

**FACTORS LEADING TO CONFLICTS IN SOLID WASTE MANAGEMENT: THE
CASE OF DANDORA DUMPSITE IN NAIROBI COUNTY, KENYA**

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DECLARATION

I, the undersigned, declare that this research thesis is my own work and is not the result of a collaboration. It has not been previously presented to any other institution. All sources have been appropriately cited and duly acknowledged in full.

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DEDICATION

This work is dedicated to all people who fully engage themselves for the environmental justice and all people in Dandora who are victims of conflict and waste mismanagement.

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LIST OF ABBREVIATIONS

APHRC	African Population and Health Research Center
AFER	American Foundation for Equal Rights
CSKC	Civil Society Knowledge Centre
CENIA	Czech Environmental Information Agency
CFR	Council of Foreign Relation
CDM	Clean Development Mechanism
EEA	European Economic Area
EJ ATLAS	Environmental Justice of Assessment Tool for Land Systems
EMCA	Environmental Management and Co-ordination Act
EPA	Environmental Protection Agency
EPR	Extended Producer Responsibility
HCWM	Health Center Waste Management
JICA	Japan International Co-operation Agency
MOPHS	Ministry of Public Health Services
MMS	Ministry of Medical Services
NEMA	National Environmental Management Authorities
OWM	Office of Waste Management
SWM	Solid Waste Management
UARK	Urban Africa Risks Knowledge
UNEP	United Nation of Environmental Program
UNIDO	United Nations Industrial Development Organization
WM	Waste Management
USAID	United States Agency for International Development
WCD	World Commission on Environment and Development

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ABSTRACT

The purpose of this study was to explore the socio-economic factors leading to conflicts in managing solid waste in Dandora. Waste management has become a lucrative business for the survival of Kenyan society because of extreme poverty and social imbalance. This leads to a conflict of interest among stakeholders intervening in waste management. The study used social conflict theory and waste management theory. The study adopted a correlative research design and mixed methods (qualitative and quantitative) were used to present the relationship between socio-economic factors and conflict in waste management. The research used random sampling technique to select 359 participants responded to questionnaire survey because the number of waste collector and cartels is unknown and 40 respondents were interviewed. The researcher did 7 days observation on the dumpsite. The interview schedule and questionnaires survey were administrated to the local community, City County of Nairobi, interest and organized group, and waste collectors in the private and public sector. The SPSS package version 21 was used for the regression analysis to determine the relationship between socio-economic factors and conflict in waste management for quantitative data and thematic analysis was used to categorize different topics and determine major themes for qualitative data. The key finds for social factors are unemployment, weakness of authorities, and insecurity, social imbalance, and women rape, lack of awareness. The key findings for economic factors are conflict of interest, competition, corruption, and economic control, for instance, 63.1% of the respondents strongly agreed that the relocation of the dumpsite will affect them economically. And 60% of the respondents are against to the displacement of the dumpsite from Dandora and 37.5% want the dumpsite to be relocated because of its negative effect. For example, six respondents said that the dumpsite is a hideout for criminals who kill and commit robberies in the neighborhood. The hypotheses tested confirmed that socio-economic factors are the main causes of conflict in waste management. Therefore, the study recommends that the government should provide permanent security in the dumpsite, and offer the popular education and free education for the community living around the dumpsite of Dandora. The government of Kenya should provide decent and affordable housing system for the vulnerable household. The Nairobi County government should create job opportunities by introducing the waste management technology which will transform the dumpsite to waste industry. The government should elaborate proper policies in waste management and specifically Dandora dumpsite. For the action plan, the researcher plans the advocacy for social justice based on the equal access for free education for most of the vulnerable of Dandora. The researcher intends to reach County government of Nairobi and parliament to advocate for vulnerable street children of Dandora and victims of negative effects of the dumpsite of Dandora.

OPERATIONAL DEFINITION OF KEY TERMS

Affected group:	people who are victims of water pollution and air pollution, crime, rape and people are burnt by random fires in the dumping site.
Anthropogenic:	Human activities' negative impact on the environment
Conflict:	May be defined as a struggle or contest between people with opposing needs, ideas, beliefs, values, or goals.
Criminal gangs:	Young organized men who lead their daily life by using the crime as a tool and the dumping site as a place of preparation for their activities.
Dumpsite:	Area or a place where wastes are dumped together in a landfill without any separation and treatment.
Environmental Justice:	It is the legal and fair treatment of the environment without any harm on the ecosystem.
Garbage:	This are the wastes from food, slaughterhouses, canning and freezing industries, plastics, and other household unused material.
Hazardous Wastes:	Is industrial waste, hospital waste which is highly dangerous to any living and non-living organism in the short or long term.
Landfill:	Putting waste together in an open field.
Organized Group:	Group of people who have control of the dumping site.
Pollution:	Production of negative effect due to human activities, such air, water, soil, and sound pollution.
Poverty:	It is living in discrimination areas where human rights and dignity are not considered. Also living under the scale of human needs.
Recycling:	It is the technique of collecting and separating waste according to their nature and danger.
Scavengers:	People who work together in a dumpsite.
Solid Waste Management:	Refers to all activities including the fabrication, use, reuse, recycling, collection, transport, treatment and disposal of wastes together with monitoring and regulation to prevent harmful effect.
Socio-economic factors:	Poverty, education, unemployment, income, corruption, insecurity, rape, prostitution, crime.

CHAPTER 1

INTRODUCTION

1.0. Introduction

This chapter first presents the insertion and the background of the study. Then it gives the problem statement, knowledge gap, objectives of the study and research hypotheses. Finally, it outlines the scope and the delimitations of the study.

1.1. Insertion

In June 2016, the researcher went to Korogocho located next to the Dandora dumping site and witnessed the first-hand experience of foul smell of garbage from the dumping site. The experience led the researcher to investigate the impact of the dumping site on the environment. After one year of interaction with the Comboni Missionaries in Korogocho and some workers in the dumping site, the researcher found out that there are a myriad of social problems facing the local community, among them poverty, inadequate shelter, and poor sanitation.

Moreover, the researcher also found out that Dandora dumpsite is the central dumpsite for the entire Nairobi County, which therefore makes waste management difficult. Many families also rely on the dumpsite for their daily living as they collect materials for recycling. Because of scrambling for the wastes, criminal gangs often control sections of the dumpsite leading to perpetual conflicts in waste management. This background, therefore, provides the researcher with the motivation to carry out the study of the underlying factors leading to conflicts in waste management in Dandora dumpsite, Nairobi County, Kenya.

The study presents an advocacy program as one of the solutions to the environmental hazards posed by the dumpsite. The advocacy would be anchored on the resolution of conflicts,

the promotion of clean environment, implementation of the policies related to the environment, methodology and techniques for recycling waste and a system of transformation of the dumpsite to an industrial center of waste management in the action plan of the researcher.

1.2. Background to the Study

Uwadiogwu (2013) argues that dialogue on development has come to recognize the relationship between the efficient management of solid waste, environmental security and human health risks that are detrimental to sustainable development. The importance of efficient Solid Waste Management (SWM) for development, especially for cities and urban centers, continues to feature on the global agenda for sustainable development since the publication of the Brandtland (1987) commission report, the subsequent Earth Summit held in Rio de Janeiro (1992) and Johannesburg (2002) Environmental conference.

In terms of SWM, the European countries are more advanced and are currently moving to the waste prevention and recycling method and technics. The Czech Environmental Information Agency (CENIA, 2016) for instance noted that over the last two decades, European countries have increasingly shifted their focus with regard to municipal waste from disposal methods to prevention and recycling. Stirring urban waste management up the 'waste hierarchy' is essential to extract more value from resources while reducing the pressure on the environment and creating jobs. In Germany, Nelles, Grunes, and Morscheck (2016) mentioned that solid waste can be a useful source of raw materials and energy, metals, glass, and textiles have been collected and put to new use.

Findings from studies carried out in Asia, South America and Sub-Saharan Africa indicate that the problem of municipal solid wastes has escalated into a crisis in many of the cities and urban centers (World Bank, 2012; UN-Habitat, 2010). Arising from these arguments,

Sunday (2013) submits that in Africa, the problem of solid waste management occupies a central place in international conferences whose themes focus on sustainable development and environmental conservation. In most of the cities across the African continent the rate of solid waste collection, evacuation, and treatment has lagged behind the rate at which it is accumulated thereby contributing to increased environmental degradation leading to conflicts. Okumu and Nyenje (2011), stated that collection, storage, transportation and final treatment/disposal of solid wastes is reported to have become a major problem in many urban centers within East Africa.

Siddharth (2010) noted that in most of the Sub-Saharan African cities, much of the work related to solid waste management undertaken by most municipalities is mainly centered on the classification of solid waste, environmental impact and consequences of solid waste generation and recycling of mixed plastic waste products with no or very little attention being paid to the ensuing conflicts between different stakeholders in SWM process. In Kinshasa, a combination of conflicts on waste management, civil conflict, and bad urban governance have resulted to increased injustices in the management of solid waste with poor suburbs being exposed to inhumane living conditions (Kubanza & Simatele, 2016).

In particular, Kenya is facing ever-increasing challenges of solid waste management in its major cities (Liyala, 2011). The mainly conventional waste management methods was unsuccessful because they do not effectively address local conditions such as culture, financing system, institutional framework, technical and human capacities, socio-political situation, and conflict and waste characteristics. The social situation could worsen the problem of waste management in conflictual perspective. It was stated in 2001, that conservative estimates indicated that 300,000 children live and work on the streets in Kenya, with over 50% of them concentrated in and around the capital Nairobi (Consortium of Street Children, 2001).

For instance, Nairobi has witnessed rising criminal gangs made up of young unemployed men, gaining inroads into the informal business sector, including the SWM sector. According to Gumbihi (2013), most reports on crime and violence in relation to SWM in Nairobi are located within the Dandora dumpsite itself. In the early 2000s, the dumpsite was controlled entirely by street children who called themselves *jeshi* (armies) and had divided the dumpsite into 12 bases pitted against each other in an intense rivalry. Fights were common between the different *jeshi*, and only ended when someone was beaten into submission, or killed, with the dead buried in the garbage. For, example 500 toy guns were seized in Dandora and more than 50 kilos of bhang, (Pkemoi, 2014). Being under the influence of drugs, the street boys manhandle anyone questioning them. The businessmen (interest group) have also been accused of colluding with the authorities to stifle the efforts of new operators, who would want to register waste management companies (Sunday, 2013).

Moreover, the mismanagement of wastes is worsened by privatization. For instance, Koross (2013) declared that several gangs have been fighting for the control of the Dandora dumpsite using weapons (guns) to protect “their sections” of the site. This resonates with Wiens’ (2011) observation that although the County government of Nairobi has security officers at the site, interest groups have taken over, levying security fees (about \$5) to all vehicles delivering waste at the dumpsite.

Dandora dumping site has been in existence for over 30 years despite it reaching its maximum capacity in the year 2001. This is certainly unusual given the fact that landfills are typically subject to closure after 10 to 15 years, but this particular landfill referred to by the locals as the “dumpsite of death,” has earned its bad reputation due to its restriction-free status,

(Leigh, 2012). Therefore, 200,000 people are victims of pollution in the surrounding settlements of Korogocho, Babadogo, Lucky Summer, and Dandora in Nairobi County (Concern, 2015).

For many years now, the local government and the concerned community members with the slogan “Stop Dumping Death on Us” have urged for its final closure, but a number of obstacles continue to exist as some waste collectors are opposed to relocation because they fear the loss of their financial stability. Therefore, Alexander (2010) right hypothesized that there exist numerous conflicts that have been linked to inefficiency in municipal solid waste management in cities of developing countries, including Dandora dumping site in Nairobi County, Kenya.

1.3. Problem Statement

Uwadiogwu, (2013) discourses that development has come to recognize the relationship between efficient solid waste management, environmental security and human health risks that are detrimental to sustainable development. Currently, in Kenya, waste management and recycling are said to be a lucrative industry that treasures millions daily for those who have established a strong presence in the business (Koross, 2013). This has attracted different stakeholders in the business of waste management, not for service to the Kenyan society but to gain their daily life. Blessing (2016), emphasized that the late 1990s and early 2000s Kenya’s economy was at its lowest with poverty levels increasing from 48.8 percent in 1990 to more than 56 percent at the end of 2002 and marked by entry of private service providers in waste management and diminishing in service provision by the County Council of Nairobi.

For instance, studies by UNEP (2014) and APHRC (2014) on slum communities in the city of Nairobi identified insecurity as a major concern for 12.5% of residents in relation to conflict in SWM. And poor governance has been linked to allowing the control of the waste

collection and disposal sites in the city by criminal gangs and private service providers, (African Population and Health Research Center, 2014). The crime in this problem is the tool and the result of the conflict.

Therefore, waste management is controlled by interest group who employ street boys to block operators from disposing garbage at the dumpsite. UNEP and NCC (2010) observed that organized criminal groups wield power to have control Nairobi's dumpsite with violence and conflict as their instruments to retain control over materials' recovery and onward sale to recyclers. Consequently, Dandora slum residents who live close to the dumpsite are therefore exposed to criminal activities and rape as well as environmental and disease risks. In view of the foregoing impacts on the society, this study seeks to analyze the factors leading to conflicts in managing solid waste in Dandora.

1.4. Knowledge Gap

The gaps identified are between the ideal and the current situation of Dandora in Nairobi County. There is inadequate literature emphasizing factors leading to conflicts associated with waste management. Urban Africa Risks Knowledge (2016) and CSKC (2014) stressed that the major problem is the government which does not have clear responsibility on the matter of waste and conflict management. But their report did not mention the role of other stakeholders in the conflict. Therefore, this research focused on socio-economic factors leading to conflict and sought to elaborate the conflict role of different parties in the problem.

1.5. Objectives of the Study

This proposed study was guided by general and specific objectives.

1.5.1. General Objective

The general objective of the study was to analyze socio-economic factors leading to conflicts in managing solid wastes in Kenya's urban Centers, the case of Dandora in Nairobi County.

1.5.2. Specific Objectives

In order to achieve the general objective, the following specific objectives were set out, thus to:

1. Explore social factors leading to conflict among stakeholders managing solid waste in Dandora dumpsite, Nairobi County;
2. Establish the economic factors leading to conflict among stakeholders managing solid waste in Dandora dumpsite, Nairobi County;
3. Analyze the contribution of poor policies to conflict in waste management in Nairobi County;
4. Examine the effects of the conflict on waste management, on the environment and on the well-being of communities living near the dumpsite due to lack of policies.

1.6. Research Hypotheses

The study was guided by the following research hypotheses:

HO₁: There is no significant relationship between social factors and conflict among stakeholders in solid waste management in Dandora dumpsite, Nairobi County;

HO₂: There is no significant relationship between economic factors and conflict among stakeholders in solid waste management in Dandora dumpsite, Nairobi County.

1.7. Justification of the Study

The problem of waste management in Dandora is no longer a local issue but global because of its environmental and social effects. This study is relevant in the sense that, first there was insufficient research that has been done in the area on the socio-economic factors leading to

conflict and on the impact of conflicts on waste management. Therefore, this research provides a clear understanding of the phenomenon of conflict in relation to solid waste management. Second, the study identified the role of stakeholders in the conflict. From the technical perspective, the researcher provides his input on the technology to be used to transform the dumping site into a waste industry in the action plan. The waste technology is of benefit to Nairobi County government and the community around the dumpsite because of job creation.

