

ATTITUDES AND PRACTICES TOWARDS
SANITATION AMONG STAKEHOLDERS AT
THE KANESHE MARKET COMPLEX
IN THE OKRAIKWHI SUB-METROPOLIS



**ATTITUDE AND PRACTICES TOWARDS SANITATION AMONG
STAKEHOLDERS AT THE KANESHIE MARKET COMPLEX IN
THE OKAIKWEI SUB METROPOLIS**

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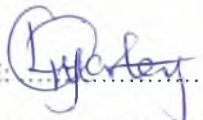
**THIS THESIS IS SUBMITTED TO THE UNIVERSITY OF GHANA,
LEGON IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE
AWARD OF MPhil ADULT EDUCATION DEGREE**

JULY, 2011



DECLARATION

I certify that this research on **Attitudes and Practices towards Sanitation among Stakeholders at the Kaneshie Market Complex in the Okaikwei Sub Metropolis** is my own original work which I have produced after an intensive research. I have given full acknowledgement to people's views and references. None of the materials in this work has been presented fully or partly for the award of any degree in any institution or university.

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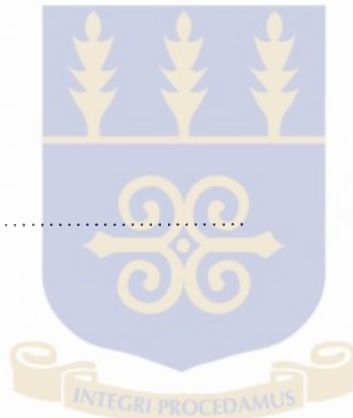
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DEDICATION

I dedicate this work to my mother Mrs. Josephine Quartey, for her encouragement and to my brother; Stephen Quartey for the unfailing support he gave to me; my two lovely children, Christian and Christopher Ankrah, for their understanding and moral support; my sole sister, Josephine Lartey; and finally, to Wiep Zieleman for his love, guidance and advice.



ACKNOWLEDGEMENTS

I first thank God Almighty for the strength, health and life He gave to me to live to see the successful end of my work.

I wish to express my appreciation to Professors Kate Adoo-Adeko and Olivia Kwapong for accepting to be my supervisors and the immense support and rapt attention they gave to me each time I presented my work. I really appreciate them both for taking time of their very tight schedules to vet my work. I thank you for your excellent supervision and guidance without which this work would not have been possible. I also thank Ms. Beatrice Djietror for offering me useful suggestions and advice any time I needed them.



My appreciation goes to Mr. Kpodo Head of Solid Waste Management Department of Accra Metropolitan Assembly and Mr. Jonathan Daphor of J. Stanley Owusu and Co. for granting very useful interviews that revealed the challenges waste management authorities encounter. I also wish to thank Mrs. Mabel Anita Aihoon the Administrative Officer, Auntie Paula the Sanitation Officer and Alhaji Mohammed of Ghana Private Road Transport Union (GPRTU) all at the Kaneshie Market Complex, for providing me with useful information about sanitation condition at the market. I render my appreciation to Mrs. Quartey, the receptionist at WHO, Airport Residential Area, for allowing me to read literature on sanitation at their office.

I finally thank my colleagues and all friends whose names I have not mentioned for their suggestions, advice and the never failing support given to me.

ABSTRACT

The City of Accra, to which Kaneshie Market is not an exception, has been saddled with sanitation problems making it difficult for the city authorities to do their work. The study sought to find out the attitudes and practices of stakeholders towards sanitation at the Kaneshie Market Complex. It examined existing practices of stakeholders towards improving sanitation conditions, assessed the challenges they face and strategies to improve attitudes and practices of stakeholders towards sanitation. Methodology adopted to collect data that addressed the objectives of the study was descriptive survey. The target population comprised of those who generated the waste and those who managed them. Quota was allocated to the two sub groups and convenience sampling technique was used.

The major findings of the study were that most of the stakeholders at Kaneshie Market Complex lacked education on good hygiene and laws on good sanitation. The study concluded that there was the need for periodic educational programmes for stakeholders to sensitize them towards practicing good hygiene for enhancement of healthy behaviours and higher productivity. Recommendations made included the need for the Accra Metropolitan Assembly and Management of Accra Markets to collaborate with adult education institutions to develop and implement public educational programmes on attitudinal change for stakeholders. Provision of waste litter bins at vantage points at the market for waste collection and need for waste operators to seek for NGO's interested in using the **4Rs** namely; Recycling, Reduce, Reuse and Recovery to minimize and enhance waste management.

TABLE OF CONTENT

CONTENT	PAGE
DECLARATION.....	i
DEDICATION.....	ii
ACKNOWLEDGEMENT.....	iii
ABSTRACT.....	iv
TABLE OF CONTENTS.....	ix
LIST OF TABLES.....	x
LIST OF FIGURES.....	xi

CHAPTER ONE: INTRODUCTION

1.1 Background to the Study.....	1
1.2 Statement of the Problem.....	7
1.3 Purpose of the Study.....	8
1.4 Objective of the Study.....	8
1.5 Related Questions.....	8
1.6 Significance of the Study.....	9
1.7 Delimitation of the Study.....	9
1.8 Limitation of the Study.....	10
1.9 Organization of the Study.....	11

CHAPTER TWO: REVIEW OF RELATED LITERATURE

2.0	Introduction.....	12
2.1	Theoretical Framework.....	12
2.2	Sanitation, Health and Hygiene.....	17
2.3	How Attitude can Affects Behaviour.....	18
2.4	General Attitude and Practices of people towards Sanitation.....	22
2.5	Existing Practices to Improve Sanitation Conditions.....	24
2.6	Challenges towards Improving Sanitation Conditions.....	33
2.7	Strategies to Improve Attitudes and Practices of Stakeholders towards Sanitation.....	39

CHAPTER THREE: METHODOLOGY

3.1	Introduction.....	44
3.2	Research Design.....	44
3.3	Population.....	45
3.4	Sample.....	45
3.5	Sampling Technique.....	46
3.6	Instrument for Data collecting.....	48
3.7	Validity and Reliability of Instruments	49
3.8	Pilot Study	49
3.9	Method of Data Analysis	50

CHAPTER FOUR: PRESENTATION OF RESULTS

4.1	Introduction.....	51
4.2	Demographic Characteristics.....	51
4.3	General Attitude of Waste Generators towards Sanitation.....	56
4.3.1	Current State of Sanitation at the Market.....	57
4.3.2	Attitudes of Waste Generators towards Transacting Business in Unhygienic Environment.....	59
4.3.3	How Waste is Disposed of by Waste Generators at the Kaneshie Market Complex.....	61
4.3.4	Fee Paid for Disposing Waste.....	62
4.4:	Existing Practices to Improve Sanitation Conditions at the Market.....	62
4.4.1	How often Waste Generators Use Waste Receptacle at the Market.....	62
4.4.2	How Waste Operators Manage Waste.....	64
4.5.	Challenges towards Improving Sanitation at Kaneshie Market Complex.....	66
4.5.1	Challenges of Waste Generators.....	66
4.5.2	Indiscriminate Littering by Market Users.....	67
4.5.3	Technical Challenges of Waste Operators.....	69
4.5.4	Generating Useful Materials from Waste.....	70
4.5.5	Operational Challenges of Waste Operators at the Kaneshie Market Complex.....	72
4.5.6	Knowledge on Laws Concerning Sanitation	73
4.6	Strategies to Improve Attitudes and Practices of Stakeholders towards sanitation.....	74

CHAPTER FIVE: DISCUSSION OF RESULTS

5.1	Introduction.....	77
5.2	Demographic Characteristics.....	77
5.3	General Attitude of Waste Generators towards Sanitation.....	80
5.3.1	Current State of Sanitation at the Market.....	81
5.3.2	Attitudes of Waste Generators towards Transacting Business in Unhygienic Environment.....	82
5.3.3	How Waste is Disposed of by Waste Generators at the Kaneshie Market Complex.....	83
5.3.4	Fee Paid for Disposing of Waste.....	84
5.4	Existing Practices to Improve Sanitation Conditions at the Market.....	84
5.4.1	How often Waste Generators Use Waste Receptacle at the Market.....	86
5.4.2	How Waste Operators Manage Waste.....	86
5.5	Challenges towards Improving Sanitation at Kaneshie Market Complex.....	87
5.5.1	Challenges of Waste Generators.....	87
5.5.2	Indiscriminate Littering by Market Users.....	88
5.5.3	Technical Challenges of Waste Operators.....	89
5.5.4	Generating Useful Materials from Waste.....	91
5.5.5	Operational Challenges of Waste Operators at the Kaneshie Market Complex.....	92
5.5.6	Knowledge on Laws Concerning Sanitation.....	92
5.6	Strategies to Improve Attitudes and Practices of Stakeholders towards Sanitation.....	93

CHAPTER SIX: SUMMARY, CONCLUSION AND RECOMMENDATION

6.1	Introduction	96
6.2	Overview of the Study.....	96
6.3	Summary of Findings	98
6.4	Conclusion	99
6.5	Recommendations	100
6.6	Area for Future Research.....	101
	References.....	102
	Appendix A: Interview Guide for Waste Generators.....	111
	Appendix B: Questionnaire for Waste Operators.....	121

LIST OF TABLE

TABLE	PAGE
Table 3.1: Quota Sample.....	47
Table 4.1: Demographic Characteristics.....	52
Table 4.2: Cross Tabulation of Educational Level of Waste Generation and Waste Operators in the Organization.....	56
Table 4.3: Current State of Sanitation in the Market.....	58
Table 4.4: Sickneses Waste Generators Suffered from.....	60
Table 4.5: Opinion on how often Waste Receptacle is emptied daily.....	64
Table 4.6: Operational Challenges of Waste Operators at the Kaneshie Market Complex	72
Table 4.7: Waste Operators' Strategies.....	75

LIST OF FIGURES

FIGURES	PAGE
Figure 4.1: Role of Workers in Waste Management.....	55
Figure 4.2 Composition of Waste Generation at the Market.....	57
Figure 4.3: Attitude of Waste Generators towards Transacting Business in Unhygienic Environment.....	59
Figure 4.4: How Waste is disposed of by Waste Generators at Kaneshie Market Complex.....	61
Figure 4.5: How Often Waste Generators Use Waste Receptacles in the Market.....	63
Figure 4.6: Attitude and Existing Practices of Waste Generators.....	66
Figure 4.7: Availability of Waste bins in the Market.....	67
Figure 4.8: Indiscriminate Littering by Market Users.....	68
Figure 4.9: Technical Challenges of Waste Operators.....	70
Figure 4.10: Reason for not Generating Useful Materials from Waste.....	71
Figure 4.11: Waste Generators' Strategies.....	74

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Sanitation has been one of the biggest problems many nations battle with. This is because as long as people live, they generate waste. Apparently, the more educated and developed people become, the more the waste they generate. Education brings about the use of sophisticated materials which in effect generate more waste (WHO, 1992). The occurrence of paratyphoid diseases which is mainly caused by poor disposal is worldwide with annual estimated incidence of about 17 million cases and 600,000 deaths (WHO, 1995).

In industrial countries such as Britain, the quantity of industrial waste exceeds domestic waste (Butcher, 1973). Ninety percent of British industrial waste is similarly large and difficult to consolidate in a controlled tip (Ministry of Housing and Local Government, 1970). In developed countries, close to 100 percent of the population has access to municipal waste services (UNCHS, 1996).

In the U.S. economy, biodegradable waste such as food waste and sewage is broken down naturally by micro organisms either aerobically or anaerobically. If the disposal of biodegradable waste is not controlled, it can cause a number of wider problems including contributing to the release of greenhouse gases and can impact upon human health via activities of pathogens (WHO, 1992). Environmental hazards were major causes of ill health, injury and premature death in cities in Europe and North America approximately 120 years ago (Wohl,1983).

The fact that this is no longer so, reveals the extent to which the population has moved from hazard. Waste is sometimes a subjective concept, because items that some people discard may have value to others. It is widely recognized that waste materials are a valuable resource, whilst there is debate as to how this value is best realized. Governments need to define what waste is in order that it can be safely and legally managed. Different definitions need to be combined in order to ensure the safe and legal disposal of the waste. The packaging of product we use is a major contributor of the waste we generate. Therefore buying products with minimal packaging will reduce our waste (New York Daily Newspaper, 2007).

Enteric fevers are endemic in many regions of Africa including Ghana. These are associated with poor hygienic conditions such as contaminated water supply, inadequate sanitation and presence of flies in large numbers (WHO, 1995). In developing countries, for instance, only a small proportion of the population have access to good sanitation and thus a mere 30 percent of waste are collected (UNCHS, 1996). Everyone has waste from food preparation and sweeping, although the quantity and type of waste varies. In rural areas and in many towns and tropical countries, there are always hungry goats to help with disposal and their efforts are aided by dogs and birds. In wet climate, there is often a great mass of leaves used for wrapping food. The waste of industrial materials varies as much as their raw materials and products. There are often packaging, off-cuts and spoilt materials, unwanted by-products and other types of waste that increase with prosperity (Dawyer, 1995).

In Ghana, sanitation has been a hard battle for the government. Several attempts have been made by the authorities and stakeholders. It was reported in The Ghanaian Times of September, 2009

that a total of ₵8,600,000 was spent on treatment of sanitation related diseases that were reported at the health facilities in the Upper West Region. This, according to the health authorities, strained the finances of the various Mutual Health Insurance schemes in the region. Out of this amount, about 7,427,351 cedis was spent on patient on admission while ₵1,254,117 was spent on out patients. As many as 208,309 patients reported at the health facilities with malaria while 29,494 and 10,537 patients suffered from acute respiratory infections and diarrhoea respectively. Ninety percent of these diseases were preventable. The Government was urged to invest heavily in sanitation in order to avoid huge money that is constantly spent on medical care and the working hours lost as a result of diseases that could be prevented (Ghanaian Times, 2009).

The Regional Operation Supervisor of ZoomLion Limited organized a training programme for the participants to acquire the relevant skills, knowledge and attitudes to enable them carry out their duties effectively. The guards were expected to assist environmental health officers in hygiene education and promotion, inspection of premises, dissemination of sanitary information, supervision and monitoring of sanitation services. Accra alone generated more than 2,000 tones of waste daily made up of 65 per cent of organic and 35 per cent inorganic waste. The former constituted the chunk of the generated waste which were not collected and managed. Eighty per cent of AMA revenue was utilized in managing waste in the metropolis thereby placing a huge burden on it resource (Ghanaian Times, 2009).

It was estimated that about 32 percent of all Ghanaian industries were located in the Accra Metropolis which covers less than one per cent of the total land area of Ghana (Accra Planning and Development Programme 1990).

domestic waste as problems arose in the collection and disposal of human waste in the metropolis (Domfeh 1996). The sites at which wastes are deposited are apparently too close to residential areas. This in effect creates more problems for the residents living in and around the dumping sites. The accelerated urbanization of Accra Metropolitan Assembly in recent years has brought about problems of disposal of household waste and industrial effluent (Accra Planning and Development Programme 1990). This was because the poor infrastructure available over the years was not been able to cope with the waste generated. Solid waste generated by some of the industries was used for landfills, probably without the necessary monitoring network to check the stability of the dumps (APDP, 1990).

The garbage became breeding ground for disease-carrying vectors such as flies, mosquitoes, rats and cockroaches. It was reported that about 800,000 flies were produced in one cubic meter of garbage. They carried pathogenic organisms, causing dysentery, diarrhoea, etc. Rats were carriers of insects and bio-organisms, that caused plague (HIPL, 2004).

The main source of food for rats and other small rodents is refuse and rubbish dumps. They quickly proliferate and spread to neighbouring houses. The diseases for which rats may be a reservoir, make horrifying list; plague, marine typhus, leptospirosis, histoplasmosis, rat-bite fever, salmonellosis, tularaemia, trichinosis and many other disease (World Health Experts Committee, 1971). Domestic waste increased with prosperity and spontaneous settlements were so prominent a feature of a third world class (Dawyer, 1975).

Women's vulnerability to all environmental hazards was linked to sanitation, drainage and refuse collection whereas the practical needs of those responsible for child care and household management are overwhelmingly female (Domfeh,1999). Apart from diseases that may be caused by insects and rodents, the ineffective handling of refuse could cause worm infestation to workers (Central Public Health Engineering Institute, 1973). Accident among refuse workers was also high as a result of lifting heavy loads and dealing with mechanical equipment (World Health Expert, 1971).

The state of sanitation in Accra has been very unsatisfactory since it was characterized by choked drains, indiscriminate waste disposal and uncontrolled refuse in central waste containers just to mention but a few. Many factors accounted for this. Notably among them were:

- poor conceptualization
- lack of adequate sanitary facilities
- ignorance of individuals, households and communities
- lack of community action
- spring up of unauthorized temporary structures
- continuously increasing number of squatters
- indiscriminate hawking
- lack of regular budgetary allocation for sanitation (AMA Report, 2006).

The people of Accra generated waste between one thousand five hundred and one thousand eight hundred tonnes per day. An average of one thousand two hundred tonnes of the waste was collected daily.

The uncollected waste found itself into the drainage system and other open spaces as their final destination. Nevertheless, substantial percentage of the waste was biodegradable making decomposition quite easy. Private sector participation in waste management has been concentrated in mainly waste collection. Accra was delimited into six waste collection zones. These zones were awarded to waste collection companies for fee, which were charged according to specific contractual agreement they had with the city authority (AMA Report, 2006).

In low income areas the central container system was in operation. Containers were placed in designated points for households to dislodge their domestic waste for onward carriage to final waste disposal point. Under this programme the companies were paid according to the total tonnage conveyed to the final disposal point. Households paid no fees for the waste generated. The other system, door to door collection was prominent in affluent areas of Accra. The companies charged fees from households. These were collected monthly or fourth nightly in respective contractual arrangement between the contractor and his/her client (Accra Metropolitan Assembly Report, 2006).

The Kaneshie Market Complex belongs to a group of companies who have shares in it. They include, Accra Metropolitan Assembly, Ghana Commercial Bank, National Investment Bank and State Insurance Company among others. The market comprises of three floors with six hundred and ninety six stores, the second floor had about five hundred and thirty-four stores and the ground floor had the largest number of about one thousand two hundred and ninety six stalls. Wide varieties of jobs were carried out there daily. They ranged from those trading in foodstuffs, household appliances, clothing and general merchandise to mass transport services. Also at the

area were artisans such as beauticians, caterers, dressmakers/tailors, carpenters, masons, welders, painters and blacksmiths. Others were banking and non-banking financial institutions. Apparently, Kaneshie Market Complex is one of the biggest modern markets in Ghana. The activities of the people at the market have seemingly led to the generation of high level of waste each day. Most of the garbage was generated from retail and commercial trade. The problem was compounded as the waste disposed of was not separated by their nature (Ghana Sanitation, 2004).

