functions and responsibilities. Such as, collecting tariff rate of the sanitary service with the water bill and depositing the collected sanitary service payments, work in cooperation with the SWAA, Bureau of Finance and Economic Development and other competent organs by endorsing memorandum of understanding for the implementation of this particular regulation (AACG, 2009).

However, in particular to sewerage disposal services, the regulation declared that activities of collection, transportation and discharge of sludge by vacuum trucks and licensing and supervising private investors who are participate in the above activities needs involvement of other concerned bodies.

On the other hand, there is insufficient legal background to have linkage with other stakeholder organs in relation to environmental issues. However, AAWSA signed various memorandums of understandings for the purpose of Environmental Impact Assessment with AAEPA. As to the interview conducted with the Head of Sewerage Process Owner, usually physical structures have much attention than environmental concerns. Therefore, most bilateral agreements made with the Ethiopian Electric Cooperation, Ethiopian Roads Authority and Ethiopian Telecommunication Authority.

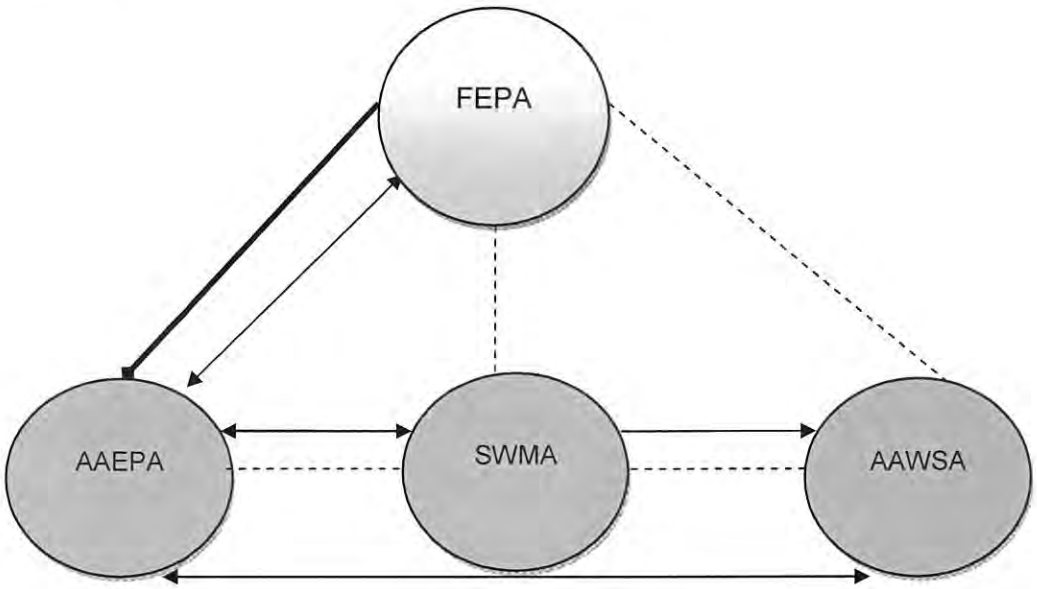
Similar, linkage problems occurred with SWAA. Horizontal relationship existed between SWAA and AAEPA (see figure 6) without check and balance mechanism between them. Instead, they usually create informal conflict over the management of solid waste. In some instance, AAEPA opened compost demonstration site that requires large amount of finance, without its mandate and consultation with the SWAA. On the other hand, SWAA complaining the Authority not to interfere in its mandate, instead request to transfer projects and finances to relevant office (Reuse and Disposal Project Office) within SWAA for better management and coordination because they have the expertise and the wealth i.e solid waste.

At present, after the completion of BPR, SWAA identified stakeholders at different aspect of issues. These are,

- Health office Bureau: to work together and educate the society how SW affect the environmental health
- AAEPA: to prepare standard for SW collection as to the proclamation
- Trade and Industry Development Office: to coordinate CBOs to work on sanitation
- Justice and legal issue Bureau: to manage customers those are intended to refuse to obey the rules and regulation
- Works and urban development bureau: to engaged in study, design and development activities
- Finance and Economic Development Bureau: Budget allocation and income collection

As stated in the SWAA BPR document, the above organizations are stakeholders that assumed to have linkage with the Agency. However, AAWSA, the main stakeholder that could play a vital role in collaboration with the Agency has overlooked.

Despite the fact that, proclamation no.15/2009 requires the Agency to coordinate with other sanitation service providers other than solid waste service providers such as AAWSA, but the latest BPR document, failed to consider. Thus, to solve this kind of interest and power conflict, according to Dessalegne (2007) high-level political commitment is a prerequisite to sustain partnership among public agencies at the vertical and horizontal levels.



Key

Technical Linkage

Financial Linkage

Capacity Development Linkage

Weak Linkage

Figure 5 Inter-linkage among competent organs

Source: Developed by the researcher, 2012

CHAPTER FIVE

5. CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

The rules-in-use seem to be the most significant aspects of Integrated Sustainable Waste Management, because effective waste management calls for an unambiguous roles and responsibilities among competent organs. As well as it demands for an environment that enables impartial enforcement of rules and regulations to strengthen the legal enforcement and inspections structures.

