FACTORS INFLUENCING IMPLEMENTATION OF PUBLIC HEALTH STANDARDS IN SELECTED CITY COUNCIL MARKETS IN NAIROBI, KENYA

BY

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DECLARATION

The research project is my original work and has not been presented for a degree in any other university.

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This project has been submitted for examination with my approval as university supervisor.

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DEDICATION

This work is dedicated to my husband, daughter, Dad, Mum, my sisters and brothers.

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LIST OF ABBREVIATIONS AND ACRONYMS

CBD	Central Business District
CCN	City Council of Nairobi
EMCA	Environmental Management and Coordination Act
FAO	Food and Agriculture Organization
HCP	Healthy Cities Program
IPAR	Institute of Policy Analysis and Research
Ksh	Kenya Shillings
MOH	Ministry of Health
NEMA	National Environment Management Authority
PHA	Public Health Act
PHS	Public Health Standards
WHO	World Health Organization
FEHD	Food and Environmental Hygiene Department

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ABSTRACT

Public Health involves the organized efforts by societies to protect, restore and promote the health of the population. The food markets often serve as the commercial and social center of communities. The purpose of this study was to identify the factors affecting implementation of public health standards in the selected City Council of Nairobi markets. The study was guided by the following four study objectives: establishing the effect of frequency of medical examinations on the implementation of public health standards in City Council Markets; determining the effect of length of vender operation in a market on the implementation of public health standards in City Council Markets; determining the effects of environmental sanitation on the implementation of public health standards in City Council Markets; and determining the effects of premises inspection on the implementation of public health standards in City Council Markets. The study used descriptive cross-sectional design method. This study focused on several stakeholders in the city markets including vendors selling their wares in the market, customers purchasing the wares from the markets, market administrators, public Health Officers from the Ministry of Health and Sanitation and Nairobi City Council. The population was grouped into three strata i.e. food, non food vendors and customers. Before embarking on fieldwork, a pilot study will be carried out to pre-test the instruments. This was done in order to assess the clarity of items, validity and reliability of the instruments. After collecting data responses from the questionnaire, the researcher analyzed the quantitative data using descriptive statistics by applying the statistical Package for Social Science (SPSS V.17.0) and presented through percentages, means, standard deviations and frequencies. The use of structured questionnaires enabled the researcher to quantify quantitative data using the size, frequency distribution, and association of variables in the study population and answers to questions that could be counted and expressed numerically. The qualitative data was coded thematically and then analyzed statistically. Content analysis was used for data that is qualitative nature or aspect of the data collected from the open ended questions. The information was displayed by use of tables, graphs and in prose-form. On the response rate 72% of the respondents from the city council filled in and returned the questionnaire, 63% of food venders, 50% Department of social Services and Housing Staff, 61 % Public Health Officers and 82% Public Health Officers filled in and returned the

questionnaire. The study concluded that majority of the traders used Piped water (city council) and that garbage was collected on daily bases in some markets and twice a week in others and that majority used toilets, and used latrines that were cleaned daily In addition, the study concludes that they were Insufficient but well maintained The study recommended that the city council should ensure that garbage is collected on daily bases in all the markets and that Public health f1icers should give advice on how you should conduct your business without breaching the public health act. Finally, the study recommends that the city council should provide sufficient and well maintained toilets.

CHAPTER ONE:
INTRODUCTION

1.1 Background of the study.

Novick and Marrow (2994) defined Public Health as the science and art of preventing disease, prolonging life, and promoting physical health and efficiency through organized community efforts for the sanitation of the environment, the control of community infections, the education of the individual in principles of personal hygiene, the organization of medical and nursing services for the early diagnosis and preventive treatment of disease, and the development of the social machinery which will ensure to every individual in the community a standard of living adequate for the maintenance of health. Public Health involves the organized efforts by societies to protect, restore and promote the health of the population. Public health programs and activities focus on the prevention of disease and enhancement of health. They are directed towards the population as a whole rather than individuals. Creation of healthy market places is part of the Healthy Cities Programs (HCP) strategy developed by World Health Organization. This approach aims to create environments that are supportive to good health (Institute of Medicine, 1988).

Public health as a field of study has its chief concern on the health needs of populations. Public health concerns have developed in different ways, reflecting the social pressures and influences of the day. A few centuries ago, public health mainly deals with health problems related to influences of, the day (Wilneret al., 1980). The American heritage dictionary (2004) defines public health as the science of protecting and improving the health of a community as by preventive medicine, health education, and application of sanitary measures and monitoring of environmental hazards. Public health entails organized efforts by societies to protect, promote

and restore people's health. It is the combination of sciences, skills and beliefs that are directed to the maintenance and improvement of health through collective or social actions. Public health programs and services emphasize the prevention of disease and the health needs of the population as a whole (The McGraw-hill Professional, 2005). The mission of public health is to fulfill society's interest in assuring conditions in which people can be healthy (MedicineNet, 2007).

A majority of the world's population live in urban areas (WHO, 2006). This is the result of rapid growth of cities and pen-urban areas over the past few decades, particularly in developing countries. Problems in many urban cities are aggravated because urban growth is often unplanned, uncontrolled and under financed (WHO, 2006). This has overwhelmed the capacity of many municipal authorities to provide basic health and environmental services and infrastructure, which are minimum prerequisites for a healthy population. In view of the increasing urbanization and deteriorating physical and social environment World Health Organization developed the concept of Healthy Cities in 1986 as a vital tool for assuring that health is explicitly considered in urban management and development planning, through improved environmental conditions and better public health services (WHO, 1997).

In addition to schools and work places, one of the most important settings in cities is the food market. Access to nutritious food is essential for life and is indeed the foundation for health (WHO, 2006). The Healthy Cities program developed by WHO aims to ensure improved environmental conditions and better public health services, part of which entails creation of healthy market places (WHO, 1997). Market places offer consumers low cost fresh produce and other foods direct from the producers and ready-to-eat foods prepared by vendors. Market places serve as an important social role for exchanging ideas and information. These locations offer an

opportunity for health education (Reilly et al., 1996). The market place may also be seen as a setting wherein regulations and laws are enforced (WHO, 2004b).

Public health standards ought to be observed in the markets as stipulated in the Public Health Act, Cap 242 Laws of Kenya. Various arms of the government are mandated to ensure that this is done. They include public health officers, inspectorate department of City Council of Nairobi and other civil administrators. In cases where public health standards were not maintained, the public health officers in charge of such markets were empowered to order market closures (Personal Communication, Chief Public Health Officer). City Council of Nairobi markets have not been excluded from occasional closures in the past. This study will attempt to examine factors considered as a hindrance to implementation and maintenance of public health standards in CCN markets.

1.2 Statement of the Problem

The state of environment in the urban areas and the provision of basic services have not kept pace with the rapid population growth (Ondingi *et al.*, 2004). With over half of the world's population now living in urban areas, food markets have become important sources of affordable food for many millions of people particularly in developing countries. The food markets often serve as the commercial and social center of communities. At the same time, markets in some cases have also become associated with major outbreaks of diseases, including cholera (Moy, 2001). World Health Organization asserts that having healthy markets creates environments that are supportive to good health. However, many markets set a poor example with unsanitary conditions and unhygienic practices (Reillye etal., 1996). Urban populations in most countries in

the world have more than doubled in the recent past, yet infrastructure development has proceeded far more slowly (Ondingi et al., 2004). Nairobi city has experienced a huge and relatively steady population increase since 'Kenya became independent in 1963 (NEMA, 2005). According to 1962 census, the population of Nairobi was 266,794. At the moment, it has a population of about 2,940,911 million people (City council of Nairobi. 2007).

However, little has been done to expand these markets despite the growing population. The structures have remained basically the same with little improvements. Most of the Nairobi City Council markets have questionable public health standards but little is known about the factors leading to such state of affairs. Problems related to decline in hygiene standards have led to the frequent closures of some City Council markets in an attempt to clean them up. Just recently, one of the city markets (Burma) popular for meat was closed due to poor sanitation and public health standards. Wakulima Market has also been closed several times to allow for clean up exercises to improve public health standards of the markets. Unless such conditions are identified, no remedial measures can be taken hence the need to carry out this study. The purpose of the study was to find out the factors influencing implementation of public health standards in Nairobi City Council markets. The markets are conveniently selected due to their location and ease of accessibility.

1.3 Purpose of the study

The purpose of this study was to identify the factors affecting implementation of public health standards in the selected City Council of Nairobi markets.

1.4 Objectives of the Study

i. To establish the influence of frequency of medical examinations on the implementation of public health standards in City Council Markets.
ii. To determine the influence of public awareness/knowledge on the implementation of public health standards in City Council Markets.
iii. Determine the influence of environmental sanitation on the implementation of public health standards in City Council Markets.
iv. Determine the influence of premises inspection on the implementation of public health standards in City Council Markets.

1.5 Research questions

i. To what extent does the frequency of medical examinations affect the implementation of public health standards in City Council Markets.?
ii. To what extent does public knowledge on public health affect the implementation of public health standards in City Council Markets?
iii. How does environmental sanitation affect the implementation of public health standards in City Council Markets?
iv. How does premises inspection affect the implementation of public health standards in City Council Markets?

1.6 Significance of the study

The study findings contributed to the existing knowledge on public health in the market places. For scholars and academicians, the study acted as a source of reference and suggests areas for further research where future scholars can look into.

To policy makers in the government, the study provided information which guided their policy making process to ensure a health and secure markets for the city residents. The findings of this study were used as a basis for improving the health standards in all the market places around the cities.

1.7 Scope of the study

This study focused on several stakeholders in the city markets. These included vendors selling their wares in the market, customers purchasing the wares from the markets, market administrators, public Health Officers from the Ministry of Health and Sanitation and Nairobi City Council. These target respondents have been chosen because of the key role they play in the well functioning of the city markets.

1.8 Assumptions of the study

It was assumed by the researcher that:

i. The information given by the respondents was correct.
ii. The respondents did not influence each other in answering the items on the questionnaire.
iii. The items on the questionnaire were understood by all the target respondents.