In January 2010, the Accra Metropolitan Assembly embarked on ‘‘waste to energy’’ programme. The aim of the programme was to transform all waste materials into energy to produce electricity in the capital. The Mayor of Accra also called for local and foreign expertise to help minimize sanitation problem in Accra and its environs (Iddrissu, 2010).

1.2 Statement of the Problem

Issues of sanitation have been of great concern to all. The rapid growth of population in the Accra Metropolis has given way to several sanitation problems. For this reason, the city of Accra has been engulfed with sanitation problems making it difficult for the City authorities to do their work. Some areas in the capital of Accra have been earmarked as the dirtiest areas within the Capital City (Iddrissu, 2010). The sanitation situation is not different from the Kaneshie Market Complex and its environs. The market is also saddled with problems of disposing and managing waste and the emerging menace on the health of the people living in the area leaves much to be desired.

The question then is: What are the attitudes and practices towards sanitation among stakeholders at the Kaneshie Market Complex?

1.3 Purpose of the Study

The purpose of the study is to find out the attitudes and practices towards sanitation among stakeholders at the Kaneshie Market Complex.

1.4 Objectives of the Study

This study intended to;

- Find out the prevailing attitudes of market users towards sanitation at the Kaneshie Market Complex.
- Examine existing practices of stakeholders towards improving the sanitation conditions at the market.
- Assess the challenges that stakeholders face in improving the sanitation conditions at the market.
- Identify strategies to improve attitudes and practices of stakeholders towards improving the sanitation conditions at the Kaneshie Market Complex.
- Make useful suggestions and recommendation based on research findings available to stakeholder that will add to existing knowledge.

1.5 Related Questions

Basic questions that the researcher would like to find answers to include:

- What are the attitudes of stakeholders towards sanitation at the Kaneshie Market?

- What are the existing practices towards improving the unhygienic condition at the Kaneshie Market Complex?
- What are some of the major difficulties confronting agencies that deal with sanitation conditions at Kaneshie Market?
- What strategies would improve attitudes and practices of stakeholders towards improving the sanitation conditions at the Kaneshie Market Complex?

1.6 Significance of the Study

Apparently, the efforts of the AMA to maintain sanity at the Kaneshie Market Complex have been thwarted due to rampant indiscriminate disposal of waste. The findings are to;

- enable the researcher add to existing knowledge by making recommendations and suggestions and make copies of my research available to stakeholders and policy makers for their action.
- help AMA and waste management operators at the market to improve the unsanitary condition at the Kaneshie Market Complex.
- make available information that will help waste operators and management in planning health education intervention programs for stakeholders in order to improve their attitudes and practices towards sanitation at the Kaneshie Market Complex.

1.7 Delimitation

In order to have a better understanding on the attitudes and practices towards sanitation among stakeholders at the Kaneshie Market Complex, the coverage of study is the Kaneshie market

area. The market complex has the Northern sector, Southern sector Central, Western and Eastern sectors.

However, due to lack of time and resources on the part of the researcher, coupled with the view that the result of this study may lead to more comprehensive field work and analysis, the study was restricted to the premises of the Kaneshie Market complex and the lorry park. The study covered a wide range of people who plied their trade there and disposed of their waste at the market on one hand, and the institutions responsible for managing waste at the market, on the other.

1.8 Limitation of the Study

The researcher may wish to have involved all the traders in the study, but because of the large nature of the population, the researcher sampled a section of the traders for the study. This affected the generalization of the study. Also, due to time and financial constraints, the study could not cover the entire traders in the study and this affected the results of the study. Problems the researcher encountered were lack of time on the part of respondents to give full attention to researcher. Thus some information was not made available to the researcher. The researcher also faced problems of re-scheduling of appointments by high ranking stakeholders or officials. Some of them were hostile. They either delayed or refused to disclose the appropriate answers that may put them in a bad light. Apparently, these hid the appropriate answers as desired.

1.9 Organization of the Study

The study was organized as follows:

Chapter one dealt with the introduction of the study. It focused on the background of the study, statement of the problem and purpose of the study. The researcher also looked at the delimitation and the limitation of the study. Chapter two was theoretical framework and review of related literature. Chapter three comprised of methodology, which dealt with the population of the study, the sample, the research design, the sampling technique, the data collection instruments, pilot study and methods of data analysis. Chapter four dealt with the analysis, presentation of the data collected from the field. Chapter five was discussion of results. Chapter six provided the summary, conclusion and recommendation.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.0 Introduction

This chapter deals with the theoretical and empirical literature to the study. Literature was reviewed on the following topics:

- Theoretical framework on Health Belief Model and Trans-theoretical Model
- Sanitation, health and hygiene
- How attitudes can affect behaviour of people
- General attitude of people towards sanitation
- Existing practices to improve sanitation conditions.
- Challenges towards improving sanitation conditions.

2.1 Theoretical Framework

These theories classify and explain the multitude of factors which can explain the influence on human behaviour particularly as it relates to health and education. They can be classified on the basis of Individual or Community level. The Health Belief Model is based on value expectancy concept.

Health Belief Model (HBM)

The Health Belief Model (Strecher, Rosenstock, et al. 1997) was one of the models which adapted theories from the behavioural sciences to examine health problems. It remained one of the most widely recognized and used models in health behaviour applications.

This model explains why people would or would not use available preventive services. It is assumed that people feared diseases and that the health actions of people were motivated by the degree of fear (perceived threat) and the expected fear reduction of actions, as long as that possible reduction outweighed practical and psychological barriers to taking action (net benefits).

The HBM outlined four constructs which represent the perceived threat and net benefits:

Perceived susceptibility, a person's opinion of the chances of getting a certain condition.

Perceived severity, a person's opinion of how serious the condition is.

Perceived benefits, a person's opinion of the effectiveness of some advised action to reduce the risk or seriousness of the impact.

Perceived barriers, a person's opinion of the concrete and psychological costs of this advised action.

A systematic review of studies had applied the Health Belief Model among adults into the late 1980s and found it lacking in consistent predictive power for many behaviours, probably because its scope is limited to predisposing factors (Harrison, Mullen, and Green, 1992). One study that specifically compared its predictive power with other models found that it accounted for a smaller proportion of the variance in diet, exercise, and other behaviours than did the theory of reasoned action, theory of planned behaviour, and the precede-proceed model (Mullen, Hersey, and Iverson, 1987).

Nevertheless, the health belief model continued to be the most frequently applied model in published descriptions of programs and studies in health education and health behaviour in the early 1990s.

The expectancy concepts are gradual reformation in the context of health related behaviour. The translation is first focused on the desire to avoid illness or to get well, which is value. Second is the belief that a specific health action available to a person would prevent/ameliorate illness and which is expectation. The expectancy was further delineated in terms of the individual's estimate of a person susceptibility to or the severity of an illness and of the likelihood of being able to reduce that threat through personal action. Efforts to model various health-related actions have multiplied and become increasingly sophisticated. On assessing the circumstances, the person believes that benefits stemming from the recommended behaviour outweigh the costs and inconvenience and that they are indeed possible and within his or her grasp. Note that this set of beliefs is not equivalent to actual rewards and barriers referred to as reinforcing factors. In the health belief model, these are "perceived" or "anticipated" benefits and costs to predisposing factors. The person receives a "cue to action" or a precipitating force that makes the person feels the need to take action.

The HBM, therefore, helps to explain certain health related behaviours and to guide the search for why the traders at the Kaneshie Market Complex and commuters put up with unsanitary conditions and dispose of their waste indiscriminately. It also helped the researcher to relate attitude to behavioural changes that play key role in making informed decision in bringing about desirable change. This can activate the stakeholders' readiness to act and stimulate an observable behaviour.

This model is supported by the Trans-theoretical model which focuses on stages of change. It remains, however, a valuable guide to practitioners in planning the communication component of health education programs.

Trans-theoretical Model/Stages of Change Model

The Trans-theoretical Model is an appropriate model for the recruitment of an entire population. Traditional interventions often assume that individuals are ready for an immediate and permanent behaviour change. The Trans-theoretical Model however makes no assumption about how ready individuals are to change. It recognizes that different individuals will be in different stages and that appropriate interventions must be developed for everyone. As a result, very high participation rates have been achieved.

The Trans-theoretical model (Prochaska and DiClemente, 1994) outlined six stages of an individual's readiness to change, or attempt to change, towards healthy behaviours. This model has been applied to other health behaviours. Behaviour change is viewed as a process, not an event, with individuals at various levels of motivation or readiness to change. The stages are made of the following:

Stage 1: Pre-contemplation: Here the person is unaware of the problem at stake or has not thought seriously about changing the situation.

Stage 2: Contemplation: At this stage the person is seriously thinking about changing the undesirable situation in the near future.

Stage 3: Preparation: This is the stage where the person is planning to take action and is making final adjustments before changing behaviour.

Stage 4: Action: Change of behaviour is demonstrated in this stage. The person implements some specific action plan to overtly modify behavior and surroundings.

Stage 5: Maintenance: Here the person continues with desirable actions repeating the periodic recommended steps while struggling to prevent lapses and relapse.

Stage 6: Termination is the final state where change actually occurs and the person has zero temptation and the ability to resist relapse.

The Trans-theoretical Model can provide sensitive measures of progress which is action oriented. Any progress that does not reach criterion is not recognized. This is particularly a problem in the early stages where progress typically does not involve easily observed changes in overt patterns of behaviour. In contrast, the Trans-theoretical Model includes a set of outcome measures that are sensitive to a full range of cognitive, emotional, and behavioural changes. It also recognizes and reinforces smaller steps than traditional action-oriented approaches.

This study intends to suggest and recommend modification in behaviour towards good sanitation at the market. The attitude of indiscriminate littering and living in unsanitary condition at the Kaneshie Market Complex has been in existence long enough to make the traders immune to the situation. Therefore changing/modifying this behaviour cannot be an event but a process. The Trans-theoretical Models can be used by the researcher in identifying strategies to improve attitudes and practices of stakeholders towards improving the sanitation conditions at the Kaneshie Market Complex. Since people are at different points in this process, the model can also help the researcher in making informed suggestions and recommendation to stakeholders towards improving the hygienic practices at the market.

2.2 Sanitation, Health and Hygiene.

Sanitation generally refers to the provision of facilities and services for the safe disposal of human waste. The word “sanitation” also refers to maintenance of hygienic conditions, through service such as garbage collection and waste water disposal (WHO, 2010).

Improving sanitation is known to have significant beneficial impact on health both in household and across communities. Progress towards sanitation target within which excreta is removed from the risk of human contact or safe sanitation encompasses covered pit latrines as well as flush toilets (UNHD, 2006).

The Health Agency strongly supports the view of the WHO that ‘health’ is a state of complete physical, mental and social well being but not merely the absence of disease or infirmity. They agreed that health is a fundamental human right and the attainment of a highest possible level of health was crucial. Those working to promote health generally saw it as resource for everyday life and not the object of living. It was a positive concept emphasizing social and personal resources as well as physical capabilities (WHO, 1986).

Hygiene is adopting safer practices in the household to prevent sanitation related diseases (UN HABITAT, 2003). There are some tangible components of health composed by specialist in preventive medicine. They called sanitation a state characterized by physiological and psychological integrity. It implies the ability to perform personally valued family work, and community roles and the ability to deal with physical, biological, psychological, and social stress. This is a feeling of “well-being and freedom from the risk of disease and untimely death” (Stokes, Noren and Shindell, 1982).

Everything mentioned in this definition can be measured and counted at the individual and at the population level, although assessing "a feeling of well-being" may be a challenge, and "freedom from the risk of disease and untimely death" is not an achievable state.

2.3 How attitude can affect behaviour of people

In psychology, attitude is a mental position with regard to a fact or state. Attitudes reflect a tendency to classify objects and events and to react to them with some consistency. Attitudes are not directly observable but rather are inferred from the objective, evaluative responses a person makes (Encyclopaedia Britannica, 2010).

Attitudes are formed as a result of this ongoing evaluative process. Thus, attitudes are defined as evaluations of entities, including behaviour, that result in perceptions of favour or disfavour (Eagly and Chaiken, 1993). The term attitude is usually used to refer to a person's general feelings about an issue, object, or person (Petty and Cacioppo 1981). Attitude is a hypothetical construct that represents an individual's like or dislike for an item. Attitudes are positive, negative or neutral views of a person, behaviour or event. Attitudes are composed from various forms of judgments (Wikipedia, 2011).

Kaliyapermal (2004) studied the knowledge, attitudes and practices of a community. Changes in attitudes as well as changes in practices tell us what people know about certain things, how they feel and also how they behave. The knowledge possess by a community refers to the understanding of any given phenomenon. Attitude refers to the feelings towards the subject as well as any preconceived ideas that they may have towards it. Practice refers to the ways in

which they demonstrate their knowledge and attitude through their actions. Understanding the levels of Attitude and Practice will enable more efficient process of awareness creation as it will allow the programme to be tailored more appropriately to the needs of the community. Attitudes are said to have a major impact on behaviour and one's ability to manage and adapt to change while also influencing the behaviour of others (Aiken, 2002).

Mind can be changed towards a higher plane or a lower plane according to one's attitude towards a given situation, person, place or a concept. Attitude is linked to our sense of belief and previous judgments. Attitude counts a lot in our individual and social life. An attitude indicates our basic approach. We may say that our attitudes and inclinations are born out of our experience encounters with various aspects of life. Thus, we hold the view that our attitudes cannot be changed so long as our experiences remain so (Subramanian, 2009). Ever since the beginning of attitude research, investigators have puzzled over the relation between attitudes and behaviour. For instance reasons why people sometimes said they liked something and then acted as if they did not? They wondered if these instances were much less frequent than instances where the attitude and behaviour matched perfectly (Campbell, 1963).

The consistent failure to find strong attitude and behaviour correlations led researchers to search for explanations. Fishbein and Ajzen (1975) pointed out that past research often failed to measure a behaviour that directly corresponded to the attitude being measured. For instance, suppose we measured the relation between attitudes towards protecting the environment and using a recycling facility in a particular week. Even as a strong environmentalist, there might be many reasons why they might fail to recycle in a particular week. For instance, lack of a nearby

facility, lack of time to sort recyclables, and so on. The problem was that the measured behaviour of recycling in a particular week was very specific, whereas the attitude object, protecting the environment, much more general.

To better measure 'general' behaviour, Fishbein and Ajzen (1975), proposed the multiple act criterion, which involved measuring a large number of behaviours that were relevant to the general attitude being studied. For example, to measure pro-environment behaviour, we could measure numerous pro-environment behaviours, including recycling across several weeks, willingness to sign pro-environment petitions and tendency to pick up litter. This would give a more precise and reliable measure behaviour. Weigel and Newman gave a more precise and reliable measure to behaviour and found much stronger attitude and behaviour relations by taking an average measure of all of the behaviours, rather than any single behaviour (Weigel and Newman, 1976).

There had been increasing recognition within the international aid community that improving the health of poor people across the world depended upon adequate understanding of the socio-cultural and economic aspects of the context in which public health programmes were implemented. Such information had typically been gathered through various types of cross-sectional surveys, the most popular and widely used is the Knowledge, Attitude, and Practice (KAP) (Manderson and Aaby, 1992, Green 2001, Hausmann-Muela et al. 2003, Nichter, 2008). Furthermore, attitudes were interlinked with the person's knowledge, beliefs, emotions, and values, and they were either positive or negative. Causal attitudes or erroneous attitudes were considered derivatives of beliefs and/or knowledge. (Pelto & Pelto, 1994).

Investigators depended heavily on behavioural indicators of attitudes namely, what people say, how they responded to questionnaires or such physiological signs. Attitude research was employed by social psychologists, advertising professionals, and political scientists, among others. Public opinion researchers often attempted to distinguish attitudes from related concepts such as values, opinions, and knowledge (Encyclopaedia Britannica, 1994).

Attitude was later developed on the ABC model (Affect, Behavioural Change and cognition). The affective response was a physiological response that expressed an individual's preference for an entity. The behavioural intention was a verbal indication of the intention of an individual. The cognitive response was a cognitive evaluation of the entity to form an attitude. Most attitudes in individuals were a result of observational learning from their environment (Wikipedia, 2011).

Substantial evidence suggested that attitudes had important influence on the adoption of health-related behaviours. However, the relationship between attitudes and behaviour could be complex, and understanding how attitudes influenced behaviour may be enhanced by the use of a theoretical framework. The theory of planned behaviour was based on the premise that attitudes influence behaviour in unison with two other factors: perceptions of social norms. Studies of various health behaviours have found that attitudes, perceived social norms, and perceived ability. Each contributed, in varying combinations of importance, to predicting behaviour and behavioural intent (Eagly and Chaiken, 1993).

Thus, it would be appropriate to consider attitudes towards behaviour as one of these three broad classes of psychological determinants of health-related behaviour. One common problem

encountered in studying attitudes was that attitudes might either influence behaviours or be influenced by behaviours (Eagly and Chaiken, 1993).

2.4 General Attitude and Practices of people towards sanitation

Poor access to sanitation left people with only few options for eliminating their human excrement. The result was often public defecation.

According to the latest report on the United Nations Millennium Development Goals, eighteen percent of the world population defecated in the open public. This was about 1.2 billion people out of the already 2.5 billion people in developing countries without access to basic sanitation (UN MDG, 2009).

The 'healthy city' concept has been adopted in developing countries. From 1995 to 1999, the World Health Organization in Geneva supported Healthy City Projects (HCPs) in Cox's Bazar in Bangladesh, Dar es Salaam in Tanzania, Fayoum in Egypt, and Managua in Nicaragua and Quetta in Pakistan. The authors evaluated four of these projects, representing the first major evaluation of HCPs in developing countries. Methods used were stakeholder analysis, workshops, document analysis and interviews with one hundred and two managers/implementers and one hundred and three intended beneficiaries. Municipal health plan development in Europe used the 'settings' approach of the healthy city concept, whereby places such as markets and schools were targeted. The evaluation found that stakeholder involvement varied in relation to the level of knowledge of the project and the type of activities ranging from low stakeholder involvement among other things (Burton *et al.*, 2000).

There was limited political commitment to the Healthy City Projects, perhaps due to the fact that most of the municipalities had not requested the projects. World Health Organisation support enabled the project coordinators to network at national and international levels (Burton *et al.*, 2000). Municipal solid waste management practices caused flooding during rainy season in Accra. The Accra Metropolitan Area in Ghana has been facing increases in severe flood during the rainy season for the past decade (GMS, 1995).

