UNIVERSITI PUTRA MALAYSIA

WILLINGNESS TO PAY FOR IMPROVED SOLID WASTE COLLECTION SERVICES IN A COMMERCIAL CENTER IN SANGO, NIGERIA

ONUKOGU HUMPHREY FRANCISCO

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By

ONUKOGU HUMPHREY FRANCISCO

Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia, in Fulfillment of the Requirements for the Degree of Master of Science

August 2018

DEDICATION

This work is dedicated to the Almighty God of Citadel, the beginning and the ending. It is also dedicated to my loving family (Akwaugo, Ebubechukwu, Chimzaramekpere and Kamsiyochukwu).

Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfilment of the requirement for the degree of Master of Science

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August 2018

Chairman : Associate Professor Mohd Rusli Yacob, PhD
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Solid waste is a serious environmental problem in both developed and developing countries. Improper management of solid waste has been reported by several researchers in different cities of developing countries. In Nigeria, cities being among the fast growing in the world are faced with the problem of solid waste management. Of the different categories of wastes being generated, solid waste from commercial areas had posed a hydra-headed problem beyond the scope of various solid waste management systems in Nigeria. The objective of this study is to estimate the respondents' willingness to pay for improved solid waste collection services in commercial center of Sango, Nigeria. The study employed dichotomous choice contingent valuation and choice experiment in commercial area of Sango using face-to-face questionnaire interview on 200 vendors who were selected using in simple random sampling method. From the result of a binary logistic regression model obtained, it shows that the mean willingness to pay amount was ₦1490.54 approximate ly, ₦1500 per business unit monthly. This figure indicates that the respondents were willing to pay higher amount than the currently charged amount (₦1000), which revealed the existence of consumer surplus. The result from the choice experiment shows that the respondents place higher preference for the improvement on frequency of collection (scheduled 4-times per month). The second most preferred attribute was the number of users per dustbin, where they preferred individual user per dust bin. However, the dustbin type was the least preferred attributes by the respondents, where it carries the least coefficient value from the model. The results of this study would enrich our understanding of willingness to pay for waste collection services in commercial areas in Nigeria and provide a guide to policy makers. This study recommend that policy makers can choose from a set of scenarios, which includes different levels of attributes and WTP estimates for each attribute, in designing an improved solid waste management project for Sango. Also, there is the need for upward review of the currently charged solid waste management fee of

₦1,000 to ₦1,500 to eliminate consumer surplus, as the respondent revealed their willingness to pay the amount.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Master Sains

KESANGGUPAN MEMBAYAR UNTUK PENINGKATAN PERKHIDMATAN PENGUTIPAN SISA PEPEJAL DI PUSAT KOMERSIAL DI SANGO, NIGERIA

Oleh

ONUKOGU HUMPHREY FRANCISCO

Ogos 2018

Pengerusi : Profesor Madya Mohd Rusli Yacob, PhD
Fakulti : Pengajian Alam Sekitar

Sisa pepejal merupakan masalah alam sekitar yang serius di kedua-dua negara maju dan membangun. Pengurusan sisa pepejal yang tidak sempurna telah dilaporkan oleh beberapa orang penyelidik di bandar yang berbeza di negara membangun. Di Nigeria, bandar yang merupakan antara yang pesat membangun di dunia telah menghadapi masalah pengurusan sisa pepejal. Antara kategori sisa berbeza yang dijana, sisa pepejal merupakan masalah hidralaluan yang melampaui skop sistem pengurusan sisa pepejal di Nigeria. Objektif kajian ini adalah untuk menganggarkan kesanggupan responden untuk membayar bagi memperbaiki perkhidmatan sisa pepejal di Pusat Komersial Sango, Nigeria. Kajian ini menggunakan penilaian kontingen pilihan dikotomi dan eksperimen pilihan di kawasan komersial Sango yang menggunakan soal selidik bersemuka, telah menemu bual 200 vendor yang dipilih dengan menggunakan kaedah persampelan rawak mudah. Dapatan yang diperoleh dari model regresi logistik binari menunjukkan bahawa min kesanggupan untuk jumlah membayar ialah lebih kurang ₦1490.54, ₦1500 per unit perniagaan sebulan. Angka ini memperlihatkan bahawa responden sanggup membayar jumlah yang lebih tinggi daripada jumlah semasa dikenakan

