

UNIVERSITY OF EDUCATION, WINNEBA

**ASSESSING THE SANITATION PRACTICES OF TRADERS IN THE
TAKORADI MARKET CIRCLE**



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TAKORADI MARKET CIRCLE**

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**A THESIS IN THE DEPARTMENT OF SOCIAL STUDIES EDUCATION,
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FOR THE AWARD OF THE MASTER OF PHILOSOPHY
(SOCIAL STUDIES) DEGREE**

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DECLARATION

STUDENT'S DECLARATION

I, Karikari Boateng, declare that this Thesis, with the exception of quotations and references contained in published works which have all been identified and duly acknowledged, is entirely my own original work, and it has not been submitted, either in part or whole, for another degree elsewhere.

SIGNATURE:.....

DATE.....



SUPERVISOR'S DECLARATION

I hereby declare that the preparation and presentation of this work was supervised in accordance with the guidelines for supervision of thesis as laid down by the University of Education, Winneba.

NAME OF SUPERVISOR: Dr. Anthony Baabereyir

SIGNATURE:.....

DATE.....

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DEDICATION

To my family, especially my dad Mr. Karikari Bosompem and mum Mrs. Joyce Yaa Nyarko. Thank you all for your love and support.



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LIST OF ABBREVIATIONS

CBD	Central Business District
CWSA	Community Water and Sanitation Agency
DESF	District Environmental Sanitation Fund
EPA	Environmental Protection Agency
ESP	Environmental Sanitation Policy
EHSD	Environmental Health and Sanitation Department
GSS	Ghana Statistical Service
GNESP	Ghana National Environmental sanitation Policy
GTA	General Traders Association
HCP	Health City Project
IEC	Information, Education and Communication
JMP	Joint Monitoring Programme
KAP	Knowledge, Attitude and Practice
MMDAs	Metropolitan, Municipal and District Assemblies
MDGs	Millennium Development Goals
NESPOCs	National Environmental Sanitation Policy Coordinating Council
NESSAP	National Environmental Sanitation Strategy and Action Plan
PHAST	Participatory Hygiene and Sanitation Transformation
TMC	Takoradi Market Circle

UNICEF United Nations International Children's Emergency Fund

USEPA United State Environmental Protection Agency

WHO World Health Organisation

WSSD World Summit on Sustainable Development

WMDs Waste Management Department



ABSTRACT

Takoradi Market Circle is currently experiencing poor environmental sanitation. Open spaces and gutters around the market place are littered with garbage, which in most cases clogs drains thereby creating conditions for disease vectors and posing health risks to traders. The main objective of the study was to assess the sanitation practices of traders in the Takoradi Market Circle. The convenient sampling technique was used to select 90 respondents to whom questionnaire were administered. Descriptive analysis was used to analyse the work. Field observation helped in describing the sanitation conditions, questionnaires administered to market sellers and buyers in the market enabled the researcher to understand the people's perception of the environment, causes and effects of poor sanitation conditions in the market. Also, interviews and focus group discussions were conducted by the researcher. From the interviews, the causes, perception and the effects of poor environmental sanitation in TMC were revealed. The study revealed differences in sanitation behaviour among market users at the TMC. However, the general environmental sanitation condition in the TMC is not up to expectations. Some recommendations pointed to the need for public education and engineering to promote a positive attitude for environmental sanitation in the TMC. In addition, enforcement of the environmental sanitation bye-laws is also recommended to make every individual responsible for good environmental sanitation in the market place.



CHAPTER ONE

INTRODUCTION

1.0 Background to the Study

As the global economy grows, developing countries all over the world are urbanizing at an alarming rate. Although urbanization is the driving force for modernization, economic growth and development, there is increasing concern about the effects of expanding cities, principally on human health, livelihoods and the environment. The implications of rapid urbanization and demographic trends for employment, food security, water supply, shelter and sanitation, especially the disposal of wastes (solid and liquid) that the cities produce are staggering (UNCED, 1992).

In the early days, waste disposal did not pose difficulty as habitations were sparse and land was plentiful. Sanitation became problematic with the rise of towns and cities where large numbers of people started to congregate in relatively small areas in pursuit of livelihoods (Shafiul & Mansoor, 2003). While the population densities in urbanized areas and per capita waste generation increased, the available land for waste disposal decreased proportionately (Shafiul & Mansoor, 2003). Sanitation thus emerged as an essential, specialized sector for keeping cities healthy and liveable (Fobil, 2001). Hunter (2000) predicts that in the foreseeable future more than half of the world's population will live in urban areas, and that the developing countries, including Ghana will be the worst hit by sanitation problems.

In Africa, the dramatic effects of rapid urbanization are very clear in the cities and peri-urban areas (Nsiah-Gyabaah, 2004). Although, cities serve as „engines“ of growth in most developing countries by providing opportunities for employment, education,

knowledge and technology transfer and ready markets for crafts and agricultural products, high urban population place enormous stress on the environment. With this rapid population growth, its implication can be predicted in terms of the demand for food and raw materials or in inputs and generation of waste and pollution, or output.

In the year 2010, the population of Sekondi Takoradi metropolis was estimated at 559,548 (GSS, 2010). The high rate of population growth coupled with the high migrant numbers has outstripped the rate of infrastructure development and service provision, such that, the city authorities are struggling to cope with the rapid urban growth. Most of the infrastructures such as, roads, markets, toilet facilities and housing have exceeded their carrying capacities.

The contribution of trading activities to the livelihoods of the population, particularly in the informal sector cannot be overemphasized. The market place as an important structural part of the local economy which facilitates the exchange of commodities, transfer of monies, traffic generation, information flow and other forms of spatial and social interactions also leads to waste generation especially, plastic waste. This issue has the potential for environmental pollution with its attendant public health implications (Aryeetey & Nyanteng, 2006; Mwanza, 2007).

The large population of Sekondi-Takoradi, with its accompanying waste generation and indiscriminate waste disposal practices has impacted negatively on the drainage system in the Takoradi market circle.

Urbanization has its accompanying environmental degradation and urban poverty. Reducing poverty and achieving sustained development must be in a healthy environment.

The MDGs recognise the fact that environmental sustainability is part of global economic and social well-being. However, achieving the fourth goal (reducing child mortality); the fifth goal (improving maternal health) and part of the sixth goal (to halt and begin to reverse by 2015, the incidents of malaria and other major diseases), of the Millennium Development Goals (MDGs) largely depends on the country's efforts to ensure a clean and healthy environment. Unsafe water, poor sanitation and hygiene result in countless deaths among children and a huge burden of disease such as diarrhoea, dysentery, malaria and other parasitic illnesses. Poor hygiene is a conduit for these diseases.

Achieving the MDGs and the eradication of poverty remain the highest priority of the government of Ghana. The impact of poor environmental sanitation in cities and communities like Takoradi threaten the achievement of the MDGs. MDG 7 (Ensuring Environmental Sustainability) is precisely about linking environmental protection to poverty reduction through sustainable development.

Ghana's National Environmental Sanitation Policy (MLGRD, 1999) spells out the guidelines and gives power to District Assemblies to promulgate bye-laws to address environmental issues in their locality in an effort to reduce environmental pollution. It also gives power to the Judiciary to establish and empower Community Tribunals to prosecute offenders against sanitary bye-laws and regulations. Based on the guidelines,

Sekondi Takoradi Metropolitan Assembly has enacted Environmental Sanitation Bye-Laws, but the enforcement of these environmental by-laws to regulate the activities of the inhabitants have been largely unsuccessful. Hence, Market circle still faces the challenges of poor environmental sanitation resulting from poor or unhygienic habits and practices. Thus, the deteriorating environmental quality in and around the market calls for solutions in order to reduce its impact on the health of the people and the economy of Takoradi.

1.1 Statement of the Problem

The famous Takoradi Market Circle (TMC) is one of the most striking features of Takoradi. The TMC is located in the Central Business District (CBD) of Takoradi and like most markets in Ghana; it is the main commercial centre in the city. It was planned and built in the 1960's to form the nucleus of trading for the new Takoradi city. The TMC is one of the largest open market in Ghana. It covers an area of approximately one (1) square km (Obeng-Odoom, 2013)

Due to the large commercial activities in TMC solid, liquid and other types of waste are generated. Parts of the market are almost always dirty (Fig.1.1&1.2). Open spaces, market places, car parks and many other public and private places are littered with refuse. In most cases, drains are clogged or totally blocked and many compounds are hemmed in by solid waste, posing health threats to children who play and live around the area.

Several efforts have been made by the Sekondi-Takoradi Metropolitan Assembly to ensure that the market is clean. It has engaged the services of private waste management companies such as Zoom lion to ensure that streets are always cleaned and also to ensure

that communal dumpsters are emptied regularly. Coupled with these are the provision of new sanitation facilities and the maintenance of old ones but this seems to be inadequate.

Against this background, the behaviour and attitude of the inhabitants towards sanitation do not augment this effort. People do not seem to care about good environmental sanitation practices and constantly litter indiscriminately without considering the effects of these poor sanitation practices on their health. The problem appears to overwhelm the authorities and if appropriate efforts are not made to halt such practices, the city will continue to spend the greater part of her resources in an attempt to ensure good environmental sanitation without success.

Poor environmental sanitation is a serious health risk and an affront to human dignity. There are many threats of pollution where there are no sanitation systems or where they do not work properly.

The study sets out to examine the causes of the poor environmental sanitation condition in Takoradi Market Circle, the awareness of traders about this sanitation issue and the effects on the health of the people.



Fig. 1.1: Unsightly scene of Waste on a street in TMC

Fig. 1.2 Unsightly scenes on the streets of TMC

1.2. Purpose of the Study

The purpose of the study was to examine the sanitation practices of traders at the Takoradi Market Circle.

1.3. Objectives of the Study

The specific objectives of the study were to;

1. Describe the sanitation conditions at the Takoradi Market Circle.
2. Examine the perception of traders about sanitation in the market.
3. Identify the causes of poor sanitation in the Takoradi Market Circle.
4. Examine the effects of poor sanitation on commercial activities in the Takoradi Market Circle.

1.4. Research Questions

The following questions guided the study;

1. What are the sanitation conditions at the Takoradi Market Circle?
2. What are the perceptions of traders about sanitation at the Takoradi Market Circle?
3. What are the causes of poor sanitation at the Takoradi Market Circle?
4. What are the effects of poor sanitation on commercial activities at the Takoradi Market Circle?

1.5. Justification

The sanitation in Ghanaian markets has called for national attention. Including the attention of the media, TV news and radio discussions. Institutions, buyers and government officials have expressed deep dislike about poor sanitation conditions in the nation's market centers. Despite the concerns raised by the citizens about the poor sanitation issues that exist in our market, it seems it is easy to take for granted the importance of sanitation in the nation.

This is why is important for researchers to study the situation to bring the sanitation issues in our market centers into the lime light.

Academic research in the area include, Acheampong, (2003). *Knowledge, Attitude and Practices of Sanitation among market in the Kumasi metropolitan Area*. Thesis submitted for MSC to KNUST Kumasi, Ghana.

Amiteye, J. (2015). *The proposed re-development of the Takoradi market Circle and It's likely implications for market traders access to trading space*. Thesis submitted to the University Bergen, Norway. The study deduces that the envisioned market will be modern, well planned and structured. The market will have an increased occupancy capacity with good layouts, modern facilities such as improved waste and drainage systems, improved security system, electricity, water, storage facilities, lavatories, clinic, school, banking offices and underground parking space.

From the above, research studies have shown wide range of sanitation issues in our market which includes market structures and its implication, water and chocked drains. However, none of these research has investigated and assessed the sanitation practices if traders in the Takoradi Market Circle. The study fills knowledge gab by helping to understand trader's practices and perception about poor sanitation in the TMC.

1.6. Significance

The study will serve as a reference point to the Metropolitan Assembly and waste management institutions as far as improved sanitation in the market is concerned. In this case, it will give them an in-depth understanding of what causes poor sanitation and the

strategies to tackle the problem. The study will inform the market users on the dangers of poor sanitation to their health and how it can affect business activities. Additionally, the study will contribute to existing body of knowledge in relation to sanitation and also stimulates further research on the subject in other Metropolitan Areas and Municipalities in the country since poor market sanitation is a global issue.

1.7 Scope of the Study

The TMC is one of the largest open market in Ghana. It covers an area of approximately one (1) square km (Obeng-Odoom, 2013). The market is located in the central business center with houses surrounding the market.

The study focus on the sanitation practices in TMC. It is further restricted to only the sanitation practices in the Takoradi Market Circle in the Sekondi-Takoradi Metropolitan Assembly in the Western Region of Ghana.



CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Introduction

In this chapter, the relevant literature relating to the study has been reviewed. The review covers the following areas: Health Belief Model (HBM), Diffusion of Innovation (DoI), Sanitation, Health, Hygiene, Knowledge and Behaviour of People. Again, how attitudes influence behaviour of people, current practices to improve Sanitation Conditions, General Knowledge, Attitudes and Practices of people regarding Sanitation and Markets in Ghana.

2.2 The Health Belief Model (HBM)

Strecher and Rosenstock (1997) report that Health Belief Model (HBM) as a theory explains why people do or do not engage in preventive health measures such as getting tested for a disease, eating healthy food and exercising, or keeping their environment clean. It is described as one of the models which adopt theories from other disciplines such as the behavioural science to study health problems. Redding, et al. (2000) argued that it is one of the most widely recognized and used models in health behaviour applications. The model also stresses on why people would or would not make use of the available preventive services (Slovic, 2000).

It is observed that people who are afraid of diseases are influenced by the type of health activities they do (Emile, 2013). This is seen in the level of fear and the expected fear reduction actions so far as that supposed reduction seemed to outweigh practical and psychological barriers to taking action (Slovic, 2000). However, the researcher is of the view that, the fear of diseases is not an enough prove for people to engage in activities

that will prevent them, but the education that certain preventive measures can help reduce the fear is important. For this reason if market users at Takoradi Market Circle are equipped with knowledge about activities that can prevent diseases that infest as a result poor sanitation, they will practise them to prevent diseases. Strecher, et al., (1997) as stated in Redding et al. (2000), explain four expectations that exemplify the Health Belief Model. These expectations are linked to the perceived threat of the illness and expected outcome as discussed below:

2.2.1 Perceived susceptibility

Emile (2013) revealed that perceived susceptibility refers to how much individuals believe that they are vulnerable to or at risk for some illnesses. In connection to this study, if market users in Takoradi Market Circle (TMC) believe that the poor way of managing waste generated in the market poses a risk and that they are at risk to such health hazards, then their attitudes will change where the opposite to this statement is also possible. By this, market users will adopt good sanitation practices based on the knowledge that they are vulnerable. For instance, making market users aware that plastic waste which does not degenerate easily tends to block culverts and water ways which can lead to flooding. In addition, it could serve as a breeding place for mosquitoes, which lead to the high incidence of malaria cases, typhoid, cholera and other contagious diseases. This will make them adopt practices aimed at avoiding these negative outcomes or occurrences.

2.2.2 Perceived severity

This refers to how serious the individual believes the consequences of being ill are. The study bears on the presupposition that if the market users at TMC know that the risk

associated with poor sanitation can be fatal, they will change their attitude and engage in practices that improve sanitation in the market. For example, if the market users know that dirty surroundings breed flies which settle on food items and make them unwholesome and could cause a deadly disease like cholera, they would change their attitude.