1.9 Limitations and Delimitations of the study

The researcher encountered the following limitations though the research and tried to counter against them as follows:

a) The respondents may decline to answer the questions for the fear of victimizations. To deal with this, the researcher will assure the respondents of confidentiality in all the responses they give.

b) The respondents might give the situations as it should be instead of giving the situation as it is. To reduce the effect of this, the researcher will use both closed and open ended questions in the data collection instruments; this will curb this situation of untruthful answer.

1.10 Operational Definition of Terms

Clean: Free from dirt, conditions conducive to health.

Food: Any article used for food or drink, or that is intended for use or for sale in whole or in part for human consumption.

Garbage: waste generated, for instance in markets.

Implementation: Complying with regulations set in the public health act, Cap242.

Organic waste: Matter directly derived from plant sources that can generally be degraded or decomposed by microorganisms.

Sanitation facility: an excreta disposal facility, typically a toilet or a latrine

1.11 Organization of the study

According to the World Health Organization, food markets serve as the commercial and social center of communities. These markets vary depending on the food varieties and dietary preferences. However, all the food markets should have one thing in common — they should provide the community with safe and nutritious food. Food is an important vehicle of disease transmission. The way it is handled and preserved before it is finally sold is important. Disease and death may result from contaminated food, thus proper food handling and food preservation is called for. Public health standards as outlined in the public health act must be adhered to by food handlers. They include-

Local authority to prevent occurrence of nuisance .These include;

Discharging noxious matter/waste water into a course not approved for reception of such discharge, deposit and accumulation of refuse which is offensive and likely to harbor rats or other vermin, occupied dwelling that lack sufficient water supply, and trade premises that have offensive smells, are not ventilated or are overcrowded.

Notice issued to abate nuisance. Failure to do so results in court proceedings (section119).

Officers are also empowered to enter any premises to examine existence of any nuisance there in at all reasonable times (section 123).

Sale of unwholesome food prohibited (section 132[2]).

Medical examination of food vendors (section 135[a]).

Section 154 allows for closure of markets.

Officers can prosecute for any contravention of or default in complying with any provision of this Act (section 167).

The findings of the study can be used by the management of Nairobi city council to plan and deal with public health standards in these markets. The results of the study will add to the existing knowledge on public health standards in the markets and the extent to which these standards have been adhered to. The study will also serve as a baseline for similar studies in future.

CHAPTER TWO:

LITERATURE REVIEW

2.1 Introduction

A literature review is a body of text that aims to review the critical points of current knowledge including substantive findings as well as theoretical and methodological contributions to a particular topic. It discusses other studies that have been done in the area of study. The specific areas covered in this chapter include Medical examination frequency, length of vendor operation, environmental sanitation and premises inspection. The chapter further presents a conceptual framework and operationalised the variables.

2.2 Review of the Literature According to Study Variables

2.2.1 Medical examination for food vendors at public markets

People have the right to expect the food they eat to be safe and suitable for consumption. Food borne illness and food borne injury are at best unpleasant; at worst, they can be fatal. But there are also other consequences. Outbreaks of food borne illness can damage trade and tourism, and lead to loss of earnings, unemployment and litigation. Food spoilage is wasteful, costly and can adversely affect trade and consumer confidence (Musa and Akande, 2002). Various countries have various standards of hygiene that should be maintained by food vendors and by those working in hotels or stalls where food is sold (Davinson and Seaton, 2004). In Wellington Dufferin Guelph, all food vendors must receive prior written approval from the Wellington-Dufferin-Guelph health unit before becoming eligible for a stall or table at the market. If one has a permanent retail outlet or processing plant, a copy of a current satisfactory inspection form

from a local health department or Canadian Food Inspection Agency is required along with the application (Gordon, 1998).

According to Alberta Regulation 328/2003 Section 31, part (1) Food handlers ought to wear clean clothing and footwear, exhibit cleanliness and good personal hygiene, wash hands as often as necessary to prevent the contamination of food or food areas, refrain from smoking in food areas and refrain from any conduct that could result in the contamination of food or food areas. No person should work as a food handler if prohibited under the Communicable Diseases Regulation (AR 238/85). According to the Alberta Regulation Public Health Act section 17, any operator of a food establishment shall ensure that the establishment is of sound construction, is in good state of repair and is so designed to ensure the safe and sanitary handling of food in it. It should also have hand-washing stations, adequate in number and location, to ensure convenient access. The food establishment has to be supplied with hot and cold running water that is safe for human consumption and available in quantities sufficient to meet the needs of the food establishment, connected to a properly operating sewage disposal system. It needs to be equipped with properly operating means of providing ventilation to food areas that are subject to the generation or accumulation of odours, fumes, steam vapours smoke or excessive heat. The Tonga Public Health Act stipulates that no person who is engaged or employed in the sale of food, or in the preparation, storage, packing, conveying or delivery of food for sale, shall do or omit to do anything whereby food becomes or is likely to become contaminated, infected, polluted, tamed, spoilt or any way a risk to public health. Any person who contravenes the provisions of this section is guilty of an offence. The Tonga Public Health Act also stipulates that every person who is engaged or employed in the preparation, storing, packaging, conveying or delivering of food for sale, and in the course of his employment comes in direct contact with such food or with

the interior of any package used for such food, shall at all times maintain his clothing and himself in a state of cleanliness and avoid smoking or spitting. Any person who contravenes the provision is guilty of an offence. The Public Health Act also requires that any food handler may be required to undergo a medical test or examination when an authorized officer considers it necessary and may be excluded from food handling until the result of the examination is known. In Kenya all those employed to serve ready to eat food must have a certificate of good health from a recognized medical doctor, which should have been taken recently (within 6 months). The Food legislation rules and regulations also entail closure of unhygienic food premises and use of safe food packaging materials (Kenya, 1990).

Open air market foods are food and beverages prepared and/or sold by vendors in streets and other public places for immediate consumption or consumption at a later time without further processing or because of their availability at relatively low cost, however, opinion differs on the safety of the food items provided by the food vendors in such open places (Musa and Akande, 2002). These foods can pose significant public health problems because most of the food handlers lack knowledge about safe food handling, and the difficulty in controlling the large number of market vending operations and insufficient resources. The open air market food industry has undergone a remarkable expansion in the third world countries. However, most authorities in many of these countries remain hesitant about recognizing it as a formal sector of the food supply system in their food control programmes. Other countries have began to recognize it, but have not devised regulatory structures to control them'. In some countries, including Nigeria, public health code require food handlers to undergo some form of medical examination or screening before they can be employed in food establishments or as The content

of the examination vendors of food or screening varies and may include one or more of the following; physical examination, stool and urine. However, the World Health Organisation (WHO) and Food and Agricultural Organisation (FAO) are of the opinion that routine medical examination of food handlers are ineffective in the promotion of food safety because the exercise is not only costly for the people involved, it does not prevent infection after the examination.

Despite the view of these international agencies, many developing countries still emphasize medical examination as a pre-requisite to work as a food handler. Some reasons alluded to this are lack of basic sanitation in developing countries which favour food contamination, and that detection and treatment of carriers of lethal pathogens among the food handlers will reduce the risk of food contamination (Musa and Akande, 2002).

Vendors, other food market workers and consumers themselves must share a common vision of a healthy-promoting food market that continuously seeks to better serve the health and well-being of the community (WHO, 2004b). Combining their resources all stakeholders will work together to implement incremental changes to improve the market. Thus a healthy food market is not an end in itself, but a mutually beneficial process serving the interests of all stakeholders especially food vendors and consumers (WH,2004). Food markets have evolved to become one of the defining characteristics of a community. A common feature of most food market is the wide array of foodstuffs from fruits and vegetables to grains and tubers, and from meats, poultry and fish to eggs and dairy products as well as processed and semi-processed foods (Moy, 2001).

Food markets also offer an array of ready-to-eat foods that are accessible and affordable for even the lowest income members of the community. Therefore, the food markets are essential settings for maintaining the health and nutritional status of urban populations, especially in developing

countries (WHO, 2006). Rangsit market has been considered as one good model of healthy market places. The market has successfully reached all significant standards of public health aspects. On social aspects, this market could serve the needs and requirements of consumers with pleasant environments as well as convenience to enjoy choosing satisfactory choices of goods at reasonable prices (Rangsit Healthy market place, 2005). In United States of America, sanitarians tasked with monitoring the health and sanitation at the public market places in Aceh Besar and Aceh Jaya districts, usually attend a series of trainings to increase their capacity to perform their roles in ensuring that healthy marketplaces remain healthy (CIIF International, 2006).

2.2.2 Public Knowledge on Public Health

The history of public health is directly related to the evolution of thinking about health. An educated public on public health standards will strive to maintain high standards of public health. Ancient societies in one way or another realized the connection between sanitation and health and the role of personal hygiene, nutrition and fitness. The issues of development, environment and health are closely entwined which greatly affects the complex links between the social, economic, ecological and political factors that determine standards of living and other aspects of social well-being that influence human health. A healthy population and safe environments are important pre-conditions for a sustainable future (Davis and Cooke, 2007). Public health represents a population perspective on health as well as evidence-based methods used by health professionals and institutions to define and address our mutual concerns as a society. By educating the public, they will be more informed of what is required of them in terms of maintaining the required standards of public health. Such a practice will help in promoting the implementation of public health standards as the public will be more informed on the side effects of not maintaining good public health standards.

According to Johnson and Yawson (2000), regular inspections of food premises and education of food vendors has been recognised as one of the measures to ensure improvement of the quality of street foods in Accra Ghana. To ensure this, food quality control measures factored into the training programme of the Food Inspectors of the Metropolis. One other measure that was recognised to enhance public health standards and street food safety is the collaboration of all agencies that operated in the food industry found in the establishment of the Food and Drug Board. A forum where all agencies in the food industry, including street food discuss issues related to public health standards was launched and this went a long way in ensuring good public health standards among the street food vendors in Accra Ghana.