Possible causes of the increases in flood severity in Accra ranged from inadequate flood management practices to poor waste management. Urban area floods occurred when drainage systems, gutters and other storm control devices spilt to its plains and over flown to flood control devices during heavy rains. Drains, as well as rivers and streams near the urban centres were often choked with refuse or silted up. This resulted in reduced capacity of river and stream channels causing flooding (Sam, 2009).

Environmental pollution could be ascribed to the uncontrolled disposal of both industrial and domestic waste which created problems in the collection and disposal of human waste in the metropolis (Domfeh 1996). The spread of diseases through food was a common problem which resulted in appreciable morbidity and occasional mortality. Traders played important roles in ensuring food safety throughout the chain of production, processing, storage and preparation (Abanobi, Dozie, Ukaga *et al.*, 2009).

2.5 Existing Practices to Improve Sanitation Conditions

A landfill site also known as tip, dump or rubbish dump and historically as a midden, is a site for the disposal of waste materials by burial. Landfill is the oldest form of waste treatment. Historically, landfills have been the most common methods of organized waste disposal and it has remained so in many places around the world. Landfills may include internal waste disposal sites where a producer of waste carries out their own waste disposal at the place of production as well as sites used by many producers. Many landfills are also used for waste management purposes, such as the temporary storage, consolidation and transfer, or processing of waste material sorting, treatment, or recycling (Hickman and Eldredge, 2005).

Landfills are often established in abandoned or unused quarries, mining voids or borrow pits. A properly-designed and well-managed site for landfill can be a hygienic and relatively inexpensive method of disposing of waste materials. Older, poorly-designed or poorly-managed landfills created a number of adverse environmental impacts. There were a number of concepts about waste management which vary in their usage between countries or regions. Some of the most general, widely-used concepts referred to the “3 Rs”, Reduce, Reuse and Recycle, which classified waste management strategies. Solid wastes included industrial wastes, construction wastes, agriculture wastes, house garbage, sludge, excrements, and medical wastes and so on. These specifications were according to their desirability in terms of waste minimization. The waste hierarchy remained the cornerstone of most waste minimization strategies. The aim of the waste hierarchy was to extract the maximum practical benefits from products and to generate the minimum amount of waste (WHO, 2002).

Existing final disposal sites for municipal solid waste were also not engineered and may be described as crude dumpsites. There was no waste separation at the source of generation and hazardous waste was often handled together with municipal solid waste (UN MDG, 2009).

In Europe and a few other places around the world, a few communities used appropriate collection system known as Envac, which conveyed refuse via underground conduits using a vacuum system. Different definitions were combined in order to ensure the safe and legal disposal of the waste (New York Daily Newspaper, 2007).

The European Union started a discussion that would end in an End-of-Waste directive which would clarify the distinction between waste that should be treated for disposal and raw materials that could be reused for the same or other purposes. The packaging of product used has been a major contributor of the waste generated. Therefore buying products with minimal packaging would reduce our waste (New York Daily Newspaper, 2007).

Land filling practices in the UK have had to change in recent years to meet the challenges of the European Landfill Directive. The UK imposed landfill tax upon biodegradable waste which was put into landfills. In addition to this the Landfill Allowance Trading Scheme was established for local authorities to trade landfill quotas in England. A different system operated in Wales where authorities were unable to trade between themselves, but had allowances known as the Landfill Allowance Scheme. In recent years, some countries, such as Germany, Austria, Belgium, the Netherlands, and Switzerland, have banned the disposal of untreated waste in landfills. In these

countries, only the ashes from incineration or the stabilized output of mechanical biological treatment plants might be deposited (Hickman and Eldredge, 2005).

In Canadian urban centres, curb side collection was the most common method of disposal, whereby the city collected waste and/or recyclables and/or organics on a scheduled basis. In rural areas people often disposed of their waste by hauling it to a transfer station. Waste collected was then transported to a regional landfill. In Taipei the city government charged its households and industries for the volume of rubbish they produced. Waste was only collected by the city council if it was disposed in government issued rubbish bags. This policy successfully reduced the amount of waste the city produced and increased the recycling rate (WHO, 2003).

In the United States landfills were regulated by the state's environmental agency that established minimum guidelines. However, none of these standards fell below those set by the United States Environmental Protection Agency (EPA). Example was the case with the Fresh Kills Landfill in Staten Island, which was claimed by many not only to be the world's largest landfill, but the world's largest human structure. The landfill had been closed and it is being transformed into a park (Hickman and Eldredge, 2005).

There has been large variety of composting and digestion methods and technologies varying in complexity, from simple home compost heaps to industrial-scale enclosed-vessel digestion of mixed domestic waste for mechanical or biological treatment. Methods of biological decomposition were differentiated as being aerobic or anaerobic, though hybrids of the two methods also existed (WHO, 2003).

A section of a landfill located in Barclay, Ontario has been one of several landfills used by Dryden, Ontario. Typically, in non hazardous waste landfills, predefined specifications and techniques were applied by which the wastes were:

- Confined to as small an area as possible.
- Compacted to reduce their volume.
- Covered usually daily with layers of soil.

During landfill operations the waste collection vehicles were weighed at a weighbridge on arrival and their load is inspected for wastes that do not accord with the landfill's waste acceptance criteria. Afterward, the waste collection vehicles used the existing road network on their way to the tipping face or working front where they unload the waste. After loads were deposited, compactors or dozers are used to spread and compact the waste on the working face (Hickman and Eldredge, 2005).

Before leaving the landfill boundaries, the waste collection vehicles passed through the wheel cleaning facility. If necessary, they returned to the weighbridge in order to be weighed without their load. Through the weighing process, the daily incoming waste tonnage was calculated and listed in databases. In addition to trucks, some landfills might be equipped to handle railroad containers. The use of rail-haul permitted landfills to be located at more remote sites, without the problems associated with many truck trips. Typically, in the working face, the compacted waste was covered with soil daily. Alternative waste-cover materials were several sprayed-on foam products and temporary blankets. Blankets were lifted into place with tracked excavators and then removed the following day prior to waste placement. Chipped wood and chemically fixed bio-solids might also be used as an alternate daily cover. The space that was occupied daily by

the compacted waste and the cover material was named a daily cell. Waste compaction was critical to extending the life of the landfill. Factors such as waste compressibility, waste layer thickness and the number of passes of the compactor over the waste affected the waste densities (Hickman and Eldredge, 2005).

Landfill operation in the area being filled was a single, well-defined cell. A rubberized landfill liner is in place exposed on the left to prevent contamination by leachates (liquid from waste) migrating downward through the underlying geological formation. A large number of adverse impacts might occur from landfill operations. These impacts could vary ranging from the following:

- fatal accidents like scavengers buried under waste piles.
- infrastructural damage like damage to access roads by heavy vehicles.
- pollution of the local environment such as contamination of groundwater and/or aquifers by leakage and residual soil contamination during landfill usage, as well as after landfill closure.
- off gassing of methane generated by decaying organic wastes as methane is a greenhouse gas many times more potent than carbon dioxide and can itself be a danger to inhabitants of an area.
- harbouring of disease vectors such as rats and flies, particularly from improperly operated landfills, which are common in developing countries cause injuries to wildlife.
- simple nuisance problems namely; dust, odour, vermin, or noise pollution and dust generated from vehicles that accessed landfill sites as well as from working face operations (Hickman and Eldredge, 2005).

These impacts are best intercepted at the planning stage where access routes and landfill geometrics could be used to mitigate such issues. Vector control was also important, but could be managed reasonably well with the daily cover protocols. Most modern landfills in industrialized countries were operated with controls to attempt to manage problems such as these. Analysis of common landfill operational problems was available. Some local authorities found it difficult to locate new landfills. Communities might charge a fee or levy in order to discourage waste and/or recover the costs of site operations. Many landfills were publicly funded, but some were commercial businesses, operated for profit (Hickman and Eldredge, 2005).

In Australia, curb side collection was the method of disposal of waste. Every urban domestic household was provided with three bins: one for recyclables, another for general waste and another for garden materials. These bins were provided by the municipality if requested. Also, many households had compost bins; but this was not provided by the municipality. To encourage recycling, municipalities provided large recycle bins, which were larger than general waste bins. Municipal, commercial and industrial, construction and demolition waste were dumped at landfills and some were recycled. Household waste was segregated; recyclables sorted and made into new products, and general waste was dumped in landfill areas. The recycling rate was high and increasing (WHO, 2003).

About ninety-nine percent of households reported that they had recycled or reused some of their waste within the past year up from 85 percent in 1992. This suggested that Australians were in favour of reduced or no land filling and the recycling of waste. Of the total waste produced between 2002 and 2003, thirty percent was made up of municipal waste, forty-four percent of

commercial and industrial waste and fifty seven percent of construction and demolition waste' were recycled. Energy was produced from the waste as well. Some landfill gas was captured for fuel or electricity generation. Households and industries were not charged for the volume of waste they produce (WHO, 2003).

In China, there was no doubt that garbage power had been the major manner for Chinese solid waste disposal. More than sixty percent of Chinese municipal solid wastes were from food wastes with high water content. They experience low heat and large-scaled investments, garbage power, with preferential electricity price, tax subsidies and free of income tax with decreased capacity of between seventy and ninety percent. These notwithstanding, they received the most popularity (Chen, 2009).

As far as the international experiences were concerned, compost technology was the fittest to the disposal of food wastes disposal. Chinese house solid wastes were not strictly classified. There existed odours from compost, low quality compost products, shortage of sale market, low economy problems in the compost technology. In recent years, the market scale of Chinese compost disposal has been cut down. According to the statistics, China produced various solid wastes over six billion tonnes annually. In 2008, the disposal volumes of Chinese municipal solid wastes reached two hundred million tonnes. The production volumes of crop stalks were about seven hundred million tonnes, 3.5 billion tonnes of dung and 1.9 billion tonnes of industrial wastes (Chen, 2009).

The disposal manners of Chinese industrial solid wastes could be divided into three. First, comprehensive utility extracted from the industrial solid wastes or transferred into resources energy and raw materials for storage. Second was temporary storage of the industrial solid wastes in the special infrastructure or place. The third disposed of by the manners of landfill or incineration and non-recycled. The comprehensive utility rate of Chinese industrial solid wastes was only about sixty percent, but the storage volumes were more than two hundred million tonnes. There existed high pressure in the industrial solid waste storage (Research Report on Chinese Solid Waste, 2009).

Landfills could be regarded as a viable and abundant source of materials and energy. In the developing world, this was widely understood and one might often find waste pickers scavenging for still usable materials. In a commercial context, landfills sites had also been discovered by companies and many had begun harvesting materials and energy. Well known examples were gas recovery facilities. Other commercial facilities include fossil fuel power plants and waste incinerators which had built-in material recovery (Hickman and Eldredge, 2005).

This material recovery was possible through the use of filters electro filter, active carbon and potassium filter, quench and sulphur IV oxide (SO₂) washer. An example is the Waste Fired Power Plant. The waste incinerator recovered a large part of the burnt waste in source materials. Marcel van Berlo who helped build the plant claimed the processed waste contained higher percentages of source materials than any mine in the world. He also added that when the plant was compared to a Chilean copper mine, the waste fired plant could recover more copper. However, because of the high concentration of gases and the unpredictability of the landfill

contents, which often included sharp objects, landfill excavation was generally considered dangerous. Furthermore, the quality of materials residing within landfills tended to degrade such materials that were thought not worth the risks required to recover them. The alternatives to landfills were waste reduction and recycling strategies. Secondary to not creating waste, there were various alternatives to landfills. In the late 20th century, alternative methods of waste disposal to landfill and incineration had begun to gain acceptance. Anaerobic digestion, composting, mechanical biological treatment, pyrolysis (use of heat to break down complex chemical substances) and plasma arc gasification all began to establish themselves in the market (Hickman and Eldredge, 2005).

In the case of municipal solid wastes, the Government of Kerala had a programme dubbed 'Clean Kerala Mission'. The intention was to select proper technology, identify treatment and disposal sites, prepare action plans and arranging training programme to various personal involvements in the municipal solid waste management (Environmental Information System, ENVIS Centre, 2010).

In the first phase, all urban local bodies were provided with solid waste management system and then to all rural local bodies. The assistance was in the form of preparing solid waste management schemes and helping to identify suitable waste processing and land disposal sites. In the case of municipal solid waste management the municipal corporations, the municipalities and all the Grama Panchayat were engaged in the solid waste management activities. The State Pollution Control Board as a statutory agency proactively participated in the implementation of

municipal solid waste management systems (Environmental Information System, ENVIS Centre, 2010).

In Ghana, management of waste has been a hard battle for the government. Several attempts have been made by the authorities and stakeholders. The sites at which the wastes are being deposited are apparently too close to residential areas (Accra Planning and Development Programme, 1990).

This in effect created more problems for the residents living in and around the dumping sites. The Accra Metropolitan Assembly (AMA) embarked on “waste to energy” programme. The aim of the programme was to transform all waste materials into energy to produce electricity in the capital. The mayor of Accra called for local and foreign expertise to help minimize sanitation problem in Accra and its environs (Idrissu, 2010).

The accelerated urbanization of Accra Metropolitan Assembly brought about problems of disposal of household waste and industrial effluent. This was because the poor infrastructure available over the years had not been able to cope with the waste generated. Solid waste generated by some of the industries was used for landfills, probably without the necessary monitoring network to check the stability of the dumps (APDP, 1990).

2.6 Challenges towards improving sanitation conditions

The greatest challenge of improving sanitation lied in the urban areas and informal sector (Dougall and McGahey, 2003).

A study performed with stakeholders on sanitation to understand perception of sanitation challenges suggested that stakeholders' perspective was one of the greatest challenges towards the attitude of residents. In their opinion, there was the need to make education and awareness raising paramount, regarding the connection between sanitation, behaviour and health as pertinent actions. Capacity buildings, logistics, human resources, competitive involvement of the private sector were also raised. Nostrum was also mentioned as challenging areas that the assembly needed to develop further (Owusu & Roojen 2008).

Another problem of improving sanitation was that people refused to talk about sanitation as responsibility for all. So what was seen as solely the responsibility of others when it was for all could not be improved upon unless that attitude was altered or changed.

Until discussed and personalised we cannot improve it (National Environmental Sanitation Policy Coordination Council. NESPoCC, 2008).

The open dumping areas could create health problem, as it led to multiplication of rodents and flies. Open dumping might result in the generation of anaerobic gases, which led to creation of bad odour primarily resulting in a variety of diseases. There were persistent complaints from people residing near open dumping areas. Health care establishment premises with poor solid waste management were more prone to spreading diseases (ENVIS Centre, 2010).

The World Toilet Organisations (WTO) started the World Toilet Summit, an annual international conference for all people in the toilet and sanitation field to meet in 2008. The purpose was to exchange knowledge and experiences. It was held in 2001 at Singapore, 2002 in Seoul, 2003 in

Taipei, 2004 Beijing, 2005 Belfast, 2006 Moscow, and 2007 New Delhi. Every event was sponsored by the respective local government as WTO gave them the hosting rights. People were so inhibited against the subject 'Sanitation'. Second was inability to develop and use appropriate skills in managing waste into other useful materials. There was no such thing as human waste. Our excreta are actually nutrients and good fertilizers. The third challenge was government's inability to provide enough funds for managing waste. The WTO drove a market-based strategy as donors funding were not the long term solution. Inadequate public education was another challenge and need for proper sanitation and how waste could be managed. The filthy condition was as a result of ignorance and non-enforcement of the law. Apparently, the laws that govern sanctions on living and working in unsanitary condition were either unknown or not enforced (NESPoCC, 2008).

Also, as most rivers and their important tributaries were major receptacles of waste water and in some cases solid waste, these rivers that acted as open sewers, posed serious threats to public health in the densely built areas of the urban cities (Sam, 2009).

In Developing countries such as Ghana, there were many communities, which were unplanned and were occupied by squatters and illegal settlements. Growth of grass and weeds were common sights in many sections of various river channels. This naturally resulted in retardation of flow and consequent flooding of the banks of the rivers during heavy storms. During dry weather the grass and weeds caused ponding in several sections, which provided breeding grounds for mosquitoes. Accra had many fast-growing, low-income communities with no

infrastructure for waste disposal. Waste washed into drainage ways and was hypothesized to cause increase flooding (Sam, 2009).

Eight main drains flood frequently affected over thousand people within the Accra metropolitan area. This was common in neighbourhoods such as Kaneshie, Mataheko, Sukura, Nima, Tesano, Mukose, Mpamprom Stream, Chemu Stream and Dzorwulu. The relative impact was human suffering, disease epidemic, poor community health, stress, and disruption of commercial activities and normal community activities. Clearly, the existing systems could not cope with the ever-increasing volume of solid waste being generated in Ghana. Therefore the public disposed of rubbish indiscriminately especially in watercourses and drainage channels and often through burning. Huge piles of refuse and overflowing refuse containers are seen throughout the urban centres particularly near markets and squatter settlements (Ghana Meteorological Service GMS, 1995).

Forty percent of the world's population, 2.5 billion people, had no access to basic sanitation. This post looked at some of the challenges and opportunities that lied ahead. The vast majority of those without access resided in Asia and sub-Saharan Africa where the regional access rates fell to as low as fifty three percent and thirty one percent respectively (Earth Trends, 2006).

Flooding in Accra had become a perennial phenomenon. Experts had been grappling with ways and means of containing the floods in order to save lives and property. Over the past decade beginning in 1995, floods had claimed several lives, and destroyed public infrastructure and property. Inadequate capacities of some critical culverts, insufficient stream channel capacity and

obstruction of flows by buildings across natural stream courses and deposition of garbage into the streams also gave rise to flooding. In Accra as in most urban centres in Ghana, provision of infrastructural facilities had substantially lagged behind the rapid rate of housing development. Inadequate storm water drainage was one of the most serious problems facing Accra (GMS, 1995).

Flooding in low-lying areas, erosion of steep slope areas, and pollution of streams by waste discharges, was identified as the major environmental problems facing the city. These problems were interrelated in that, flooding was caused by insufficient carrying capacities of the respective streams, brought about by the accumulation of silt resulting in erosion and blockages caused by solid waste deposited in the streams.(Ghana Metrological Department, 1995).

One of the principal flooding types in Greater Accra Metropolitan Assembly was due to the rate and dynamics of urbanization. Floods in this regard could be attributed to the increase of the impermeable areas and inadequate drainage systems such as conduits and channels (White and Hass, 1975). The land use surface in small urban pockets within Accra Metropolitan Assembly was made of aluminium roofs, untarred streets and other impervious surfaces. Runoff flowed through these surfaces to the storm sewers and low lying areas. It changed the hydrologic cycle, increased the overland flow and decreased the groundwater flow (White and Hass, 1975). Under these circumstances the peak discharge increased together with the flood frequency. In addition, the washed urban surfaces during rainy days increase the pollution load in urban environment and to downstream rivers. Urban flooding however was a natural process in which drainage system spilt to their plains during storm. (Tucci et al, 1999).