(₦1000), yang memperlihatkan kewujudan lebihan pengguna. Dapatan dari eksperimen pilihan menunjukkan bahawa responden memperuntukkan keutamaan yang lebih tinggi bagi pembaikan ke atas kekerapan pengutipan (dijadualkan 4-kali sebulan). Atribut kedua yang paling diutamakan ialah bilangan pengguna bagi setiap tong sampah, iaitu mereka mengutamakan pengguna perseorangan bagi setiap tong sampah. Walau bagaimanapun, jenis tong sampah merupakan atribut yang paling tidak diutamakan oleh responden, iaitu ia membawa nilai koefisien yang paling rendah dari model. Dapatan kajian ini dapat memperkaya pemahaman kita mengenai

kesanggupan untuk membayar bagi perkhidmatan pengutipan sisa di kawasan komersial di negara membangun dan ini dapat dijadikan suatu panduan bagi penggubal polisi. Kajian ini mengesyorkan supaya penggubal polisi dapat memilih dari set senario yang merangkumi pelbagai tahap atribut

dan anggaran WTP bagi setiap atribut dalam mereka bentuk projek pengurusan sisa pepejal yang dipertingkatkan bagi Sango. Di samping itu, terdapat keperluan untuk mengkaji semula bayaran pengurusan sisa pepejal yang dikenakan kini ditingkatkan dari ₦1,000 kepada ₦1,500 bagi menghapuskan lebihan pengguna, disebabkan responden memperlihatkan kesanggupan mereka untuk membayar jumlah tersebut.

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This thesis was submitted to the Senate of the Universiti Putra Malaysia and has been accepted as fulfilment of the requirement for the degree of Master of Science. The members of the Supervisory Committee were as follows:

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Declaration by graduate student

I hereby confirm that:

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LIST OF ABBREVIATIONS

CBD	Convention on Biological Diversity
CS	Consumer Surplus
CM	Choice Modelling
CVM	Contingent Valuation Method
HP	Hedonic Pricing
HPP	Hedonic Property Pricing
IIA	Independent of Irrelevant Alternative
IID	Independent and Identical Distribution
MNL	Multinomial Logit
PA's	Protected Areas
RPL	Random Parameter Logit
SBDC	Single Bounded Dichotomous Choice
TCM	Travel Cost Method
TEV	Total Economic Value

CHAPTER 1

INTRODUCTION

1.1 Background of the Study

Municipal waste generation and improper handling is a significant challenge facing many developing nations in the world. Several practices which include dumping of wastes in landfills have been practiced by settlers in rural and urban communities and which affects the value of the residential areas as well as pose health hazards. Indiscriminate dumping of solid wastes causes odours, flies and vermin and littering around the residential areas (Akinjare, Oloyede, Ayedun, & Oloke, 2011). Poor management of municipal solid waste in many of the municipalities in developing countries results to serious problems that affect the health of both animal and human. This further resulted to economic, social and environmental losses (Sharholy et al., 2008).

In municipal solid waste management, it involve series of activities, including waste generation itself, handling and separation of the waste, storage, waste collection, waste transportation and transfer, and finally waste disposal (Joel, Mark, & Cheserek Grace, 2012).

Government has invested so much in municipal solid waste management in Ogun state but this has not brought the expected result and accumulation of waste dumps takes the aesthetics of the state away from it (Olukanni, Akinyinka, Ede, Akinwumi, & Ajanaku, 2014) The general behaviour in the state has always been disposal of solid waste indiscriminately by the road side, this condition is unhealthy for the populace.

Many studies have indicated that inappropriate solid waste disposal has created incidences that lead to high rate of morbidity and mortality in many cities of the developing countries. Municipal solid waste is commonly generated from wide range of human activities such as; primary production and consumption. The management of municipal solid waste has been a major problem in many countries especially developing countries where waste generation per unit head is high. This waste generated in cities of the developing countries is much higher than that of developed countries mainly because of inefficiency in manufacturing processes and the nature of the consumption pattern.

In recent time, some countries in Africa have started making efforts to enhance their solid waste management process. The growing volume of solid wastes generated as a result of urbanization in these countries is an indication of potential environmental problem due to improper solid waste management. This is chiefly due to many challenges such as poor technical know-how, and inadequate financial resources

which hardly cover full operational cost of solid waste management (Cointreau, 2005). Hence, achieving efficient municipal solid waste management systems in those countries need an integrated approach with sound policy that would guarantee effective waste handling.