An emerging body of literature appears to support the unique role of community health workers in strengthening existing community networks for care and public health by providing community members with social support and education which facilitates access to care and communities with a stimulus for action. A well supported community will be more willing to take action to keep their environments clean thereby improving the public health standards. This is considered as one form of ensuring community participation and appreciation of the efforts of government and other stakeholders in public health education and maintenance.

Health education is that continuum of learning experiences which enables people, as individuals and as members of social structures, to make informed decisions, modifies behaviors, and change social conditions, in ways which are health enhancing. A health educated person will be able to: apply health promotion and disease prevention concepts and principles to personal, family, and community health issues; assess, achieve, and maintain health enhancing behaviors throughout life; identify and manage controllable health risks; respect and promote the health of others; and select, access, and use health services, products, and information.

2.2.3 Inspection of premises

The Food and Environmental Hygiene Department (FEHD) in Hong Kong is responsible for safeguarding public health through various activities. One of its major functions is the licensing and regulation of licensed food premises, including inspection of food premises, performed mainly through its 19 district environmental hygiene offices organized under the three Operations Divisions in Hong Kong, Kowloon and the New Territories. Details are shown in Appendix A. Inspection of food premises is a key element of the food safety and public health programme of the FEHD. Under the Public Health and Municipal Services Ordinance (Cap. 132) and its subsidiary legislations, all food premises in Hong Kong are required to be licensed to ensure that they comply with the requisite health, fire and building safety requirements before opening for business. (Audit commission, 2006)

The FEHD operates a provisional licensing system to facilitate processing of applications for all food business licenses. Under the system, the FEHD issues a provisional food business licence to an applicant if he can produce evidence that the basic health, fire and building safety requirements have been met. The provisional license, with compliance of the basic requirements of a full licence, is valid for six months so as to allow the applicant more time to complete all the outstanding works for meeting the licensing requirements of a full license. The FEHD conducts routine inspection of food premises holding provisional licences to ensure that the basic requirements of the provisional licenses are complied with (Audit commission, 2006).

To ensure the operators of the licensed food premises, is issued with permits for sale of restricted foods and other food premises comply with the requirements, conditions and hygiene standards prescribed by the Public Health and Municipal Services Ordinance, FEHD Health Inspectors

carry out routine inspection to check the general hygiene condition of food premises (such as cleanliness of, condition of drainage systems, and existence rodent or vermin infestation).

Every food premises within Manukau City Council areas in New Zealand must be registered with Council, it is illegal to operate a food business without a current "Certificate of Registration" (food licence). Council's licensing year runs from 1 July to 30 June. When a business is registered with Manukau City Council a 'Certificate of Registration' will be posted to you and this must be displayed in a prominent position. The food business must be registered before you begin trading. If you are purchasing an existing business then you must transfer the licence in to your name for your registration to remain valid. Food premises registered within Manukau City Council are inspected by an Environmental Health Officer twice per year (every six months). Some premises that operate under a high level of food hygiene on a consistent basis may be inspected once per year. Environmental Health Officers inspect to check compliance with the Food Hygiene Regulations 1974 and Councils bylaws. As a result the food premises are awarded a grade which reflects the level of compliance of the food business on the day of inspection .The inspection includes, but is not limited to: Structural fit out and maintenance of the premises including suitable hand washing facilities safe Food Storage and display worker conduct and food handling (Information Sheet No: 52 Issue 1: August 2009).

2.2.3.1 Environmental Sanitation and Public Health Standards

The slow rate of economic development in Africa has been blamed partly on its inferior state of infrastructure. Research conducted so far indicates there have been serious cases of non-performance in recent years owing to poor budgetary outlays towards expansion and

rehabilitation (Lee and Anas, 1992). This has resulted in power shortages, inadequate and poorly managed telephone services, chronic water shortages. Poorly maintained roads tend to obstruct communication more than they facilitate it. Roads are used to transport foodstuff from rural areas to towns. When it takes long to transports such products, they get spoilt (Ibid). According to Kimuyu and Kayizizi, 1998, roads (3.7%), water (15.2%) and waste disposal (10.9%) led as the greatest infrastructure problem for over 25% of the firms' sampled.

Dilapidated roads, poor sanitation systems and inadequate supplies of drinking water are some of the problems crippling residents of Laimonirhat municipality (Nurul, 2006). The roads have been left uncared for a long time and the sweepers do not clean most of the roads. As a result, heaps of garbage is a common sight along the roads. In absence of sufficient drains, many areas in the town go under water after even light rainfall (Ibid). Narrow passages of most markets in Narail hampered easy movement of both buyers and sellers. The unplanned construction of shops and stalls reduced the space in these markets creating problems for keeping the commodities properly (United News of Bangladesh, 2006).

Improvements in the physical infrastructure of food markets contribute to the promotion of safe foods (Moy, 2001). For example, sufficient and appropriately placed toilets for both men and women with hand-washing facilities are important for well being of market participants. An adequate water supply should be available for cleaning and food preparation needs. Portable water should also be available for drinking. Drainage should be appropriately designed to meet the various needs across the food markets (Ibid).

2.2.3.2 Skilled personnel in Public markets

Market authorities have insufficient skilled personnel and are unable to enforce regulations. Consequently, trading in public markets becomes more difficult and costly. Public retail markets are usually congested, unhealthy and insecure (Marcello and Claudia, 2003). Inner Hanoi had about 72 retail markets in the year 2000, out of which only 50% were planned and had market management boards. Most markets however, had no parking facilities for both traders and customers. Customers thus prefer to buy vegetables, fruit, meat, egg and fish from Street food sellers. Indeed, most public markets sell meat, dairy and fish products that are often sold ready to eat without further cooking. Such products are considered high-risk products because they can support the growth of harmful bacteria (Davinson and Seaton, 2004). Approval of the production premises for such foods must be obtained from the local environment health department under the food premises registration regulations.

In Bangkok, only 104 of the 2000 fresh food markets in the country met the hygiene standards set by the Public Health ministry as far as cleanliness, sanitation and freshness of products was concerned. Many of these markets needed to improve their water, drainage, food selection and storage systems in order to meet the ministry's health standards requirements (Bangkok Post). Markets in Lalmonirhat municipality are in a deplorable condition. Lack of proper maintenance is the main reason behind their poor condition (Nurul, 2006). The meat shops are in an unhygienic state as these shops have been established in town without any permission of the authorities concerned (*Ibid*).

Kongowea market is probably one of the oldest city markets in Kenya, having been in existence for over a century. The market was blamed for low food supplies to vessels as a result of falling hygiene standards ("Dirty markets', 2005). This market was responsible for the fruits and vegetables exported to South Africa, Dar-es salaam, Singapore and Dubai. The ship handlers

called for privatization of Mombasa as they accused the Mombasa municipal council of poor professional management and as a result, public health standards had gone down. This led to low international demands for fruits and vegetables. Market places reflect local community values and practices, and are often commercial and social hubs of cities. As colorful as markets may be, attitudes, practices and market conditions may not facilitate healthy lifestyles or choices for market by the market community, for instance poor hygiene in terms of lack of clean water, sanitation and solid waste disposal (WHO, 2004b).

In setting up a market there is need to ensure there is sufficient water supply, toilet facilities, waste disposal facilities and ventilation (Kenya, 1990). Market operations should be conducted in a manner that protect and promote health. The food market should have a functioning administrative system, and be zoned to in order to more effectively protect selected commodities from cross-contamination (Moy, 2001). For example live and raw foods of animal origins should be, separated from ready-to-eat foods. Solid and liquid waste should be handled and stored in a manner so as not to contaminate food (Ibid).

2.2.4 Environmental Sanitation

Even before realization of environmental pollution and contamination problems that presently cause concern, man recognized certain relationships between his environment and outbreak of disease (Waite and Jewell, 2001). The discovery that microorganisms existing in the environment could lead to contagious diseases led to the development of environmental activities to curb diseases like cholera, typhoid and malaria. Such activities became the sanitation aspects of environmental control and are reflected today in programs to ensure, for example, that drinking water is safe, milk is pasteurized, and food is hygienically prepared and handled, and

waste is disposed off in ways to prevent breeding of insects and rodents (Ibid). Environmental factors affect health in 10th positive and negative ways (Wright, 1997). Positive environmental factors sustain health and promoting them, is preventive medicine. These include disposal of human excreta, water drainage, water supply, waste collection and sewage disposal. For instance, the healthy and pleasant environment of Rangsit market received the highest standard certification of the ministry of public health. Cleanliness and hygiene of the market was evident since both waste water and solid waste are technically and systematically managed (Rangsit Healthy market place, 2005). Negative environmental factors include monitoring and management of municipal and industrial outflows to the environment (Wright, 1997).

The safe disposal of waste is probably one of the most critical environmental problems that both developing and developed countries have to contend with in our modern times. Uncollected solid waste is a major environmental challenge in Nairobi. The city currently produces about two thousand, four hundred tonnes of garbage daily (NEMA, 2005). The volume and variety of wastes produced by households, industries, markets among others, are increasing at an alarming rate in our towns and cities. Such wastes pose a big threat to human health. Proper management of waste must take into consideration means and ways beyond current approach of careful storage and disposal practices (Sonia et a!, 1989). In whatever form waste exists, it can breed or attract pests such as rats and flies that are dangerous to human health, more so where food for human consumption is stored, sold or processed.

Water and sanitation are environmental issues to their very core, and together constitute one of the top drivers of development. Managing water supplies so they become neither depleted nor polluted, and providing good sanitation, are central to the health of communities and the

environment on which they depend. According to the World Water Assessment Program an ongoing assessment process within the UN system, water and sanitation issues permeate all of the Millennium Development Goals (MDGs). Here we look at two MDGs where these issues have most direct linkages with the environment.