2.2.3 Perceived effectiveness

Stretcher and Rosenstock (1997; cited in Emile 2013) explained perceived effectiveness as the expected benefits if one engages in the protective behaviour of maintaining a clean surrounding. This idea in relation to the study shows that if market users practice the appropriate method of disposing waste, especially plastic wastes in the market it will actually reduce the risk of contracting sanitation related diseases and they are more likely to engage in proper sanitation practices. To this end, the market users will be healthy and go about their daily activities without a hindrance.

2.2.4 Perceived cost

Stretcher and Rosenstock (1997) explained perceived cost as the barriers or losses that interfere with health behaviour change. Per the barriers and losses that can impede the practice of proper waste management, perceived time waste, financial burden and inadequate information on the expected gain associated with improved sanitation practices is of great concern. For instance, when market users in TMC realize that practicing proper waste management is relatively time consuming, drawing on their finances or that the practice would not yield any tangible benefits, they are not likely to be motivated to change their attitude and practices despite their awareness of proper waste management all things being equal.

2.2.5 Perceived benefits

Perceived benefit signifies market user's judgment on the advantages of adopting and continuing with the proposed actions in order to reduce the severity or consequences of any illness. In this context, people with malaria or dysentery as a result of poor sanitation in the TMC needed to feel that the benefits of seeking and continuing with care were greater than if they did not; they needed to feel certain that adopting health-seeking practices would have favourable outcomes.

As in the economics literature, according to Mosse (2000) it is assumed that the preventive action will be taken only if the expected benefits outweigh the expected costs. The role of demographic and social variables can indirectly affect behaviour by influencing an individual's perceptions of susceptibility, severity, benefits and costs. This is not different from the Takoradi Market Circle where market users fit into the four expectations mentioned earlier

A systematic review of studies regarding people's behaviour and environmental sanitation had used the Health Belief Model among adults into the late 1980s and found it lacking in consistent predictive power for much behaviour which is sometimes due to its limits of scope to predisposing factors (Harrison, Mullen, & Green 1992). Mullen, Hersey and Iverson (1978) also found the model to account for a smaller proportion of the variance in diet, exercise, and other behaviours than did the theory of reasoned action, theory of planned behavior and the precede-proceed model in terms of predictive power when it was compared in one study.

Redding et al. (2000), however argue that, the Health Belief Model continued to be the most appropriate and frequently used model in published descriptions of programmes and

studies in health education and health behaviour in the early 1990s and this was supported by Croyle (2005). According to them, the expectancy concepts are gradual change in the area of health related behaviour. The translation is first geared towards the desire to avoid illness or to get well that is value. Next is the belief that a specific health action available to a person would eradicate illness, and that is the expectation (Boskey, 2010). The expectancy was further delineated in terms of the individual's opinion that an illness is serious and of the likelihood of being able to reduce that threat through personal behavioural action (Johnson, 2000). It should however, be noted that this set of beliefs is not equivalent to actual rewards and barriers referred to as reinforcing factors (Glanz, Rimer & Lewis, 2002). According to Glanz, Rimer and Lewis (2002) the health belief model, highlights 'perceived' or 'expected' 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 (Boskey, 2010 & Croyle, 2005).

Efforts to model several health-related actions have multiplied and increasingly had become complex (Stretcher & Rosenstock, 1997). On account of these circumstances, the person believes that benefits accruing from the recommended behaviour outweigh the costs and inconvenience. When market users in Takoradi Market Circle are given a recommended behaviour, it is assumed that they will derive benefits from it. Such recommended behaviour includes the avoidance of indiscriminate littering, covering waste bins as well as sorting waste and disposing waste properly and regularly.

The HBM, in this case helped to explain certain health related behaviours and guided the search for why the market users at Takoradi Market Circle put up with poor sanitary conditions and dispose of their waste especially, plastic waste indiscriminately. It also

helped the researcher to relate knowledge to behaviour changes that play crucial role in making informed choices and this can motivate and stimulate the participants' readiness to act in a concrete and an observable practice (Glanz, Rimer & Lewis, 2002) thus bring about the desirable change. However another theory that offered explanation to the problem of the study is the theory Diffusion of Innovation.

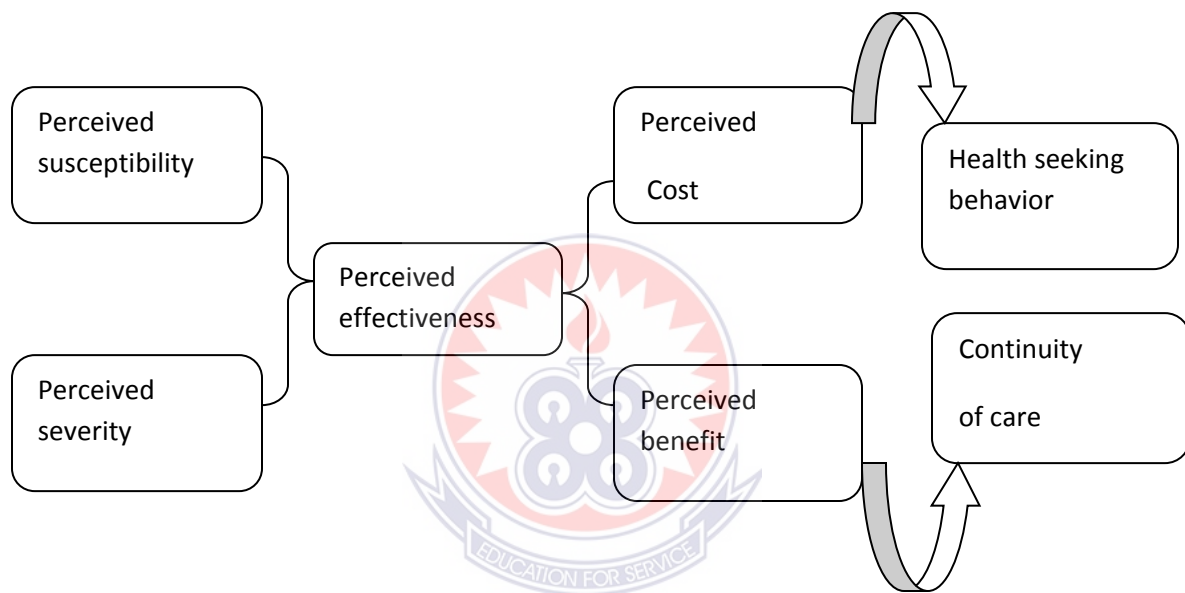


Figure 2.1 The Health Belief Model components and linkages.

2.3 The Concept of Sanitation

In the view of Bukuluki (1995), sanitation is a very broad concept made of the construction and use of sanitary facilities as a way of preventing diseases arising out of bad hygiene habits such as poor disposal of plastic waste. According to him, understanding sanitation requires understanding human excreta's composition, hazards to human health, and potential for reuse. Gotaas (1956) and Mara (1976) revealed that human excreta are faeces and urine, which consist of proteins, carbohydrates, and fats. Excreta contain moisture, organic matter, nitrogen, phosphorous, potassium, carbon, and

calcium all have effects on the environment if not properly managed. Emile (2013) added that sanitation refers to the provision of facilities and services for the safe disposal of human urine and faeces. In other words sanitation from the above is safe collection, storage, treatment and disposal, reuse, recycling of human excreta.

The word 'sanitation' also refers to the maintenance of hygienic conditions, through services such as garbage collection and wastewater disposal (WHO, 2010). This was supported by Lancet (2010) who described sanitation as the process where people demand, effect and sustain a hygienic and healthy environment for themselves and others by erecting barriers to prevent the transmission of disease agents in order to lay foundation for sustainable development. Schertenleib et al (2002) noted that sanitation is interventions to reduce people's exposure to diseases by providing a clean environment in which to live and with measures to break the cycle of disease. It involves appropriate hygienic management of human excreta and animal excreta, refuse and wastewater, the control of disease vectors and the provision of washing facilities for personal and domestic hygiene. Nyamwaya (1994) reported that sanitation is the appropriate means of disposing human waste, faeces and urine which involves protecting the human environment from harmful substances which can cause diseases and harm to human health.

From the above, sanitation cannot be limited to only human excreta but the availability of materials to maintain hygienic environment such as dustbins, potable water, and clean drainage systems.

Mensah (2002) further defined sanitation as the state of cleanliness of a place, community or people particularly relating to those aspects of human health including the quality of life determined by physical, biological, social and psychological factors in the environment. The concept of sanitation has been defined in a number of ways. Mensah (2002) define sanitation as the state of cleanliness of a place, community or people particularly relating to those aspects of human health including the quality of life determined by physical, biological, social and psychological factors in the environment. From the above it also involves keeping the human environment free from disease causing vectors through the proper disposal of domestic, street wastes and litter as well as wastewater.

Schertenleib et al (2002) define sanitation as interventions to reduce peoples' exposure to diseases by providing a clean environment in which to live and with measures to break the cycle of disease. This usually includes hygienic management of human and animal excreta, refuse and wastewater, the control of disease vectors and the provision of washing facilities for personal and domestic hygiene. Emile (2003) added that wherever humans gather, their waste also accumulates. Progress in sanitation and improved hygiene has greatly improved health, but many people still have no adequate means of appropriately disposing of their waste. This is a growing nuisance for heavily populated areas, carrying the risk of infectious disease, particularly to vulnerable groups such as the very young, the elderly and people suffering from diseases that lower their resistance. Poorly controlled waste also means daily exposure to an unpleasant environment.

Sanitation is therefore a concept explaining activities to ensure safe disposal of excreta, solid waste and other liquid waste and the prevention of disease vectors to ensure a

hygienic environment. Taking these factors into account, the following text is offered as the working definition of sanitation. Sanitation refers to the proper disposal of human waste, i.e. urine and faeces.

2.3.1 Environmental Sanitation

The concept of environmental sanitation refers to activities aimed at improving or maintaining the standard of basic environmental conditions affecting the wellbeing of people. These conditions include, clean and safe water supply, clean and safe ambient air, efficient and safe animal, human, and industrial waste disposal, protection of food from biological and chemical contaminants and adequate collection transportation treatment management users of the sanitation system sanitation infrastructure housing in clean and safe surroundings.

According to the Ministry of Local Government and Rural Development (MLGRD) (1999), environmental sanitation refers to efforts or activities aimed at developing and maintaining a clean, safe and pleasant physical environment in all human settlements. It comprises a number of complementary activities, including the construction and maintenance of sanitary infrastructure, the provision of services, public education, community and individual action, regulation and legislation. Environmental sanitation thus involves controlling the aspects of waste that may lead to the transmission of diseases. Included in the term waste management are water, solid waste and industrial waste. The term environmental sanitation is used to cover the wide concept of controlling all the factors in the physical environment which may have an impact on human health and well-being (IRC, 2006).

Maintaining hygienic surroundings ensures that such areas are not turned into breeding grounds for bacteria and viruses. People need only to follow simple rules in order to ensure that areas or surrounding water collection points remain hygienic. This is by way of:

- a. Dispose of waste in an appropriate manner. Waste material, inappropriately disposed of, can cause outbreaks of deadly diseases. Most epidemics in history have been caused due to improper waste disposal.
- b. Maintain a clean home environment.
- c. Acquire and use garbage cans or rubbish bins.
- d. Refrain from spitting and urinating in public places. Such behaviour is not only antisocial but also causes the entire surrounding area to smell badly.
- e. Consider the promotion of hygiene in your area as a civic duty. People should stay in touch with appropriate local administration agencies to ensure that offices and residential areas are kept clean (India Parenting, 2010).

On the whole, areas that need attention in order for environmental sanitation to be effective are water supply, sanitation, and hygiene education. The World Health Organisation offers guidelines for the implementation of environmental hygiene programmes to improve the general status of health. A contaminated water supply can play a huge role in pollution and the spread of disease. The most common sources of domestically and publicly used water include rainwater, surface water, and ground water. Ground water is the least threatening of all potable water. Sources of ground water are

usually wells and springs. These are commonly untainted by waste disposal. The most threatening source of water contamination is often surface water. If waste materials are not disposed off properly, they may come in contact with water accumulated on the surface, which may be collected for drinking and cooking. Contamination can be caused by household trash and human and animal waste products. The consumption of tainted water can cause an outbreak of disease or the spread of a current outbreak (Banks, 2003). In developing countries, environmental sanitation normally includes drains, solid waste management, and vector control, in addition to the activities covered by sanitation (DFID, 1998).

2.4 Sanitation Condition in Open Market

Open market and closed or building markets are two main formally recognized market location in Ghana. According to Clark (1994) open air markets are more common than building markets in Ghana and the biggest of all, the Kumasi Central Market is the largest in West Africa. There are forms of building markets such as the Kaneshie Market, the Makola Shipping Mall, and Takoradi Circle.

Street markets are mainly characteristic of urban centers with limited trading spaces in formally designated centers and they are the creations of traders who lack access to trading spaces in formal market or cannot pay for market spaces. Some traders also take advantage of certain strategic location to establish street markets which are usually not formally recognized because they obstruct pedestrian movement and vehicular traffic, thereby causing congestion and posing a challenge for city authorities (Solomon-Ayeh, Decardi-Nelson 2011).

Access to secured market space in strategically located markets is therefore vital for market traders. However, trades access to market spaces in which to conduct their businesses and contribute to economy is limited and many marketplaces are in deplorable conditions. Market traders struggle to cope with heavy congestion, deteriorating market facilities, poor sanitary conditions and security problems (Baah-Ennumh & Adom-Asamoah, 2012; Angmor, 2012; Alfors, 2009; Owusu & Lund, 2004; Awuah, 1997). More so, market authorities in the country, mainly state agents are often accused of investing little into market infrastructure and being unconcerned about market traders (Owusu & Lund, 2004, Obeng-Odoom, 2013).

Market such as the Makola Shopping Mall, the Kaneshie and Dansoman market in Accra are privately managed (KMA, 2008). Often the market conditions and facilities in privately managed market comparatively better than state managed. Also, general perceptions are that there is high degree of formality in privately managed markets than public markets.

According to Federal Ministry of Environment (2005), sanitation condition in Nigeria Market has remained an intractable problem with serious public health consequences. To address the enormous problems of market sanitation in Nigeria, the Federal Ministry of Environment (FMOE) through the National Environmental Sanitation Policy, identified market and abattoir sanitations as areas of concern. This was sequel to the overwhelming sanitation problems in markets and abattoirs that includes improper refuse disposal, inadequate water supply, and gross inadequacy of sanitary facilities that result in open defecation and urination, as well as overcrowding and exposure of food and meat to flies, rodents and contaminants (FMOE, 2005).

Obeng-Odoom (2013) added that these problems were attributed to improper planning of markets and the springing up of illegal markets and lack of provision of adequate facilities such as potable water, inadequate road networks, institutional regulations, enforcement and monitoring and above all, corrupt and sharp practices by the supervisors of markets.

Parker (2007), assessed that market occupy an important position in the lives of people and activities involved in buying and selling generate large quantities of solid waste that contains a large proportion of putrid vegetable and animal matter and this is common in open markets across the globe.

Nigerian observer (2012) reported that, it is quite common to observe mountains of refuse at market places. The heaps of refuse provide excellent breeding grounds for vectors of communicable diseases including rodents, insects etc, which increase the potential for the spread of infectious diseases. It is also acknowledged that many of the diseases that affect Ghanaians, including malaria, tuberculosis and diarrhoea are due to unhealthy environmental conditions in the market (Obeng-Odoom 2013).