The ever increase in solid waste generation leads to increase in demand on existing solid waste management services which in many countries in Africa, happens to be the single largest item that consume higher share of the budgetary allocation of the local authorities (Hoornweg & Bhada-Tata, 2012). The budgetary requirement for solid waste management in municipalities of developing countries is considerably higher. These commonly range between 20 to 50% of total municipal recurrent expenditures (Cointreau, 2005). Many studies have reported poor management of municipal solid waste in many different cities of developing countries are issues related to urbanization, population explosion, change in life style, poor funding and lack of political will to deal with the issue (Ezebilo, 2013).

On urbanization and population explosion for instance, aaccording to World Bank report, it was estimated that in year 2002, urban residents who were about 2.9 billion, produces 0.64 kg of waste per person per day) and by the year 2012, this quantity increases to1.2 kg per person per day by the urban population of about 3 billion. At present, , it is anticipated that by year 2025 the total population of urban residents will rise to about 4.3 billion, who on average will generate 1.42 kg of waste per day (Hoornweg & Bhada-Tata, 2012). Furthermore, attempts have been made by scholars to determine the exact quantity of waste being generated in Nigeria, the studies show that the volume of wastes generated by all the states increased over the period between 1994 and 1996. It was estimated that by the year 2010, Nigeria generated about 3.53 million tonnes of solid waste, based on a per capita solid waste generation of 20kg per year (Adepoju & Salimonu, 2010).

The ever increase in solid waste generation leads to the increase in demand on existing solid waste management services which in many countries in Africa, happens to be the single largest item that consume higher share of the budgetary allocation of the local authorities (Hoornweg & Bhada-Tata, 2012). The budgetary requirement for solid waste management in municipalities of developing countries is considerably higher. These commonly range between 20 to 50% of total municipal recurrent expenditures (Cointreau, 2005).

However, the imperfect strategies and measures commonly adopted for municipal solid waste management in most of the cities in Nigeria create the wrong impression that solid waste management problems are daunting and intractable task. This is because the rate at which solid waste collection and disposal is done is in no way closer to the rate of waste generation, which makes solid waste accumulation become a one of the major environmental nuisance in most cities in Nigerian (Uwadiegwu & Chukwu, 2013).

It will be interesting to explore how much money that people would be willing to pay for an improvement in waste management services and enhancement of environmental quality. The improvement in environmental quality has the characteristics of environmental good (e.g. good that is not traded in the market, or whose economic value is not defined by a market price)(Hanley, Barbier, & Barbier, 2009). Thus, value of environmental quality can be estimated from what people are willing to pay (WTP) to improve or to restore their environment, using valuation techniques which measure peoples‘ preferences (Adepoju & Salimonu, 2010).

The economic benefits of waste management services are typically estimated by non-market valuation method such as the contingent valuation method CVM) (Loomis, Kent, Strange, Fausch, & Covich, 2000; Mitchell & Carson, 1989). CVM is an approach developed by economists to value non-marketed public goods and particularly to estimate the value of improvements or damage to environmental amenities. In contrast to private goods, public goods are not traded directly in any market and thus do not command a market price (Carson, Flores, & Meade, 2001a).

CVM is a method that provides individuals with the opportunity to purchase public goods under hypothetical situations, especially in the absence of real market or existing information concerning the real market scenario (Adamu, Yacob, Radam, & Hashim, 2015). Furthermore, the absence of markets means that the quantity desired by consumers or their preferences cannot be directly observed (Mohd Rusli, Alias, & Shuib, 2009). The choice of suitable economic instruments like the CVM in measuring people’s willingness to pay is often viewed as an ideal way of developing sound management policies that would help to generate more funds (Adamu, Yacob, Radam, Fallah, & Danladi, 2017).

Several studies have been conducted in different part of the world on willingness to pay for solid waste management service using CVM technique (Feitosa, Barden, & Konrad, 2017; Gunsilius, 2012; Joel et al., 2012; Oyawole, Ajayi, Aminu, & Akerele, 2016; Sizya, 2015; Yusuf, Ojo, & Salimonu, 2007). The results of the studies revealed significant factors determining willingness to pay for improved solid waste management (collection and disposal).

For example, Adepoju and Salimonu, (2010), examined household willingness to pay for improved solid waste management in Osun state, Nigeria. They identified the socio economic variables and other factors influencing WTP for improved waste disposal services. Their result also shows that majority of the households (87 percent) are willing to pay for less than 5 percent of their monthly income on waste improved waste management services.