Access to water and sanitation is now recognized as a basic human right. However, in 2002 about 1.1 billion people still lacked access to improved water supplies, and 2.6 billion to improved sanitation.MDG 7, which focuses on ensuring environmental sustainability, has from the start included the target of reducing by half the proportion of people without sustainable access to safe drinking water by 2015. Infants, children and women are affected most profoundly by inadequate water supply or sanitation. Related diseases hit infants and children hardest, while women bear the brunt of responsibilities, as it is usually they who nurse the ill. The horrendous health statistics typically linked to inadequate water and sanitation are merely the most easily quantified aspect of a more far-reaching burden. Health is rarely the only motive for people wanting better water and sanitation.

2.3 Knowledge Gaps

The existing studies discussed in the literature above have been conducted in other countries which have a different setting from that in Kenya. The city markets provide an opportunity for vendors to sell their wares while at the same time providing an opportunity for customers to conveniently and affordably purchase the food at affordable prices. This study therefore seeks to provide information specifically suitable for improvement of public health standards among city markets in Nairobi.

2.4 Conceptual Framework

Kotler (2000) defines a conceptual framework as a basic structure that consists of certain abstract blocks which represent the observational, the experiential and the analytical/ synthetical aspects of a process or system being conceived. The interconnection of these blocks completes the framework for certain expected outcomes. According to this study, the independent variables are medical examination, length of vendor operation in a market, inspection of premises and environmental sanitation while the dependent variable is the implementation of public health standards.

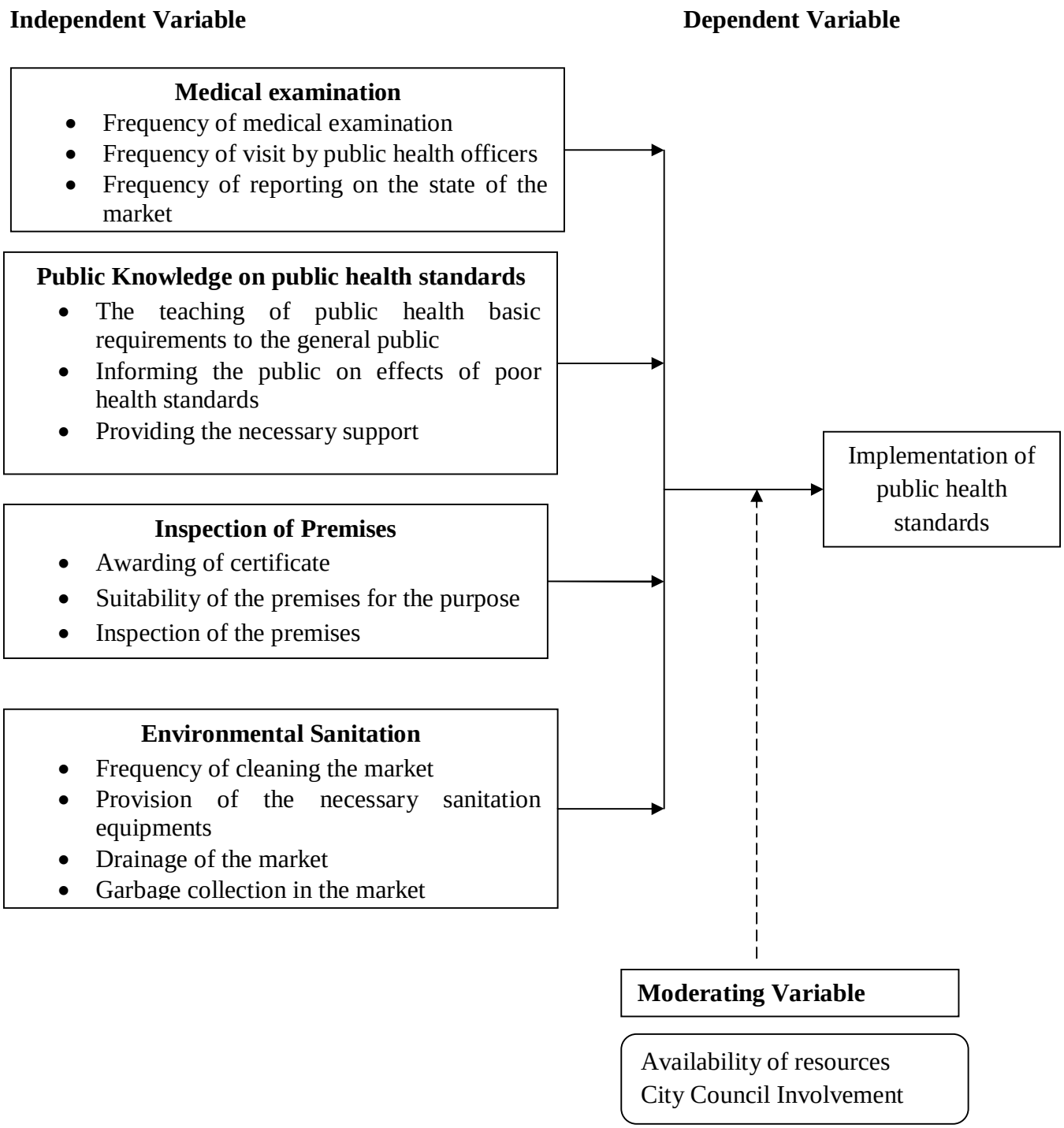

Figure 1: Conceptual Framework

2.5 Research Gap

Creation of healthy market places is part of the Healthy Cities Programs (HCP) strategy developed by World Health Organization. Public health standards ought to be observed in the markets as stipulated in the Public Health Act, Cap 242 Laws of Kenya. Various arms of the government are mandated to ensure that this is done. The food markets often serve as the commercial and social center of communities living and working around cities. Unless city markets are kept clean, there are chances of the markets spreading dangerous diseases (Moy, 2001). World Health Organization asserts that having healthy markets creates environments that are supportive to good health. However, many markets set a poor example with unsanitary conditions and unhygienic practices (Reillye *et al.*, 1996). Urban populations in most countries in the world have more than doubled in the recent past, yet infrastructure development has proceeded far more slowly (Ondingi *et al.,* 2004). Nairobi city has experienced a huge and relatively steady population increase since 'Kenya became independent in 1963 (NEMA, 2005). According to 1962 census, the population of Nairobi was 266,794. At the moment, it has a population of about 2,940,911 million people (City council of Nairobi. 2007). The existing studies have looked at markets outside the city of Nairobi. Thesrefore, this study seeks to provide Nairobi City market specific information.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

This chapter outlines the research design, the target population, the sample size and .procedures that will be used to select the sample elements. It covers the research instruments and the procedure for collecting the primary data and also defines the methods that were used to analyse data.

3.2 Research Design

According to Mutai (2001), the research design refers to the procedures to be employed to achieve the objectives of the research. The research design constitutes the blueprint for the collection, measurement and analysis of data (Cooper & Schinder, 2007). It aids the researcher in the allocation of limited resources by posturing crucial choices in methodology. It also includes an outline of what the investigator will do from formulating hypothesis and their operational implications to the final analysis of data. Chandran (2004) defines research design as the arrangement and analysis of data in a way that combines their relationship with the purpose of the research to the economy of procedures. Piel (1995) recommends that a combination of both qualitative and quantitative methods be employed to enrich the research. A good research design is characterized by flexibility, appropriateness, efficiency and economy (Kothari, 2007).

A descriptive cross-sectional design method was preferred for this study as it offered the researcher the methodology to investigate to identify the factors affecting implementation of public health standards in the selected City Council of Nairobi markets. The method was chosen

since was more precise and accurate and it involves description of events in a carefully planned way (Babbie, 2004). This research design also portrays the characteristics of a population fully (Chandran, 2004). The research design was both quantitative and qualitative with the aim of determining the relationship between the independent variables and the dependent variable.

3.3 Target Population

According to Ngechu (2004), a population is a well defined or set of people, services, elements, events, group of things or households that are being investigated. Mugenda and Mugenda, (2003), explain that the target population should have some observable characteristics, to which the researcher intends to generalize the results of the study. The target population of this study included: customer, food vendors operating in the selected CCN markets for over a year, market administrators, public health officers and department of social services staff. The target population of this study included the 453 vendors in Burma and 251 vendors in City Market. The study also included customers in Burma and City Market.

3.4 Sampling Procedure and Sample Size

Mugenda and Mugenda (2003) define sampling as the process of selecting a number of individuals for a study in such a way that the individuals selected are representative of the larger group from which they are selected. It is the process of selecting a sufficient number of elements from the population, so that the study of the sample and an understanding of its properties or characteristics would make it possible for one to generalize such properties or characteristics to the population elements.

From the population frame the required number of subjects, respondents, elements or firms were be selected in order to make a sample. Stratified proportionate random sampling technique was

used to select the sample. According to Chandran (2004), stratified proportionate random sampling technique produce estimates of overall population parameters with greater precision and ensures a more representative sample is derived from a relatively homogeneous population. Stratification aims to reduce standard error by providing some control over variance.

The study grouped the population into three strata i.e. food, non food vendors and customers. From each stratum the study used simple random sampling to select 100 respondents. Stratified random sampling technique was used since population of interest is not homogeneous and could be subdivided into groups or strata to obtain a representative sample. Statistically, in order for generalization to take place, a sample of at least 30 elements (respondents) must exist (Cooper and Schindler, 2007). According to Mugenda and Mugenda (2003), a sample of between 30-50% is considered adequate if well chosen. This study will therefore use stratified sampling to select a sample of 105 as shown in the table 3.1 below.

Table 3. 1: Sampling Frame

Response	Sample Size
City Council	7
Food Vendors	30
Public Health Officers	3
Customers	65
Total	105

3.5 Data Collection Methods

This study used questionnaires for primary data collection. The questionnaires were used because they are straight forward and less time consuming for both the researcher and the respondents (Owens, 2002). Questionnaires are appropriate for studies since they collect information that is not directly observable as they inquire about feelings, motivations, attitudes, accomplishments as well as experiences of individuals (Mugenda & Mugenda, 2003). Cooper

and Schindler (2007) stated that a questionnaire is useful in obtaining objective data. This is largely because the participants are not manipulated in any way by the researcher. The questionnaires were administered through drop and pick-later method to the sampled population.