They also pose fire hazards apart from being eyesores and sources of unpleasant odors. Very frequently, refuse is dumped in drainage or canals and along watercourses with impunity. All these have unpleasant environmental consequences. Another common feature of open market is the gross inadequacy of sanitary facilities such as potable water, toilets and bathrooms refuse disposal bays. Open urination and defecation are widespread and resultant contamination of the environment contributes to environmental degradation (Enahoro, 1983).

Furthermore, poor supervision of markets by ill-treated, ill equipped and corrupt officials has led to overcrowding, as well as trading on access roads within and outside the markets. All these add to the dangers that traders face. Blockades of access road within the markets and its surroundings sometimes lead to unnecessary loss of lives and properties in event of emergency and evacuation during fire accidents (Nigerian Observer, 2012).

In 2000, a study was conducted in eight (8), randomly selected markets in Benin City to assess the sanitary provisions and practices of traders using an observational checklist and an interviewer administered questionnaires (Okojie, Wagbatsoma, Onwuzuluigbo & Onyekwe, 2000). The results showed inadequacy of sanitary provisions in markets. There was neither provision of screening of food handlers nor inspection of markets by Sanitary Officers in any of the markets. Five of the eight markets had designed sites for refuse disposal. Insepection of these however, revealed that these were actually open dumping sites overflowing with refuse; with attendant problems of rodent and insect infestation, transmission of vector rodent borne diseases, depreciation pf land values, odour and sharp increase in air, land and water pollution. Also the toilets were inadequate in quantity and quality. Out of eight markets, six had toilets; five water closets and one pit latrine. Pipe borne water was available in only three markets, three of the markets with toilets had no water.

In another study in Iran Ehrampouch and Baghian (2005), it was observed that on the whole, the knowledge of the traders on proper sanitation was inadequate. About 60% of sellers did not have any action in segregation and recycling of solid wastes. It was

concluded that all traders must take part in education to promote their knowledge in this regard.

The storage of wastes generated by traders in the market centers before collection and transportation to the dump site involves the use of various receptacles. These receptacles include polythene bags, propylene sacks, metal bins and disposing waste into drains in the market place (Downmore, Shepherd, Andrew, Barbara and Daniel 2011).

A research conducted by Martin (2011), in the Accra metropolitan area confirmed that, solid waste was stored in polythene bags, card board boxes, and old buckets, which was quite prevalent in market and on pavements in the trading areas. Another observation he made in Kumasi also showed that though some traders claim to be using standard, practical observation revealed the use of impoverished galvanized containers and polythene bags possibly due to the high cost of the standard containers.

Martin (2011) also stated that, the use of poor storage facilities and the concept of children in waste disposal in the Ghanaian market centers present its own problems. This is because, in most cases, children find it difficult to properly access the containers due to their height. It thus becomes more convenient for them to throw waste on the grounds.

The traders in Kantamanto and Makola market, including Kumasi central market currently generate large volumes of solid waste far beyond the management capabilities of the existing waste management system. There is significant variation in the composition of market wastes, the dominant materials are rotten foodstuffs, polythene bags and sachet water rubbers (Owusu & Lund, 2004).

Though observation indicates that food and yard as well as paper waste are generated in large volumes, the menace of plastic, polyphone or cellophane bag waste cannot be overemphasized since this form of waste is most unfriendly to the environment. Principally, this is due to the fact that plastic wastes are not easily biodegradable, hence, their persistence in the environment which inadvertently is an eyesore as well (Anomanyo, 2003). A clear example is observed from how easily sachet water bags are disposed off indiscriminately as opposed to the re-use of plastic bottles several times after bottle water is purchased.

According to Anomanyo (2004), about 1100 tonnes of municipal solid waste were generated per day in the markets in Accra and the average waste generated per capita per day was estimated at 0.5 tonnes. This was based on the projected population of 1,610,867. Tuani (2011) also confirmed that, in spite of the strategies put in place for the collection of waste in the Ghanaian market centers such as Kantamanto, Makola, TMC, Kumasi central market all is not well for maximum waste collection. The Waste Management Department (WMD) of the Accra Metropolitan Assembly (AMA) states that, only 45% to 55% of waste generated every day is collected. Meanwhile, the waste generation rate of AMA was about 2000 tonnes a day with per capita waste generation of 0.45kg. information from KMA in 2006 indicated that the current rate of waste generation in Kumasi central market was approximately between 1000-1500 tonnes a day.

This confirm what Martin (2011) proposed, that population growth greatly contributes to an increase in waste production, it has also been empirically established that waste generation has increased rapidly over the years. Market in Tamale for example, generate

an amount of 150 tonnes of solid waste per day in 2009 (Abankwa et al., 2009) and currently 810 tonnes per day. The situation in Tema, which remains a fast growing industrial city in Ghana, is no different (Puopiel, 2010)

Research showed that the sanitation condition in the market is as results of traders willingness or unwillingness to pay for the evacuation of the waste generated (Altaf, and Huges, Briscoe, Whittington, 1993). However, traders willingness to pay was not uniform. Several factors were linked to variations in the size of willingness to pay. One factor was the quality of service. A second factor was the availability of alternative services. A third factor was traders characteristics such as profit, number of times they dispose waste. Differences among traders characteristics led to differences in willingness to pay (Briscoe, McPhail, Whittington, 1992).

The improvement in sanitation is known to have significant beneficial impact on health both in market centers and across communities and even in the niche of the working environment (Amoaning, 2006). Progress towards sanitation target within which plastic waste is removed from the risk of human contact or safe sanitation, encompasses segregation and selling waste to earn some income (Defra, 2007). To the researcher, this idea will help to reduce the alarming sanitation challenges that currently confront Ghanaian market centers. It is observed that wherever humans gather, their waste also accumulates. Progress in sanitation and improved hygiene has greatly improved health, but many people still have no adequate means of appropriately disposing of their waste as revealed by (Emile, 2013).

According to Emile (2013), this is a growing nuisance for heavily populated areas, carrying the risk of infectious diseases, particularly to vulnerable groups such as the very young, the elderly and people suffering from diseases that lower their resistance. Poorly controlled waste also means daily exposure to an unpleasant environment.

2.5 Public Perception about Sanitation

The environmental sanitation conditions in most Ghanaian markets have been in a poor state. Cofie, Drechsel, Obuobie, Danso and Keraita (2003), expressed their view about the environmental sanitation in Ghanaian markets:

The current state of environmental sanitation in major markets of Ghana is derived from the increasing amount of waste generated and the inadequacy of waste disposal and treatment facilities. The use of public toilets and open defecation is pronounced, as only 5% of the population is served with a sewerage network while 20 % have no toilets at all. It is a common feature to find open gutters, which were meant for storm water drainage now filled with domestic and market wastewater and often choked with solid materials and sediments.

However Cofie et al. (2003), proposed four factors leading to the poor sanitation in Ghanaian markets - rapid urbanization, inadequate funds, bad attitudes, negligence and some institutional challenges. Wittington, Lauria, Wright, Choe, Hughes and Swarna (1999), and Cofie, et al. (2003), had different perception about the market sanitation crisis in Ghana. Whittington et al. (1999) realised that rapid urbanization was creating new demands for infrastructure services: water, sanitation, refuse disposal, and toilet facilities, which public institutions did not have the financial capacity to provide and had to rely on market users who were also surviving with meager income levels. In support of

this, Coffie et al (1999) asserted that the rapid rate of urbanization in Ghana did not match available urban infrastructure therefore poor sanitation. They indicated that as at 2003, 44 % of the 19 million Ghanaian populations lived in urban areas, with some cities having growth rates as high as 4.4 %. However, in the view of Whittington et al (1999), the greater part of sanitation problem is the failure of the sanitation planning for cities to keep pace with the implications of population and financial changes.

Also in an article “in the market for proper sanitation” Sim (2010), assessed that toilet need to be as sexy as mobile phones and TVs so that people really want them closer to them.

Studies on institutions and sanitation in Ghana have been conducted by Dapaah (1989), Mawuena (1993), and Adomako-Adjei (2008). Dapaah’s (1989 as cited in Amoah 2010), focused on factors that underpin the sustainability of technical assistance projects; while Adomako-Adjei(2008), sought to draw attention to the challenges that affect promotion of water and sanitation and the attempt being made within the Community Water and Sanitation Agency (CWSA) to refocus on appropriate strategies, while Dotse’s (1993), examined some of the institutional challenges of the sustainability of WSSD programmes and made recommendations. According to these scholars, among the challenges facing designated institutions to tackle poor sanitation in Ghanaian market are financial inadequacy, limited investment and lack or inadequate funding.

However, in an article, “Do Attitudes Matter?: Waste Disposal and Wetland Pollution in the Cape Coast Municipality of Ghana” Kendie (1998) set out to develop an in-depth understanding of sanitation practices and underlying factors responsible for the state of

environmental sanitation in Cape Coast by exploring the relationship between perceptions, attitudes and beliefs on the one hand and sanitation practices on the other. However, Amoah (2010), was quick to dismiss the argument on rapid urbanisation and inadequate funds. According to him, there is a positive relationship between the growth rate of cities and environmental health. This view suggests that the faster the growth rate of urban centres, the more likely that environmental service would be provided. Besides, Ghana's urban population growth rate (4.0-4.5 % per annum) is lower than countries such as Botswana (12 %), Zimbabwe (6 %) which have relative improved sanitation services. Again, Kendie (1998), thought that "while inadequate funding may have contributed to the poor sanitation of the 1970s and early 1980s, this argument no longer holds in recent years. The economy of Ghana has been growing steadily at an average of 5 % annum from the late 1980s."

Though rapid urbanization is partly undermining the capacity of Assemblies in dealing with poor sanitation, the argument is not strong and has outlived its essence. This is because as far as government development policies continue to discriminate against rural people, urbanization of cities will gallop. In support of this view, STMA officer of Takoradi Waste Management Department in an interview said "stopping people from coming into the city cannot be possible so we have to expect them." Interview data, May, 2016.

The local governments should expect this and make concrete plans and work to accommodate them. Increase in poor sanitation as a result of increase in population is normal. The problem is not so much about rapid urbanization, is about the inability of

responsible institutions to plan, take advantage of the positives aspects of rapid urbanization and fight against the negative consequences of it.

From the above, the sanitation institution in Sekondi Takoradi demands responsibility from the market users in the TMC whiles they have not created any opportunity for appropriate sanitation practices, with this good sanitation practices will not be practised.

2.5.1 Market user's knowledge on sanitation education

Even though sanitation delivery in Sekondi-Takoradi has increased sharply since the early 2000, with about, 300 sanitation units being delivered a year (including urban sanitation provided under the national housing programme). Nevertheless, the knowledge, attitude and practices still remain as major challenges facing our communities at large. This is caused by the fact that, even if the infrastructure is there, there is no guarantee that people will use it accordingly all the times. In addition to the provision of safe community water supply and sanitation services, there is a need for education on hygiene. This is important as it will ensure the correct and proper use of the services. That is where behavior and attitude become important in the subject of sanitation.

Daily Graphic (2015) reported that Ghana has slipped further on its sanitation performance globally to become the 7th worst performing country. The country slipped from being 10th in 2014, according to a Joint Monitoring Programme Report. In Ghana, to help build a strong knowledge on sanitation the sanitation policy of the state has been clear on the environmental sanitation education that should be seen as an integral element of all environmental sanitation activities. Whilst it is not in itself sufficient to ensure improvements in environmental sanitation, neither is the provision of sanitary

infrastructure nor services unless they are properly used. Environmental sanitation education is similarly complementary to regulation, which is ineffective unless coupled with explanation and persuasion.

There is an unfortunate tradition in Ghana of hygiene and environmental sanitation education as a didactic one-way process in which the target group is considered as part of the problem rather than part of the solution. Improved approaches based on problem-solving and active participation by the target groups must be developed and implemented. National Level Programmes MLGRD shall conduct environmental sanitation education programmes at the national level, with the co-operation of other relevant agencies, using both the mass media and local structures., It shall also co-ordinate training, materials development and research to support both local and national programmes. Local Level Programmes District Assemblies shall carry out environmental sanitation education programmes within their districts, directly related to the introduction or improvement of environmental sanitation services, or to specifically targeted issues. These programmes shall be co-ordinated with those of other Government agencies, NGOs, churches, social groups, etc. Community based organisations shall also be involved as an aid to achieving coverage in all communities (ESP, 2001).

Participatory Hygiene and Sanitation Transformation is an innovative approach to promoting hygiene, sanitation and community management of water and sanitation facilities. It is an adaptation of the methodology of participatory learning, which builds on people's innate ability to address and resolve their own problems. It aims to empower communities to manage their water and to control sanitation-related diseases, and it does

so by promoting health awareness and understanding which, in turn, lead to environmental and behavioural improvements (WHO, 2000).

2.6 Causes of Poor Sanitation in Ghanaian Markets

Some cultural derivatives such as beliefs, attitudes, and perception have been considered by some researchers as essential cause to sanitation. This idea has been popularised by Agbola (1993), Akuako-Asibey and McPherson (1994). Agbola (1993), observed that “the causes of environmental sanitation problems in many markets could be found by the way the imbibed behavioural patterns and acquired values are superimposed on the environment.” According to this view, if individual have values that do not support good practices, they tend to behave in a way that is inimical to the environment. For instance, in 1996, a survey of 276 people conducted in Cape Municipality by Kendie (1999) shown a relatively high level of awareness of sanitation problem (63 %), personal thought about sanitation problem (77 %) and expectation of sanitation problem becoming more serious in the future (53 %). Despite the fact that about 70.4 % of the respondents supported landfill as appropriate method of refuse disposal, a relative majority of 65 % were not willing to pay towards improving poor sanitation conditions. The disparity between perception and attitudes is accounted for by the belief system. According to Kendie (1999), people were reluctant to pay for sanitation services because they did not understand the relationship between sanitation and health as they believed among others that children faeces were not harmful, a woman who has not lost a child should not bury her child’s faeces, and their forefather practiced open-field defecation without problems.

Environmental Protection Agency states, “municipal solid waste has been disposed of anywhere, anyhow without regard to the nuisance and harm caused to the environment. All kinds of wastes, regardless of their nature, are being dumped indiscriminately into depressions, sand pits, old quarries, beaches, drains and even in certain areas, along streets.”(EPA, 2004). Majority of the people in Ghana live below the internationally recognized poverty line of one dollar a day. In view of this, one can imagine the pressure that is put on the city’s infrastructure in the course of day to day activities. Some say the problem of waste disposal in TMC is cultural, others say it is economic, yet others point in the direction of poor management (Tsiboe & Marbell, 2004).

There is no doubt that cultural practices affect sanitation, after all sanitation is a way of life just as any cultural practice. Agbola et al (1993), presented sanitation linked to peoples way of life as a critical issue for institutionalist to consider. However, this argument is quite problematic since culture is dynamic and learned and, as Agbola (1993), believes all cultural derivatives such as beliefs, perceptions, and attitudes can be modified or changed through education. One way of dealing with debilitating cultural values is the use of formal institutional mechanisms such as cognition and regulation. Appropriate enforcement of rules and education can alter individuals’ behaviour toward the environment in general and sanitation in particular. This means that when formal institutions exist but ineffective in terms of problem-solving, it makes sense to blame such institutions. Thus designated institutions should be blamed for not addressing the sanitation problem from the right perspective if that is behavioural change.