Muktar and Kabuga, (2015) used contingent valuation (CV) method to estimate households' willingness to pay (WTP) for waste collection and disposal services in Kano Metropolis, Nigeria. Their study majority of the respondents are willing to pay

for waste collection and disposal services in Kano Metropolis and the major determinants of the households` WTP are education, income and utility derived by households whereas age, gender and occupation are negative determinants. The result of the study also found out that mean willingness to pay for improved waste collection and disposal was N1228.00.

In Ghana, Boateng et al., (2016) examine the factors that influence the willingness to pay for solid waste disposal in the Kumasi Metropolis. The result indicates that area of residence, effective bye-laws, level of education and income were statistically significant predictors of willingness to pay for solid disposal services.

Also in Kenya, Joel, Mark, and Cheserek Grace, (2012) analyses economic value of improved solid waste management in Eldoret municipality. They employed contingent valuation method (CVM) to identify the determinants and willingness to pay (WTP) values. Their results show that residents are WTP on average Kshs 363 per month for solid waste management improvements.

1.1.1 Municipal Solid Waste Management (SWM) in Nigeria

Nigeria is a nation situated in the western piece of the African mainland, covering a zone of around 924,000 km2. The nation has a high populace of around 170 million, an assessed development rate of 2.6% and is set seventh just behind China, India, the United States, Indonesia, Brazil and Pakistan on a worldwide populace positioning (CIA, 2012). Nigeria is comprised of 36 states and the Federal Capital Territory (FCT) which are by and large constituted of 774 Local Government Areas; SWM has been distinguished as one of the major ecological difficulties being confronted in the nation (Adeyinka, Bankole, and Olaye, 2005). In Nigeria, the regulatory structure for SWM is three layered, therefore comprising of national and state organizations and in addition neighbourhood government bodies. The Federal Ministry of Environment is the body responsible for supervising the protection of the environment and in addition natural resources to the point of accomplishing practical improvement. All things considered, they assume the part of declaration of national ecological laws, authorization and observing of the same in expansion to guaranteeing adherence to worldwide ecological rules.

Working likewise on the government level is the National Environmental Standards and Regulations Agency, notwithstanding ecological law requirement parts, the organization is responsible for support of successful association in the center of national and worldwide performance on issues identified with the environment (LSG, 2009). Up until 1999, ecological laws and regulations were advanced and authorized by the Environmental Protection Agency (FEPA); however these hence turned into a part of the Federal Ministry of Environment. Keeping in mind the end goal to guarantee security of the environment is better dealt with, all states in Nigeria (and their local government) have been given the ability to make related ecological

foundations, the sway of which is constrained to the state or local government as established (Ogwueleka, 2009).

The amount and rate of solid waste generation in a city is mainly a function of population, level of industrialization, socio-economic status and the kinds of commercial activities (Dauda and Osita, 2003). Studies showed that high density, large amount of organic content, small sized particles and large amount of dust and dirt are main components of wastes generated in developing countries. Waste management refers to the generation, prevention, characterization, monitoring, treatment, handling, reuse and residual disposition of solid wastes (Blight and Mbande (1996).Waste management refers to the reduction of their toxic effects on health, the environment and beauty using ways of storing, collecting, transporting, and recycling. It refers to policy regulations, education, training, planning and implementation structures. The most important aspect of environmental problem rating after water quality control in the developing countries is waste management (Awomeso et al., 2010).

Waste management must concentrate on how to find the worth of the waste and give it back to the community. It has been observed that, collection and dumping patterns most of the times make separation costly and difficult to manage solid wastes properly (Sharama, 2005). Recent studies showed that the range of one-third and one-half of the solid wastes accumulated in most cities in low and middle-income countries are not properly disposed but discharged as illegal dumps on streets, open spaces and wasteland (Ajani, 2007).

In actual fact, waste disposal in Nigeria is the major responsibility of municipal councils. Growing economic developments, urbanization and industrialization has caused a great increase in quantity and types of harmful solid wastes generated in Nigeria and this has become a serious problem in terms of management for the concerned authorities (Igoni, et al 2007). According to UNEP, in 2006, the total amount of municipal solid waste generated in Africa was about 2.02 billion tones , this represented 7% annual increase when compared to that of 2003 (UNEP, 2002). More studies showed that between 2007 and 2011, amount of municipal solid waste generated increased to 37.3%, approximately 8% increase per year of hazardous categorized waste in particular. UNEP (2002) predicted that the total health-care waste per person per year in most low income countries falls between 0.5 Kg to 3.0 Kg. Haven known that waste management in developing countries and cities remains a challenge because of weak institutions in terms of environmental laws, under-funding, speedy urbanization and industrialization, the situation in Ogun state Nigeria may not differ from the trend in other countries.