1.8. Scope/ Delimitations of the Study

This study was carried out in Dandora, Embakassi division in Nairobi County in Kenya. It was focused on the causes of conflicts associated with solid waste management at Dandora dumpsite as well as the effects of these conflicts on the community's well-being and environment. It targeted Dandora's local community, waste collectors in private and public sectors and organized and interest groups that have a stake in managing the Dandora dump site.

CHAPTER 2

LITERATURE REVIEW

2.0. Introduction

This chapter reviews literature related to the theories underlying solid waste management as well as literature related to the factors underlying conflict in solid waste management. The chapter ends with the presentation of the conceptual framework and its justification.

2.1. Theoretical Literature Review

“A theory is a set of interconnected perceptions, descriptions, and suggestions that present a methodical view of events or conditions by stipulating relations among variables in order to explain and prediction events or situations” (Glanz, Rimer, & Viswanath, 2015, 26). Theory establishes a cause and effect relationship between variables with the purpose of explaining and predicting phenomena and may indicate missing ideas or links to the kind of data required. Theories can be considered milestones of scientific development. Theories are usually introduced when the previous study of a class of phenomena has revealed a system of uniformities. The purpose of a theory is to explain systems of regularities that cannot be explained by scientific laws (Hempel, 1966). According to Creswell (2009), a theory is used to guide the research decisions and the questions which are asked and the interpretation of the data.

2.1.1. Social Conflict Theories

Social conflict theory is presented as a macro-oriented model in sociology that views society as an arena of inequality that generates conflicts and social change. Key elements in this perspective are that the society is organized in ways to benefit a few at the cost of the majority, and factors such as race, sex, class, and age are linked to social inequality (Kimberly, 2018).

Social conflict theory is all about the dominant group versus minority group relations. Karl Marx is considered as the classical founder of the social conflict theory.

According to Marx (1867), in all stratified societies, there are two major social groups: the ruling class and the subject class. The dominant class derives its power from its ownership and control of the forces of production. The leading class exploits and oppresses the subject class. The basic conflict of interest between the two classes is always raised as result. The various institutions of society such as the legal and political system are instruments of the ruling class domination and serve to further its interests. Therefore, this theory was applied to the first objective of the proposal. For instance, the local community of Dandora and waste collectors are the subject and the ruling or dominant class is interest group, organized group and Nairobi County authorities.

Weber (1978) perceives a class in economic perspective. In his argument, he mentioned that classes are developed in market economies in which individuals compete for economic gain. Therefore, he describes a class as a group of individuals who share a similar position in the market of the economy and by virtue of receiving similar economic rewards. Hence a person's class condition is basically his market situation. In that perspective, individuals who share a similar class situation also share similar life chances. Their economic position directly affect their chances of obtaining those things defined as desirable in their society. Weber claims that the main class division is between those who own the forces of production and those who do not. Therefore, conflict has been identified as a consequence of frustrated human needs. This is the case of Dandora where organized groups and interest group own the site and the local community is working for them with no significant rewarding. Though the work of waste collection and recycling is very dangerous, the local community is still working and struggling to

gain daily survival at the price of exposure to in dangerous respiratory sicknesses. Burton (1997) has argued that if an actor cannot fulfill her or his basic human needs in one way, she or he will attempt to do so in other ways. If they cannot do so within the existing, "status-quo" system, they may create parallel, "revolutionary" systems for doing so.

This theory is useful for this research because it helps to understand better the sources and consequences of social factors leading to conflicts in SWM. Therefore, it is necessary for the elaboration of strategies for social justice and advocacy to achieve social balance among waste collectors, the local community of Dandora and organized/ interest groups. This theory aims to present the problem in socio-economic perspective but do not emphasize on the waste management, consequently there is a need to present a second theory which helped to understand the context of waste management and the needed solution that can be appropriate for Dandora.

2.1.2. The Theory of Waste Management

The Theory of Waste Management is based on the considerations that waste management is to prevent wastes causing harm to human health and the environment (Pongracz, 2002). The author presents the role of ownership in the process of waste management. The waste producers and consumers should bear the responsibility of waste in the course of manufacturing products, its distribution, use and the end of products. It is recognized that present legal waste definitions are ambiguous and do not really give an insight into the concept of waste. However, Industrial Ecology successfully combines waste minimization and resources use optimization measures and ensure that resources are effectively circulated within ecosystems. Also there is major need to verify the cycle of the product.

For instance, the European Commission and the Member States were gathered for a two-day workshop in Leipzig in February 2004, to discuss the classification of treatment operations

and of the waste definition. The workshop of Leipzig had an observation that, “using the description of waste is a tricky concern when determining when something becomes waste and when it stops being waste” (Shekdar & Tanaka, 2004).

Contrary, King, Burgess, Ijomah and McMahon (2006), considered different factors involved in waste production and waste management and concluded that remanufacturing may well be the best strategy. This allows the product to regain its original value and updated features for the manufacturer and enable the reuse of the product as new. Even though, it still need the process of the recycling of the old product which is considered as waste before remanufacturing.

Therefore, there is conflict on the classification and management of the wastes. This theory can be classified as subjective because the end of materials as waste is determined by the owner or the user. But the theory of waste management can be useful in the context of Kenya by raising awareness on the production and cycle of the materials. In this perspective, it promotes education for sustainability by having research centers for waste transformation, sustainable architecture by proper design and proper management of construction materials to achieve extended producer responsibility.

The theory of social conflict is related to the socio-economic aspects of the problem and the sources of conflicts. It helps the researcher to look at the factors leading to conflicts in waste management. But this theory was not able to illustrate the hierarchy of the waste, therefore there is a need of second theory. The waste management theory focuses on the classification of wastes and when the material or a product can be called a waste. Therefore, the two theories are relevant to this research. The theory of social conflict was used to address the conflict between different stakeholders in Dandora dumpsite and give them equal opportunities for the community

development. And the theory of waste management inspired to design the strategies of curbing the problem of waste by elaboration of the policies for proper waste management.

2.2. Empirical Literature Review

The danger facing the environment is population increase and the subsequent environmental impact. The increase of human population increases the production of wastes. For example, cancer is the second leading cause of death in the USA because of different contaminations from the wastes to water and air. Therefore, if we are able to understand the issue of municipal solid waste at a smaller scale, we could more effectively and work toward large-scale solutions (Btkin, 2012).

2.2.1. Socio-Economic Factors leading to Conflicts in Solid Waste Management

Disputes in SWM could relate to more deeply rooted issues such as recognition, rights, identity, or the ability to participate in solid waste management. For example, the Environmental Program Agency (2012) stated that the U.S. releases approximately 7.3 million of atrazine (toxic) per year to the environment. This is collected by rainwater into the Gulf of Mexico. Both combinations underpin the process of capital accumulation within the economy.

To curb the problem in waste management in Europe, the European Union has formulated strict legislation on waste disposal. Therefore, every industry and producers pay the taxes according to the level of production which allows the government to manage wastes without financial challenges claimed by Extended Producer Responsibility (EPR, 2015).

Regarding the effect of socio-economic factors leading to conflicts related in waste management, the European countries are in good progress and process, on one hand. On the other hand, America is still struggling through different efforts. For example, Alabama Department of Environmental Management (2015) claimed that in America, nearly 40 percent of

the toxic wastes disposed of Nationwide between 1984 and 1987 under the Federal Superfund Removal Program ended up at the landfill, meaning there was no proper management which led to conflicts between the residents and the government. There were socio-economic discrimination because over 65 percent of the residents were Black and over 90 percent of the residents near the landfill in Emelle were Black and poor.

In Africa, the public and private sectors are active in the management of solid waste. There are more efforts being made to formalize and strengthened the link between the private and public sector of waste management. This can improve waste management efficiency and create a new job opportunities. However, any change in the present order may inevitably affect the lives of millions of most vulnerable and marginalized population in the cities of the developing countries both as users and providers of the service.

In Kenya, the late 1990s and early 2000s marked the entry of private individuals in waste management (Thugge, Ndung'u & Otieno, 2009). This could be the source of different tragedies in the area of waste management in Kenya where the collection of waste became a business, not service delivery. In Dandora, the most prominent activities are sorting and selling recyclable materials (UNEP, 2016).

As a result, many children have dropped out of school to go and work at the dumpsite to earn a living (Leigh, 2016). The author continues to emphasize that crime rate is high and this has affected people living in Dandora. According to Kenyan national Bureau of Statistics (2009), inequalities in quality and access to education often translate into differentials in employment, occupation, income, residence, and social class. From the same source, Korogocho and Dandora ward have the highest share of residents with a primary level of education only at 60%. These disparities are prevalent and tend to be determined by socio-economic and family background.

Critically, the social aspect of the problem could be very strong and the frustrations and psychological manipulation can be a source of conflict associated to waste management.

According to Paul (2011), economic issues, disease, and security are the major implications of setting up a dumping site or relocating an existing one. Therefore, the common good should be at the central point of the different stakeholders intervening on the dumping site but not personal interest emerged strongly to protect individual businesses. On the same line, Sunday (2013), argued that “in view of the rapidly increasing population of Nairobi, the increasing amount of waste being produced has become appropriate to relocate the dumping site to Kayole/ Ruai area in order to avert the resultant diseases and security concerns”. However, waste recycling and selling as an economic activity has become a major block to this relocation despite its negatives impact on the population and environment.

Through the researcher’s insertion, he understood that poor people are aware of their lack of voice, power, and independence that subjects them to exploitation. Their weakness and poverty expose them to the vulnerability, humiliation and unfair or inhumane treatment by both public and private agents from whom they seek help. Therefore, accessing jobs is very vital for them to overcome inequality and reduce poverty. For instance those who cannot access productive work are incapable to generate an income sufficient to cover their basic needs and those of their families, or to accumulate savings to protect their households from the vicissitudes of the economy. Nationally, 45.2 percent of the population lives below the poverty line (2009 estimates) down from 46 percent in 2005/06 (Kenyan National Bureau of Statistics, 2009). Consequently, there are many frustrations and anxiety on the people living around the dumpsite that leads to conflicts of interest and insecurity. The poor are an easy target for exploitation by political and economic elites. The poor have little social status and therefore limited bargaining

power in influencing policies to their benefit and negotiating favorable terms of sale (Mutasa, 2015).

2.2.2. Effects of Conflicts on the Well-Being of Communities Living near the Dumpsite

Scientific studies have demonstrated the link between unregulated dumping and negative health outcomes in neighboring communities of the landfill. People absorb toxins like dioxins and furans by inhalation, ingestion, and absorption through the skin (Alliance, 2015). Globally, conflict arises where there is the interest of individual or groups and it does not end without affecting the society or/and environment. Conflicts associated with waste management have impacts on human health including infection, transmission, physical injury, non-communicable diseases, and emotional and psychological effects (Alexander, 2010). In particular, pollutants from the landfill can increase the risk of cancer, birth defects, reproductive disorders, and respiratory diseases. To complement, the inadequate waste management persistence increase the management and disposal cost to humanity.

In Thailand, for many years solid waste management has been a topic of heated debate. Solid waste management presents practical management challenges for local governments. The need for better waste management has become increasingly obvious with the rise in population (Nachalida, 2017). Therefore, the problem of waste management is not only a Kenyan problem or an African problem but it is global. Solid waste dumps are seriously degrading the environmental conditions in developing countries. In the developing world, there is negative environmental impacts from improper solid waste dumping which is easily observed everywhere. In Pakistan, due to lack of proper planning and funding, the solid waste management scenario is becoming worse day by day (Ejaz et al., 2010). Discarded polythene bags from Rawalpindi city

are generating an aesthetic nuisance and they may also cause the death of grazing animals which eat them.

According to MOHIT IASIIA (2010), in Japan, zinc mining industry at Kamioka discharged effluents containing toxic material without treatment into the Zintsu River. Water from the river was and continues to be used for drinking and irrigation. In 1919, a 35 year-old patient is said to have exhibited symptoms similar to those of Itai-Itai disease, which is now known to be caused by cadmium poisoning. In another case, in the Hamburg City of West Germany, during 1935 to 1971, about 150,000 m³ of waste oil as liquid chemical waste and 50,000 drums of solid chemical waste were dumped along with the city refuse in Georgswerder landfill site. In 1983, dioxin was identified in the oily leachate from the landfill site. The cleaning up cost of this site would be more than 100 million according to Deutsche Mark report in 2015.

The failure in African countries to manage properly waste disposal has led to flooding and the outbreak of diseases and conflicts. The conflicts might escalate and lead to nonproductive results, or conflict can be beneficially resolved and lead to quality final products. Therefore, learning to manage conflicts is integral to high-performance collaboration. While very few people go looking for conflicts, thus, conflicts is results of miscommunication between people with regard to their needs, ideas, interests, beliefs, goals, or values (Tay & Diener, 2011). This is the case of the conflict in waste management across the world.

In Kenya, wastes have polluted soil, water, and air directly affecting more than 200,000 people in the surrounding settlements of Korogocho, Babadogo, Lucky Summer, and Dandora in Nairobi County (Concern, 2015). However, these poor communities while contributing the least to the problem are bearing the burden of an environmental catastrophe. The same source notify

that most affected are between 6,000 and 10,000 persons who scavenge at the site. These men, women, and children, commonly referred to as ‘Chokora’, means in general sense “street boy”, brave the dangers of the dumpsite to escape the ravages of extreme poverty. Infections, particularly of the respiratory tract, are a common cause of death. At least 25% of the workers have fresh injuries as a result of accidents from scrap metals and toxic waste (Afullo & Odhiambo, 2015).

2.2.3. Effects of Conflicts on Environmental Security

The fundamental question of environmental security is how various environmental factors (climate, resources, and so forth) and processes can affect the security of states and societies. It examines the relationships between different environmental issues, their effects, and various security problems. UNEP (2017), claimed that the environment is considered as an integrated part of a security concept together with the dimensions of economic, social, energy or information security. The analysis shows that environmental dimension is an important element of international relations and security studies. Comprehensive security assessment, especially in developing countries, is not possible without taking into account the social and economic impacts made by resources, climate change, and natural disasters.

Disposing of wastes has huge environmental impacts and can cause serious problems. For illustration, much waste is buried in landfill sites holes in the ground, sometimes old quarries in the UK. All the waste are not degradable thus, some will eventually rot, but not all, and in the process, it may smell or produce methane gas, which is explosive and contributes to the greenhouse effect. Leachate produced as waste decomposes may cause pollution. Badly managed landfill sites may attract vermin or cause litter (Green Choices Review, 2017). From the same report, it was claimed that incinerating wastes causes problems because plastics tend to produce

toxic substances, such as dioxins, when they are burnt. Also the incineration produce gases causing air pollution and contribute to acid rain, while the ash from incinerators may contain heavy metals and other toxins.

The mismanagement of solid waste has considerable consequences on the environment. For example, the loss of biodiversity, the disposal of chemical elements on land results in a change of soil structure and chemical composition. The high levels of soil acidity or alkalinity affect plant growth and the survival of micro-organisms in the soil. Moreover, consumption of such toxic wastes by animals may eventually kill them or negatively affect their reproductive ability. On the same line, it is noted in the Environmental Science Report (2015) that the decomposition of chemical compounds in landfills and the burning of synthetic materials may release greenhouse gases (Lehmann & Joseph, 2015). These greenhouse gases trap heat in the atmosphere, warming it and thus promoting climate change.