Fati (2008), assessed that negligence has been considered a significant contributor to the deteriorating sanitation conditions in Ghanaian markets. (Graphic online: 2004)

commented that until the 1990s the water and sanitation sector was neglected and even as of now communities and designated institutions have not prioritised or paid needed attention to sanitation and hygienic practices. Fati (2008), wrote on “the dilemma of sanitation coverage in Ghana” and pointed out that between 1994 and 2008 the Community Water and Sanitation Agency (CWSA) national sanitation coverage was 10 % for both household and institutional latrines, but water coverage, according to the Institute of Local Government Studies (ILGS), was relatively high at 53 %. Both Fati (2008) and Adomako-Adjei (2008), blamed the poor sanitation in the market sectors on lack of deserved attention on the sector both at national and district levels. They discovered what can be regarded as institutional factors whose absence affects sanitation delivery in Ghanaian markets. The issue of lack of inter-institutional collaboration, lack of appropriate technology and lack of standards is crucial to sanitation coverage (Fati 2008). Satterthwaite (1998) virtually agree in principle that the sanitation problem emanates from poverty and lack of funding as a result of low level of economic growth.

2.6.1 Attitudes influence behaviour of traders towards sanitation.

Sanitation related programmes have laid an emphasis on the importance of behavioural change as a key aspect that contributes to up scaling sanitation. In psychology, attitude is a mental position with regard to a state or fact (Johnson, 2000). Attitudes reflect a tendency to classify objects and events and to react to them with some consistency (Lahey, 2003). Attitudes are not directly observable but rather are inferred from the objective, evaluative responses a person makes (Encyclopaedia Britannica, 2011). Attitudes are formed as a result of this ongoing evaluative process. Based on this that attitudes are defined as evaluations of entities, including behaviour, that results in

perceptions of favour or disfavor (Eagly & Chaiken, 1993). Attitudes also refer to a person's general feelings about an issue, object, or person (Petty & Cacioppo, 1981). These studies have shown that attitude influences behaviour of people in taking decision on issues.

Kaliyapermal (2004) studied the knowledge, attitudes and practices of a community and found that changes in attitudes and practices tell what people know about certain things, how they feel and also how they behave. Attitude refers to the feelings towards the subject as well as any preconceived ideas that they may have towards it. According to Aiken (2002), practices refer to the ways in which people 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 research findings to be tailored more appropriately to the needs of the community as in this study TMC. 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). People can change their mind towards a higher plane or a lower plane according to their attitude towards a given situation, person or place or a concept (Aiken, 2002).

Attitude is linked to our sense of belief and previous judgments. Attitude counts a lot in our individual and social life. We may say that our attitudes and inclinations are borne out of our experience or encounters with various aspects of life. Thus, Subramanian (2009) holds the view that our attitudes cannot be changed so long as our experiences remain so. Ever since the beginning of attitude research, investigators have puzzled over the relation between attitudes and behaviour. For instance reasons that made people

sometimes said they liked something and then acted as if they did not, such as the case where the media awareness creation about poor sanitation which the general public acknowledge, but do not practice proper sanitation in their surroundings. 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 researches 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 (Acheampong, 2010). The problem was that the measured behavior 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 criteria, which involved measuring a large number of behaviours that were relevant to the general attitude being studied. For instance, to measure sorting and selling of waste, we could measure numerous pro-environmental behaviours, as recycling across several weeks, willingness to sort and sell waste as well as the tendency to pick up litter. This would give a more precise and reliable measured behaviour. Weigel and Newman (1976) 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 (i.e. sorting, selling and recycling of waste), rather than any single behaviour (Weigel & Newman, 1976).

To help improve the health of poor people across the world depended on adequate understanding of the socio-cultural and economic aspects of the context in which public health programmes were implemented (WHO, 2010). 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 & Aaby, 1992, Green 2001, Hausmann-Muela, 2003, Nichter, 2008). Besides, 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 (Peltó & Peltó, 1994). Investigators depended heavily on behavioural indicators namely, what people say, how they responded to questionnaire 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, Behaviour Change and Cognition). The affective response was a physiological response that expressed an individual's preference for an entity (Lahey, 2003). The behavioural intention was a verbal indication of the intention of an individual (Lahey, 2003). The cognitive response was a cognitive evaluation of the entity to form an attitude (Myers & Patz, 2009).

Good enough 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 to understand how attitudes influenced behaviour may be enhanced by the use of a theoretical framework. Health Belief Model (HBM) (Strecher, 1998) was based on the premise that attitudes influence behaviour in unison with two other factors; sanitation, health and hygiene. Studies of various health behaviours have found that attitudes, knowledge and practices have a strong relationship. Each contributed, in varying combinations of importance, to predicting behaviour and behavioural intent (Eagly & Chaiken, 1993).

The Health Belief Model assume that if market users believe that they are at risk of contracting sanitation related diseases fatal to them, they are more likely to practise proper sanitation behaviour. It would be appropriate, therefore, to consider attitudes toward behaviour as one of these three broad classes of psychological determinants of health-related behaviour (Drucker, 1997). One common problem faced in studying attitudes was the fact that attitudes might either influence behaviours or be influenced by behaviours (Eagly & Chaiken, 1993).

Indeed, it has now and again been emphasized that the problem of sanitation in TMC is linked to behaviour and has little to do with technology (East, 2007). It is said that such people have traditional beliefs about the causes of disease and that these will prevail no matter what is taught. Others argue that people may understand health messages but they will change only through a desire to acquire status, prestige, convenience or privacy and that hygiene and sanitation should be promoted only on these bases. However, good

sanitation seems to be very difficult to achieve because it is much connected with changing people's knowledge level and attitude (Mosse, 2001)

2.7 Effects of Poor Sanitation

Improper sanitation practices can bring about the following:

a. Increase disease transmission or otherwise threaten public health. Rotting organic materials pose great public health risks, including, as mentioned above, serving as breeding grounds for disease vectors. Waste handlers and waste pickers are especially vulnerable and may also become vectors, contracting and transmitting diseases when human or animal excreta or medical wastes are in the waste stream.

WHO (2004) estimates that about 1.8 million people die annually from diarrhoeal diseases where 90% are children under five, mostly in developing countries. Poor sanitation gives many infections the ideal opportunity to spread: plenty of waste and excreta for the flies to breed on, and unsafe water to drink, wash with or swim in. Among human parasitic diseases, schistosomiasis (bilharziasis) ranks second behind malaria in terms of socio-economic and public health importance in tropical and subtropical areas of which TMC and its environs are without exception.

b. Contaminate ground and surface water. Municipal Solid Waste (MSW) streams can bleed toxic materials and pathogenic organisms into an open refuse dump, and other ailments are also high. In Takoradi Market Circle, during the rainy season the whole market is submerged in water, mixing with refuse, dead rodents and threatening the health and water supply of the surrounding area. This runoff can contaminate ground or surface water, depending on the drainage system and the composition of the underlying

soils. Many toxic materials, once placed in the general solid waste stream, can be treated or removed only with expensive advanced technologies. Currently, these are generally not feasible in Takoradi Market Circle.

b. Create greenhouse gas emissions and other air pollutants. When organic wastes are disposed of in deep dumps, they undergo anaerobic degradation and become significant sources of methane, a gas with 21 times the effect of carbon dioxide in trapping heat in the atmosphere. Garbage is often burned in residential areas and in landfills to reduce volume and uncover metals. Burning creates thick smoke that contains carbon monoxide, soot and nitrogen oxides, all of which are hazardous to human health and degrade urban air quality. Combustion of polyvinyl chlorides (PVCs) generates highly carcinogenic dioxins (Evan, 1994)

. • Injure people and property. A lot of properties and lives are affected in the Takoradi Market Circle due to choked drains leading to sever flooding. The accumulation of waste along streets presents physical hazards, clog drains and cause localized flooding.

• Discourage tourism and other business. The unpleasant odour and unattractive appearance of piles of uncollected waste along streets and market centers and other natural areas, can discourage tourism and the establishment and or maintenance of businesses (Zeiss, 1998).

2.8 Markets in Ghana

Markets and market trade, especially in Ghana and most of the West African countries have long historical roots that predate colonial times (Hodder, 1965; Hill, 1963). The early emergence of markets and their centrality to trade as well as the existence of highly organised market institutions have been distinctive to West African countries with no exceptions to Ghana (Hodder, 1965). The market trade system in Ghana and elsewhere in other developing countries shows a complex network of activities and linkages. Very visible in this intricate structure are markets and the market traders to whom all other players in the system are connected.

In Ghana, marketplaces are economic, social, political and cultural institutions (Overå, 2006). More so, markets are “important political spaces of contestation as market traders’ business activities are directly and indirectly linked to the local and national political economy” (Awuah, 1997). A contextual review of markets and market traders in Ghana is therefore essential in order to appreciate the need to be concerned about the sanitation condition of the TMC and necessary for a better understanding of the relevance of trader involvement in the up keep of the TMC.

Markets are the main places for buying and selling in Ghana and major are sources of individual and household incomes. Markets also contribute significantly to the local revenues of district, municipal and metropolitan assemblies (Owusu & Lund, 2004). Apart from traders, markets employ several auxiliary workers such as porters, truck pushers, susu collectors as well as revenue collectors, security men among others. Also, Ghanaian marketplaces provide avenues for various forms of interactions that lead to the

development of relationships among traders and even between traders and their customers (Clark, 1994). Some of these social relationships may extend beyond the market and can have long lasting effects. In addition, Ghanaian marketplaces are sites of political influences due to their control and management by district assemblies and to Susu collection is a traditional banking system in which a person (e.g. a trader) decides to make a regular contribution to another person, the susu collector, for an agreed period. The contributor earns no interest but rather rewards the collector an agreed fee for enhancing bulk accumulation of money.

Some extent the role of traditional leaders. Traditional leaders were the main custodians of markets until the adoption of Western governance and management system in Ghana (Solomon- Ayeh, King, Decardi-Nelson, 2011). Lastly, Ghanaian markets serve as places for various forms of cultural exchanges because traders are usually of heterogeneous ethnic backgrounds.

2.8.1 Classifications of markets

Bromley (1998) identified four ways of classifying markets. The first is based on locations; by which she outlined three forms of market locations, namely, open air markets, closed or building markets and street markets or markets in other public spaces. The second classification is based on the frequency or periodicity of market operations. That is the number of days of continuous trading activities (Ofori & Asiedu, 2013). Based on this, there can be daily markets, weekly markets and other markets that operate between six days or less. The third form of classification is based on the types of goods on sale (foodstuffs, manufactured) and the volume of goods involved (retail or wholesale). Last but not least, a distinction between markets is based on their sizes

(measured in terms of physical sizes and the turnover). In this regard, markets can be classified into small, medium or large markets. Owusu and Lund (2004) added that a combination of other factors such as selling capacity, the availability of market facilities, total cost of construction and the average number of attendants (measured in terms of buyers and sellers) are also important in classifying markets.

Almost every village or town in the country has a market and the various markets are distinct from each other as they perform different roles and functions. Ghanaian markets consist of open air markets, building markets and street markets; daily and periodic markets, wholesale, retail and mixed markets. The various categories of markets are in line with the four main elements identified by Bromley (1998) and the combination of factors suggested by Owusu and Lund (2004). Knowledge about such distinctions is important for understanding the organisation of markets and the relationship between respective markets and above all useful for planning purposes, particularly market centres and their economic regions (Ofori & Asiedu, 2013).

Open markets and closed or building markets are the two main formally recognised market locations in Ghana of which Takoradi Market Circle is one (Ofori & Asiedu, 2013). Open air markets are more common than building markets in Ghana and the biggest of all, the KCM according to Clark (1994) is the largest in West Africa. There are forms of building markets such as the Kaneshie Market and the Makola Shopping Mall, both in Accra. Street markets are mainly characteristic of urban centers with limited trading spaces in formally designated commercial centers and they are the creations of traders who lack access to trading spaces in formal markets or cannot pay for market spaces. Some traders also take advantage of certain strategic locations to establish street

markets which are usually not formally recognised because they obstruct pedestrian movement and vehicular traffic, thereby causing congestion and posing a challenge for city authorities (Solomon-Ayeh et al., 2011).

Most Ghanaian markets, particularly those in urban areas operate on a daily basis, from Monday to Sunday. Highly periodic markets, which operate for less than seven days is characteristic of quite a number of markets in rural Ghana. However, there is also the tendency for some daily markets to have an overlay of some form of periodicity. For instance, even though the Ashaiman 3 Market operates as a daily market, Mondays and Thursdays have been set aside as market days and these days are particularly active days. Another example is the Techiman Market 4, which operates daily, but has Monday, Wednesday and Friday as its market days. The difference on such days is obvious in the number of market attendants; mostly customers and traders (most importantly, producers and wholesalers) from various parts of the region and the country at large.

Closely linked to periodicity is the use of the time of operations of markets as a distinguishing factor for classification. There are markets that operate during the day (mostly from 6:00 in the morning to 6:00 in the evening) and others that operate in the night (usually after 6:00 p.m.). Day markets are more common, but there are quite a number of night markets, including the Bukom, Osu and Kwame Nkrumah Circle night markets in Accra. Ghanaian markets are characterised by a high diversity of enterprises in addition to trading activities. The enterprises are so diverse that (Clark, 1994) remarks that “formal classification along the scales of modernity, competitiveness, capitalist orientation, legality, or size cannot say enough about this diversity”. Apart from traders, there are tailors or seamstresses, hairdressers or barbers, other artisans and auxiliary

workers such as head porters whose services are far from trading. In the same way, there are also formal businesses like pharmacies and secretariat services.

In terms of commodities, market traders sell a wide range of commodities; from foodstuffs, clothing, manufactured and industrial products of both local and foreign sources. Markets offering a variety of goods are more common than specialised markets like the Agbogloshie Market, noted for vegetables and foodstuffs, the Abossey Okai Market, noted for the sales of car spare parts and the Kantamanto Market noted for second hand clothing and the Timber Market noted mainly for wood. There are, however forms of commodity specialization within most mixed markets in terms of sectors or zones. With regards to the volumes of trade, there are wholesale markets, retail markets as well as markets that engage in both wholesale and retail activities.

The sizes of markets also vary from place to place and sometimes correspond to their functions. Mostly, markets in rural communities in the country are much smaller in sizes as compared to those in urban communities in terms of physical size, availability of facilities and average number of attendants. Thus, based on the size and a combination of the other factors, markets in Ghana can be hierarchically classified into central markets, neighbourhood markets or satellite markets and village markets. Many central markets are characteristically the biggest in the regions in which they are located. They are often open air markets that operate daily and sometimes have overlay of various forms of periodicity. They are usually located in the CBDs and offer a wide range of retail and wholesale activities. Some examples of central markets are the Makola Market in Accra, the Kumasi Central Market, the Takoradi Market Circle and the Kotokuraba Market in Cape Coast. Some metropolises like Accra have more than one central market. A market

like the Kumasi Central Market serves the needs of buyers beyond the country (Burkina Faso, Mali and Niger) and thus can be described as a regional market (Solomon-Ayeh et al. 2011).