Therefore, this study tries to estimate the respondents' willingness to pay for Improved Solid Waste Collection Services in Commercial Center of Sango, Nigeria. The study will help to improve our understanding of the vendors' willingness to pay for

improved waste collection in the market area and can provide policy makers with useful information for effective and efficient waste management policy.

1.2 Problem Statement

Solid waste management is a problem confronting many cities especially those in developing nations. Owing to the population explosion and rapid urbanization, the problem caused on the budget of the municipalities as a result of increasing costs of waste management, and poor understanding of the different factors affecting the waste management at different stages further exacerbate the problem (Guerrero, Maas, & Hogland, 2013).

Unfortunately, many people in African countries including Nigeria, until recently, regard the concern for effective strategies for managing urban solid waste as a less important issue which may distract attention from the most urgent and serious problem of achieving a fast rate of economic growth. This attitude stems in part from the belief that environmental degradation with urban solid waste generation is an inevitable price of development (Uwadiegwu & Chukwu, 2013)

Solid waste (SW) management is a serious problem in Nigerian cities. It is estimated that an average Nigerian generates about 0.49 kg of solid waste per day with households and commercial centers contributing almost 90% of total urban waste burden (Solomon, 2009). The amount of waste that is generated in Nigeria is beyond the capacity of the environment and the control of the municipal waste management authority (Uwadiegwu & Chukwu, 2013). The inability of the municipal waste management authority to function is exacerbated by poor urban planning, inadequately formulated policies, urbanization and lack of the necessary resources to provide the services that will translate into an effective waste management system.

In Ogun State for instance, very few cities benefit from organized waste disposal services either from private or public institutions, the consequence of this is that the people are left with few options of waste disposal which in most cases is either they bury or burn their wastes inside or outside their homes, sometimes, they dump them carelessly by the road sides without minding the impacts on the environment.

Sango-Ota just like most cities in Nigeria is well recognized for improper dumping of solid wastes. According to Adepoju and Salimonu, (2010), solid waste generated in the major cities of south western Nigeria have high component of organics. These organic components aid breeding of flies, pollution of underground and surface water with leachetes and run-off during raining season. Furthermore, solid waste dumped indiscriminately especially along major ways and drainage system are known to cause serious health problems due to the fact that sometimes, they obstruct easy flow in drainages, the resulting in flood and when stagnant, promotes spread of zoonotic diseases.

Apart from the growing health concerns of ineffective solid waste management in Ogun state, the effect on the general aesthetics of the environment is another major concern as illegal dumping sites obstruct free flow of traffics for both human and vehicular movements, creating eyesores to the viewing public.

The current situation in the commercial center of Sango is such that solid waste is dumped at some particular spots by the entire vendors. This is to be cleared by the Sango local authority at an unscheduled time, depending on the availability of clearing van and other logistics. Furthermore, most of the shops or business premises do not have waste collection containers as most of them resort to dumping outside their shops or along the roads. This situation leads to pollution and degradation of the aesthetics due to the fact the solid waste form heaps before they are cleared by the local authority.

Many studies on solid waste management mainly focus on household waste, with few on commercial waste. In Nigeria for instance, no study was reported to have been conducted in commercial area despite the enormous contribution of this segment to the volume of municipal solid waste generated. What is more worrisome is the fact that no valuation study was ever conducted to determine the willingness to pay for solid waste collection in commercial area in Nigeria. This study intends to fill in this gap by determining the willingness of the vendors to pay for solid waste management in the commercial center of Sango, Ogun state.

Knowing the important as well as relevant attributes of solid waste collection services is an important component for effective solid waste management. However, few of the valuation studies in Nigeria mainly employed contingent valuation technique only, which gives the average willingness to pay for the overall improvement for solid waste management. So far, only study conducted by Adams et al., (2015) uses choice experiment to identify household preferred attributes of solid waste management options. This current study will therefore open a new window of research by exploring the relevant and preferred solid waste management attributes in commercial area.