People who live close to municipal solid waste (MSW) landfills could be exposed to air pollutants emitted by the plants (landfill gas containing methane, carbon dioxide, hydrogen sulfide and other contaminants including volatile organic compounds, particulate matter, and bioaerosols) or to contaminated soil and water. For example, in Italy, the exposure to landfills was associated with mortality from lung cancer and respiratory diseases and with hospitalizations for respiratory diseases, both in adults and in children (Francesca, 2016).

Conflicts can, directly or indirectly push societies and the environment beyond the natural limits of their resilience. A clean environment is essential to human health. However, cleaning operations generate wastes that can adversely affect human rights if inappropriately disposed. While the poor are responsible for a small fraction of wastes generated in the city, they bear the greatest burden of effects. The absence of a functional waste management system in

Nairobi has resulted in the indiscriminate dumping of waste in Dandora, one of the poorest neighborhoods in the city.

The protection of the environment is a priority activity of the Nairobi County government. In this connection, the government is implementing a number of projects, all of which aim at controlling pollution, reducing incidences of environment-related diseases, increasing tree cover, landscaping open spaces and planting flowering plants and grass cover (Dick, 2016). The geometric or unprecedented increase in urban population caused by massive rural to urban migration and the natural increase has exacerbated urbanization. Urbanization has manifested itself through the distraction of the ecological footprint and largely violated the principals and traits of environmental sustainability (Chirongoma, 2015).

The current extension of the environmental justice agenda transfers the discourse into a new realm where environment and nature are understood to create the conditions for social justice (Schlosberg, 2013). Environmental justice is seen in both a distributive and participative issue. In this view, distributive environmental justice can be understood as concerning fair allocation of environmental risks and resources where people live, work, and play, regardless of race, ethnicity, national origin in first point. In second point, participative justice involves the meaningful inclusion of all stakeholders in the environmental decision-making processes, from needs identification to planning, building, maintenance, and enforcement (Claes & Van, 2015).

Consequences of human activities and conflicts on the environment are fires, soil contamination, waste overflow, oil spills, groundwater pollution or depletion, surface water pollution, decreasing water (physicochemical, biological) quality. In the perspective of John (2010), the impacts of anthropogenic climate change so far include decreased ocean productivity, altered food web dynamics, and reduced profusion of habitat-forming species, shifting species

distributions, and greater incidences of diseases. Societal vulnerability to the risks associated with climate change may exacerbate ongoing social and economic challenges. This should be the responsibility of the concerned authorities but at the same time, it is a call for all humanity to be responsible for its action to achieve environmental security and to reduce potential Global warming.

2.2.4. Effects of Conflicts on Garbage Management

Globally, waste generation rates are rising. In 2012 for instance, the worlds' cities generated tons of solid waste per year, amounting to a footprint of 1.2 kilograms per person per day (Fahmi, & Sutton, (2010). With rapid population growth and urbanization, municipal waste generation is expected to rise to 2.2 billion tons by 2025 according to the World Bank report (2018). Mainly, municipal solid waste management has become a challenging environmental problem. For instance, many cities in both urban and rural areas have encountered problems with disposal and treatment facilities that are insufficient to deal with the significant volume of solid waste. In the illustration of Thailand, it has been estimated that around 24.73 million tons of municipal solid waste was generated in the year 2012. Only 15.90 million tons (64.29%) was disposed of in prepared waste bins and 11.90 million tons was collected.

There are different views of concepts about waste management which vary in their usage as per the varying districts or countries. Some of the widely used concepts include waste hierarchy: reduce, reuse, and recycle. The growth of towns and cities where large numbers of people started to congregate in relatively small areas in pursuit of livelihoods, waste disposal became problematic. On one hand, the density of population increased in these centers and, therefore, wastes generated per unit area also increased. On the other hand, the availability of land for disposal of waste decreased in proportion. SWM thus emerged as an essential,

specialized sector for keeping cities healthy and loveable. Local struggles against waste management in recent years in Korea illustrate that people are more concerned about incineration or landfill technology and questions the post-treatment waste policy (Kim, 2011).

Comparing the developed nations and residents in developing countries, the urban poor are more severely impacted by unsustainably managed waste. In low and middle-income countries, waste is often disposed of in unregulated dumps or openly burned. Consequently, these practices create serious health, safety, and environmental costs. Poorly managed waste serves as a breeding ground for disease vectors, contributes to global climate change through methane generation, and even promotes urban violence (UN, 2017).

It is overseen that human activities create waste, and it is the way these wastes are handled, stored, collected and disposed that pose risks to the environment and to public health. For example, where intense human activities concentrate, such as in urban centers, appropriate and safe solid waste management (SWM) is of utmost importance to allow healthy living conditions for the population. This fact has been acknowledged by most governments but many municipalities are struggling to provide even the most basic services. Typically one to two-thirds of the solid waste generated is not collected (United Nations-Habitat, 2014). As a result in most of the African countries, the uncollected waste, which is often also mixed with human and animal excreta, is dumped indiscriminately in the streets and in drains, so contributing to flooding, breeding of insect and rodent vectors and the spread of diseases (UNEP-IETC, 2010).

In Kenya, representatives of the private sectors expressed optimism on both electricity generation and carbon trading based on a rehabilitated dumpsite. Private sector firms like Multiwell, have confirmed that they have the capacity to profitably generate energy from natural gas at the dumpsite (Alliance, 2015). However, there are conflicting views from various agencies

about the best use of the land since the County government of Nairobi does not consider it feasible to extract natural gas from the dumpsite. The NGO Concern Worldwide claimed that Projects resulting in the reduction of greenhouse gas emissions, (like renewable energy, energy efficiency, and afforestation) can earn valuable carbon credits through the Clean Development Mechanism (CDM) a project led by UNEP. This is an evidence of the existing conflict on the waste management.

The sector of SWM suffers from low productivity of staff, inadequate supervision and unsatisfactory equipment. Politicians, who find the SWM service an important instrument to retain patronage and popularity may exert influence on the management also (APHRC, 2014). Most of the private operators are ‘informal’ workers. Up to 10 % of produced SWM are traditionally incinerated (Mutasa, 2015). However, incineration has not very effective and requires specific conditions for preventing emissions. Gasification and pyrolysis are more effective processes which can be used not only for heat and electricity generation but also for fuel and valuable chemicals production.

There has been a lack of segregation of the waste in Kenya compared to Rwanda. Segregation represents the essential first step in Health Center Waste Management (HCWM). With poor segregation, HCWM is particularly brought to naught by highly inefficient waste transport (use of wheelbarrows) which some surveys found deficient more than 87% of the time. This leads to mixing of already poorly segregated waste. Complicating the segregation problem further is the lack of appropriate storage areas for wastes. The important waste management challenges include integrating the informal waste sector in developing cities, reducing consumption in industrialized cities, increasing and standardizing the collection and analysis of solid waste data, and effectively managing increasingly complex waste while protecting people

and the environment (Sintana & George, 2012). For example, it is illegal to use, import or manufacture plastic carrier bags in Kenya (Xanthos & Walker, 2017).

Despite the gravity of the disaster at Dandora dumpsite, authorities appear to be impeded by bureaucracy and political apathy. The sudden conflict between Kenya Airports Authority and the County government of Nairobi, despite eight years of planning and consultation, demonstrates the absence of requisite coordination and leadership. However, Alex (2016) opined that protecting the environment is an issue that should be taken very seriously by all Africans and not just their governments, if progress was to be made.

As a result of conflicts associated to waste management, there have been weak institutional structures and capacity, weak enforcement of regulatory frameworks, and the control of the sector by criminal cartels (Tilahun, 2017). All these problems are increasing the level of vulnerability among low-class people. The poor households live from hand to mouth satisfying their very modest needs only by borrowing or simply cutting on consumption. Disasters such as health, droughts, floods, fire, and accidents cannot be averted. Chambers (2018) reminds of the importance of the non-economic components of poverty by illustrating the interactions between disadvantages such as poverty, physical weaknesses, isolation, vulnerability, and powerlessness.

The conflict associated to waste management should not be a perpetual problem causing social-economic and environmental harm. There are many efforts from international groups and NGOs who are willing to bring about change. The World Bank finances and advises on solid waste management projects using diverse suite of products and services, including traditional loans, results-based financing, development policy financing, and technical advisory.

2.3. Conceptual framework

The researcher has developed the framework in Figure 2.1 to illustrate the position of the problem and to give the connections of different variables that are relevant to the topic of the research. It acts as a guideline to enable the researcher concentrate on the key components needed to enlighten on the socio-economic effects associated with conflict on waste management in Kenya's urban centers.

Independent Variables

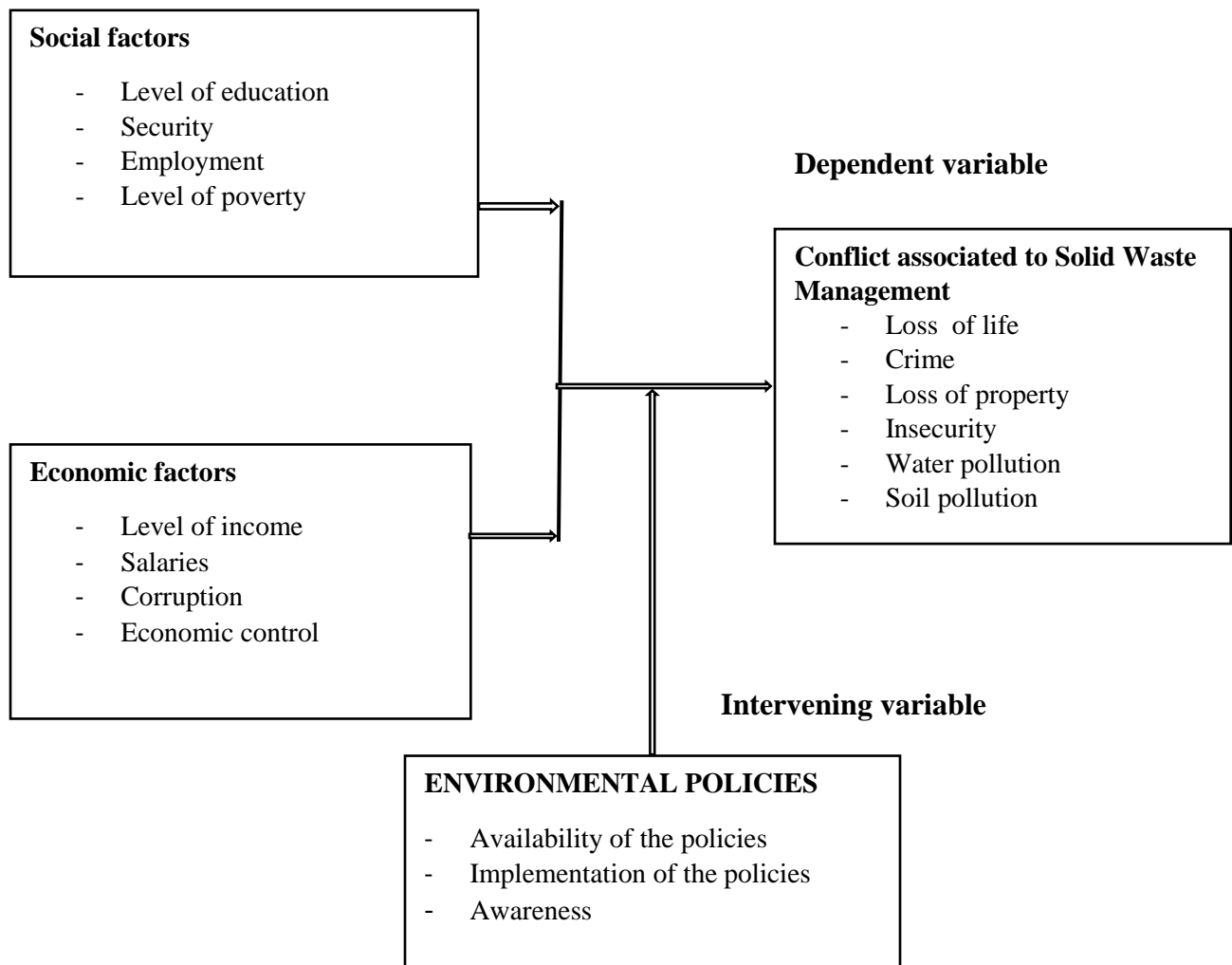


Figure 2.1: Conceptual Framework

2.3.1. Explanation of the Conceptual Framework

Social imbalance, inequality, and corruption are harmful to the society because it creates a fixed system of winners and losers. According to conflict theory, capitalist economic competition unfairly privileges the rich, who have the power to perpetuate an unfair system that works to their advantage. And the marginalized who are at the bottom of the social stratification have little opportunity to improve their situation since those at the top tend to have far more political and economic power. Therefore, it generates conflicts of interest and it is affecting the respect of laws and policies' application to achieve proper waste management. For instance, the social factors such as poverty, unemployment and lack of education lead the society of Dandora to use recycling as the last hope to survive.

In this perspective, whoever tries to refuse them the access to recycling material creates tension and leads to conflicts. Furthermore, from the economic perspective, the selling price of the recycle material is very low and daily income does not meet the needs of the people. Therefore, everybody is trying to gain the survival food by any means, and corruption worsens the situation which leads to a conflict of interest. To summarize, there could be a significant relationship between socio-economic factors which are seen as roots causes and conflicts associated to waste management which is the consequence of lack of human basic needs. The poor policies are intervening to increase the effect of socio-economic factors on conflicts between stakeholders in the case of waste management.

CHAPTER 3

METHODS

3.0. Introduction

This chapter discusses the overarching plan for the collection, measurement, and analysis of data. It discusses the research design, the methodology of gathering data and the variables used for the purpose of the study.

3.1. Research Design

Typically, a research design describes the purpose of the study and kind of questions being addressed, the techniques to be used for collecting data, approaches to selecting samples and how the data is going to be analyzed (Gray, 2009). Therefore, the researcher used correlative research design. Correlational research design looks for variables that seem to interrelate with each other so that the variation and relationship can be seen, and how the change of one variable will affect another one, and Vis versa.

3.2. Location of the Study

The study was conducted in Dandora, Nairobi County, Kenya. Dandora is situated in Embakassi constituency Nairobi County in Kenya, with geographical coordinates provided as 1° 15' 0" South, 36° 54' 0" East (Google Map) . Dandora is near the dumpsite which is one of the largest in Africa. Dandora is located in East of the Nairobi county in Embakasi division and borders Kasarani Division to the North, a division which comprises of the poor neighborhood such as Korogocho and Kariobangi. The three neighborhoods of Dandora, Kairobangi, and Korogocho are estimated to have over a quarter of a million residents of Nairobi County. However, the study is restricted to Dandora due to the high population and proximity to the dumpsite.

3.3. Target Population

Target population indicates the population from which the sample was drawn. This population has diversity, is representative and easily accessible. As mentioned by Kombo and Tromp (2006), the greater the diversity and differences that exist in the population, the greater the research's sample size should be. Dandora has an estimated population of 110,164 and has a land area of 4 square kilometers with approximately 27,541 persons per square kilometer according to Kenya's Bureau of Statistics (2009).

The Dandora dumpsite is primarily influenced by the local community these being the families that live in the estates adjacent to the dumpsite. A number of these family's forage for artifacts from the dumping site which they sell for income. They are most affected by the conflicts and it is important to know their views on the problem. The dumpsite is also controlled by interest and organized group that control access to the dumpsite. Therefore, having them as respondents enriched the research because mostly they are accused to be the sources of conflicts. The research also targets the County government of Nairobi and the waste collectors who are in charge of collecting waste from houses and industries (Muniafu & Otiato, 2010).