3.6 Pretesting the Questionnaires

Before embarking on fieldwork, a pilot study was carried out to pre-test the instruments. This was done in order to assess the clarity of items, validity and reliability of the instruments. It was after the pilot testing that the main survey followed.

3.6.1 Validity

To ascertain the validity of questionnaire, a pilot test was carried out (Cronbach, 1971). This was done by administering the questionnaire onto the pilot group. The content validity of the research instrument was evaluated through the actual administration of the pilot group. In validating the instruments, 10 staff were selected. The population units used in the pilot study was not included in the final sample. The study used both face and content validity to ascertain the validity of the questionnaires. Face validity is actually validity at face value. As a check on face validity, test/survey items are sent to the pilot group to obtain suggestions for modification. Content validity draws an inference from test scores to a large domain of items similar to those on the test (Polkinghorne, 1988). Content validity was concerned with sample-population representativeness. i.e. the knowledge and skills covered by the test items should be representative to the larger domain of knowledge and skills (Cronbach, 1971).

The instruments were administered by the researcher after which a discussion was made to determine the suitability, clarity and relevance of the instruments for the final study. Ambiguous and inadequate items were revised in order to elicit the required information and to improve the

quality of the instruments. Furthermore, to enhance the validity of the instruments, two university lecturers who are experts in the area of financial management were asked to appraise the instruments.

3.6.2 Reliability

The Split-half method was used to establish reliability of the instruments. The method involves splitting each instrument into two halves (odd and even items) then calculating the Pearson's correlation coefficient(r) between the responses (scores) of the two halves. This was done using both the instruments separately. The scores for all odd and even numbered items for each of the 10 respondents in the pilot study was computed separately. The correlation obtained was, however, represent the reliability coefficient of only half of the instrument. Hence a correction was made to obtain reliability of the entire instrument.

3.7 Data Analysis

Data analysis refers to examining what has been collected in a survey or experiment and making deductions and inferences (Owens, 2002). It involves uncovering underlying structures, extracting important variables, detecting any anomalies and testing underlying assumptions." Data processing and analysis will include data preparation, editing, coding, classification and analysis. This involves a sequence of operations to check and code forms, transfer the tabulation on computer files, check for errors and make an exploratory analysis (Mutai, 2001). Data preparation involved editing of and validation of the data collected. This was aimed at identifying incorrect entries; entries entered in the wrong places and missing entries. Data coding facilitated proper data categorization. Emory (1985) posits "data categorizations should ensure appropriateness, exhaustiveness, mutual exclusivity and have a single dimension or the use of

one concept". The returned questionnaires were checked for consistency, cleaned, and the useful ones coded and analysed using the Statistical Package for Social Scientists (SPSS) computer software.

After collecting data responses from the questionnaire, the researcher analyzed the quantitative data using descriptive statistics by applying the statistical Package for Social Science (SPSS V.17.0) and presented through percentages, means, standard deviations and frequencies. The use of structured questionnaires enabled the researcher to quantify quantitative data using the size, frequency distribution, and association of variables in the study population and answers to questions that could be counted and expressed numerically. The qualitative data was coded thematically and then analyzed statistically. Content analysis was used for data that is qualitative nature or aspect of the data collected from the open ended questions. The information was displayed by use of tables, graphs and in prose-form.

The study also made use of various inferential statistics. The variable was factored in the multivariate regression model. The measures of the independent variables, using the rating/Likert scales was converted to mean values and then to percentages to permit the application of linear regression model. Statistical significance of the independent variables will be determined by using the F-test. Using the regression Durbin Watson test for autocorrelation of models residuals, t-test for coefficients significances will also be tested. The regression equation was ($Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \varepsilon$): Whereby Y = public health standards, X_1 = Medical examination for food vendors, X_2= Public knowledge about public health, X_3= inspection of premises, X_4= Environmental sanitation and ε = Error Term.

3.8 Operational Definition of Variables

The operationalization of variables is as shown in table 3.2

Table 3. 2: Operationalization of Variables

Objectives	Variables	Indicators	Scale	Tools of analysis	Type of analysis
To establish the effect of frequency of medical examinations on the implementation of public health standards in City Council Markets.	frequency of medical examinations	Frequency of medical examination Frequency of visits by public health officers Frequency of reporting on the state of the market	Nominal ordinal	Frequency distribution tables & percentages	Descriptive Content analysis Regression
To what extent does public knowledge on public health affect the implementation of public health standards in City Council Markets	public knowledge on public health	- The teaching of public health basic requirements to the general public - Informing the public on effects of poor health standards - Providing the necessary support	Nominal ordinal	Frequency distribution tables & percentages	Descriptive Regression
Determine the effects of environmental sanitation on the implementation of public health standards in City Council Markets.	Environmental sanitation	Frequency of cleaning the market Provision of the necessary sanitation equipment Drainage of the market Garbage collection in the market	Nominal ordinal	Frequency distribution tables & percentages	Descriptive Content analysis Regression
Determine the effects of premises inspection on the implementation of public health standards in City Council Markets	premises inspection	Inspection of the premises Awarding of certificate Suitability of the premises for the purpose	Nominal ordinal	Frequency distribution tables & percentages	Descriptive Content analysis Regression

CHAPTER FOUR

DATA ANALYSIS AND PRESENTATION

4.1 Introduction

This chapter presents analysis and findings of the research. The study targeted 105 respondents out of whom 76 responded giving a response rate of 73%. This reasonable response rate was made a reality after the researcher made personal calls and visits to remind the respondent to fill-in and return the questionnaires. A response rate of more than 70% is considered sufficient for generalization of the findings to the whole population (Mugenda and Mugenda, 2003).

4.2 Response Rate

Table 4. 1: Response rate

Respondents	Sample Size	Response
City Council	7	4
Food Vendors	30	21
Public Health Officers	3	2
Customers	65	49
Total	105	76
Percent		73

According to table 4.1, 73% of the respondents comprised of 4 responses from the City Council of Nairobi, 21 respondents who were food vendors, 2 public health officers and 49 customers. These combined gives a response rate of 73%.

4.3 Demographic Information

4.3.1 Gender Distribution of the Respondents

The study sough to establish the gender distribution of the respondents in the study. The findings were as indicated in the Table 4.2:

Table 4. 2: Gender distribution table

Gender Distribution	Male	Female	Percent
City Council	3	1	25%
Food Vendors	7	14	67%
Public Health Officers	2	0	0%
Customers	22	27	55%
Total	41	35	46%

From the findings, City Council male respondents were 75% while female were 25%. Food vendors had 67% female and 33% male. Public Health officer had all of the respondents male while customers had 45% male and 55% female. Overall, 54% of the respondents were male while 46% were female.

4.2.2 Length in Service

The study sought to establish the period that different respondents in different respondent categories had been in service in different offices. The findings were as shown in the table 4.3 :

Table 4. 3: Length in Service

	City Council	Food Vendors	Public Health Officers
Below 5 years	1	3	
Below 10 years	2	15	1
Below 15 years	1	2	1
Below 20 years	0	1	
Over 21 years	0	0	
Total	4	21	2

From the study findings, the study established that the City Council of Nairobi Officials had been with the Council for varying periods. One staff had worked with the Council for less than 5 years, 2 had worked for below 10 years, and another one for below 15 years. This shows that the respondents were more conversant with the operations at the two markets where this study was conducted. For food vendors, majority had been in the business within the said premises for

below 10 years followed by those who had traded there for below five years and finally those who had traded there for below 15 years and below 20 years respectively. The Public health officers had worked in the market places for below 5 years and below 10 year each for the two who responded. From this information, it can be deduced that the respondents had transacted business in the research area for a long period thus were more conversant with the operations and matters of public health and sanitation. As such, these individuals were better suited in providing information needed for this study.

4.3.4 Highest Level of Education

The study sought to establish the highest level o education attained by the respondents. The findings were as shown in the table 4.4

Table 4. 4: Highest Level of Education

	City Council	Food Vendors	Public Health Officers
Primary level	0	11	
Secondary level	0	13	0
Tertiary level	1	12	0
University level	1	9	2
No formal education	0	4	
Total	2	49	2

From the findings, One City Council official had attained tertiary level of education while the other had a University degree. From the food vendors, 11 had primary level, 13 secondary level, 12 tertiary level, 9 university level and 4 had no formal education. All the public health officers had university degree. This indicates that majority of the respondents could read and understand the provisions and requirements of the Public and Sanitations Act especially as it regards public Health and Sanitation for people handling food.

4.3.5 Type of Food bought and Sold at the Market

The study sought to find out the types of food sold by the vendor. From the responses, majority of the respondents (33%) were selling cooked food followed by those selling meat at 31% and those selling vegetables at 18%. Those selling cereals made up 14% while other categories were represented by 4%. These findings indicate that the respondents sold various food stuffs. In the same manner, the customers interviewed also indicated that they visited these markets to buy cooked food, cereals, mean vegetables while other were just visiting their friends

Table 4. 5: Type of Food bought and Sold at the Market

	Frequency	Percent
Cereals	7	14
Cooked Food	16	33
Meat	15	31
Vegetables	9	18
Other (please specify)	2	4
Totals	49	100

4.3.6 Frequency of Customer Visits

The study sought to establish how often the customers visited the markets. The findings were as shown in table 4.6 below:

Table 4. 6: Frequency of Customer Visits

	Frequency	Percent
Daily	14	29
Twice a week	16	33
Three times a week	11	22
Occasionally	6	12
Other	2	4

Totals	49	100

From the research findings, 29% of the respondents visited the market on a daily basis, 33% twice a week, 22% three times a week, 12% occasionally and 4% as need arose. These findings indicate that majority of the customers visited the market from time to time hence were more suitable to provide information required for this study.