In Ghana the causes of urban flooding although diverse, were to some extent interrelated. In Accra, low-lying areas were subjected to severe perennial flooding, which was generally attributed to inadequately sized culverts, and blockage of the major drains by accumulated silt caused by years of neglect and lack of maintenance (Nyamekye, 2002). There was also the effect of tidal variations on rivers and streams leading to flooding. The effects of variations of the hydro climate conditions led to flooding (Wohl, 2002).

This could be attributed to the variation and the spatial context of regional, local, and global atmospheric processes and circulation patterns from which the floods developed (Hirschboeck, 1988). The capacities of most rivers have been greatly reduced by the deposition of silt and garbage and weed growth in and along the riverbanks (Lavallin, 1996).

While existing solid waste disposal facilities were inadequate to deal with the quality and quantity of waste generated, sophisticated systems such as incineration and biogas production were not in use as these entail a high level of technology. Besides, maintenance requirements were high. Accra Metropolitan Assembly's urban run-off contained varying quantities of all the following, depending on the location where the runoff was generated. Notably among them were floatable and visual contaminants, degradable organics, suspended solids nutrients, bacteria, and virus toxicants and dissolved solids. Floatable and visual contaminants were usually as a result of improper solid waste disposal. Plastic bags and bottles were the commonest items to be found in urban runoffs. By far the most worrying contaminant was sanitary waste. Indiscriminate defecation in drains, open spaces water courses and dump sites was common, giving rise to excreta – related diseases, and generally posing a health hazard to the public. During storm

events, liquid waste was wasted along by runoffs into areas of human settlements and water sources. At public toilets, holding septic tanks often overflowed during rainy seasons to compound the problem further. The other principal attribute to flooding was illegal settlements and construction of housing structures within flood plain (Tucci, 1999).

2.7 Strategies to Improve Attitudes and Practices of Stakeholders towards Improving the Sanitation.

The range of waste management strategies could be as wide as waste is diverse.

The basic steps included:

- **Source reduction** through educating, sorting, recycling, composting
- **collection and transport; treatment** through incineration, chemical and biological treatments
- **disposal** through open dumps, sanitary landfills, deep-well geological disposals. These processes themselves generated “the waste of the waste.” An example is incineration residues. Sound waste management required a high level of technology and a significant budget. Developing countries could learn from the recycling and reuse levels in developed countries (UNEP /GRID 2011).

Strategies in improving attitudes and practices of sanitation needed a holistic approach and this brought the concept of social marketing based on a concept of management which necessitated a change in attitudes and behaviour. Social Marketing remained a useful way of convincing people to adopt practices and change behaviours that would improve their lives, both health wise and economically. The Social Marketing approach had been successfully used in many sectors. It considered people as customers rather than beneficiaries, and focused on processes that

empowered the customer to make informed choices. In the sanitation sector, such processes included awareness building and careful consideration of issues such as health and hygiene and matching them with viable technical solutions (United Nations Human Settlements Programme UN-HABITAT, 2006).

One of the main reasons for poor progress in sanitation sector in the past could be attributed to failure to involve the people in the programme and to create adequate demand for sanitation. Improved sanitation had multi-faceted benefits to the humanity. In order to improve the attitudes and practices towards sanitation, appropriate measures for social marketing of sanitation would be the much needed approach to balance between the demand and supply and its acceleration. The social marketing campaign began with beneficiary participating in bringing about behavioural change. It could be product or behaviour focused. Social marketing for sanitation seeks better health through encouraging behavioural change. It puts consumers at the health of the programmes, ensuring participation and partnership in programme development. Social marketing demands that social programmes respond to people's perceptions and aspirations (UN-HABITAT, 2006).

A holistic and integrated management approach must extend over the entire waste cycle from cradle to grave, and should cover the prevention, generation, collection, transportation, treatment and final disposal of waste. Integrated waste management represented a paradigm shift in South Africa's approach to waste management. It moved away from waste management through impact management and remediation and establishing to a waste management system which focused on

waste prevention and waste minimization (National Waste Management Strategy, NWMS, 1999).

Hygiene promotion and sanitation promotion were both concerned with facilitating behaviour change and alternative approach to behaviour change. The basic reason for adopting social marketing approach to the sanitation sector was to encourage the behavioural and attitudinal changes which were practices considered as the key instrument in promoting sanitation and also as products which required persuasion of people. The social marketing in the sanitation sector was necessary for demand creation and satisfaction of the intended beneficiaries, particularly the poorest of the poor (UN-HABITAT, 2006).

Social marketing of sanitation addresses the following:

- hygiene promotion: encouraging people to adopt safer practices in the household to prevent sanitation related diseases.
- sanitation promotion: which includes the marketing and promotion of sanitation products and services.

The demand would be created when consumer was motivated and persuaded to have opportunity and resources to procure sanitation technologies that would suit their needs. It was necessary for them to learn the market mechanism and understand the various forms of partnerships that promoted marketing of sanitation. The consumer was also required to learn the impediments, strategies and approaches for obtaining the sanitation technologies. A number of social activists felt that reliance on appropriate technologies alone would not be enough to meet the sanitation target in the Millennium Development Goals (MDGs). As regards enhancement of success, one

needed to go to the people to educate and inform them about the technology, persuade them for its adoption and then keep a watch whether they are being properly used or not. This was really strategic for social marketing. The Voluntary organizations needed to get themselves involved in practical work and not remain dependent on the Government grants/subsidies or public donations. There was the need to run it on a no-profit-no-loss basis so as to be fully self-reliant. Marketing Sanitation was a managerial approach which made the programmes cost effective by creating social and public awareness, satisfied the demands of the users. The quality services needed to be taken into account by cautiously adopting appropriate strategies for social marketing of Sanitation (United Nations Human Settlements Programme UN-HABITAT, 2006).

Management of waste has been basic requirement of ecologically sustainable development.

Reducing adverse environmental effects involved waste material: monitoring, collection, transport, processing and disposal. Waste materials originated from a variety of sources. They included industrial, agricultural, commercial and domestic activities. Many governments and organizations adopted 'zero waste' policies. Effective waste management strategies assisted in minimizing or avoiding adverse impacts on the environment and human health, while it enhanced economic development and improvement in the quality of life. This whole-of-system approach aimed at reducing waste at the source through product design and producer responsibility (Commonwealth Scientific and Industrial Research Organisation CSIRO 2008).

Researchers helped solve waste management challenges by:

- commercializing innovative technologies and cleaner processes
- developing new remediation techniques and industries

- understanding waste stocks and flows (CSIRO 2008).

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter focuses on the procedures employed to conduct the research at the Kaneshie Market Complex. It covered the following:

- Research
- Design
- Population of the study
- Sample
- Sampling technique
- Instrument for collecting data
- Validity and reliability of instruments
- Pilot study
- Data collection procedure
- Methods of data Analysis

3.2 Research Design

The research method used for the study was the descriptive survey. The method was appropriate because it enabled the researcher to ask questions concerning the behaviour, thoughts and attitudes and practices of traders and stakeholders at the Kaneshie Market Complex. Survey research has been one of the most widely used methods of data collection in the social sciences (Opoku, 2000).

According to Cohen and Manion (1986), the most commonly used descriptive method in educational research is survey. Cohen and Manion thought that typically, survey gathers data at a particular point in time with the intention of:

- (a) describing the nature of existing condition
- (b) identifying standards against which existing condition can be compared to
- (c) determining the relationship that exists between specific events.

Also, Fraenkel and Wallen (2003) thought that in studying large and small populations it is appropriate to use the survey method in order to establish relationships and associations.

3.3 Population of the study

Population as used in research refers to all the members of a particular group. It is the group of interest to the researcher, the group to which the researcher would like to generalize the result of the study (Fraenkel and Wallen, 2003). The population targeted for the study was the market managers, traders, drivers and other stakeholders at the Kaneshie Market Complex and Accra Metropolitan Assembly, J. Stanley Owusu & Co. and Zoom Lion Waste Management. The total population was ten thousand, one hundred and five, made up of the market management, traders, artisans, drivers, AMA staff, Zoom Lion staff and J. Stanley Owusu & Co.

3.4 Sample

A sample is any part of a population of individuals on whom information is obtained. The sample size should be as large as a researcher can obtain with a reasonable expenditure of time and energy (Fraenkel and Wallen, 2003).

According to Cohen and Manion, (1986), a sample is a smaller group or subset of the population in such a way that the knowledge gained is representative of the total population. They also thought that the correct sample size for the study depends on the purpose of the study and the nature of population under scrutiny. They however, advised that a sample size of thirty is held by many to be the minimum number of cases.

To Ader, Mellenberg and Hand (2008), researchers rarely survey entire population for two reasons, either the cost is too high or population is dynamic, in that the individual making up the population may change over time. The sample size selected for the study was one hundred and five made up of 100 waste generators 5 waste management operators.

3.5 Sampling technique

The term 'sampling' as used in research, refers to the process of selecting the individuals who would participate or be observed in a research study (Fraenkel and Wallen, 2003). Quota sampling technique was used for the study. According to Twumasi (2001), in quota sampling; the researcher selects people from each of the population.

The researcher categorized respondents into groups namely; waste generators and waste operators. The researcher allocated quota and used sample size from each sub-group namely those who generated waste on one hand and those who managed the waste on the other. The first group was made up of market management, traders, beauticians, drivers, caterer as those who generated the waste. Then the second group were those who managed them namely: Accra Metropolitan Assembly, J. Stanley Owusu & Co. and Zoom Lion.

A sample of one hundred and five respondents was selected from both groups to give an exact estimate of each sub group in the population. Since it was not homogeneous it was not therefore possible to select at random from the population. After the sub- groups had been identified as shown in Table 3.1, convenient sampling was used to select one hundred respondents from waste generators and five respondents from waste operators.

According to Fraenkel and Wallen (2003), a convenience sampling is a group of individuals who conveniently are available for study. Fraenkel and Wallen thought that at times, it is extremely difficult or sometimes impossible to select a random or systematic non-random sample. The researcher used convenient sampling technique because the respondents were business oriented people who had little or no time to spare for an interview. There researcher used quota to sample and select those within the sample size who were willing and ready be interviewed.

TABLE 3.1: Quota Sample

Sub group	Population	Sample
Waste Generators (Market Mgt, Traders, caterers, drivers, beauticians and others)	10,090	100
Waste Operators (AMA, J. Stanley & Co., ZoomLion Waste Mgt Company)	15	5
Total	10,105	105

Source: Field data (March, 2011)

3.6 Instrument for Collecting Data

Data refers to the kind of information researchers obtain on their subject (Fraenkel and Wallen, 2003).

According to Twumasi (2003), interview is a method of field investigation whereby the researcher meets his or her respondents and through interaction and asks specific questions to find answers to a researcher problem.

The tools the researcher used in collecting data from the field were structured interview guide and questionnaire. The researchers prepared an interview schedule or guide and questionnaire consisting of several specific questions used to collect information on socio demographic characters and attitudes and practices of stakeholders towards sanitation at the Kaneshie Market Complex. The structured interview schedule was administered to the waste generators while the questionnaires were given to the waste operators.

These tools were appropriate because they enabled the researcher to have in-depth knowledge about attitude and practices towards sanitation by waste generators and waste operators at the market in a more relaxed manner with respondents. During the researcher's encounter with respondents, the researcher asked specific questions. Some questions also emerged from the field discussion. They were unstructured.

3.7 Validity and Reliability of Instruments

Measures were taken to ensure the reliability of the instruments used for the study. In order to ensure consistency the same instruments were used for all the respondents.

The questions on the interview schedule were asked in languages that respondents fully understood in order to ensure content validity. The researcher and senior colleagues also reviewed and scrutinised the instruments.

3.8 Pilot Study

According to Fraenkel and Wallen (2003), pre-test of questions reveals ambiguities, poorly worded questions that are not understandable and have unclear choices. The instruments the researcher used to collect data were pre-tested on nine waste generators and one Waste Operator at the Kaneshie Market Complex. This helped the researcher improve on the appropriate wording and phrasing of questions for the interview schedule. For example instead of asking ‘Don’t you think you should be responsible for managing the waste you generate?’ the question was changed to ‘Do you think you should help in keeping the market clean?’

The pilot study equipped the researcher with details of the problems on sanitation at the Kaneshie Market Complex that the researcher wanted to research into. It also afforded the researcher the privilege to remove inappropriate words and provocative questions in order to redesign the interview guide for the field work. On the basis of the pre-test result, the researcher made necessary revision and corrected any ambiguities for the final form of the interview guide for the field work and also helped standardized the questions and scores for analysis.

The pre-testing also provided an insight into the strategies of field work to the researcher. All the twenty pre-tested interviews were analyzed to suit the trend of the study.

3.9 Method of Data Analysis

Research Assistants were employed, trained and used. The In-depth interviews and questionnaires were used to collect information from the respondents on their views, attitudes and practices towards sanitation at the Kaneshie Market Complex.

According to Twumasi (2001), the computer and the Statistical Package for the social sciences (SPSS) are simply the tools that can help the researcher to summarize the data to create the appropriate tables and graphs to examine the relationships among variables and to perform other tests of statistical significance and to develop and create models.

The data that the researcher collected from the field were counted to ensure they were up to 105. The data was put into themes and coded, described and analyzed using Statistics Package for the Social Sciences. The data analysed were summarised in the form of percentages, charts, tables and graphs to help the researcher analyze, discuss and make useful suggestions.

CHAPTER FOUR

PRESENTATION OF RESULTS

4.1 Introduction

This chapter presents the results of the study carried out on Attitudes and Practices towards Sanitation among one hundred and five stakeholders (100 waste generators and 5 waste operators). For the sake of clarity, the presentation is done in the order of the arrangement of the objectives and research questions as indicated below:

- Demographic characteristics
- General Attitude of waste generators towards Sanitation
- Existing Practices to improve sanitation conditions
- Challenges in improving sanitation
- Strategies to improve attitudes and practices of stakeholders

4.2 Demographic Characteristics

Data was gathered to assess the attitude and practices towards sanitation at the market complex.

Results of the analyzed data are presented below in the form of tables and charts.

The demographic characteristics of both waste operators and waste generators were sought to enable the researcher have an idea of the background of the stakeholders at the Kaneshie market complex. The variables investigated included age, gender, educational level, religion, marital status, occupation and how long the stakeholders have been working in the market. The results are summarized in Table 4.1.

4.3 Table 4.1: Demographic Characteristics

Variables	Waste generators		Waste operators	
	Frequency	Percentage	Frequency	Percentage
Age				
20-29	17	17	-	-
30-39	29	29	2	40
40-49	30	30	2	40
50-59	16	16	1	20
60+	8	8	-	-
Total	100	100	5	100
Sex	Frequency	Percentage	Frequency	Percentage
Male	25	25	4	80
Female	75	75	1	20
Total	100	100	5	100
Educational level	Frequency	Percentage	Frequency	Percentage
No formal education	20	20	-	-
Basic Education	55	55	2	40
Sec./Voc./Technical	24	24	1	20
Tertiary(Poly/University)	1	1	2	40
Total	100	100	5	100
Religious affiliation	Frequency	Percentage	Frequency	Percentage
Christian	75	75	-	-
Moslem	25	25	-	-
Total	100	100	-	-
Marital status	Frequency	Percentage	Frequency	Percentage
Single	10	10	-	-
Married	51	51	-	-
Separated	19	19	-	-
Divorced	12	12	-	-
Widowed	8	8	-	-
Total	100	100	-	-

Years spent working at the market	Frequency	Percentage	Frequency	Percentage
0-5 years	14	14	-	-
6-10	22	22	4	80
11-15	14	14	-	-
16-20	23	23	-	-
20+	27	27	1	20
Total	100	100	5	100
Occupation	Frequency	Percentage	Frequency	Percentage
Driver	16	16	2	40
Trader	59	59	-	-
Beautician	11	11	-	-
Caterer	13	13	-	-
Other waste workers	-	-	2	40
Manager	1	1	1	20
Total	100	100	5	100

N=105

Source: Field Data (March, 2011)

The results presented in Table 4.1 shows that significant number (92%) of the waste generators were between 20 and 59 years while most (80%) of the waste operators were between 30 and 59 years. This result shows that the waste generators cut across a wider age group than the waste operators. This may probably be due to the fact that many people who patronize the market are varied.

With regards to gender, four-fifths (80%) of the waste generators were females while only one-fifth (20%) of the waste operators were females. The results on the waste generators could be attributed to the observation that majority of women are found in the informal sectors. With the waste operators, one could deduce that operating machinery such as those that lifted large amount of garbage from waste receptacles as well as the entire process of waste disposal

demands energy. Hence, it is possible that the waste management companies assigned that duty more to males while the females engage in clerical and administrative duties.

On the educational level of respondents, one-fifths (20%) of the waste generators had no formal education, 79 percent had either basic education or second cycle education, while only one percent obtained tertiary education. The waste operators on the other hand were all literate. Three-fifths (60%) of them had basic or second cycle education while two-fifths (40%) acquired tertiary education. This result on the educational level shows that while one can work in or patronize the market without a certificate, one needs at least basic education for employment in a waste management company. The results clearly indicate that most of the traders who lived in filth had low level of education.

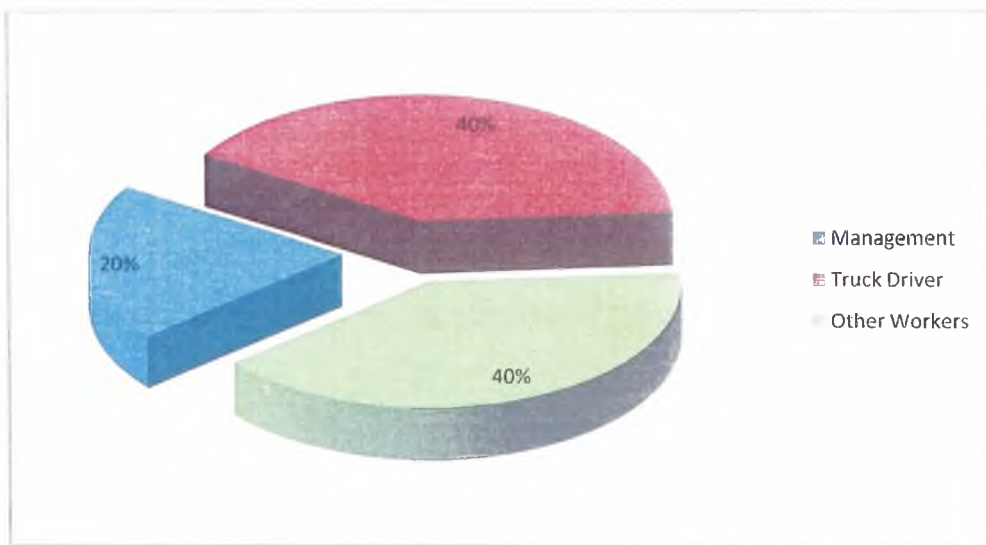
The religious background of respondents shows that three-quarters (75%) of the waste generators were Christians with only 25 percent being Muslims. The study revealed that despite the belief of cleanliness attached to Godliness, both Christians and Muslim respondents did not practice the cleanliness or translate that into personal hygiene at the market.