However, as indicated on the results of this study, in Addis Ababa, absence of clear jurisdiction resulting controversies, ineffectiveness and consequently undermines the sustainability of waste management. In addition to this, organizational instability has created lack of accountability within the system. The current Solid Waste Administration Agency restructured five times as a result of absence of responsible organ to takeover functions of waste management. Among other reasons, local authority's lack of awareness and knowledge regarding waste management aggravates the problem.

Recurrent institutions (formal rules) at AAWSA on the other hand, occurred because of the city's rapid development and an increasing population. Therefore, disseminating institutions and other communication materials for local leaders are effective means of improving awareness. However, the authority failed to publicize those institutions to its employees and the public.

Despite the fact, waste management issues and integration of solid waste management into the general legal framework for public health and environmental protection have shown progress time to time.

Until recently in Addis Ababa, solid waste management seems to be public good in nature, as a result the society assumed as a right to use the service freely. However, an increasing waste generation and the rapid population growth make the management beyond the capacity of local authority. Thus, to reach the growing population widely involvement of other stakeholder is inevitability.

Therefore, the current economic mechanisms to charge the society became an excellent initiative, though, the method to cover all parts of the society is challenging. Secondary data showed that, only half of the households in the city have forced to pay sanitation fee, because they are water service customers. Organizations and unregistered water consumers excluded from any payment for sanitation, even though they are generating solid waste equally.

On the other hand, AAWSA's liquid waste management more of characterized as non-public good in nature. There are, two types of services provided for the society, using truck collection on request and connecting to sewerage line network. A year ago, the method for charging customers for sanitation fee 0.30 cents was comprised both service users. Currently, all service users excluded from any service charge. Hence, the system allowed sewerage network users to free ride on public resources. In the future, however, large number of households will transfer to

condominiums that connected with sewerage disposal network. Therefore, the problem will go beyond Authority's control, unless, solutions designed nowadays.

In this study, three levels of capacities adopted at Solid Waste Administration Agency and Addis Ababa Water and Sewerage Authority assessed to analyze desired capacities against existing capacities. According to results, most of capacities are found under the desired level.

Institutional capacity still requires professional way of execution to maintain sustainability of waste management functions. Capacities in terms of creating clear mandate and relationship between competent organs are so far found under the desired capacity. Besides, incapacitated decentralized offices established only to realize the country's decentralization arrangement system without adequate support to capacity development requirements.

Organizational level of capacity as well calls for more attention. The current organizational restructuring and reorganizing structures should not facilitate internal communication. Besides, lack of defining training needs assessment at both individual and organizational level existed. Unsupported scientific researches for decision making because of unwilling officials to support and encourage the waste management also exhibited. Likewise, individual's attitude and knowledge in relation to waste management and their scientific, technical and communication skills remained undesired.

Inter-linkages in urban service delivery between local authorities and agencies increasingly required to work together as well as to achieve their objectives. Integrated sustainable waste

management also requires integration, because the service needs to be managed by various stakeholders. Thus, even if political decentralization is a cornerstone for the city's administration, there is a need beyond politics for sustainable waste management in Addis Ababa. That is strong functional relationship between waste management and environmental protection organs to bring efficient and effective implementation of rules and regulations.

In Addis Ababa, both horizontal and vertical relationships exist between waste management organs. Vertically, Federal Environmental Protection Authority and Addis Ababa Environmental Protection Authority engaged in providing policy formulation, in the absence of accountability for the enforcement of those policies. Besides, implementing organs, Solid Waste Administration Agency and Addis Ababa Water and Sewerage Authority have no responsibility to report for national or local environmental authorities about their performance on waste management functions. Horizontally, the Addis Ababa Environmental Protection Authority and Addis Ababa Water and Sewerage Authority have a weak interplay by which lack of accountability and responsibility existed among them.

In general, according to environmental organs establishment proclamation 295/2002, the Federal Environmental Protection Authority should submit performance reports to the Prime Minister's office, by which it is directly accountable. Likewise, at city level each organs establishment proclamation stipulated, performance reports should submitted to the City Administration, without any defined functional responsibility. Consequently, competent waste management and environmental organs have a relationship simply for the purpose of fee collection.

5.2 Recommendations

As to the above main findings, the following recommendations forwarded to improve waste management system in Addis Ababa.

1. To define clear role and responsibility between competent organs, revising the existing rules and regulations are mandatory. Initially, the House of Peoples Representative can do this through formulating rules that would provide a mandate to the federal and Addis Ababa environmental protection authorities to control enforcement of rules implemented. Parallel to this, creating clear and strong accountability mechanisms by which waste management organs should be responsible for their actions to those environmental protection authorities. Thus, to realize the above suggestions, Natural Resources and Environmental Protection Affairs Standing Committee of the House of Peoples Representatives, Addis Ababa City Administration Council, the Federal and Addis Ababa, Environmental Protection Authorities and both the Addis Ababa Water and Sewerage Agency and Solid Waste Administration's high level bureaucrats should work in coordination.