4.3.7 Attraction for Customers to these markets

The study sought to establish whatever attracted customers to the market. The customers were asked to tick against all the reasons that attracted them to the market. From research findings, customers were mainly attracted by better prices that were offered at the market as indicated by 35% of the respondents followed by convenience of the market location at 25%. Lack of an alternative was supported by 20% of the respondents while other reasons was rated 15%. Cleanliness levels had the lowest ranking at 5%. This shows that the level of cleanliness in the markets is low.

Table 4. 7: Attraction for Customers to these markets

Reason	Frequency	Percent
It is convenient	32	25
High levels of cleanliness	6	5
It offers good prices	45	35
Lack of an alternative	25	20
Others	19	15
Totals	127	100

4.3 Medical Examinations

The study sought to establish respondents' views on medical examinations and how it affected the implementation of public health standards in selected city council markets in Nairobi, Kenya. Asked whether all traders at the markets attended to medical examinations tests as required, all

the officers from the concerned Authorities indicated that the traders did not fully comply at all times. They cited various issues as hampering their efforts to ensure 100% compliance. The authorities' complained of frequent changes in the employee profile of the businesses which hampered the efforts to have them enforce laws. In addition, the officers indicated that the testing centers were enough though not adequate to service the need of the customers. They also indicated that ignorance and low educational levels of the businessmen limited the implementation of the public health provisions. For the food vendors, the study sought to establish their level of knowledge on public health standards in the Public Health Act as regards medical examinations. From the findings, all respondents indicated that they knew of the existence of these laws. However, they complained of high costs involved in having the tests conducted as it required Ksh. 600 per person and yet some of these staff were on temporary terms.

The study further establish the food vendors personally attended medical examinations annually although due to the high levels of employee turnover, they had to incur these costs frequently on the new recruited staff. Majority (72%) of the food vendors indicated that they had attended medical examinations within the last three months followed by 21% who had attended in the last six months. 7% had attended it within the last 9 months from the time of the study.

4.3.1 Wearing of Clean Clothing

The study sought to establish whether the food vendors wore clean clothing when in the premises of their businesses. All the City Council and public Health officers agreed that the vendors tried hard to use clean clothing while at their premises. However, the officer indicated that there were few vendors who were less concerned about the cleanliness of their premises. The food vendors

too concurred with the responses of the City Council and Public health officers' views by indicating that they made sure they used clean clothing when at work. The public health officer indicated that this was important in combating communicable diseases and promoting public health standards.

4.3.2 Water Supply to the markets

The study sought to establish the stability of water supply to the markets. The main source of water for the markets was piped water from the Nairobi Water Company. However, the tapes ran dry most of the time forcing the vendors to seek alternatives, the alternatives included water bought from tankers which they complained was expensive and hence not very reliable. The City Council Officers and public Health officers indicated that the supply of water to the markets was available although not stable all round the year. This is supported by their unanimous relatively stable supply of water to the markets. There were times that the vendors went without water. The vendors indicated that the water was availed at least two days in a week as indicated by majority 65% of the vendors while 26 indicated that water supply was once a week and 9% indicating that water supply was not easy to determine.

4.3.3 Frequency of garbage Collection

The study sought to establish the frequency of garbage collection from the markets. The officers indicated that the garbage was collected on a daily basis either in the evening after working hours or early in the morning before businesses were open for the day. These were echoed by the vendors who indicated that the Authorities were trying in collecting garbage.

4.4 Public Awareness/Knowledge

The study sought to establish the influence of public awareness/knowledge on the implementation of public health standards in selected city council markets in Nairobi, Kenya. The study started by asking the officers whether all businessmen at the City markets in Nairobi were conversant with the provision of Public health and Sanitations requirement. From the findings of the study, all the City Council officers and officers from Public and Sanitations department indicated that the businessmen in the two markets were conversant with the provisions of public health and sanitation requirements. They indicated that this was largely due to the frequent visits and impromptu inspections carried out which enlightened the vendors on the provisions. In addition, the Officers indicated that any vendor found contravening these provisions was liable for an offence which was punishable.

The officers indicated wholesomely that public awareness affected the implementation of public health standards in City Council Markets to a large extent. They all indicated this by answering "Yes" to the question on whether public awareness affected the implementation of public health standards in City Council Markets. They also indicated that it did affect the implementation to a great extent as supported by 62% who answered great extent and 38% to a moderate extent. There were no cases of very great extent, little extent and no extent.

On the question of how the level of public awareness on the provisions of public health and sanitations could be improved, the officers indicated that public sensitization was required to enlighten the general public on the importance of public health and sanitation program in different dealers in the food business. This they indicated would increase the rate of compliance.

The study further went a head to inquire from the food vendors their level of knowledge on the provision of Public health and Sanitations requirement. 76% of the food vendors indicated that they were conversant with the provisions, 21% were not conversant while 3% did not know anything about these provision. However, 83% of the vendors indicated that their awareness levels affected the implementation of public health standards in city markets while 17% said it did not affect. The food vendors were further required to indicate the extent to which their level of awareness affected the implementation of public health standards in City Council Markets. From the findings, the majority (46%) of the vendors indicated that it affected to great extent, 32% to a moderate extent, 19% to a little extent while 3% said it affected to very great extent.

In order to improve the level of public awareness on the provisions of public health and sanitation, food vendors indicated that the Officers concerned needed to improve water supply to the markets so as the water rationing is eliminated. They also indicated that the government needed to develop good drainage infrastructure to supplement the existing which was prone to frequent breakdowns leaving the market dump.

4.5 Premises Inspection

The study sough to establish whether premises inspection and frequency of inspection affected the implementation public health and sanitation requirements. From the findings all officers from the City Council of Nairobi and the department of Public Health and Sanitation agreed that all food premises were inspected prior to issuance of operating licenses. They indicated that they visited the premises to assess availability of necessary amenities including washrooms, exclusive kitchen, constant flow of water among other facilities. They indicated that this improved the level of compliance and adherence to the provisions of the law.

In addition, the officers indicated that on renewal of the license, the premises were inspected a fresh to determine the status of the premises before issuance of renewal license. 81% of the officers indicated that the premises inspection improved adherence to public health and sanitation standards in the market to great extent while 19% indicated very great extent.

To ensure consistence in the maintenance of public health standards, the officers made their impromptu inspection on the premises. The officers indicated that these impromptu inspections were effective as supported by 72% of the officers, 21% indicated that they were moderately effective while 7% indicated that they were very effective. In order to improve public Health and Sanitations standards in the market, the officers indicated that the offenders should be liable to a bigger fine than currently provided for because the penalties seemed too low for some businessmen.

For food vendors, the study established that the premises were inspected prior to issuance of operating licenses as supported by 96% who answered yes with only 2% each answering “no” and “I don’t know”. The vendors also indicated that the officers inspected business premises during renewal to ascertain the conditions that the premises were in. This is supported by 82% who answered “yes” compared to 18% who answered no.

On the extent of premises inspection affecting the adherence to public health and sanitation standards in the market, 66% of the respondents indicated that it affected to a great extent, 29% to a moderate extent, 3% to very great extent and 2% to little extent. The vendors also agreed that there were impromptu inspection on the premises to ensure their compliance with Public Health and Sanitations Provision as supported by 83% of the respondents who answered “yes” while 17% answered “no”. On the effectiveness of these impromptu inspections in improving the

public Health and Sanitations standards in the market, 53% of the vendors indicated that they were effective, 34% indicated that they were moderately effective, 7% indicated very effective while 6% said it was less effective. The vendors indicated that instead of doing impromptu inspections, the Authorities should work together with vendors to ensure necessary infrastructure is put in place to reduce the challenges being faced.

4.6 Environmental Sanitation

The study sought to establish the effects of environmental sanitation on the implementation of public Health and Sanitations standards in the market. All officers indicated that water drainage system in the market of were functional. They indicated that the Government had put in place necessary infrastructure for adherence to the public Health and Sanitations standards. However, the officers complained of constant misuse of these facilities by both customers and businessmen which led to their constant breakdown.

The officers indicated that the drainage system was repaired and maintained as need arose to ensure that the conditions in the market were habitable and clean. 71% of the officers indicated that the drainage system affected the implementation of public health and sanitations standards in the market, 18% to a moderate extent, 5% to very great extent and 6% to little extent.

4.7 Inferential statistics

The researcher conducted a multiple regression analysis so as to find out the effect of factors influencing the implementation of public health standards in selected city council markets. The researcher applied the statistical package for social sciences (SPSS) to code, enter and compute the measurements of the multiple regressions for the study.

Table 4. 8: Inferential statistics

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Sig.
1	.757(a)	.574	.533	.912	0.04

Coefficient of Determination (R^2)

Coefficient of determination explains the extent to which changes in the dependent variable can be explained by the change in the independent variables or the percentage of variation in the dependent variable (Implementation of public health standards) that is explained by all the four independent variables (Medical examination, public awareness, premises inspection and environmental factors).

The three independent variables that were studied, explain only 57.4% of the implementation of public health standards in selected city council markets as represented by the R^2. This therefore means that other factors not studied in this research contribute 42.6% of the implementation of public health standards in selected city council markets. Therefore, further research should be conducted to investigate the other factors (42.6%) that influence the implementation of public health standards in selected city council markets.

Table 4. 9: Multiple Regression Analysis

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta	B	
(Constant)	3.374	.842		4.009	.000
Medical examination	0.853	.146	0.330	2.276	.0015
Public awareness	0.205	.105	0.089	0.849	.0067
Premises inspection	0.753	.088	0.167	1.379	.0041
Environmental factors	0.518	0.124	0.216	1.057	.0014

The researcher conducted a multiple regression analysis so as to determine the relationship between the implementation of public health standards in selected city council markets and the four variable factors. As per the SPSS generated table 4.24, the equation ($\mathbf{Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon}$) becomes:

$Y= 3.374+ 0.156\ X_1+ 0.853X_2+ 0.169\ X_3+ 0.518X_4$

Where Y is the dependent variable (implementation of public health standards in selected city council markets) X_1 is the effects of Medical examination independent variable, X_2 is the Public awareness independent variable, X_3 is Premises inspection independent variable and X_4 Environmental factors independent variable

According to the regression equation established, taking all factors (Medical examination, public awareness, premises inspection and environmental factors) constant at zero, the implementation of public health standards in selected city council markets will be 3.374. The data findings analyzed also shows that taking all other independent variables at zero, a unit increase in Medical examination will lead to a 0.853 increase in the implementation of public health standards in selected city council markets. A unit increase in public awareness will lead to a 0.753 implementation of public health standards in selected city council markets; A unit increase in environmental factors will lead to a 0.169 implementation of public health standards in selected city council markets; a unit increase in environmental factors will lead to a 0.518success in implementation of public health standards in selected city council markets.