3.4. Sampling Techniques and Sample size

The discussion of this is followed in the ensuing sub sections.

3.4.1. Sampling Frame and Techniques

A sampling frame can be defined as a list of all the items in your population. It's a complete list of everyone or everything you want to study. And also a 'sample' is a subset of the population, selected so by way of to be representative of the larger population (Acharya, Prakash, Saxena, & Nigam, 2013). Therefore, purposive sampling was used to select local community (male and female between 18 to 60 years) to help the researcher to know about the

leading factors to waste management conflict and the impact of conflicts on the society living near the dumping site and reason of working and exposing their life to different risks.

Waste collectors, local authority (police, City Council representative in Dandora and managers of dumping site), and interest group responded to the questionnaire because the researcher aims to have the representativeness of different stakeholders in the conflict. This type of purposive sampling was homogeneous sampling because the selection included a small sample of the local community, the local government, interest and organized group, and waste collectors.

3.4.2. Sampling size

Researchers agree that it is usually impossible to make direct observations of every individual in the population studied. A sample then is a smaller group obtained from the accessible population, (Mugenda & Mugenda, 2003). Data was collected from a subset of individuals (a sample) and was used to make inferences about the entire population. For Proportions, Yamane (1967) provides a simplified formula to calculate sample size. A 95% confidence level and $p = .5$ are assumed in the equation. In this case, n is the sample size, N is the population size, and e is the level of precision. The sample size is calculated using the formula below (Yamane, 1967).

$$n = \frac{N}{1+N(e^2)}$$

N-Target Population; n- Sample Size; e- Desired margin of error (0.05)²

$$N = 110,164$$

$$n = \frac{110,164}{1+110,164(0.05^2)}$$

$n = 399$

Therefore, following from the calculations, the sample size for the study was 399 respondents.

3.5. Data Collection Procedures

The questionnaire and interview structure were used to collect information from respondents. This facilitated easy access to primary data. The use of the interpreter was important because of the language barriers (Kiswahili).

3.6. Data Collection Instruments

The researcher used mixed method techniques. The research used qualitative and quantitative design and employs a combination of questionnaires survey, interviews schedule and non-participative observation. These were carried out in different iterative stages.

3.6.1. Questionnaires

The research questionnaires usually form a fundamental part of descriptive and opinion-related surveys. Thus, Questionnaires can either be in the form of a self-administered questionnaire that is, where the respondents were requested to complete the questionnaire in his/her own time, methodology adopted in this study, or in the form of a structured interview, where the interviewer writes down the answers of the respondent during a telephone or face-to-face interview (Gray, 2009). Irrespective of which method is used, the formulation of the questions and the structure of the questionnaire should be carefully constructed for the success of the survey (Kothari, 2011).

This was used for the quantitative data collection. Therefore, the structured questionnaires was distributed to the respondents in Dandora namely, local community male and female between 18 to 60 years old, local government in Dandora, waste collectors from private and public sectors and interest group who have control on the dumping site. The researcher and

qualified assistant administered structured questionnaires to the respondents and give a minimum of 30 minutes to each respondent to answer the questionnaires.

For the matters of security, the researcher had an assistant who was familiar with the interest and organized group. This at least took two weeks for the researcher and the research assistant. Structured Questionnaire are a valuable method of collecting a wide range of information from a large number of respondents. Structured Questionnaire was easy to standardize. Therefore, the researcher was sure that everyone in the sample answers precisely the same questions, which made this a very reliable method of research. This enabled the researcher to contact large numbers of people quickly, easily and efficiently. The questionnaires respondents were anonymous which meant that respondents were encouraged to answer questions truthfully in the knowledge they could not be identified. This increased the validity of their responses.

3.6.2. Interviews Schedules

The interviewer collects detailed personal information from individuals usually in one situation using oral questions. Gray (2009) gives reasons why the use of interviews would allow probe for more detailed responses where the respondent is asked to clarify what they have said. Large amounts of relevant information about the experiences of others may be collected by directly questioning or talking to people observed. The researcher used structured interviews after having identified key informants, such as county representatives and dumping site managers. Therefore, the face to face interviews were administered to waste collectors who are facing conflict with the local community, local government, and interest and organized group.

A recording machine was used to audiotape the interviews and the participants were courteously informed beforehand of its use. The researcher also took down some notes to

complement the recordings. The researcher had a research assistant. The research assistant was qualified and had a good skill to conduct the interview. The researcher and assistant used interview guide questionnaire to facilitate the interview. Each interview lasted for an average of 15 to 30 minutes and was carried out within the participants' environment. A number of 40 people were interviewed composed like 3 respondents from City County of Nairobi, 20 from the local community male and female. The rest were 12 waste collectors and 5 members of the interest or organized groups.

3.6.3. Non-participant Observation Guide

The researcher stayed unbiased or an outsider to the event or the group. He was not involved in the problem of the group but was an external observer because the researcher was not affected by the problem and was not living in Dandora. Therefore, the researcher could not be biased. In the case of this problem, the researcher had the intention to understand the phenomenon of the conflict associated with waste management. He observed the process of dumping and the reaction of the local community who were trying to select different materials for income generation. In addition, the non-participant observation was applied to the behavior of street boys who are controlling the dumpsite when the trucks arrive. Indeed the researcher wanted to understand in depth the phenomenon of conflict between stakeholders in waste management in Dandora.

Consequently, the researcher used observation to have more clarity on the exposure of the poor community to the risks of the dumping site. The observation took a minimum of seven working days and was aimed at being able to observe and analyze the different reaction of people who are intervening in the landfill of Dandora. Finally, this helped the researcher to compare the

responses of the respondents and the reality on the field. This tool was designed for the qualitative method of data collection.

3.7. Pilot-test

A pilot test is a small-scale test of the methods and procedures to be used on a larger scale, (Porta, Spada, Lala, & Mussa, 2008). The reliability of the findings is the assurance that the findings could be reproduced under the same circumstances, using the same method, among the same population. The reliability of the instrument is the confidence that when the instrument is administered under the same circumstances to a similar population, it will consistently produce the same results (John & Jacqui, 2013). But the validity is the confidence that what is shown by the finding corresponds to the reality of the instrument. It is also the confidence that this scale produces results that will correspond to the reality. Therefore, the internal reliability was measured by the value of Cronbach's Alpha. For example, when α is above 0.9, means the internal consistency is excellent and if α is below 0.5, it means the internal consistency is unacceptable. This is playing a key role for the researcher to evaluate the reliability of the tools.

The researcher did a pilot study of the instrument in Korogocho before going to data collection. The sample size of the pilot test was 30 respondents. Therefore, the questionnaires and interview guide were tested. This allowed the researcher to adjust those items in the questionnaire and interview guide which were contradictory.

3.7.1 Reliability

The correlational research design was helpful to the researcher to test the validity and the reliability of the instrument used for data collection. The Cronbach's Alpha was used to test the reliability. For instance, if Cronbach's alpha values above 0.7, the instrument is considered reliable. Besides, Pearson's correlation was used to test the relationship between the dependent

variable and independent variables. For example if Pearson's *r-value* is above 0.7 it is considered significant relationship between dependent and independent variables. This allowed the researcher to find out the relationship between socio-economic factors and conflict in solid waste management. The descriptive statistic presented in the Table 3.1 the value of Cronbach's Alpha of the instrument used for the data collection in Dandora.

Table 3.1: Internal reliability of the instrument

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.7	.7	4

In this case the value of Cronbach's Alpha ($\alpha=0.7$) in the Table 4.2 is good. Therefore, the internal reliability of the instrument is good according to Shryack, Krueger, & Kallie (2010), when the value of α is situated between 0.7 and 0.9 ($0.7 \leq \alpha < 0.9$), therefore the instruments are reliable.

3.7.2 Validity

The results in Table 3.2 presents the probability value known as *p-value*. The model is significant when *p* is less than 0.05 or when the model is significant at 5% significant level.

Table 3.2: Significant of the model of instrument of the data collected

Statement		Social factors leading to conflict in waste management	Economic factors leading to conflict in waste management	Environmental factors intervening variable	Conflict associated to waste management
SOCIAL FACTORS LEADING TO CONFLICT IN MANAGING WASTE	Pearson Correlation Sig. (2-tailed)	1			
N		336			
ECONOMIC FACTORS LEADING TO CONFLICT IN MANAGING WASTE	Pearson Correlation Sig. (2-tailed)	.452**	1		
N		336	336		
ENVIRONMENTAL FACTORS INTERVENING VARIABLE	Pearson Correlation Sig. (2-tailed)	.244**	.274**	1	
N		336	336	336	336
CONFLICT ASSOCIATED TO WASTE MANAGEMENT	Pearson Correlation Sig. (2-tailed)	.437**	.378**	.402**	1
N		336	336	336	336

** . Correlation is significant at the 0.01 level (2-tailed).

In the table above of the data collected in Dandora related to conflict in waste management, the $p=0.000$ which is less than 0.05, therefore the instrument used for the data collection are valid according to Table 4.3.

3.8. Data Analysis

The approach of this research was mixed methods in which a combination of quantitative and qualitative methods were applied. The data were analysed in Jun 2019. Quantitative and qualitative methods can be used on the same research questions (Gray, 2009). “The mixed methods have been defined as the collection or analysis of both quantitative and qualitative data in a single research in which the data was collected concurrently or sequentially, are given a priority, and involve the integration of data at one more stages in the process of research” (Creswell et al 2003).

Data obtained from the field must be cleaned, coded, and analyzed (Mugenda & Mugenda, 2003), qualitative data was recorded in different tables according to questions as they were collected and the SPSS package version 21 was used for the quantitative data analysis. Quantitative responses was assigned numbers accordingly to make it easier for processing. The linear regression analysis was used to determine social and economic factors leading to conflict in waste management. The scale was used to measure the variable for the numeric data. For example, from strongly disagree to strongly agree of the respondents. Therefore, the correlation coefficient (r) value was identified. The model summary helped to clarify in which extend the independent variables explain the dependent variable.

The ANOVA was used to show if the significance of the model is at 5% significant level. The data was meaningful as a result of this process; technically speaking, processing implies editing, coding, classification, and tabulation of collected data so that it can be easy for analysis (Kothari, 2013). The descriptive technique was used to organize, summarize and interpret quantitative information. Data is presented in form of frequency tables. Standard deviation is used to determine the dispersion of the different variable.

In qualitative analysis, thematic analysis was used to categorize different topics and determine major themes. For instance, the social aspect of the conflict, the economic aspect of the conflict and the policies role in the conflict. The deductive approach was used to group the data and then look for similarities and differences to code them and put them in major themes. In summary, the process of qualitative data analysis followed five steps such as Step 1: Organization of data; Step 2: Identification of framework; Step 3: Sort data into the framework; Step 4: The use of the framework for descriptive analysis and Step 5: Second order analysis. The most focus was on the information from interviews and open-ended questionnaires.

3.9. Ethical Issues

The researcher took into consideration the required ethical issues that should guide this kind of study. The researcher explained to the respondents why this research is important and seek oral permission from them. The participant remained anonymous throughout the study even for the researcher. The researcher kept confidential information by not putting it in the thesis and also by not exposing that information to public. The consent of the respondents was considered crucial as they were not forced to sign any document. The researcher observed transparency in the method used in the research to report exactly what was collected and what people said. The researcher avoided any physical or psychological harm to the respondents by respecting their freedom and liberty and also the respect of their intellectual and physical ability.

The researcher sought a research permit from NACOSTI and also ethical clearance from Tangaza University College (TUC). The researcher committed himself to honor trust, accountability, mutual respect, and objectivity by avoiding being bias with respondents. Moral and social values, such as social responsibility, human rights, compliance with the law, and public health and safety were considered. The researcher avoided the risk of double victimization of respondents as they relived their experiences. For the security during the data collection, the researcher worked with street boys in rehabilitation center where most of the boys were from Dandora and some teachers were from Dandora. The researcher used the Comboni Missionary rescue center near the dumpsite for most of the interview. In summary, the researcher and his assistant are quiet familiar to Dandora and the assistant is living in Dandora. The researcher has visited many time the dumpsite during his insertion. The researcher is opened to any assistance and suggestion from any experts.

CHAPTER 4

RESULTS

4.0. Introduction

This chapter presents the results of this study obtained through the analysis of the data that were collected during the course of the study. The chapter shows how the research data has been organized, analyzed, interpreted and presented in order to respond to the research objectives.

4.1. Return Rate

Out of 359 questionnaires that were distributed to the respondents, 336 were adequately filled and returned while 23 questionnaires were spoilt and were subsequently discarded. The summary of the response rate is presented in Table 4.1.

Table 4.1: Return rate

Item	Frequency	Percentage
Returned questionnaires	336	93.6%
Unreturned questionnaires	23	6.4%
Total	359	100%

According to Mugenda and Mugenda (2003), a response rate of 50% is adequate for analysis and reporting while a response rate of more than 60%-69% is considered to be good and a response rate above 70% is excellent. The response rate for the current study was 93.6% hence sufficient for analysis on the study findings. Therefore, this study's response rate of 93.6% was excellent.

4.2. Demographic characteristics of the respondents

The demographic characteristics of the respondents that were deemed important to the study's focus of socio-economic factors leading to conflict in waste management included gender, age and educational level. The results on these variables are presented in the following sections.

4.2.1. Gender of respondents

The study sought the gender of the respondents. The results on the question on gender of the respondents is presented in Figure 4.1.

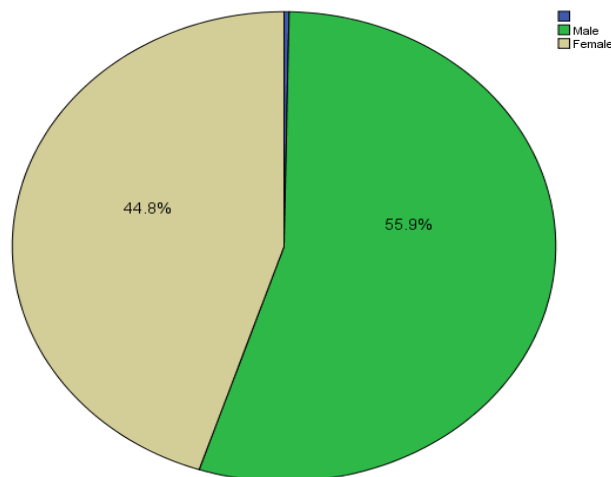


Figure 4.1: Gender of respondents

With regard to the gender of the respondents, the study established that 54.8% were males while 44.9% were females as shown in Figure 4.1. The percentage of males is slightly higher than females because there were more men engaged in waste collection than women.

4.2.2 Age of respondents

The study also sought to establish the age of the respondents. The results of the findings on this question are presented in Figure 4.2.