A significant number of waste generators (90%) were either married, separated, divorced or widowed. This put them in the situation of parents or dependants and their survival at the market was very crucial. Therefore any issues concerning their health and survival would be equally important too. An insignificant number (10%) were single. With regards to the number of years that respondents have been working in the market, a significant number (80%) of the waste operators have worked between 6 and 10 years while the duration of the waste generators cut

across all years (0 to 20 years and above). This is not surprising because waste generators constantly patronize the market as people retired from active trade, new people engage in trading activities. The detailed results are in Table 4.1.

Another variable on demographics that information was sought was the occupation of respondents. The results revealed that majority (59%) of the waste generators were traders while few (41%) of them were drivers, beauticians and caterers. See result in Table 4.1. With regards to the waste operators, although all of them worked in similar organization, the results revealed that only 20 percent of them held managerial positions while four-fifth (80%) of waste operators were truck drivers and other workers. The analysis indicated that those in management were very few because waste operation which is the core business involved mainly collection and disposal, needed to be done outside the office. Figure 4.1 illustrate the results.

Figure 4.1: Role of Workers in Waste Management



Source: Field Data (March, 2011)

The cross tabulation in table 4.2 shows the distribution of educational level of waste generators and waste operators. While one-fifth (20%) of waste generators have no formal education, all (100%) of waste operators have some form of formal education. This implies that whereas the market users can do business regardless of their educational background, it is a must for employees of waste operators to have some form of education.

Table 4.2: Cross Tabulation of Educational level of Waste Generators and Waste operators in the Organization.

Educational Level	Waste generators		Waste Operators		Total
	Frequency	%	Frequency	%	
No formal Education	20	20	-	-	20
Basic Education	55	55	2	40	57
Secondary Education	24	24	1	20	25
Tertiary Education	1	1	2	40	3
Total	100	100	5	100	105

N=105

Source: Field Data (March, 2011)

4.3 General Attitude of Waste Generators towards Sanitation

The researcher also sought data on the general attitude of waste generators towards sanitation at the Kaneshie market complex.

4.3.1 Current State of Sanitation at the Market

The study sought to find out the current state of sanitation at the market. The result presented in Figure 4.2 indicated that sixty-four percent of the respondents by the nature of their jobs generated waste.

Moreover, about two-thirds (64%) of the waste generated was organic while the remaining (36%) was inorganic. This shows that waste generated at the Market is not that complex to manage if useful materials were generated from it as would have been in the case of industrial or medical waste because organic waste decomposes easily. However, if not lifted in good time it decomposed and generated a lot of stench and houseflies at the market.

Figure 4.2 Composition of Waste Generation at the Market



Source: Field Data (March, 2011)

Results regarding the current state of sanitation in the Kaneshie market complex are presented in Table 4.3.

Table 4.3: Current state of sanitation in the market

Current state of sanitation	Waste generators		Waste operators		Total
	Frequency	Percentage	Frequency	Percentage	
Good	3	3	-	-	3
Quite good	7	7	3	60	10
Very good	2	2	1	20	3
Bad	40	40	-	-	40
A little bad	31	31	1	20	32
Very bad	17	17	-	-	17
Total	100	100	5	100	105

N=105

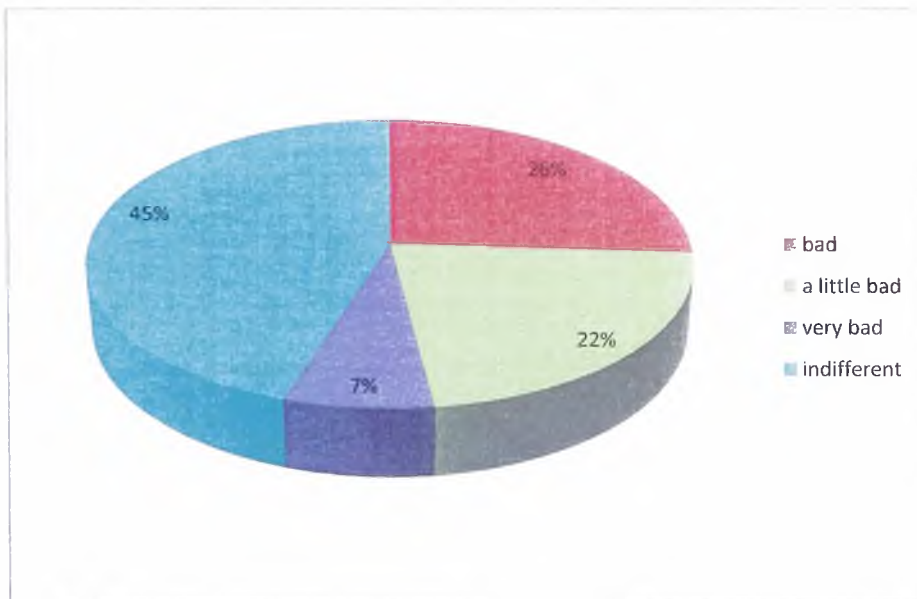
Source: Field Data (March, 2011)

Concerning the current state of sanitation in the market, most of the waste generators (88%) described the situation as bad, a little bad or very bad. Only 12 percent described it as good or quite good. Similarly, two-thirds (60%) of the waste operators described the situation as not appropriate. It is not surprising because they have put in a lot of efforts that they see to be positive.

4.3.2 Attitude of waste generators towards transacting business in unhygienic environment.

When the waste generators were asked how they felt as they transacted business in the unhygienic environment, a little above half (55%) felt either bad, a little bad or very bad while close to half (45%) were indifferent. This is shown in Figure 4.3.

Figure 4.3: Attitude of waste generators towards transacting business in unhygienic environment



N=100

Source: Field Data (March, 2011)

This indifferent attitude portrayed by close to half of the waste generators (as shown by the result in Figure 4.3) explains why many of them did not feel uncomfortable when transacting business in such an unhealthy environment.

Again, when the waste generators were asked whether they had experienced any sickness as a result of living in the unhygienic market environment, 53 percent responded in the affirmative. Only (47%) responded in the negative. Those who responded in the affirmative cited the following as some of the ailments they suffered as a result of the unhealthy market environment:

Table 4.4 Sicknesses Waste Generators Suffered from

Since you started working here have you experienced any sickness as a result of unhygienic environment?	Response	Frequency	Malaria	Cholera	Typhoid	Diarrhea	Cough & Cold	Total (%)
Yes	Yes	53	14	9	6	10	14	53
	%	53	14	9	6	10	14	53
No	No	47	-	-	-	-	-	47
	%	47	-	-	-	-	-	47
Total	Total	100	14	9	6	10	14	100

N=100

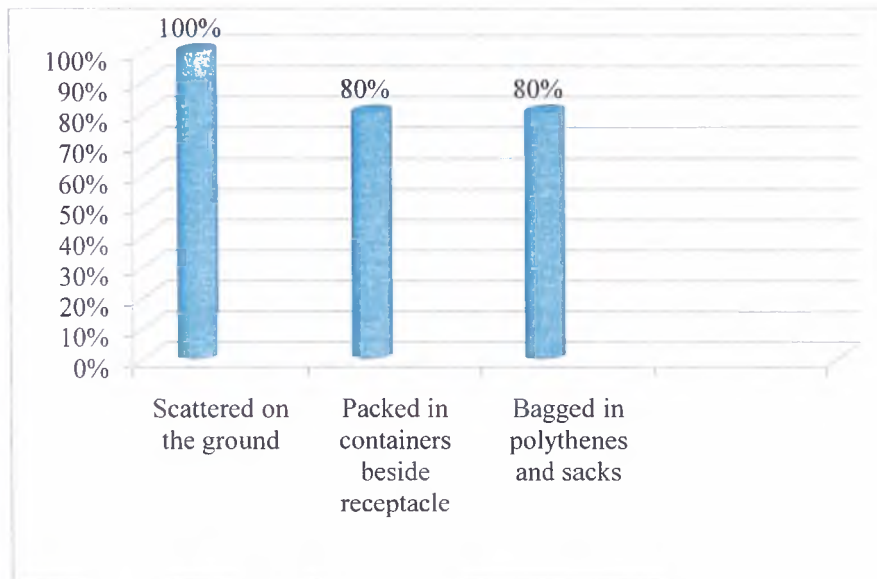
Source: Field Data (March, 2011)

When waste operators were asked of their opinion about waste generators attitudes towards sanitation all of the waste operators (100%) said general attitude of people towards maintaining good sanitation at the market complex was poor.

4.3.3 How waste is disposed of by waste generators at Kaneshie market complex

As to whether waste operators always found all the waste deposited neatly in the receptacles provided at the market after the receptacle was full, all of them (100%) responded in the negative. When waste operators were asked where they found the excess waste, multiple responses were given. These are summarized in Table 4.4.

Figure 4.4: How waste is disposed by waste generators at Kaneshie market complex



N=100

Source: Field Data (March, 2011)

However, all of the waste operators (100%) agreed on at least on one issue that waste generators scattered the waste on the ground. Eighty percent claimed the wastes were found packed in containers beside the receptacle, while same number (80%) found the waste in polythene bags and sacks that have been abandoned on the ground.

4.3.4 Fee paid for disposing of waste

Those who said they disposed their waste properly indicated that they paid between ₵0.50 and GH₵2.00 as disposal fee a day. Although officially they were not suppose to pay for disposing off their waste at the market the waste generators felt they had to motivate those who arranged the waste and kept the surrounding of the receptacle clean. Sixty-six percent of the waste generators admitted that there is the need to help in keeping the market clean and hygienic.

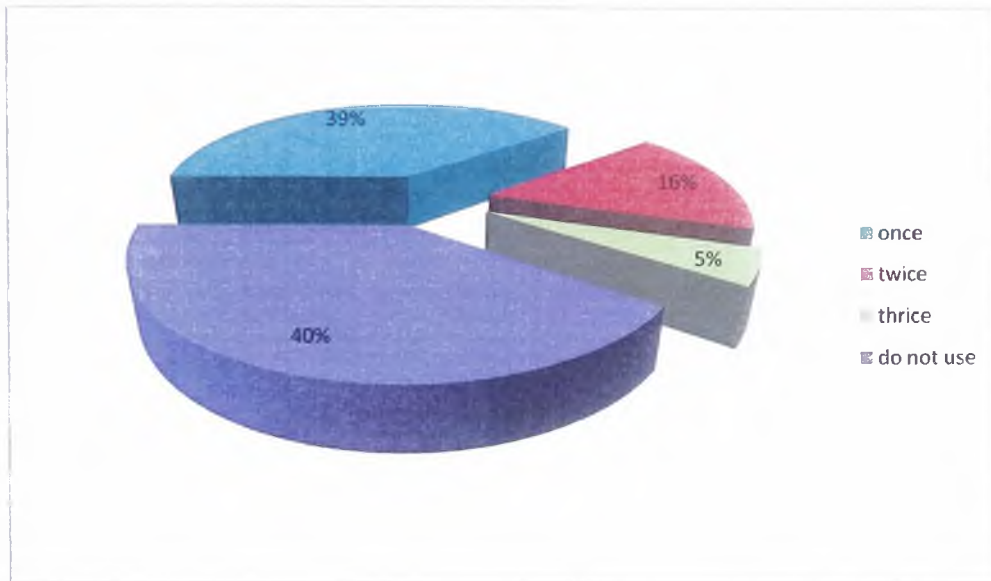
4.4 Existing Practices to Improve Sanitation Conditions at the Market

When waste generators and waste operators were asked questions concerning the existing practices to improve sanitation at the market complex their responses varied. Regarding the number of waste receptacles available in the market, a significant number (88%) of the waste generators said there was one while an insignificant number (8%) said there were two, while 4 percent had no idea of the number of receptacles in the market.

4.4.1: How Often Waste Generators Use Waste Receptacles in the Market

Results in Figure 4.5 shows that two-fifths (40%) of the waste generators did not use the receptacle available at the market for waste disposal. This finding indicated that the sanitation condition at the Kaneshie market complex was not pleasant. If two-fifths of the waste generators did not use the waste receptacle provided by the waste management organizations for waste disposal, then the obvious places for disposal would be the shoulders of the street and gutters. This explains why the market got flooded and produced stench whenever it rained. Drains got choked and the garbage disposed on the ground rot creating an unhealthy environment for both workers and patrons of the market.

Figure 4.5: How Often Waste Generators Use Waste Receptacles in the Market



Source: Field Data (March, 2011)

As to the number of times the receptacles were emptied daily, noticeable number (80%) of the waste generators stated that the waste receptacle was emptied just once a day. Thirteen percent mentioned that the receptacles were emptied twice a day while a few (7%) had no idea as to the number of times the receptacles are emptied daily. See Figure 4.5

Table 4.5: Opinion on how often waste receptacle is emptied daily.

Number of times waste receptacle are emptied	Waste generators		Waste Operators		Total
	Frequency	%	Frequency	%	
Once	80	80	-	-	80
Twice	13	13	5	100	18
No knowledge	7	7	-	-	7
Total	100	100	5	100	105

N=105

Source: Field Data (March, 2011)

4.4.2 *How Waste operators manage waste*

The study sought to find out how waste operators manage the large volumes of waste they lift from the market. All of them (100%) mentioned that it is dumped in a landfill site at Oblogo or Ablekuma. They indicated dumping the waste at landfill sites might not be appropriate due to the large volume of waste that was generated at the market daily. Solid waste has created difficulty in maintaining good sanitation in the market. This may be due to the variety of waste that waste generators at the Kaneshie market complex generate; house garbage, business waste, sludge, excreta, and carcasses.

Although, the city authorities have plans to generate waste into energy it can only be implemented when the appropriate mechanisms are put in place. Until then dumping in landfill sites would be the option.

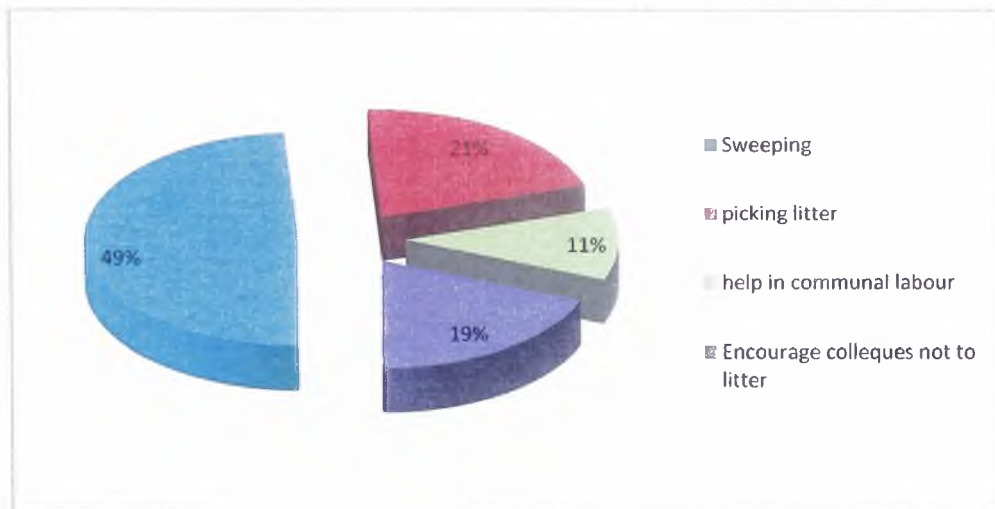
Waste generators were asked if they think they should help to keep the market clean. One male respondent said:

'No, I don't have to because even in the house my wife does the cleaning so why should I pay toll at the market and in addition do the cleaning. The authorities collect market toll and that is a lot of money. They can use that to take care of the market's needs including keeping good sanitation''.

On the contrary, other waste generators admitted that the sanitation practices at the market were not good enough. They mentioned that inside the market building sweeping went on as many times as the place became dirty. However, the same cannot be said of the peripheral of the market.

Most of the females (92%) said they helped to keep the market clean but same could not be said of the men. Some of the men (48%) accepted that they had to help the city authorities to devoid the market of filth. When respondents were asked how they helped to keep the market clean. The following responses were given. Close to half (49%) of the waste generators said they swept their surroundings everyday while a little above one-fifth (21%) claimed they picked the litter after work each day. About one-tenth (11%) said they engaged themselves in communal labour while a little below one-fifth (19%) claimed they encouraged their friends not to litter the market.

This is shown in Figure 4.6

Figure 4.6: Attitudes and Existing Practices of Waste Generators

Source: Field Data (March, 2011)

4.5 Challenges towards Improving Sanitation at Kaneshie Market Complex

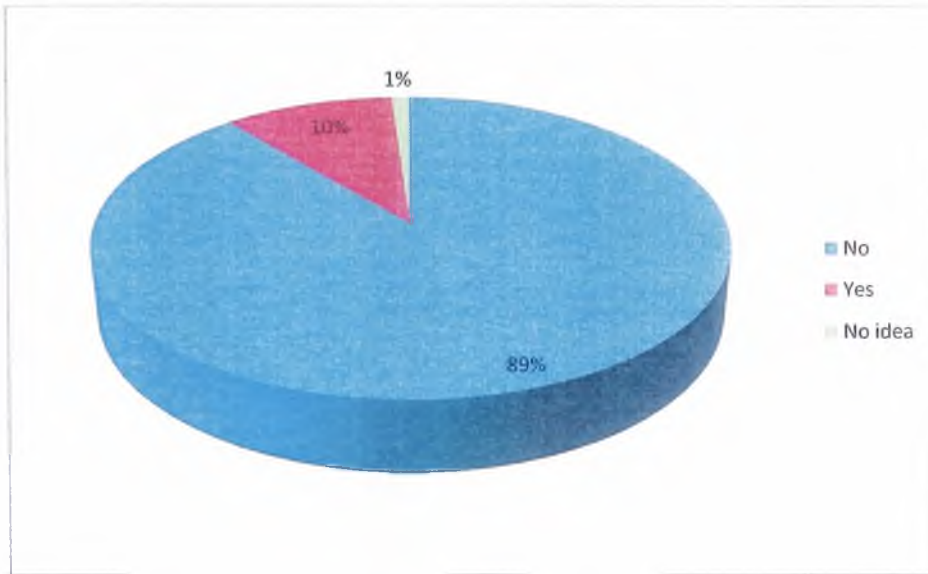
Another objective of this research was to investigate the various challenges encountered by stakeholders in their effort to improve sanitation conditions at the Kaneshie Market Complex.