CHAPTER FIVE:

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The chapter presents a summary, conclusions and policy recommendations on the factors affecting implementation of public health standards in the selected City Council of Nairobi markets based on the objectives of the study.

5.2 Summary of the Finding

The study targeted 105 respondents out of whom 76 responded giving a response rate of 73%. These comprised of 4 responses from the City Council of Nairobi, 21 respondents who were food vendors, 2 public health officers and 49 customers. City Council male respondents were 75% while female were 25%. Food vendors had 67% female and 33% male. Public Health officer had all of the respondents' male while customers had 45% male and 55% female. Overall, 54% of the respondents were male while 46% were female. One City Council official had attained tertiary level of education while the other had a University degree. Fro he food vendors, 11 had primary level, 13 secondary level, 12 tertiary level, 9 university level and 4 had no formal education. All the public health officers had university degree. Majority of the respondents (33%) were selling cooked food followed by those selling meat at 31% and those selling vegetables at 18%. 29% of the respondents visited the market on a daily basis, 33% twice a week, 22% three times a week, 12% occasionally and 4% as need arose. Customers were mainly attracted by better prices that were offered at the market as indicated by 92% of the respondents followed by convenience of the market location at 65%.

On the medical examinations, all the officers from the concerned Authorities indicated that the traders did not fully comply at all times. They cited various issues as hampering their efforts to

ensure 100% compliance. The officers indicated that the testing centers were enough though not adequate to service the need of the customers. For the food vendors, the study sought to establish their level of knowledge on public health standards in the Public Health Act as regards medical examinations. Majority (72%) of the food vendors indicated that they had attended medical examinations within the last three months followed by 21% who had attended in the last six months. 7% had attended it within the last 9 months from the time of the study. All the City Council and public Health officers agreed that the vendors tried hard to use clean clothing while at their premises. However, the officer indicated that there were few vendors who were less concerned about the cleanliness of their premises. The main source of water for the markets was piped water from the Nairobi Water Company. However, the tapes ran dry most of the time forcing the vendors to seek alternatives, the alternatives included water bought from tankers which they complained was expensive and hence not very reliable. The vendors indicated that the water was availed at least two days in a week as indicated by majority 65% of the vendors while 26 indicated that water supply was once a week and 9% indicating that water supply was not easy to determine. The officers indicated that the garbage was collected on a daily basis either in the evening after working hours or early in the morning before businesses were open for the day. These were echoed by the vendors who indicated that the Authorities were trying in collecting garbage.

On public awareness/knowledge, all the City Council officers and officers from Public and Sanitations department indicated that the businessmen in the two markets were conversant with the provisions of public health and sanitation requirements. The officers indicated wholesomely that public awareness affected the implementation of public health standards in City Council Markets to a large extent. They all indicated this by answering “Yes” to the question on whether

public awareness affected the implementation of public health standards in City Council Markets. They also indicated that it did affect the implementation to a great extent as supported by 62% who answered great extent and 38% to a moderate extent. There were no cases of very great extent, little extent and no extent. 76% of the food vendors indicated that they were conversant with the provisions, 21% were not conversant while 3% did not know anything about these provision. However, 83% of the vendors indicated that their awareness levels affected the implementation of public health standards in city markets while 17% said it did not affect. majority (46%) of the vendors indicated that it affected to great extent, 32% to a moderate extent, 19% to a little extent while 3% said it affected to very great extent. They also indicated that the government needed to develop good drainage infrastructure to supplement the existing which was prone to frequent breakdowns leaving the market dump.

On premises inspection, the City Council of Nairobi and the department of Public Health and Sanitation agreed that all food premises were inspected prior to issuance of operating licenses. They indicated that they visited the premises to assess availability of necessary amenities including washrooms, exclusive kitchen, constant flow of water among other facilities. The officers indicated that on renewal of the license, the premises were inspected a fresh to determine the status of the premises before issuance of renewal license. 81% of the officer indicated that the premises inspection improved adherence to public health and sanitation standards in the market to great extent while 19% indicated very great extent.The officers indicated that these impromptu inspections were effective as supported by 72% of the officers, 21% indicated that they were moderately effective while 7% indicated that they were very effective. In order to improve public Health and Sanitations standards in the market, the officers indicated that the offenders should be liable to a bigger fine than currently provided for because the penalties

seemed too low for some businessmen. For food vendors, study established that the premises were inspected prior to issuance of operating licenses as supported by 96% who answered yes with only 2% each answering “no” and “I don’t know”. The vendors also indicated that the officers inspected business premises during renewal to ascertain the conditions that the premises were in. This is supported by 82% who answered “yes” compared to 18% who answered no. The vendors also agreed that there were impromptu inspection on the premises to ensure their compliance with public health and sanitations provision as supported by 83% of the respondents who answered “yes” while 17% answered “no”.

On environmental sanitation all officers indicated that water drainage system in the market of were functional. They indicated that the Government had put in place necessary infrastructure for adherence to the public health and sanitations standards. However, the officers complained of constant misuse of these facilities by both customers and businessmen which led to their constant breakdown. 71% of the officers indicated that the drainage system affected the implementation of public health and sanitations standards in the market, 18% to a moderate extent, 5% to very great extent and 6% to little extent.

5.3 Conclusions

From the presentation of chapter four and summary above the study makes the following conclusions.

On medical examinations, the study concludes that food vendors at the two markets attended medical examinations as required of them by law. High level of adherence on medical examinations requirement at both markets was highly influenced by the officers from the Nairobi

City Council and Department of public health and Sanitation and the Ministry of Public health. The study concludes that the vendors wore clean clothes as required and kept their premises clean. The study also concludes that water supply was available at the markets although the supply was not reliable. The study also concludes that the authorities collected garbage regularly to keep the market clean.

On public awareness, the study concludes that the public was well conversant with the provisions of Public health and Sanitations requirement. The businessmen in the two markets were conversant with the provisions of public health and sanitation requirements largely due to the frequent visits and impromptu inspections carried out which enlightened the vendors on the provisions. Public sensitization is required to enlighten the general public on the importance of public health and sanitation program in different dealers in the food business. In order to improve the level of public awareness on the provisions of public health and sanitation, food vendors the study concludes that the Officers concerned need to improve water supply to the markets so as the water rationing is eliminated.

The study concludes that premises were inspected before issuance of trade licenses and also during renewals. This ensured that the food vendors complied with the provisions of the law. To reinforce this, the officers conducted impromptu inspections which greatly influenced the level of adherence with the provision.

Environmental sanitation affected the implementation of public Health and Sanitations standards in the market. The infrastructure at the markets was well maintained but due to poor usage which caused frequent blockages.

5.4 Recommendations

From the above presentations of summary and conclusion, the study recommends the following:

To ensure full compliance with medical examinations, the study recommends that the vendors continuously be trained on the importance of observing these provisions because of their spiral effect on the health standards of all consumers of their consumers.

Inadequate provision of the collection and disposal of solid wastes is associated with a great range of disease vectors like cockroaches, houseflies and rodents, living and breeding within and around the solid waste areas. Attention may be given to the possibility of implementation practices such as composing into manure and recycling of material into animal feeds.

Adequate arrangements should be made to provide the public health officers with official transport and security details in the course of performing the duties, not only when a situation is out of control. There was a flaw is section123 of the public health act as it was not clear on the frequency of inspection, hence the need to review this section.

Decentralization of funds generated from the market is recommended.

Bureaucratic procedures involved in obtaining money from the city treasury would be reduced. These funds can then be re-invested in maintaince, expansion and offering better services within the markets.

Similar research work should be conducted in other public markets, both in rural and urban areas. The study only focused on wholesale and Rental categories of the city council of Nairobi. Other studies can also be done on other categories of city council of Nairobi markets that is self constructed, tenant purchased and open air markets.

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APPENDICES

Appendix 1: Letter of Introduction.

Pauline Muchai
P.o. box 50029
Nairobi.

To whom it may concern.
Dear Sir/Madam,

RE: FACTORS INFLUENCING IMPLEMENTATION OF PUBLIC HEALTH STANDARDS IN SELECTED CITY COUNCIL MARKETS IN NAIROBI, KENYA.

I am Masters in project planning and management student at University of Nairobi. I am carrying out a research on "factors influencing the implementation of public health standards in selected city Council Markets in Nairobi Kenya".

I am now in the process of collecting data for the purpose of analysis and writing my project report. Your kind assistance in filling the attached questionnaire will be highly appreciated.

Thanking you in advance.

Yours Sincerely

Pauline Muchai
Student
Masters in project planning and management
University of Nairobi

APPENDIX II: QUESTIONNAIRE TO THE AUTHORITIES

Hello, my name is Pauline Muchai a Masters of project planning and management student at University of Nairobi. I am carrying out a research on **"FACTORS INFLUENCING IMPLEMENTATION OF PUBLIC HEALTH STANDARDS IN SELECTED CITY COUNCIL MARKETS IN NAIROBI, KENYA.** The information you give will be used exclusively for academic purposes and treated with utmost confidentiality.

Name of Market……..