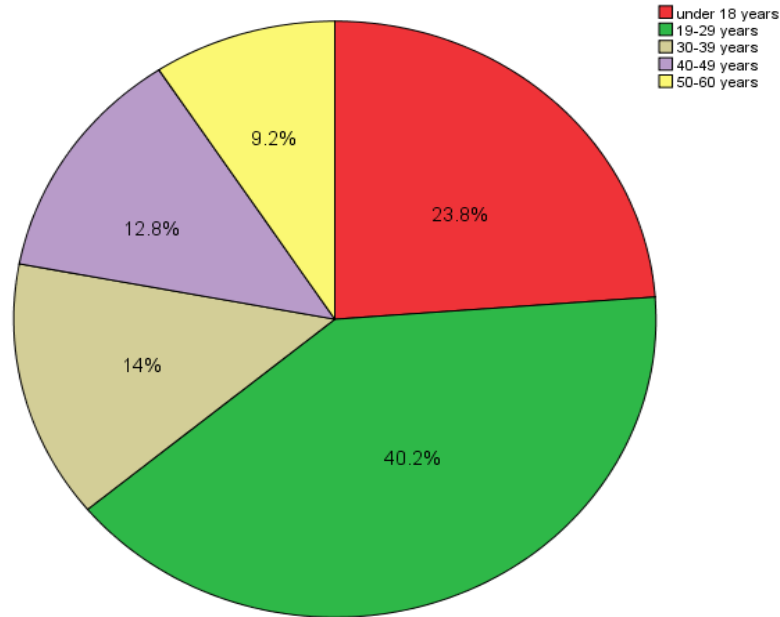


Figure 4.2: Age of respondents

Figure 4.2 shows that most of the respondents (40.2%) were aged between 19 to 29 years. Of the remaining, 23.8% were aged below 18 years, 14.0% were aged between 30-39 years, and 12.8% were of the age range of 40 to 49 and minority 9.2 % were above 50 years old. The age of the respondents helps to understand who are more vulnerable to the conflict surrounding waste disposal at Dandora dumpsite. Poverty is major concern in this perspective where children, young people and the elderly venture in waste collection for survival. Sixty-four percent of the respondents as shown in Figure 4.1 were below 30 years old which means that the youth are more vulnerable and exposed to the conflicts surrounding waste collection in Dandora.

4.2.3 Education level of respondents

The study also sought to establish the level of education of the respondents. The findings on this question are presented in Table 4.2.

Table 4.2: Level of education of respondents

Education level	Frequency	Percent
No formal education	60	17.9
Primary	71	21.1
Valid Secondary	167	49.7
University	38	11.3
Total	336	100.0

The results in Table 4.2 shows that 17.9 % of the respondents did not have any formal education, 21.1% had primary school level of education, 49.7 % had secondary level education, while 11.3% of the respondents had university level education. This means the majority of the respondents involved in the dumping site are not professionally qualified for job market.

4.3. Analysis of the findings per the objectives

Descriptive analysis was used to present data collected from different respondents using research questionnaires, interview guide, and non-participation observation. The data were randomly collected from waste collectors, local community, street boys and the local authority. The analysis of the findings is presented in the following sub-sections according to the study specific objectives.

4.3.1. Social factors leading to conflict in managing solid waste

Social factors are understood as human basic needs such as education, health, food, shelter and security. Table 4.3 shows the findings on the social factors characteristic of the Dandora dumpsite.

Table 4.3: Social factors leading to conflict in waste management

Statements	n	Min.	Max.	Mean	Std. Deviation
Waste collectors Daily life relies only on waste sale business	336	1.00	5.00	4.0893	.91964
Most people in Dandora cannot access a decent job because of their level of education	336	2.00	5.00	4.6101	.66000
The community around dumpsite do not have easy access to good education	336	1.00	5.00	4.4405	.74675
There is high insecurity in the Dumpsite because of poverty	336	1.00	5.00	4.0833	1.07296
The workers are victims of exploitation in Dandora	336	1.00	5.00	4.1815	.95562
Poverty is a major source of conflict in waste management	336	1.00	5.00	3.8958	1.07808
The working condition of waste recycler is not good	336	1.00	5.00	4.1964	.90279
The displacement of the dumping site will make me jobless	336	1.00	5.00	3.9911	1.11566
Solving social problems of Dandora and surrounding communities will solve the problem of conflict in managing waste	336	1.00	5.00	4.4583	.73994

Table 4.3 indicates that most of the respondents agreed that social factors such as poverty, education and waste collectors' exploitation are sources of conflicts in Dandora dumpsite. Most of the respondents agreed that they cannot access a decent job because of their level of education with a mean of 4.6101. The study also sought to establish how poverty contributes to conflict in waste management and the results are presented in Figure 4.3.

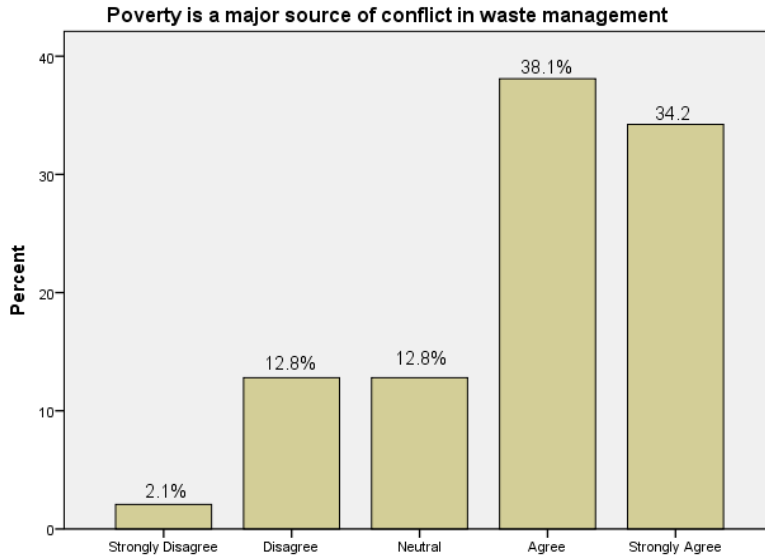


Figure 4.3: Contribution of poverty in waste management conflicts

According to the results in Figure 4.3, most of the respondents agreed that poverty is a leading factor in conflict related to waste management in Dandora. 38.1% of the respondents agreed and 34.2% of the respondents strongly agreed that poverty has an impact in the ongoing conflict in Nairobi in the business of waste management. These findings are confirmed by qualitative data where 70.6% of the respondents agreed that social factors are leading to conflicts in waste management. Figure 4.4 summarizes the social factors in connection with waste collection and conflicts. The roots causes of conflicts are lack of human basic needs which has forced those living around the dumpsite to work as waste collectors in order to earn a living. However, the interest groups also have interest on waste management and want to make maximum profit from waste disposal. Conflicts are therefore ensued due to competition and economic control which causes insecurity, crime, rape and prostitution around the dumpsite.

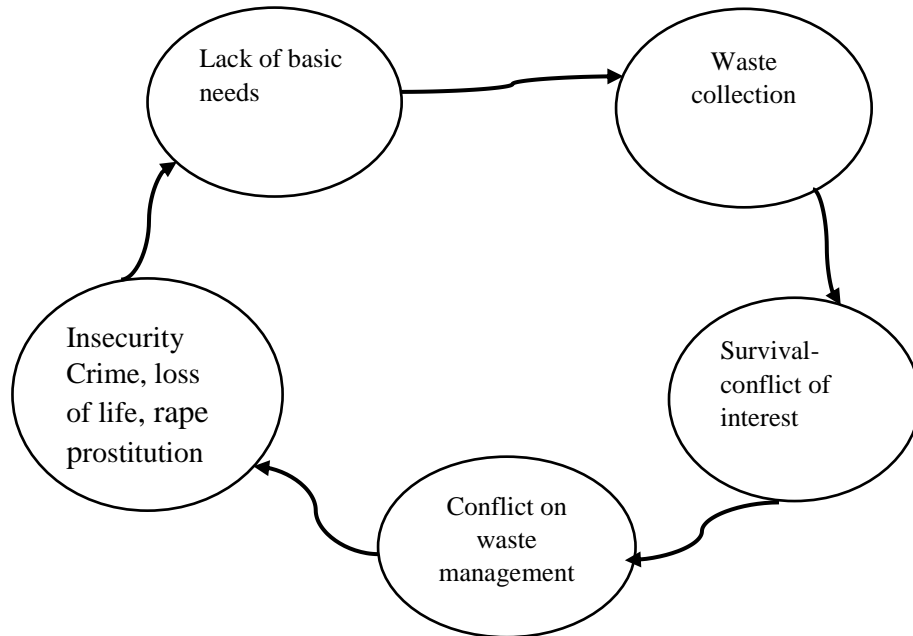


Figure 4.4: Circle of vice of poverty

4.3.2. Economic factors leading to conflict among the stakeholders

The study sought to establish the economic factors that lead to conflict among the stakeholders.

The results on the findings are presented in Table 4.4.

Table 4.4: Economic factors leading to conflicts in waste management

Statements	n	Min.	Max.	Mean	Std. Deviation
There is high competition on waste recycling and selling	336	1.00	5.00	4.0446	.91150
Most families in Dandora depend on waste business	336	1.00	5.00	3.6339	1.15897
Low salaries of waste collectors result in unhappiness and leads to revolt	336	1.00	5.00	3.9167	.98294
There is a conflict of interest in the management of waste	336	1.00	5.00	4.0089	.92555
The waste dealers have economic control over the dump site	336	1.00	5.00	3.9762	1.03348
The displacement of the dumpsite will affect me economically	336	2.00	5.00	4.5565	.66226
The authorities lack financial capacity to manage the waste	336	1.00	5.00	3.4077	1.40695
There is conflict on relocation of the dumping site because of economic interest	336	2.00	5.00	4.5119	.63705
The dumpsite is the source of income for the local community, waste collectors, waste dealers, and local authorities	336	1.00	5.00	4.1696	.99750

As shown in Table 4.4, most of the respondents were neutral with a mean=3.4077 as regards the assumption that authorities lack financial capacity to manage wastes. However, most of the respondents were conscience of their economic situation. Most of the respondents strongly agreed with mean=4.55 that relocating the dumpsite will affect them economically. Moreover, most of the respondents strongly agreed that there is conflict on the relocation of the dumping site because of economic interest with mean=4.51 as shown in Table 4.4.

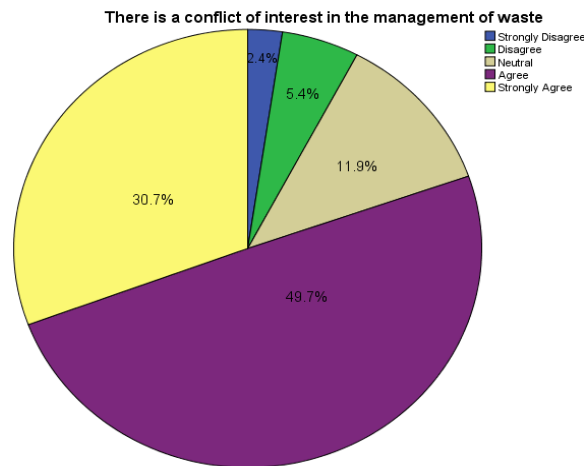


Figure 4.5: Responses on conflict of interest

The results in Figure 4.5 shows that 49.7% of the respondents agreed that there is conflict of interest on waste management. 30.7% of the respondents strongly agreed while 5.4 % disagreed and 2.4% strongly disagreed that there is conflict of interest on waste management. The existence of conflict of interest is obvious because most of families in Dandora depend on waste business for their survival and waste dealers also seek to control the dumpsite. Furthermore, interest groups pay low wages to their workers. Therefore, there is competition on waste’s business as most of the respondents said. All those factors demonstrated that the dumpsite is a source of income for the community of Dandora, interest groups, waste collectors

and street boys. This explains why 63.1% of the respondents strongly agreed that the relocation of the dumpsite will affect them economically, 31.5% agreed, though the 3.3% were neutral and 2.1% disagreed as illustrated in Figure 4.6.

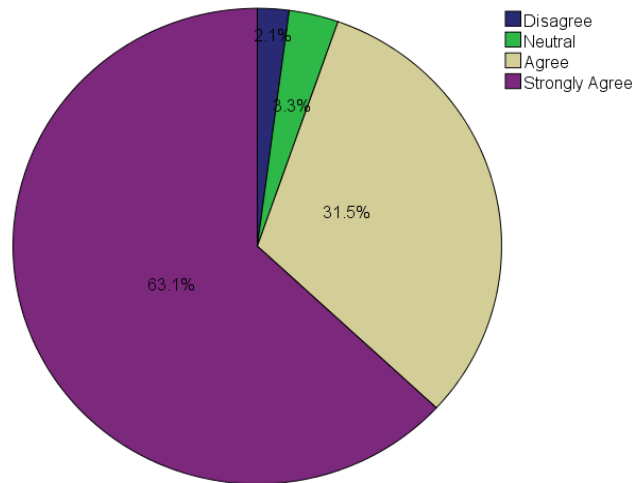


Figure 4.6: Responses on dumpsite relocation

The analysis demonstrated that the relocation of the dumpsite will have economic impact on the people who depend completely on waste business. Therefore, relocating the dumpsite cannot be easy to the authorities in charge or the government despite its environmental effects. For instance, 58% of the respondents strongly agreed that there is conflict on the relocation of the dumpsite as illustrated in Figure 4.7. On the same perspective, 36% of the respondents agreed, 5.1% were neutral and 0.9% of the respondents disagreed on the existence of conflicts on the relocation of the dumpsite.

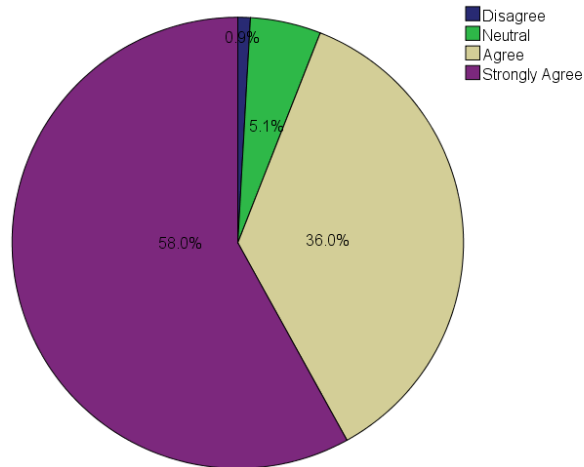


Figure 4.7: Conflict on dumpsite relocation

Among the 40 respondents interviewed, five respondents mentioned that the major factor of conflict in waste management is the economic control. For instance, 60% of the respondents opposed the relocation of the dumpsite due to different reasons such as unemployment, increase of poverty and homelessness because they will not be able to pay their house rents and cater for their basic needs. Other respondents were of the opinion that relocating the dumpsite will lead to an increase in robberies and crime because of being joblessness.

But 37.5 % of the respondents agreed that the dumpsite be relocated from Dandora because of its negative effects on the community and the environment. For example, six respondents said that the dumpsite is a hideout for criminals who kill and commit robberies in the neighborhood. Similarly, eight respondents said that the dumpsite should be relocated because it pollutes Nairobi River which could be used as clean water.

4.3.3. Contribution of policies to conflict in waste management

Table 4.5 shows the data collected from Dandora dumpsite and the community living around the dumpsite related to policies and their implementation. Qualitative data analysis shows

that the conflict is affecting the well-being of the community and waste collectors in Dandora because of either lack policies or their inadequate implementation.