The responses are categorized and presented below.

4.5.1 Challenges of waste generators

The first question that waste generators were asked on this theme was the availability of litter bins at the market. An appreciable number (89%) of the waste generators indicated that there were no litter bins at the market. An insignificant percentage of 10 claimed that there were waste bins in the market. See graphical presentation in Figure 4.7 for details.

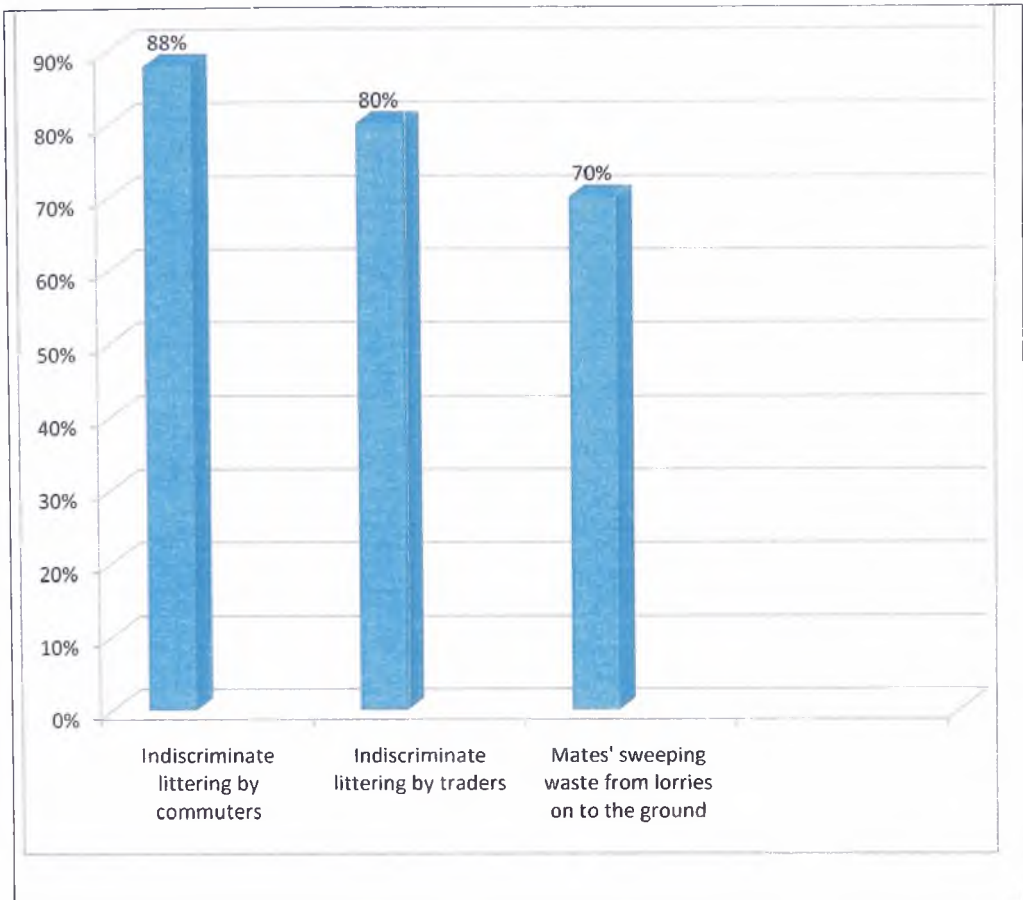
Figure 4.7: Availability of waste bins in the Market



Source: Field data (March, 2011)

4.5.2 Indiscriminate littering by market users

When the waste generators were asked whether they had any challenges that inhibited the work of stakeholders towards improving sanitation in the market complex, over four-fifths (82%) of waste generators responded in the affirmative. Multiple responses were cited as contributing factors to challenges towards improving sanitation at the market. The issues are summarized graphically in Figure 4.8.

Figure 4.8: Indiscriminate littering by market users

Source: Field Data (March, 2011).

The result in Figure 4.8 show that indiscriminate littering by commuters ranked highest (88%), followed by indiscriminate littering by traders (80%). Then (70%) claimed drivers' mates swept waste from commercial vehicles onto the market grounds.

4.5.3 *Technical challenges of waste operators*

When views of waste operators were sought regarding the non-availability of receptacles which resulted in littering the market, the waste operators admitted that they were supposed to lift waste receptacles twice a day. However they were sometimes unable to fulfil this obligation due to the following reasons. One respondent said:

“During the rainy season the roads to the landfill sites become unmotorable causing long queues of loaded trucks at the dumpsites. This causes lot of delays in off loading receptacles and lifting filled ones at the market”.

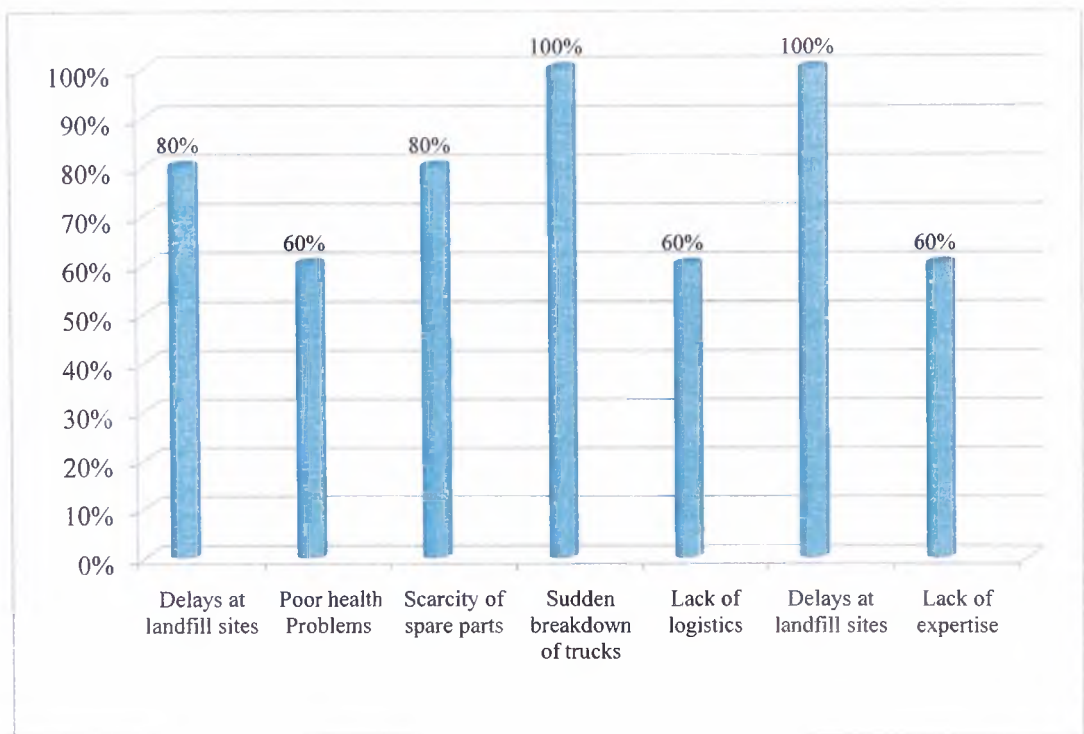
Another respondent said that:

“Sometimes the trucks breakdown all of a sudden but spare parts to fix the problem are not readily available at the spare parts shops. We therefore have to order them from abroad and that takes some time”.

The reasons are presented graphically in Figure 4.9. Multiple responses were given because the issues that inhibited waste operators were numerous. Sudden breakdown of trucks and delays at landfill sites were the most common reasons for which waste operators were not able to lift waste receptacles as required. Moreover, scarcity of broken down spare parts of trucks delayed repair works on trucks and as a result garbage which should have been lifted daily were left for days, creating unbearable stench and unhygienic conditions in the market environment. Government delays to pay contractors also contributed to the inability of waste operators to carrying out their duties as expected.

Other issues that inhibit the work of waste operators are occasional health problems of truck drivers which may be due to the unhealthy environment in which they operate. Lack of logistics and lack of expertise to manage the waste effectively were also mentioned as some of the challenges waste operators battle with.

Figure 4.9: Technical challenges of waste operators



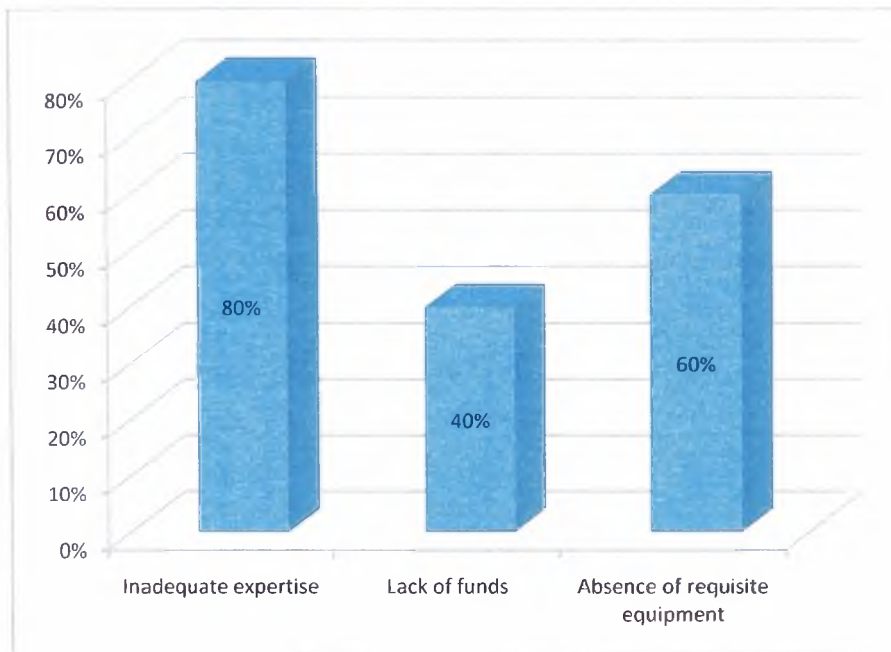
Source: Field Data (March, 2011)

4.5.4 Generating Useful Materials from Waste

When waste operators were asked whether they generated any useful material from the waste, all of them (100%) responded in the negative.

Reasons given by the waste operators concerning their inability to generate useful materials from the waste they lifted in the market and its environs are presented in Figure 4.10. Multiple responses were given.

Figure 4.10: Reason for not Generating Useful Materials from Waste



Source: Field Data (March, 2011)

According to the data presented most of the waste operators (80%) agreed that they were not able to recycle or generate useful materials from the waste they lifted in the market and its environs due to inadequate expertise, some (60%) said absence of requisite materials and a few (40%) claimed lack of funds.

4.5.5 Operational challenges of waste operators at the Kaneshie Market Complex

When waste operators were asked if they had other challenges in keeping good sanitation at the market, all of them (100%) responded in the affirmative. Waste operators cited challenges that they encountered specifically from waste generators. Key among these challenges was that some individuals who earned their living at the market carried garbage from their homes and dump them into the market's receptacles. Residents around the market also dumped domestic waste into receptacles meant to be used by workers and patrons of market. Their responses are presented in Table 4.6. Multiple responses were given.

Table 4.6 Operational challenges waste operators at the Kaneshie Market Complex

Challenges from waste generators	Frequency	Percentage
Dumping of carcass into receptacles producing foul smell	3	60
Dumping of human excreta into receptacles creating health problems for waste operators	1	20
Dumping of domestic waste into receptacles meant for market use by residents around the market and traders who patronize the market	5	100

Source: Field Data (March, 2011)

This behaviour, according to the waste operators made their work cumbersome since the receptacles got full earlier than they should and in some cases the receptacles overflowed with garbage creating lots of stench and houseflies all around the market. Other challenges cited by the waste operators were that waste generators dumped carcasses into the receptacles especially during festivities. This produced foul smell necessitating immediate and earlier lifting of receptacle even when the receptacle was not full.

4.5.6 Knowledge on laws concerning Sanitation

When the waste generators were asked of their knowledge on the laws of sanitation in Ghana, only 42 percent indicated that they knew some of the laws. Over half (58%) of the waste generators claimed they did not have good knowledge of laws on sanitation in Ghana. When those who responded in the affirmative were asked to mention some of the laws, only few (25%) were able to remember at least one law on sanitation. That is:

“Keep the City Clean”.

Contrary to the responses from the waste generators of their knowledge on sanitation laws in Ghana, all (100%) of the waste operators indicated that they were aware of the laws on sanitation. Some of the laws mentioned by the waste operators are listed as follows;

One respondent said:

“Section 79 or AMA bylaws for hawkers number 14 compels both sellers and purchasers to obey AMA officers’ directives for cleanliness in the market at all times. AMA has the right to eject anyone who violates it”.

Another respondent stated:

“The Metropolitan, Municipal and District Assemblies are responsible for collection and disposal of solid waste through the waste management department and environmental health and sanitation departments”.

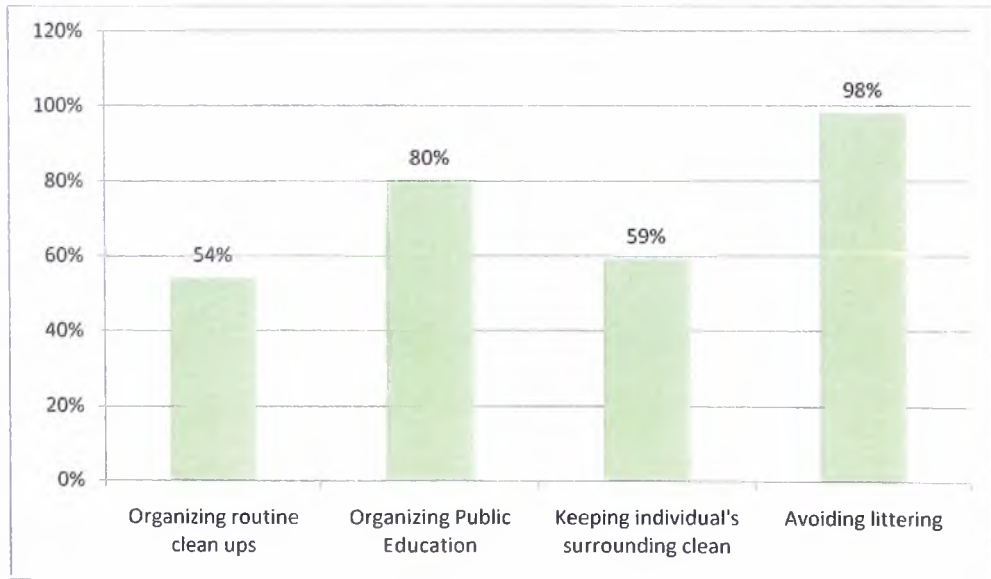
The above responses showed that the waste operators had knowledge on the laws on sanitation in Ghana. However, the waste generators did not have adequate knowledge on the same laws.

Since the latter are those who usually generate the waste there is the need for various stakeholders in the country to work at ensuring good sanitation practice and healthy environment.

4.6 Strategies to Improve Attitude and Practices of Stakeholder towards Sanitation

When waste generators were asked what strategies could be used to devoid the market of filth, multiple responses were given. Most of them (98%) claimed the ideal way was to avoid littering the market. Organizing public education for market users ranked second (80%) followed by the idea of instructing individuals at the market to keep their immediate environment devoid of filth (59%). A few of them (54%), suggested routine clean ups. See details in Figure 4.11

Figure 4.11: Waste Generators' Strategies



Source: Field Data (March, 2011)

To address the challenges of poor attitude and practices towards sanitation, waste operators' views were sought. They gave multiple answers as indicated in Table 4.7

Table 4.7: Waste operators' Strategies

Waste Operators' strategies to improve attitudes and practices on sanitation	Percentage
Public education about the laws on sanitation	80
Enforcement of the laws on sanitation	100
Prosecution of offenders	100
Commercial drivers to keep waste bins in cars for passengers to dump litter	60
Commuters must be notified to avoid indiscriminate littering	80
Encouraged stakeholders to develop positive attitudes towards sanitation	80
Regular routine clean ups to improve the sanitation status at the market	40
Government to provide funds to expedite action in waste collection and purchases of necessary equipment for waste management.	100

Source: Field Data (March, 2011)

The study revealed that among the views expressed by respondents each of the respondents agreed on at least three issues. The respondents rank highest with (100%) on Table 4.7, expressed the view that the laws on sanitation should be enforced, offenders of the laws on sanitation should be prosecuted and government needed to provide enough funds to manage the waste. Then second highest ranking suggestions (80%) stated that the public should be educated,

commuters should be notified on prohibition of littering while waste generators are encouraged to desist from bad practices on sanitation. A few (40%) suggested routine clean ups.

CHAPTER FIVE

DISCUSSION OF RESULTS

5.1 Introduction

This chapter discusses the major findings of the study with reference to the literature review. The discussion is presented in the order of the objectives of the study as follows:

- Demographic characteristics
- General attitude of waste generators towards sanitation
- Existing practices to improve sanitation conditions
- Challenges in improving Sanitation
- Strategies to improve attitudes and practices of stakeholders

5.2 Demographic Characteristics

The factors studied included age, gender, educational level, religious affiliation marital status, occupation and time spent working at the market.

All of the respondents (100%) were between the ages of 20 and 60 plus. By the definition of adult in Ghana's constitution, they can be classified as adults. According to United Nations Education, Scientific and Cultural Organization, (UNESCO, 1976) definition an adult is someone regarded as an adult by the society. This group was very significant to the researcher because keeping good sanitation at the market is the task of the adult. Also, as adults it was believed they had wide store of knowledge about attitudes and practices towards sanitation at the Kaneshie Market Complex. They were therefore the target since they were old enough to be well acquainted with issues on sanitation at the market which the researcher wanted to find out.

Three-quarters of the respondents (75%) who generated waste at the market were females. This may not be surprising since most females work in the informal sector than they do in the formal sector. It could also be due to the fact that discrimination against women deprived them of their right to school. Hence they had courage to take their destiny into their own hands and were managers of their own private business at places such as big markets like the Kaneshie Market Complex.

This asserts an earlier study by Bortei-Doku et al 1990 as cited by Kate Adoo-Adeku 2004, that women made up of about 51% of the labour force in Ghana but because they had low level of education and lack of professional qualification and skills they were mostly self employed and were found operating in the informal sector.