2. The city government should take a commitment to strengthen and develop the existing autonomous public bodies, engaged in waste management functions. This will reduce organizational instability because of recurrent change in government system especially at Solid Waste Administration Agency. Moreover, the government should not try to do everything by itself. Rather, collaborate with other sectors, such as non-governmental organizations, private investors, community-based organizations, and formal and

informal sectors. Otherwise, to reduce impacts from recurrent organizational change, concerned and interested non-governmental organizations should involve themselves. Since, they operate between the private and government areas, these organizations may help to develop the capacity of peoples to play an active role in local waste management activity.

3. Although improvements achieved by attaching solid waste fees to the billing for water service, inadequate water supply coverage in the city lagging the system behind. Thus, designing a system is essential to involve existing social infrastructures such as *Idirs,* for reaching the wider community. For sewerage disposal service, the authority should design a mechanism to identify sewerage network users to avoid free riders on public resources.

4. Immediate capacity development measures at the enabling environment/institutions, organizations and individual levels necessitates at Solid Waste Administration Agency and Addis Ababa Water and Sewerage Authority. Particularly, the development of individual competency (knowledge, skill and attitude) that may take several years should consider as long-term process and measures must start at this time.

5. The existing relationship and linkage between competent organs need to clarify within the overall framework of city's environmental protection and waste management system. For this to realize the federal government should play the leading role to the formulation of legal framework that will bind competent organs to integrate with each other.

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ANNEXES

Annex 1: Interview Guide

These guide questions used only for the research purpose of *Institutional Analysis of waste management system in Addis Ababa.* Thus, the information received from the Authorities/Agency will not be transferred any third party.

Thank you for willingly allocating your time to discuss on such an important issue and for responding to all the questions.

Interviewees: Heads of Waste Management Sections

A.A Water and Sewerage Authority,

Solid Waste Administration Agency,

1. The waste management service can be determined by two economic natures of attributes which are low subtractability and low excludability. Thus, how do you manage the service in your mandate in order to control free riders?
2. Do you think the existing policies, proclamation and regulations are encourages sustainability in response to change?
3. Do you think the current institutional setup would foster organizational inter-linkage/coordination between stakeholder agencies?
4. If your answer "no" to the above question, what do you propose to improve the coordination and cooperation between agencies?
5. Do you think that the current institutional arrangement for waste management system facilitates information flows between stakeholders?
6. What kind of information about the condition of the waste/environment/ is available to the public?
7. Do you think the current waste management service provided by your authority/agency is efficient?

Annex 2: Checklists for Capacity Assessment to be filled by Authority/Agencies Experts

Date: _____ **Place:** _____

Dear respondent,

The aim of this checklist is for academic purpose for a M.A thesis entitled Institutional Analysis of waste management in Addis Ababa. Thus, assessing local authorities/agencies capacity, which are under the influence of three levels of capacity (Institutional, Organizational and Individual), to provide efficient waste management service in Addis Ababa is vital.

Since your cooperation is highly valuable for this study, you are kindly requested to give your honest and frank opinion.

Thank you

Institutional Capacity

No	Desired Institutional Capacity	Level of Capacity (High, Medium, Low)	Identified Reasons / Gaps
1	Waste management awareness and education campaigns directed at key target groups		
2	Accountability and reporting mechanism e.g., annual reports, websites		
3	Mechanisms available for public access to environmental information e.g., freedom of information, websites, information centers		
4	New or revised policies accompanying to support the use of economic and voluntary instruments for WM to complement regulatory tools		
5	Relative mandates, roles, responsibilities and relationships are clarified among environmental and WM organs		
6	Decentralization of powers and strengthening of local offices capacity for WM		
7	Inter-agency coordination and collaboration frameworks		
8	Stakeholder engagement in WM policies, procedures and mechanisms for three levels of engagement: awareness-raising, consultation and involvement		
9	Level of stable budget allocations for WM		
10	Shared information systems and databases		

Organizational Capacity

No	Desired Organizational Capacity	Level of Capacity (High, Medium, Low)	Identified Reasons / Gaps
1	Institutional restructuring to reorganize structures and functions		
2	Internal communication and collaboration mechanisms: committees, working groups, information-sharing and networking		
3	Technical and field support for waste management functions		
4	Capacity for budgeting and resource mobilization		
5	Diversification of funding sources for waste management		
6	Training needs assessments (individual and organizational), and training plans, programmes and evaluation		
7	Use of material resources, e.g., vehicles, labs, equipment, to support to waste mgt		
8	Use of scientific and technical information to support evidence-based waste management decision-making, e.g., research, technical standards and guidelines		
9	Guidelines and programmes to develop and transfer environmentally appropriate waste management technology		

Individual Capacity

No	Desired individual Capacity	Level of Capacity (High, Medium, Low)	Identified Reasons/Gaps
1	Changed attitudes, beliefs, values, motivation and commitment in relation with waste management		
2	Specialized scientific and technical skills; interdisciplinary skills, and communication and collaboration skills		