Table 4.5: Responses on policies on waste management

Statements		Min.	Max.	Mean	Std. Deviation
There is a lack of policies on the waste management in Kenya	336	1.00	5.00	3.9643	.94880
The lack of good policies is a great contributor to the conflict in managing waste in Dandora	336	1.00	5.00	4.0565	.84628
Lack of implementation of the policies is affecting the socio-economic aspects of Dandora community	336	1.00	5.00	3.9792	.84792
There is a lack of awareness on the importance of policies in proper waste management	336	1.00	5.00	4.0238	.93011
The policies are not implemented for the benefit of common good	336	1.00	5.00	3.8036	1.10769
There are no policies dealing with waste collectors conditions	336	1.00	5.00	3.5298	1.18410
There are no policies on the redressing the issues of security in the dumpsite and Dandora	336	1.00	5.00	4.6964	.95259
Good policies implementation could contribute to the transformation of the dumpsite in Waste industry center	336	1.00	5.00	4.2708	.82562
Local authorities do not assume their role properly	336	1.00	5.00	3.9107	1.19367

On the nine factors related to policies, most of the respondents agreed that there is no adequate policies and their implementation on the matter of waste management and the protection of people living around the dumpsite. For instance, most of the respondents strongly agreed with a mean of 4.69 that there are no policies addressing the issues of security in the dumpsite. Similarly, most of the respondents agreed that lack of good policies is a great contributor to conflict in the management of wastes in Dandora dumpsite with a mean of 4.05 as indicated in Table 4.5.

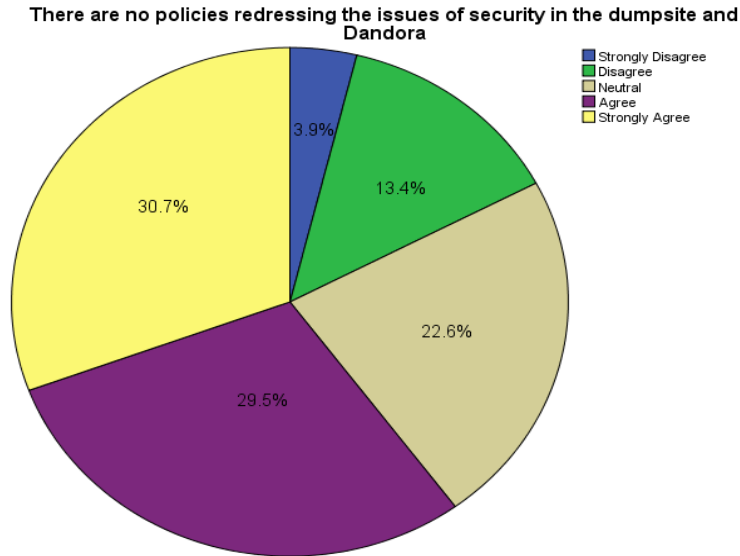


Figure 4.8: Responses on lack of policies on restoring security

Figure 4.8 summarized the statements of the respondents on non-existence of policies addressing the matter of insecurity. Thus, 30.7% of respondent strongly agreed and 29.5% of the respondent agreed that there are no policies dealing with security and the protection of waste collectors. The remaining respondents did not have any idea about the policies on waste management as illustrated on Figure 4.8.

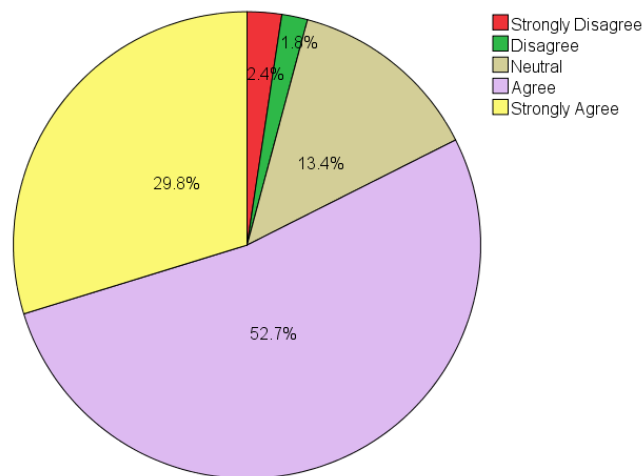


Figure 4.9: Effect of lack of policies

Figure 4.9 shows that lack of policies contributes to conflict of waste management which has negative consequences on the well-being of the society. For example, 52.7% of the respondents agreed that lack of and implementation of the policies leads to conflict in Dandora because everybody acts according to his/her will and capacity. From other respondents, 29.8% strongly agreed that the mismanagement of waste in Nairobi County is linked to lack of good policies dealing with waste industry.

For qualitative data, 70.6% of the respondents agreed while 29.4% disagreed. During the interview, five respondents mentioned that the government is not caring about the waste collectors and the society. Other ten respondents emphasized that the competition on who owns the biggest control of the dumpsite causes conflicts even with the authorities. Therefore, 60% of those interviewed revealed that they do not want the dumpsite to be relocated though it has negative effects on the environment. For example, there are dangerous gases produced from the dumping site which may cause respiratory diseases and other health problem to the people living around. Moreover, respondent six said that there are rape cases that also frequently happen on the site.

4.3.4. Effects of waste management conflicts on people and environment

The results on the effect of waste management conflicts on people and environment are presented in Table 4.6.

Table 4.6: Effects of conflict on waste management

Statements		Min.	Max.	Mean	Std. Deviation
There is a conflict between different stakeholders in waste management	336	1.00	5.00	4.0149	.92224
The local authorities do not have control over the dump site	336	1.00	5.00	3.3601	1.24040
Violence occurs when one part is not honored	336	1.00	5.00	4.0446	.93734
The dumpsite is highly controlled by street boys	336	1.00	5.00	3.7679	1.14591
The dumpsite is insecure and the access to it is risky	336	1.00	5.00	4.0655	1.00826
The conflict is affecting proper waste management	336	1.00	5.00	4.1280	.81680
The dumpsite could be well managed if the conflict is resolved	336	1.00	5.00	4.2054	.80080
The local authorities have a key role in the conflict associated to waste management	336	1.00	5.00	4.0714	1.00489

Most of the respondents disagreed that the local authorities do not have control over the dumpsite with a mean of 3.36 as shown in Table 4.6. Some of the respondent agreed that there is conflict between different stakeholders intervening in waste management with a mean of 4.01. Such a conflict has a negative impact on the waste management as the majority of the respondents agreed with an average mean of 4.13 as indicated in Table 4.9.

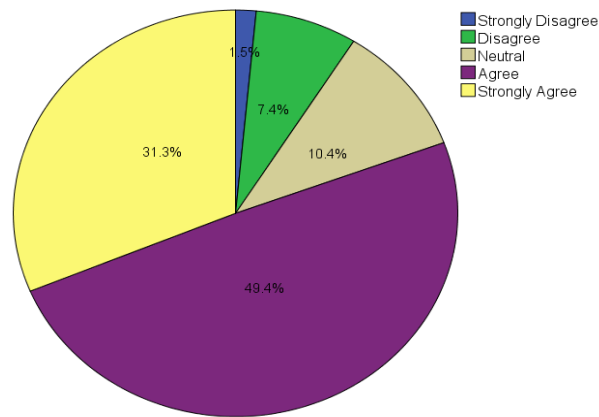


Figure 4.10: Effects and existence of conflicts in waste management

Figure 4.10 shows that 49.4% of the respondents agreed that there is conflict among stakeholders in Dandora dumpsite. The remaining respondents, 31.3%, strongly agreed that conflict exists in waste management. For the qualitative data collected during the interviews, 77.6% of the respondents agreed that conflict on waste management is as a result of extreme poverty (lack of basic needs) and conflict of interest. For instance, if the people who are working in the dumping site were having decent jobs, there would be no conflict at any given time and the high level of poverty has left people with no other choice. Another point is the high level of insecurity because of conflict, and it does not give easy access to the dumpsite and to allow the authority to have control on what is happening on the ground. Table 4.7 summarizes the effects of the Dandora dumpsite on the population living in Dandora.

Table 4.7: List of negative effect on the population

Effects	Description
Bad smell	The mistreatment of garbage led bad smell around the dumpsite
Pollution	There are air pollution, rain water and ground water pollution
Physical injured	The waste scavengers exposed to very dangerous activities and get injured by metal and medical waste
Loss of life	Waste collectors in the dumpsite are very burned by fire up to death and also crime link to conflict of interest
Misplacement of household	There divorce case link to poverty and incapacity to pay rent
Women rape	Many ladies are victim of rape case from gangs who use dumpsite as there strategic place
Prostitution	The lady use prostitution as their last hope for life even children of 6 years old are exposed to sexual activity
Quitting school	The incapacity to pay school fee, and lack of adequate institution for child protection and most of children are forced to go on the dumpsite and street for survival.

4.4. Hypotheses

The hypothesis and null hypothesis of this study are:

HO₁: There is no significant relationship between social factors and conflict among different stakeholders in solid waste management in Dandora Nairobi County;

HO₂: There is no a significant relationship between economic factors and conflict among different stakeholders in solid waste management in Dandora Nairobi County;

Table 4.8 presents the values of correlation between different factors and their significant.

Table 4.8: Correlation of different factors related to waste management

Statements		Correlations			
		Social factors leading to conflict	Economic factors leading to conflict	Environmental factors intervening variable	Conflict associated to waste management
Social factors leading to conflict	Pearson Correlation	1	.452**	.244**	.437**
	Sig. (2-tailed)		.000	.000	.000
	N	336	336	336	336
Economic factors leading to conflict	Pearson Correlation	.452**	1	.274**	.378**
	Sig. (2-tailed)	.000		.000	.000
	N	336	336	336	336
Environmental factors intervening variable	Pearson Correlation	.244**	.274**	1	.402**
	Sig. (2-tailed)	.000	.000		.000
	N	336	336	336	336
Conflict associated to waste management	Pearson Correlation	.437**	.378**	.402**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	336	336	336	336

** . Correlation is significant at the 0.01 level (2-tailed).

To test the hypothesis, the researcher used the method of Pearson Correlation (r) and significance level (p -value) calculated using SPSS version 21.

The first null hypothesis was carried out to determine whether a significant relationship do not exist between social factors and conflict among stakeholders in waste management in Dandora, Nairobi County. The test showed that $r = 0.437$, meaning that there is moderate relationship and Sig. (2-tailed), the p value is 0.000, which is less than 0.05, meaning that the relationship is significant. Therefore, the null hypothesis HO_1 is rejected. We conclude that there is a significant relationship between social factors and conflict among different stakeholders in Dandora dumping site.

The second null hypothesis was carried out to determine whether a significant relationship do not exist between economic factors and conflict among stakeholders in waste management in Dandora, Nairobi County. The test showed $r = 0.378$ which means that there is a weak relationship and Sig. (2-tailed), the p value is 0.000 which is less than 0.05, meaning the relationship is significant. Therefore, the null hypothesis HO_2 is rejected. We conclude that there is a significant relationship between economic factors and conflict among different stakeholders. Table 4.9 shows the results on the model summary between the independent variables are explaining the dependent variable.

Table 4.9: Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.553 ^a	.305	.299	.50969

The R value is 0.553 which belongs to the interval of 0.4 to 0.6. This showed that there is moderate relationship between the independent variables (social, economic and environmental

factors) and the dependent variable (conflict between different stakeholders in waste management in Dandora Nairobi County. *R* Square is $0.305 \times 100 = 30.5\%$. Therefore, we conclude that the conceptual framework is explained at 30.5% using the quantitative data. Hence, our conceptual framework is a weak model. The rest of 69.5% were explained by qualitative data discovered during the interview such as lack of job opportunities, economic control, poor waste management and unwillingness of the authority to intervene in the conflict, corruption, lack of shelter and high taxation. Table 4.10 gives the information on the significance of the model.

Table 4.10: ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
	Regression	37.935	3	12.645	48.675	.000 ^b
1	Residual	86.247	332	.260		
	Total	124.182	335			

The significance of the model shows that *p* value is 0.000 which is less than 0.05. Therefore, we conclude that the conceptual framework is significant. This model can be applied in any other city in Kenya in the perspective of conflicts in waste management.

4.5. Non-participant observation in the dumpsite

During data collection, the researcher took seven days to observe the activities in the dumpsite at Dandora. There were different facts which were observed on the site. First, the researcher discovered that there are a minimum of 150 trucks offloading wastes from different areas of Nairobi and maximum of 300 trucks per day. The observation concerns the entrance and entrance fees where the researcher learned that the entrance of the dumpsite is very dirty and the

access is not easy and it is insecure to a new person to the dumpsite. However, the City County of Nairobi is in charge of collecting the entrance fees.

The researcher also observed that the waste collectors were in charge of offloading wastes. Other observations were that every stakeholder wants to own the dumpsite or some specific materials such as steel, plastics so they can control the business and make more money. On this observation, the researcher was able to conclude that taking the control of the dumpsite or over some material is a source of conflict among stakeholders.

CHAPTER 5

DISCUSSIONS

5.0. Introduction

This chapter presents the discussion of the research results as well as a theological reflection on the aforementioned results following the research questions.

5.1. Overview of the discussion

In the perspective of this research and data presented above, there is a clear fact that social and economic factors are the leading factors of conflict in waste management in Dandora dumpsite. This finding corroborates with the argument of Koross, (2013) that in Kenya, waste management has become a lucrative business which is not without its consequences. The research also showed that among the respondents, 23.8% as presented in Figure 4.2, are the children under 18 years who are working on the dumpsite yet they supposed to be at school.

In the same perspective, 88.7% of the respondents dropped from school at secondary school level or below to work at the dumpsite. Therefore, the dumpsite is influencing the education of the children living in Dandora and vice versa which is contradicting Sustainable Development Goal 4 which states that there should be an inclusive and equitable quality education for all (Kariuki, Iravo & Kihoro, 2015).

5.1.1. Social factors leading to conflicts among stakeholders managing solid waste

As presented on Table 4.3, it is obvious that poverty is a key factor which is linked to others factors such as: education, insecurity, health, food, and shelter. Most of the respondents agreed that their daily life depends on the dumpsite because they cannot access decent jobs since they are not well educated. For instance, five respondents asserted that most of boys ignore

school and start hiding in the dumpsite and due to poverty those street boys find themselves there in the dumpsite to seek jobs. This was confirmed by the argument of Gumbihi (2013) that the street boys control the dumpsite as army.

Similarly, nine respondents argued that “if the people living around the dumping site were rich the problem of waste management would not be an issue” and they continued emphasizing that “poverty mostly causes people to work in dumpsite and start conflicts with the management”. Therefore, the dumpsite seemed to be the last hope of the community living around Dandora. If action has to be taken, the first one should be to solve the problem of extreme poverty which the researcher realized affects education and pushes both children and adults alike to the dumpsite.

5.1.2. Economic factors leading to conflict among stakeholders managing solid waste

The major economic factor leading to conflict in Dandora is conflict of interest which is basically self-interest and some respondents considered it more dangerous than extreme poverty. On this statement, Pkemoi, (2014) asserted that the street boys were separated in different group and fighting against each other to have the economic control of the dumpsite. During the interviews and non-participant observation, researcher discovered that behind those groups were different interest group called “cartels”.

On this note, respondent 40 mentioned that the issue of extreme poverty is partially a cause of conflict but conflict of interest contributes massively to the cause of conflict among stakeholders in waste management. Conflict of interest is the major cause of conflict in waste management since the parties involved in the conflict have selfish desires. The conflict of interest as leading factor to conflict in waste management is a complex problem to understand and to let others to understand because there are hidden stakeholders who are not easy to access.

Twelve respondents stated that there are cartels who own a lot of money and are able to employ security to protect their interests at the dumpsite. This was confirmed by a waste collector who said that: *“The authorities do not have control in waste management because they are controlled by highest plotters. Everyone working in the dumpsite including the authorities want their piece of cake. Many interested parties want to manage the dumpsite and have economic control”*.