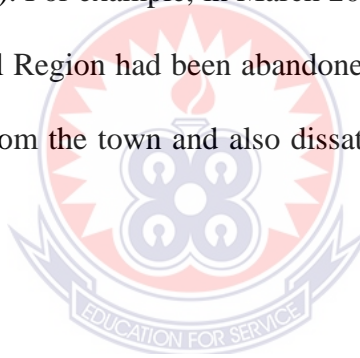
In the view of Amiteye (2015) neighbourhood markets such as the Nima and the Nungua markets, both in Accra, and others in Kumasi like the Bantama Market and the Asafo Market are usually medium sized markets in relation to central markets and they serve the needs of communities within certain catchment areas. There are also village markets, which are very small in sizes and as noted may be highly periodic. The functioning of the market system is such that central markets provide higher order goods and services, and have the highest population density that supports them in relation to the neighbourhood, satellite and village markets. Another phenomenon that is becoming quite common is home based mini markets. This is the activity of individuals who sell goods to their community members. There may be more than one trader in the community, but they operate from different locations, usually from their homes.

2.8.2 Market trade and informality in Ghana

Ghana Statistical Service (2012) revealed that the Ghanaian economy is predominantly informal. The informal sector's share of employment is estimated to be 86.1%. Market trade in Ghana is classified as an informal economic activity and it constitute a significant aspect of the informal economy. It is associated with easy entry and exit; it thrives on little capital and low technological investment. Market trade does not necessarily require any formal education, but informal training and skills are relevant. As a result, it is often associated with people with little or no formal education. Market trading activities are neither recorded by traders nor properly documented by the state (Obeng- Odoom, 2013).

Also, market traders have no form of formal insurance or social security; they often rely on informal social system and family (Amiteye, 2015).

Barr(2004) argues that the planning, siting as well as the control and management of markets waste in Ghana rests with the district, municipality or the metropolitan Assemblies in which the markets are located since Assemblies determine the types, sizes and the locations of markets. However, the considerations of city planners in the planning and siting of markets are not at par with those of traders. This leads to neglect of market buildings and increase in street trading and hawking activities creating difficulties in dealing with sanitation issues (Owusu & Lund, 2004; Asiedu & Agyei-Mensah, 2008; Solomon-Ayeh et al. 2011). For example, in March 2014, the Daily Graphic reported that two markets in the Central Region had been abandoned for over six years by traders due to their remote location from the town and also dissatisfaction with the market facilities (Daily Graphic, 2014).



CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter provides information about the research methodology and techniques used in the study. It includes the population for the study, sample, research design, and sampling procedures. The chapter also includes sources of data, instrument for data collection, reliability and validity, ethical considerations, fieldwork and administration of instruments as well as data analysis.

3.2 Research Design

According to DeVaus (2001) research design has a function of ensuring that evidence obtained in a study helps a researcher to answer the initial questions as clearly as possible. The design adopted for the study was the descriptive-analytical survey.

A descriptive-analytical survey attempts to document current conditions or attitudes, that is, to describe what exists at the moment. Cohen and Manion (1986) assert that most educational research methods are descriptive, that is, they set out to describe and interpret what is, and are concerned with conditions or relationships that exist, practices that prevail, beliefs, points of view or attitudes that are held, processes that are going on, effects that are being felt or trends that are developing. According to Opoku (2000) a survey research has been one of the most widely used methods of data collection in the Social Sciences. The research design was appropriate because it enabled the researcher to ask questions that concern knowledge, attitudes and practices of sellers and buyers at the Takoradi Market Circle on sanitation. In general, qualitative research takes place in the socio-cultural context of participants of a study and therefore, involves an interaction

between the researcher and the researched. In qualitative study, data is collected in the form of words rather than numbers and reflects the experiences, feeling, or judgments of individual taking part in an investigation of the problem or issue, whether as subjects or as observers of the scene (Verma & Malilick, 1999). Creswell (1998) commented that metaphorically qualitative approach is an intricate fabric composed of minute threads, many colours, different textures, and various blends of material. This fabric is not explained easily or simply.

The approach usually involves “in-depth investigation of phenomena through such means as participant observation, interviewing, archival or other documentary analysis or ethnographic study” (Ragin, 1994), methods which do not rely on, but can involve numerical measurements. In line with the interpretivist paradigm, qualitative researchers generally seek to amass information from their studies on event, institution or geographical location, with a view to discerning patterns, trends and relationships between variables (Grix, 2004). Thus, qualitative research interprets the condition of the participants from their perspective. One good characteristics of qualitative approach to research is that it take place in the natural setting or socio cultural context of the participants (Kincheole, 1991).

The language of qualitative research tends to revolve around case-studies and social contexts instead of variables and hypotheses as is the case in quantitative research.

A major argument against qualitative research is that it is not in numerical form. For example, diary accounts, open-ended questionnaires, unstructured interviews and

unstructured observations, and since qualitative is descriptive data and as such is harder to analyze than quantitative (Minichiello, Aroni, Timewell, & Alexander, 1990).

Also because qualitative approach adopts small-scale and non-representative samples, generating results that cannot be generalized beyond the cases investigated is common (Grix, 2004). This inability to generalise from small samples or a few cases is seen to compromise the validity of results obtained through qualitative research. Thus, qualitative research is often accused of being unscientific, unrepresentative, open to bias and even to manipulation, whether this is conscious or unconscious (Grix, 2004; Bryman, 2004).

3.3 Population

The population for the study consisted of 125,000 market users in Sekondi-Takoradi Market Circle to whom the research findings would be generalized. Neuman (2007) defines population as the name for the large general group of many cases from which a researcher draws a sample. It is the group that is of interest to the researcher, the group to which the researcher would like to generalize the findings of the study (Fraenkel & Wallen, 2003). The population comprises all market users (traders) and customers in the market circle.

3.4 Sample and Sampling Procedure

The researcher selected a sample of 90 made up of 67 sellers and 23 buyers from the market using convenience sampling. Market users of market circle formed the sampling units in the design. First, the researcher obtained a list of all the market sellers in the market circle from the office of the Market Queen. The researcher then put them into a composite group made up of five groups of market users from the market (food stuffs,

meat sellers, seamstress, provision stalls and boutiques). The names of the market users (sellers) according to each group were compiled serially on pieces of paper. They were put into a container shuffled and reshuffled. Through proportional sampling as per list provided the researcher randomly selected a number of participants to proportionally represent the groups. Each of the five groups of market users were identified to constitute the study area because the market users share a common problem, that is, poor sanitation that the researcher wants to solve.

The data collected from the office of the Market Queen were used to list market users into each sub-group. That is, separate market users from each other sub-group were selected for the study. As the separate strata are not the same size, a number of market users that is proportional to their sizes, was allocated to each stratum, thereby giving each user in the market an equal probability of being selected for the final sample of market users in Sekondi-Takoradi Market Circle. The following is the procedure for selecting the proportional sample; a sampling fraction for each stratum is obtained by dividing the number of market users in each stratum by the total number of market users and then multiplied by the sample for the study to obtain the proportionally allocated sample for the five groups of market users in the Sekondi-Takoradi Market Circle. This method (stratification) was used to group the sellers in order conduct an effective focus group discussion.

The researcher used a convenience sampling to sample (23) market users (buyers) by administering a 5-item interview guide to sample buyers who are available and willing to participate in the study. The same convenience sampling method was used to collect data from the sellers, 67 of them.

Table 3.1 sample distribution

Participants	Number of participants	Percentage (%)
Food stuffs	18	20
Meat sellers	16	18
Seamstress	10	11
Provision stalls	16	18
Boutiques	5	6
Buyers	23	26
STMA WMD officer	1	1
EPA officer	1	1
Total	90	100

3.5 Sources of Data

The researcher, being conscious of the exploratory and analytical nature of the study, used data from both primary and secondary sources. Indeed, the primary data came from information that participants (market users) operating in the study area provided. To obtain the secondary data, the researcher, further made extensive use of information through searching the internet for significant and relevant information to enrich the study.

3.6 Research Instruments

To collect the data necessary for the study, four different types of instruments were employed to gather data for the study. They include structured interview or standardized interview was administered to 67 market sellers to collect data on the sanitation issues. Questionnaires were also structured and administered to the market traders to derive data on the sanitation situation in the market. Finally, a face-to-face structured interview was conducted during the focus group discussion, 12 members who were all sellers were involved in the discussion about sanitation situation in the market. A 30-item interview guide was developed and administered to randomly selected Market Users (sellers). Another 5-item interview guide was developed and administered to purposively selected

market users (buyers) participating in the study and another two different set of interview guide of 10 item each was developed and administered on market sellers based on the perception, cause and effects of poor sanitation. The interview guides were organized into five sections- A through E taking into consideration the specific objectives of the study. The interview guide consisted of both closed and open-ended questions.

In section A of the guides, questions were structured to describe the sanitation conditions of the Market Circle in Takoradi. Variables such as availability of waste bins, closeness to waste bins, responsibility for cleaning the immediate surroundings, type of sanitary facilities (toilets and urinals) available, their conditions and closeness, personal measures to prevent filth and promote hygiene in the immediate surroundings among others were investigated.

Section B of the guide, sought to deal with dispositional factors that influence market users regarding the issue of improved sanitation. The dispositional factors include, lack of confidence to take up the challenge of proper sanitation, skepticism, the feeling that is always “this way” “Do you feel good about the way wastes, especially plastic waste, is managed in the market?”

In section C, D, and E of the guide, questions were structured to deal with situational factors that influence market users with respect to causing poor sanitation in the Market Circle and effect on commercial activities in the Market Circle. In the study, situational factors include lack of resources as refuse containers, lack of time among others. Examples of questions posed to the respondents included the following; “Do you separate

waste (plastic, wood, metal, glass, food waste, others) before disposal?” “Do you think sorting waste is consuming the time in the market place?”

The sections were structured in such a way that they helped to bring out reliable findings to the topic under study. The closed-ended questions eased scoring and quantification of responses. The use of open-ended questions allowed respondents to have control over their responses rather than agreeing or disagreeing with questions posed by the researcher. This helped respondents to freely express their views and opinions on the questions. The researcher treated both open-ended and closed-ended questions with equal importance and the major tools for analysis of the data were both quantitative and qualitative in nature.

To enable the researcher achieve high ‘response rate’ from the respondents, three undergraduate students were hired, trained with the administration of interviewing skills to assist in administering, collecting and conducting relevant, valid and reliable data-collection exercise. This helped the researcher to cut down time and financial cost and allowed the researcher the space to record responses promptly.

3.7 Focus Group Discussion

One Focus Group Discussion (FGD) session centered on the topic understudy, was held for market users who were new and not part of the earlier respondents, in the Market circle. The group was made up of 12 members. The discussion session lasted averagely about one hour. The Focus Group Discussion elicited qualitative data to supplement and complement both quantitative and qualitative information provided by the two interview guides. Indeed, the Focus Group Discussion enabled the researcher to understand what

really the market users thought about the issue of poor sanitation and the effects of poor sanitation on the market users were also discussed. It also informed them adequately on the issues involved as they heard the views of other market users, and, therefore, considered their own views accordingly.

3.8 Pre-test, Reliability and Validity of the Instruments

3.8.1 Pre-test

The researcher ensured that instruments developed were reliable and valid by the following means. Firstly, the researcher pre-tested the questions on 15 respondents in the Apremodo New Market with similar characteristics of market users at the market circle. This exercise enabled the researcher to identify the ambiguous, unrealistic, and wrong question which came from the responses and corrected them before the actual fieldwork. The pre-testing helped to update the instrument as well as give a clue to the researcher as to the length of time the data collection is likely to take and this helped in drawing up a proper schedule for the main data collection activity.

3.8.2 Reliability

To ensure the reliability of the instrument the test-retest method was used. The researcher administered the interview guide randomly and purposively to respondents in another market outside the study area. A second set was administered to different respondents in different market after an interval of two weeks with the same interview guide having a different numbering pattern. The test was reliable when basically the result showed consistency in the instrument since very similar responses were given. Reliability was

established through simple correlation co-efficient for analysis to lend the instrument to repeatability. Cohen & Manion (1996) explain that reliability is essentially a synonym for consistency and replicability of instruments and group of respondents, over time.

3.8.3 Validity

To ensure validity of the instrument, the interview guide was given to a lecturer with expertise in the field of methodology in Social Studies Department, in the University of Education, Winneba. The researcher also sought positive suggestions from senior colleagues who finished their M.Phil thesis in the Social Studies Department.

This helped the researcher to re-examine the content, arrangement, logical sequence and the wording of the questions. Validity suggests truthfulness or accuracy and refers to the match between a construct or the way a researcher conceptualizes the idea in a conceptual definition – and a measure. Construct Validity was used to ensure that the measure was essentially measuring what it was intended to measure, and no other variable.

3.9 Ethical Considerations

The researcher assured the respondents that whatever they would say by way of information would remain confidential. The researcher explained the purpose of the study to the respondents. This was done to avoid deception. Not only the above, the researcher also sought consent of the Market Queen before collecting the data. All respondents gave out information voluntarily for the study. The goal of ethics in research is to ensure that

no one is harmed or suffered adverse consequences from participating in research activities (Cooper & Schindler, 2007).



CHAPTER FOUR

FINDINGS AND DISCUSSION

4.0 Introduction

This chapter presents and analyses the data gathered for the study. It begins with a description of the demographic background of participants (age, gender and educational level) and how it influenced sanitation. Followed by a description of the sanitation condition in the Takoradi Market Circle. This chapter also examines the perception of market users about the sanitation situation in the market, examines the causes of poor sanitation in the market. The focus group discussion explored the effects of poor sanitation condition of the Takoradi Market Circle and is accompanied with pictures.

4.1 Demographic Background of Respondents

The demographic information of both sellers and buyers in the Takoradi market circle were gathered. The tables (4.1a and 4.1b) below show a distribution of their respective information.

Table 4.1a Demographic background of sellers (food stuff sellers, meat sellers, seamstress, provision stalls, and boutique operators)

Gender distribution	Frequency	Percentage (%)
Male	28	41.8
Female	39	58.2
Total	67	100
Age distribution	Frequency	Percentage (%)
Below 20 years	5	7.5
21 to 30 years	30	44.8
31 to 40 years	21	31.3
41 to 50 years	2	3.0
51 to 60 years	7	10.4
No response	2	3.0
Total	67	100
Educational distribution	Frequency	Percentage (%)
Basic	3	4.5
Secondary	34	50.7
Tertiary	28	41.8
No response	2	3.0
Total	67	100
Marital status	Frequency	Percentage (%)
Married	21	31.3
Single	40	59.7
Widowed	2	3.0
Separated	2	3.0
No response	2	3.0
Total	67	100

The gender distribution of the sellers in the Takoradi Market Circle is made of twenty eight males which (41.8%) and thirty nine females (52.2%) of the sample. The age distribution of the sellers in the Takoradi Market Circle consist of five (7.5%) of them being less than 20 years, thirty (44.8%) of them falling between the ages of 21 and 30 years, twenty one (31.3%) of them falling between 31 and 40 years, two (3%) of them are aged between 41 and 50 years, seven (10.45%) of them are aged between 51 and 60 years, and two (3.0%) of them did not respond. The distribution of the highest education the traders in Takoradi Market Circle have attained are as follows three (4.5%) of them have had basic education, thirty four (50.7%) of them have had secondary education, twenty eight (41.8%) of them have had tertiary education, and two (3%) of them did not

respond. The distribution of marital status of the sellers in the market are, twenty (31.3%) of them are married, forty (59.7%) of them are single, two (3%) of them are separated from their spouses, two (3%) of them are widowed and two (3%) of them did not respond.