However, four-fifths (80%) of the respondents who managed the waste at the market were males while one-fifth (20%) were females. Apparently this was so because as a formal sector it was obvious that men were more qualified and most probably the job of lifting large quantities of waste was believed to have best been done by males who have been employed purposely to manage the waste rather than females. Including more females would bring much improvement since they would compliment efforts of the males by sweeping the market more often in order to improve the sanitation condition at the market.

The educational background of majority of waste generators was low. Three-quarters (75%) had up to Basic School levels. The other one-quarter (25%) had up to Secondary/Technical

Education. Apparently the market users lack that type of education that will bring about those changes that would reflect in their lives and impact on the environment in which they work.

It is obvious that if their educational levels were higher they would have not only refused to work in such filthy environment but more importantly maintained good sanitation condition at the market. On the contrary certain areas at the market where educated people were working have been kept exceptionally neat. As pointed out by Oduro-Mensah (2004) “Education is a process and not a product. The more educated people become in a society the better their quality of life. The role of the individual therefore is to use the requisite skills to identify societal aspirations and to contribute towards its progress”.

With regards to religious affiliation, about three-quarters (75%) were Christians but it appeared the saying that “Cleanliness is next to Godliness” have not had any impact at all on their way of life at the market. Although some of the traders came to the market with attire and changed themselves at the market in order to attend to church activities like women’s fellowship or the other religious activities yet they seemed to have detached good sanitation and cleanliness at the market from key practice of Godliness.

On the other hand, the Moslems among the respondents had their Salat (daily prayers) five times in a day. Every time before they prayed, they practiced good hygiene by washing parts of their bodies before going to commune with Allah. This was an indication that they shared the same belief of cleanliness to Godliness.

This attitude and practice by both religious groups at the market was a clear indication that they believed in keeping good hygiene. The irony of the situation seemed to be that, though they believed in good hygiene and good sanitation they have restricted that to their places of worship. There is therefore the need to include the churches and mosques as institutions to impact the idea of cleanliness to other places such as work places including markets, homes and the like.

Nine-tenth of the respondents (90%) were either married or had ever married. Some were lone parents. This showed that the respondents were not just adults but people who had responsibilities such as raising or fending for their families. Therefore their stay at the market was their form of survival and would be interested in issues concerning sanitation at the market that would keep them healthy enough to work and support their families as expected.

Over half of the waste generators (59%) were wholesalers and retailers while the others (41%) were drivers, beauticians, caterers and artisans. Majority (86%) of them have worked between six years to over twenty years which was long enough for them to have good knowledge on the attitude and practices of stakeholders towards sanitation at the market.

5.3 General Attitudes of Waste Generators towards Sanitation

The attitude of waste generators showed that most of the males did not take active part in cleaning exercises at the market. Some of them saw cleaning as a job for women. This attitude might probably be due to the socio-cultural upbringing of typical African and Ghanaian where the female is trained to do the house chores and cleaning while the male played around. This has imparted on some of the men.

That notwithstanding, a few of the men and most of the women thought that they needed to take steps to help the authorities in their own small ways to keep good sanitation at the market.

The market users affirmed that their own attitude coupled with lack of facilities to keep the market clean were the reasons for poor sanitation at the market.

5.3.1 Current state of sanitation at the market

The research showed that over three-fifths (64%) of wastes generated by market users were organic and the rest (36%) were inorganic. This supports an earlier research that “more than sixty percent of municipal solid wastes were from food wastes with high water content” (Chen, 2009).

Since organic waste was mainly generated from left over foods, it meant that respondents at the market were not the sole generators of waste but commuters were offenders too. This was because while shopping at the market the commuter also bought some food and left the waste product on the ground.

Close to nine-tenth (88%) of the waste generators agreed that the current sanitation situation at the market was not good while the rest (12%) thought that it was not bad. For waste operators, about three-fifths (60%) thought that it was good while the rest (40%) said it was either a little bad or bad. This might be so because people perceive things differently. It was therefore not so surprising that majority of the waste operators saw the situation to be quite good. Perhaps they had to see the efforts they had put in to keep the market clean in good light. However, the view of the generators that the current sanitation at the market was poor is asserted in earlier report by

the Accra Metropolitan Assembly. “The state of sanitation in Accra is currently very unsatisfactory since it is characterized by choked drains, indiscriminate waste disposal and uncontrolled refuse in central waste containers” (AMA Report 2006).

5.3.2 Attitude of waste generators towards transacting business in unhygienic environment

When waste generators were asked how they felt transacting business in filthy environments more than half (55%) of them said they felt bad, yet they continued to work in the filth. The study also showed that more than half of the market users (53%) had ever contracted one sickness or the other as a result of working under poor sanitary condition. Diseases they contracted included malaria, cholera, typhoid, diarrhoea, cough and common cold among others.

Earlier studies assert the view that several diseases related to sanitation, health and hygiene could be contribute to infectious disease to which diarrhoea formed 39 percent and malaria 14 percent among others (WHO, 2008). Also, the spread of diseases through food was said to be a common problem which resulted in appreciable morbidity and occasional mortality. Traders played important role in ensuring food safety throughout the chain of production, processing, storage and preparation (Abanobi, Dozie, Ukaga et al., 2009).

These notwithstanding, the traders continued to work in filth. Apparently, the respondents wanted to work under hygienic conditions in order to avoid sicknesses yet they behaved as though they were comfortable in the poor sanitation condition. Perhaps they were addicted to the situation. This supports the view of Campbell (1963) in an earlier study on attitudes which he asserted that ever since the beginning of attitude research, investigators have puzzled over the

relationship between attitudes and behaviour. They wondered why people sometimes said they liked something and then acted as if they did not.

5.3.3 How waste is disposed of by waste generators at the Kaneshie Market Complex

The Kaneshie Market complex had not provided adequate litter bins for market users to dispose of their waste easily. In order for waste generators to manage their waste, they resorted to individual arrangements to dispose of them. The practice of packing waste into polythene bags was very common at the market. It was also very common to find drivers' mates sweeping refuse left in their Lorries after few trips onto the ground at the parks. These wastes were made up of mainly inorganic materials like empty water sachet rubbers, papers, rubbers, wrappers and plastic bottles. These were found littered around the market. The other market users also created lots of garbage that worsened the already bad situation at the market.

Waste generators dumped waste packed in polythene bags on the ground either by the receptacle or by the shoulders of the street. They accepted that, this attitude of dumping the waste outside the receptacle was not a good practice but sometimes those who traded very close to the receptacle refused dumping of the waste in the receptacles whenever the refuse containers were full.

Market users also admitted that it was not their intention to leave the waste on the ground by the receptacle. What happened was that whenever the receptacle was heaped they threw it to the top of the heaped refuse. This resulted in their waste rolling back onto the ground which they never picked back. The situation always left the surrounding filled with stench and houseflies which

settled on the waste and then onto their food stuffs. This asserts earlier study that, the existing systems could not cope with the ever-increasing volume of solid waste being generated in Ghana. Therefore the public disposed of rubbish indiscriminately. Huge piles of refuse and overflowing refuse containers were seen throughout the urban centres particularly near markets and squatter settlements (Ghana Metrological Services, 1995).

5.3.4 *Fee paid for disposing of waste*

The disposal of waste at the market was supposed to be free. However, because the waste generators wanted to motivate those who managed the waste before it was finally lifted by the contracted waste operators, a token was paid to them.

The finding of this study does not ignore other studies' results which indicated that AMA has designated places in Accra which have been classified as low income areas. They therefore had central waste receptacles where wastes were disposed of at no charge. However, the waste operators who lifted such receptacles were paid by the Authority according to the agreement they had with them (AMA Report, 2006).

Only a few of the traders agreed that they disposed of their waste through the services of errand boys. This service was done for a fee charged by the collectors depending on the volume of waste they disposed of.

5.4: Existing Practices to Improve Sanitation Conditions at the Market

Concerning the response on existing practices to improve sanitation, various aspects were looked at and the responses of waste generators also varied. The presence of waste receptacle was to help to reduce the indiscriminate disposal of waste at the market. Two-fifths (40%) of the respondents said they did not use the receptacle. It appeared that while three-fifths (60%) of market users tried to maintain good sanitation at the market, others (40%) thwarted their effort to naught. Besides, the waste receptacles at the market were insufficient.

Majority of the respondents (88%) who generated waste at the market said there was only one waste receptacle at the market. This was lifted and replaced each time it was full but the quantity of waste generated outweighs what waste operators anticipated. Therefore there was the need to make room for the waste of the fast growing population at the market.

This phenomenon supports an earlier study that; 'In developing countries only a small proportion of the population had access to good sanitation and thus a mere 30 percent of waste were collected' (UNCHS, 1996). Another asserted that Accra alone generated more than 2,000 tones of waste daily made up of 65 per cent of organic and 35 per cent inorganic waste. The former constituted the chunk of the generated waste which were not collected and managed. Eighty percent of AMA revenue was therefore utilized in managing waste in the metropolis thereby placing a huge burden on its resource (Ghanaian Times, 2009). Furthermore, the accelerated urbanization of the Accra Metropolis has also brought about problems of disposal of waste (Accra Planning and Development Programme APDP, 1990).

Whenever the receptacle was full, respondents who wanted to dispose of their rubbish were driven away by those who traded very close to the receptacle. Perhaps this was the reason why waste was dumped at corners of the buildings at the market and the shoulders of the streets. These wastes ended up choking drainages and causing flooding whenever it rained heavily.

A study conducted earlier supports this assertion that the possible causes of the increases in flood severity in Accra ranged from inadequate flood management practices to poor waste management. Urban area floods occurred when drainage systems, gutters and other storm control devices spilt to its plains and overflowed during heavy rains. Existing drains were often choked with refuse or silted up as well as rivers and streams near the urban centres. This resulted in reduced capacity of the river and stream channels leading to flooding (Sam, 2009).

5.4.1 How often Waste Generators Use Waste Receptacle at the Market

Apparently the sanitation condition at the market was not getting better and this could be attributed to the fact that a lot of the waste generators did not use the receptacles. Some of the respondents claimed the receptacles were almost always full. Besides that, the waste receptacle which used to be placed at the southern, eastern and western part of the market had been sited only at the eastern part. Sometimes they walked all the way to the receptacle only to find that it was full and over flowing. Only 39% used the receptacle once a day, while two-fifths (40%) did not use it at all but little above one-fifth (21%) used it either twice or thrice a day. The patronage apparently was low, yet the receptacle got filled few hours after it had been emptied. This was a clear indication that the waste receptacle was inadequate for the waste generators.

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5.4.2 How Waste Operators Managed Waste

All the waste operators said they dumped the waste at designated landfill sites at Oblogo and Ablekuma. These sites were formally stone quarries. The wastes were not separated. This supports earlier researches that: Existing final disposal sites for municipal solid waste were also not engineered and may be described as crude dumpsites. There was no waste separation at the source of generation and hazardous waste was often handled together with municipal solid waste (UN MDG, 2009).

Another study affirms that a landfill site was the oldest form of waste treatment. Historically, landfills had been the most common methods of organized waste disposal and it remained so in many places around the world. Landfills included internal waste disposal sites where a producer of waste carried out their own waste disposal at the place of production as well as sites used by many producers. Many landfills were also used for waste management purposes, such as the temporary storage (Hickman and Eldredge, 2005).

5.5 Challenges towards Improving Sanitation at Kaneshie Market Complex

The attempts to improve upon the sanitation condition have not been without many problems. A study showed that the greatest challenge of improving sanitation lied in the urban areas and informal sector (Dougall and McGahey, 2003).

5.5.1 Challenges of waste generators

The problems waste generators faced for which they disposed of their waste indiscriminately were several. A study performed with stakeholders on sanitation to understand perception of

sanitation challenges suggested that stakeholders' perspective was one of the greatest challenges towards the attitude of waste generators. In the opinion of stakeholders, waste generators lacked education on good sanitation practices as they regarded the connection between sanitation, behaviour and health as pertinent actions. Capacity buildings, logistics, human resources, competitive involvement of the private sector were also raised. Nostrum or ineffective remedy was also mentioned as another challenging area (Owusu & Roojen, 2008).

In an event organized by Ministry of Local Government Rural Development & Environment (MLGRDE) and UNICEF expressed sanitation concerns and highlighted that Ghana ranked 48th out of 52 countries in Africa and 14 out of 15 in West Africa (WHO/UNICEF, 2006).

5.5.2 Indiscriminate littering by market users.

Issues that market users identified to be causes of the unsanitary condition at the market seemed to be directed more to commuters rather than the permanent users of the market. Apparently, the commuters were more than could be imagined. As they commuted they left behind lots of waste. They ate packaged food or drank sachet water and littered the market with wrappers and empty sachets. Some of them did not know they were breaking the laws on sanitation through indiscriminate disposal at the market. Perhaps they needed similar education as those at the market. However, because commuters varied and could all not be educated at the same time, erecting warning sign posts that forbid them from indiscriminate disposal can be considered appropriate. This could help first time visitors as well as regular patrons of the market to desist from worsening the already bad sanitation situation at the market. Public education could be an

option. The absence of smaller waste bins at vantage points to serve as litter collection point was one big problem the market was facing.

It was therefore obvious that stakeholders' attitude of indiscriminate dumping of waste at the market might have been due to the absence of a needed facility that was absent for a long time. It was presupposed by waste generators that if the litter bins were placed at vantage points in the market, both sellers and buyers would have used them. The traders also attributed the unsanitary condition at the market to the practices of the drivers' mates at the market's lorry parks. They claimed the latter swept waste that passengers deposited when they boarded their Lorries to the market. It would have been better if the lorry park officers acquired waste bins for this purpose. This is because most of their wastes were inorganic comprising of sachets rubbers and pieces of wrappers which were easily blown off and easily spread around the whole market.

5.5.3 Technical challenges of waste operators

The public normally blamed waste operators for simply not lifting the waste they generated. However, the lifting of waste at the Kaneshie Market Complex seemed to go beyond just lifting. Managements of waste companies identified delays in payment as a major setback. They claimed the funds to manage the waste were sometimes not paid early enough making it difficult to effectively manage and support the activities of the company. This led to delays in lifting the waste. As wages and salaries as well as other needs were not met it was difficult to get the workers at work.

An earlier study by Anarfi and Kwankye (2006) confirmed this situation when they assert that there were several challenges that hindered the smooth operations of the city authorities and notably among them was lack of regular budgetary allocation for sanitation.

Sometimes due to frequent inhaling of smell emanating from decomposed organic materials among other things, the wastes collectors suffered from one sickness or the other. An earlier study asserts that lack of improved sanitation threatened human health and development particularly in developing regions of the world (Earth Trends, 2006).

Whenever the drivers of the truck were indisposed, lifting of the waste at the market was delayed until they recovered. Also, during the rainy season roads that lead to the dumping sites became unmotorable, causing delays at the dumping sites. This asserts earlier research that a large number of adverse impacts might occur at the improperly managed landfill sites ranging from infrastructural damage like damaged access roads by heavy vehicles to fatal accidents like scavengers buried under waste piles (Hickman and Eldredge, 2005).

The waste operators complained that scarcity of genuine spare parts on the market led to prolong parking of trucks when they broke down. Sometimes particular spare parts were ordered from abroad before they were fixed on the trucks and this took a long time. There is therefore the need for the government to come to their aid to help fix some of these problems in order that the collection of the waste would not be delayed.

Apparently, there were inadequate data base from which records on wastes were kept. It was a bit difficult to make informed decision about the waste collection. This asserts an earlier report by the Accra Metropolitan Authority (2006) that key problems of waste collection included inadequate database, inadequate infrastructure and poor records keeping.

5.5.4 Generating Useful Materials from Waste

Whereas waste collection in Europe, United States, Australia and Asia, were managed and generated into other useful materials Ghana, like some other developing countries did not. There was low level of technology. There were very little experts to manage the waste in an effective and efficient manner. Besides, no useful materials could be derived from the waste to reduce it in size and quantity. As a result of this, wastes were left in very large and unmanageable quantities.

This asserts earlier study conducted by Accra Planning and Development Programme (1990) that: the accelerated urbanization of Accra Metropolitan Assembly had brought about problems of disposal of household and industrial effluent. This was because the poor infrastructure available over the years had not been able to cope with the waste generated. Solid waste generated by some of the industries was used for landfills, probably without the necessary monitoring network to check the stability of the dumps’.

Apparently, waste operators battled with the waste they managed since they were unable to generate useful materials from it. Although the city authorities had plans to generate waste –to-energy, it has not taken effect. Various reasons were given for its failure on large scale.

Notably among them were:

- Inadequate expertise: Those who with such adequate skill to change waste to energy were mostly from Asia and some European countries. This involved a lot of funds to finance and pay the experts.
- Lack of funds to initiate or support such huge project was key to the reasons for which waste operators could not generate useful material from the waste.
- Absence of requisite equipment to operate since the project was capital intensive.

5.5.5 Operational challenges of waste operators at the Kaneshie Market Complex

Apart from the technical challenges that the waste operators faced there were also problems with the waste at the collection point in the market. The operators complained of the following among others:

- Dumping of carcasses into waste receptacles during festivities caused the waste to smell and necessitated its lifting before receptacle was due to be lifted.
- Dumping of human excreta tied in black polythene bags into receptacles by waste generators also caused health hazards to operators.
- Dumping of domestic waste into market receptacles by residence around the market area caused the waste receptacle to be full earlier than operators anticipated. This distorted their schedules for lifting the waste at the market.

5.5.6 Knowledge on laws concerning Sanitation

Apart from the technical problems of both waste operators and generators the researcher also looked at knowledge of respondents on the laws on sanitation. Apparently knowledge of waste

generators on sanitation laws was very low. They thought of the law as though they were meant for waste operators and they could not be caught up with it if they did not practice good hygiene at the market. Waste operators on the other hand, had good knowledge on Accra Metropolitan Assembly bye-laws on sanitation. It is therefore necessary to educate waste generators on sanitation laws in order that they would find it as a responsibility to abide by them.

It was obvious that non-enforcement of the law had also contributed to this unsanitary condition at the market. A study by NESPoCC (2008) asserts that the filthy condition is the result of inadequate public education, ignorance and non-enforcement of the law and that apparently, the laws that govern sanctions on living and working in unsanitary condition were either unknown or not enforced. Another report by the AMA (2006) confirmed the assertion that one of the problems of sanitation was lack of political will to enforce the bye-laws on sanitation. Also, Sanitation Policy (2006) claimed that the national laws specifically the Criminal code (Act 29) of 1960 and revised bye-laws that supported the Environmental Sanitation Service Delivery and enforced compliance of sanitation rules, were not deterrent enough in ensuring clean, safe and healthy environment.