Other economic factors such as low wages for waste collectors, dependency of the local community on the dumpsite, and bad working conditions are linked to conflict of interest where interest group wants to serve only their interests by abusing the rights of workers and the community. Another critical factor is the relocation of the dumpsite yet it is the main source of income and thousands of people rely on the wastes for income. So if the dumpsite was to be relocated, further conflicts would emerge. Therefore, the researcher agreed on assertion that *“numerous conflicts that have been linked to inefficiency in municipal solid waste management in cities of developing countries”* (Alexander, 2010).

5.1.3. Role of policies on the conflict of waste management

The lack of environmental policies addressing waste management in Dandora dumpsite is evident as 80.7% of the respondents agreed that the lack of policies and their implementation is contributing to conflicts in waste management. For example, there are dangerous gases produced from the dumping site which may cause respiratory diseases to the people living around the area. Moreover, the community is segregated into different groups according to their interests in the dumping site. For instance, respondent 111 said that *“one group can be jealous with another group because they have little money and their partners have a lot of money”*. This can bring conflict and lead to fight or even killing of one another. This happens because there are no rule and regulations to monitor and evaluate the dumpsite and its activities.”

As a result of such conflicts, the community has witnessed insecurity, competition, and lack of communication between stakeholders and no one can access easily the dumpsite to know what is happening. This favored the gangs who are hiding there to plan robberies and murders. Other major consequences of the conflict are rape cases in the dumpsite and the surrounding areas of Dandora. This therefore, ought to be addressed from a community policing perspective in order to engage the local community on the possible solutions to the menace which has been created by the dumpsite.

5.1.4. Impact of conflicts of waste management on people and environment

Fifteen respondents stated that poverty has forced many people to engage in waste collection for survival. This has resulted in loss of life, rape, prostitution and physical injuries. These effects are worsened by the release of dangerous toxins to the environment. Alliance, (2015) declared that there is link between unregulated dumping and negative health outcomes in neighboring communities.

Moreover, waste collectors and the community also lack awareness on the negative impacts of Dandora dumpsite. For instance, respondent 98 stated that: “as we know most people in Dandora are less educated and most of them do not know harmful effects of the hazardous gases on their health. The community thus should be educated on the importance of clean and good environment”. The conflict in Dandora dumpsite cannot happen without affecting waste management and environmental cleanness. Thus, there is a kind of “laissez-faire” from different stakeholders intervening in waste management. In this perspective, the quantity of wastes are daily increasing and their management is decreasing. The pollution of Nairobi River is affecting Indian Ocean and air pollution is heavily affecting the community around dumpsite.

But a respondent blamed the government for the Dandora dumpsite argued that “*the local authority and the government in general have not taken any initiative to prevent this crisis to its citizen, this should be concern of the governor of this region who should be on the first line to bring to an end this pollution in the region*”. The researcher supports the statement of the respondent because Urban Africa Risks Knowledge (2016) stressed that the major problem is the government which does not have clear responsibility on the matter of waste and conflict management.

5.1.5. Hypotheses Tests

As presented in Chapter 4 on the hypotheses, the data collected displayed that the null H_{O1} and H_{O2} were rejected which means that the social and economic factors are the leading factors to conflicts in waste management. And the lack of environmental policies on waste management is also part of the contributing factors to conflict in managing solid waste in Dandora dumpsite. Unfortunately, there are no researches documenting socio-economic factors as caused of conflicts in waste management. Only Yukalang, Clarke and Ross (2017) stated that social-cultural, technical, financial, organizational, and legal-political barriers and population growth are barriers to effective municipal solid waste management in a rapidly urbanizing area in Thailand. Therefore, this research concludes that socio-economic factors are the root causes of conflicts on waste management and lack of policies is contributing factor.

Analysis showed that social factors, economical factors and environmental policies are contributes to 30.5% of the conflicts on waste management in Dandora. The remaining 69.5% is explained by using qualitative data (interview guide and non-participant observation) where the research discovered others factors leading to conflict such as: corruption, lack of job

opportunities, and weakness of authorities, social imbalance, carelessness of some authorities, and communication gap, and dependency of the community on waste business.

5.2. Limitations of the Study

The research process was hampered by various issues such as non-cooperation from the armed groups, interest groups and also reluctance on the part of the county authorities. Similarly, language barrier between the researcher and the respondents also played out during the research process. Furthermore, access to the right information was limited because the local community were afraid to freely express their opinion for fear of the cartels and local government.

To overcome these limitations, the researcher avoided the collusion between different stakeholders by accessing each one separately. The researcher used participatory method to help the local community to understand the purposes of the research and its contribution to their life. For the language barriers, the researcher used two field assistants who were familiar with the local language and the geography of the area under study. The use of street boys who are familiar with the dumpsite was beneficial to avoid possible attack and to easily access to the dumpsite.

5.3. Theological reflection

Theological reflection is a technique of linking one's experience through the light of faith and wisdom that leads people or groups to make decisions or discern a response to a life situation as explained in the Methodology of Social Ministry (Parise, 2013, 134). In this theological reflection, the researcher uses Faith, Tradition and Experience to understand the phenomenon of conflict in Dandora dumpsite. Two Holy Books are used: The Quran and The Bible.

5.3.1. Theological reflection on socio-economic factors leading to conflict

This section focuses on some specific social factors such as extreme poverty (lack of human basic needs: food, security, education, health, and shelter) and economic factors such as economic control and corruption.

The understanding of poverty can be interpreted from the perspective that God cares about our attitudes and actions regarding the hungry, the oppressed, the widows, the strangers, and the orphans (Exodus 22:22). Within this perspective, the Social Teachings of the Church, likewise, admonishes for a preferential option for the poor as the basis of Christian faith. In the context of the conflict in Dandora, the poor are the most vulnerable who are exposed to all kinds of problems. There are hundreds of children and orphans in Dandora struggling without human basic needs specifically education.

Marshall and Mui (2016) rightly asserted that “an image of a suffering child symbolizes the persuasive need to right the injustices in the world. The welfare of children is critical for a society’s future, and there are long traditions of focusing on those who are most at risk and least able to fend for themselves.” Furthermore, the holy Quran states that: *"If the borrower is in difficulty, grant him time till it is easy for him to repay. But if ye remit it by way of assistance, that is best for you if you only knew."* (Qur'an 2:280). Caring for the children in need is a universal phenomenon and the epitome of all religious traditions.

The second point is corruption which is a key factor of conflict in Dandora. 25 percent of the respondents pointed out that corruption is a factor in Dandora dumpsite. For Wrong (2014), everyone is corrupt in Kenya, even grandmothers. This is affecting considerably the development of the country. In the Bible, corruption is one of the effects of sin that resulted from the fall of humankind. Scriptures note that “you must realize, however, that in the last days difficult times

will come. People will be lovers of themselves, lovers of money, boastful, arrogant, abusive, and disobedient to their parents, ungrateful, unholy, unfeeling, uncooperative, slanderous, degenerate, brutal, and hateful of what is moral, conspirators, irresponsible, conceited, and lovers of pleasure rather than lovers of God. They will hold to a superficial form of divinity but deny its power. Stay away from such people” (2 Tim. 3:1-5). This has been considered in this present study as the very face of corruption in waste management where interest groups are only focused on their self-interests and it is affecting and fueling conflict in waste management. According to Hope (2014),

“The culture of corruption has grown roots in Kenyan humanity at great and become endemic. Institutions, which were intended for the regulation of the relationships between citizens and the State, are being used instead for the personal enrichment of public officials (politicians and bureaucrats) and further corrupt private agents (persons, groups, and businesses)”.

Yet, the government’s 2030 agenda states that “By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value” (Kibui, Mugo, Nyaga, Ngesu, Mwaniki, & Mwaniki, 2015). But, how can such an agenda be realized against the prevailing corruption in the country? This present study posits that eradication of corruption will lead to sustainable waste management in Dandora and the sustainable development of Kenyans.

5.3.2. Theological reflection on the effects of conflicts

The deterioration of the environment affects the most vulnerable people in the society. For Pope Francis (2015), “both everyday experience and scientific research show that the gravest effects of all attacks on the environment are suffered by the poorest.” In the context of Dandora, the most vulnerable are children, street boys and women who are more exposed and victims of conflicts and pollution. In this perspective of vulnerability, the Holy Quran mentioned that "And

if anyone saved a life, it would be as if he saved the life of the whole people" (Qur'an 5:32). This is a great invitation to all stakeholder and government to consider not only their self-interests but the situation of the extreme poverty which make thousands of children to live in the street. This could be a failure to Sustainable Development Goal 1 and 8, respectively. Hence as mentioned by Loewe and Rippin (2015), that end poverty in all its forms everywhere and promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.

The issue of waste management as was revealed by the respondents in Dandora dumpsite. Short term and long terms solutions or actions must be taken to protect the environment from adverse climatic changes. Pope Francis (2015) rightly stressed that "account must also be taken of the pollution produced by residue, including dangerous waste present in different areas. For instance, hundreds of millions of tons of waste are produced, highly toxic and radioactive, from homes and businesses, from construction and demolition locations, from clinical, electronic and industrial sources worldwide". In this regard, the researcher concluded his analysis with the statement of the Prophet Muhammad: "The earth is green and sweet and verily Allah has installed you as trustees in it to see how you act." (Ali, 2011).

CHAPTER 6

CONCLUSION

6.0. Introduction

This chapter presents the key findings, action plan, general recommendation, and policy recommendations and advocacy for socio-economic and environmental justice.

6.1. Key findings

Table 6.1 provides a summary of the key findings after data collection in Dandora dumpsite.

Table 6.1: Summary of the key Findings

Findings	Descriptions
Extreme poverty	Incapable to meet human basic needs
Lack of education	No formal education and incapacity to fulfill job requirement
Lack of adequate shelter	No proper housing and sanitation (flying toilets)
Crime	Randomly killing of local community member
Conflict of interest and Competition	The control and ownership of waste business and economic control
Lack of Job opportunities	Because of lack of education it is not easy to access decent job
Corruption	It is the key problem of the circle of vice
Weakness of local authority	Lack of will to intervene in the conflict
Insecurity	Key element of controlling the dumpsite
Women rape	Women around the dumpsite are victim of rape cases
Lack of policies	There is no clear policies dealing with waste management
Lack of awareness	People are not conscious about the effect of dumpsite

6.2. Action plan

In the context of Dandora where thousands of population are victims of mismanagement of wastes and corruption, there is an urgent need to take action because the problem is local but

its effects are global. This study draws on an action plane both for short term solution and long term solution using public participation approach and social justice advocacy.

6.2.1. Action plan on conflict resolution

Using social transformation perspective, the researcher in the specific case of the conflict in Dandora on the waste management, presents an action plan focused on root causes of the problem which is socio-economic factors as presented on Table 6.1. The conflict Map below is drawn from data collected from the respondents in Dandora concerning conflict on waste management.

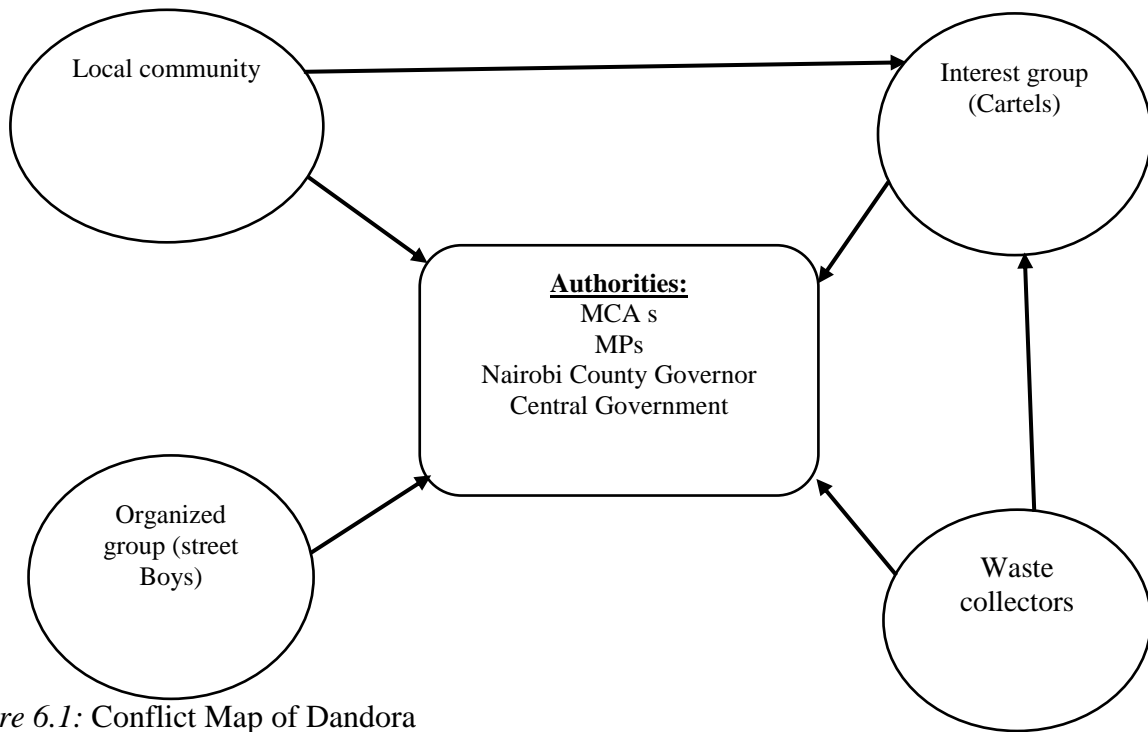


Figure 6.1: Conflict Map of Dandora

Key:

The arrows are the direction of accusation from one group to another one

The analysis of conflict on waste management comes to the conclusion that it is purely a conflict of interest. Therefore, the best approach on conflict resolution, in this specific context, is finding win-win strategy where the local community, organized groups, governmental authorities, interest groups, and waste collectors should initiate dialogue to end the conflicts. Moreover, governmental authorities should provide security in the dumpsite for easy access. The local authorities of Dandora should take responsibility to improve the living condition to solve the problem of social imbalance, and the Nairobi City County should take full control of the dumpsite. All waste collectors' trucks should be under one company to avoid high competition. This means it should have only one company in whole Nairobi collecting wastes through the supervision of the government.

The action plan on the socio-economic aspect is very important. First, the popular education on the perspective of Danilo's approach where there is integration of adult education and long term learning (Milana, Webb, Holford, Waller, & Jarvis, 2017) is merited. The government should provide free education for poor children and street children and orphans to reduce ignorance and give them more access to decent job opportunities. Mandela (2014) rightly claimed that education is the most powerful weapon which you use to change the world.

Second, there is need to formulate viable plans for the provision of decent housing system for low income families living around the dumpsite in Dandora, Embakassi constituency. This plan ought to be coupled by the construction of rehabilitation and rescue centers for the street children so that it can reduce the number of street children and increase literacy in Dandora community.

The third point on action plan is the installation of a permanent security system on the dumpsite. The government, in collaboration with local authority, should provide security in the

dumpsite to protect the local community and people who are working in the dumpsite. For example, the criminal gangs will not have the opportunity to hide there and prepare their targets of attack and also it will reduce crime and rape in the dumpsite and in the surrounding community.