Lastly, knowledge on true economic value for proper waste collection in the commercial area in Nigeria is virtually absent in the literature. As local authority in Sango take control of the solid waste management of the commercial area, the amount of money charged for waste collection in the area was not fixed based on economic reality or scientific method. This creates the tendency or a scenario that favours the consumer (consumer surplus) or favours the service providers (producer surplus) as a result of market failure created. This current study will bridge this literature gap by employing economic tool to provide economically viable and socially acceptable amount of money to be charged (willingness to pay value) for solid waste collection in the area. This will inform policy makers on the importance of effective waste management to the public and by guiding them on determining waste management fees to be charged for each business premises in Sango, or elsewhere in Nigeria.

1.3 Research Questions

The research questions are as follows:

1. What is the respondents' level of perception and attitudes towards door-to-door solid wastes collection services?
2. What is the respondents' most preferred door-to-door solid waste collection service options?
3. What is the respondents' willingness to pay amount for door-to-door solid waste collection service in Commercial Center of Sango, Nigeria?

1.4 Objective of the study

The general objective of this study is to estimate the respondents' willingness to pay for Improved Solid Waste Collection Services in Commercial Center of Sango, Nigeria. The specific objectives are:

1. To examine the respondents' perception and attitudes towards solid waste collection services in commercial center of Sango, Nigeria.
2. To examine respondent's preferences on door-to-door solid waste collection service options.
3. To estimate the respondents' willingness to pay for door-to-door solid waste collection service in commercial center of Sango, Nigeria.

1.5 Significance of the Study

Theoretically, this study will immensely contribute to increasing research literatures on the willingness of the people living in states within developing countries like Nigeria to pay for improved solid waste collection services. In practical, the significance of this study will first be to determine the preference of the vendors in terms of nature, quality and schedule for organized solid waste collection services. This will help the service providers to know what is expected of them from consumer side and also enable the local authority who serves as the link between service providers and waste producers in determining the best service options based on the preferences of the vendors.

The study determined mean willingness to pay (WTP) which is the amount the vendors are willing to pay for the improved organized collection service to enable the service provider know how much the vendors are willing to pay for their services and decide if they can be involved in it or not. The study also determine the economic value (the mean WTP) for improved waste collection services in the commercial center of Sango,

which is an important input to cost and effect analysis that would guide the service providers in determining the profitability and viability of their investment.

Another importance of this study is that the mean WTP estimated can be used in benefit transfer to other sides within and outside the country. It also serves as reference point for any valuation study on solid waste collection service especially in commercial area. More so, there are no adequate data currently on the pricing of solid waste collection services in any commercial area as a normal economic commodity in Nigeria. This study therefore attempts to bridge the existing knowledge gap and provides two important insights for public and private policy makers in terms of incorporation of demand-side information into the design of solid waste management services and economically viable service fee as it seeks to derive estimates of the value of changes in individual attributes as well as changes in the aggregate level of service attributes.

Economic valuation of solid waste management can assist in linking economic policies to environmental outcomes, by giving decision makers a summary of urban environmental problems and assist in formulation of effective policies on solid waste management. This study will also be of special interest to regulators of private concessions of MSW management as well as to the private waste collectors. This research will offer substantial contribution to current trends in literature on waste management not only in Nigeria but elsewhere around the globe and it will provide an avenue for further research to be conducted in this area. Lastly, this study will also maximize the possibility of using economic valuation models in addressing environmental issues in a developing country like Nigeria.

1.6 Scope of the Study

This study is limited to commercial area of Sango-Ota local government as the case study area; it does not cover the whole local governments in Ogun state and does not consider households in the survey, but rather vendors in the commercial area as the unit of sampling. The choice of the local government was based on noticeable economic, agricultural and other social activities when compared to other local governments in the state. The findings in this study may be applied to other commercial areas in the state as they are under the same authority (state government) and have similarity in socio-cultural characteristics. Also, the study is limited to solid waste management in commercial area of Sango, Ogun state, thus, other types of waste such as liquid, health care and radioactive waste and their management as well as domestic waste will not be investigated in this study. This is a deliberate effort on the researcher's part to make the study practicable considering the time and resources available to complete the study.

1.7 Organization of the thesis

This thesis is organized into chapters as follows; Chapter one provides the general background of the study, the problem statement, the research questions, and study objectives, significance of the study and scope and limitation of the study. Chapter two provides a review of relevant literatures and some empirical studies related to the research. The chapter three discusses the background of the study area, the sampling design and sampling procedure, method of data collection and data analysis. In chapter four, results of the findings was presented and discussed while the chapter five provides a general conclusion, recommendations and policy implication of the research outcome.

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