5.6 Strategies to Improve Attitudes and Practices of Stakeholders towards Sanitation

Opinion of waste generators with regards to how to improve the attitudes and practices varied. These could be divided into two groups namely; attitudinal/social marketing on one hand and technological strategies on the other. Majority of them claimed the need for public education that was geared towards change in attitudes and behaviour would be the solution to the problem of negative attitudes and practices towards waste disposal. Others said once the laws on sanitation

were enforced there would be sanity at the market since people would not like to be embarrassed. Other views expressed suggested routine clean ups, reducing, reusing and recycling of the waste.

The following were remarks made by a trader.

“Commercial drivers should keep waste litter bins into which they could gather all the waste generated by passengers to help keep good sanitation at the market”.

(A 40 year old trader with secondary education)

The statement highlighted the idea that “Education is a process and not a product. The more educated people become in a society the better the quality of life. The role of the individual therefore is to use the requisite skills to identify societal aspirations and to contribute towards its progress” (Oduro-Mensah, 2004).

A study performed with stakeholders on sanitation to understand perception of sanitation challenges suggested that stakeholders’ perspective was one of the greatest challenges towards the attitude of residents. In their opinion, there was the need to make education and awareness raising paramount, regarding the connection between sanitation, behaviour and health as pertinent actions. Capacity buildings, logistics, human resources, competitive involvement of the private sector were also raised. Nostrum was also mentioned as challenging area that the assembly needed to develop further (Owusu & Roojen 2008).

The result indicated that strategies of improving attitudes and practices towards sanitation were not different from other research carried out by (United Nations Human Settlements Programme UN-HABITAT, 2006). It asserts the opinion that in order to enhance the prospects of success,

the people needed to be educated and be informed about new technology, and be persuaded for its adoption. Then watch was to be kept on them to find out whether the technology was properly used or not. This was really strategic for social marketing. The Voluntary organizations needed to get themselves involved in practical work and not remain dependent on the Government grants/subsidies or public donations. It needed to be run on a no-profit-no-loss basis so as to be fully self-reliant. The programmes needed to be cost effective by creating social and public awareness, satisfy the demands of the users and the programme made available to them. The quality services needed to be taken into account by cautiously adopting appropriate strategies for social marketing of Sanitation (United Nations Human Settlements Programme UN-HABITAT, 2006).

CHAPTER SIX

SUMMARY, CONCLUSION AND RECOMMENDATIONS

6.1 Introduction

The study examined attitudes and practices towards sanitation among stakeholders at Kaneshie Market Complex. It provided a summary of the study and highlighted the conclusions that were derived from it. Based on the findings, recommendations were made.

6.2 Overview of the Study

Sanitation has become an increasing concern of both government and the citizens. As people became more enlightened they generated more waste. The city of Accra has been engulfed in so much waste that it has become difficult for the city authorities to work efficiently and effectively. As a result of this the Accra Metropolitan Assembly spent several millions of cedis which could have been used for other developmental projects to clear the city of filth. Meanwhile the attitudes and practices of some stakeholders have contributed to the ineffective waste management and never ending problem. It has been therefore incumbent on authorities to develop appropriate strategies that would keep the city clean of filth.

The study sought to find out attitude and practices of stakeholders towards sanitation in the Kaneshie Market Complex under the following objectives:

- Prevailing attitudes of market users towards sanitation at the Kaneshie Market Complex.
- Existing practices of stakeholders towards improving the sanitation conditions at the market.

- Challenges that stakeholder face in improving the sanitation conditions at the market.
- Strategies to improve attitudes and practices of stakeholders towards improving the sanitation conditions at the Kaneshie Market Complex.
- Useful suggestions and recommendation based on research findings available to stakeholder that add to existing knowledge.

The study was grounded on two main theories namely: Health Belief Model and Trans-theoretical Model. However, the overarching theory was the Health Belief Model which related to health behaviour application and allowed for better attitudes and practices towards good sanitation.

Methodology adopted for the study was survey. Interview schedule was administered to waste generators because most of the respondents either could not read nor write or were too busy to do so. Then questionnaires were administered to waste operators. With the assistance of the Market Administrator and Ghana Private Road Transport Union (GPRTU) Chairman of the lorry park at the market, a research assistant who was knowledgeable enough was selected. He was oriented to the research procedure and a simulation interview activity. The reliability interview was pre-tested using ten people (9.5 percent of the actual number for the study) not included in the survey. Flaws were identified and ambiguities were corrected before it was administered to the randomly selected 105 respondents.

The interview schedule covered the questions on objectives as follows:

- (i) What are the attitudes of stakeholders towards sanitation at the Kaneshie Market?

- (ii) What are the existing practices of stakeholders towards improving the unhygienic condition at the Kaneshie Market Complex?
- (iii) What are some of the major difficulties confronting agencies that deal with sanitation conditions at Kaneshie Market?
- (iv) What strategies would enhance attitudes and practices of stakeholders towards improving the sanitation conditions at the Kaneshie Market Complex?

Data collected was checked to ensure that all the questions were answered, coded and typed into the Statistical Package for Social Sciences (SSPS) worksheet which was used to analyse the responses to generate frequency tables, percentages and pie charts.

6.3 Summary of Findings

The following were the major findings of the study.

On the issue of stakeholders attitude towards sanitation, a few of the market users showed concern in keeping good hygiene but other users were indifferent because:

- they lacked education on maintenance of good hygiene and proper sanitation practices
- they had lived in the filth long enough to be used to the situation
- some market users claimed cleaning of the market was the duty of management of the market and the waste operators and not for them, the market users
- some of the market users had developed the habit of bringing their domestic waste from their homes which they dumped in the market receptacle.

It was also noted that in order to improve existing practices at the market the Accra Metropolitan Authority have contracted waste operators to manage the waste at the market.

Stanley Owusu & Co. lifted the waste daily and Zoom Lion Waste Management cleaned the market and collected the excess waste. Some of the difficulties confronting stakeholders were the following:

- Absence of waste litter bins at vantage points in the market for market users to easily dispose of waste.
- Waste operators had difficulties in dumping refuse at landfill sites as the road to these sites were either unmotorable during the rainy season or had no capacity to accommodate further waste.

The study also brought to light that stakeholders thought that the strategies that could be developed to enhance the attitudes and practices towards sanitation at the market should include the following:

- Educating market users on good hygiene and the laws on sanitation.
- Organizing routine clean ups at the market
- Enforcement of the law

6.4 Conclusion

The findings were based on a study conducted to find out attitudes and practices of stakeholders towards sanitation at the Kaneshie Market Complex. The study showed that waste generators lacked education on good sanitation practices. As a result, market users brought their domestic wastes from their homes to dump in the receptacles at the market causing the receptacles to be

full earlier than anticipated. Some passengers dumped their waste wrapped in polythene bags in the Lorries they boarded to the market which 'drivers mates' sweep from their vehicles onto the lorry park leaving the place in filth.

Absence of litter bins at the market for easy disposal of waste led to high level of indiscriminate disposal of waste. Roads that led to Landfill sites were either unmotorable during the rainy season or there no capacity for further dumping of waste causing long queues and delays at dumping sites. This in turn delayed the lifting of waste at the market. As a result, lots of houseflies that transmitted diseases were attracted. There is therefore the need to educate market users to change their attitudes while waste operators need training to develop strategies to improve practices of waste management.

6.5 Recommendations

In the light of the research findings and conclusions of the study, the following recommendations have been made:

- Accra Metropolitan Assembly and Management of Accra Markets need to collaborate with adult education institutions to develop and implement public educational programmes on attitudinal change for stakeholders towards maintenance of good sanitation practices and waste management.
- The National Commission on Civic Education and other Adult Education Practitioners should assist the City Authorities and Accra Markets' Management to give the public education pertaining to Laws on sanitation.

- The AMA needs to contract other waste operators to provide adequate waste litter bins at vantage points in the market for waste collection and employ more women in waste management to help in sweeping and other cleaning activities for better sanitation condition.
- Bill boards should be erected at the market to warning market users of indiscriminate disposal of waste and punishment offenders are likely to face when they do not abide by the warning.
- Waste operators need to seek for NGO's interested in using the **4Rs** to enhance waste management namely: **Recycling, Reduce, Reuse and Recovering.**

6.6 Area for Further Research

This research has basically confirmed most of the findings of previous studies in the field of attitudes and practices of stakeholders towards sanitation. However, it also raises some questions which provide need for further research. For instance, it observed that stakeholders have not been actively involved in order to reduce waste they generate. Also, waste operators do not generate any useful material from the waste. In the light of this, it is suggested that studies could be conducted on how waste generators can be co-opted into reducing or minimizing waste at the market and adopt environmentally sustainable waste management practices at the Market.

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APPENDIX A**INTERVIEW GUIDE (Waste Generators)**

As part of my work towards fulfilling the requirement for M. Phil in Adult Education at the University of Ghana, I am undertaking a research on “Attitudes and Practices towards sanitation among Stakeholders at the Kaneshie Market Complex. Your answers to these questions will be used in combination with other information to assess attitudes and practices towards sanitation among stakeholders at the Kaneshie market complex. This research is solely for academic purposes; therefore I will be most grateful to you if you answer the questions as frankly as possible. You are assured that your responses will be held strictly confidential. Thank you.

A: Bio-data

1. Age:
 - (a) Under 20 []
 - (b) 20-29 years []
 - (c) 30-39 years []
 - (d) 40-49 years []
 - (e) 50-59 years []
 - (f) 60 years plus []

2. Gender:
 - (a) Male []
 - (b) Female []

3. Educational Level:
 - (a) No Formal Education []
 - (b) Primary []
 - (c) Middle School/JHS []

(d) Secondary/ Vocation/ Technical []

(e) Tertiary (Polytechnic/ University) []

Other specify.....

4. Religious Affiliation:

(a) Christian []

(b) Moslem []

(c) Traditionalist []

Other specify.....

5. Marital Status:

(a) Single []

(b) Married []

(c) Separated []

(d) Divorced []

(e)Widowed []

6. Occupation:

(a) Manager []

(b) Driver []

(c) Trader []

(d) Beautician []

(e) Caterer []

(f) Artisan []

Other specify.....

7. How long have you been working at this market?

(a) 0-5years []

(b) 6-10years []

- (c) 11-15years []
(d) 16-20years []
(e) 20 years plus []

B: General attitude of people towards sanitation

8. How do you find the current state of sanitation at the market?

- (a) Good []
(b) Quite good []
(c) Very good []
(d) Bad []
(e) A little bad []
(f) Very bad []

Other specify.....

9. How do you feel when you transact business in such unhygienic environment?

- (a) Bad []
(b) A little bad []
(c) Very bad []
(d) Indifferent []

Other specify.....

10. (i) Since you started working here, have you experienced any sicknesses resulting from living in unhygienic environment?

(a) Yes

(b) No

(ii) If yes, name it.

(a) Diarrhea

(b) Cholera

(c) Coughing

(d) Common cold

(e) Typhoid

(f) Dysentery

(g) Malaria

Other specify.....

(iii) How long ago?

(a) 1-6months

(b) 7-12months

(c) 1 year plus

11. (i) When you consider the nature of your job, do you generate waste?

(a) Yes

(b) No

(ii) If yes, what form does it take?

(a) Organic

(b) Inorganic

Other specify.....

12. (i) Do you think you should help in keeping the market clean?

(a) Yes

(b) No

(ii) If yes, in what way(s) can you help?

(a) Sweep my surrounding when dirty

(b) Organize communal labour

(c) Avoid littering the surrounding

(d) Educate those who litter the environment

Other specify.....

13. How do you dispose of your waste to keep the market clean?

(a) I keep it in a waste bin for collection and disposal at the end of the day

(b) Errand boys collect and gather them for disposal.

(c) I leave it on the floor.

Other specify.....

14. Do you pay for disposing of your waste at the market?

(a) Yes

(b) No

(ii) If yes, how much?

(a) ₵0.50- ₵0.99p

(b) ₵1.00-₵2.00

Other specify.....

C: Existing practices to improve sanitation condition at the Market

15. How many waste receptacles are in the market?

(a) One

(b) Two

(c) Three

Other specify.....

16. How often do you use the waste receptacle daily?

(a) Once

(b) Twice

(c) Thrice

(d) more than thrice

Other specify.....

17. How often is the waste receptacle emptied?
- (a) Once a day
- (b) Twice a day
- (c) Thrice a day
- Other specify.....
18. (i) Do you think the current sanitation practices at the market can be considered to be good enough?
- (a) Yes
- (b) No
- (ii) If no, what do you think should be done to improve sanitation /promote healthy environment at the market?
- (a) More people should be involved in the cleaning process at the market.
- (b) Warning bill boards should be erected to caution commuters against indiscriminate disposal
- (c) Instance punishment or fine can be met out to offenders who try to litter the surrounding
- Other specify.....
19. (i) Have you been receiving education on how to keep good sanitation at the market?
- (a)Yes
- (b)No

(ii) If yes, how long ago?

- (a) 1-6 months []
- (b) 7-12 months []
- (c) 1-2 years []
- (d) Over 2years []

(iii) What form did it take?

- (a) Advocacy groups []
- (b) Experts []
- (c) Advertisement []

Other specify.....

20. (i) If you have not been given any education, do you think you need any education on how to maintain good sanitation at the market?

- (a) Yes []
- (b) No []

(ii) If yes, how often do you think the education should be given?

- (a) Quarterly []
- (b) bi-annually []
- (c) Yearly []
- (d) Biennially []

Other specify.....

D: Challenges towards improving Sanitation at the market

21. Do you have waste bins available to dispose of your waste?

(a) Yes []

(b) No []

22. (i) Do you have any challenges in disposing of your waste?

(a) Yes []

(b) No []

(ii) If yes what are they?

(a) Commuters litter the market too much waste indiscriminately []

(b) No litter bins at vantage point for easy disposal of litter []

(c) Waste from Lorries are swept onto the ground at the lorry park and the wind blows them to litter the whole market []

Other specify.....

23. (i) Do you know any laws on sanitation in Ghana?

(a) Yes []

(b) No []

(ii) If yes mention any.....

.....

24. What do you think the authorities should do about the laws on sanitation and offenders?

(a) Educate the public about the laws on sanitation []

(b) Apply the law on offenders []

(c) First education the public on the laws and then punish offenders []

Other specify.....

25. (i) Do you have any other suggestion as to how the market can be kept clean?

(a) Yes []

(b) No []

(ii) If yes what is it?

.....

APPENDIX B**QUESTIONNAIRE (Waste Operators)**

As part of my work towards fulfilling the requirement for M. Phil in Adult Education at the University of Ghana, I am undertaking a research on “Attitudes and Practices towards sanitation among Stakeholders at the Kaneshie Market Complex. Your answers to these questions will be used in combination with other information to assess attitudes and practices towards sanitation among stakeholders at the Kaneshie market complex. This research is solely for academic purposes; therefore I will be most grateful to you if you answer the questions as frankly as possible. You are assured that your responses will be held strictly confidential. Thank you.

A: Bio-data

1. Age:
 - (a) 20-29 years
 - (b) 30-39 years
 - (c) 40-49 years
 - (d) 50-59 years
 - (e) 60 years plus

2. Gender:
 - (a) Male
 - (b) Female

3. Educational Level:
 - (a) No Formal Education
 - (b) Basic Education
 - (c) Secondary/ Vocation/ Technical

(d) Tertiary (Polytechnic/ University)

[]

Other specify.....

4. Occupation:

(a) Manager

[]

(b) Driver

[]

(c) Mechanic

[]

Other workers in waste management

[]

5. How long have you been working with Kaneshie Market Complex?

(a) 0-5years

[]

(b) 6-10years

[]

(c) 11-15years

[]

(d) 16-20years

[]

(e) 20 years plus

[]

B: General Attitude of people towards sanitation

6. How do you find the current state of sanitation at the market?

(a) Good

[]

(b) Quite good

[]

(c) Very good

[]

(d) Bad

[]

(e) A little bad

[]

(f) Very bad []

Other specify.....

7. How do you find the attitude of people towards maintaining good sanitation at the market?

(a) Good []

(b) Quite good []

(c) Very good []

(d) Bad []

(e) A little bad []

(f) Very bad []

Other specify.....

8. (i) Do you always find all the waste neatly deposited in the waste receptacles?

(a) Yes []

(b) No []

(ii) If no, where else do you find it?

(a) Scattered on the ground []

(b) Packed in containers beside the receptacle []

(c) Bagged in polythenes and dumped on the ground []

Other specify.....

C: Existing practices to improve sanitation condition at the Market

9. With your experience in waste management which of these two creates difficulty in maintaining good sanitation at the market?

(a) Solid waste []

(b) Liquid waste []

10. How many waste receptacles are at the market?
- (a) One []
- (b) Two []
- (c) Three []
- Other specify.....
11. Do you separate the waste?
- (a) Yes []
- (b) No []
12. (i) How often is your outfit supposed to lift the waste receptacle at the market?
- (a) Once a day []
- (b) Twice a day []
- (c) Thrice a day []
- Other specify.....
- (ii) Are you able to fulfil this obligation every time?
- (a) Yes []
- (b) No []
- (iii) If no, why?
- (a) Scarcity of broken down spare parts of truck []
- (b) Delays at landfill sites []
- (c) Delays in payments by government to contractors []
- (d) Lack of logistics []
- (e) Occasional health problems of waste operators []
- (f) Lack of expertise []

(g) Sudden breakdown of trucks []

Other specify.....

13. (i) Do you generate any useful material from the waste?

(a) Yes []

(b) No []

(ii) If no, why?

(a) Inadequate expertise []

(b) Lack of funds []

(c) Absence of requisite equipment []

Other specify.....

14. How do you manage the waste you collect from the market?

(a) Dump in a landfill site []

(b) Burn []

(c) Recycle []

Other specify.....

15. (i) Do you regard the current means of waste management as appropriate considering the current volume of waste that is generated at the market?

(a) Yes []

(b) No []

(ii) If no, will you recommend education/ training as an option to efficient management?

(a) Yes []

(b) No []

D: Challenges in Improving Sanitation

16. (i) Do you have other challenges/difficulties in keeping good sanitation at the market?

(a) Yes []

(b) No []

(ii) If yes what are they?

(a) During festivities carcass are deposited into the receptacle giving it
foul smell []

(b) Others wrap their children's faeces into polythene bags and dump
them in the receptacles creating health problems for waste operators []

(c) Some market users carry waste from their homes to dump at the market
making the receptacle full earlier than anticipated []

Other specify.....

17. (i) Do you know of the laws on sanitation?

(a) Yes []

(b) No []

(ii) If yes mention any?

.....

.....

18. What do you think the authorities should do about the laws on sanitation and offenders?

(a) Educate the public about the laws []

(b) Apply the law on offenders []

(c) First education the public on the laws and then punish offenders []

19. (i) Do you have any other suggestion as to how the market can be kept clean?

(a) Yes []

(b) No []

(ii) If yes what is it?

.....