The last point is raising public awareness which can be achieved through the intervention of religious leaders and social activists to solve the problem of social injustice and provide environmental security. This can be possible by the use of media, local radio stations, public forums, bazar, churches, training, workshops and introduction of environmental program in the curriculum in Kenya. The communities should organize non-violent demonstrations demanding their rights, challenging the duty bearers who were supposed to deliver services. This is the model of Wangari Maathai on public non-violent participation (Ndlovu & Mutale, 2013). Therefore, the people should break the code of silence and press charges against major politicians in the government.

6.2.2. Action plan on relocation of the dumpsite and waste technology

Concerning dumpsite relocation, it is important to note that even if the government relocates the dumpsite to a new place and without a proper management, it will have similar problems after few years in operation. As the researcher understood during data collection and analysis, the dumpsite's relocation is one of the major sources of conflicts. Most of the population in the Dandora depend on dumpsite for their survival amidst its negative consequences. But removing the dumpsite will precipitate to double consequences such as increasing the level of poverty in Dandora community and increasing the number of gangs and criminals. For example, 60% of the respondents mentioned that if the dumpsite has to be relocated to another place by the

authorities, poverty will increase due to joblessness or else the waste dealers have to be given other jobs by the government that will improve their living standards.

Therefore, the researcher is of the opinion that there is no need to relocate the dumpsite but to device a viable system of waste management. The government should transform the dumping site to a waste industry which will create jobs opportunities for the youth. This means the use of modern technologies and professionalism in waste management. There is a need to establish quality machines with sufficient technology to recycle and transform the wastes into construction materials and electricity like in Japan and china. Create a disposal facility to diminish secondary pollution from the city's dumps Implement an improved collection and transportation plan that incorporates private sector and civil society groups. And the transfer of the compost manure from the dumpsite to agricultural use and can help to transform arid zone of Kenya to fertile soil. Therefore, the government should allocate special budget for the waste management.

6.2.3. Action plan on environmental policies

There is need of having clear policies addressing issues of waste management and waste collectors. Therefore, the government should formulate policies on how to recycle wastes, how to treat wastes and who is qualified to collect wastes and the quality of trucks to collect wastes. And also specific policies for the dumpsite of Dandora and their implementation should be subjected to public participation and awareness.

6.3. SWOT Analysis

Table 6.2 summarizes the strengths, weakness, opportunities and the threats of the whole advocacy framework and its implementation.

Table 6.2: Summary of SWOT analysis

Strengths	Weaknesses
<ul style="list-style-type: none">• Non-partisan• Advocacy Skills• Passion• Technology knowledge	<ul style="list-style-type: none">• Financial constraints• Political implication• Time limit• Non-citizen
Opportunities	Threats
<ul style="list-style-type: none">• Availability of data collected• Availability of religious structure• Availability of other researches done• Partnership with available institution	<ul style="list-style-type: none">• Insecurity• Lack of awareness to the local community• Collusion of stakeholders

The researcher used the SWOT analysis on Table 6.2 above to explain the strengths, weakness, opportunities and treats of the advocacy and how it can be applied by the researcher.

On the strengths, the researcher is neutral of any affiliation to the legislature, the residents or the executive. This serves as a strength since it gives the team an open and unbiased approach to any of the stakeholders without any special interest that may favour another party. The researcher viewed this as a step ahead in getting the stakeholders' audience. The researcher has a good knowledge of advocacy and passion. This will serve as an advantage in coming up with an advocacy strategy and will help in identification of the key influencers and the eventual implementation of measures that will be used to bring transformation.

On weaknesses, financial constraint is a weak point for the researcher because of financial requirements to implement the advocacy plan. Moreover, political implication can complicate the process of advocacy since the researcher is not a citizen of Kenya. The time

available for the development and roll out of the advocacy plan is also limited. This calls for extra resources so as to increase the man-hours through additional resources.

Concerning opportunities, the researcher expects to benefit from the following areas as the availability of data on the health effects of the dumpsite from the health records in the medical facilities that are available in the residential areas next to the dumpsite and the data collected by this research on conflict and the role of stakeholders. This is a good opportunity that can be used to present a case of environmental hazard to the community.

For threats, the insecurity in the dumpsite is critical because it is controlled by armed groups empowered by interest group 'cartels'. They have full control of access to the dumpsite. This poses a direct danger to anyone who intends to enter in the dumpsite. The cartels have taken advantage of this by allowing the communities to forage for the waste dumped in order to get whatever they can resell. This has made the community friendlier to the cartels and hostile to whoever proposes the move to relocate the dumpsite from its present location. All these can complicate any effort to implement any policy on the dumpsite.

6.4. General conclusion

The population of Dandora is estimated at 110,164 which is mostly exposed to environmental hazards associated with wastes and pollution at the dumpsite due to conflict among stakeholders in Dandora. Moreover, lack of policies and their implementation contributes to the problem of conflict in waste management as confirmed in data analysis. The null hypotheses were rejected and confirmed that extreme poverty, lack of education, corruption, lack of decent job opportunities, conflict of interest, and economic control are the leading factors to conflict in waste management in Dandora dumpsite, Embakassi constituency, Nairobi County, Kenya.

Among the leading factors, the corruption is affecting the whole society of Kenya and specifically the most vulnerable community of Dandora which, not only is facing extreme poverty but also high level of air pollution affecting their health. The corruption is at the center of others key findings. Therefore, a clear methodology and techniques of ending corruption in the sector of waste management in Nairobi and others major city of Kenya is long overdue.

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APPENDICES

Appendix 1: Research questionnaires

Dear participant, my name is Kamala Piyabalo, a Masters' student at Tangaza University College. I am conducting a research titled: *analysis of factors leading to conflict in managing solid waste in Kenya's urban centers: with Dandora as a case study*. This questionnaire is part of the above mentioned academic research for Master of Arts in Social Transformation, with a specialization in Sustainable Development. The information you provide will be anonymous, confidential and shall not be divulged to anybody. It will be used for academic purposes only. Please fill in this questionnaire about your experiences on the conflict in waste management.

Thank you for your kind participation and collaboration.

SECTION ONE: General Information

1. Kindly indicate (✓) your gender

Male

Female

2. Kindly indicate (✓) your age bracket.

Under 18 years

40- 49 Years

19-29 Years

50- 60 Years

30-39 Years

3. Specify (✓) your highest level of education please

No formal education

Primary

Secondary

University

SECTION TWO:

A) Social statement

Please specify (✓) your level of agreement with the information provided hereunder with the effect of social factors in the conflict on waste management. Use SA = Strongly Agree, A = Agree, N = Neutral, D = Disagree, and SD = Strongly Disagree.

Social impact on conflict in managing waste	SA	A	N	D	SD
1. My Daily life relies only on waste sale business					
2. I cannot access a decent job because of my level of education					
3. I do not have access to education, therefore, I have to work on the dumpsite to survive					
4. There is high insecurity in the Dumpsite because of poverty					
5. The workers in the Dumpsite are victims of the accident					
6. The workers are victims of exploitation in Dandora					
7. Poverty is a major source of conflict in waste management					
8. The working condition of waste recycler is not good					
9. There is a lack of decent materials on the process of waste collecting					
10. There are health issues in the process of waste collecting					
11. The displacement of the dumping site will make me jobless					
12. Solving social problems of Dandora and surrounding communities will solve the problem of conflict in managing waste					

The Scale: 1=SD; 2=D; 3=Neutral; 4=A; 5=SA

Social factors are the source of conflicts in the waste management in Dandora.

Yes No

Justify.....

B) Economic statement

Please specify (✓) your level of agreement with the information provided hereunder the economic factors leading to conflict in managing waste. Use SA = Strongly Agree, A = Agree, N = Neutral, D = Disagree, and SD = Strongly Disagree.

Economic factors leading to conflict in waste management	SA	A	N	D	SD
1. There is high competition on waste recycling and selling					
2. Most families in Dandora depend on waste business					
3. Low salaries of waste collectors result in unhappiness					
4. There is a conflict of interest in the management of waste					
5. The waste dealers have economic control over the dump site					
6. The displacement of the dumpsite will affect me economically					
7. The local authorities lack finance to manage the waste					
8. The relocation of dumpsite will economically affect different actors					
9. There is economic interest in the conflict of displacement of the dumping site					
10. The dumpsite is the source of income for the local community, waste collectors, waste dealers, and local authorities					

Economic factors are the source of conflict in waste management in Dandora.

Yes No

Justify.....

C) Environmental policies statement

Please indicate (✓) your level of agreement with the information provided hereunder with the Environmental policies factor intervening in the conflict on waste management. Use SA = Strongly Agree, A = Agree, N = Neutral, D = Disagree, and SD = Strongly Disagree.

Poor polices intervene in the conflict of waste management	SA	A	N	D	SD
1. There is a lack of policies on the waste management					
2. The lack of good policies is a great contributor to the conflict in managing waste in Dandora					
3. Lack of implementation of the policies is affecting the socio-economic aspects of Dandora community					
4. There is a lack of awareness on the importance of policies in proper waste management					
5. Some individual have control over the policies implementation					
6. The policies are not implemented for the benefit of common good					
7. There are no policies in the process of the waste collection recycling and treatment					
8. There are no policies dealing with waste collectors conditions					
9. There are no policies on the redressing the issues of security in the dumpsite and Dandora					
10. The policies do not address the problems of air and water pollution					
11. Good policies implementation could contribute to the transformation of the dumpsite in Waste industry center					
12. Local authorities do not assume their role properly					

Environmental policy factors are intervening factors of the source of conflict in the waste management in Dandora.

Yes No

Justify.....

D) Conflict associated to waste management

Please indicate (✓) your level of agreement with the information provided hereunder how Conflict associated to waste management is affected by different factors. Use SA = Strongly Agree, A = Agree, N = Neutral, D = Disagree, and SD = Strongly Disagree.

Statement on the existence of conflict in waste management	SA	A	N	D	SD
1. There is a conflict between different stakeholders in waste management					
2. There is a misunderstanding between a waste recycler and waste buyers					
3. There are sometimes clashes between waste dealers and local authorities					
4. The local authorities do not have control over the dump site					
5. Violence occurs when one part is not honored					
6. The dumpsite is highly controlled by street boys					
7. The dumpsite is insecure and the access to it is risky					
8. The conflict is affecting proper waste management					
9. There is pollution because of improper waste management					
10. The dumpsite could be well managed if the conflict is resolved					
11. The local authorities have a key role in the conflict associated to waste management					
12. The waste buyers are influencing the waste management					

The conflict on the waste management are as a result of extreme poverty and conflict of interest

Yes No

Justify.....

5: Interview Questionnaires Guide

Dear participant, my name is Kamala Piyabalo, a Masters' student at Tangaza University College. I am conducting a research titled: *analysis of factors leading to conflict in managing solid waste in Kenya's urban centers: with Dandora as a case study*. This questionnaire is part of the above mentioned academic research for Master of Arts in Social Transformation, with the specialization in Sustainable Development. The information you provide will be anonymous, confidential and shall not be divulged to anybody. It will be used for academic purpose only

1. Do you think poverty has contributed to the conflict in managing the dumpsite?

2. Lack of education blocks access to jobs for member of Dandora community.

Yes No I do not know

Justify _____

3. How could the conflict in managing waste be solved?

4. What is your suggestion on the transformation of the dumping site?

5. Do you agree that the Dumpsite should be relocated?

Yes No I don't know

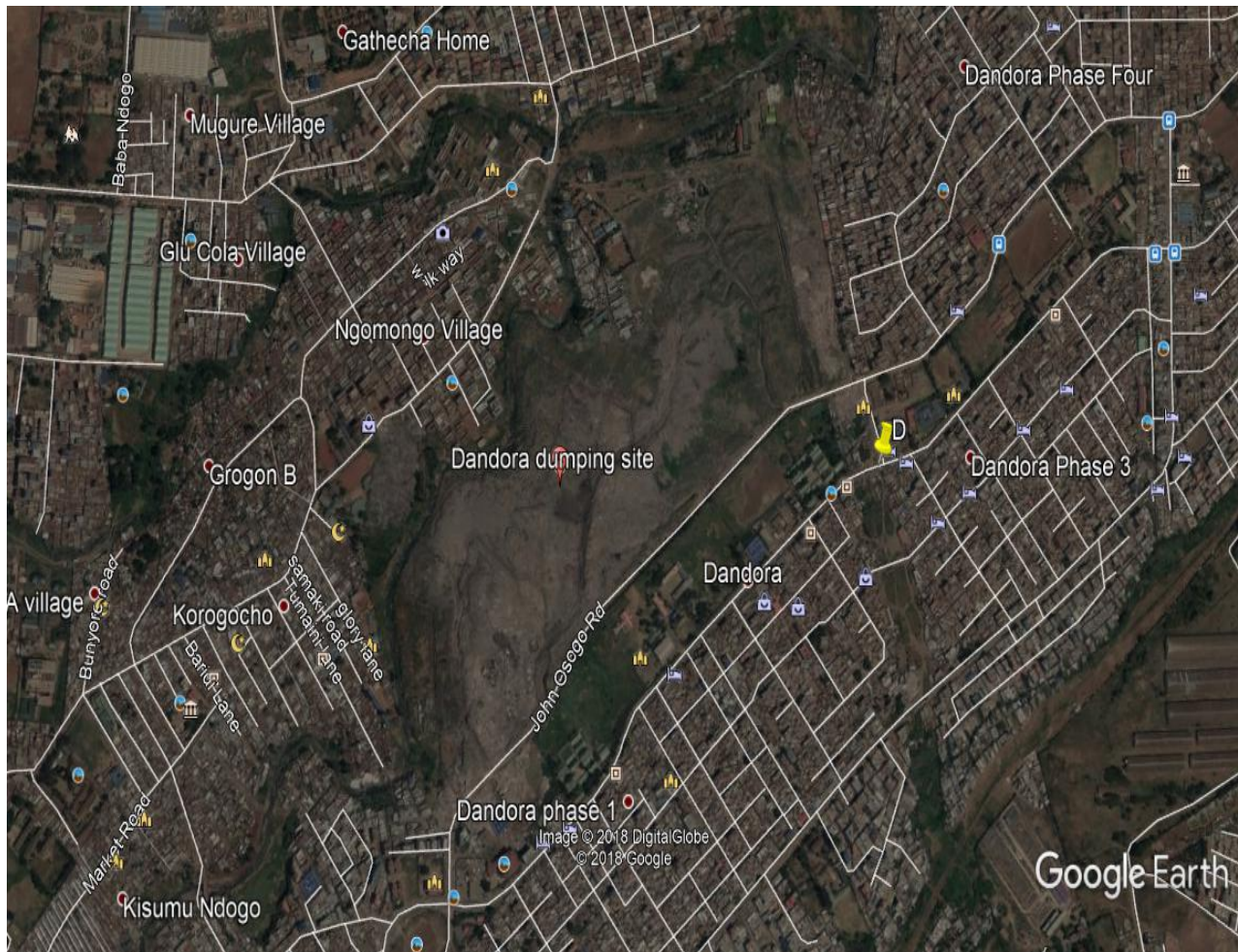
Justify _____

Thank you for your co-operation and contribution in this study!

Appendix 2: Non-Participant Observation Guide

1. Number of the trucks dumping daily?
2. The condition of entrance in the dumping site
3. Who is collecting the entrance fees?
4. Who is offloading trucks?
5. What is the reaction of the waste collectors?
6. What is the reaction of street boys?
7. Who is the source of clashes?
8. Why of the clashes among stakeholders?
9. Is there any security or police intervention?

Appendix 3: Study Site Map



Map of Dandora (Source: Google Map)