SECTION ONE (Personal Data)

Question one

1) Gender [ ] Male [ ] Female

2) How long have you worked with the city council of Nairobi?
   [ ] <5 years [ ] <15 years [ ] Over 21 years
   [ ] < 10 years [ ] <20 years

3) What is your highest level of education?
   [ ] Primary level [ ] Secondary level
   [ ] Tertiary level [ ] University level
   [ ] No formal education

SECTION B: MEDICAL EXAMINATIONS

4) Are all traders at the Burma and City market attend to medical examinations tests as required? (please tick (√) one)

   Yes ( ) No ( ) I do not know ( )

   If no, what are some of the reasons for not taking medical examination check up? (Please tick (√) all that applies).

   It is expensive ( )
   Test centers are far ( )
   Test centers are few ( )
   Ignorance ( )
   Other (please list) ( )

_____
_____
_____

5) All food handlers at the market wear clean clothing and foot ware

Yes ( ) No ( ) I do not know ( )

If the answer is "no", to what extent is it? (Please tick (√) one).

Very great extent ( )
Great extent ( )
Moderate extent ( )
Little extent ( )
No extent ( )

6) The markets supplied with clean water.

Yes ( ) No ( ) I do not know ( )

7) How stable is the supply of clean water to these markets? (Please tick (√) one).

Very stable ( ) relatively stable ( ) Not stable ( )

8) What is the major source of water supply for the traders?

Piped water (city council) [ ] Rain water [ ] Purchasing water [ ]

Other (Explain) [ ]

9) How often is the water available?

Daily [ ] twice a week [ ] thrice a week [ ] Other [ ]

10) How often is the garbage collected?

Daily [ ] twice a week [ ] weekly [ ]

Other [ ] ……..

SECTION TWO: PUBLIC AWARENESS/KNOWLEDGE

11) All businessmen at the City markets in Nairobi are conversant with the provision of Public health and Sanitations requirement.

Yes ( ) No ( ) I do not know ( )

12) Does public awareness affect the implementation of public health standards in City Council Markets?

Yes ( ) No ( ) I do not know ( )

13) To what extent does public awareness affect the implementation of public health standards in City Council Markets?

Very great extent ( )
Great extent ( )
Moderate extent ( )
Little extent ( )
No extent ( )

14) How can the level of public awareness on the provisions of public health and sanitations be improved?

_____
_____
_____

SECTION FOUR: PREMISES INSPECTION

15) The food premises are inspected prior to issuance of operating licenses

Yes ( ) No ( ) I do not know ( )

16) On renewal of the license, do the Authorities inspect the premises

Yes ( ) No ( ) I do not know ( )

17) To what extent does premises inspection improve adherence to public health and sanitation standards in the market?

Very great extent ( )
Great extent ( )
Moderate extent ( )
Little extent ( )
No extent ( )

18) Are there impromptu inspection on the premises to ensure their compliance with Public Health and Sanitations Provision?

Yes ( ) No ( ) I do not know ( )

19) How effective have these impromptu inspections been in improving the public Health and Sanitations standards in the market?

Very effective ( )
Effective ( )
Moderately effective ( )
Less effective ( )
Not effective ( )

20) How can inspection of premise be used to improve the public Health and Sanitations standards in the market?

_____

_____

SECTION THREE: ENVIRONMENTAL SANITATION

21) The water drainage system in the market of Burma and City market are functional?

Yes ( ) No ( ) I do not know ( )

22) How often is the drainage system repaired in the maintenance programme?

Weekly ( ) Monthly ( ) as need arises ( )

23) To what extent does the drainage system affect the implementation of public Health and Sanitations standards in the market?

Very great extent ( )
Great extent ( )
Moderate extent ( )
Little extent ( )
No extent ( )

THANK YOU.

APPENDIX II: RESEARCH QUESTIONNAIRE FOR FOOD VENDORS

Hello, My name is Pauline Muchai a Masters of project planning and management student at University of Nairobi. I am carrying out a research on **"FACTORS INFLUENCING IMPLEMENTATION OF PUBLIC HEALTH STANDARDS IN SELECTED CITY COUNCIL MARKETS IN NAIROBI, KENYA.** The information you give will be used exclusively for academic purposes and treated with utmost confidentiality.

Name of Market……..

1) Gender [ ] Male [ ] Female
2) How long have you been operating in this market?
   [ ] <5 years [ ] <10 years [ ] <15 years [ ] <20 years
   [ ] Over 21 years
3) What is your highest level of education?
   [ ] Primary level [ ] Secondary level
   [ ] Tertiary level [ ] University level
   [ ] No formal education

4) Type of food being sold by the vendor
   Cereals ( )
   Cooked Food ( )
   Meat ( )
   Vegetables ( )
   Other (please specify)

SECTION B: MEDICAL EXAMINATIONS

5) Are you aware of the public health standards in the Public Health Act as regards medical examinations?
   [ ] Yes [ ] No
6) How often do you attend medical examinations tests?
   Monthly ( ) Quarterly ( ) Semi- annually ( )
   Annually ( )
7) When is the last time you attended medical examinations test?
   Last three months ( ) last six months ( )
   Last nine months ( ) last one year ( )

I do not remember ( )

8) I wear clean clothing and foot ware when at work

Yes ( ) No ( )

9) We have a stable supply of clean water

Yes ( ) No ( ) I do not know ( )

10) What is the major source of water supply for your market?

Piped water (city council) [ ] Rain water [ ] Purchasing water [ ]

Other (Explain) [ ]

11) How often is the water available?

Daily [ ] twice a week [ ] thrice a week [ ] Other [ ]

12) How often is the garbage collected?

Daily [ ] twice a week [ ] weekly [ ]

Other [ ] ……..

SECTION TWO: PUBLIC AWARENESS/KNOWLEDGE

13) I am conversant with the provision of Public health and Sanitations requirement.

Yes ( ) No ( ) I do not know ( )

14) My awareness affects the implementation of public health standards in Markets?

Yes ( ) No ( ) I do not know ( )

15) To what extent does your awareness affect the implementation of public health standards in City Council Markets?

Very great extent ( )
Great extent ( )
Moderate extent ( )
Little extent ( )
No extent ( )

16) How can the level of public awareness on the provisions of public health and sanitations be improved?

_____
_____

SECTION FOUR: PREMISES INSPECTION

17) The food premises are inspected prior to issuance of operating licenses

Yes ( ) No ( ) I do not know ( )

18) On renewal of the license, do the Authorities inspect the premises

Yes ( ) No ( ) I do not know ( )

19) To what extent does premises inspection improve adherence to public health and sanitation standards in the market?

Very great extent ( )
Great extent ( )
Moderate extent ( )
Little extent ( )
No extent ( )

20) Are there impromptu inspection on the premises to ensure their compliance with Public Health and Sanitations Provision?

Yes ( ) No ( ) I do not know ( )

21) How effective have these impromptu inspections been in improving the public Health and Sanitations standards in the market?

Very effective ( )
Effective ( )
Moderately effective ( )
Less effective ( )
Not effective ( )

22) How can inspection of premise be used to improve the public Health and Sanitations standards in the market?

_____

_____

SECTION THREE: ENVIRONMENTAL SANITATION

23) How often is the drainage system repaired in the maintenance programme?

Weekly ( ) Monthly ( ) as need arises ( )

24) To what extent does the drainage system affect the implementation of public Health and Sanitations standards in the market?

Very great extent ( )
Great extent ( )
Moderate extent ( )
Little extent ( )
No extent ( )

25) How often is garbage collected from the markets of Burma and City Market?

Daily ( ) Weekly ( ) as need arises ( )

THANK YOU.

APPENDIX V: RESEARCH QUESTIONNAIRE FOR CUSTOMERS

Hello, my name is Muchai Pauline, a master of project planning and management student at the University of Nairobi. I am carrying out a research on "Constraints in implementation of public Health standards in selected city council markets, Nairobi" you have been chosen as one of the respondents in the study. I will be very glad to have your responses. The information you give will be kept confidential.

SECTION 1: DEMOGRAPHIC INFORMATION

1. Name of the market…….
2. Gender [ ] Male [ ] Female
3. How often do you visit this market?
   - [ ] Daily
   - [ ] Twice a week
   - [ ] Three time a week
   - [ ] Occasionally
   - [ ] Any other, specify

……

4. What do you normally come for in this market?
   - [ ] To cooked food
   - [ ] To buy meat
   - [ ] To buy cereals
   - [ ] To buy Vegetables
   - [ ] Others

   Specify

……

5. What normally attracts you to the market? (tick all that Apply)
   - [ ] It is convenient
   - [ ] High levels of cleanliness
   - [ ] It offers good prices
   - [ ] Lack of an alternative
   - [ ] Others

Specify

……

SECTION B: MEDICAL EXAMINATIONS

1) Are all traders at the market dressed in the correct attire? (please tick (√) one)

Yes ( ) No ( ) I do not know ( )

2) All food handlers at the market wear clean clothing and foot ware

Yes ( ) No ( ) I do not know ( )

If the answer is "no", to what extent is it? (Please tick (√) one).

Very great extent ( )
Great extent ( )
Moderate extent ( )
Little extent ( )
No extent ( )

3) The market is supplied with clean water.

Yes ( ) No ( ) I do not know ( )

SECTION TWO: PUBLIC AWARENESS/KNOWLEDGE

4) Does public awareness affect the implementation of public health standards in City Council Markets?

Yes ( ) No ( ) I do not know ( )

5) To what extent does public awareness affect the implementation of public health standards in City Council Markets?

Very great extent ( )
Great extent ( )
Moderate extent ( )
Little extent ( )
No extent ( )

6) How can the level of public awareness on the provisions of public health and sanitations be improved?

_____

_____

SECTION THREE: ENVIRONMENTAL SANITATION

7) The water drainage system in the market is functional?

Yes ( ) No ( ) I do not know ( )

8) To what extent does the drainage system affect the implementation of public Health and Sanitations standards in the market?

Very great extent	( )
Great extent	( )
Moderate extent	( )
Little extent	( )
No extent	( )

9) How often is garbage collected from the market?

Daily ( ) Weekly ( ) as need arises ( )

THANK YOU.