Table 4.1b Demographic background of buyers

Gender distribution	Frequency	Percentage (%)
Male	11	47.8%
Female	12	52.2%
Total	23	100
Age distribution	Frequency	Percentage (%)
18 to 35 years	14	60.9
36 to 45 years	8	34.8
No response	1	4.3
Educational distribution	Frequency	Percentage (%)
Basic	2	8.7
Secondary	5	21.7
Tertiary	16	69.6
Total	23	100

The gender distribution of the buyers in the Takoradi market circle consists of eleven males (47.8%) and twelve females (52.2%). The age distribution for the buyers consist of fourteen (60%) of them falling between the ages of 18 and 35 years, eight (34.8%) of them falling between the ages of 36 and 45 years, and one (4.3%) of them did not respond. The distribution of the highest level of education the buyers have been is as follows, two (8.7%) of them have had basic education, five (21.7%) of them had secondary education and sixteen (69.6%) of them had tertiary education.

4.2 Description of the Sanitation Conditions in the Takoradi Market Circle

The data gathered for this study suggest that the sanitation condition in the Takoradi Market Circle is in a poor state. From the perspective of the buyers, the sellers and

pictures taken, the poor sanitation is the main challenge that scares most customers. From my field observation the market queen for the yam sellers lamented that,

Any time I try to correct people, who are improperly disposing waste in the open drain, I become a subject of discussion in the market that is why all the gutters are choked and there is too much housefly in the market.

Another 56 year old seller by name Maame Ekuia said,

As for the bad sanitation in the market circle it is normal as compared to other markets, such Abgoboloshi market in Accra: and since we are selling here dirt will still be part of us.

From my observation there were a lot unsightly scenes, such as mad people and Indian hemp smokers sleeping in the market after the market had closed.



Figure 4.1 Skip site in the market showing the type of waste produced
Source: Field data (2016)

As seen in figure Figure 4.1 (p. 63) the market's dumping site shows a mixture of organic and inorganic waste (degradable and non-degradable waste). Organic or biodegradable wastes are able to be decomposed (degradable) by living organism or bacteria while inorganic or non-biodegradable wastes cannot. Some of the non-biodegradable waste found to be dominant on the dumping site are disposable "takeaway" packs, plastic bottles and polythene bags. Even though these type of wastes do not produce any severe bad odour, their major harmful effect is on the environment then serve as breeding place for insects such as mosquitoes.

From the above discussion the degradable component of the waste in the dumping site is obviously visible except that of papermade waste, this suggests that the non-biodegradable waste has assumed dominance on the biodegradable waste with respect to waste generated from the market.

4.3 Perception of Sellers and Buyers on Sanitation Condition in Takoradi Market Circle

The data gathered for this study shows the perception of traders in the Takoradi Market Circle. In order to make the table look presentable and simple, the statements have been shortened in them; references can be made below the table. Information gathered on the perception of the traders at the Takoradi Market Circle has been summarized in Table 4.3a and it is as follows. Eight of the traders are not sure if waste papers, plastics bags, cloths and nappies, pieces of metals and wood, are not rubbish or not this represents 11.9%; thirty two of them think it is not rubbish representing 38.8% and twenty six of them think it is rubbish this represents 47.8% of the sample.

Mr. Adu Blankson a provision shop owner in an interview was of the view that,

Since there are cleaners in the market I don't believe that these polythene bags can be harmful to the environment.

This respond shows clearly that he doesn't have in-depth knowledge on the dangers of polythene bags to the environment. On whether plastic waste pollutes the market environment, one (1.55%) of the traders is not sure, fifty seven (85.1%) of them think it does pollute the market and nine (13.4%) of them think it does not. At the market center Maame Adutwumwa lamented that,

My colleague sellers are aware on the effects of poor sanitation yet some of them dispose unused polybags in the gutter under the containers.

While Monica Arthur, a 43 year old seller is of the view that,

Sachet water rubbers are the main source of waste in the market but I have a personal container where my costumers dispose the sachet water rubber after use.

On whether plastic bags and plastic bottles can be decomposed naturally, nine (13.4%) of the traders are not sure, forty five (67.2%) of them think their decomposition is not natural while twelve (17.9%) of them think their decomposition is possible naturally.

Sister Amina, a vegetable seller in an interview said,

I can't actually tell if rubbers can decompose naturally but I think is good to burn it.

This confirms what Mr. Mohammed Ali said,

There is the need to educate Ghanaians about plastic waste; we have to change our waste disposal attitude so we need education.

Table 4.2a Perception of the sellers on sanitation conditions in Takoradi Market Circle

Statement 1	Frequency	Percentage (%)
Yes	26	38.8
No	32	47.8
Not sure	8	11.9
No response	1	1.5
Total	67	100
Statement 2	Frequency	Percentage (%)
Yes	57	85.1
No	9	13.4
Not sure	1	1.5
Total	67	100
Statement 3	Frequency	Percentage (%)
Yes	12	17.9
No	45	67.2
Not sure	9	13.4
No response	1	1.5
Total	67	100
Statement 4	Frequency	Percentage (%)
Yes	55	82.1
No	11	16.4
Not sure	1	1.5
Total	67	100
Statement 5	Frequency	Percentage (%)
Yes	49	73.1
No	12	17.9
Not sure	5	7.5
No response	1	1.5
Total	67	100

Statement 1 – waste papers, plastics bags, cloths and nappies, pieces of metals and wood, are not rubbish; Statement 2 - plastic waste pollutes the market environment; Statement 3 – plastic bags and plastic bottles can be decomposed naturally; Statement 4 – leftover food, vegetable and fruits are garbage; Statement 5 – leftover food, vegetable and fruit waste can decompose naturally

On whether leftover food, vegetable and fruits are garbage, one (1.5%) of the traders is not sure, fifty-five (82.1%) of them think they are garbage and eleven (16.4%) of them think they are not garbage; this forms 1.5%, 82.1% and 16.4% of the sample respectively.

On whether leftover food, vegetable and fruit waste can decompose naturally, five (1.5%)

of the traders are not sure, twelve (17.9%) of them think they do not decompose naturally and forty nine (73.1%) of them think their decomposition is natural.

Madam comfort Gartey, a 45 year old vegetable seller said,

Vegetables can decompose naturally but the waste i generate here are taken to the dump site because when they decompose it smells bad, I also have some boys that take my waste to the dump site when am not around.

Maame Ekua Samson, a 32 year old vegetable seller also confirmed what madam Ghartey said, she is of the view that,

Vegetables can decompose naturally but in the market set up it will be a bad practice to live it on ground without disposing it.

On dropping leftover foodstuff and plastic into gutters can cause flooding in the market, six (9%) of the traders think it is not possible and sixty one (91%) of them think it is true. Almost all respondents confirmed how bad it is to drop waste in the open drains.

However, an 18year old hawker Eric Cudjo said,

Dumping of waste in the gutters and littering the environment will create more jobs for zoomlion.

This is why the existence of logistics alone cannot help solve the poor sanitation situation in the Takoradi Market Circle unless is blended with effective education.

On whether every kind of waste can be disposed by burning without any effect on the environment, ten (14.9%) of traders think it is true, fifty-five (82.1%) of the traders disagree and one (1.5%) of them is not sure on what to decide.

Aunty Hawa, a 47 year old seller said that,

The burning of waste saves me from paying to dispose my waste, whether it has health effect I cannot tell.

Unlike Mr. Oti who said that,

Yes I know that burning of waste can lead to breathing defects and is a bad practice since the market is an enclosed area burning waste in or outside the market is a criminal offence.

On reusing plastic bags, bottles and paper can reduce waste and help solve waste problem at source, forty- nine (73.1%) of the traders think it can help, nine (13.4%) of them do not think it can help and seven (10.4%) are not sure what to decide on. On whether there are benefits associated with sorting plastic waste with respect to reducing market waste, forty-eight (71.6%) of the traders think there are benefits, eight (11.9%) of them there is no benefit in sorting waste and ten (14.9%) of them cannot decide.

Sister kuukua a vegetable seller whom I interviewed was of the view that,

It is good to sort waste but they are now facing challenges with the number of skip a bin so if there are enough bins then is a good practice.

This was confirmed by sister Attaa that,

It will be a good practice, for it will be the first time that TMC is experiencing that and it would help a lot.

This can be seen in the continuation of Table 4.3a.

Table 4.2a (continued)

Statement 6	Frequency	Percentage (%)
Yes	61	91
No	6	9
Total	67	100
Statement 7	Frequency	Percentage (%)
Yes	10	14.9
No	55	82.1
Not sure	1	1.5
No response	1	1.5
Total	67	100
Statement 8	Frequency	Percentage (%)
Yes	49	73.1
No	9	13.4
Not sure	7	10.4
No response	2	3
Total	67	100
Statement 9	Frequency	Percentage (%)
Yes	48	71.6
No	8	11.9
Not sure	10	14.9
No response	1	1.5
Total	67	100

Statement 6 – dropping leftover foodstuff and plastic into gutters can cause flooding in the market;
Statement 7 – every kind of waste can be disposed by burning without any effect on the environment;
Statement 8 – reusing plastic bags, bottles and paper can reduce waste and help solve waste problem at source;
Statement 9 – there are benefits associated with sorting plastic waste with respect to reducing market waste

4.2b Perception of buyers on sanitation conditions in the Takoradi market circle

Statement 1	Frequency	Percentage (%)
Yes	22	95.7
No	1	4.3
Total	23	100
Statement 2	Frequency	Percentage (%)
Yes	2	8.7
No	19	82.6
Not sure	2	8.7
Total	23	100
Statement 3	Frequency	Percentage (%)
Yes	22	95.7
No response	1.3	4.3
Total	23	100
Statement 4	Frequency	Percentage (%)
Yes	13	56.5

No	9	39.1
Not sure	1	4.3
Total	23	100
Statement 5	Frequency	Percentage (%)
Yes	9	39.1
No	11	47.8
Not sure	3	13
Total	23	100

Statement 1 – waste generated in the market place can cause some disease; Statement 2 – adequate measure are put in place to check waste issues in the market; Statement 3 – the environment in which commodities are sold must be considered before making purchase decision; Statement 4 – houseflies, open choked gutters in the market is normal; Statement 5 – the individual’s role in handling sanitation related issues is not significant

The perception of buyers on sanitation conditions in the Takoradi market circle has been summarized in Table 4.3b above. On whether waste generated in the market place can cause some disease, twenty-two (95.7%) of buyers think it can whiles one (4.3%) think it cannot. Most of the respondents who participated in the interview showed a total dislike towards the bad sanitation condition.

A 32 year old teacher Mrs Inkum said that,

In a nut shell what goes into us contaminate us and I attribute a lot sickness in our homes to what we eat and where we eat from, and if foodstuff in such areas like this are not well cooked, it will lead to sickness, such as typhoid.

In an interview with one of the buyers Mr. Asamoah a 36 year old nurse he concluded that,

A lot of people in Takoradi suffer various kinds of sickness because they buy from the Market circle; however, there is no competitive market to compete with market circle that is why the authorities are not doing anything about it.

On whether adequate measure are put in place to check waste issues in the market, two (8.7%) of the buyers think such has been done, nineteen (82.6%) of them disagree and two (8.7%) of them are not sure.

Mr Amu-Mensah, a buyer said that,

There are attempt to put the market in place yet the people do not accept the change.

The interview with Mr. Mohammed Ali confirmed that,

The effort to decongest the Takoradi Market Circle to the Apramdo new market had led to serious challenges between sellers, hawkers and STMA officials.

On whether the environment in which commodities are sold must be considered before making purchase decision, twenty-two (95.7%) of the buyers think so and one (4.3%) of them disagrees.

On whether houseflies, open choked gutters in the market is normal thirteen (56.5%) of the buyers think it is but nine (39.1%) think otherwise and one (4.3%) of them cannot make a decision on it. On whether the individual's role in handling sanitation related issues is not significant nine, (39.1%) of the buyers think it is significant, eleven (47.8%) think it is not significant and three (13%) of them cannot decide.

4.4 Causes of the Poor Sanitation Condition in the Market

A focus group discussion with sellers in the market reveal that the causes for the poor sanitation condition at the refuse dumping site (which has become the selling place for some market sellers) can be attributed to several activities that cannot be limited to the market sellers themselves alone. The outcome from the focus group discussion suggests

that the source of the poor sanitation in the Takoradi market circle can broadly be categorized into three: indiscipline on the part of the sellers in and around the market, the incompetence on the part of the managers of market, and the undisciplined nature of residents in and around the market.

The indiscipline practices of sellers that lead to keeping the market in its poor sanitation state is the sellers' failure to tidy up their personal selling places or areas in the market. The major culprits in this practice are the hawkers and pure water sellers (sellers without allocated selling spots in the market). These sellers litter the every space they occupy during their working period. Secondly, the market has a poor sanitation because the fees refuse collectors charge is high and failure to pay means your refuse will not be collected. These are areas where the sellers can be faulted for playing a role in ensuring that the market is in a state of poor sanitation conditions.

Residents who live close to the market circle have been named to also contribute to the poor sanitation in the market.

According to Aunty Esi a boutique owner,

These residents have challenges locating good toilet facilities hence defecate in polythene bags and dump them at the market's refuse site.

Mr. Abu, the money collector at the skip bin confirmed by saying,

The domestic waste they produce are also dumped on the dumping site even when the skip bin is full.

Residents around the market have resorted to this mode of waste disposal due to high charges requested by refuse collectors. Some people have also decided to make the market circle their homes. They make themselves comfortable in the absence of the

sellers. They also generate waste from their various activities and leave the refuse where they made uncollected. Sellers return to the market in the morning and find their spaces already dirty.

A larger portion of the cause of poor sanitation in the market has been attributed to the failure of the managers of the market to do their work proactively. The sellers complain of high fees received before their waste is collected. After they have made this “high” payment, the refuse collected from their selling spots or places are not properly disposed because the market has limited refuse collecting bins at the dumping site. This is why the waste happens to be on the floor all spilled around the bins always. The waste is also not collected early enough from the market before selling starts. Collecting the waste early will ensure a thorough cleaning of the market due to easy access to dirty areas for the cleaners (collectors). Waste trucks can also come for the refuse bin with little congestion or traffic which will not be possible when the market is in full session. If the market assumes full activity with a partially filled dustbin, the dustbin will certainly overflow with waste after some few hours.

In the view of Mrs. Danquah a provision stall operator, she said that,

The market sweepers are not motivated to sweep the market anymore due to their several dissatisfaction with the poor remuneration. The drainage system in the market is poorly constructed; they should have been deeper and underground.

This was confirmed by a 54 year old food stuff seller Maame Sosu that,

Because they are open gutters the overflowing waste fall into the gutters hence chocking free flow of sewage waste. Also some undisciplined sellers easily dispose their refuse into the gutter in an attempt to tidy up their own space.

The main reason why they perceive the managers not to be proactive in ensuring that the market is clean is due to their inability to conduct regular inspections on the market.

According to Mr. Koomson seller in the market, he said that,

Regular inspections where sellers who have dirty surrounding are punished will instill some discipline among the sellers.

Figure 4.2 (p.76) below also shows a clear description of the Sekondi-Takoradi Market circle's dumping site with an active trading exercise. Traders and hawkers can be seen to be selling their (food) items with some seated on the gutter and others seated close to the dumping site. Even though the market's dumping site has been sited outside the normal market space but sellers can be seen to have encroached the spaced meant to be their (sellers') refuse dumping site due to the competition for space and customers.



Figure 4.2 Skip site in the market showing business activity around it
Source: Field data (2016)

Evidence from the Figure 4.2 (p. 93) above show that sellers are exposed to a lot of air polluted environment from the dumping site and the uncovered drainage system. These poor environmental conditions do not only affect the health of sellers negatively but also contaminates the (food) items on sale. There is a likely argument that these food stuff are nonedible in their raw state hence cooking them properly will kill the germs if food items are infected. But it must be noted that not all households eat certain food item cooked; some people eat their vegetables (carrot, tomatoes, cabbage, cucumber etc.) uncooked. They could be infected with one disease or the other due to the market's poor sanitation condition.

4.5 Sanitation Practices of Traders in Takoradi Market Circle

The data gathered for this study shows the sanitation practices by traders in the TMC. Table 4.4a summarizes the responses of traders with respect to their sanitation practices in the Takoradi market circle. Four (6%) of the traders drop waste in the open gutters because it saves them a lot of money, fifty-six (83.6%) of them do not and two (3%) of them did not sure if they have done that before. Sixty (89.6%) of the traders advise customers on how to manage plastic waste because it is a good thing to do, but one (1.5%) of them do not and one (1.5%) of the traders is not sure.

From the interview, a respondent, Madam Herty a tin tomato seller said that,

I have taken it upon myself to advise my own colleagues not to litter even though some hate me for telling the truth, yet I keep on because I don't see why I should keep my home neat and sell in a dirty environment.

Table 4.3a Sanitation practices of traders

Statement 1	Frequency	Percentage (%)
Yes	4	6
No	56	83.6
Not sure	2	3
No response	5	7.5
Total	67	100
Statement 2	Frequency	Percentage (%)
Yes	60	89.6
No	1	1.5
Not sure	1	1.5
No response	5	7.5
Total	67	100
Statement 3	Frequency	Percentage (%)
Yes	54	80.6
No	7	10.4
No response	6	9
Total	67	100
Statement 4	Frequency	Percentage (%)
Yes	18	26.9
No	42	62.7
No response	7	10.5
Total	67	100
Statement 5	Frequency	Percentage (%)
Yes	18	26.9
No	40	59.7
Not sure	4	6
No response	5	7.5
Total	67	100

Statement 1 – dropping waste in the open gutters saves lot of money; Statement 2 – advising customers on how to manage plastic waste is good; Statement 3 – personal thrash bin is good in the market; Statement 4 – do you separate your waste before disposal; and Statement 5 – Zoom lion will not get work to do if there is no waste in the market

Table 4.4a Sanitation practices of sellers

Statement 6	Frequency	Percentage (%)
Yes	21	31.3
No	38	56.7
No response	8	12
Total	67	100

Statement 7	Frequency	Percentage (%)
Yes	21	31.3
No	32	47.8
No response	14	20.9
Total	67	100

Statement 6 – littering is the most convenient way of disposing waste

Statement 7 – distilling the gutters is the duty of the STMA

Fifty-four (80.6%) of the traders have personal trash bins in the market because it is good, but seven (10.4%) of them do not have any. Eighteen (26.9%) of the traders separate their waste before disposal but forty-two (62.9%) of them do not.

A respondent said that,

Almost all the market sellers in this lane have a personal trash bin and I can belt on that.

Eighteen (26.9%) of the traders contribute to waste generation in market as a form of job creation for zoom lion, forty (59.7%) of them do contrary because zoom lion will still be productive if the market is well kept, and four (6%) of them are not sure.

This response was confirmed by Mr. Haruna, a meat seller. He said that,

Zoom lion workers don't need to see dirty environment before they are paid so they will still get work to do if the environment is clean, and that is what they are doing.

Table 4.4b Sanitation practices of buyers

Statement 1	Frequency	Percentage (%)
All the time	8	34.8
Most of the time	10	43.5
Never	5	21.7
Total	23	100
Statement 2	Frequency	Percentage (%)
All the time	1	4.3
Most of the time	7	30.4
Never	15	65.2
Total	23	100
Statement 3	Frequency	Percentage (%)
All the time	4	17.4
Most of the time	11	47.8
Never	8	34.8
Total	23	100
Statement 4	Frequency	Percentage (%)
All the time	16	69.6
Most of the time	6	26.1
Never	1	4.3
Total	23	100
Statement 5	Frequency	Percentage (%)
All the time	7	30.4
Most of the time	13	56.5
Never	3	13
Total	23	100

Statement 1 – I do question the way commodities are displayed, stored and used by sellers that have the propensity to cause sanitation problem in the market

Statement 2 – I litter the market place with waste I generate there before going home

Statement 3 – I offer a piece of advice to the sellers in the market on how to store their wares to avoid generation of waste

Statement 4 – I buy items from sellers who keep their surroundings clean

Statement 5 – I use durable packages to prevent frequent use of disposable plastics

Twenty one of the sellers litter the market because to them it is the most convenient way of disposing waste and thirty eight others disagree; this represents 31.3% and 56.7% of the sample respectively.

A 54 year old seller Maame Nana said,

Sellers litter because there are no collecting bins at vantage point in and around the market circle that are closer and since not all the sellers have

personal trash bins, the person may carry the sachet rubber for a while if he or she does not spot any bin around then he is compelled to litter.

Mrs. Inkum did not agree with the comment above but said that,

Most of the sellers do not know the effects of littering that is why they litter the environment without caution.

Twenty-one (31.3%) of the traders do not distil choked gutters in markets because it is the responsibility of the Sekondi-Takoradi Metropolitan Assembly (STMA) but thirty-two (47.8%) of them do otherwise.

In an interview with Maame Betrice, she lamented that,

Those in charge of cleaning the gutters every morning don't come early to do it, so when they do it late in the morning while buying and selling is ongoing the pungent smell affects business activities especially when eating and sometimes they don't do it at all yet they have paid for that services.

The sanitation practice of the buyers has been summarized in Table 4.4c above (pp81). Eight (34.8%) of the buyers question the way commodities are displayed, stored and used by sellers that have the propensity to cause sanitation problem in the market all the time, ten (43.5%) of them do that most of the time but five (21.7%) of them have never done that. One (4.3%) of the buyers litter the market place with waste before going home all the time, seven (30.4%) of them do that most of the time but fifteen (65.3%) of them have never done that before.

A buyer, Mr. Nti said that,

Since the market is a business center I don't see why one should litter and not dump waste at the appropriate place but that is not what happens here.

In support of this, an interview with madam Rebeccah, a 43 year old teacher said,

There has never been a day I have not complained about these sanitation issues but to some of the sellers it has fallen on deaf ears so I don't buy from them again.

Four (17.4%) of the buyers advise the sellers in the market on how to store their wares to avoid generation of waste all the time, eleven (47.8%) do that most of the time but eight (34.8%) have never done that before. Sixteen (69.6%) of the buyers ensure they make purchases from sellers who have ensured proper sanitation environment all the time, six (26.1%) of them do that most of the time but one (4.3%) of them do not consider the environment.

In an interview with Mrs. Kingful Essiam, she said that,

I buy from recommended neat sellers and I don't buy foodstuffs especially vegetables at the Market Circle.

Mrs. Manu a regular costumer who confirmed the point above, she said,

I don't send my child to buy at the Market Circle, if I need something here I come myself because I have particular people that I buy from and I do that because I want to buy from neat sellers.

In order to avoid regular waste generation, seven (30.4%) of the buyers use durable packages (baskets) to prevent frequent use of disposable plastics all the time, thirteen (56.5%) of them do this most of the time and three (13%) of them have never used such packages.

4.6 Effects of poor sanitation in the Takoradi Market Circle

Generally, a focus group discussion with the sellers revealed that one to two thirds of wastes generated in the Takoradi Market Circle are not collected until it gets to a point of

decay. As a result, the uncollected waste, which is often also mixed with human excreta, is dumped indiscriminately along the streets and in drains and this contributes to flooding, breeding of insect and rodent vectors and the spread of diseases.

A section of the market users operating around at the Takoradi Market Circle bemoaned the unhygienic condition under which they operate. A woman acknowledged that the poor sanitation behavior due to indiscriminate dumping of waste has brought about a rising number of incidents of hazards to human health, contamination of both food and water which is in turn a serious human health risk not only to the market users but the people living around the Takoradi Market Circle.

Surprisingly, all the twelve market women who engaged in the focus group discussion attested to the fact that breeding of mosquitoes as a result of stagnant water and cholera “which one woman calls it on and off” has really affected them and their children but thanks to God for national health insurance.

Three women confirmed that five market women died in the year 2015 due to malaria and typhoid. Often times most children suffer from cholera and malaria.

Madam Theresa confirmed that,

The most affected are the people selling closer to the dustbin since the pungent odor emitted in the morning and afternoons makes it difficult for them to eat and breathe.

Aside the health effects, a market woman confirmed that poor sanitation in the market deters most their customers especially the foreigners and this makes them loose customers and profit. She was of the view that she has been affected greatly by this instance because she sells closer to the where the big bin is located.

Personal field observation agreed with most of the discussion with the group. The effect of flood due to choked drains threatens activities at the TMC whenever it rains. The group confirmed the drowning of a hawker during one of the flood in the market in the year 2015, coupled with destruction of goods and properties worth thousands of cedi's, of which more than half of the group members who participated in the discussion are victims anytime it rains.

Aunty Cecilia, a member of the focus group discussion lamented that,

I have lost a lot of valuable goods during sever floods at the market circle.

They confirmed that, the flooding situation doesn't occur annually but whenever it rains there is so much fear in the market and also has great effect on business activities.

In the discussion, a 37 year old food stuff seller, Maame Ama said that,

The heavy work given to us after the flood is another problem to discuss, since the flood deposites in the market all the dirty rubbers, decayed food stuffs and sachet rubbers of all kinds, including dead rodents and other rotten materials that are hidden in the open choked drains of which sometimes the market cleaners delay in cleaning them.

The pictures below were captured in one of my personal observation trips to the Market Circle and this happens almost any time it rains.



Figure 4.3.The environs and entrance of TMC caught up in a dangerous flood.
Source: Field data (2016)

CHAPTER FIVE

SUMMARY, RECOMMENDATIONS AND CONCLUSION

5.0 Introduction

The study was about sanitation practices in the Takoradi Market Circle. It provided a summary of the study, conclusion that was arrived. Based on these findings, recommendations were made.

5.1 Summary

Demographic information about both traders and buyers at Takoradi market circle were gathered in the study. The buyers consist of more than half females, with the majority age category been 18 to 35 years and are on the average highly educated since less one tenth of them had a minimum of basic education. Traders are mainly females with majority of them above the age of 20 years, with the least educated in the sample having a secondary education and are single. The market has a place that has been allocated for the dumping refuse but due to inadequate space in the market, traders have resorted to selling their goods very close to the dumping site. The market produces both biodegradable and non-biodegradable waste as well as a lot of sewage waste. The causes of the poor sanitation condition in some parts of the market can be attributed to factors such as indiscipline on the part of the sellers in and around the market, the incompetence on the part of the managers of market, and the undisciplined nature of residents in and around the market. Traders and hawkers can be seen to be selling their (food) items with some seated on the gutter and others seated close to the dumping site. The market has some uncovered drainage systems which pollutes the area with the bad odor it produces posing a lot of health hazards on the food and commodities on sale.

Majority of the traders in the market perceived all types of waste materials to be rubbish while the minorities of them do. Almost all the traders perceive plastic waste to be a major source of pollution to the market because it does not decompose naturally. The traders do not perceive leftover food to be garbage due to their ability to decompose naturally. The traders perceive that choking the drainage system with filth (garbage) can cause flooding but not all waste can be properly disposed by burning them. The traders perceive that adopting the use of recycled waste especially plastics will solve the environmental pollution situation and they also believe that sorting out organic waste from inorganic waste will also help the environment. The buyers from the market perceive that the waste generated from the market is a major source of spreading an epidemic but they do not believe that adequate measures have been taken to curb the situation. Majority of the buyers consider the environment within which they buy their items even though some places in the market seem to be covered in filth. Surprisingly, close to half of the buyers do not perceive the role of the individual to be insignificant in ensuring a clean market.

Majority of traders do not litter the drainage system in the market because they keep thrash bin around them. Even though, a few of the traders deliberately litter the market in an attempt to create jobs for the cleaners of the market, they advise their customers on how to manage waste properly when in the market. Almost of the traders think desilting of gutters, a job reserved for STMA but littering the market is not the most convenient practice.

Many of the buyers do not litter the market and advice the on good sanitation practices. Many of the buyers prefer to make their purchases from traders who have clean

surroundings and they also go to the market with baskets to minimize the amount of waste generated due to packaging.

5.2 Discussion

The gender distribution for both groups of respondents showed that females dominated the sample. The dominance of the females is more evident among the traders compared to that of the buyers as seen in Tables 4.1a and 4.1b. The age distribution of the buyers reveal a younger sample compared to that of the traders. The buyers' mean age is approximately 23 years with more than half of them less than 36 years and that of the traders is 32 years. No significant distinction can be drawn between the level of education of the buyers and the traders. In both cases less than 10% of the sample have had basic education but in the case of the buyers, more than half of them have had tertiary education which makes a better argument compared to almost 42% of the traders. This suggests that the population of this traders is highly educated above the expected education level of a normal Ghanaian trader (this is because of the myth that traders are not that educated especially in Ghana).

Plastic bags contribute largely to the pollution in markets and the nation as whole so for large number of traders to consider them as not being a source of rubbish becomes a serious problem which needs to be addressed with immediate effect. Polythene bags as they are affectionately known are used for packaging items for buyers hence their presence in the markets is very high. The focus has been on the polythene bags and less on the papers and cloths and nappies because these should not have a very high presence in the market place compared to the polythene and also they are more environmentally friendly compared to the polythene. An examination of the waste generated in the market

will show that feature strongly. Plastic bags and bottles do not decompose naturally over a short term; they require hundreds of years in order to decompose naturally as result they are considered to decompose naturally. So for more than half of the traders agreeing that their decomposition is not natural is a good thing. Notwithstanding, the few traders who think plastics can decompose naturally need some form of education on it effects and decomposition. Leftover food, vegetables and fruits are all garbage and the few who think they are not garbage need some form of enlightenment on it. Despite this fact, they decompose naturally and they do not have many harmful effect on the environment compared to polythene if handled properly. They can serve as a form of mulching and can be used to feed farm animals; all that is here is their proper management. This is not to say that they are free of polluting the environment or causing sanitation problems. If not managed well they can breed houseflies and cause the possible spread of sanitation diseases as cholera, dysentery and a few others.

Dropping of any form of solid waste either than liquid waste into gutters is wrong and must be condemned. Some waste are soluble in water even though they are solid waste whiles others become easily decomposable when they come in contact with water; waste such as these may have no effect of flooding as a result of waste in gutters. If gutter must be clean, that implies they must be free of all forms of waste. Gutters are constructed for liquid waste to flow in them with a certain viscosity (this is the magnitude of internal friction in the liquid); so in the event where soluble waste are added to the liquid in the gutters, it increases the viscosity of the liquid and hence the rate of flow of the liquid becomes retarded hence choking. This is dropping of any waste either liquid into gutters must not be entertained. It is good to note that almost all the traders agree that such an

activity is likely to cause flooding but efforts must be made towards achieving a zero tolerance with respect to market sanitation. Burning of organic waste has little or no harmful effect on the environment thus when the environment is limited to land. Burning enriches the soil with some form of nutrients which is good for plants' growth. But it is almost impossible to obtain a pure organic waste from the market. Hence burning waste will have several harmful effects on the environment. The most severe of them is the air it pollutes with the gases it emits (carbon dioxide, carbon monoxide, methane etc.) into the atmosphere. It is always good to reuse items in order to solve the problem of waste generation. The moment items are reused by majority of the citizens, the producers will minimize their rate of production hence the quantity on the market will be reduced and the possible waste generated as a result will also be reduced notwithstanding, the cost of the item will increase as a result. Sorting waste is only achieved fully during documentaries. Irrespective of how difficult it is to achieve sorting, an attempt to work towards perfection like we have in some western countries will benefit a lot. This is because once the waste generated is sorted; management of the waste becomes easier and economical as well. Sorted waste has several economic advantages.

It is expected that waste will normally cause diseases hence the need for their proper management. Even though a small proportion of the buyers think waste generated in the market cannot cause disease, there must be a conscious effort to educate the masses on the harmful effect waste generated from the market can cause so as to achieve a completely enlightened populace with respect to sanitation. The response of the buyers who feel nothing or very little measures has been undertaken to check waste in the market indicate how many Ghanaians perceive waste management. It is encouraging to

have the greater portion of buyers thinking in this manner. It highlights a few things; it is either they expect the city (metropolitan) authorities to act in managing the waste which the authorities have failed to do or they expect the traders to be responsible for managing the waste. The question then is, when will the Ghanaian personalize the issue of sanitation rather than blaming another? If the issue of sanitation is personalized there shall be minimal instances of poor sanitation in the country as a whole because each individual will ensure best sanitation practices. It is always good to consider the sanitation situation before making purchase; this is because if traders realize buyers are refusing to buy them for sole reason that their surroundings are not appropriate, they will ensure proper sanitation practices at all cost. The sanitation situations in the markets are what they are because buyers will still make purchases irrespective of what sanitation situation prevails there. Houseflies breed where sanitation conditions are poor; one of such favourable sites is choked gutters. Hence the sight of houseflies must be enough information that all is not well with respect to sanitation. This is why it is inappropriate to consider houseflies and open choked gutters as normal in markets. It must be noted that the fact that their presence have been overlooked means they are appropriate. The citizen's role in managing sanitation is very significant because these pollutions are caused by the citizens and the moment they decide to start managing their rate of pollution properly will begin the elimination of poor sanitation.

It is about time the assemblies stop collecting money from sellers in the market when they want to dump market refuse because the thought of paying to dump refuse make some of the sellers litter the gutters. In as much the alternative opted by seller is not the best, the assemblies can creatively collect their money by integrating a fix amount in the

levies they collect from the market women. By so doing, the sellers will not feel the direct impact of the money they pay. It is good to note that a majority of the sellers attempt advising their customers on how to manage their waste properly but the caution is manner of the advice. There is an expression of an attempt by a large portion of the traders to personify the issue of sanitation by keeping personal trash bins around them to manage their “local” waste. This practice will always ensure that their immediate surroundings are clean and if this is imitated by all sellers, the entire market circle will be very tided up. Separation of waste is one of the best ways to make waste management economically attractive; hence it is a very impressive observation on the part of the sellers to separate their waste. Even though those who separate their waste are in the minority, it is a very laudable initiative on their part. The people who suffer the immediate consequences of poor sanitation in the market are the sellers so it is a little surprising that a few of them consider littering the market as a way of creating jobs for zoom lion. It is a very bad perception and practice which needs every condemnation possible. Even though the STMA have received money from sellers to keep the market clean, the sellers must also be responsible for ensuring their surroundings are hygienic. Notwithstanding, if the STMA is failing at keeping the market clean they can outsource the cleaning of the markets to private companies to ensure the citizens are well served. Littering the market can never be the most convenient way of disposing waste. It may save the seller some time and money immediately but the consequences poor sanitation brings far out weights the short term comfort the seller enjoyed.

5.3 Conclusions

The study makes the following conclusions from its findings:

The sanitation condition in the market is generally good for trading but more effort must be channeled to the refuse dumping site to make the place conducive for trading besides the poor sanitation condition in some parts of that market results from the traders, nearby residents and the managers of the market. The frustrating sanitation practices of buyers and traders however comprise of both good and bad practices. Hence the reason for the bad sanitation condition in some parts of the market. The traders do not have a thorough understanding on the waste management and its effects on the health of people as well as sales.

In view of the above, the solution to the poor sanitation management in the TMC will be for both the traders and STMA waste management departments to commit themselves to the issue of good sanitation management. This could be done by educating the market sellers and buyers on the effects of trading in a dirty environment, making available logistics by the STMA, as well as providing them with legal support to enforce regulations on waste disposal.

5.4 Recommendations

This study sought to assess the sanitation practices of traders in the Takoradi Market Circle. Among the aims of the study was the identification of the causes of poor sanitation in the study area with a view to making recommendations for a remedy. Based on the findings presented above, the following recommendations are made for the improvement of sanitation in the TMC.

The media operating in the metropolis must also be involved in campaigning for good environmental sanitation. Environmental sanitation education should be emphasized in the basic school's curriculum and regular one on one talk shows with the market users. The managers of the market should embark on regular inspection of the market and sanction traders who have dirty surroundings. They must spearhead regular education programs on waste management in order to educate the traders and buyers on some bad sanitation practices they are engaged in.

Adequate hygiene behaviour is crucial in preventing disease. Improving infrastructure coupled with improving behaviour will result in effective disease control and good environmental sanitation practices. The largest improvements in environmental sanitation and health have occurred where hygiene improved because of a change in behaviour. Hygiene education is integral to environmental sanitation. Health improvements arising from improved environmental sanitation and water services are greatly enhanced – and in some cases only achieved – with the support of change in people's behaviour (Cairncross & Kolsky, 2003). Hygiene education seeks to support sustainable behaviour improvements through increased awareness and knowledge.

The management must also insist that no trading activity occurs around the dumping site of the market unless the site has been thoroughly cleaned and is healthy for trading activities.

The management alone cannot provide the needed sanitation infrastructure such as clean toilet facilities, urinals, waste bins etc. The private sector should be encouraged through incentives to provide such infrastructure, especially toilet facilities and urinals on Build

Operate and Transfer (BOT) basis in public places. However, the STMA waste department has to set good hygiene standards for such facility owners or operators to ensure that these facilities are clean at all times, and also to ensure that they have facility for hand washing. It is only when these facilities are clean that people feel that they are having value for their money. This would eliminate excreta-related diseases bacteria.

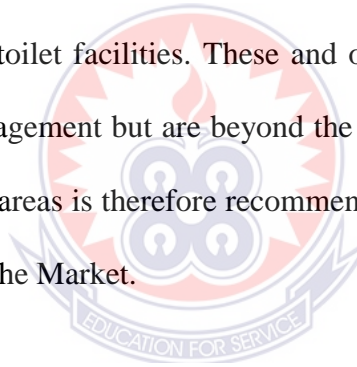
Solving the sanitation problem in TMC, the STMA will have to invest in equipment and logistics to manage the sanitation problems that exist in the market. Investment has to be made in providing the necessary logistics for proper sanitation management which includes collection trucks and containers, and modern infrastructures such as latrines, urinals. At the same time, the private waste companies must be supported to acquire adequate equipment and other necessary resources to enable them to discharge their duties effectively. The Zoomlion and the waste management departments should also be supported to establish well-equipped garages with the necessary spare parts, and to recruit well-qualified engineers and supporting mechanics to maintain the equipment to avoid delay in providing effective services. The problem of poor access for waste removal in the TMC can also be addressed by introducing simple technologies such as pull-carts, the Zoomlion style of tricycles and even wheelbarrows for primary collection in the otherwise inaccessible locations in the TMC. In order to deal with the problem of street litter, it is hereby recommended that more bins be provided and placed at close intervals in all busy commercial areas and along all streets in the TMC to encourage the traders to dispose of waste properly and avoid littering the streets.

Alongside this, existing waste disposal by-laws should be strictly enforced to deter people from indiscriminate disposal. The manufacturers of plastic waste or non-

biodegradable materials must be made to pay some extra tax that will be used in cleaning the environment and also to encourage the use of biodegradable product. Recycling projects must be undertaken to recycle the non-biodegradable waste in the environment

5.5 Areas for further Research

The present study has assessed the sanitation practices of traders in the Takoradi Market Circle focusing on the perception, causes and effects of poor sanitation in the Takoradi Market Circle. In the course of the study, however, a number of themes have been identified that critically affect the sanitation management but which remain under researched. These areas include liquid waste disposal and drainage facilities, congested nature in the market and toilet facilities. These and other aspects in the TMC critically impact the sanitation management but are beyond the scope of the present study. Further in-depth research in these areas is therefore recommended to create greater understanding in respect to sanitation in the Market.



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APPENDIX E
SECTION A: INTERVIEW GUIDE TO DESCRIBE THE SANITATION CONDITIONS
AT THE TAKORADI MARKET CIRCLE

INTRODUCTION:

This is a study being conducted by an M.Phil. Student of the University of Education, Winneba to collate the views of market users on the Sanitation Practices in the Takoradi Market Circle.

The researcher is conducting this study as part of the requirements for the award of an M.Phil. Degree at the University of Education, Winneba. All respondents are therefore assured that any information they provide in this interview will be held confidential.

Basic information:

1. What is your name?
2. How are old are you?
3. What do you sell in the market?



Toilet facilities

- 4) How many shops are in the building?
- 5) Do you have access to toilet facility?
- 6) Where is the toilet?
- 7) How many toilet seats do you have?
- 8) Do you have urinal in the building?
- 9) If no, where do you pass urine?

10) What is the distance from your shop to the nearest public toilet?

11) Which type of toilet is it?

12) What is your assessment of the condition of the facility?

13) Do you have a running pipe in the facility?

14) If no, how do you wash your hands after using the facility?

15) How much do you pay to access the public toilet?

Refuse/solid waste

16) Who is responsible for cleaning the pavement in front of your shop and the drains?

17) How often do you see it cleaned?

18) Do you have a waste bin?

19) Where have you placed the waste bin?

20) Who provided the waste bin?

21) If no, why don't you have a waste bin?

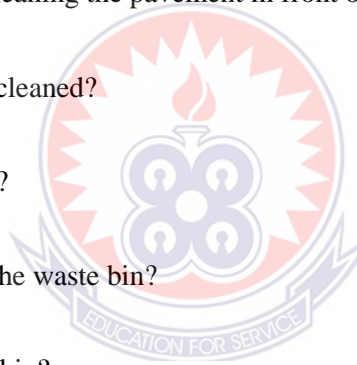
22) If no where do you and your customers dispose your litter?

23) How much do you pay for waste disposal/collection?

24) How often do you pay for the waste collection?

25) Whom do you pay to?

26) What is your assessment of the environmental sanitation condition on your street?



27) Do you have public waste bins on your street?

28) Are you aware that according to the STMA bye-laws, every individual is responsible for cleaning the pavement around his/her house or business premises and the immediate surroundings including the drains?

29) What is your general assessment of the environmental sanitation in Sekondi-Takoradi?

30) What can the city do to ensure that people engage in good environmental sanitation practices?



APPENDIX F

INTERVIEW GUIDE FOR MARKET SELLERS

1. Gender Male Female

2. Age (Last birthday)

Under 20 21-30 31-40 41-50 51-6

3. What do you sell

4. Educational level attained:

Primary JHS SHS Tertiary Others, (please specify).....

5. Marital Status (please tick one)

A Married b) Single c) Divorced d) Widow e) Separated

f) Any other, please specify.....

SECTION B: The perception of traders about sanitation in the market.

Please tick the appropriate column

Number of statements	Statements	YES	NO	NOT SURE	
1.	Waste papers, plastic bags, cloths and nappies, a piece of metal and wood, scrap iron and scrap can are not rubbish.				
2.	Plastic wastes pollute the market environment.				
3.	Plastic bags and plastic bottles can decompose naturally				
4.	Left over foods, vegetables and fruits are garbage				
5.	Food, vegetables and fruits wastes can decompose naturally.				
6.	Dropping leftover foodstuff and plastic into gutters can cause flooding in the market				
7.	Every kind of waste can be disposed by burning without any effect on the environment				
8.	Reusing plastic bags, bottles and paper etc. can reduce waste and solve waste problem at source				
9	I am aware that one of the benefits of sorting plastic wastes is that it reduces the market wastes				
10	Every kind of waste can be disposed by burning without any effect on the environment				

APPENDIX G

SECTION C: An interview for the data collection on the causes of poor sanitation on commercial activities in the TMC.

Please, tick the appropriate Column.

NO.OF STATEMENT		YES	NO	NOT SURE
1	Dropping waste in the open gutter saves a lot of money.			
2	Advising customers on how to manage plastic waste is good.			
3	Personal trash bin is good in the market.			
4	Do you separate waste (plastic, wood, metal, glass, food waste, others) before disposal.			
5	Zoomlion will not get work to do if there is no waste on the ground.			
6	Disposing off waste in the big container should be free.			
7	Littering then the most convenient way of disposing waste			
8	Looking for packaging that can be easily re-used or recycled is wasting the time.			
9	Providing more waste bin at the market cannot solve the problem except a change of attitude.			
10	Distilling the gutters is the duty of STMA.			

APPENDIX H

SECTION D: INTERVIEW GUIDE FOR BUYERS.

An interview guide for data collection on the effects of poor sanitation on commercial activities in the Takoradi Market Circle.

INTRODUCTION:

This is a study being conducted by an M.Phil. Student of the University of Education, Winneba to collate the views of market users on the Sanitation Practices in the Takoradi Market Circle.

The researcher is conducting this study as part of the requirements for the award of an M.Phil. Degree at the University of Education, Winneba. All respondents are therefore assured that any information they provide in this interview will be held confidential.

1. Gender a) Male b) Female
2. Age a) 18-35 b) 36-45 c) 46- 60
3. Occupation.....
4. Educational level attained: a) Basic School b) Secondary school c) Tertiary
- d) Others, (please specify).....

Please, tick the appropriate column with regards to your response to the statements below.

No Statement	Statement	YES	NO	NOT SURE
1	Waste generated in the market place can cause some diseases such as diarrhoea, typhoid, cholera etc.			

2	Adequate measures are put in place to check waste issues in the market place.			
3	The environment in which commodities are sold is a factor to consider before one decides to buy.			
4	Houseflies, open chocked gutters in the market is normal.			
5	The individual's role in handling sanitation related issues is not significant.			



APPENDIX I**SECTION E: Sanitation practices of buyers in the market circle**

Please, tick the appropriate column with regards to your response to the statements below.

No Statement	Statements	All the times	Most of the times	Never
1	I do question the way commodities are displayed, stored and used by sellers that have the propensity to cause sanitation problem in the market place.			
2	I litter the market place with the waste I generate before I go home.			
3	I offer a piece of advice to the sellers of product in the market on how to store their wares to avoid generation of waste.			
4	I buy items from sellers who keep their surroundings clean			
5	I use durable packages to prevent frequent use of disposable plastic			

APPENDIX J

SECTION F :Focus Group Discussion Guide on beliefs, Attitudes and Practices of Sellers towards Sanitation

1. What do you know about sanitation?
2. Have you ever been affected by the poor sanitation situation in the market?
3. Why did you think it is important to keep proper sanitation?
4. What did you think can come from good sanitation?
5. What are your attitudes toward poor sanitation practices?
6. What has been the commitment of the market users to keep proper sanitation so far?
7. How can the difficulties encountered in keeping proper sanitation be addressed?
8. What suggestions do you offer for improvement in sanitation?

